

CURING DRAINAGE ILLS

By HOWARD REAM, Greenkeeper
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IN THE Green Section Bulletin of Dec. 1921, was a statement which had it been heeded by golf architects and construction superintendents would have saved countless dollars and endless worry. These few words of advice were contained in "Meditations of a Peripatetic Golfer." They were, "It is well to remember that 75% of all putting green troubles are due to lack of drainage." Perhaps in present days this 75% may be quite high, with the amount of drainage which has been done in recent years, but when we stop to consider the amount of water which is applied to a green, the question of drainage becomes a very significant factor.

In using a sprinkler delivering 20 gallons a minute, in 2 hours and 36 minutes 1 inch of water is applied to a green of 5,000 sq. ft. The number of hours which the green is watered gives an idea how many inches of water is applied over a given period of time. The average rainfall per month during the period of June to September in this section is around 3.2 inches. Add this to the amounts of water applied by irrigation and the need of drainage is very apparent.

Effects of poor drainage are numerous:

(1) **Depth of roots is decreased.** Plants growing in soils that are water soaked develop shallow root systems. The water table in a poorly drained soil gradually comes nearer the surface. The roots which are deep in the soil rot off when the moisture becomes excessive and we

find the root system confined to the very surface of the soil. This situation was very noticeable in this section during the season of 1932. The rainfall in the spring months was unusually abundant. The soils on poorly drained greens became saturated. This resulted in a restricted root system instead of the normal deep rooted plants which we seek in the spring. Consequently the grass plant went into the summer months in weakened condition. The summer was averse to this condition, it being as excessively hot and dry as our spring was wet. Result—much turf succumbed through lack of moisture because the root system was so restricted that it was almost impossible to apply water often enough. The weakened condition of the turf also made it easy prey for diseases and insect pests.

- (2) **Results in a much colder soil.** Water-logged soils are much slower to warm up. The air spaces in the soil become completely filled with water. The soil is naturally much more difficult to warm up because it takes a great deal more heat to raise the temperature of a given volume of water one degree than to raise temperature of a like volume of air one degree. Fertilizer applications in the spring on such poorly drained greens are consequently slower in taking effect.
- (3) **Physical condition of the soil becomes poor.** We are constantly ad-

vised by players that our greens are hard or won't hold a pitch shot. When we analyze the situation it may be largely attributed to poor drainage particularly on the heavier types of soils. The constant play of greens which contain too much moisture brings about a puddled condition. When a soil in plastic condition has been pressed together until it has become practically impervious to air and water, it is said to be puddled. The development of gelatinous and viscous colloidal material seems to be the controlling factor in such a condition, the pore space of a puddled green being filled with such material. When a soil in this condition dries, it becomes hard and dense. When this situation occurs there is only one remedy—the green must be torn up. When the physical condition becomes poor there is actually a decrease in the amount of film or capillary water which that soil will hold because capillarity is decreased.

(4) **Activity of favorable soil organisms is decreased.** Most of our beneficial soil bacteria and fungi are aerobic or air-loving. When the air spaces in the soil become filled with water they cannot exist. Their place is taken by organisms which are able to live in the absence of air or in especially moist conditions. These organisms are undesirable. They cause toxic conditions in the soil, which are detrimental to the growth of grass. In this group also are found disease-producing organisms, such as brown patch, snow mold and leaf spot. Records show that their attacks are more severe in seasons of abundant rainfall. Experimental evidence shows that the attacks of brown patch are more frequent and much more severe on poorly drained turf.

(5) **Winter kill is usually more severe on poorly drained greens.** The roots on the green are very shallow. Any heaving from freezing and thawing is apt to tear the roots loose from the soil, causing damage through drying out before they can be rolled down in the spring. Depressions hold water over winter which might cause the turf to be killed out in those areas through the exclusion of air.

Correcting Drainage Troubles

Now let us consider the correction of this condition. By drainage we mean the prevention of surplus water getting on or into the soil, as well as the removal from

the surface and the interior of the soil the surplus water which cannot be intercepted. We therefore have two kinds of drainage to consider, surface drainage and sub-surface drainage.

