

## HOLD THAT ROSTER!

By JACK FULTON, Jr.

**I**N THE good old days, when clubs had sizable waiting lists, there wasn't much thought wasted on whether the members would remain loyal to the organization over the dormant winter period. Clubs stayed open until snow flew, then pulled up the putting cups, padlocked the clubhouse and forgot all about the membership until spring thaws brought golf weather once again.

If a member lost interest in golf and the club during the idle months, and consequently resigned, it didn't greatly matter because there was always the next one on the waiting list willing and eager to pay a nice fat sum to become a member.

Late years have changed this picture. Waiting lists have become little else than a memory, although signs point to early revival if the membership situation continues the advance apparent this past year. But in the meantime, until that waiting list exists, wise clubs are bending just as much effort to hold their present members as they are to get additional ones.

This fight on the part of the club officers to preserve member loyalty through idle months has followed the obvious procedure of making these months an important part of the club's yearly program. All manner of activities that will interest members and serve to substitute for golf have been tried. Some of these have proved to be sure-fire in almost any club; others work out only when local conditions are right. Some of them are complete activities in themselves; others are merely attractions that go to make up a complete patronage lure.

Below are discussed a number of winter activities that have attracted members to

clubs and kept up club spirit through the dull months. Used as a check-list, any club can map out a program that will meet with popular response.

### Trapshooting and Skeet Layouts

Heading the list of winter club activities and growing in importance each year is trapshooting and its recent development, skeet. Both forms are self-supporting. Trapshooting has the advantages of a simpler set-up and hence a less expensive original investment; the ability to accommodate more shooters at one time and hence do more "business"; and finally, is of such character that members who have had no experience with guns can learn to perform creditably behind the traps in a short time.

Skeet, the closest artificial substitute for field hunting conditions, requires an investment of several hundred dollars for the layout, including traps and trap-houses. Only one shooter competes at a time, so there are longer periods of waiting between turns. Considerably more shooting experience is needed for skeet than regular trapshooting.

Offsetting these disadvantages is the proved fact that skeet offers more lure to the shooter than straight traps. Skeet is a game; trapshooting is a contest. Moreover, from the viewpoint of the club, the reduced "turnover" of shooters at skeet is

### NOTICE TO READERS

As is customary there will be no issues of GOLFDOM for the months of November and December. Next copy of this magazine will reach you early in January.

Meanwhile, save this issue!

It is crammed with useful tips and suggestions to help you in your plans for the 1936 golf season. Likewise, you will want to refer to the advertisements when discussions on purchase of new equipment and supplies arise.

really an advantage, since idle members must amuse themselves while waiting their turn to shoot and generally do so by patronizing the club bar and other departments. The reduced income from skeet, as compared with trapshooting, is often more than offset by the increased departmental business.

Manufacturers of ammunition and traps, notably the Western Cartridge Co., East Alton, Ill., have published and will send free to applicants completely detailed instructions for organizing a trapshooting or skeet club, laying out the field and conducting events. Prices and descriptions of equipment are included.

### Archery-Golf Becoming Popular

For those members who do not care for shooting there are a number of other popular outdoor activities. Archery-golf, which consists of shooting an arrow around the golf course and "holing out" in a target at each green, is being offered at more and more clubs each year. Far from being a "sissy" game, archery-golf is a real sport, capable of producing aching muscles and a fine work-out for its participants. Scores for 18-holes of archery-golf will be lower than golf scores for the same layout, due to the fact that an arrow can be sent farther and with greater accuracy than a golf ball. Contrary to first reaction, there is practically no chance for accidents.

From the club angle, archery-golf is attractive. The cost of 18 targets is nominal and a supply of first grade bows and arrows can be purchased for a few dollars a set. At most clubs this equipment is rented at 75c per round, which soon repays the club for its investment. In addition, addicts of the sport soon want equipment of their own and considerable profit can be picked up selling bows, arrows and quivers to members.

Club officials interested in further particulars on archery-golf are invited to

write this magazine for literature from manufacturers of archery tackle.

### Skating and Tobogganing

Tobogganing and ice-skating are popular winter activities at clubs sufficiently north to assure fairly constant favorable weather for these sports. They should both, however, be regarded as minor features in a well-rounded program, since neither tobogganing nor skating brings any direct income to the club. In the case of tobogganing, there is also the expense of erecting the slide, which varies with the terrain. It takes about a fifty-foot drop to do the trick, and when hills are not present, it is well to remember a structure fifty feet high costs money to erect. The surface of the slide must be serviced daily, so there is a labor item to consider.

