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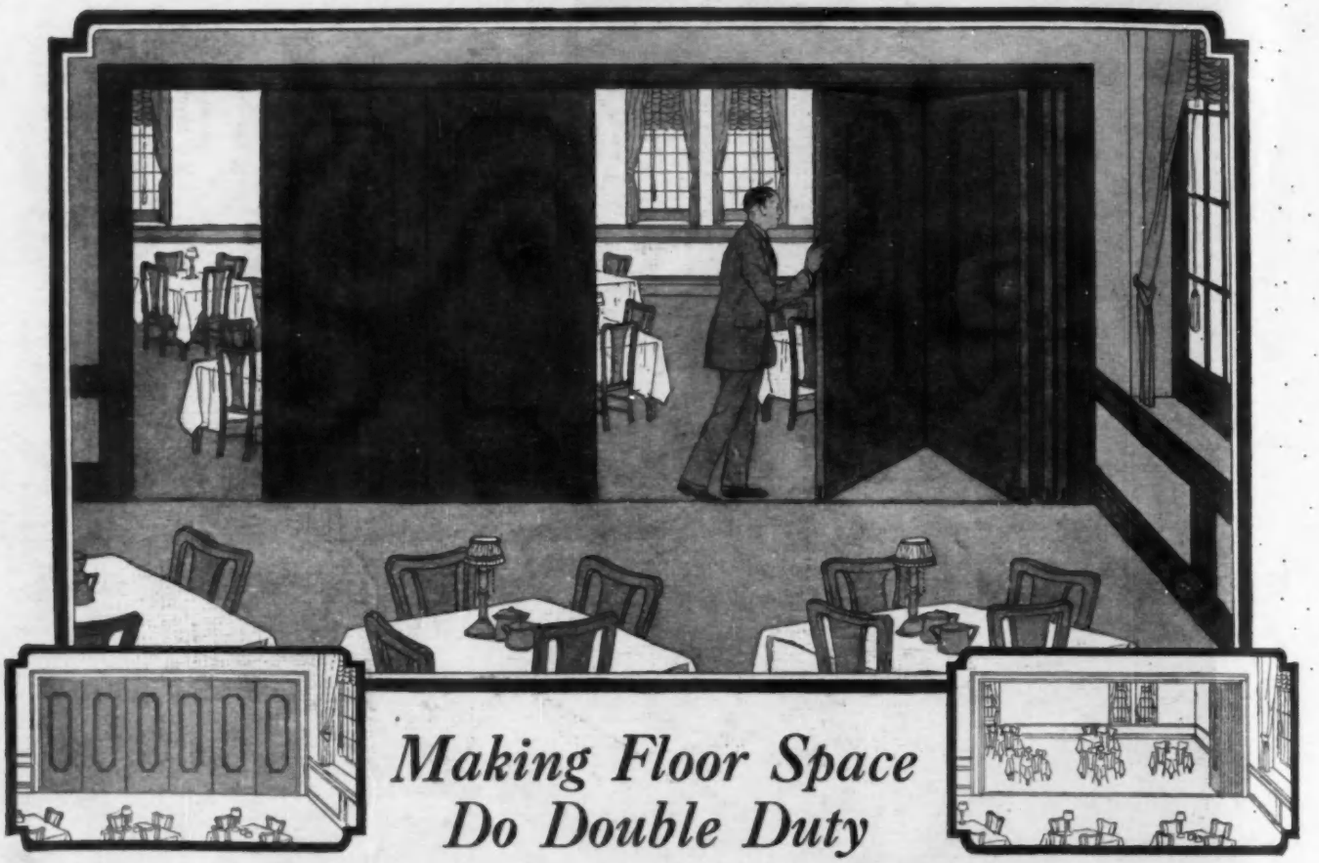

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PRELIMINARY STUDY FOR THE OAKLAND GOLF CLUB, BAYSIDE, NEW YORK
ROGER H. BULLARD, ARCHITECT

The Architectural Forum

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What the Golfer Wants in His Club

By GRANTLAND RICE
Editor, The American Golfer

THE startlingly rapid development of golf in this country during the last decade, more particularly since the World War, has worked a material change in the predominating requirements in the golf club of today from those of an earlier period. Golf is now *the* game of the business man and his professional brother, and it is rapidly laying hold of the artisan and the tradesman. Gone are the days of the candy-striped blazer, which at one and the same time served as an object of derision and ridicule on one hand and a hall-mark of the ultra-ultra on the other. The significance of the new order of things in golfing is that the conception and standard of playing facilities and provision of housing accommodations for those who play have undergone a notable change. To get the proper background for the picture, it may be well to look back a few years and follow the thread of this development down to the present time.

For all of the fact that the game is known to have been played for five centuries and more, it is hardly more than three decades old in this country. A glance down the roster of the 3000 and more clubs in the United States reveals the fact that only a scattering handful were in existence as far back as 30 years ago. When the game began to attract the attention of the early few, the country clubs of the day were the first to be impressed with its possibilities as a further development in their program of activities. This, of course, was entirely logical. These clubs already had organizations, and furthermore, they already had homes in the open country, many of which offered space for the construction of golf courses, and so their adoption of the game was entirely fitting.

But the country club of that day was admittedly an appurtenance of the wealthy class in each community. Membership in it was equivalent to a badge of social distinction. An atmosphere of luxury surrounded it, and its activities were conducted on rather a grand scale. Golf was inducted into the general scheme of club activities, and as a matter of course came to take its place on the same plane of administration and conduct that marked the other affairs of the club. In other words, this frugal foundling wandered all the way from the sand dunes of bonnie Scotland and found itself adopted into the lap of luxury in the United States.

But there was a fundamental appeal to the game, and it began to lay hold more and more securely. Busy middle-aged men, alarmed at their snatchy, gasping efforts at breathing following the hurried ascent of a flight of steps or a brief sprint for the morning train or car, began to take heed of the advice of their physicians to "get out into the open more." They turned to golf and found, rather to their surprise, that the "fool game" was fascinating. One man told another, and some took it up in self defense in the hope of getting an even break in a conversational way when they happened into a gathering of friends who had already been bitten. At any rate, the country suddenly woke up to find the fever of golf on it—and here we are. To keep pace with the increased interest, new clubs began to be organized all over the country. But regardless of whether their sponsors designated them as "golf" clubs or "country" clubs, the influence of their antecedent, the country club of the old days, was on them. Golfers came to expect fine appointments, luxurious fittings and service akin to that to be found in a metropolitan hotel in the matter of catering and culinary effort, and with these came, inevitably, heavy expense. Straightway there followed the indictment that golf was a game within reach of the rich alone.

It has been and even is, so far as membership in private clubs is concerned, expensive entertainment. This is true in large measure because of excesses in various ways,—in administration, for one thing. If the men who make up the memberships of the numerous clubs about the country ran their own businesses as they allow that of their clubs to be run, in a large majority of cases they would shortly be facing bankruptcy proceedings. Club management is a business, just as selling insurance, manufacturing shoes and the like, and the sooner the members of the clubs of the country come to realize it, the sooner they are going to begin saving.

Course construction and maintenance have been other sources of reckless waste of money. One very capable judge, an enthusiastic golfer, an official in one of the well known middle-western clubs, and a man who has for several years made a careful study of golf course upkeep, is responsible for the statement that clubs of the country are annually wasting millions of dollars through ignorance in meeting the various and sundry problems of maintenance.

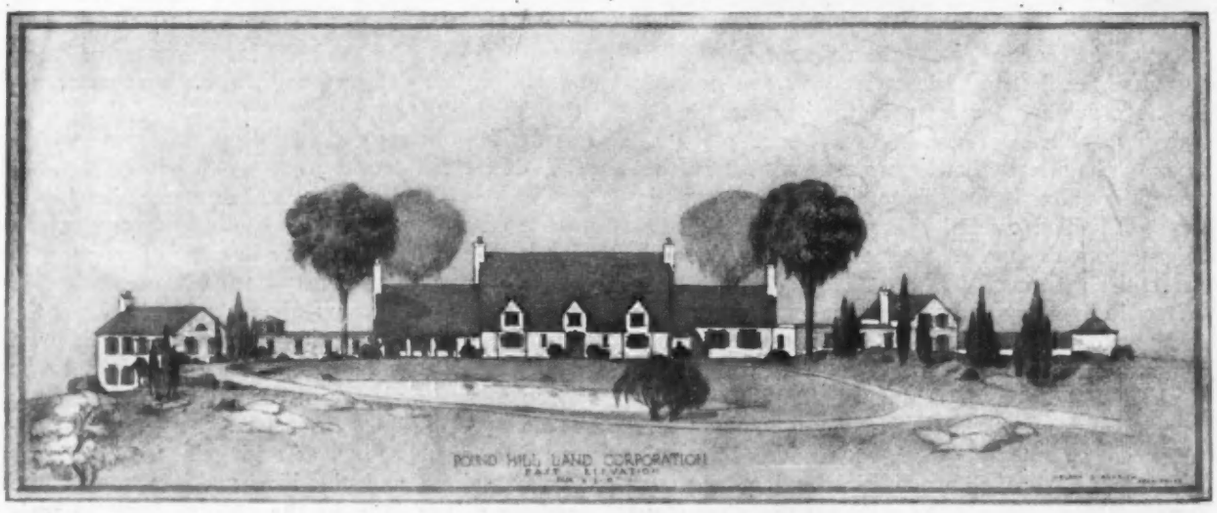
However, better days are dawning. The United States Golf Association, through its Greens Section, with the coöperation of certain men in the United States Department of Agriculture, is taking a lot of the bunk out of this end of the game. Intelligent research and experimentation are getting to the bottom of many of the problems, and hope eventually to clear them all up. Authentic information on much that was formerly puzzling is now to be had almost for the asking, and there now remains but little excuse for wasting money through lack of knowledge of how to expend it properly.

Efficient management, both in the club house and on the course, is capable of contributing largely to providing the golfer with what he wants at a reasonable figure. An appreciation of his tastes and consideration of them in providing for him are the next important matters, and here it ought to be borne in mind that the average golfer today is a golfer first and a cotillion leader afterwards,—if at all. Social activities have their place in the golf club, but they are secondary. It is a significant fact that within the past five or six years, the non-golfing golf club members have been very rapidly disappearing. So noticeably is this true that clubs now very frequently offer what are called social memberships, including all club house privileges but no golf privileges, at prices that are sometimes as low as 10 per cent of the golf membership costs, and rarely more than 20 per cent. Meanwhile the caddy master or starter is accepting starting times from the first tee three and four days and sometimes as much as two weeks in advance!

What the club member expects in his own individual case depends very largely on the type of his club. There are golf clubs and golf clubs. Usually the member is logical enough not to expect to satisfy a champagne thirst on a hard cider bankroll. What he wants is still easier to determine. He wants the best golf course the club can possibly afford. He even likes to have it much harder than is good for his own game. If you want to judge what is good for him you can do so by the figures he hands the handicap committee. And he wants the course kept in the best shape possible with the means at hand.

He also wants a comfortable club house with merely the conveniences and comforts that will contribute to his enjoyment. Generally speaking, he doesn't ask for luxury so long as you give him comfort. He may at times be a little over-exacting in his demands on the catering service. Such, for instance, as when he and the gang have hung around "the 19th hole" up to the "Sweet Adeline" stage, and then come into the dining room or grill, only to find that the kitchen force has been turned loose and that nothing but cold cuts is to be had. He'll probably proclaim in an enraged tone that it's a heluva club, and that he doesn't see why he stays in it. But if you tackle him a couple of days later and explain that keeping the dining room open all hours of the night means an addition of about 50 per cent to the overhead, and a probable assessment at the end of the year, he'll more than likely listen to reason.

To sum up, then, the trend of the times in golf club essentials is toward laying more and more emphasis on the playing of the game, at the expense of a corresponding decrease in purely social activities. The maximum of perfection possible in playing facilities, within the means available, and club house accommodations which feature comfort rather than luxury, together with convenience rather than elegance, constitute the basic requirements toward returning to the golfer one hundred cents in value for each dollar that he pays into the club's exchequer.



Study for the Round Hill Club, Greenwich, Conn.
Delano & Aldrich, Architects

The Evolution of the Golf Club House in America

By J. LEWIS BROWN, *Editor, Golf Illustrated.*

LED by such stalwarts as Robert Lockhart and John Reid, golf was introduced to America in the summer of 1887, and their first "club house" was a table attached to an apple tree, from the limbs of which was suspended the superfluous clothing of the men who were giving Colonel Bogey a battle in the adjacent meadows. This tree, which still flourishes in a garden just off North Broadway in Yonkers, proved the Mecca for the handful of pioneers known as the "Apple Tree Gang," to which, curiously enough, golf in America traces its genesis. From the nucleus of the "Apple Tree Gang" came the formation of the Yonkers Golf Club and later the St. Andrew's Golf Club, now located at Mt. Hope, New York, which is generally conceded to be the oldest golf club in the United States. From this little band of golfers in Yonkers there have grown nearly two million followers of the game in this country, and from this modest little apple tree as the first club house there have developed nearly 3,500 golf clubs; but none of the golfers of those days, or for several years afterwards for that matter, had any idea that golf, in view of the expense required for the construction and upkeep of the links, was ever to be a popular game in the United States, and destined, as must now be realized, to become an almost dominant feature, after baseball, in the outdoor life of our country.

It was not long after the organization of the St. Andrew's Golf Club, in fact it was in 1894, that these pioneers forsook the apple tree, and even the old farmhouse at "Grey Oaks," in which they afterwards stored their clubs, and built themselves a small but none the less attractive club house at Mt. Hope in 1895. About the same time the Shinnecock Hills Golf Club, at Southampton, was organized; this club contends that it was the first legally organized golf club in this country, because as early as 1891 it owned a tract of land large enough for an 18-hole course, and the following summer it was able to open a club house. Another of the early clubs was the Tuxedo Golf Club at Tuxedo Park, incorporated in 1894, though the game was played there much earlier. The Country Club of Brookline, and the Belmont Golf Club, near Downer's Grove, Illinois, were also among the initial clubs, as were also the Newport and Meadow Brook Golf Clubs. These first club houses were of necessity small but comfortable, that at Shinnecock Hills being by far the most pretentious. The game itself was preëminent, however, and there were no demands on the club's capacities in other than a golfing way. As interest in the game grew, however, and play became more general, new club houses sprang up all over the country with surprising rapidity. As always, competition not only in golf, but in club house building developed. Each new club tried to outdo what its rivals had done in the past. The smaller club houses gave way to larger buildings as expansion demanded it. Some were demolished, and others lost their original individuality by the addition of new wings and superstructures. Soon the golf club house began to compete with that of the country club, and the race was definitely on.