Surface drainage consists of the prevention of surplus water getting on to the green as well as the removal of all surplus water from the surface of the green.

In preventing surplus water getting on to a green it is necessary to prevent seepage or overwash from higher areas. Where greens are built into the downward slope of a hill, a sloping ditch or swale on the hill side of the green will serve to carry excess water around the green. The same is true where the front of the green is at the bottom of the slope of a hill, except that it might interfere with the approach to the green. When such is the case a tile line with several catch basins might be used. In other situations a ridge or bank can be used to turn the water away from the green. Traps can sometimes be employed to intercept such water.

Flat Greens Court Troubles

It is advisable to give serious consideration to this phase of surface drainage, since overwash can cause much damage by carrying in foreign materials, particularly weed seeds, and by the erosive and puddling action of the water itself. Seepage can best be taken care of by tile. The removal of surplus water from the surface is provided for only by the proper construction of the surface of the green. The slope of the green will determine how fast excessive water can get off, so it is well to have a fairly good slope to the green. No hard and fast rule can be laid down as to what this slope should be, but I would say it should be at least 6 inches in 100 ft. This type of drainage is particularly valuable in the winter when the snow is thawing or rains occur, a time when the ground is apt to be frozen and sub-surface tile lines are not functioning. Much winter kill can be prevented.

Sub-surface drainage consists of the removal of surplus water from the interior of the soil. For our purpose it is accomplished by tiling.

No definite procedure can be set down which would take care of every green tiling problem. The soil type and structural characteristics of the soil particles is an important factor. Water runs through a sandy soil quickly because the spaces between the individual particles are large,



Ridgewood's 155 yard eighth of the 27 hole layout where the Ryder cup matches will be played September 28 and 29. Trees tightly border many of the Jersey course's holes and may trouble the Britishers who are accustomed to open courses.

while water moves slowly through clay soil because the particles are small. Clay soils therefore require tile lines placed closer together than do sandy soils if we are to have rapid drainage. Soils also vary a great deal in texture, even soils of the same type, and possess such different water holding capacities that it is almost impossible to indicate the proper depth and placing of the lines for all soils.

A certain amount of experimenting might be necessary to determine the drainage needs of the soil or soils on any particular course. However, certain generalities applicable to most all drainage conditions on greens were worked out. In putting greens, tiles should be placed at a depth of $1\frac{1}{2}$ to 2 feet in clay soil; and 2 to $2\frac{1}{2}$ feet in sandy soils. The laterals should be from 15 to 20 feet apart in clay soils and 30 to 40 feet in sandy soils. A fall of at least 1 inch in 20 feet should be provided for, remembering that the greater the fall the greater the capacity of the system. On a green which has very heavy soil, and in a very soggy condition, it would be well to place the tile lines no more than 15 feet apart at a depth of $1\frac{1}{2}$ feet with as much fall or slope to the tile as possible. The size of the tile used depends upon the length of the laterals. For laterals up to 1,000 feet in length, 4 inch tile should be used. If the green is exceptionally large a 6 inch tile should be used for the main and 4 inch for the laterals. The types of tile most often used are the common porous or agricultural, vitrified,

and cement. Vitrified and cement are stronger and less likely to break under pressure from heaving, so it is safer to use these types.

The concluding installment of Mr. Ream's article on drainage, in which practical suggestions from his observation of successful greenkeepers work are given, will appear in October GOLFDOM.

Tillinghast Joins PGA Staff As Architect Consultant

A. W. TILLINGHAST, veteran architect of many noted courses, has been engaged by the PGA to act in an advisory capacity with pros, officials and architects for clubs whose pros are PGA members.

"Tilly" already has gone over plans for course remodeling with a number of clubs. He will be assigned to different sections as fast as time permits. There is no charge for the Tillinghast service to PGA members. He will not supervise any construction work. PGA officials state the Tillinghast appointment has encouraged club employment of architects to supervise work agreed on after initial conferences with Tilly.

Club Crime Wave Stymied by Gang Captures

GOLF CLUB crime wave in Chicago district, which ran up a string of one murder, several beatings and 12 robberies and caused a special meeting of the Chicago District Golf Assn. with state's attorney Tom Courtney, came to a sharp halt with the apprehension of two bands of bandits.