In the matter of skating, an artificial rink large enough to give skaters room to exercise can hardly cover less than an acre; it should be larger. Here again the cost of flooding and conditioning the ice is a labor item to be remembered.

The picture is better where clubs are lucky enough to have a pond or lake on the property. There is no appreciable maintenance cost under such circumstances and skating can very well be made a prominent part of the winter program.

### Bowling Leagues Grow in Appeal

One of the finest ways that has been devised to maintain member interest through the winter months is to organize a winter bowling league. Arrangements are made with some local bowling alley for a specific time once each week through the season. Teams are organized among the members and a schedule arranged so that each team bowls against every other team one or more times during the winter. Handicaps are used so that all members of the club, regardless of their previous bowling experience will stand an equal chance for cash or merchandise prizes, which are given for both weekly and season performances. Handicaps are revised weekly according to season average.

At most clubs where winter bowling leagues are in existence the season closes with a bowling banquet at which all prizes are given out. This can be either at the clubhouse or at some local dining place. All members of the club, whether or not they joined the league, are invited to attend the final banquet.

Incidentally, don't overlook the women in



Lake Calhoun shows through the trees in this view of Minikahda's beautiful new pool. The pool was built to give members of this Minneapolis club more exclusive, more comfortable and more sanitary swimming conditions than the lake could offer.

this matter of bowling. They like the game as much as the men do and given just a little encouragement will organize their own bowling league to meet on some other alleys at the same time of the week as the men's league. Mamma is not so likely to object to papa's spending one night a week bowling if her time can be similiary occupied.

Brunswick-Balke-Collender Co., Chicago, have availed an interesting and complete booklet, "How to Sell Industrial and Commercial Bowling," telling how to organize a league. It is available on request.

#### Treasure Hunts Bring Members Out

An interesting outdoor activity that can be held once or twice during the winter is a treasure hunt. Members assemble at the clubhouse, are divided into convenient teams, each with a captain, and given a vague "clue" to some location about the grounds. Each team puzzles it out, goes to the spot, where another "clue" will be found to lead them to still another. Eventually one or another team will have followed the trail to the end, where the "treasure" is hidden. At the end of the hunt, all join in a dinner at the clubhouse. The winning team is given seats of honor and free meals; the rest of the treasure hunters of course pay for their food.

#### Parties and Dinner-Dances

The possibility of parties and dinner-dances occasionally through the winter

should be weighed. If the clubhouse has been kept open and if it can be heated adequately, the parties should be held there, so that any profits on the affair resolve to the club. If the house is closed or cannot be heated, hold the dances at some acceptable spot in town.

To attract big attendance, these parties should be more than just dinner-dances—there should be special decorations, entertainment and favors. There should be an excuse for each party—Thanksgiving, Christmas, New Year's Eve, Lincoln and Washington's birthdays offer appropriate excuses. A "home-talent" party, with groups of members and individuals working up their acts and presenting them along the lines of a cabaret show, always clicks. Some clubs augment this entertainment with a smattering of professional talent, which can be picked up at small expense from local radio stations and booking offices.

#### Bridge Tournaments

Contract bridge tournaments, meeting afternoons if for women only, and evenings if for mixed groups, or for men only, have turned out successfully at many clubs. Expenses can be easily covered by charging a nominal table-fee at each session.

#### Keno Clicks with Petty Gamblers

Keno, because of the mild gambling features of the game, is surprisingly popular at clubs. It is customary to charge each

## A TIMELY NOTE TO CLUB OFFICIALS

Clubs of gentlemen sportsmen in the north and central states that are compelled to lay employees off during the winter owe it to these faithful employees to energetically solicit winter work for these men among club members.

With the general improvement in business, there are places on club members' payrolls where many club workers would fit and work well.

Numerous club employees who have worked ably and diligently for the club will have to go on relief unless the club members give them winter work.

The next season's job of recruiting experienced club workers would be made much easier if attention were given to this matter now.

player 10c per card, and the total money collected goes to the winner of each round, subject to a 10 per cent "take" by the club to cover expenses. A round of keno lasts but a minute or two and with thirty players each contributing a dime, the purse amounts to \$3.00, of which the house takes 30 cents.