Few country clubs now consider themselves complete unless they have golf courses, while many golf clubs offer not only golf but also all the sports which at one time the country club considered particularly its own, so that in reality the country club is fast giving way to the golf club, for there is no question that golf is the ranking sport at these clubs today. The advent of these additional sports and the ever-increasing demand on the capacities of the club houses for social entertainment and comfort could not but make themselves felt in the requirements. All of these augmented features had to be catered to, and often as not they demanded as much if not more attention than golf itself. The logical result was that the buildings kept getting larger and larger; locker rooms and dining rooms spread themselves out over more and more territory;

The St. Andrew's Golf Club, Mt. Hope, N. Y.
Built in 1895

Eighteenth Green at Shinnecock Hills
From a photograph taken in 1898

Old Meadow Brook Club, Westbury, N. Y.
Established in 1881

Aronimink Golf Club, Drexel Hill, Pa.
Established in 1901

wings for bedrooms and lounge rooms were added; tea rooms and enclosed porches were found necessary; the demands of the women members began to receive as much attention as those of the men; swimming pools, squash and handball courts found a place in the club house planning; kitchens and laundries took on the pretentiousness of those in small hotels, until finally the whole club house, in a measure, was changed from the club house as an ideal into what may be termed little less than a magnificent country hotel, surrounded by a huge estate, converted into a playground extraordinary. The Olympia Fields Country Club, near Chicago, the Westchester-Biltmore Country Club, at Rye, the Congressional Country Club, at Washington, the Longue Vue Club, at Pittsburgh, and the Pinehurst Country Club, at Pinehurst, are but a few examples of what may be termed the last word in this direction—at the present time. But we never know what some new Barnum may produce tomorrow, as "bigger and better than ever." These clubs, with their beautiful courses and club houses, are striking monuments to the enormous growth of golf, with its ever-increasing demands.

All clubs have not aspired to build new club houses. Some have found that by remodeling old houses attractiveness and comfort can be combined at a financial outlay far smaller than if new buildings were attempted. Thus, in the selection of a piece of golf property it is now often considered a piece of good fortune to have on it an old family residence in good repair, suitable for remodeling. In this way much of the charm which only a real home possesses is retained, and a great deal of the formal coldness of the large club house is avoided. This plan has many advantages as well as disadvantages, but there is no doubt that where the question of immediate financing is a factor, it is often considered and taken advantage of. Again, in other circles the desire for an architecturally attractive building has been an important factor, particularly where the club's exchequer has permitted building the type of club house that the contour of the site demands or the historical associations of the neighborhood make fitting.

Thus, from the little club house at Shinnecock Hills, which incidentally was designed by the late Stanford White, down to the palatial edifices which serve the countless thousands of today, there has been tremendous transformation both in size and in architecture. What the future will produce no one can say, but it does not seem unlikely that club houses more pretentious and more palatial than those of the moment may even yet be evolved.

Westchester-Biltmore Country Club, Rye, N. Y.
Completed in 1922

Congressional Country Club, Washington
Opened by President Coolidge, May, 1924

The Architecture of Country Clubs

By ROGER H. BULLARD, *Architect, New York*

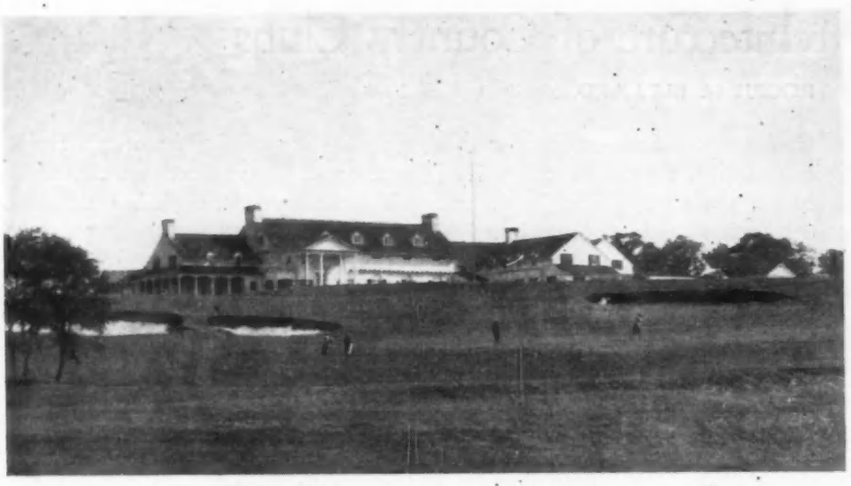
PRIOR to the year 1894 and before golf had become an established game in America, there were a few clubs which existed for the enjoyment and promotion of certain sports such as polo, horse racing, tennis, swimming and track athletics, in which only the comparatively few could actively participate. Among these there was a club in Brookline, which in September, 1882 was incorporated as "The Country Club." The patent then copyrighted on the name is protected to this day by the laws of Massachusetts, and it is only with qualifications that "The Country Club" can be used as a popular term. This is a fact not generally known.

It was not until golf had been adopted in America that the country club as we know it came into its own as the social center of every community. With the rapid spread of interest in this sport, there grew the demand for club buildings where members could gather and talk over the game. The early country club catered solely to the needs of its members, with a locker room and perhaps a grill, but in America we cannot long let an idea lie fallow. We must develop it and extend it, with the result that today we have advanced to a point where our clubs provide for extensive sports, such as bowling, squash, trap shooting, polo, swimming and dancing, tobogganing, skiing and skating. Such is the evolution of the country club. In England, in the early days of golf, the courses were laid out near the sea, and the players usually stayed at hotels in the neighborhood and used the links with their meager facilities. This brought the game within reach of all. In that country golf is enjoyed by the poorer classes, and it is quite usual to see a laborer quit his work and start for a round with his three clubs under his arm and a ball or two in his pocket. The new golf clubs now being established there are built along the more liberal lines of the American clubs. A number of large estates have been purchased in England, and golf courses of the park type have been laid out with club houses containing ample locker rooms, with lounges and dining rooms of modest proportions. Stoke Poges, near London, is one of the newest of these, but even there one does not find all the facilities and conveniences of our modern country clubs in the United States.

Twenty years ago in the United States, to be able to enjoy the game at all one was obliged to belong to an expensive club, as we had nothing here to compare with the public commons of the British Isles. Today, however, there are many public and municipal courses, in and about the larger cities, which makes the game possible for all at a nominal cost. Thus the game is being widely popularized.

The country club is distinctly an American institution, and the number which have been established during the last few years is evidence of our growing love of out of door sports and of the intimate part they now play in modern American life. As a result, a new and distinct type of building has been evolved which expresses in terms of architecture this developed idea of community sport life. These clubs have taken on, more and more, certain characteristics in design and arrangement which are peculiarly their own and which would not apply to any other type of building. Unlike the planning of a private house, which meets the needs of an individual or family, the club house must be arranged to meet the requirements and tastes of many. In every locality these requirements vary, according to existing conditions and the type of club, but in all instances there are certain fundamental laws which apply, irrespective of a club's individual needs. The character of the building

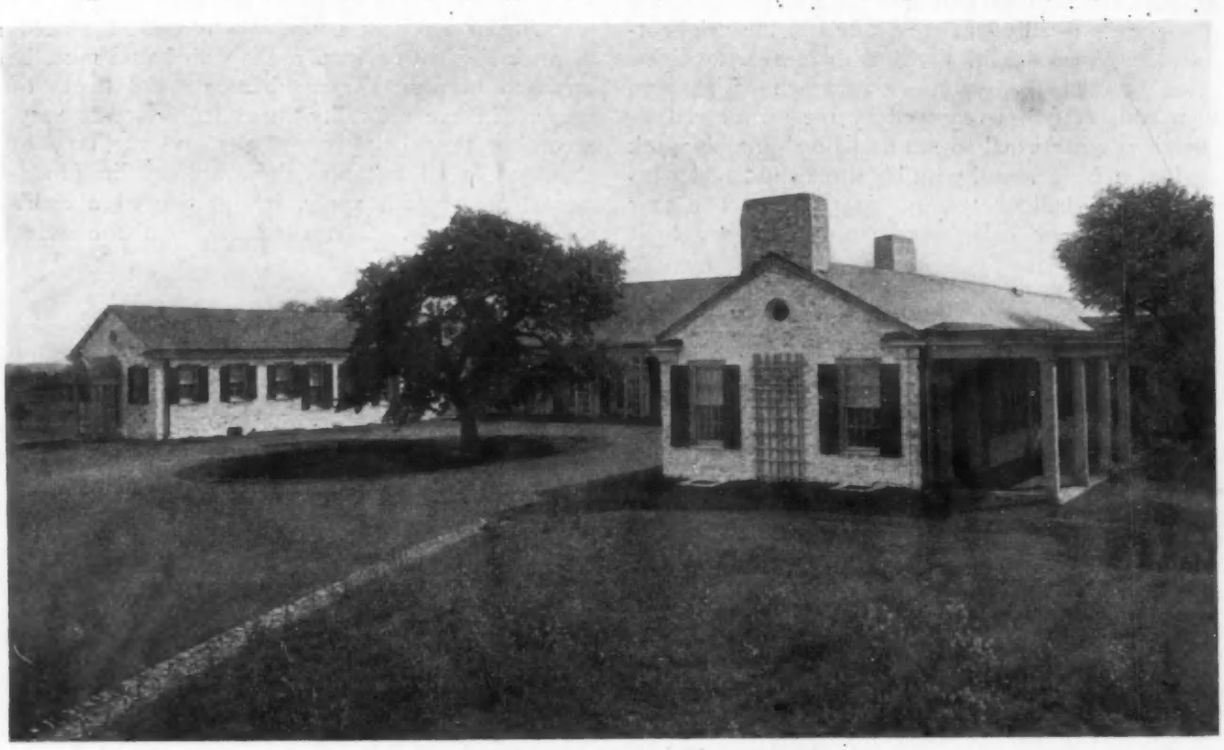
Maidstone Club, East Hampton, N. Y.
Roger H. Bullard, Architect



Plainfield Country Club, Plainfield, N. J.
Roger H. Bullard, Architect

should depend on its environment, a rolling country suggesting an informal arrangement of plan with wings and varying floor levels and low roof lines, while a more level site would make a formal arrangement seem preferable. Geographical location also has a bearing on the general character of design. The clubs in Florida and California have almost universally adopted the Spanish or Italian styles of architecture, while those in New England have been influenced by American Colonial, English Georgian and French farmhouse design.

The first consideration, of course, is the site of the building. This should be adjacent to the first tee and 18th green and should have a commanding view of the course,—with a southerly exposure, to obtain the prevailing breezes and to admit sunlight most effectively in the more important rooms. The summit, plateau, or valley where the building stands should be chosen with great care, as it should be of sufficient area not only to accommodate the building itself but also to allow for adequate parking facilities. This important point is unfortunately often overlooked. It is not absolutely necessary that the parking space should be on the same level or even adjoin the main approach, since a building site of limited dimensions, or one which slopes away in all directions, might require a lower level for the parking of some cars; but it is important that space be provided somewhere for the maximum number of cars likely to be assembled on great occasions, for it is at just such times that congestion should be avoided. It is sometimes possible, by cutting and filling, to alter the existing topographical conditions of grade and so make an artificial plateau or valley large enough to meet all requirements. The parking space should be so arranged that a car may be started at any time without having to move another car out



Somerset Hills Country Club, Bernardsville, N. J.
Lord & Hewlett, Architects

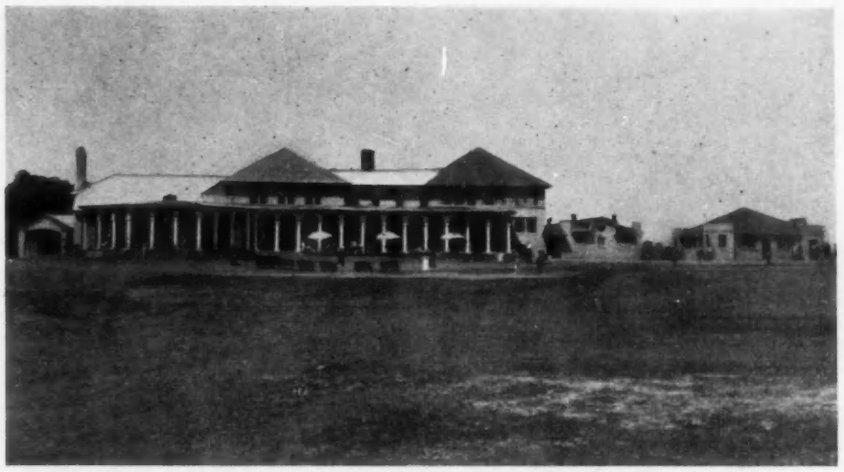
of the way. An open approach at the main entrance for free turning and circulation is also of great importance, and for economy of upkeep the area should be paved with a permanent material. The service entrance to the house should be so located as to be the least apparent from that part of the club premises used by the members.

The plan of a typical country club may be divided into these four general units:

1. The men's and women's locker rooms, wash rooms, valeting rooms, etc., which cater to all.
2. The public spaces, including entrance hall, office, waiting room, telephones, etc., all of which are for general use.
3. The club portion proper, including lounge, main dining room, grill room, card rooms, porches, members' bedrooms, etc.
4. The service portion, including kitchen, serving room, laundry, servants' dining room, stewards' and servants' bedrooms, chauffeurs' dining room, etc., which are utility departments.

The disposition of these various rooms would depend largely on the shape and arrangement of the building, so that it would be difficult to determine their relative locations without having in mind a specific instance. Again, the shape of the building would depend on its orientation and the contours of the ground, no two locations permitting similar arrangements of plan, due to the variations in these existing conditions, which must always be considered.

