ing the construction of the course. The particular perforated pipe that has given such good service was 8 inches in diameter and only about 125 feet in length. During the winter season it carried as much as fifteen thousand gallons a day, and, dropping down in the late spring, was probably delivering from five to seven thousand gallons per day. (Measurement was taken with a five-gallon coal oil can, so these figures are not absolutely accurate.)

At present we have purchased and installed a little over a thousand feet of this perforated pipe, and the results have been such that we feel the additional cost was a wise investment. We feel that with the continued use of perforated pipe our first cost will practically be our last cost. Some of our tile drains have been removed as many as three times, cleaned out, and re-laid. The early pipe installed in 1925 has been functioning satisfactorily since installation without any maintenance whatever.

I feel that this material will justify the increased expense as compared with tile, as the increased play and pleasure to our members over our course is worth the expenditure.

Favors Seaside Bent Greens

During the past two years I have changed over some of our poorer greens. which were mixtures of Chewings fescue, redtop and Colonial bent, to seaside bent. Our aim ultimately is to have all eighteen of our greens in seaside bent. Four of these greens were sodded from a nursery while one was seeded. We have found sodded greens to be very satisfactory due to the fact that they can be put into play in two weeks, although of course they are more expensive than the seed jobs. Costs on growing sod have averaged five cents per square foot, that is, growing sod to an age of three months when it is ready to lay. The cost on cutting, laying, rolling, etc., averages two and eight-tenths cents per square foot.

Our method of cutting sod is to cut along a 1x12 straightedge, cutting 12 rows in one direction and then 12 rows at right angles. Thus we have our sods all exactly the same size, when we lay them in a box and trim to a uniform depth of one and one-half inches, using old bed-knives with welded handles for knives. The resulting sod is practically fool-proof in laying and goes down very fast.

Greens are topdressed monthly with a mixture of sharp sand, topsoil and well-rotted manure. I keep a year's supply of manure ahead and by frequent turning it is kept in good shape. I use one of the complete fertilizers in the spring and fall, and ammonia sulphate in between.

Our watering system is the expensive but satisfactory hose system. Fairways are kept in excellent shape all during the dry season, all the fairway watering being done at night. Green and tees are watered every day and mounds about every other day. Our green and tees are watered during the day time and cut by hand, each of our greensmen having their own greens of which they have full care and responsibility. Fairways are cut twice a week. Mounds and traps are cut with a small power machine.

Fighting Fairway Weeds

Our worst fairway weed pests mouse-ear, dandelions and Bermuda grass. Arsenate of lead has proven to be a sure means of combating mouse-ear. We cleaned out our twelfth fairway, which had a bad infestation of this weed, with one application of arsenate of lead mixed with sand, securing a 90 per cent kill with no effects whatsoever on the grass. For this method we can thank Leach, whose articles in GOLFDOM are always of interest and We plan to try the iron sulphate method on dandelions as was suggested in one of the articles in GOLFDOM. On the Bermuda grass the only system we have found effective is to dig it out and dig deep, hand-picking the underlying soil for runners, then sod the spot. It is a matter of conjecture with us where the pest came from, as there has never been any seeded here and none of our near neighbors use it.

We have had only three days this winter when it rained hard enough to interfere with play on the course. Since the course was built, six years this fall, it has never been closed, a record we are proud of.

Mr. Claude T. Faw, my green chairman, is a great pleasure to work for. He understands the problems of maintenance and is ever on the alert to help me by providing labor-saving machinery, modern and effective equipment and that great item of sympathy and cooperation. This spirit smoothes many of the spots of the often rough road of course operation.

Equipment and Supplies Small in Maintenance Budget

NTERESTING evidence of the exceedingly small part of the maintenance budget taken by equipment and supplies comes from the notes of a veteran greenchairman of a well-known 27-hole eastern course. His comments on labor distribution also will be of help to those who are making serious studies of mechanization of course maintenance as a means of reducing the labor bill.

The 27-hole course has been under expert management for years and on that account undoubtedly shows an unusually good cost record for the last two years. Frequently the factor of excellent previous treatment over a long period of years is overlooked in accounting for a course annual upkeep cost that now is below the average. In this particular case there is emphasized the culminative value of a persistent and thoughtfully planned campaign of course maintenance.

In detailing the labor management and costs at this course, the chairman begins by itemizing the labor allotment worked out by the able greenkeeper at the establishment. This division (says the chairman) runs:

Labor for 27 holes and grounds:

Allowance for weeding

January	1	man	\$ 100.00
February	2	men	200.00
March	2	men	200.00
March, April 1	600	hrs.	800.00
April, May, June, July.			
Aug., Sept., and Oct.	14	men	9,800.00
November	10	men	1,000.00
December		men	200.00
Allowance for watering	7.		400.00

\$12,900.00

200.00

During the active season, commencing April 1st, we employ 14 regular men on our pay-roll and they are distributed as follows:

Six men care for the greens, tees, and traps around greens.

