
P.G.A.

Another leader
in the golf world
has made its head-
quarters in the

Lytton Building

Effective March 1st
the national headquarters of

**THE
PROFESSIONAL GOLFERS'
ASSOCIATION
OF AMERICA**

will be located in suite 1733

Telephone: HARrison 2210

Northeast Corner of
State & Jackson Blvd.

14

E. JACKSON BLVD.
C H I C A G O

The Lytton Building

Through the entrance of the Lytton Building more professionals pass than through any other building in the country. This habit of coming to the Lytton Building *first* is the reason your Chicago office should be located here, if you want pro business. Let us tell you in detail what this famous sports center has to offer you.

L. E. EATON,
Manager



Distributors of **FLORIDA HUMUS**

ATLANTA: Evans Implement Co.

BALTIMORE: Richardson & Co.

BOSTON: Breck and Sons Corp.

BRISTOL (VA.):

Wood Howell Nurseries

CHARLOTTE: E. J. Smith Co.

CINCINNATI:

J. C. McCullough Co.

CLEVELAND: Sidney L. Dryfoos

DETROIT: Terminal Sales Corp.

JACKSONVILLE:

Jacksonville Landscape Co.

LOS ANGELES: Germaine's

NEW YORK: Stump & Walter Co.

PHILADELPHIA: Dreer, Inc.

PITTSBURGH:

Beckert Seed & Bulb Co.

PROVIDENCE: W. E. Barrett Co.

ST. LOUIS: St. Louis Seed Co.

WASHINGTON: Balderson & Co.

WILMINGTON:

Franklin J. Murphy

Analysis of **FLORIDA HUMUS**

by Wiley & Co., Baltimore, No.

133,554 shows, on dry basis, Organic

Matter, 91.67%; Nitrogen

3.52%; Water Holding Capacity,

530.64%; Acidity, pH 6.0.

. . . Turf Treatment at the **AUGUSTA NATIONAL**

The *soil* at the Augusta National (Bobby Jones' own course) varies from very sandy to stiff red clay. But the *turf* is excellent on every green and fairway . . . One important reason is that Florida Humus was extensively used in building the course and has since been regularly used in maintaining it . . . Your course, too, will benefit by Florida Humus—a superb water container and soil conditioner—rich in nitrogen, free of weed seeds and foreign matter, and so slightly acid that it *will not sour the soil*. Write today for free booklet, or get full information from your nearest dealer, listed at left.

FLORIDA HUMUS

Mined and Manufactured at Zellwood, Florida

Florida Humus Co., Sales Dept., 141 Milk St., Boston, Mass.



. . . Mountains on the putting green

WORM casts: these are the mountains on the putting green. Mountains of annoyance for club members and greenkeepers. Eradicate the worms: no more worm casts. Do it with Diworma. Dilute 1½ pints in 50 gallons of water and sprinkle. Up come the worms to die. Rake them up—that's all. No broadcasting or watering in. No worms left to decompose in the soil and attract ants. You don't swap one pest for another! Diworma also fights brown patch. Write!

New 1936 Dolge Ground Maintenance Manual tells you how to fight pests which get on your course. Write for free copy.

THE C. B. DOLGE CO.
WESTPORT, CONNECTICUT



BETTER Fertilization at less cost with LITTLE GIANT All-Purpose SPREADER. LITTLE GIANT spreads compost, lime, phosphates, all commercial fertilizers—thick or thin. Three times faster than hand spreading. Savings in time and material enable you to fertilize more frequently—even during play. Uniform, accurate coverage. For greens, fairways, and lawns.

WRITE FOR DESCRIPTIVE FOLDER A

PORTABLE ELEVATOR MFG. CO. BLOOMINGTON, ILL.

NELSON

Portable and Underground, Sprinkling Equipment

Every sprinkler requirement can be met perfectly by some item in the complete Nelson line.

Nelson equipment is standard on golf courses throughout the country. Years of specialized sprinkler manufacturing experience insure perfect operation and long life.