The building should have ample porches on the southerly side, enclosed or open depending on the various seasons. The main entrance should be on the opposite, or north side, between the locker units and the club portion, thereby making it necessary that members or guests pass the office whether they go to the locker rooms or to the club portion of the building. A protection at the main entrance, whether



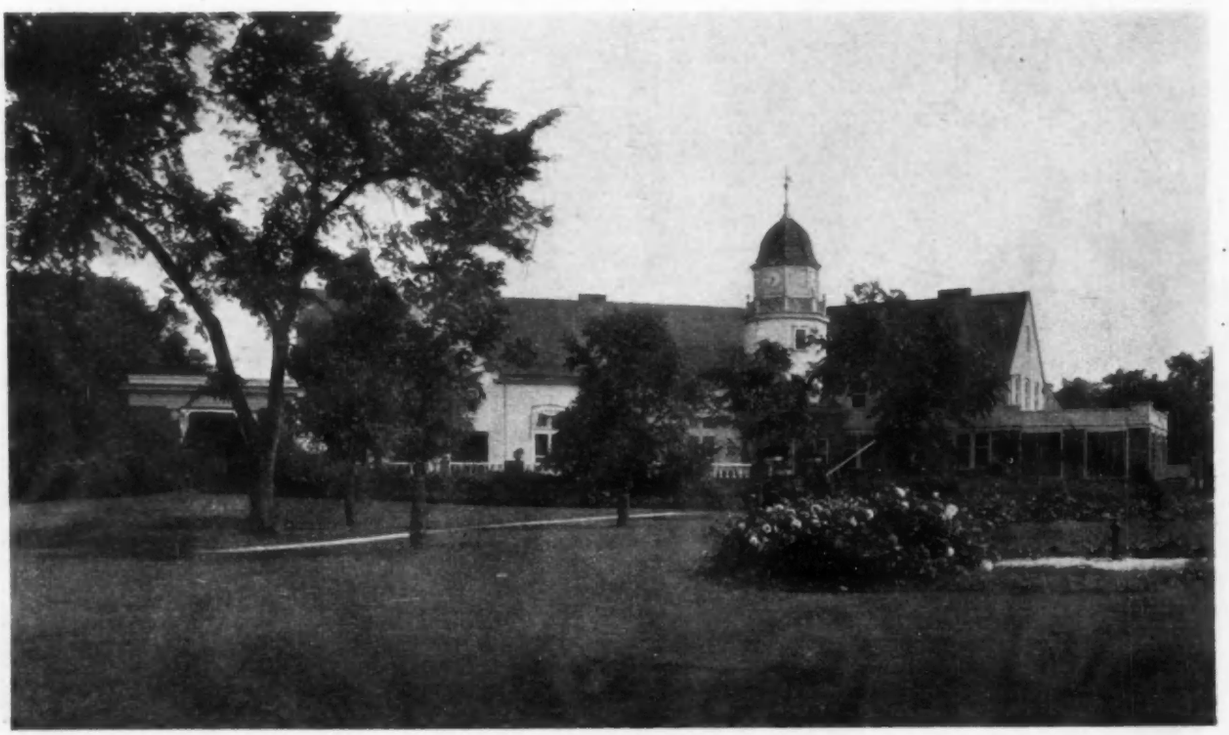
Pinehurst Golf Club, Pinehurst, N. C.
Lyman Sise and Haven & Hoyt, Associated Architects

Morris County Golf Club, Convent, N. J.
Geo. B. Post & Sons, Architects

The Mid-Ocean Golf Club, Hamilton, Bermuda
Warren & Wetmore, Architects

in the form of a covered driveway or a projecting hood, is a practical feature often overlooked, but which is particularly useful for evening parties at the club house. The service quarters should be in a separate wing, extending preferably toward the north, with service yard and entrance hidden from the main approach to the club house.

The locker room should be spacious, with ample light and cross draft, a room extending to the roof, with high windows, undoubtedly giving the best opportunity for adequate ventilation. Doors should be so placed that players can enter directly from the course without having to pass through the building proper. The arrangement of washrooms and showers and the installation of hot and cold supplies are all important. The women's locker room is sometimes located directly over the men's for economy in construction, plumbing etc., but this precludes the economies gained by extending the men's locker room the full two stories. The locker room should be utilitarian, with steel lockers and with floors preferably of linoleum or a rubber composition tiling of sufficient resilience to withstand hobnails. Space in the locker room for a few chairs and tables adds greatly to the comfort of the members. A valeting room, with drying cabinet, wardrobe and sink, should be adjacent to the locker room, with a clothes chute to the laundry, which should be located directly beneath if possible. In some clubs the locker room is in a separate wing or else is detached from the main building. This, however, is not as convenient, although giving greater possibilities for lighting and ventilation. The locker room and the assembly room are the most important units, and either may occupy the predominating position in the plan, the preference being determined by the type



Chicago Golf Club, Wheaton, Ill.
Jarvis Hunt, Architect

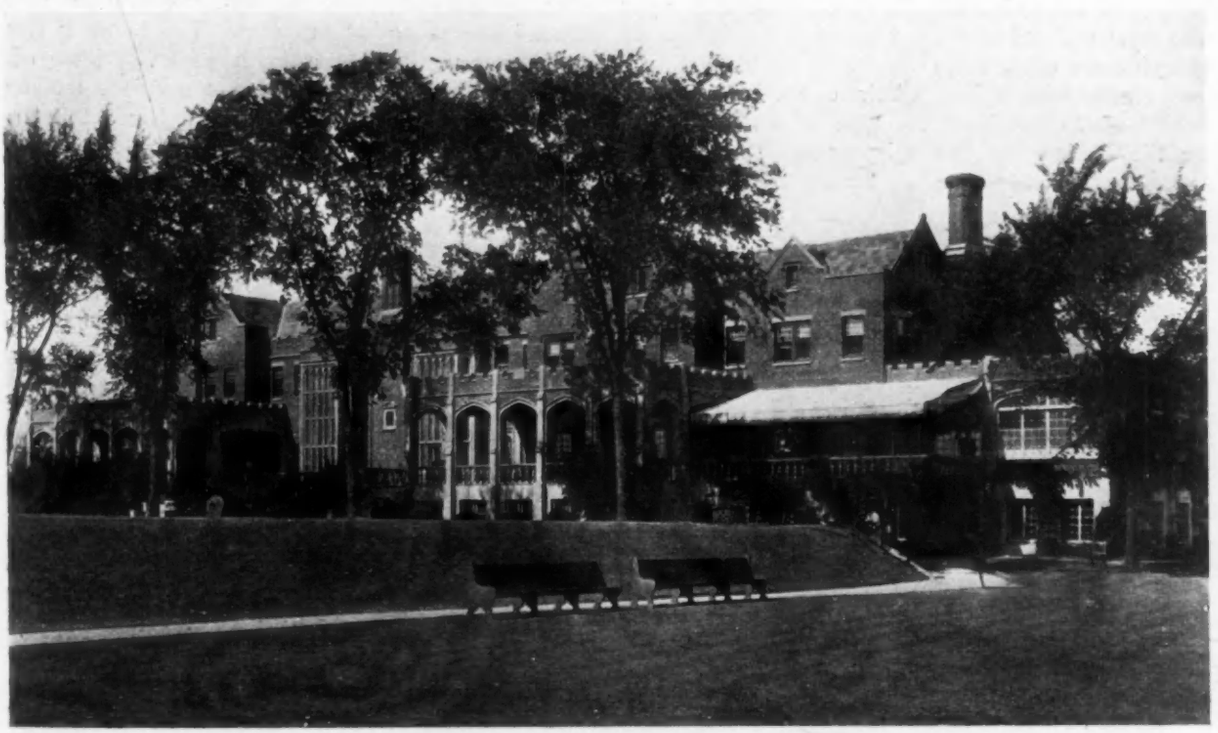
of club under consideration. The lounge may be arranged, by the use of folding partitions, so that it can be combined with the dining room, making one large assembly room for use on certain occasions of large gatherings.

The men's grill room should be near the locker room and the main dining room for convenience of service. The lounge must provide for the comfort of the members and be furnished accordingly. The fireplace should be an important feature in design and in position, not forgetting the necessity of properly proportioning its openings and flue for a successful draft. Two club houses in Westchester County have recently been destroyed, due to having improperly built flues.

Highland Park Golf Club, Aiken, S. C.

The service portion, which is preferably placed in a separate wing, should be arranged primarily to obtain facility in serving, and great care should be observed in locating the equipment details of the kitchen and serving room, so as to obtain maximum efficiency. There should be good light and cross draft, ample storerooms and dressers. Sanitation must be carefully considered, and composition floors with sanitary bases and floor drains should be provided to insure cleanliness. The refrigerating room should be properly ventilated, with separate electric ice-making refrigerators for the storage of different foods, the same care being taken for cleanliness in the finish of the floors and walls. An incinerator to burn all refuse is recommended, in order to avoid attracting flies. This source of heat may be used for the hot water supply system by adding a storage tank, thereby economizing in fuel consumption, which is always an important item.

The space on the second floor over the club portion can be arranged for members' bedrooms. If it be necessary to keep the initial cost down,



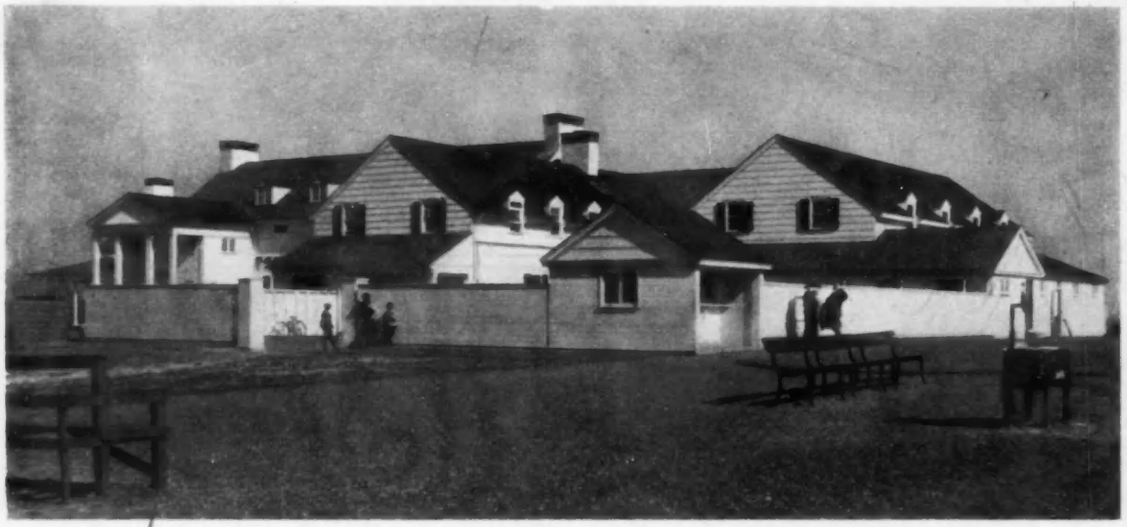
Nassau Country Club, Glen Cove, N. Y.
Charles A. Leeming, Architect

this space may be left in the rough and the finishing of the rooms postponed until a later day, although plumbing and heating lines should be run to their future locations. The servants' quarters may well be located on the second floor of the service wing, with a separate suite for the steward. It is important that a professionals' house with shop, men's and women's rack rooms and a caddy shelter be located near the first tee and 18th green, and at the same time it should be so arranged that the caddies may not be in evidence from the house.

The selection of materials for the exterior walls should be largely governed by the expression of design, though fieldstone, which might be obtained in constructing a golf course, could be recommended, especially as its use would make the building more fire-resistive. This material, used in conjunction with fireproof floor construction and interior partitions and roof covering, has proved invaluable on account of reduced insurance rates and permanency of construction without greatly adding to the cost. So many clubs of frame construction have recently been destroyed, with the valuable belongings of their members, that it is now recognized that a few dollars spent in the use of fireproof material are dollars well spent. Hydrants and hose located both outside and inside of the building will further reduce the fire hazard as well as the insurance rates, or else underwriters' portable extinguishers may be used in place of the inside hydrants. If there is not sufficient fieldstone on the property, it may be possible to use other materials in combination with the stone, such as brick, stucco or shingles. This should be done carefully, however, depending upon the style adopted and the manner of handling. If shingles are used, these should be applied on fireproof wall construction. Choice of the roof material would also depend on the type of building, slate or tile having the fire-resisting quality which is desirable. If fieldstone has been used for the exterior walls, it can be left in its natural state which, if laid up with wide flush joints, improves in color with age and requires no outlay for upkeep. Leakage-proof stone or masonry walls can be obtained by use of a coat of waterproofing whitewash, applied with a spray. This tends to drive the material into any open fissures in the stone or joints, and in weathering it produces a pleasing effect. Such an admixture should be applied hot to give the best results, and a little pigment should be added to give it warmth of color.

Casement windows are best adapted for giving the maximum ventilation. Out-opening sash, though more leakage proof than in-opening sash, necessitate inside screens which unless properly installed are not always desirable. More practical, sometimes, are the double-hung windows with exterior screens covering the entire openings. If metal sash could be provided for in the building budget, upkeep would be lessened and annoyance from leaks avoided. Hardware for the windows should be of a sturdy make, especially for casements which are subject to hard usage by members and servants. Lever handle fasteners and pin and bar adjusters are generally the most fool-proof and serviceable.

On account of financial limitations, it is sometimes found necessary to build a club house in separate units, beginning the first operation with what may be considered the most important section, and adding others as the funds permit. If the units are carefully considered and arranged with regard to an ultimate plan, the building may be built in this manner and the result be entirely satisfactory, even though completing the several operations may extend over a period of years. The building cost would necessarily be greater, however, dividing the work in this way, but it is a convenient method which permits a club with limited funds to start with a minimum outlay and work toward the desired end without sacrificing anything in the final results.



Caddy House and Service Court, Plainfield Country Club, Plainfield, N. J.
Roger H. Bullard, Architect

Developing the Country Club Plan

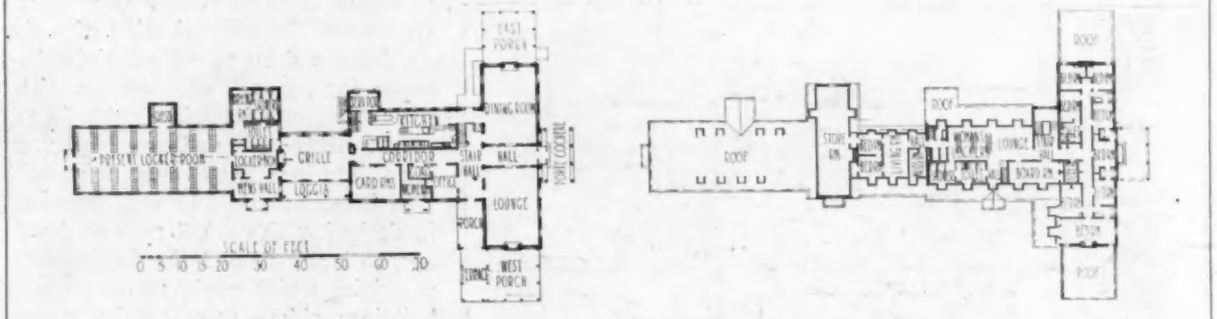
By CLIFFORD C. WENDEHACK, *Architect, New York*

AT the beginning of the sixteenth century, when "Kolf" was played in Holland, we have good reason to believe that this ancient game was devoid of most of its present-day trappings of luxury and consequent complications. From the time that King James the Fourth of Scotland sponsored this insidious game and conferred upon it the title of "Royal" down to the present day, its requirements and exactions have gradually grown, not only in regard to the method of playing, but in respect also to the proper housing of the players and their accessories. Golf now accepts nothing but the best.

The English and Scotch from 1471 to the present time have succeeded in keeping the game with its accompanying club houses within reasonable limitations, but within four decades America has lifted it out of its original simplicity and made of it a highly specialized and scientific factor of country life. If American golfers would follow the example and simplicity of their prototypes, such as are practiced at Deal and Troon in the old world, golf today in this country would be a much less expensive pastime. Having built up the fabric of elaboration and being accustomed to greater conveniences and equipment in this country than abroad, architects and building committees entrusted with the construction of new club houses find no alternative to keeping pace with the times. Golf clubs, like others, have developed.

In the past, as well as at present, the heart of the golf club was undoubtedly the locker room, and around this unit naturally develop all the other elements which compose an up-to-date club house. We shall assume that the bad practice of placing the locker room in the basement has been discontinued by all thinking committees, since the importance of proper lighting and ventilation is now generally recognized, and that the locker room is built above ground. The size of the lockers used and the width of the aisles between them, are invariably the subjects of much discussion with every building committee, which, regardless of the funds available, desires its quarters to be second to none. Every golf club wishes to be in the lead.

