same time, he can concentrate on improving his game—something the person who is confined to week-end rounds can't or won't do.

Enlarging upon Frank McCormick's comments, Dave continues: "It's a great factor in encouraging the rank beginner,—the individual who is reticent to go out on the course and start from scratch. A large share of our students come from communities in which there are no golf facilities whatsoever. They welcome this opportunity to try the game. Then there are students with heavy class schedules who haven't time to play a 18-hole round of golf. The range makes it possible for them to come out in the late afternoon or evening, and to thus keep up their interest. "We find many girls who are new at the game turning up in groups which usually include one or more experienced golfer. She gets the other girls started. In a group like this, they lose their self-consciousness and concentrate on learning. In the beginning, the ratio of men to women using the range was about 3 to 1, but we could see the gap closing week by week."

Dave feels that the morning trade should be cultivated and encouraged more vigorously. The announced opening hour of the University golf range was at 12 noon, although it did fluctuate somewhat. To increase the usefulness and revenue-producing potential of these facilities he suggests a 9 or 10 a.m. opening so that more women could get out. Dave believes that special inducements such as group lessons and special events will build up worthwhile attendance.

**Patronage Restricted**

It is in the business management aspects of the driving range operation that most of the "bugs" and headaches of launching and directing such an enterprise come to light. It is Marshall (Marsh) Ryman as business manager of athletics at the University of Minnesota who handles matters of finance, personnel, maintenance, equipment, and policy.

"Taking considerations in their chronological order," begins Ryman, "we go back first to the selection of a site. The ideal situation is a plot of level ground, with good over-all drainage, that is adjacent to a thoroughfare carrying largely leisure traffic—not people hurrying between two points. We had a good many casual passers-by drop in at the beginning, but operators of privately-owned tees complained about competition from a non-tax-paying source and brought so much pressure to bear that we now confine our patronage to students, employees, faculty members, families of these groups, and alumni. Naturally this has greatly restricted our revenue, but not disastrously so."

Continues the Minnesota business manager, "The rolling nature of our property plus the rocky soil caused us a good many headaches. We have found that in order to operate at top efficiency you must depend on your ball-picking. The many potholes and depressions in our land greatly reduced the effectiveness of the machine. Further-

The driving range makes it possible for students with heavy class schedules who haven't time for a nine or 18-hole round of golf to keep up their interest in the game with practice in the late afternoon or evening.

more, water and mud in these small catch-basins after rainfalls or even moderate sprinkling created a ball-gathering problem. Stones which kept working their way to the surface caught in the mechanism of the ball picker and caused a breakdown. I feel that a reasonably flat surface well sodded or planted with grass is important to help keep down costly man hours."

**Fencing Range Good Investment**

Ryman finds that a tight control on golf balls is essential. Disappearance of golf balls costing from 25 to 30 cents each through theft and loss accounts for a major operating cost. It is imperative that a detailed ball inventory be kept, listing balls on hand and loss factors. It was found that unless all balls were cleared from the range right after the 10 p.m. close-down, rather than the next morning, loss from theft was particularly heavy. Ryman is convinced that a high fence around the range is a good investment. Minnesota has not installed one—yet. "Aiming" the tees so that balls will not be hit outside the range where they cannot be retrieved by machine is another "must."

A definite maintenance schedule for mowing grass, picking balls, washing balls, etc. is wise for efficiency purposes, advises Ryman.

While Les Bolstad is to be found at the range during much of the daylight hours, there is considerable demand for teaching

(Continued on page 100)
"TERSAN" KEEPS GREENS

AT

Scioto Country Club

"Members like to see green greens, and 'Tersan' makes them greener than before," says Mr. Ray Schurtz, greenkeeper at Scioto Country Club. "I've been using 'Tersan' to control brown patch ever since it was introduced eight years ago and never have a bit of trouble with burning."