Keno outfits can be obtained from any toy store. They range in price from \$1.00 up; for club use, at least a \$10.00 set should be bought and an even handsomer set will soon be paid for out of the club's drag on each pot played.

### Lectures by Club Employees

A winter entertainment feature that has worked out with great success at those clubs that have tried the stunt is to hold a series of dinners, either at the clubhouse or elsewhere, to be followed by a talk by the club pro, the club greenkeeper or one of the officers. At one dinner, the pro can discuss golf in general, demonstrate the proper golf swing and offer to answer any questions the members care to ask about their golfing miseries.

At another meeting, the greenkeeper is given an opportunity to describe his job, explain the mysteries of watering and mowing and tell the members why for instance they must sometimes endure freshly topdressed greens. Members are always interested in the condition of the course and they welcome the chance to learn something of greenkeeping procedure.

A third meeting should be devoted to a

discussion of the Rules of Golf, under the direction of the chairman of the golf committee or the pro. His talk should cover the more commonly violated rules; the finer points are of slight interest to the average golfer and will only confuse him if brought up.

Still another meeting could be devoted to the club manager and his problems, with a description by him of what goes on behind the scenes to make life comfortable for the members. In delivering his talk, the smart manager will not overlook the opportunity to tell of the amusing human-interest incidents he has witnessed among employees, and their reactions to member treatment, good and bad.

### Waldorf-Astoria Is Site of Managers' Annual Meet

FROM J. Fred Smith, secretary of the Club Managers' Assn. of America, comes word that all signs point to a record convention of clubhouse pilots next January 14-16 at the Waldorf-Astoria in New York City.

"The selection of the Waldorf as convention headquarters" writes Sec'y Smith, "is particularly valuable and fortunate. As you no doubt know, it is the last word in hotels today. It is a real finishing school for club managers. All of us will be interested in going through their ultra modern kitchens, wine room, laundry; there will be a great deal of interest in the dishes served under the direction of their famous chef, Oscar. We will want to see their linens, watch their service, study their menus. In fact, it will be like taking a series of courses in club management."

General convention chairman is William Norcross, Essex County CC, West Orange, N. J. He will be assisted by John L. Keenaghan, Union League, New York City, C. Henry Hinton, Manursing Island Club, Rye, N. Y., and Frank Wheatland, Colony Club, N. Y. C. This committee is already at work and from all indications is going to offer one of the outstanding entertainment programs in the association's history.

According to present plans, there will be no exhibits at this convention. Plans are being made to have detailed discussions on all departments of a club. These will be optional and a manager can attend these meetings when some particular subject that he is vitally interested in is up for discussion.

# COURSES IMPROVED

**. . . but battle to restore links to pre-depression condition not over**

**A** GAIN comes the time when many clubs take end-of-season inventories of course work and condition to check the year's achievements against initial hopes, and to plan for next year with the lessons of the departing season fresh in mind.

A check-up with greenkeepers on what they consider the most valuable details of their work during the past year brings out that the majority of them were lucky to get by without exceeding their budgets, despite a season that was unusually bad. One frank and resigned greenkeeper answered:

"I gave them all the course anyone could for the money I had to spend and that kept me down to barest routine work, but keeping within my budget was an achievement although I can't say that I am as proud of the condition of the course as I was in the days when they let us buy what we needed."

Jacob Kohr, greenkeeper at the South Bend (Ind.) CC, set as the first accomplishment for member pleasure and pride in his course the improvement in green and fairway cutting effected this year by new mowing machinery. Kohr observes that where greens are unsatisfactory and where fairways are ragged, there is not much the greenkeeper can do if he is working with inefficient, out-moded machinery.

## **Improve to Cut Costs**

Several greenkeepers stayed within greens mowing budgets by reducing the size of the putting surface, but the general advisability of this practice because of playing requirements is questionable. Some say the labor required on the fringe that formerly was putting surface may run costs back up so the net saving isn't worth the effort, if the members insist on a manicured fringe.

Alteration of trap slopes to permit machine maintenance is a work detail that numerous greenkeepers nominate as their outstanding thrift job for the year.

Preventive work all the way through has been the year's feature and although it has shown no conspicuous increase of course beauty it has cut costs and kept courses in better playing condition. Greens

drainage work has paid rich dividends in a season like the one just ended. Drainage and air circulation have cut down disease and weather damage.