One man operates fairway tractor, cutting 27 holes twice in a week.

One man operates a small tractor, cutting the rough.

One man is employed caring for bunkers and traps through the fairways.

One man is a general utility man, looking after the equipment, cutting holes for cups and ready to go out anywhere on the course to assist. This particular man should be a man of experience. In our case the man who does this work has been with us close to 20 years.

Three men are on 9-hole course.

One man cares for grounds around clubhouse and approaches to club, as well as practice putting green.

Men Are Versatile.

Of course, this does not mean that these men do not do any other work except as indicated above. When greens are topdressed or treated, the green men as well as any others available are used. At certain times of the year when the work is not heavy, as many men as are available will be used to do some particular piece of work. Also, in case of a heavy storm doing damage to a parking space through washing, the whole "gang" of men will be taken out the first thing in the morning 4. before they start on their regular work. Last year we did not spend a cent for extra labor in weeding, which was all done with our regular force.

In November we reduce our force to 10 men; these 10 are able to do considerable work on compost and other odd jobs needing attention.

In December, when the playing season is practically over, we cut down to two men. These men devote their time to going over all equipment, making a record of new parts needed.

In January we have only one man, who gives practically his entire time to repairs on equipment, and in February we put on another man to assist.

The exact date for starting spring work is uncertain; hence, for March, in addition to the two men, we usually make an allowance for so many hours, which also may include the extra labor running into the month of April. We find this the most satisfactory way as there are often many days, especially in March, when no work can be done.

Explains Expense Record.

We keep our green-committee expense record in the following manner:

1.	Salaries and Wages\$
	Professional\$
	Greenkeeper
	Labor
2.	Maintenance of Equipment\$
	New Parts\$
	Repairs
	Gas, Oil and Grease
3.	Maintenance of Water System \$

Cost of Water\$ Repairs 4. Upkeep Supplies\$ Grass Seed\$ Mushroom Soil Other Materials

5. Sundry Supplies.....\$ Small Tools and Hardware\$ Flags, Cups, Poles, etc ... Other Materials

6. Replacements\$ Sand for Traps\$

Total Maintenance \$ 8. New Equipment\$

Total Maintenance and Equipment\$ 9. Construction\$

TOTAL\$

1. Salaries and Wages.-Under this heading is charged the salary of the professional, and greenkeeper and all labor in connection with maintenance of courses and grounds. Cost of labor for improvements should be charged to Construc-While salary of professional is charged to the Green-Committee, I do not believe this should be part of green-committee expenses unless the "pro" actually has charge or something to do with the care of the golf course.

2. Maintenance of Equipment.-Under this heading is charged all new parts purchased for tractors, mowers, etc., labor in connection with repairs and cost of gas,

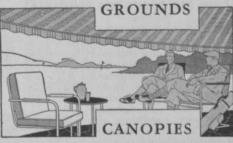
oil and grease for equipment.

3. Maintenance Water System.-Under this heading is entered charges for water supplied by a water company, or if own plant is operated actual cost of maintaining same. In our case we keep an item of repairs, which consists of repairs to pipes, replacement of worn hydrants, etc., under a separate sub-heading.

4. Upkeep Supplies .- Under this head-

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ing is charged all supplies used in connection with maintenance, such as grass seed, mushroom soil and other materials, like sulphate of ammonia, semesan, bi-sulphide of carbon, worm killer, and sand and manure for compost. We keep a separate heading for mushroom soil on account of it being a large item, but as this is gradually being reduced each year it will soon become a comparatively small item and will not be necessary to keep separately.

- 5. Sundry Supplies.—Under this heading is charged cost of small tools, such as rakes, shovels, poles for sweeping greens, wrenches, pliers, etc., and miscellaneous hardware, flags and poles for greens, hole cups, tee markers, pails, towels, brushes, etc., and other materials, such as paint, lumber, cement, tile in small quantities, etc.
- 6. Replacements.—Under this heading is charged cost of sand for traps.
- 7. Miscellaneous.—Under this heading is charged any small item not chargeable to other headings and as a rule amounts to very little, but not over \$50.00 or \$60.00.
- 8. New Equipment.—Under this heading is charged all new equipment, including new mowers, tractors, sprinkler equipment, hose, etc.

9. Construction.—Under this heading is charged cost of material and labor for new work on the golf courses only. Any new planting, or other improvements on grounds, would be charged to improvement on land.