Busiest band was one from a section of Chicago supplying many caddies. The band had been previously picked up and identified but was turned loose, due to the usual operations of the criminal-politician alliance. Courtney detailed a special squad which eventually nailed the bandits. Another band beat, then murdered, a watchman at a golf course, and was caught when an alarm, sent over a wire the bandits had failed to cut, brought police in time to prevent a getaway.

The CDGA in its special meeting approved an award for information leading to the arrest and conviction of the criminals. Details of burglar alarm systems were described by club officials at the meeting. At least one telephone wire not clearing through clubhouse switchboard and fencing allowing only one night gate to grounds was advised. Courtney and Tom Walsh of Chicago Fee Course Assn. agreed that forbidding "ball hawks" or other unauthorized persons entry to grounds prevented bandits surveying the scene and planning successful raids.

Three young gunmen, one of them an ex-assistant caddiemaster at an adjoining club, confessed to robbery of a fivesome on the Ridgewood (N.J.) CC, in which a player was shot. A hat dropped on the course provided the clue by which the gunmen were apprehended.

Irrigation Expert, Wendell Miller, Dies at Tulsa, Okla.

WENDELL MILLER, one of the most widely known men in course maintenance work, died at Tulsa, Okla., Aug. 14. Miller was in Tulsa on the new Southern Hills job when heart trouble from which he had suffered since childhood finally got him. Funeral was at Columbus, O., Aug. 17.

He was a man of such tremendous enthusiasm and energy that none of his many friends suspected that he suffered from a heart ailment. To him, more than to any other man, fairway watering owes its wide recognition and it was Miller who

constantly pounded away on drainage as an essential to good maintenance until the old haphazard drainage systems were revised.

Miller's first golf job was on the Columbus (O.) CC course in 1920. He was responsible for putting down more than 500 miles of drainage at the nation's courses, installed more than 400 miles of fairway watering system piping, designed and built more than 100 golf course pumping plants, and did a vast amount of work on airports and at estates, parks and cemeteries. He invented the one-man hoseless system of fairway irrigation and was responsible for pushing fairway watering eastward from the Pacific Coast where he first became acquainted with details of this work in 1926. He made an extensive study of prevailing winds in working out his hoseless system. He was associated with many famous courses in a construction and engineering capacity.

He was a great worker and wore himself out untimely, but he never was too busy to write or lecture, or to otherwise help to educate men in the work to which he devoted himself so unstintingly. The tragedy of his career of valuable service to golf is that his end came when his strenuously and sacrificing pioneering had been completed and he was on the threshold of collecting some of the reward due him in cash that he could mark up as net profit.

Wendell Miller was born near Columbus, O. in 1896. He attended Ohio State university and at one time was a member of its faculty. He was a member of several engineering societies, social organizations, and the Shrine. He is survived by his widow, Mrs. Emma Smith Miller and a son, Wendell Smith Miller.

His passing is mourned by hundreds who will keep him in memory as a fellow of high talents and inspiring enthusiasm and sincerity.

SUNDAY night entertainment feature at Mohawk CC (Chicago District) is a floor show with Lew Waldron, pro, as master of ceremonies. Members and guests supply the talent. Lew leads them to the mike and gets them warmed up for the performances.

There are a million laughs in these amateur floor shows; and unsuspected talent. Several radio stars play at Mohawk and they with their professional guests join in the show.



These 23 golfers helped Denny Champagne, who stands in the center with an arm-load of ball boxes, to send a ball around 18 holes in a quarter hour.

FEE COURSE STUNT WOVES PLAYERS AND PRESS

HOW quickly can a golf ball be sent around a regulation length golf course? Denny Champagne, able and wide-awake pro of Gracewil Lawns CC, Grand Rapids, Mich., assisted by 23 other players, recently relayed a ball around that 6,620-yard fee course, holing out at each of the 18 greens, in the amazing time of 15 minutes and 42 seconds!