Complete information on all types, either permanent or moveable, will be gladly sent on request.

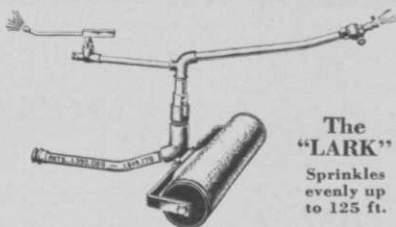
**L. R. NELSON
MFG. CO.
Peoria, Ill.**



"Stream-Flo" sprinklers cover evenly areas 100 to 225 feet in diameter.



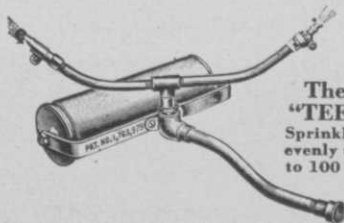
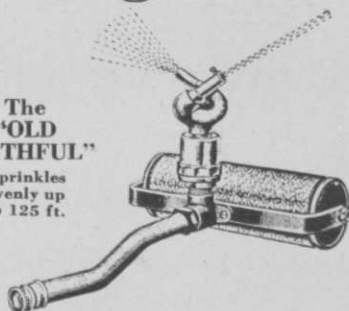
"Stream-Flo" Valve



The "LARK"
Sprinkles evenly up to 125 ft.

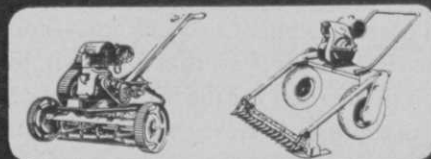
The "OLD FAITHFUL"

Sprinkles evenly up to 125 ft.



The "TEE"
Sprinkles evenly up to 100 ft.

MOWERS



A new type Sickle Bar Mower for cutting hay and weeds in rough

Before purchasing any mowers, it will pay you to write us and have our complete mower catalog on hand.

Power, Fairway, Greens mowers, Tractors.

ATTRACTIVE PRICES

Write for Catalog



NATIONAL MOWER CO.

839 Cromwell Ave., St. Paul, Minn.

KILLS ANTS, SOD WEB WORMS

on Greens,
Lawns, Gardens

Harmless to Humans,
Animals and Birds

Red Arrow Garden Spray effectively controls ants and sod web worms, yet will not injure the turf or affect the fertility of the soil. Red Arrow is a concentrated pyrethrum extract combined with a special soap. Simply mix with water and apply with any type spraying apparatus. Red Arrow is safe to use—harmless to humans, animals and birds—and has no poisonous or irritating fumes. Also kills many varieties of sucking and chewing insects on flowers, vegetables and fruits. Ask your supply jobber or write for complete information.



McCORMICK & CO., Inc.
BALTIMORE, MARYLAND

STANDARDIZED PYRETHRUM AND
DERRIS INSECTICIDES

"Mr. Advertising Man
—I Apologize
But I want to write my own ads"



TOMMY ARMOUR

● I know I'm not an ad writer but here goes. I argue (and how) that selling and teaching is my business and that it's practically a first cousin to selling Tommy Armour Clubs to Pros.

The one thing I had on my mind—when I designed the Tommy Armour Clubs—was that we had all lost sales during the last few years because there had not been enough change in the looks of the leading clubs to get the liveliest members interested in a new set that's different. And without something new sales were stagnant.

I know that I cannot jump at every member and try to force Tommy Armour Clubs into his bag. But I do know that national advertising makes my members interested in

these clubs . . . and that's the only opening the smart pro needs.

Then there is that all-important point of the Tommy Armour Clubs being sold ONLY through pros. Any pro who can add up his card knows enough arithmetic to see why we are insistent that this pro-only policy be maintained on the Tommy Armour Clubs. I know—and so do MacGregor—that the pro hold on the market for the kind of clubs I brag about, is stronger than that of any other retailer. And it's extending every season because pros are constantly becoming better merchants.