Several greenkeepers report that they are privately proud of the way in which they kept their nurseries maintained this year because eventually greens will have to be rebuilt and resurfaced and they have sod available. This is a valuable piece of work the membership generally doesn't appreciate.

## **He Keeps Members Posted**

One wise veteran relates that the most valuable thing he did during the season was to be around when his men were doing the slightest bit of construction or improving work so he could explain in detail to the members just what was going on and give them an idea of the nature of course work.

Kohr, the South Bend man, again brings out a worthwhile suggestion in relating that the construction of a new caddyhouse at his club was one of the valuable jobs of the year. During the depression the caddie quarters at many clubs have run down so they would stir up newspaper campaigns if they were used to house negro share-croppers. These places get hard use. Most of the time they are out of members' sight and are allowed to run down badly by clubs that keep reminding the kids to take pride in all the club's property.

Judging from GOLFDOM's staffs' observations this season, about half of the first-class clubs in the country could wisely invest the price of some boards, nails, paint and labor on caddyhouses during the winter. It's a job that will keep some of the greens force employed instead of being knocked off to go on relief.

Late reports of play stretching into the fall at eastern and central clubs call at-

tention to the job of cleaning underbrush and dead timber from woodlands during the summer. Trees suffered as much as turf during intense hot spell of last summer and tree care, neglected widely for the past four or five years, is due again on a major scale.

Fairway watering installations now are at the point where satisfactory systems are available in a wide range of prices, with the factors of thoroughness and labor economy being major ones in determining cost of a good system. Early this past season there was enough rain in most of the central territory to shove ideas of fairway watering aside at many clubs, but things averaged up and when the hot weather came along and stayed, play kept up at the watered courses sufficiently to justify the expense of fairway irrigation.

Fertilizer deficiencies are beginning to show up at many courses. Some greenkeepers admit privately that they have been able to switch around and sneak enough funds from their budgets to do some desperately needed fertilizing but many of them are apprehensive of the future unless they can feed their grasses.

Knowing full well that fungicide effectiveness is governed largely by weather, greenkeepers here and there rejoice they have been lucky enough in guessing weather conditions to keep down fungous diseases, and have begun to talk about weather instruments being a greenkeeping requirement that soon will pay for themselves.

### Mass. S. C. Again Offers Greens Course, Conference

WINTER greenkeeping school at Massachusetts State college, Amherst, Mass., starts January 2 and continues through the annual recreation conference and exposition which will be held March 13, 14 and 15.

This course under the direction of Lawrence S. Dickinson, has become one of the great influences in practical course maintenance. Graduates occupy positions at many first class clubs in the United States and Canada.

Cost of the course is kept low. Registration fee is \$16.50. Board and room can be obtained in Amherst for \$10 a week, and some students get by for an additional expense as low as \$10 during the ten weeks of the course. There are students in the greenkeeping course who bring their

wives, for Amherst is a grand little town where college entertainments with a pleasant blending of culture and pepper are available on a good schedule.

A development of the MAC short course that is creating a lively winter sports program in New England is the recreation conference. President Baker of the school marshalled all his forces in expanding this idea, which grew out of Dickinson's short course, with the result that the conference unquestionably has stirred up considerable winter sports activity in that territory, with golf clubs deriving a good share of the benefits.

At the conclusion of the 1934 conference, the golf section advisory committee, composed of leading factors in golf club maintenance, operation and executive management, drew up several conclusions, one of which was the earnest recommendation that golf clubs should encourage attendance of their greenkeepers at the MAC winter school by defraying all or a part of the expense.

As the winter school is organized and conducted for club service primarily, it is logical that the clubs take advantage of it at club expense rather than make greenkeepers pay a premium for their interest in applying to the clubs' courses lessons from the valuable school at MAC.

### Rutgers Turf Short Course Offered Feb. 17-22

COLLEGE of Agriculture, Rutgers University, New Brunswick, N. J., will again offer next spring a one-week course in turf management which should, as in other years, attract large attendance from greenkeepers. The date for this year's course is February 17-22. There is no tuition to residents of New Jersey. A nominal registration fee, to cover cost of supplies used, is charged.

The Rutgers course is conducted as a real course, not merely a series of conferences. Lectures are supplemented by classroom discussions and by laboratory and field demonstrations, so that the student may absorb, so far as possible in the time allowed, a thorough grasp of the subject at hand.