Scioto Country Club, Columbus, Ohio

*This picture story is another in a series of "experience reports" from well-known golf courses, coast to coast.*
Fine putting surfaces, such as this at Scioto, need regular spraying with "Tersan" to control brown patch and other fungal diseases. "To get best results, we spray the borders as well as the greens," says Mr. Schurtz. "In fact, I don't know what we'd do without it."

"'Tersan' can be applied any time, any place, though we generally spray in the morning," adds Mr. Schurtz. "We've never had a bit of trouble with it burning."

"Tersan" mixes evenly and quickly. "We use a 6-spray nozzle to apply 'Tersan'. It takes only 5 or 6 minutes to spray an average green," as assistant Eules Skaggs is doing here. At 200 lbs. pressure, the "Tersan" spray gets well into the turf.

**Control Dollar Spot** with Du Pont F-531, a highly effective cadmium fungicide. "We carry both 'Tersan' and F-531 on the truck," points out Mr. Schurtz. "We look over each green before spraying to see which formula is needed."

"Semesan" and Special "Semesan"—are for those who prefer mercurial fungicides.

TERSAN, SEMESAN and Special SEMESAN are registered trade marks of E. I. du Pont de Nemours & Co. (Inc.)
We have 10,000 beginners or novice golfers at our golf range in a year's time. One would not compare this golf layout to a college or to the actual practice of medicine, but in using medicine as a parallel our range is like the medicine clinic. It is a place where the doors are admitting sick golf swings by the hundreds for examination. After study and work, most leave with improved golf swings. True, some we cannot help. But, and here is our point, we DO know most of the time why we could not help this fellow. Through constant clinical approach and contact we here at the Sandusky golf range learn what will help a pupil and what will hurt a pupil.

By the same method that science learns the good and bad of drugs and treatment, we learn of the good and bad methods and points of golf instruction. We find out by trial and error. In a manner of speaking, we are working with the novice golfer, much as the clinic researcher works with the rabbit or guinea pig. Theory after theory is quickly discarded under actual practice conditions. Sound points of instruction and they are few, are carefully cherished. After much testing these sound golf instruction points are then stressed. These points are not a compromise of man's thinking, but plain honest and sound points of the golf swing which have worked to the pupil's benefit in a huge majority of the cases, over a long period of time.

The pro instructors here at our range do not make the rules of instruction that we follow. The pupil makes the rule and establishes methods of instruction. He makes them either by his ability or inability to follow. By the fact that he has been helped or hindered. The pupil shows us what we can teach. Just as important, he shows us what we cannot teach.

Talk Understandably

Here is what we have found in our research with both the novice and experienced golfer:

Factor No. 1—Plain language must be used for golf instruction.

Trick phrases confuse the pupil and must be avoided unless they are very explicit. For example: Two phrases used in recent suggested instruction are: "Hitting thru the ball" and advising the player to keep "behind the ball" at impact. First, I asked myself, "Are these understandable points of golf instruction or not?" So, in following the same clinical method of determining the merit by test we set out to learn whether the above phrases were helpful or harmful types of golf instruction. Ten players were polled on each phrase. In the group of ten were two professional golfers, three golfers of five years experience or more (85 average), and five golfers of less than five years experience (90 to 110) or novice golfers. We received ten different interpretations of the phrases. Thus it appears that golf jargon must not be used. (Webster's—Jargon, confused, unintelligible talk, a mixture of two or more languages; the peculiar phraseology of a party, sect, etc.)

Factor No. 2—Points of the golf swing that are taught must be logical.

(Webster's—logic, the science of correct reasoning, the laws which govern correct thinking.)

A logical explanation of "Why?" and "How?" should be offered for every point of instruction. We must not dictate to our pupils. We must reason with them.

Left of center with regard to the feet is the desired and best spot from which to strike a golf ball. But why? Here is a recent published reason: "This gives a longer arc with which to generate clubhead speed." I can hear the pupil already, "If I get greater clubhead speed playing the ball left of center, why not play the ball opposite the left foot or still farther to the left and get still greater clubhead speed?" Now, our pupil has a good point.