All freight and express charges, or cost of hauling, should be charged as an expense under proper heading.

While entries for expenses are only kept under 11 headings, the sub-heading expense is made up from month to month and to date as a means of watching expenses in comparison with estimate.

Percentages Are Given.

Green-committee maintenance costs (exclusive of professional's salary) make the following showing for the last two seasons:

SUIIS.		
	1927	1928
	%	%
Salaries and Wages:		
Greenkeeper	13.36	12.65
Labor	57.41	54.54
Maintenance of Equipment:		
New Parts and Repairs	4.71	4.8
Gas, Oil, Grease	3.3	3.14
Maintenance Water System:		
Charge for use	3.26	3.9
Repairs, etc	0.36	1.23

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Upkeep Supplies: Grass Seed	1.32 10.7 1.66	1.0 6.32 7.8
Flags, Cups, Poles, etc. Paint, Lumber, etc	1.56	1.15
Sand for Traps Miscellaneous:	2.08 0.28	2.90 0.57
	100.0	100.0

Asks Pros to Report Phoney Ball Claims for Action

PEDDLERS of golf balls that are marked with the buyer's name on both poles of the ball are working the sucker trade, claiming the ball is the same as the U. S. Royal, according to statements of professionals and E. C. Conlin, manager, Golf Ball dept., United States Rubber Co. The ball positively is not of U. S. Rubber manufacture, Conlin states. The rubber company's legal department is acting to protect pros, players and the company's own interests against the flagrant misrepresentation and will appreciate pro co-operation.

Stable Manure Not Always Too Weedy to Use

By HUGH C. MOORE, Greenkeeper Sea Island (Ga.) Golf Club

THERE HAS been a considerable lot said against using stable manure as a fertilizer. The main complaint is the large number of weed seeds liable to be present, unless the manure is well aged. I will

admit that manure contains weed seeds, but I do not think there are any where near as many as some people would have you think.

In building my practice fairway, which is about three acres in size, I used stable manure with great success. I broadcast it about two inches thick



Hugh Moore.

over the entire area and disc-harrowed it in both directions. Then I planted Bermuda stolons, which matted quickly and permitted play in a very few weeks. The best feature of all was the fine root system; they are deeper in the ground and

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the top growth is much more vigorous than on other of my fairways.

After a divot is taken out, even with a niblick, the most damageable club in the bag, the sore soon heals over, and it is hard to find where the divot was removed.

As for weeds, there were not many more in this piece of ground than any of the other fairways. Stable manure is a soil builder, gives the grass a quick start, and I find where you have plenty of grass you have less weeds. Poor soils with thin grass usually mean an abundance of weeds.

Even if stable manure does produce more weeds, steady cutting of the grass will eventually reduce them. Stable manure should especially help sandy soils, or any loose soils as a binder, also to hold the moisture.

I have had great success using liquid manure on my greens, finding that it brings color to the grass very quickly and gives a perfect mat. So, if any of you greenkeepers have a supply of stable manure available don't pass it up on account of a few weeds, for it is not the worst fertilizer that money can buy, and I only wish it was as plentiful as before the day of the great automobile industry.

There is one more point which is very essential. A compost made of stable manure should be housed under a shed with no sides so that there can be a circulation of air, otherwise there will be scalding. The shed roof is necessary, as manure left in the open, will soon leach out and lose its strength from the rains. A manure compost used for greens or tees should be thoroughly decomposed; for fairways it can be used much greener, yet if possible it is best for it to have at least six months aging.

MEN WHO mow the greens should carry a weeding knife and take time to cut out of the turf any particularly large weeds they may observe during the mowing operation.

INVITATION to CLUB OFFICIALS

Write GOLFDOM details of one of your club's outstanding achievements in course maintenance or clubhouse operation. Published in these pages, other officials will profit from your advice.

Book Busy Schedule for American Pros Guests

BOOKINGS for the British Ryder Cup team have been filled with the possible exception of a date between July 12 and 17. The American schedule was arranged by Robert Harlow, manager of the P. G. A. tournament bureau and involved a number of problems in date adjustment. The British team turned down an appearance at Winnipeg where \$2,000 and expenses were guaranteed, due to the desire of the players to compete in the Canadian Open where \$1,400 prize money is offered. The Britons originally intended jumping from Chicago to Winnipeg and then to the Canadian Open at Toronto, arriving on the opening day of the premier Canadian event. Second guessing, they decided to hit the Open venue in time for some practice.

The exhibition dates were arranged by Harlow for the P. G. A. without any commission expense to the British guests as a sincere expression of the American professionals' hope that the Britons have a profitable as well as pleasant stay in this country, even though they leave the Ryder Cup here.