This is enough of a load for this time. For dope about the new Tommy Armour "Silver Scot" Woods and Irons write us at Dayton.

Tommy Armour

THE CRAWFORD, MCGREGOR & CANBY CO., DAYTON, OHIO
SALES OFFICES IN NEW YORK, CHICAGO, SEATTLE AND LOS ANGELES

Thanks for telling the advertiser you saw it in GOLFDOM

MY MAINTENANCE METHODS

By C. A. TREGILLUS
Mill Road Farm, Everett, Ill.

NAGA Convention Paper

TO SYSTEMATIZE, I have divided the subject of golf course maintenance into categories as outlined in chart 1. You will notice I have shown the main line of responsibility as one of descending importance. While each is a link in a chain, I have endeavored to arrange each division as bearing more importance on the one below rather than the one above. For instance, in following down the line of expense, I have placed the water system above the cost of fertilizer, etc. We see the chain of responsibility from the executive board coming down through the green-chairman to the greenkeeper, thence to active operations of maintenance. I have placed the green-chairman to the left of the main line merely to indicate that if he is average, he will be mostly interested or concerned over the expense angle of the yearly maintenance. Therefore I have listed the expense on his side of the line. To the greenkeeper devolves the actual execution so the operations are classified on his side of the line.

Let us all be green-chairmen for a few moments and consider the budget, which is in short, anticipated expense of annual maintenance. Here I have Chart 2 showing past history for the last five years. This general grouping of items is simple enough so that any one in my audience can

almost memorize them should he want to set them down beside his own experience. These figures show percentages; that is, in 1931 out of every \$100 spent on this particular course, \$74 went to supervision and labor. On the whole these items run uniformly and any deviation from the average is readily explained. For instance, under equipment there is a decided rise in 1935 accounted for by the purchase of new items such as a new mower set or a new tractor. Very few courses run their books on an accrual system, so it is quite

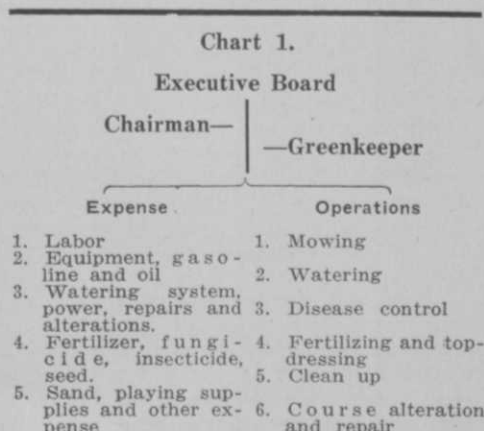


Chart 2—Expense Distribution by Percentage

Year	1931	1932	1933	1934	1935
1. Labor and supervision	74%	61%	68%	67%	67%
2. Equipment, gasoline and oil.....	10	11	12	8	16
3. Water	8	10	13	13	8
4. Fertilizer and fungicide, etc.	7	15	5	8	7
5. Other expense.	1	3	2	4	2

to be expected that cash accounting will make this line a bit jumpy.

Under water expense, which in this case includes fairway watering, we see very clearly indicated a climatic cycle which everyone here well remembers. The dry years of '32, '33, and '34 will linger in our memories for some time to come. In connection with this particular point I remember talking last fall with a forester and mentioning that the two previous years of drought had been responsible for the heavy mortality among the oaks. He corrected me and said it was the three dry years the trees suffered from and though I did not realize it at the time these irrigation costs bear out his statement. The cost of fertilizer shows a big increase in 1932 due to a bargain price on a particular brand when a big supply was purchased, enough to carry over well into the following year. Under 'other expense' is classed all the items that could not rightly be placed in the other four. The biggest here is sand, the others mostly incidentals.