The stunt, mechanics of which will be described later in this article, was conceived by Denny and recognized by him as an opportunity to get wide publicity for his course. He tipped off the newspapers several days ahead of what he was going to do. It was a new slant to golf, as far as the local sports editors were concerned, so they gave Denny's course plenty of write-ups ahead of the event and ran long accounts of the results in following issues. The publicity attracted a large gallery—and Denny didn't mind that either.

Used League Teams for Stunt

So, here is an account of the whole affair, as described by Champagne. Says Denny:

At Gracewil Lawns I have a league consisting of 24 players, 6 teams of 4 men each. Every Sunday we have team matches at Gracewil. Each team represents a local firm. This is the third year that this league has been operating. Last year we

had a league average of 79 for the season.

After talking over with the boys the possibility of sending a golf ball around the course in relays to see just how quickly it could be done, I drew a diagram of the course, took my 23 star players and myself, and placed them on the diagram, each to play the shot at which he was best. Then, of course, as each player played more than one shot, I had to figure out just how far he could advance each time to get in position before the ball got to him so he could again send it on its way.

Each Player Had Several Shots

For instance, I drove the ball off six different tees. As soon as I drove off of one tee I would hurry to another to await the arrival of the ball so as not to delay the relay. Four players beside myself were used to do the driving. In my case, I drove off the first tee and then went over to No. 6 tee, a sprint of about 225 yards, and did not have much time to waste before the ball was there. As we have a few parallel fairways on the first 9 I could

easily play the tee shots on No. 8 and No. 10. My next jump was over to No. 14 and then to No. 18.

On par-5 holes five players were used besides the player making the tee shot, and on par-4 holes four players were used besides the driver. On par-3 holes two players were used besides the player making the tee shot. On par-4 and -5 holes two players were stationed about 235 yards down the fairway, one on each side; the one nearest the ball after the drive was to play the second shot. On par-5 holes a player was stationed to play the third shot.

At every green two players were stationed, one to do the chipping if the green was missed, the other to do the putting. The player detailed to do the chipping around the green also had a putter with him and if the green wasn't missed he made the second putt (if there was one) then picked the ball out of the cup and tossed it to the next tee, where another player stood waiting to send the ball on its way. If the green was missed by the player making the second shot on par-4 holes, the third shot on par-5 holes, or by the player making the tee shot on par-3 holes, the player doing the chipping would rush to the hole after playing the chip shot, and take the ball out of the cup after it was tapped in by the player doing the putting and toss it to the next tee.

Speed First but Rules Mattered

As this relay was a speed contest everything that could be done to save time, and still play the game of golf as it should be played was done. The Public Links league carries three subs. They were placed about 100 yards in front of the tees so that if a ball off any tee was topped, it could be relayed to the player making the second shot. These subs followed the players making the tee shots. It so happened that there were no tee shots missed very badly.

A few of the players, after playing their shots on the first nine, had to be transferred by auto in order to reach their positions on the second nine in time.

This relay was tried twice one afternoon. The first round, which was in the nature of a practice round, took 17 min. 10 sec. The real show was put on soon after and my boys set a record of 15 min. 42 sec. with a score of 83.

The local papers gave us a lot of advance publicity when I told them what I

was going to do and as a result, a large gallery was on hand to witness the stunt. It was so greatly enjoyed by all that I am going to try it again for their benefit some time soon. I don't think we will be able to better our time, but I would like to break 80.

Dates Announced for District Meets with Green Section

JOHAN MONTIETH, jr., head of the USGA Green Section, will shortly begin his annual trek through the Midwest for the yearly series of get-togethers with greenkeepers, green-chairmen and others interested in turf and the work of the Section. Sites of these meetings, other than Chicago, have not been announced, but the schedule is as follows:

Cleveland district	Sept. 12
Cincinnati "	" 16
Chicago "	" 17
Indianapolis "	" 18
St. Louis "	" 20
Detroit "	" 24

Sessions will consist of inspection tours of experimental plots, discussions of recent advances in Green Section research and a round table period when the Green Section expert will counsel local greensmen on their individual turf problems.

The Chicago meeting will be held at Midwest Turf gardens on Albert Lasker's Mill Road Farm course, where maintenance of a number of important turf research projects are being financed.