Interested greensmen, whether residents of New Jersey or not, are urged to write without delay to the Director of Short Courses, College of Agriculture, Rutgers University, New Brunswick, N. J., for a circular giving full particulars of the course.

# KNOLLWOOD LIKES SKEET

By J. E. WHEELER  
and BOB CUNNINGHAM, Jr.

**A**CTIVE interest in shooting was first displayed at Knollwood in 1927, at a time when other Chicago district clubs were already shooting on a successful basis. Along with the cumulated agitation for winter sports sponsored by the club, our shot gun spirits clamored for proper dispensation on their behalf and a trap layout was installed, which was sparingly patronized for a few seasons only to fail for lack of sustained interest after the general decline in member income.

Revived during 1932, interest again mounted and a committee was formed for the purpose of conducting winter sports on a satisfactory self-supporting basis. Three members of this group agreed to underwrite the off-season program and thus their full support was assured and the co-operation of all interested members practically guaranteed. Since the original trap equipment had been purchased several mechanical improvements had rendered the investment almost obsolete and the declining interest in straight trap-shooting dictated purchase of a skeet outfit. The modern layout, including an electric trap release and permanent wooden walks, was installed for less than \$500 and the old equipment sold at a heavy discount.

## Sold Special Gun Membership

Other clubs supported by a membership with financial strength on a par with ours had established a satisfactory rate of \$1.50 per round of skeet, and we followed their example, with the additional feature of a \$25 gun membership which was available to all golf members and their properly introduced associates. This membership, which entitled the patron to certain preferential privileges in reserving shooting time and a charge of only \$1.00 a round, was purchased by 18 men. An equal number elected to shoot at the single \$1.50 rate and arrange their appointments upon arrival.

It is noteworthy that, considering the number of rounds shot under each plan, the profit from the membership outshone the single rate shooting. With the greater

income from the bar and other club facilities due to more frequent shooting by members, the necessity of pushing this plan in the future was demonstrated.

For those who desired to shoot but did not own guns we worked out a system for supplying them with equipment. We found a sporting goods dealer who let us take two very good guns worth over \$100 apiece, with the agreement that he would be paid for them by spring. He was glad to make the arrangement for he might well have had to carry them in his stock for some months and close them out finally without his usual profit. We rented those guns for 25c a round and also rented guns of members who agreed to the proposal, with the result that more people learned to like skeet, more people shot with us and a fine impetus was built up for the next year's shooting. Then we sold the guns to two of the members for considerably less than the dealer's sales price and showed a profit on the rentals. Also those who did not even come out because they did not have guns, learned of the 'shoot it yourself' plan from the dealer and our patrons, and added to our "gate". Our range was located 200 yards from the regular clubhouse, which was closed during the winter months. For shelter, we improved the caddy house by adding a log fireplace, several lounge chairs, a few card tables and a make-shift bar, which was operated during prohibition times on a private stock, pro-rate cost plan. The popularity of our venture was a pleasant surprise and we even went so far as to charge the ever increasing audience a small fee for the bridge use of our 'clubhouse.' Operating expenses—excluding light and porter service which were allocated to winter maintenance for the general house—plus the original investment for equipment were covered by our income and a substantial sum was set aside for the installation of additional equipment.

We accordingly purchased another skeet

layout with the latest practical features and installed it at some distance from the first range with an overall expense of again less than \$500. With the more ample accommodations our next season's membership, occasional shooters and the steady run of \$1.50 rounds stepped up considerably. With the single range we had been forced to limit the women shooters to Sunday afternoons or week days and, as we tried to avoid the extra overhead of opening during the week, the ladies usually held sway on Sunday afternoons when many men would like to have shot in a so-called stag atmosphere. Under the new set up we could permit womens' use of one range only and satisfy both groups.

It goes without saying that our second year of operation was a more hearty financial success than the first and "a good time was had by all."

To answer some questions which are common to most clubs inspecting our layout, let me resort to testimonial procedure. Q. How do you get the original impetus? A. That depends on the membership, but when the proponents of shooting get to talking the board of directors should listen. Q. Under what division of

club operation is trapshooting set up? A. We find it most convenient to include shooting under Winter Sports as an individual account. Liquor and bar-supplies are purchased from the house bar at cost and our three employees, formerly caddies, are paid out of our income. Q. How do you promote interest in the sport? A. We sponsor weekly shoots, intra-club tournaments under the handicap system and regular matches with other clubs who have established a league of competition.