Labor Cost Analysis

Shows How and Where of Work

I should like to discuss in greater detail the labor bracket. Chart 3 shows the distribution of this expense. Cost is shown in man hours, so that anyone may easily figure what it would cost him by merely multiplying by his hourly rate of pay. As the chart clearly shows, the handwork is considerable. Greens are cut by hand-mowers. Tees are plugged daily and the rough which is of equal acreage to the fairways, calls for much handwork. These three items account for more than 50% of the total labor bill on operating expense. The topdressing is screened by a rotary sieve and applied by machine. Mercury, sulphate of ammonia and arsenate of lead are broadcast by hand and watered in. The fairways are mown with a seven unit gang mower cutting a sixteen-foot swath, and as much of the rough as possible by the same tractor with a sickle sidebar. Fairway fertilizing is with a lime spreader relying on the agitators in the machine to do the mixing, and

fairway watering is with hose. That in brief, is the labor setup.

Turning next to equipment expense we find it has a direct proportion to labor bill. On such courses where it is convenient and satisfactory to eliminate a large share of hand labor and perform these same operations with power-driven machinery, there will of course be a moderate increase in the cost and operation of mechanical tools. It is decidedly in the best wisdom for every course to make the fullest use possible of labor-saving devices in the regular routine of maintenance. It is well however, to consider carefully before investing in equipment that is seldom used or might be expensive to keep in repair for the few times it will be called into service.

New Machinery Cuts Fairway Mowing Costs Sharply

The past few years have seen tremendous strides in the development of course machinery, particularly among mowers. In this I refer especially to the increased efficiency of fairway and rough mowing outfits. The increased rate of travel and

Chart 3—Distribution of Labor Time—1935

	Season consisted roughly of 26 weeks or 183 days.			
	Operation men	hrs.	How often	Total hours
Green and tees				
Mowing, watering, etc.	6	4	183	4,400
Repairing tees, walks, etc.	1	9	130	1,200
Screening compost	11	9	3	
Topdressing	15	9	3	
Hauling material..	2	135	1	975
Applying chemicals	3	5	6	
Mixing chemicals.	1	100	1	190
6,765				
Fairways				
Mowing thrice weekly	1	9	78	702
Fertilizing	4	45	2	360
Watering (night) ..	2	7½	23	345
(day) ..			250	1,657
Rough				
Machine mowing..	1	45	10	450
Hand mowing	1	99	10	990
Trimming bunkers, raking traps, etc.	6	14	26	2,180
3,620				
Nursery				
Mowing and watering	1	9	26	234
Weeding	10	36		360
Cultivating, planting, seeding, etc.	10	36		360
954				
Watering system				
Spring repair and inspection	5	18		90
Fall draining and blowing	5	18		90
180				
Miscellaneous labor				750
750				
Extraordinary				
Course alteration, new work, ditching, tiling, landscaping, etc., etc.				4,805
4,805				
Total labor hours				18,731

the wider swath by adding more units to the gang has cut down the time for cutting 18 fairways so much that models five and six years old are completely outmoded.

Many clubs do not realize they lag behind in this respect and are unaware that they could reduce the cut of mowing fairways and keep them in better shape by bringing their tractor mowing set up to date. I have in mind when I say this, those courses that have introduced fairway sprinkling lately and are carrying on with early type machines. Watered fairways require frequent and speedy cutting which a slow-moving gang cannot handle.

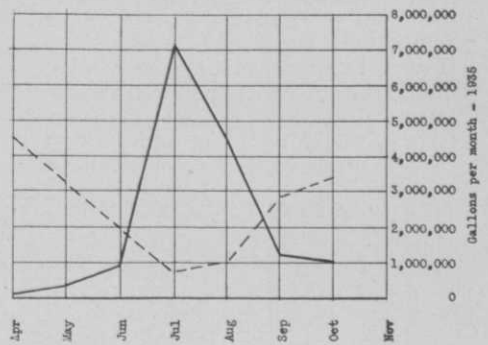
There is still a good demand for these outfits on the unwatered courses so my advice is to sell, if you find that the grass is growing so fast that it cannot be handled with the old type equipment. Machines that have been well cared for and in good repair will sell readily. The last year or two has seen the introduction of the side bar sickle for attachment to the light weight fairway tractor. This has proved a real time saver for cutting rough where there is a good deal of maneuvering among trees, on banks, etc.