There are two types of modern locker rooms in use,—the more extravagant being the single-story building, and the more economical the two-story structure. Since it requires approximately 3500 square feet to house 300 lockers on one floor and 1900 square feet of ground floor space to house the same number on the double-tier basis, it is easy to see why the two-story type is so popular. These figures are based on use of lockers 18 by 18 inches and 7-foot aisles between. The sizes of the areas necessary will be increased in proportion if lockers 18 by 24 or 24 by 24 inches are used. It has been found by constant comparison and practice that these sizes are most satisfactory. The aisles between lockers vary in width from 5 to 8 feet; 6½ feet between doors should satisfy the majority of club members; narrower aisles will cause congestion during times of dressing, and anything wider is purely a matter of increased luxury. In addition to this space there should be provided adjacent to each floor of lockers a battery of showers and proper toilet facilities, and it has been found that from six to ten showers are sufficient for 300 members. Shower stalls should contain 16 square feet, and an ample drying room should be provided. Golf clubs today are usually divided into two classes,— the essentially golf-playing club,



Elevation and Plans of Younktakah Country Club, Nutley, N. J.

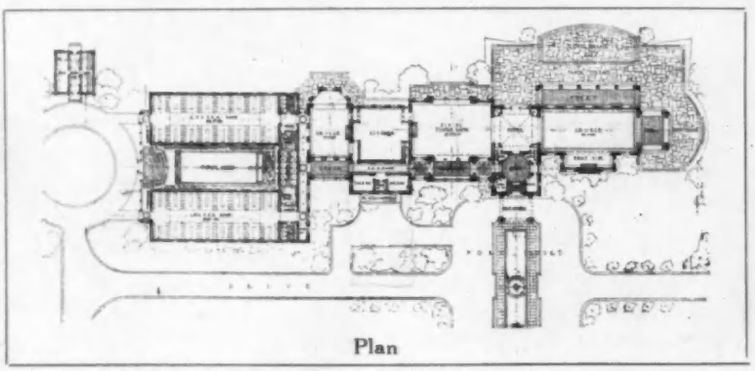
Perspective Sketch, Phelps Manor Country Club, Englewood-Teaneck, N. J.
Clifford C. Wendehack, Architect

which generally consists of from 300 to 325 full privileged members, and the more numerous type of golf and country clubs, with memberships of perhaps 300 golfers and additional members, such as associate, house, junior, etc. This usually means a membership all told of say 750 people. More recently there have been a great many clubs forming with 600 full privileged members, which necessitates the housing of between 500 and 600 members and provision of locker facilities for the same number.

After having determined the size and character of the locker room, the next consideration is the layout and relation of the units which comprise an up-to-date club house for 300 active members, with golf their chief activity. It is necessary to provide dining facilities for approximately 100 persons at one sitting, and therefore a grill room should be arranged adjacent to the locker room, approximately 30 by 40 feet, with kitchen, storeroom and kitchen preparation room. The kitchen for this equipment should contain 800 to 1000 square feet on the same level with the grill, in addition to the preparation and storerooms, servants' dining room, etc.

Probably the most important factor in the operation of the club is the office and its proper location. This should be located immediately adjacent to the main entrance of the building, with direct communication with the kitchen, service entrance, coat room, stairs to second floor and telephone booths. It would be well to add, in this type of building, several small card rooms. They would be ideally located between the grill and the main portion of the club, so that they may act as soundproofing units. It will also be necessary to provide a women's lounge in conjunction with the women's locker room, showers and toilet facilities. The women's quarters are usually placed on the second floor, although if space and funds permit, it is much better to place these quarters on the ground floor with a separate entrance from the course. It is usually found that in a club of 300 active members there will be a definite need of from 30 to 40 lockers for women, since at all times there are emergencies arising requiring accommodations for the wives of members and guests. Clubs neglecting to provide such accommodations will find sooner or later complaints and handicaps arising therefrom. It is very important to have the communication from the main entrance through to the men's quarters definitely cut off by means of several sets of doors, thus giving maximum freedom to the members who generally compose the substantial part of the membership of this character of club.

It might be of interest to note, before passing on from this type of building, that there are many medium sized golf clubs throughout New England and the South, which serve the summer or winter colonists alone. Under this heading also there may be included numerous club buildings throughout the country which are connected with hotels. These may be classed as belonging to the bungalow type, as they contain no expensive finish, generally no heating plants, little or nothing in the way of eating facilities, and are merely used as gathering places of summer or winter golfers. This type of building of course is the most economical and fundamental example of golf house we have today, and does not constitute a typical illustration of the problem which presents itself to the usual club. The Tokeneke club at Darien, Conn., the plan of which is given here, is a good example of this type of building. This is a summer beach club and is of the simplest type. It will be noticed, however, that the position of the office in its relations to the entrance and the centralization of activity follows the general principles laid down for all such club houses. The club rooms are interchangeable in regard to their uses, and may be thrown open into one large area for social functions. It would be well, however, in designing this small type of building, to bear in mind the fundamental principles which apply to all sizes of buildings alike,—namely, the convenience and equipment of the locker room



Plan

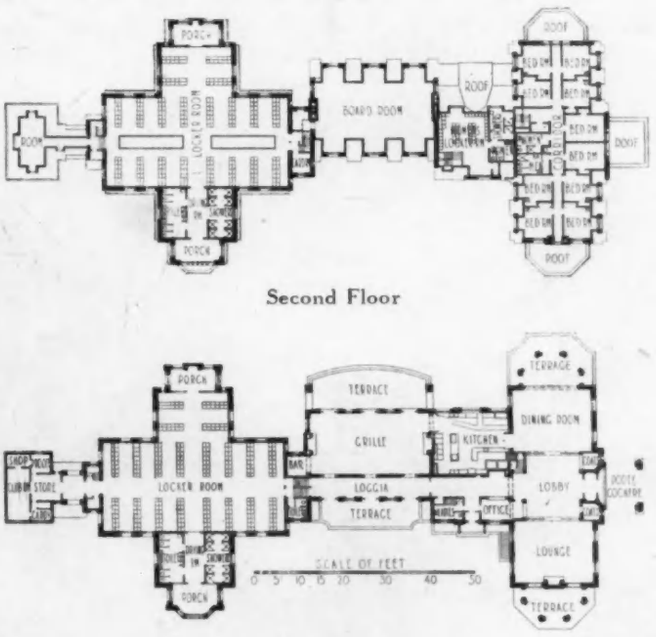
and the proper control of all units directly and easily from the manager's office. These details are important.

Let us now consider the more usual and numerous type of house to meet the needs of golf and country club combined. It would be unwise to set forth any definite rule for sizes and number of units required for this type of building, since conditions vary in different parts of the country, and the type and character of membership necessitate a different plan for each and every case. The officers of this type of club should bear in mind that they will have successors on the executive board and should wisely look ahead, eliminating for them as much upkeep, maintenance and repair cost as possible. In order to do this, they should build permanently, substantially and with materials which require the least amount of watching and replacing. It is very difficult to tear down and replace units, once they have been constructed, and from experience I should strongly advise building fewer units with durable materials rather than erecting at one time a complete club of inferior construction. This applies particularly to the country club, since the non-playing membership grows more rapidly than the golfing membership. This membership usually fluctuates, but it does not congest the course, and therefore is inclined to add to the number using the building in greater proportion than do the golf members. The social life of the club receives an impetus difficult to estimate upon completing a new building, and the finer the building the more desirable and active these members become. Consequently, it has become difficult in many cases to know exactly to what extent social requirements may grow.

In view of these conditions, I should strongly recommend that building operations be started with the locker room unit, including showers, toilet facilities and the professional shop, with its proper storage spaces for clubs, and with a workshop and show cases. Before this is done, however, a general plan should be determined upon, with the proper sequence of rooms and orientation carefully considered in relation to the golf course and the points of the compass. Having procured the locker room, the club will now be able to function, and the revenue from the course and active members' dues will become available at the earliest possible time. There should then be added, as required, the kitchen, the grill room, the heating plant, administrative offices and dining rooms. This will produce another source of revenue, and the character of the club will very quickly be determined from the patronage which ensues from installation of these vital units. The sizes of the lounge, the women's quarters, card rooms, reception rooms, porches and terraces can be very accurately determined, and if the scheme is properly planned, they may be enlarged or made smaller as the conditions develop from the operation of the original units.

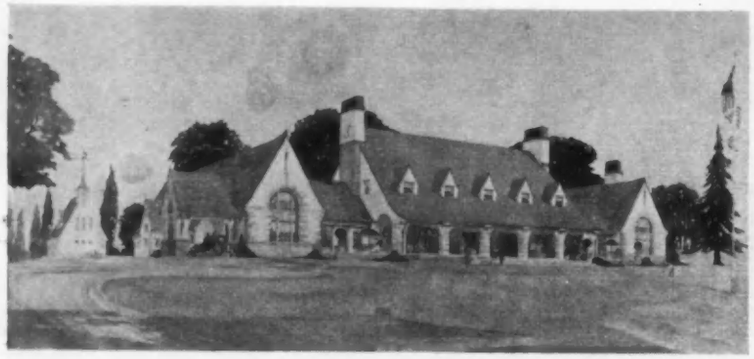
Perspective Sketch of Winged Foot Golf Club, Mamaroneck, N. Y.
Clifford C. Wendehack, Architect

As an illustration of this there is included here the plan, as originally laid out, for the Phelps Manor Country Club at Englewood-Teaneck, N. J. This club was organized for 600 playing members, and the course was laid out for 45 holes of golf. After determining the approximate location of the club house, the golf course was laid out in perfect relation thereto, as may be seen by the location of the first tees and 18th greens of the two courses. The



Second Floor

First Floor



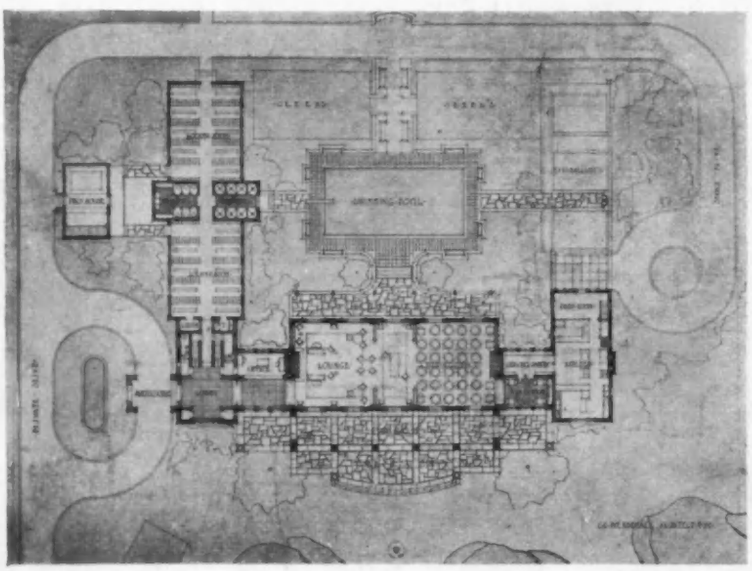
Perspective Sketch, Tokeneke Country Club, Tokeneke, Conn.
Clifford C. Wendehack, Architect

points of the compass being the next consideration, the plan for the club house was developed with extended open views from all the required rooms, which were placed at one side of the house, while the approach and service quarters were placed at the opposite side of the building. Having established these fundamentals, the office was put at the entrance side of the structure, at the focal point of all activity. Upon entering this club house it is impossible to avoid passing the office and equally impossible to miss the magnificent view. Passing on through the lobby, one enters the foyer, which is a high vaulted room, at the end of which is the large arched opening through which is an extensive view of the courses. To the left of the foyer is the dining room, and to the right the lounge. These rooms also command excellent views of the courses, and are planned to be used separately or in conjunction.

The plan shows a series of porches and terraces arranged to meet the various levels and practically encircling these rooms without excluding light and air from them. From the entrance lobby there is a direct connection with the locker room and grill. Complete isolation of the men's quarters from the rest of the club is obtained by means of doors between the card room, passage and the loggia. Beyond this point the club is entirely for the use of the men members. The locker rooms, which are arranged in two wings, are ventilated and lighted by a continuous row of windows on either side, and toilet facilities are arranged along a continuous line of plumbing for reasons of economy. A very popular feature of this equipment is the swimming pool, placed between the two locker room wings, rendering it easy of access.

This plan illustrates admirably the possibilities and advantages of the unit system of building. As each locker room wing contains 300 lockers, one wing is being completed at a time. The growth will then extend to the grill and the kitchen, and the rest of the plan can be contracted or enlarged as developments require without injury to the general scheme. Careful comparison of this plan with that of the Winged Foot Golf Club will make clear the difference of the sizes of units required for a country club and a purely golf club of approximately the same size and membership. In the latter case the house is being built to meet the requirements of 600 playing members without additional memberships or any particular social expectations. Here the portion of space allotted to women and general visitors ends at the outer door to the loggia, from which point back to the professionals' house the club is for the use of men only. Conditions are found to be reversed as to sizes. The grill is about equivalent to the size of the lounge required for the country club. The general dining room is about equivalent in size to the usual grill room, and the lounge becomes merely a waiting place for the wives and friends of the members. The locker room, completed in 1924, is of the two-story type, containing 600 lockers, 24 inches square, with very generous aisles, approximately 7½ feet in width.

There is one general consideration which will be found worthy of careful thought in designing any modern club building, namely, the possibility of opening several units into one, which produces economy in operation and availability of large areas for dances and social functions in the country club, and large dining areas for banquets, dinners, lectures, etc., in the purely golf club. Much space and money can be saved by this means of planning. The problem of housing the professional shop and providing storage necessities for clubs is one which varies largely in modern practice. There is little doubt but what the interests and convenience of members



Plan

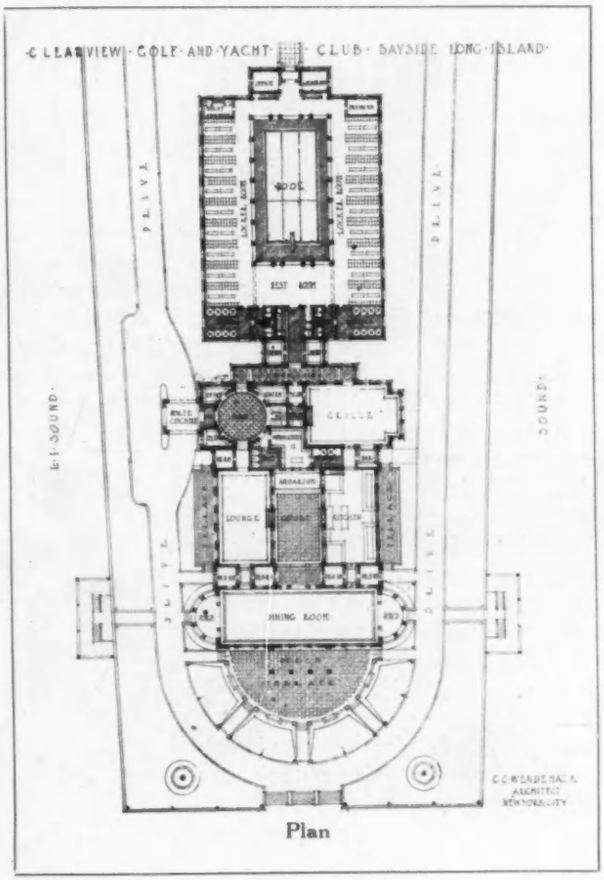
are best served by placing this unit in close conjunction with the locker room, and in many instances the sentiment is strongly for this. However, it has decided disadvantages, inasmuch as it brings the caddies up to the main door of the locker room, tending to congest and obstruct these entrances. There are also other disadvantages, that of bringing the women players, seeking their clubs, into close proximity with the men's quarters, and an increase in the cost of insurance unless there is a definite outdoor passage of fireproof doors between these units, because of the electrical machinery in the professionals' house. Therefore, where possible, it would be advisable to place the professionals in a separate building, connected to the locker room by a covered passageway or arcade. This is by far the best plan.