The booking on this basis has not been without some substantial benefit to the American professionals, as it is certain the appearance of foreign talent will pep up American gallery interest in golf exhibitions. Harlow, ace ring-master of the pro golf performances, figures that, with Jones practically withdrawn as a gallery attraction, the pros have a great chance to stir up again this source of income.

Confirmation of the hunch is seen in the demand for the American appearances of the four coursemen of the pampas: Jurado, Churio, Genta and Freccero. The Argentine pros are getting big space in England. The colorful Jurado always has been a favorite there and plays a slashing, brilliant game that makes him a menace to anyone with championship aspirations. Marcus Churio, socking star of the quartette, is being referred to in English papers as "Cheerio." Conflicting requests for dates in the United States are being ironed out by Harlow, and other requests for appearances of the Argentinians should be referred to him. Presentation of the Argentinians on an exhibition tour will drum up exhibition interest, make money for the clubs and the pros who appear on the card against them-so the P. G. A. tournament head figures.



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"'Zat So? | Manage Different And It Works"; Tom to Louie

Tom Ream of Calumet can't see a thing to last month's article wherein Louis M. Gund, manager of Westborough C. C. (St. Louis) told us about some of his man-

agerial methods, and sends GOLFDOM this criticism.

GOLFDOM stands neutral in the matter, but is happy to have started some controversy, since it believes a clean argument out in the open can do more to clear up misunderstandings and advance the cause of better club operation than any amount of growling and moaning in private.

Every issue of GOLFDOM probably contains statements at variance with the firm convictions of many of its 20,000 readers. And whenever this happens, we like to

hear the evidence of "the other side," as here.

club Manager unfamiliar with the physical differences and general construction of two similar 18 hole golf courses would find some advantage gained by making the comparison and knowing whereof he speaks before attempting to flay his fellow club managers with the practical and familiar information of his small circle. When judged by points, the service of a membership country club rates so much higher than that of a syndicate-owned or a concessionrun golf course that it is unfair, to say the least, to attempt comparison of notes.

A busy club executive, in this turbulent area of the Mid-West finds no time for toting his truck down to the South Water Market District to haggle over the weight of a cabbage, the solidity of a tomato or the number of strawberries in a box. It would seem unnecessary to state that the responsibility of operating a large and busy golf club constitutes a bevy of troublesome incidents, which call for the individuality of the manager, the patience of Job and the cunning of Mephistopheles.

Were I to spend most of my time between the dining room and the kitchen (as per the boast of Mr. Gund in the May issue of GOLFDOM), having my victuals done to a turn to suit my testy palate, my chef, I fear, would wield a wicked cleaver midst his blameless associates. Then, I do not want to destroy the trust nor question the intelligence of my head waitress in her ability to handle her work. No siree, the turmoil created among a once peaceable people would do more harm

to the placidity of my organization than a stray cat once did to our martins out here.

Mr. Gund believes in seeing what he buys. So do I. But what is to prevent him from so doing when the stuff arrives in his kitchen? What is there to stop him from returning it if it is not the quality product he ordered? Surely a man who runs a club that does \$90,000 worth of restaurant business in a year should know the type of food that is brought to his kitchen door just as well as at the market. He also says: "There is too much opportunity to send goods of inferior quality" and I say, "How long can a produce company last, who would pull stunts like that?" Competition is keen; prices are down; price beaters on all sides. Nix, Mr. Gund, they could not afford to take the chance with a reputation that took years to build.

Then again, you say a merchant adds a cent or two to the price of things. Well, he won't while I'm conscious, because our own Chicago *Tribune* gives out market prices on foodstuffs each day, and competitors furnish price lists which are ever in front of me for comparison. Furthermore, no merchant has ever "dictated" to me while I have been in this business and I have had many a birthday out here in this country.

Clubs of this type do not include the profit from caddie sales in with the restaurant. To us, that is a separate issue and the surplus goes for the betterment of the caddie department, tournaments for the

"Helped me improve my game"

says New England Golfer

... "On our No. 8 hole, 125 yards, from tee to green, I always needed a Number 4 iron to carry the green. One day a friend loaned me a Number 5, and with it I made the Number 8 green with ease. I thought it was just an accident, until I had repeated the feat several times. That club had a Bristol Torsion steel shaft. I got myself a set of Torsion Steel shafted clubs, and the men I play with noticed an immediate increase in my distance. Ever since, I've maintained my added distance, so I know the new shafts helped me improve my game." (An unsolicited report from an amateur golfer. Name on request.)

CAN this be mere coincidence? Golfers of all degrees of ability have tried out clubs with Bristol Torsion steel shafts.

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