Caliente Closing Relieves Pros of Ethical Problem

WHEN the Mexican government closed out gambling at Agua Caliente and the \$10,000,000 border resort suspended operations completely, a delicate problem was removed from the Yank pro stars' files. Agua Caliente was figuring on a \$30,000 Open next winter and inviting only 30 players.

Criticism of the Agua Caliente mutual gambling at its last open tournament probably would have prevented some of the tournament leaders from competing at Caliente this winter. Absence, with 30 grand awaiting takers, would have brought tears to the eyes of some boys willing to provide happy homes for even modest hunks of that 30 G.



Paul rings the bells on the cash register by making his shop at Torrington look like a good place to buy.

OUT-SMARTS PRICE-SLASHERS

By ROBERT N. PRYOR

PERSONABLE, enterprising Paul Bell, pro at the Torrington Country Club, Torrington, Conn., is a firm believer in that old merchandising slogan "You have to have the merchandise in order to be able to sell it." All you have to do is look over Paul's Shop to realize how large a stock he carries, which in turn suggests a sizeable sales volume.

When Bell took over the Torrington post last spring the pro shop consisted of one medium-sized room which was used for a salesroom, club storage and repair room. His first move was to separate the "pro shop" from the repair room. He curtained off the display floor and turned it into a compact and attractive salesroom which helped to concentrate the member's attention on his display of merchandise.

Then he set about arranging shelves on all the wall space. Here on these shelves and all the available wall space, he not only advantageously placed all the latest in good equipment but he stocked all the accessories, wearing apparel and conveniences that go to make up a successful golf game.

On one shelf is displayed a large as-

sortment of golf shoes. On another is stocked the very latest in hats and caps. Still another is used for locker-room necessities. And on another can be found such incidentals as shoe laces, belts, club head covers, handkerchiefs and other odds and ends.

One section of the shop is used to display left-handed equipment. Here in this corner reserved solely for southpaws, is the latest in woods, irons and even gloves. All add to the cost of his overhead and the expense of his shop but Paul likes to have something in stock when a member asks for it. He looks upon this service as one of the reasons for the club hiring him.

Another section is devoted to women's equipment. Here can be found the latest in matched irons and woods for the weaker sex along with other equipment and acces-

sories manufactured expressly for milady.

Covering the lower wall space around the room is the regular stock of ten sets of irons and ten sets of woods. Because of the large stock and the comparatively small space for display, it was necessary to suspend golf bags from the ceiling rafters, making a very attractive display. Something like twenty-five bags are kept in stock, including sunday, canvas and leather bags, with prices to fit every purse.

A complete line of celanese, wash rag and cotton sport shirts are also kept in stock as well as sweaters and sweat shirts. This merchandise is made by a nationally known sport house and his prices on them are the same as those advertised throughout the country. In golf hose and anklets, a complete range of sizes and colors is kept and Bell takes great pride in the fact that up until August 15 he had not lost a sale because he could not fit a prospective customer. This also held good on the sales of golf gloves.

No Worries Over Gyp Sales

As for cut-rate competition Bell never worries about what is happening "down town." First of all, he places a season's guarantee on all merchandise purchased in his shop. All golf balls are sold at a ten per cent reduction when purchased in dozen lots. All golf bags and shag bags are lettered free of charge and when he is able to pick up a special or a "close-out" he passes the saving right on to the member with a special sale. He keeps his patronage because he is forever on the lookout for special "buys" for his members and he keeps them coming back into his shop for they are always sure he has "something to sell." He has that kind of a reputation for being a good merchant.

Cut rate competition to him isn't much of a problem because he feels that with his lack of overhead he can sell his merchandise as cheap as the town stores—and have the advantage of selling standard brands of equipment which only the pros handle. He operates on the theory that in golf, like anything else, a pro can stock a cheap grade, a medium grade and a high priced line of goods. He keeps his shop stocked with a good representation of all quality merchandise but especially stressing the moderately priced goods.

In the irons he has sets priced as low as \$9.50. Some of his wood sets go as high as \$48. In golf balls his price range is from six, five, four, three and two for a dollar to seventy-five and a dollar golf

balls. He carries a variety of stock to meet every purse. They can get what they "need" from him and that's his answer to store competition.