We find that all young shooters prefer skeet to straight traps; only those oldsters who are especially skilled at the "drop-bang" game hold out for the old style. After some inquiry among members of other clubs we decided interest in skeet far outweighed that in traps and that general club income profited more from the relatively slow-moving skeet than from "shoot and go home" traps. A round of skeet takes from 10 to 30 minutes while 25 trap-pigeons can be pulverized in 4 to 12 minutes. With 20 or more skeet shooters, the wait between rounds lasts from 20 to 50 minutes and this time is usually devoted to conversation and to purchasing the club's supplies.



Greensmen from Minnesota and adjoining states were shown the Toro line during their recent meeting.

### Minnesota Greensmen Hosts to Tri-State Meeting

MINNESOTA greenkeepers' association was host to a group of greenkeepers and park superintendents from Iowa, Wisconsin and North Dakota in Minneapolis on Sept. 3 and 4. Close to forty were in attendance.

The group met at the Nicollet hotel on arrival and were taken in cars to the new University golf course, then to Midland Hills and Keller in St. Paul. After lunch they drove to Minikahda, and that evening a banquet was held, with Professor Stoutmeyer of Iowa State college as principal speaker. Motion pictures showing the

growth of fungus and spores were shown.

On Wednesday the group went through the Toro plant, and from there to Interlachen, Minneapolis, Westwood Hills, Superior, and Woodhill county clubs. Leonard Bloomquist, genial manager of Superior, put on an excellent lunch, and the meeting wound up with a dinner at the Nicollet hotel, put on by the Toro company, with Ken Goit acting as toastmaster. A number of outstanding speeches were made.

Most of the credit for the success of his tri-state meet goes to Ort Anderson, president of the Minnesota association, who saw to it that every minute of the meeting was used to advantage.



# IRRIGATION SYSTEM MEETS BROOKLINE'S WATER NEED

FOR some years prior to 1934, The Country Club, Brookline, Mass., had purchased from the municipality relatively small quantities of water, but by reason of the high price of such water no attempt was made to irrigate the fairways. When Brookline was selected for the 1934 national amateur championship, its Directors decided to install pumping equipment and pipe lines for thorough course irrigation.

It was found that water could be obtained from shallow driven wells at two points and, accordingly, three 2½ in. wells were driven in one place and two wells in another. Small brick pumping stations were built at each location and a motor driven De Laval centrifugal pump installed in each, the pumping equipment and appurtenances, together with the work of installation, being supplied by the Turbine Equipment Co. of New England. In each station the main from the wells lead into a sand chamber combined in one structure with a vacuum storage tank, and a motor-driven, water-sealed vacuum pump is used to lift the water initially from the wells into the sand chamber and at the same time to prime the centrifugal pump. A vacuum switch starts the vacuum pump when the vacuum in the reserve or vacuum storage chamber falls below 16 in. mercury column, and stops it when the vacuum exceeds 21 in. mercury column. The suction lift averages only about 10 to 12 in. mercury column, the water being held approximately 2 ft above the center line of the centrifugal pump at all times, but float-controlled automatic air release valves prevent drawing water into the high vacuum tank. The high reserve vacuum in the latter insures priming at all times with only infrequent operation of the vacuum pump.

## Pond

### Is Reservoir

The two well stations have substantially the same construction and equipment, but one is designed to deliver at the rate of 100 gal per min, and the other at 150 gal per min. Both stations discharge through underground pipe lines into a large natu-



View of main pump-house at the Country Club, Brookline.

ral pond about one-quarter of a mile away, which serves as a reservoir, making it possible to operate the wells at a constant rate, although water is drawn from the reservoir at a high rate for the irrigation of greens, tees and fairways during the evening hours. The pond also receives drainage from some sections of the course and water from a number of relatively small natural springs.

The main, or irrigation, pumping station, which is located on the shore of the pond, houses two 500 gal per min centrifugal pumps, driven by 25 hp motors, a smaller pump driven by a 10 hp motor, a 1000 gal pneumatic storage tank built for 150 lb maximum working pressure, a motor driven air compressor and a 4-panel switchboard providing for full automatic operation of all pumps. The small pump and one of the larger centrifugal pumps deliver to the storage tank and the large pump also delivers to the discharge line.