Power Mowers

Cut Greens' Costs

The use of power mowers for cutting greens is advocated by many and opposed by others. I do not feel competent nor consider it wise to make a sweeping statement for or against because we find many conditions warranting either one or the other. Cost can be reduced remarkably by power mowers, especially those of the gang type, a factor of importance where labor costs are high and expense must be closely watched. On the other hand quite a few greenkeepers prefer to cut their green by hand, claiming that the turf shows less effect from mowing by the old method, and while admitting that hand cutting is more expensive, they feel it is a luxury that the club can well afford.

Looking at the water systems as an expense (we are still eyeing things from the budget viewpoint) we have in review the biggest single factor in golf course investment in recent years. The general trend nowadays is to put more emphasis on developing the fairways. This is perhaps the natural evolution in higher greenkeeping; from 1920 to 1930 marked tremendous progress in putting green development as a scientific as well as artistic accomplishment while from 1931 we have



Solid line indicates monthly water consumption. Dotted line shows cost per thousand gallons decreases as volume goes up.

seen more work done to perfect the fairways.

Still Much Study Required on Watering

The first step in this direction is the general introduction of irrigation, a change that meant in most cases the complete revamping of water systems from pump-house to the farthest opening on the pipe layout. As an item of operating expense, the yearly cost of running these systems still show that we have not emerged completely from the experimental phase and it is quite likely that for some seasons yet, we shall witness further development both in installation and in mode of operating. I feel sure there is much to learn about the application of water and its results upon different types of soils.

Effective and economical use of water require much study. While it is fine to have all the water we can use, at any time we think we need it, it is found that systems of unlimited capacity or more correctly, of capacity to handle our largest demands, do not operate efficiently during those periods of less usage. It would seem to me that in designing and managing our water systems we should give this some thought and consider the most effective capacity in relation to the investment rather than the maximum capacity.

Chart 4 indicates the water usage by months during the season of 1935. You will see that from a low water consumption in April we rise to more than 7,000,000 gallons in July. This includes uses other than for the golf course but the relationship is the same. Now it is only reasonable to suppose that the cost of pumping 7,000,000 gallons, in cents per thousand gallons, is much less than, say, 400,000 gallons. And this is actually the case. The

investment charge is the same whether the pump is used or not.

I would recommend to those who are contemplating the installation of fairway systems that they give close study, together with the watering equipment companys' experts, to help work this problem out. If the water is purchased through a meter, this factor may not be so important, but it is a vital one when the water must be drawn from a well, especially a deep one without ample surface storage. Many greenkeepers have felt at times that they may have been too lavish with water though it was not realized until afterwards when ill effects became apparent in the condition and character of the turf. There are other angles to this question to which I will refer later.

The fertilizer expense is largely for sewage sludge which is bought in Milwaukee from which there is only a short haul of 65 miles. To this is added sulphate of ammonia, of which a carload will last three or four years, and other chemical fertilizer as may be required. I recommend buying in quantity and storing against future use. It is assurance that the material will be on hand when wanted and allows for the purchase of supplies on favorable markets. This applies equally well to the chemicals required for the control of insects and diseases; every course should be provided with plenty of ammunition to withstand attack from any quarter.

Let us now turn to a short review of the operations whereby we turn the money into a medium of pleasurable and exciting golf for the members—pleasant hours, we hope, for the golfers though sometimes agonizing ones for the greenkeepers when weather and play bear down with a heavy hand. In this discussion I will again draw freely on my own experiences which I confess are by no means infallible and will gladly encourage criticism if it should provoke a healthy argument on methods of procedure.