Perspective Sketch, Clearview Golf and Yacht Club, Bayside, N. Y.
Clifford C. Wendehack, Architect

One of the most troublesome and yet necessary details of a golf club is the provision of a building for the proper housing and control of the caddies. These boys must be within easy reach of the caddy master and also out of sight from the club house. The housing and care of the caddies require very special study in each particular case, as is evidenced by more interest being shown in this subject at the present day than heretofore. We shall not attempt to go into the arrangement of this detail of the golf course, other than to say that a caddy shelter should be placed behind a natural barrier and given every possible thought and care in order to raise the standard of efficiency of the boys employed in this very essential part of golf life.

It has been a very common practice in the past to construct sheds and workrooms for the storage of course implements, fertilizers and seeds in close proximity to the main building. This should never be permitted, and ways and means should be found to establish within easy reach of all parts of the course a labor center, consisting of a group of buildings properly designed to house the materials which proper care of every good course requires. Connected with these buildings there should be living quarters for the greens keeper and a few of the regular workmen and, if possible, the servants required for service in the club. Insurance statistics show that a large percentage of fires in golf clubs have been caused by the careless habits of the employes housed under the main buildings. If they could be transferred to livable, sanitary quarters in a farm group, much trouble and annoyance would be avoided.

In the Clearview Golf and Yacht Club there has been developed a plan which has an unusual appeal to the sportsman's imagination. Due to the combination of yachting facilities and golfing interest centered around 36 holes and many kinds of membership, this club presents probably as complex a problem as it is possible to find. It would not be wise to use this as an illustration of the usual conditions found in our country clubs, but its extraordinary uniqueness illustrates very admirably the accuracy by which the fundamental principles of club planning may be applied to even the most unusual building programs. As its name indicates, the club is being developed to serve the dual purpose of accommodating a large golfing membership in addition to being a rendezvous of yachting parties in Long Island waters. The architectural style is closely related to that of the Colonial house as originally developed on Long Island, with a suggestion of the architecture of the Italian lakes. Constructed on a pier extending 853 feet into the Sound, the main approach will be from the highway at the base of the pier. Since the membership is divided into two classes, and since the yachting members will



Plan

Perspective Sketch of Ferncliffe Country Club, West Caldwell, N. J.
Clifford C. Wendehack, Architect

not have the privileges of the golf course, this separation of parts, under the control of the office, is a very essential consideration in the club's administration.

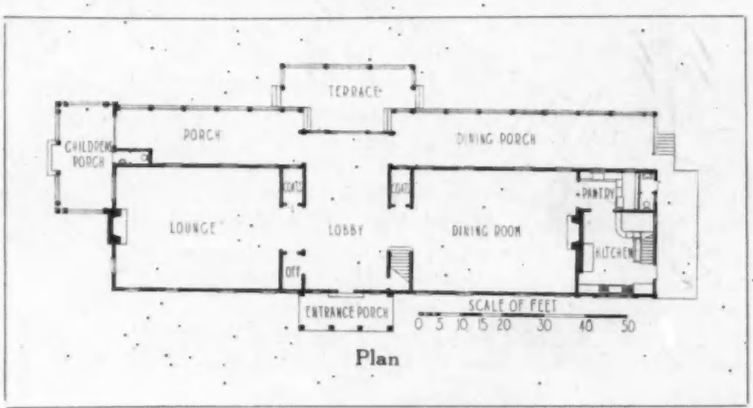
Approaching the club by water there are landings provided at the front and side of the pier, and immediately adjacent to these landings are the dining room, lounge and broad terraces, from which a long, uninterrupted view up the Sound is had. The restaurant is handled in such a way that the capacity will be very flexible, and the most important outlook has been given to the dining room, which will stretch across the front of the building for over 100 feet, with broad, open porches at either end. Private dining rooms, located immediately back of the main dining room, can be utilized for dinner parties or small receptions on dance nights. The lounge is designed to serve as a general living room or on occasion as a ballroom, and opens onto a broad open terrace. Separating the lounge from the kitchen is an open court, at the back of which is an aquarium, where live sea food will be kept in salt water. The first story locker room has a large rest room between the stacks of lockers and overlooking the swimming pool, for cards and other recreation. The second floor locker room will open upon the pool side, and will also be used as a spectators' gallery for swimming matches, which will be held occasionally.

One of the most troublesome of the questions which continually present themselves to building committees is the advisability of including bedrooms in the club house. Opinions differ greatly in regard to the policy of providing this feature, and while the subject is threshed out by each newly formed building committee, the sum total of opinions and advantages as observed by the architect invariably points to much the same conclusions. Club bedrooms are a liability and not an asset in the majority of cases. The need for them is theoretically for the convenience of club members; in actual practice, however, this convenience affects only a very small percentage of the membership of the average club.

In this day of highly specialized and conveniently equipped hotel service, we expect more service in our clubs than it is possible with their facilities to supply. If this service is given to those few members who occupy rooms, the cost to the club is out of all proportion to the amounts charged for such service. There should be bedrooms for the convenience of transient members, but it is found that in too many cases they are used as permanent homes. This requires day and night service, and if the rooms are occupied during the winter months, a completely organized hotel service must be maintained. The remedy for these conditions has been found, in most instances, by the use of dormitories, each containing five to ten beds as the space will permit. The revenue from these dormitory beds will be about equal to that of private rooms. All requirements of the week end guest will be taken care of this way, and it is quite safe to say that this type of accommodation will not be taken advantage of by anyone for too long a time. This permits group service and toilet and shower facilities, which are cheaper to install and to maintain.

It is becoming a matter of general knowledge that the planning and maintaining of modern golf clubs, regardless of their sizes and character, have become a highly necessary factor of our country life. Study and specialization of the subject have become necessary in order to produce buildings which will function without waste and with the minimum maintenance costs and which will serve satisfactorily large groups of diversified types of people. The managers of country clubs are realizing more and more the impossibility of financial existence in this day of high costs without the smoothly running mechanism found in our hotels and business organizations.

It is to be hoped that future generations will benefit by the efforts being made at present to promote efficiency in every form, and that the pleasure and health derived from golf and other outdoor games will some day be within the means of all classes in America, and to this we seem to be rapidly coming.



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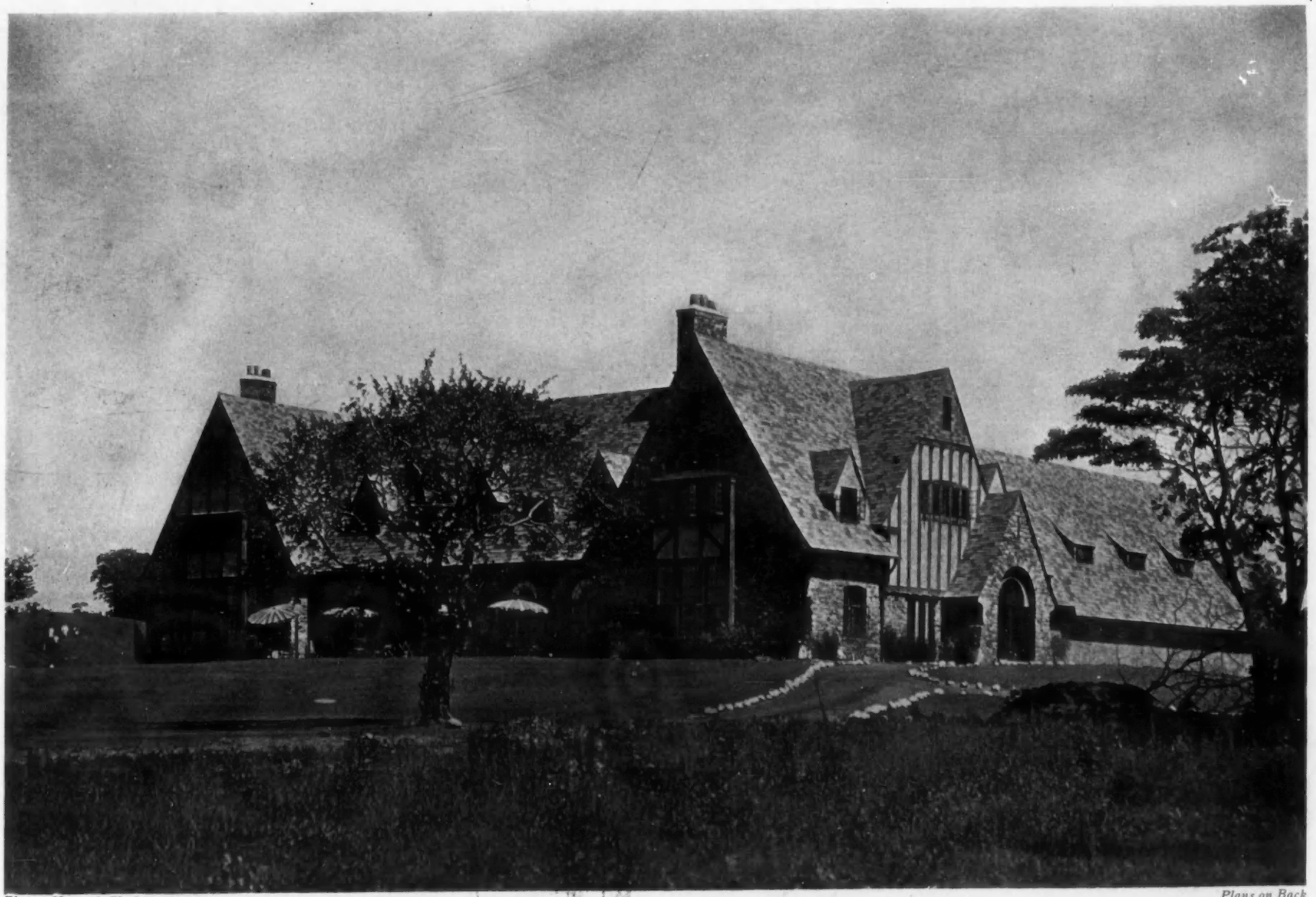
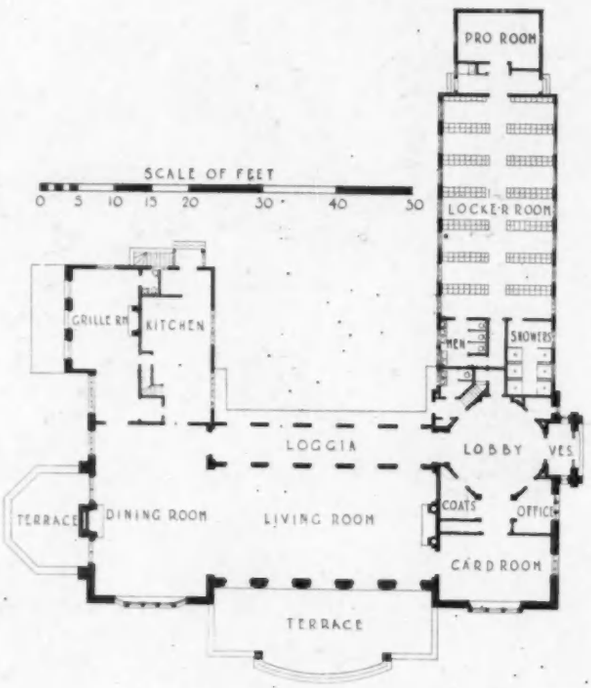


Photos. Kenneth Clark

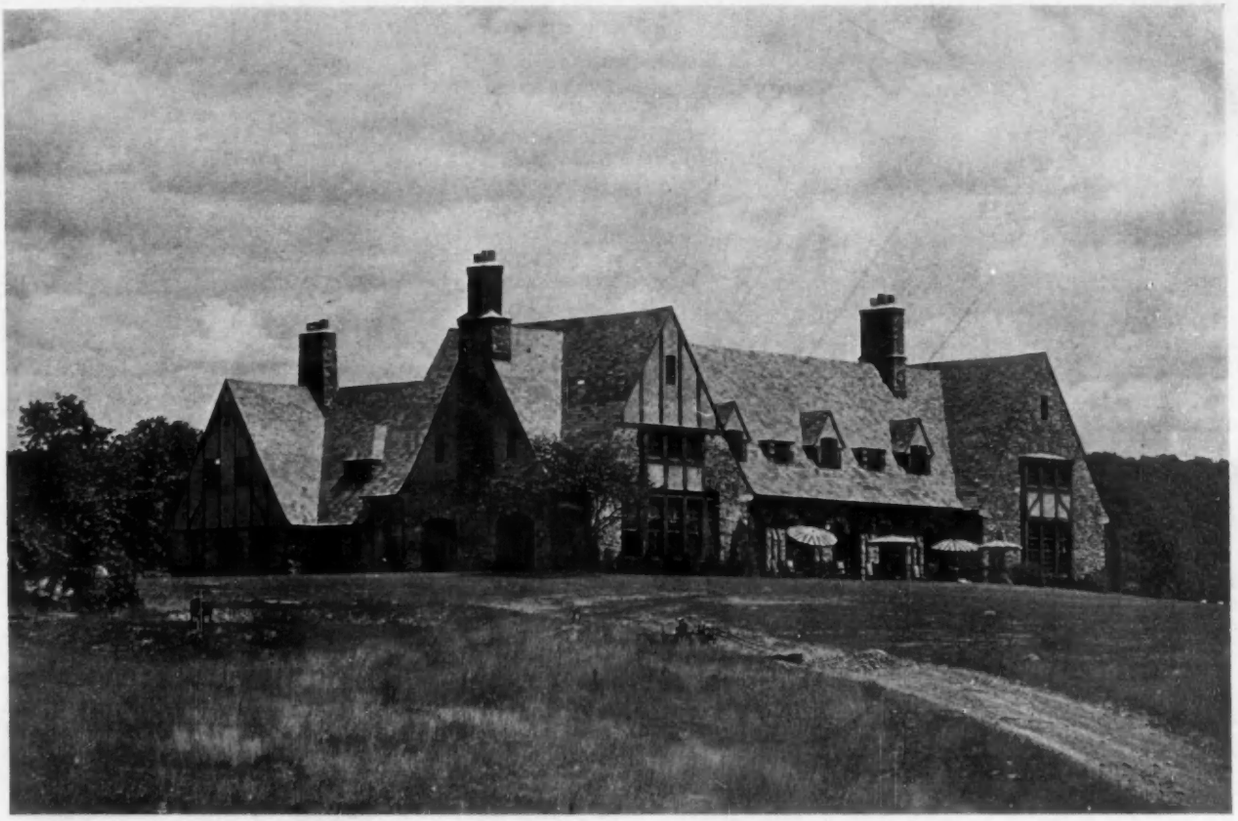
Plans on Back

ELEVATION TOWARD PRACTICE GREEN
NORTH JERSEY COUNTRY CLUB, PATERSON, N. J.
CLIFFORD C. WENDEHACK, ARCHITECT



NORTH JERSEY COUNTRY CLUB, PATERSON, N. J.