The larger pump is operated through an automatic starter by a pressure switch to start the pump when the pressure in the tank falls to 35 lb gage and to stop the pump when the pressure rises to 72 lb gage. The smaller pump is controlled in response to the water level in the tank by a specially designed mercury switch, which starts the pump when the water is at a level in the tank corresponding to a pressure of 40 lb, and stops the pump when the water reaches a level corresponding to a pressure of 130 lb. The storage capacity of the tank between these levels is approximately 627 gallons.

The first of the larger pumps can deliver into the pneumatic tank, or, if desired, directly into the 6 in. discharge line, as stated above. The second larger pump is piped in series with the first, with check

and gate valves, so that the two pumps can deliver 500 gal per min against approximately 130 lb pressure to reach the most distant and highest parts of the course. The smaller pump delivers approximately 120 gal per min. against 40 lb, which is reduced to approximately 100 gal per min. against 130 lb, and with the help of the pneumatic storage tank meets normal daytime demands, estimated at 100 gal per min., to supply line losses and three or four  $\frac{3}{4}$ -in. faucets, each requiring 25 gal per min. The small pump also saves running a 500 gallon pump, with its high cost for starting current and rapid wear of contactors, when the demand is small.

### Waste Prevented by Electric Controls

When the water in the tank falls to a level corresponding to 40 lb per sq in, the smaller pump automatically begins delivering and if its delivery exceeds the outside demand for water, the level will gradually be restored to that corresponding to a pressure of 130 lb per sq in. However, if the demand continues to draw the pressure down, which would indicate the use of water in excess of the delivery of the small pump, the main pump will be started when the pressure reaches 35 lb. The latter pump will be stopped as soon as the level is restored to the point where the pressure is 72 lb, whereupon the small pump will again be started to take over the load, the electrical controls being so interlocked that both large and small pumps cannot run at the same time, thus preventing inefficient current consumption during the night when the large pump is carrying the heavy night load.

The air compressor, which is driven by a  $\frac{3}{4}$  hp motor, is started by an automatic pressure switch whenever the pressure in the tank drops below 65 lb, and continues pumping so long as the pressure remains below that figure. When the pressure in the tank again reaches 65 lb however, the compressor is shut off and further increase in pressure and compression of the air is caused by rise of water level through the operation of the water pumps. The compressor thus delivers a small quantity of air into the system whenever the pressure in the tank falls below 65 lb, to replace air dissolved by the water or lost by leakage through safety valves and piping.

The basement of the pump house forms the suction chamber for all water pumps

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### HELP! HELP!

This is the season of club elections. New officers, new committee chairmen, new pros, greenkeepers and managers are stepping into the job.

GOLFDOM is published solely for club operating heads. They profit through the information sent them exclusively through GOLFDOM. They should get every issue.

GOLFDOM goes to all club presidents, greenchairmen, managers, pros and greenkeepers. See that we are notified whenever there are changes in the above posts. Convenient form will be found on page 66.

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in the main pumping station and the suction lines are fitted with check valves below the water line, thus insuring continuous priming of the pumps after the initial start of the season.

From the main pumping station the water is led by approximately  $6\frac{1}{2}$  miles of underground piping to duplex sprinkler heads, each covering a circle of approximately 200 ft diameter. Special connections, each accommodating two hoses, are also provided for the use of the Brookline fire department. With this system, approximately 350,000 gallons of water were pumped each night and sprinkled over the three nine-hole courses during 1934, with very gratifying results, and this year the grounds are in even better condition because of the ample irrigation and proper treatment during the preceding season.

The total quantity of water pumped during the season of 1934 was approximately 13,000,000 gals, at a total cost for electrical energy to operate the pumps of approximately \$1400, or around \$108 per million gal. When the water was purchased from the town of Brookline, the cost was approximately 21c per 100 cu ft, or \$280 per million gal, at which rate 13,000,000 gal would have cost \$3,640. Assuming that the same amount of water would have been used, the saving in cost of pumping over the cost of purchased water is \$2,240, less the fixed charges on the pumping equipment, which would be a small figure in comparison. Actually, had city water been used, 13,000,000 gal would not have been purchased, with the result that the course would have been in need of water and would not have attained its present excellent condition.