Why? Study has shown that the ball is played left of center slightly because this is the point where the clubhead reaches its maximum speed and thus can project the ball maximum distances. Also, slightly left of center is the point where the club has finished its downward journey and is about to start its upward journey. Just exactly where the downward travel finishes is a matter of debate. The important point to stress to the pupil is, that
this spot left of center will best serve the purpose of getting the ball into the air for maximum distance and good control. This is what we are all striving to do when we play golf.

The above points have been used to show the value of plain language with sound logic to back them up.

Now, for the most important lesson we have observed in golf instruction:

It is not to keep a steady head position. The head may be kept steady for twenty years, but this will not make a golf ball fly. Motion is the important factor, still more important is controlled motion. How to transmit this motion of the individual to the golf ball, to make the golf ball fly, and fly far and true, is the golf teacher’s job. After a few practice swings most non-golfers can hit the ball without any instruction whatsoever. In some cases they can sometimes hit the golf ball 250 yards. In approximately 80% of the cases, a slice will result. The degrees of the slice will vary, but here is our problem, the slice, or the tendency to hit to the right. If our beginner hits the ball straight down the middle or hooks it, he will with practice and very little instruction become a golfer of some degree of ability. But if he slices it, we have our job established for us. For without good

competent instruction this novice will soon quit golf, and remember he composes one of the great number who try the sport.

Pros’ No. 1 Problem

The slicers are the No. 1 problem of the golf professional. Teaching them how to transmit motion and the proper motion to the golf ball is the great task cut out for the teaching golf professional.

The pupil must be taught to make the clubhead move not by arm action alone. The huge majority of golfers try to strike the ball with their arms and hands. The lower half of the body must begin the golf swing down from the top of the backswing for all full golf shots. Starting the golf swing down with arm action alone from the top of the backswing is the great fault that creates our present huge group of slicers.

Now we have established a starting place for golf instruction.

“Thou shalt not slice.” “Learn to hook the ball” is the motto from which progress will follow for the novice. A slice is cancerous in nature and will slowly eat away the golf game. Finally the novice golfer will quit golf in disgust and in humiliation. If the novice can learn to hook the golf ball he will continue to play golf and the game will gain another recruit. The popu-
larity of golf, the future of the golf equipment industry, the future of the golf profession hinges on whether or not we can teach the novice to play golf.

Now for the No. 3 factor in golf instruction.

"JUDGMENT." (Webster's — mental faculty of deciding by the comparison of facts and ideas.) Never over-prescribe for the pupil. Sometimes it is better to suggest counteractive treatment rather than a cure although this will at sometimes not seem the honest thing to do. Know your pupil, judge his capabilities and never burden him with more change than he can handle with regard to his time and money. Whenever a pupil has money and time enough to follow through with a program of instruction set up by the pro and the pupil is willing to make the sacrifice, then and then only should the pro prescribe radical change in the pupil's style. If the pupil is limited by time, apply first aid only and leave major surgery for those who can spend some time in the hospital with the Doc.

Thus three important factors in golf instruction are: plain language, sound logic to back up points, and shrewd judgment. AND! The number one point of the golf swing as stated above: Start the downswing with the mass of the lower body. Impress on the pupil that he must not start the downswing with the arms or the hands. At a range where we have to get results quick that's what we tell them and it works.

STRESS FERTILIZING, DRAINAGE, FIRST YEAR OF A COURSE

By DENNIS LAVENDER
Pro-Greenkeeper, U.S. Military Academy Golf Club, West Point, N. Y.

There are two factors of major importance facing the greenkeeper in the maintenance of new turf the first season. Overlooking either of these two factors will mean certain failure to make expected progress in the new course condition.

First of these two factors, and by far the most important, is heavy fairway fertilization.

As a rule the soil on newly constructed courses is at an extremely low level of fertility. The plant food for a new crop of turf is simply not there, and must be added.

The turf will start out thin and open and will stay that way throughout the season if not fed heavily.