CLIFFORD C. WENDEHACK, ARCHITECT



ELEVATION OVERLOOKING FIRST TEE, FOURTH AND NINTH GREENS

ELEVATION FACING EIGHTEENTH GREEN

NORTH JERSEY COUNTRY CLUB, PATERSON, N. J.

CLIFFORD C. WENDEHACK, ARCHITECT

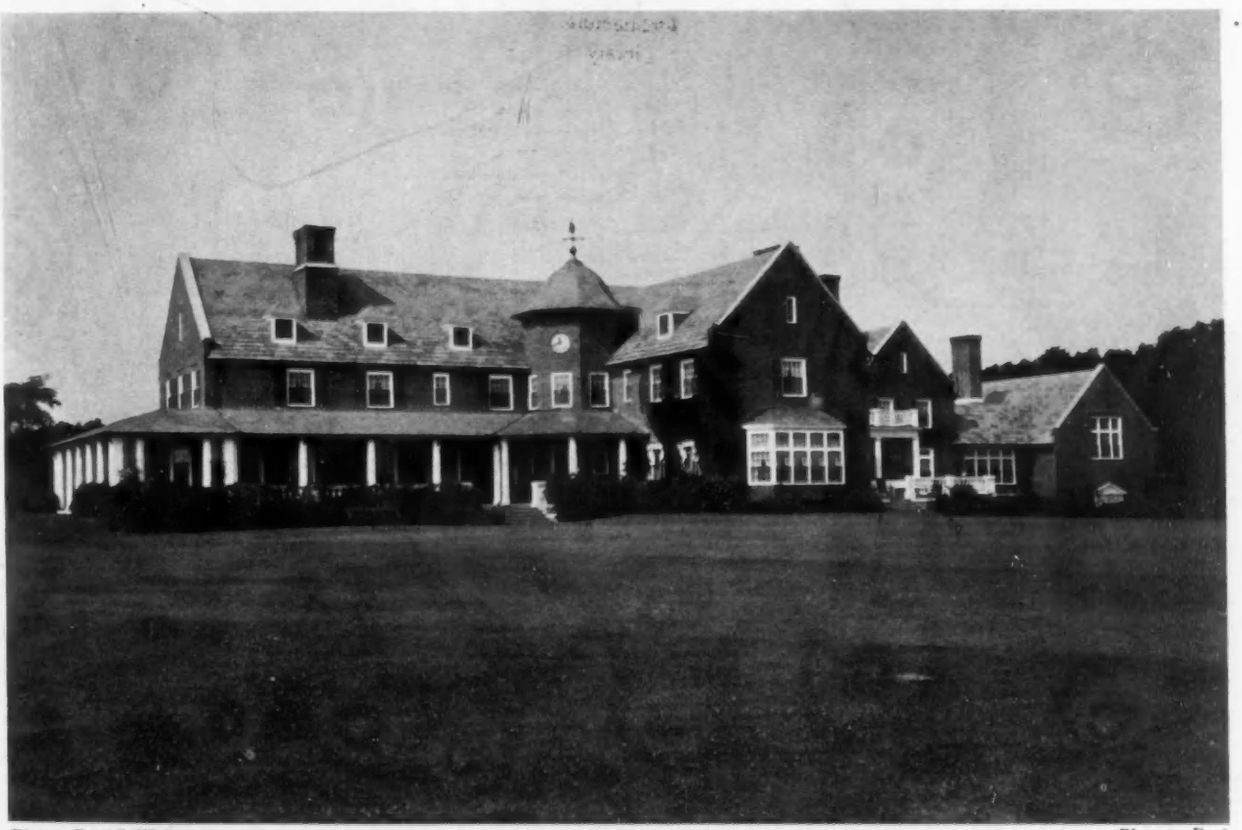
LIVING ROOM OR LOUNGE

DINING ROOM

NORTH JERSEY COUNTRY CLUB, PATERSON, N. J.

CLIFFORD C. WENDEHACK, ARCHITECT

ENTRANCE FRONT



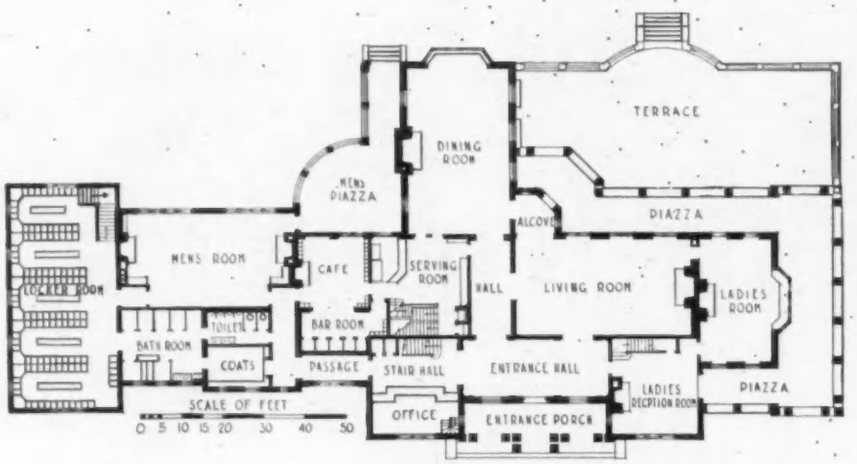
Photos. Paul J. Weber

Plans on Back

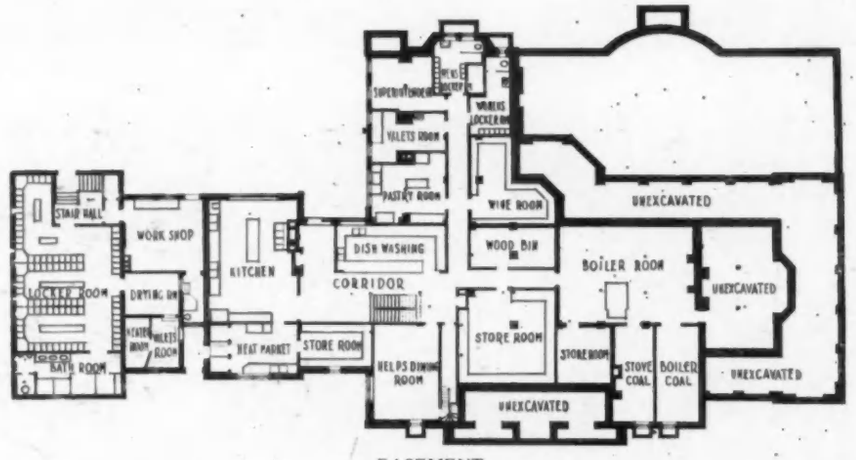
ELEVATION OVERLOOKING PRACTICE GREEN

ESSEX COUNTY CLUB, MANCHESTER, MASS.

PARKER, THOMAS & RICE, ARCHITECTS



MAIN FLOOR



BASEMENT

ESSEX COUNTY CLUB, MANCHESTER, MASS.

PARKER, THOMAS & RICE, ARCHITECTS

DETAIL OF ENTRANCE PORCH

DETAIL OF TERRACE ENTRANCE

ESSEX COUNTY CLUB, MANCHESTER, MASS.

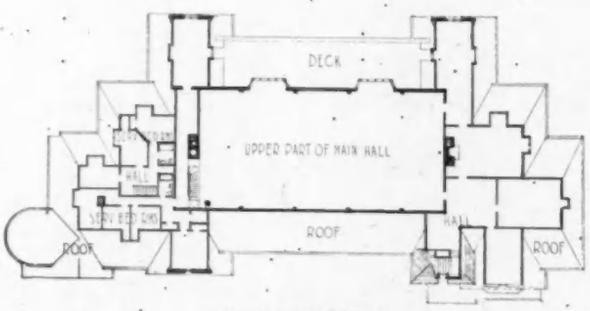
PARKER, THOMAS & RICE, ARCHITECTS

Photos. George H. Van Anda

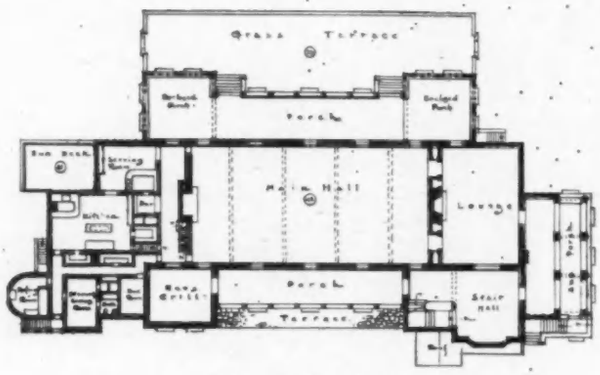
Plans on Back

THE MAIDSTONE CLUB, EAST HAMPTON, N. Y.

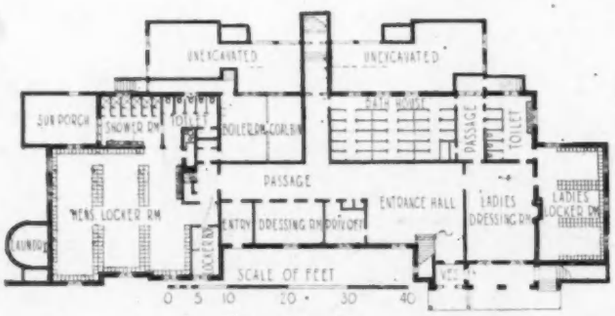
ROGER H. BULLARD, ARCHITECT



SECOND FLOOR



FIRST FLOOR PLAN



BASEMENT

THE MAIDSTONE CLUB, EAST HAMPTON, N. Y.

ROGER H. BULLARD, ARCHITECT

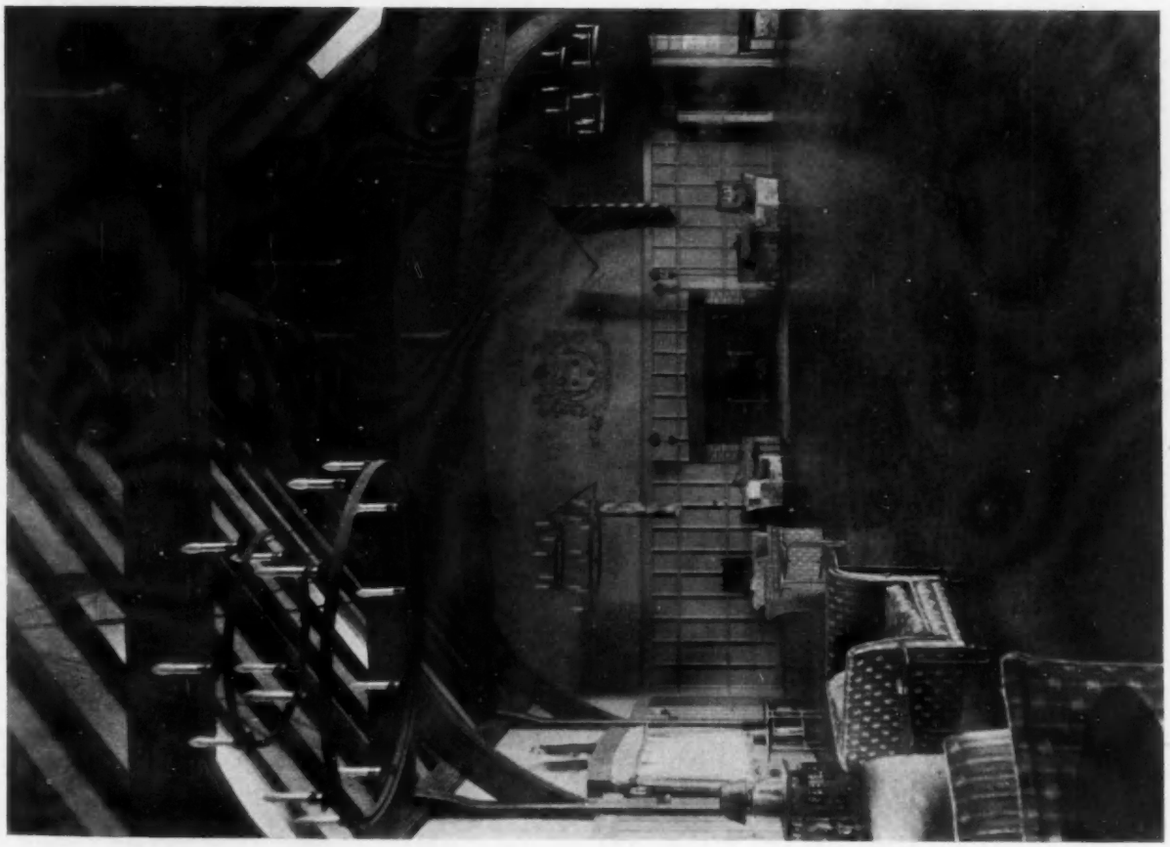
ELEVATION OVERLOOKING THE OCEAN

VIEW OF CLUB FROM THE SAND DUNES

THE MAIDSTONE CLUB, EAST HAMPTON, N. Y.

ROGER H. BULLARD, ARCHITECT

DETAIL OF LIVING ROOM



VIEW OF LIVING ROOM

THE MAIDSTONE CLUB, EAST HAMPTON, N. Y.
ROGER H. BULLARD, ARCHITECT

Interior Architecture of the Country Club

By JAMES DWIGHT BAUM, *Architect, New York*

WHEN we speak of interior architecture, we mean that part of the decorative treatment of a room which is conceived and designed by the architect and built into the structure as a permanent background or setting for the more perishable and ever-changing decorations and furnishings. Interior architecture invariably suggests, if it does not definitely demand, decorations belonging to the certain style or period in which the architect designed the room. Where the designer is not permitted to select and have executed under his own supervision the interior decorations for a room, his original design may be made or marred. This situation, which often arises, is quite as likely to happen in the decorating of club interiors, city or country, as in the decoration of houses, urban or suburban.

As club houses are, after all, semi-public or community homes, it is justifiable to emphasize the importance of their interior architecture quite as much as in the private house. Furthermore, the cost does not so often have to be considered in securing the attractiveness of the architectural background in a club house. This may be accomplished by simple means just as well as by elaborate treatment. Rough plaster walls of pleasing textures; door and window openings carefully studied as to shapes and sizes; coved or vaulted ceilings; interesting wall textures; stairway and ceiling details executed in rough hewn boards and beams, produce architectural interiors of real interest and charm. Such rooms are found in the Maidstone Club at East Hampton, and in the Golf Club at Detroit, which are illustrated on page 147.