Grass Cutting Now Competitive Factor At Courses

The most continuous operation within the greenkeeper's routine from spring to fall is cutting grass. I sometimes doubt if there is a moment during the working hours on most courses that there is not some one mowing, whether it be shaving off the greens in early morning or hacking in the long grass on the ditch banks in the afternoon. When I look over the imposing array of fairway mowers, green

hand-mowers, green power-mowers, tee mowers, bunker mowers, rough mowers, all kinds of mowers, mowers to pull and mowers to push, mowers to ride on and mowers to walk with, and see too, the sickles, the scythes, and grass hooks, the fire guns and all the other devices man's ingenuity has conceived for this purpose, I am quite at a loss in wonderment that we have made such a complicated affair of the simple task that, until a few years ago, was pretty well handled by a flock of sheep.

But joking aside, a good selection of mowers of all kinds is of great assistance and is quite a factor in cutting down the amount of hand labor. Power mowers and power sickles enable a man to cover the ground so many more times or if necessary trim more territory.

Courses Must Be Cut More Frequently

With the increasing demand for finer turf and the friendly rivalry in course excellence between clubs, the tendency is towards more frequent trimming of the grass, and to accomplish this we must be well provided with implements. Not so many years ago it was quite satisfactory to trim off the bunkers and rough a couple of times a season. And players accepted these conditions as normal and made no comment if the course had the appearance of a man who shaves once a week. Now, however, we must shave almost every day if we would be respectable.

Fairway watering has been largely responsible because the grass along the edges and around bunkers now grows so fast that it becomes unmanageable if left for very long. We cut our fairways every second day at least and plan on getting around the rough every week during the fast growing part of the season, particularly those places most likely to be played into.

We try to maintain a regular height from spring to fall along the rough just as we do in the fairways so that playing conditions are about the same throughout the season. This adds to the cost but the appearance achieved is well worth the effort. I need not remind you that fairways cut frequently can be allowed to stand higher without unfavorable remarks from the membership and that nothing stirs up sour comment quicker than fairways ragged from long pauses of the mowing outfit. On the whole our mow-

(Continued on page 56)



The rustic, log clubhouse of Riverside is finer in its fittings and furnishings and more appropriate to its setting than many a private club structure.

"PAY IF YOU CAN, BUT PLAY"

Bank holiday policy brought this course through tough years

THIS is a story of a man who has yet to play golf, but who built and successfully operates a layout declared to be one of the most attractive fee courses in the south. It is a story of a man who took the depression by the horns and, when fee golf courses from one end of the country to the other were struggling, started a new golf enterprise and made it an outstanding money-maker.

The man is W. D. Cammack, owner, operator and chief arbiter of the Riverside course at Little Rock, Ark.

Even the national bank holiday, in the spring of 1933, didn't trip him. He heard of President Roosevelt's proclamation calling for a national bank "holiday." He promptly issued a proclamation himself, announcing Riverside was open but was operating on a "holiday basis"; that is, that the golfers could play without green fees. "Pay if you can; if you can't pay, play anyway. I'd rather have you play than stay away," his proclamation said.

"For a while my invitation was accepted in the spirit in which it was intended and many of my friends passed through the gate, later requesting the privilege of signing tickets which I permitted with the assurance that subsequent payments would not be demanded," Mr. Cammack told GOLF'DOM. "I am happy to report that most of the tickets were redeemed."

Riverside is an 18-hole course, with excellent fairways, undulating grass greens, and plenty of hazards, natural and other-

wise. Five sporty water holes make the expert and the beginner watch his step.

Starts with Course Design That Interests

The course is not extremely long nor of difficult terrain. From the regular tees the yardage is 6,435, with a par of 72. Back tees give an extra yardage, bringing the total to 6,635.

Holes follow in desirable rotation. There are doglegs and long straight holes offering an opportunity to the long driver to do his stuff. On two of the water hazards, the water must be carried on the second or third shots, depending on the length of tee shots. The other water hazards bring the mashie, niblick, four or three iron clubs into play, from the tees.

Architecture of the course is such as to render a missed shot a total loss, but a good shot is well rewarded. The designer of the course took full advantage of Mother Nature's offerings and added his own ideas to present an unlimited variety of problems and shots for the aspiring golfer.