If the season happens to be a dry one and there is no irrigation, the young turf will suffer far more than an older and more established one and at the end of the growing season will be more open and thinner than at the beginning of the season. Blame for a skinny turf condition the first season can be laid entirely to drought. Heavily fed turf will be able to withstand drought and will be growing fast, thickening up and closing in all throughout the growing season.

By heavy fertilization the first season we mean something equivalent to this: Application of 200 pounds of Cal-Nitro per acre as soon as the frost is out of the ground in the spring. This application followed by 800 pounds of Milorganite the first part of May. The first part of Sept., 1800 pounds of Milorganite per acre.

The second of the two factors while not having such quick reaction as the fairway feeding, in the long run is of equal importance. And this factor is green drainage, sub-surface.

The entire green maintenance program must be governed by the manner in which the new greens drain. If the greens drain well and dry out quickly after heavy rains there are no problems and present standard practices of putting green maintenance procedure will produce very satisfactory results.

However if the greens do not drain well and stay wet too long after rains the maintenance practices will have to vary considerably from those of well-drained greens. For instance: Every attempt must be made to keep this type of green very much on the dry side. This means not using a sprinkler. Avoid the danger of getting the greens too wet. This means early morning hand syringing simply to wash off dew. This will dry the greens sooner than polishing them.

This also will mean later morning mowing so that the mowers are traveling on a dryer surface with far better and cleaner cutting and far less compaction.

With these expensive precautions a hot wet summer may probably wreck this type of green and this situation should be fully explained to the greens committee so that the only answer, that of tile or perforated pipe sub-drainage, be installed as soon as possible.

It would be well not to make the serious mistake of thinking in terms of surface cultivation (aerification, addition of porous material, etc.) as the answer or even part of the answer to this problem of sub-drainage. No amount of surface improvement in the way of soil texture, aerification and the like will change that basic fault of the sub-surface water not moving out of the green freely.

If the greenkeeper in the first year of the new course attends to these matters of heavy fertilization and greens drainage in a sound manner, the golf course will surely be on the road to success for these are the fundamentals.

(NGSA convention paper)
EASY TO SELL golf shoes when you handle the shoe most famous golfers choose.

You'll enjoy recommending Foot-Joys to the members of your club because Foot-Joy's unique features will help them play better golf: — foot comfort, perfect balance for every shot, distinctive styling, rugged wear qualities, a patented waterproofing process that not only locks out moisture but prevents hardening and cracking of the leather inside and out.

The members of your club value your advice about golf generally. They want the best and can afford to pay for it. Moreover, many golfers are so pleased with Foot-Joy Golf Shoes, they want the same comfort in their street shoes. That means additional sales for you. With more than 1,500 pro shops already handling this profitable line, it's a cinch you'll boost your income in '50 with Foot-Joy — the pro's own golf shoe.

QUICK SERVICE from FACTORY . . . keeps inventories low

With a small stock of the most popular styles and sizes, you can fit most customers immediately. Those who want something different or unusual won't mind waiting the few days it takes you to get a quick shipment from the factory.

You may prefer to sell from the attractive catalog or from samples, ordering sizes as you need them.

Whole assortment of sales material stimulates interest. Attractive posters, mailing pieces, mats, electros have all been prepared to help you sell Foot-Joy Golf Shoes.

Write for details today! You'll want to see the catalog and get all the facts about this profitable golf shoe line. Write to Field and Flint Co., Brockton 68, Mass.

FIELD and FLINT CO. Established 1857 Brockton 68, Mass.
Maintenance that Makes A Course Outstanding

By MALCOLM McLAREN
Supt., Oakwood Club, Cleveland, O.

Clubs which are outstanding in maintenance are those which have realized that the golfers are demanding a more specialized turf than ever before. The clubs are making changes in their programs to meet this demand. Let’s take a look at some of these changes, starting with the putting greens. Greens are cut either 3/16 or \( \frac{1}{4} \) inch in height and cut 6 days a week which is a very good practice. To hold this specialized turf at these heights, there must be a good sub-drainage system, as well as a good surface drainage. Soil structure and a strong bent turf are also very important.