Wall paneling, with or without pilasters, whether executed entirely in wood or with wood mouldings on plaster, makes a dignified architectural background to a room. Painted paneling, after the Georgian and Colonial precedents, gives an opportunity for colorful combination of walls and furnishings, especially appropriate for the more formal rooms in a club. The combination lounge and dining room in the Mid-pines Country Club at Southern Pines, N. C., an illustration of which is shown on this page, is an excellent example of a successful interior architectural treatment. Here panels, pilasters and an ornamental frieze give the room dignity and charm. The fluted pilasters and decorated cornice and ceiling beams of the lounge in the Inwood Country Club at Inwood give scale and architectural character to this large room, as may be seen from the illustration on page 146. Here also is shown an illustration of the living room known as the "Vanderbilt Room" in the Piping Rock Club, on Long Island, where delicacy in the mouldings of the mantelpiece, the wall panels and the cornice produces an atmosphere of great refinement and charming simplicity, always to be preferred to ostentatious and elaborate decoration. The illustration of the dining room in the new Congressional Club at Washington, on page 146, shows the effective use of plain, rough plaster walls, broken by well proportioned arches and combined with a heavily

Combination Lounge and Dining Room, Mid-Pines Country Club, Southern Pines, N. C.
Aymar Embury, II, Architect

Main Lounge, Inwood Country Club, Inwood, N. Y.
Morrell Smith, Architect

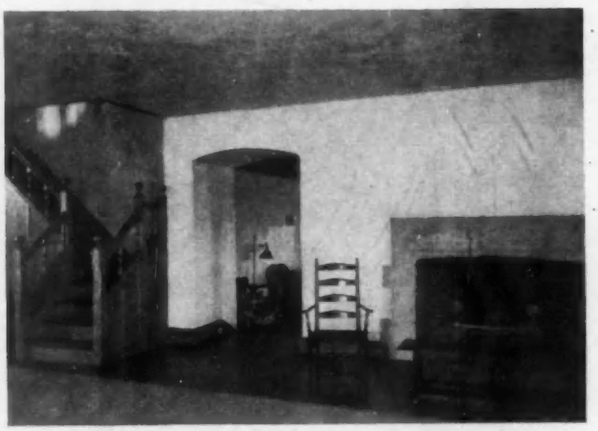
One of the Living Rooms, Piping Rock Club
Guy Lowell, Architect

beamed ceiling richly decorated in color after the Italian manner. The floor of marble in several colors, laid in an unusual design, gives a further pleasing contrast to the plain wall surfaces. The massive stone mantelpiece at one end is the chief motif in the design, and determines the scale of this room. The introduction of potted palms and ferns gives an unpleasant note of informality in this otherwise purposely and successfully formal room. The dining room in the Grosse Pointe Country Club at Detroit, illustrated on page 147, is pleasing because of its simplicity and airiness. The architecture of this room is distinguished by its good proportions, its series of glass casement doors, marble floor and its occasional trellises, suggesting an enclosed veranda.

There is probably no older or more important or more frequently used detail of interior architecture than the chimneypiece. As it is almost invariably the chief, and often the only, feature of architectural interest in a room, it should be carefully studied as to size and detail. No set or rigid rules can be laid down as to the size of a fireplace and mantelpiece in relation to the wall space it occupies. Much depends upon the style of architecture in which the room and mantelpiece are designed. Certain styles permit use of larger openings than others for the same wall area. Whether Italian, Elizabethan or Georgian, the chimneypiece establishes the scale and the style of a room. Two excellent examples of club house chimneypieces are illustrated on page 148. Each is the chief architectural feature of the room it adorns.

There are several other details which play an important part in the interior architecture of the club house. Probably the most important is the staircase, the treatment of which depends largely upon its importance in the plan. If the club house is large and contains card rooms and private dining rooms on the second floor, and bedrooms for members on the third, the staircase should be made an important architectural feature in the design. It should be given a position of importance in the plan and should be designed in the style which is carried out in the rest of the building. This is done in both the Piping Rock and Inwood Country Clubs, where in the former instance the main stairway, plainly seen through the doors of the principal living room, is carried out in the Colonial style, which is in keeping with the character of the building itself. The stairway in the

Dining Room, Congressional Country Club, Washington
Philip M. Julien, Architect



Entrance Hall, Plainfield Country Club, Plainfield, N. J.
Roger H. Bullard, Architect

Women's Reception Room

Stair Hall, Second Floor

Maidstone Club, East Hampton, N. Y.
Roger H. Bullard, Architect

Maidstone Club is simple and rugged, to harmonize with the early English style in which this club house is designed. Heavy newel posts, capped with rough hewn balls, and short heavy balusters set in string boards which take the place of the usual balustrade, give a sturdy picturesqueness to the architecture.

In the French and English styles, during both the Renaissance and the immediately succeeding periods, the stairway was made one of the chief architectural features of the house, however large or small. The larger and more pretentious the house, the grander was its main stairway. In the earlier Italian and Spanish houses and palazzos, the stairway was often inconspicuously enclosed by walls, with a barrel vaulted ceiling, opening unobtrusively off the entrance or even the side hall through open archways. This was not always the case, by any means, as in many of the early Renaissance palazzos of Rome, Genoa, Florence and Venice are found some of the most magnificent and monumental stairways in the world. So in the small club house, where the second floor is a less important part of the plan, and where only a few bedrooms and baths are located, the stairway may well be placed in an inconspicuous and unobtrusive position, for example off the corridor leading to the men's locker room. If the club is large and entered through a lobby or foyer hall, off which open the office and coat rooms, an architectural treatment of some character and importance should be had. The first impression made upon entering a club house should be pleasing and satisfying. If, however, the club house is not large and pretentious, then the lobby or foyer hall may be dispensed with and the lounge or living room be entered directly from the front porch. Here again the room should be carefully designed to have a distinctly architectural character. Several small clubs of this description have most attractive main rooms, which are used as lounges in the day time, and as dancing places at night, when occasion requires.

Making this main room a story and a half high, or even two stories high, will add to its dignity and importance. A balcony at one end and a large fireplace at the other, often give a successful treatment. A long balcony along one side, as in the Field Club at Greenwich, Conn., under which casement doors lead onto an enclosed porch, may add to the architectural quality of the room. Living rooms carried out in a

Grill Room, Detroit Golf Club, Detroit
Albert Kahn, Architect

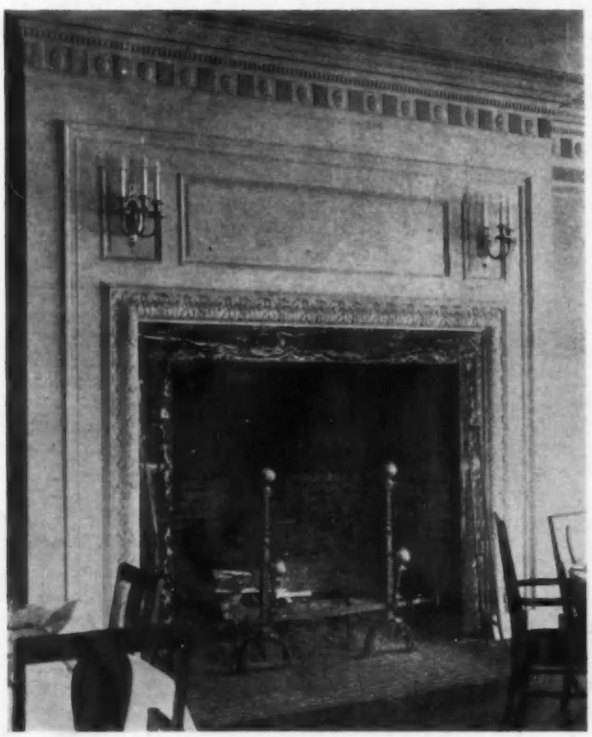
Dining Room, Grosse Pointe Country Club, Detroit
Albert Kahn, Architect

simple adaptation of the English Tudor and Stuart styles are often found in buildings having Colonial exteriors. Although this inconsistency is not advocated, when successfully carried out the result more than justifies the liberty taken by the designer. There is a very general feeling today that Colonial and Georgian living rooms are too stiff and formal to give the desired effect and atmosphere of informality and relaxation which should be desired in every country club. Of course the furnishings of a club have much to do with its homelike and restful qualities, but, as has been said already, the interior architecture sets the keynote, which will always be followed by a discriminating and trained decorator.

The earlier English styles permit a greater warmth and depth of color in decorative as well as in architectural treatment than do the Georgian and Colonial styles,—unless an architect can persuade the building committee to let him paint the paneling, pilasters and trim in deep tones of buff, yellow or gold, such as are found in some of the delightful old rooms now preserved in the new American Wing of the Metropolitan Museum. If the living room or "great hall" cannot be carried up two full stories in height, then the second floor joists must be supported on concealed steel girders, making possible a beam treatment for the ceiling. On no account should piers or columns obstruct the floor space of either a lounge or a dining room, which at times may be used for dancing. No matter how small the club, adjacent to the main lounge or living room there should be an enclosed porch, sun corridor or reception room where people may sit when not dancing. Such a room should be separated from the lounge or temporary ball room by an open arcade, by rows of columns, or by many wide casement doors. In one of the most recent and most exclusive country clubs in the vicinity of New York, no place adjacent to the "great hall" or lounge is provided for people to sit during winter dances. In the summer, through the many casement doors of this hall, rest between and during dances may be had on the wide open veranda which extends the length of the hall; but this is not possible in winter, and its lack is often keenly felt.

A dining or grill room should always be accessible from the "great hall" or lounge. In many clubs the dining room and not the living room serves as the ball room when occasion requires; but of the two plans, the more practical and convenient seems to be that in which the lounge or living room serves as the dancing place. This leaves the dining room free to be used for serving dinner before and supper during the dance, which of course is desirable.

What has all this to do with interior architecture? It has in fact a great deal to do with it, because the choice of architectural and decorative treatment of the lounge and dining room depends largely upon which of these two rooms is to be used for dancing or whether, as is sometimes planned, the two rooms may be thrown together by the folding back of doors or by the sliding back of wall panels. So much of the artistic success of a club depends upon the careful study and designing of the permanent features, known as "interior architecture," that too great a stress cannot be laid upon this part of the problem of designing a successful golf or country club house.



Fireplace in Dining Room, Essex County Club, Manchester, Mass.
Parker, Thomas & Rice, Architects

Fireplace in Living Room, Nassau Country Club, Glen Cove, N. Y.
Chas. A. Leeming, Architect

The Furnishing and Decoration of a Country Club

By BARNET PHILLIPS, *Interior Decorator, New York*

THE day is past when the architect can heave a sigh of relief when his designs have been passed on finally by the building committee. There is now the important matter of furnishings and decorations, and these he must consider. If the furnishings go into the hands of a furnishing committee, even with the very best of intentions, or when a member is or has a friend in the furnishing business, the results are likely to be most distressing unless they have had a guiding hand. It, therefore, appears to me a case of necessity for the architect to either control, guide, or actually install, if you will, furnishings that are appropriate and fitting for his building. More than ever today a building, and particularly a club house, is judged not by its architectural features, but by its furnishings and decorations, many people having a keen sense of the fitness of things—after they are completed.

Most people believe, whether they admit it or not, that they know something about furnishings, and I venture to say a large percentage of people have some sort of taste in regard to decorations. Many of their ideas have merit, and I have sometimes found it quite possible to take their points of view and develop them in such a way as to procure the very results they were striving for. Having won their confidence, the road is not very difficult to successful completion of the furnishing and decoration of the building. Of course I speak only from my own experience, in working with many committees on diversified types of club houses and other buildings.

The old time club house was simple, almost to the point of austerity,—one large room of the country inn type, where the men gathered around the fireplace on chilly days and made good cheer. Wood chairs, board floor, possibly a few pictures, with the stymie, of course, the center of interest, and as for color, this was supplied by the red coats, the wine, and the ruddy cheeks of those sturdy devotees of the game. Times have changed indeed! There were no women in the old time clubs, no dancing or week ends, and I doubt if thought was ever given to the looks of the establishment,—but with all its rough simplicity it had a warm hospitality distinctly its own. How different today! The modern country club, an outgrowth of the old community and golf house, must have all the comforts of a home with the conveniences of a modern hotel. Thus the

Lounge, Oakland Golf Club, Bayside, N. Y.
Roger H. Bullard, Architect

This room in its architectural treatment reminds one of a golf room of long ago. Its furnishings and curtain treatment are well suited to a room of this type when used as a lounge. A carpet covers the floor, as free rugs could not be used owing to the irregular form of the room and the furniture arrangement.

Grill Room, North Jersey Country Club, Paterson, N. J.
Clifford C. Wendehack, Architect

To this room, with old plaster walls, interest is given by the Windsor chairs and special tables, and simple, colorful draw curtains at the casements. These inexpensive furnishings really make a very attractive room, in which there is a marked feeling of rugged simplicity and masculine strength. The rough plaster walls, the massive, exposed ceiling beams, the heavy planked doors, the rough fieldstone and brick chimneypiece, are some of the characteristic features of this grill room. In the design of the electric light fixtures, both wall brackets and chandeliers, we find again the evidence of careful study shown in all of the details. These electric fixtures are of wrought iron in simple but heavy designs, fitted with imitation candles and mottled shades. The plaster in this room has been treated with stain to produce a warm antique effect, which is in pleasing contrast to the dark stained oak doors, trim and furniture. The entire room possesses strength and character.

Lounge, North Shore Country Club, Glen Cove, N. Y.
Tachau & Vought, Architects

This simple, made-over room has a quiet dignity, not quite as domestic as the home, but still retaining its livable character. The walls are painted deep ivory, with rugs in a special design, woven in camel's hair color and dark blues, contrasting pleasantly with the mahogany furniture and the few painted pieces. Owing to the number of windows, no contrast was desirable, so they are simply curtained in a fabric toning with the walls.

Unfortunately, the illustrations can give no idea of the warmth of color produced by the combination of rugs, upholstery, wall plastering, and stained and painted ceiling beams. The furniture shows a pleasing diversity of style of well made reproductions of Tudor, Queen Anne, and Italian periods. Chinese lamp standards and many interesting ornaments give a homelike and informal touch to the furnishings. Open screens of flat balusters, carried out in stained oak, serve as pleasing marks of division between the living and dining rooms.

Lounge, North Jersey Country Club, Paterson, N. J.
Clifford C. Wendehack, Architect.

This is a particularly attractive room, simple but well proportioned. The effect is principally obtained by the color and texture of the walls, and the hangings and furniture coverings. The colors are quite bold, the curtains having a design in old blues, reds and golden tones on a dark ground, against the walls, which are of slightly variegated warm and cool tones.

Living Room, Creek Club, Locust Valley, N. Y.
Walker & Gillette, Architects

This charming living room with its domestic Georgian feeling is appropriate for only the more refined type of lounge. The furnishings, of a high order, are well distributed and bear a pleasing relationship to the architecture of the room.