To use Bell's very words he doesn't "believe that merchandise can be sold from a book."

"The prospective customer wants to be able to swing a club, finger a sport shirt, or look over a golf bag before he buys it. I think that if the pros would make the pro shop a place where the member could outfit himself completely with golfer's equipment, he would find that he would be many dollars ahead at the end of the season" says Bell, who was selected from a list of more than a hundred applicants last spring. Before going to Torrington he was pro at the Pines Bridge Country Club at Ossining, N. Y.

To keep abreast of the times, competition and customer demand, Bell is constantly on the look out for golf novelties, such as cane seats, spike rubbers, ash trays with the golf motif, and umbrellas. He makes an effort to keep the shelves filled with interesting merchandise so that the members will come in and browse around for the latest in the golf line. By this method they become frequenters of his shop. In many cases he is able to make a sale when the member intended only to drop in and "see what Paul has new."

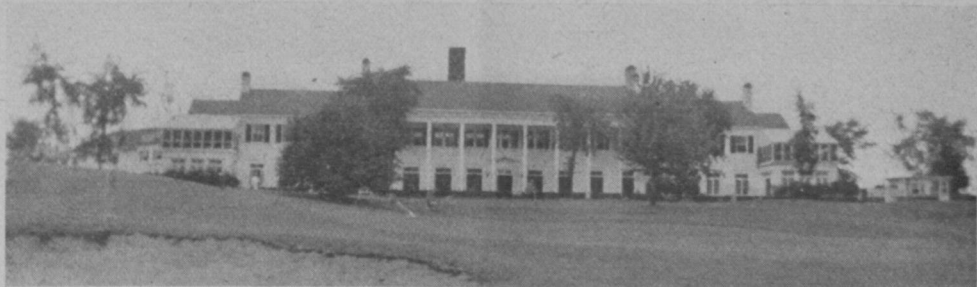
Traffic Brings Sales

He tries to create as much activity in his shop as possible. Whether it be a "close-out," a new set of the latest matched irons, or novelties, he makes a real determined effort to make his shop the headquarters of the club either before or after the game.

His bulletin board in the shop is an example of this. All announcements, tournament results and special events are posted there and the members gather around to discuss the game and the results. "This increased traffic through the pro shop means increased sales" says Paul.

Looking back over a highly exciting season Bell believes that his arranging of the shelves into sections, making a special department for the feminine golfers, and heavily stocking his shop with merchandise so as to convey to the members his confidence in his new job, has brought him many more customers than he would have had if he hadn't shown that extra interest, that extra effort, that extra enterprise.

"You have to have the merchandise to sell it" says this Torrington pro.



Oakland Hills Clubhouse is adequate to cater comfortably to a roster of 600 members.

PRIVATE - PUBLIC SPLIT OK

By JOHN CHANDLER

36-hole Detroit layout profits thru opening one course to fee players

OAKLAND HILLS Country Club, situated about 15 miles from the heart of Detroit, Mich., occupies an unusual position—a leading private club successfully operating a public links.

The history of Oakland Hills and its public brother sidekick, North Hills, says John P. O'Hara, prominent Detroit lawyer and president of the club, goes back to 1916 when construction of the famous course was begun. Using natural advantages as much as possible, Donald Ross, well known golf architect, constructed the entire course about two holes, numbers 10 and 11 which are still considered classic two-shotters in golf construction.

About 1920 directors of the club, taking heed of the rising membership total, decided to purchase a large tract of land directly north of the Oakland Hills course, to be utilized at a later date as an additional playfield for its members.