You may hear many arguments for and against sub-drainage, but I still will take the greens with a good tile system in them because it helps cut your troubles in half. Surface drainage is very necessary and don’t forget to have ample room for cup location. If you are having trouble with the type of grass now on your greens, it may be wise to change over to some of the newer strains, such as Toronto, Collins, Arlington, Congressional or Old Orchard. In seeded bents, Seaside seems to lead the field, but look for Bert Musser at Penn State to break out with some new types of seeded bent. They are doing a wonderful job along this line at Penn State.

Tees Improving

Tees which in the past have been the neglected part of the golf course, are fast coming into their own. More of us are beginning to rate them with the same importance as we do greens. The Green Section has now shaped its research program in this direction. Anyone visiting the turf plots at Beltsville will find some changes will be made in grasses for tees. Here again I think drainage and soil conditions are important. Size and shape of tees should be given considerable consideration. We all know by now that those small tees built years ago are impossible to keep grass on with the amount of play we have nowadays.

Shade trees that send out thousands of small roots which take food and moisture away from the grasses present quite a problem, but I believe this can be overcome by a root cutting plow. In this way you can still keep your shade trees, which I believe have their place around tees. Regular applications of fertilizer will help hold this turf.

Fairway Grasses Changing

Concerning fairways, I feel that we are going to accede to the demands of the golfers and give them the closely cut, firm and dense type of grasses that will enable them to put backspin on the ball so shots to the green will hold better. Many clubs that started out with unwatered fairways and later installed watering systems have discovered they had to change to new types of grasses also. Clubs planning to install watering systems would do well to keep this in mind, as the initial cost is by no means the only one. More Colonial bent is probably used for fairway turf than ever before. If these are cut often, fertilized regularly and not overwatered, they should meet the demands of all golfers.

Aeration has been one of the best aids for establishing better fairways. Ground that has been aerified will readily admit water, which quickly seeps into the soil to a greater depth. When water does not penetrate deeply into the soil, grass becomes shallow-rooted and susceptible to drought injury.

Surface watering merely encourages poa annua. Deeper watering benefits the more valued turf grasses. Fairways cultivated with the aerifier also makes fertilizer more available to the deeper rooted turf grasses taking it away from the shallow-rooted clover and poa annua, which we do not want in fairways. This also is true in reseeding the fairways. The seed has a chance to get into these holes and develop more readily in loose, moist soil.

Roughs are also coming in for their share of attention nowadays. Many clubs are spot fertilizing and seeding the poorer areas of the rough which raises it to a par with the rest of the better turf areas. This not only makes a better looking course but is fair to all players whether they are 6 or 60 feet off the fairways.

Weed control in the rough is just as important as it is on fairways. You can’t

*NGSA convention paper
THE AMAZING, NEW
PAINTLESS
LASTING WHITE
COVER GOLF BALL
FOR DRIVING RANGES

✓ Check these advantages:

**Lasts Longer:** Its revolutionary new cover stock, 300% tougher than conventional Balata, is "welded" over high quality natural rubber winding. Reduces damaged ball replacement to unheard of minimum.

**Weather-proof:** Its tough, welded-to-winding cover defies damaging effects of sun, soaking and mud; even withstands over-boiling-point temperatures.

An exclusive development of "Butch" Wagner, leading specialist in driving range golf balls.

**DELIVERY DATE — APPROXIMATELY MAY 1st**

**DOW METAL Range Driver**

**Outstanding Range Club "Buy" —**

**Here's Why:**

**Saves Repairs and Replacements** — because its tough, one-piece construction of famous Dow Metal takes the most abusive punishment.

**Saves Balls** — because the hardest wear will not develop damaging contours, protruding heel plates or chipping.

**Improves Play** — because its perfect balance is free from weather and temperature effects and its Golf Pride Grip affords firm but relaxed gripping for tensionless swinging.