Cammack, a successful business man, had been operating rock crushers, gravel plants and various other enterprises when the tailspin of 1929 started. He found his usual activities folding up. But his nature is such that he couldn't stand still and see the depression go by without doing something about it.

Owning 220 acres of land lying between pineclad hills on the south and the Arkan-

sas river and abutting bluffs on the north, he decided the tract would make an ideal site for a golf course. It is so located that a five minute drive from the business section of the city brings the golfer to No. 1 tee. And from the other direction, it is not more than 10 minutes from a greater part of the residential section.

Cammack, for many years a member of the Little Rock CC, had tried to play golf "back in the good old days." He got around about eight holes when he gave up and he has never tried again. But that attitude was as a player only.

With the golf course idea in its infancy, he called on H. C. Hackbarth, veteran pro at the Little Rock CC. Hackbarth looked over the site. He saw wonderful possibilities. Word spread around that some person, not very well versed in the economic crisis at hand, was suggesting a new golf course. There were a few laughs, some of them from bankers cautiously approached, for there weren't funds in sight even for a temporary clubhouse.

But with Hackbarth furnishing the ideas for the construction, Cammack hitched up his suspenders and went to work. Labor wasn't hard to find, but money was, when construction started in April, 1932. To the wonderment of the natives, Little Rock was presented with a new golf course July 2, when play started.

An abandoned railroad depot served as a clubhouse, and was used for a year and a half.

Continues to Improve During Depression Years

"I enjoyed a good business the first year and well into 1933," said Cammack. "It took a lot of managing, though, and then came the bank holiday and general demoralization in 1933. The condition called for more managing, but we made it. Despite conditions, not a single day was lost in my program to continue improving the course and bringing it as near perfection as humanly possible." And that was the story of the course through the worst of the depression.

In the fall of 1933 Cammack called in a friend, W. M. VanValkenburgh, an architect, and plans were made for a real clubhouse, rustic in design and built almost entirely of logs. Open house was held in the first unit of the clubhouse January 1, 1934.

Cammack found his golf venture growing almost too fast for him to keep pace. It had outgrown the temporary club-

house and the first unit of the new one already was too cramped. "In the fall of 1934," said Cammack, "we started enlarging the clubhouse and one of the features was building of several small locker rooms, large enough to accommodate 10 lockers each, with private showers, toilets and lavatories. These were offered to congenial groups and they were snapped up in a hurry. In fact, all had been taken before the construction work had been completed. The idea was an innovation and was much appreciated. There are general locker rooms in addition."

"In building the additional locker rooms, instead of a ceiling and roof only, I decided to have an upstairs room." Cammack said. "A few more logs were cut and what happened? The Riverside patrons now have a dance hall with 2,000 feet of floor space!

"We have recently installed a kitchen and are prepared to serve golfers with food, and have adopted a leasing policy with reference to the entertainment room, together with the entire building, for private night parties."

The entrance room, which houses the pro-shop, is heated by a fireplace taking 4-ft. logs, and is a favorite place for golfers on murky days. The room has a vaulted ceiling 16 ft. high, with rustic finish in hand hewn beams and rafters. The fireplace is of field stone with hand wrought fixtures. This room opens into a refectory with the same kind of ceiling and beams. The ballroom upstairs has a rustic balcony and stairway.

The course is operated on a strictly fee basis. The week-day rate is 50 cents. On Saturdays, Sundays and holidays the rate is 75 cents. On this basis the golfer can play 18 holes, or all day, if he desires.

The field in a tournament at the course last fall indicates its popularity. There were 11 flights, with 16 players in each flight.

THE laws of supply and demand have considerable influence on the price of club memberships. A better price can always be asked when a waiting list exists.

Realizing this, a Midwestern club which operated in the black last year with a roster of 237 active members has recently paved the way for an early waiting list and hence better prices by reducing the limit of memberships from 300 to 250. As soon as 13 more memberships are sold this spring, no more will be available until resignations occur.