Old Course Gets Traffic

But things did not work out the way the optimistic directors had hoped. For instance, everyone at the club from Grandpaps down to Junior preferred, naturally enough, to play the championship south course. A few years later, not long after the north course was opened in 1924, came the national panic and many members were forced to become non-club members. The club roster shrunk from a high of well over 600 to 400, then to 300. Obviously it did not take a great deal of thought to discover that something had to be done—and quickly. The north course should be sold



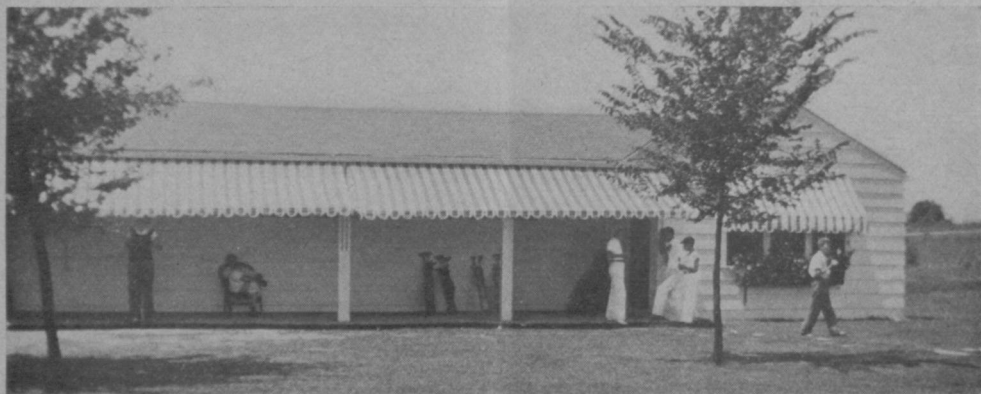
JOHN P. O'HARA

outright on the auction block, urged some of the club's members.

Others, more staunchly in favor of keeping both courses under the wing of Oakland guidance, proposed putting the north course on a fee basis, while members of Oakland, of course, could continue to play it as well as the other. The idea carried.

So, Al Watrous, Oakland Hills professional, leased the north side course from the club in 1933 and operated it himself for a two-year span. Gradually the course met public fancy, and by the end of 1934, those faithful members who a few years before had battled to keep the course, began to see that their vision had stood them in good stead.

Now, 1935, the club operates the course



The clubhouse of North Hills is designed to render efficient fee-course service to its players.

under the direction of its own manager, Joseph Bureau. Beneath Bureau is the North Hills pro, Leo Conroy, who incidentally encourages business to the course because in addition to his salary he receives a commission on the play. And now also, the North Hills course defrays the overhead of Oakland by paying its own maintenance costs. These costs were constant, as O'Hara aptly pointed out, whether the course was private or public whether anyone played it or not. Maintaining both courses for the year will cost about \$18,000, O'Hara estimates. And green-fees from North Hills, if the play

keeps up as it has during May, June and July, will take care of that course's share of the expense. Maintenance is under the expert direction of Herbert Shave, Oakland Hills greenkeeper. The two courses are kept in tip-top condition.



HERB SHAVE

Here's just what the North Hills public course has done for Oakland. O'Hara speaking:

"By using North Hills for public play, we helped defray our overhead. When North Hills was not used extensively, we still had to keep it up and the overhead costs endured. With the public using it now, the returns just about take care of its maintenance."

As for other courses in the country trying out this idea, running a public layout alongside the private, O'Hara says:

"If they had two courses already, using

one course in that case would be a decided advantage. But if they haven't two courses side by side, they needn't worry about converting one of them into a public course."

Leo Conroy, North Hills pro, says that North Hills is the best public link layout he has ever seen, barring none.

No Course for Dub Players

Poor golfers, rampaging around for a golf course, have a tendency to steer away from North Hills. They do not come there in large numbers because a missed shot or one which goes too far off line generally draws a stiff penalty.

Al Watrous holds the North Hills course record, a 63 in 1933. Al's recording-holding mark on the par-72 Oakland Hills layout is also 63. Par at North Hills is 70. Tommy Armour played the course a few years back and say he'd rather shoot it than the older layout.

Women are a bit skeptical about playing this public course, although they usually flock to the others in good numbers. As an added inducement to women, says Conroy, they are allowed to play free every Friday, and may also play free on Tuesdays if they are accompanied by a male escort—more than one to an escort being okay. The few women that stick it out past the nine hole mark find their scores mounting too rapidly on the back nine when they begin to tire. Not many play it.

But the men like the course. The better class of golfer and those who found the overhead tough in private clubs patronize North Hills heavily and Saturday