**Men's and women's right and left hand drivers and brassies.**

For literature and prices write:

**DACO GOLF PRODUCTS**
222 N. Cicero Ave.
CHICAGO 44, ILL.

**WITTEK GOLF RANGE SUPPLY CO.**
5128 W. North Ave.
CHICAGO 39, ILL.

April, 1950
have weed-free fairways if you have a fine crop of weeds in the rough. It does not work out that way.

Trees around the rough should get special attention for two reasons. First, all trees except evergreens should have the lower branches trimmed high enough to enable a golfer to take a full swing in playing his shot. Second, as a safety measure do this for your tractor drivers, so they can drive under these trees without fear of injury to their eyes. You then can be sure the golfer will not complain about trees being a hazard on the course. The type of rough on a course should be governed by the type of membership you have, but regardless of this, the area outside of the out of bounds line should be kept clean, enabling a player to find his ball more readily, which in turn speeds up play.

Attend to Approaches and Aprons

More thought will be required for the maintenance of approaches or aprons. Here also we should incorporate some of the better bent grasses to help offset the abuse from green mowers making turns. Aeration even during playing season and extra applications of fertilizer will help preserve this turf. This has been one of the weak points in our maintenance programs.

Changing of the cups on greens is a very important operation and employees should be well instructed along these lines. Cups should be changed often. It is poor policy to leave a cup until the edges become ragged and worn. When cutting the new hole care should be taken not to lift the area around the edges. A small tool is made to press this area down and is well worth the trouble it takes to use. A good plan is to use two of your better tractor drivers for this job. On most courses they can't start cutting early in the morning because of excessive dew, so send each one out on a tractor with the hole changing equipment, clean towels, soap and water for ballwashers; the whole job can be done in two hours. You then have that out of the way for early morning play. By this time the grass on the fairways or rough is dry and you can start these men cutting.

Keep the flag poles clean or painted at all times. Torn or ragged flags should be replaced at once. Flags are not so expensive. In fact they could all be replaced once or twice in a season. It is well to have an extra set of brushes for ballwashers. To prevent rank odors in ballwashers make a complete change of all brushes, cleaning the insides with plenty of hot water. Put the old brushes out in the sun to air and dry, they will then be in condition to use again. Change towels regularly, soiled towels are both unsanitary and unsightly.

In placing the markers, strict attention should be given to the line of play. It becomes very confusing to a player when he sees the markers pointing one way and the line of play pointing another. As the men go along changing markers, they should look around and make sure that there are no low branches or other obstructions in the way of players taking a stance or swinging. If so they should be reported at once.

Benches should be moved each time you change markers to prevent damage to the turf under and around them. As birds have a habit of parking on benches, it is well to see that the benches are cleaned occasionally.

Clean-up Campaign

Waste paper containers should be available at every tee. I'd like to tell you of an incident at our club relating to waste paper on the course. We had some galvanized tin boxes made, about 4x7x12, to fit along the side of the Lewis ballwashers at each tee, with the words "waste paper" and the yardage and par stencilled on them. Then to attract our members' attention to these containers, we ran an ad in the club's monthly bulletin as follows: "Help Wanted—300 men and 100 women to help keep the golf course free of paper and trash. Easy work, with the aid of new style paper containers now installed at each tee. Only takes seconds to deposit that empty cigarette pack, golf ball and candy bar wrapping, or stray papers found on the course. Instruct your caddies that their help is also needed. REWARD—a neat, clean course that will make your game more enjoyable."

This campaign was further emphasized by forbidding the caddies to take any lunches out on the course. They were told if the course was kept free of paper this order would be rescinded, and it later was. Employees on the course were also asked to cooperate. Everything was going fine, you couldn't even find a burned match around a tee.

Then it happened—an airplane flying over the course dropped 5000 paper plates as part of an advertising campaign. On each plate it said, "This is a flying saucer, take me to John Doe's Drug Store and you will receive a free pint of ice cream with every pint purchased." To make the matter really funny, although embarrassing to a very fine fellow, the drug store was owned by an Oakwood member. Other than this, our plan has been very successful.

There are many little things that make a course look dressed up, such as path-

(Continued on page 103)