With the exception of the upholstered pieces, all of the furniture is antique, selected with great care to harmonize with the interior architecture. The period of the room suggests an early nineteenth century interior, or what is commonly known as "American Empire." The black and gold marble mantelpiece might well have been found in some old house in Washington Square, so characteristic is it of New York houses built about 1820. An elaborate crystal chandelier hangs from the center of the vaulted ceiling. Heavy glass rosettes act as tie-backs for the draperies, and old astral lamps with glass shades and pendants are interesting details of the furnishings, all of which are appropriate for the room.

Living Room, Grosse Pointe Country Club, Detroit
Albert Kahn, Architect

A simple adaptation of the English Tudor style has been used for the treatment of this attractive living room. Walls paneled in dark oak, and the low plaster ceiling with rich ornament restricted to the beams and cornice, give distinction and individuality. The furnishings, which are well arranged, indicate care and thought in their selection and coloring.

All of the heavier and more important pieces, such as tables, stools, wall cabinets and some of the chairs, are in stained oak, reproducing in style and character the Tudor spirit of the room. A simple stone enframement with low, Tudor arch enframes the fireplace opening. The chandeliers, although modern like all of the furnishings of this room, are English in feeling, showing an arrangement of imitation shaded candlelights, supported on cartwheel frames, which hang from the ceiling at three points. The room has that virile character which renders this style entirely appropriate for club use.

Dining Room, North Shore Country Club, Glen Cove, N. Y.
Tachau & Vought, Architects

This room is in an old out-building made over. The walls are wainscoted in oak, with an ornamental ceiling attached directly to the old ceiling boards. Embroidered lined curtains, with oak furniture finished in a worn-off blue taking up the tone in the embroidery, give the room a most interesting appearance

furnishings and decorations have been developed until they are among its most essential features; it having become more and more the meeting place of a community and the center of its social activities.

Those who have studied the subject carefully realize that proper furnishings are vital to the success of the club. Architects and building committees are beginning to realize this as an economic necessity for its welfare and prosperity, and therefore they are giving consideration to this phase of the operations at the earliest possible stage of the development of the general plan of the building. The study in planning the furnishings of a club is not greatly different from that employed in developing the building itself, but in order to take it up satisfactorily a thorough knowledge of its operating methods should be acquired. It involves not only a wise selection of the various items required, but in addition a careful consideration of the relationships of the rooms to one another, and of that between the decorative elements of each room, their floor coverings, furniture, hangings and other furnishings. Effect is produced by discretion and thought in their selection, by proper relations and contrasts in the furnishings to the room, and their general disposition. Decorations include all this. The test of good decoration is in the final result.

Living Room, Sunningdale Country Club, Scarsdale, N. Y.
Robert D. Kohn, Architect

This English room denotes a well studied and interesting type of lounge. Its wood wainscot, ceiling and trusses are given a weathered appearance, while the plaster is in a slightly lighter and warmer tone, well in harmony with the room. The furnishings are characteristic and are broken into three groups accentuated by the rugs. Low radiators with benches built over them make an interesting feature.

In developing the furnishings and decorative treatment of the club house, I think it is a wise and economic necessity to employ, if possible, someone who has made a special study of this branch of interior decoration, and who is familiar with work of this character that has been and is being done. He should be conversant with the merchandise that is procurable for the particular type of building he is employed on, and should be able to use this knowledge to the greatest advantage in collaboration with the architects, and to the best interests of his clients.

The areas of the various rooms, their interrelationship, color, character, design and illumination are to a great extent determined by what are to be their ultimate furnishings. These factors can all be coördinated, and often considerable saving may be made if the decorations and furnishings are given some thought when the building is being designed. We often find that the proper drapery treatment may eliminate useless door and window trim, the placing of floor or table lamps unnecessary wall or ceiling lights, that the placing of a rug or carpet permits simpler flooring, and that a general study of the color scheme may eliminate to advantage costly architectural features. It has been my experience that a studied scheme of decorations in relation to the furnishings and general architectural treatment of the rooms not only tends to simplifying, but also (what is nearest the heart of the clients!) to reducing the cost of the work of decoration.

I shall not go into a description of the furnishings to be used or into the general color schemes for the various rooms of the club house, for such dissertation I consider useless, since it all depends, as we know, on the interrelationship of the rooms, their style, the character of the club house, and above all the funds that are available for this purpose. I have a few "pet ideas," however, that I would like to set forth, and which it may not be amiss to emphasize in these pages.

We all know that the tendency of the modern country club is towards possessing a livable atmosphere, which is, of course, most excellent if it is not too domestic in feeling. After all, we have a cosmopolitan taste to satisfy, and I somehow feel that we should maintain at least a touch of the old time ruggedness of the golf house. By this I mean that the furnishings should be bolder and the general key of color higher than would be used in the home. The durability of furniture, furniture coverings, hangings and floor coverings for the club are of prime importance to the individuals who have this work in charge, and they must remember that quality has a fixed cost and cannot be bargained for. The furnishings should be of a standard that will withstand the test of time.

To sum up in conclusion, I believe in consistency in the standard of furnishings throughout the club house, determined by the general appropriation to be expended, whether it be large or small. Do not mix the ordinary with the good, but you can mix whatever things are good, no matter how simple.

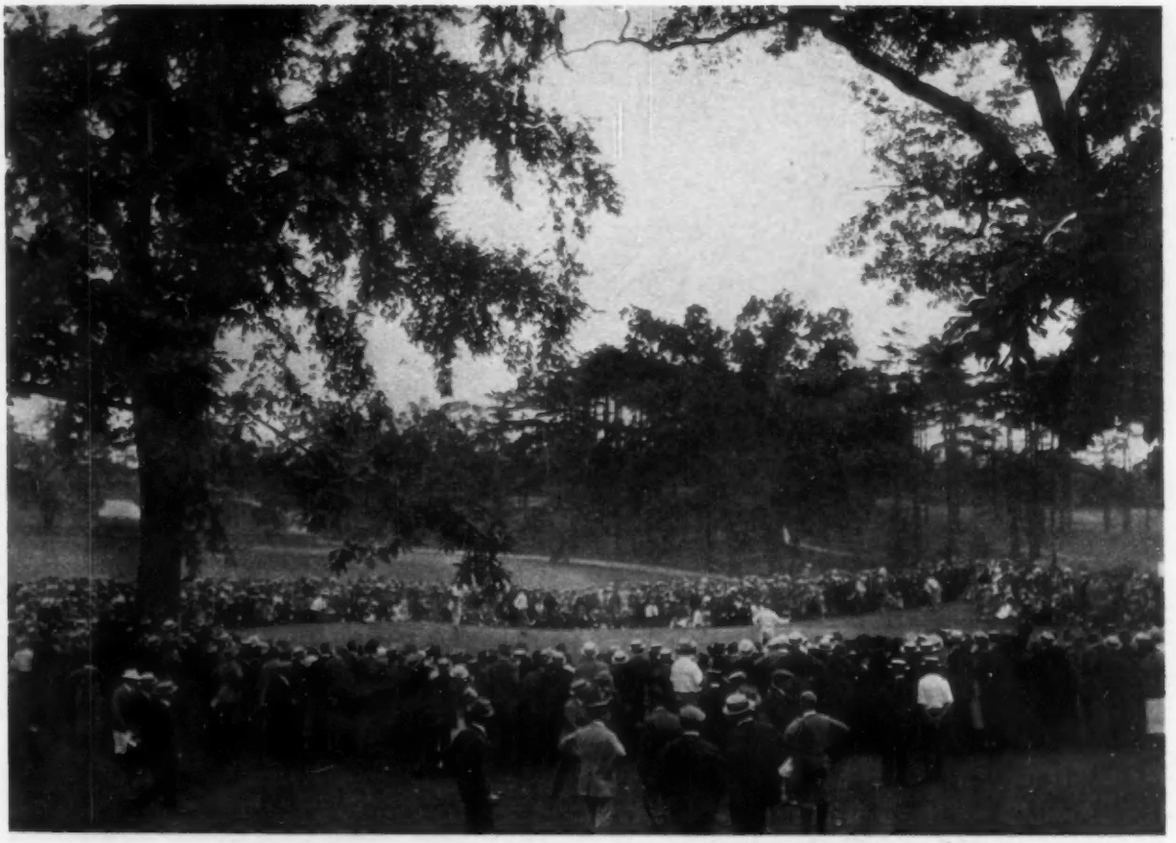
Landscaping a Golf Course

By DEVEREUX EMMET, *Golf Architect, New York*

IT all depends on the golf course. If it is a seaside waste of sand dunes and strips of beach and valleys of rabbit-eaten, mossy sea grass, then any planting or interference with nature as she is would be entirely out of place. Such a golf course is that of Lido, or some of the seaside British courses, and in a measure such is the National Links which is situated on a moor near the sea. After you have placed your club house and your parking space and your entrance drive and some low evergreens around your club house, such as pines, junipers and hardy Japan yews, and some vines on the walls like hardy roses and *euonymous radicans*, your landscape architecture comes to an end, and all else is golf architecture. I am a golf architect first, and after that a landscape architect. The golf course gets the first consideration, and everything else must be subservient to it, but there is an unlimited field for landscaping on every inland golf course,—on practically every golf course except the rare exceptions just described.

The most important and the most difficult thing to produce at a country club is a really good golf course. In the majority of cases the natural aids of contours, water hazards, gullies, etc., are only too few and far between. One must seize every advantage. A tennis court can be put in almost any place provided it be handy to the club house and runs north and south and does not obstruct the view. The entrance drive, the position of the club house and the provision of space for parking cars are matters of immediate concern and must be successfully settled before anything else is even thought about. Upon them depends much of the club's success.

It is, of course, highly desirable to have the ninth and 18th greens at the club house, and to select a site which overlooks as many holes as possible and one which commands a beautiful and inspiring outlook. I like to have a club house built facing south, on a hill but not exactly on top of it. If possible, I like to have it below the summit on the south side, with just enough rise back of it to throw the bitter north wind high up over the house. There are many bleak days in the spring and fall when golf is in active progress, and then many country clubs are used in winter for winter sports. The finest location for a club house I ever saw is one which was selected on a course I have lately laid out at Wheeling, W. Va. This is placed just as I have described, and overlooks a vast amphitheater of golf holes. The surrounding scenery and the terrain itself at this fine course are very beautiful and picturesque.



Eighteenth Green, The Country Club, Brookline

I am devoted to the art of landscaping with trees. I have experimented on my own place on Long Island for nearly 40 years, doing nothing to achieve immediate effect with a sacrifice to permanent and ultimate beauty and everything for a long way ahead. Unless you are a Crœsus and can move large trees at great expense, this is what you must do. I am satisfied that a great many of the glorious places in England and Ireland were started in the eighteenth century with a lot of small trees planted with a master hand and an eye looking ahead 150 years. There was a perfect craze for it in the days when the great Lord Chatham was young, and we are told that he was a devotee of the art and laid out many places. Sometimes nature unassisted does a wonderful and glorious work all by herself.

This has happened on the Palmetto golf course at Aiken, S. C. I remember when it was laid out, on rather hilly, abandoned cotton fields, with a few large, gaunt pines standing around,—not very attractive. And in 25 years a veritable miracle has been worked. Thousands of young, long-leaved pines have seeded along the edges of the fairways and around the greens and tees; fire was kept out, and these seedlings are now from 40 to 60 feet high, forming a classic background and frame to the open spaces and making the outlook from certain tees and greens indescribably beautiful and romantic. Half the pleasure of playing at Aiken is derived from the contemplation of this marvelous and refreshing greenery, which is just as effective in winter as it is in summer,—more so, in my opinion. If art had been used and hollies had been planted and *deodars* and *cedrus Atlantica* and cedars of Lebanon and *Macrocarpa* and other evergreens, the effect would be even more beautiful. Practically every Japanese and Pacific coast evergreen will grow in Aiken. Some kinds of courses call for a certain planting, others for a totally different kind. The sandy, rolling tract on which the McGregor Links at Saratoga is built, seems to naturally grow white pines and white birch,—a combination hard to beat. Already this course is beautiful in its surroundings. In 20 years it will be indescribably so. Some courses with lush, low-lying meadow lands and alluvial river bottoms like that at Stockbridge, Mass., call loudly for basket and laurel leaved willows and large elms.

Whatever you plant, you must ultimately provide for the removal of the lower branches if the trees are near the zone of play. Shrubbery and branches on the ground are incompatible with the game of golf. A man must be able to crawl under and spoon out his ball somehow. It is forbidden to bend or break any growing thing except in the actual stroke, although I constantly see golfers playing strokes with caddies bending several branches out of the way. Prickly gorse bushes or whins are frequently found around English courses, but I have always regarded them as abominable hazards. Even the classic course at St. Andrew's used to be surrounded with whins, but they have long since disappeared before the niblicks of two generations of long suffering, vigorous, and determined golfers.

Fairway on the Golf Course of the Long Island Estate of Otto H. Kahn

Many people resent the presence of trees around a golf course. They introduce an element of luck without doubt, but I am for them on inland courses because of their beauty and because I think a little luck is a good thing in a game.

In planting trees around a country club these objectives must be kept in mind:

1. Windbreaks and dark backgrounds for tennis courts.
2. Shade around club house, around tees and along roads and drives.
3. Backgrounds for greens.
4. Divisions or barriers between parallel holes.
5. Windbreaks along sides of fairways.
6. To provide privacy and to hide disagreeable and ugly surroundings.

For nearly all these purposes evergreens are superior to deciduous trees; but we must not forget the flowering trees,—dogwoods (white and pink in adjoining groups), magnolias, judas trees, double blossomed cherries, and apples. Neither must we forget white birches and Virginia junipers.

As far as I am concerned, all this is theory with me. I know I am right, but I have never yet had a chance to properly plant a golf course. One of my courses was planted by a landscape architect and he certainly made a mess of it. You must keep thinking of the golf. It is like Sir Walter Simpson's advice in his chapter on "Parlor Golf." In taking your stance "you must do it not without reference to the chandelier." In every other instance the money was scarce and no planting was done, and I had to turn my attention to other work, and the question of planting was not of sufficient importance in the eyes of my employers to warrant them in employing me on a new, laborious and slow project. Planting a golf course and country club is a long undertaking and calls for a lot of study and measuring and hard work. If people would plant small nursery stock immediately, without waiting several years, and then give the thing time, they could keep down the expense and achieve wonderful results in the end. Trees planted when small grow faster from the beginning. When there are trees already growing on the tract the problem is just as interesting. Wonders can be accomplished by exercising good taste and hard study of the problem. But your love of trees must not be allowed to lead you too far and spoil a golf course for the purpose of saving a tree or two. One of the chief objectives is to create charming vistas in different directions. I am at present laying out an 18-hole course at "Rockwood Hall," the beautiful estate of the late William Rockefeller at Tarrytown. We have done a lot of cutting, creating many noble vistas suggestive of Fontainebleau and the great estates in England. Mr. Rockefeller was a keen votary of the landscape art and devoted years of study to his planting, and yet I believe if he could come back to "Rockwood Hall" and see it now, he would approve of the cutting. The place has taken on an added nobility and highly distinguished dignity.

The question of locating an entrance road and other drives through the property is very impor-

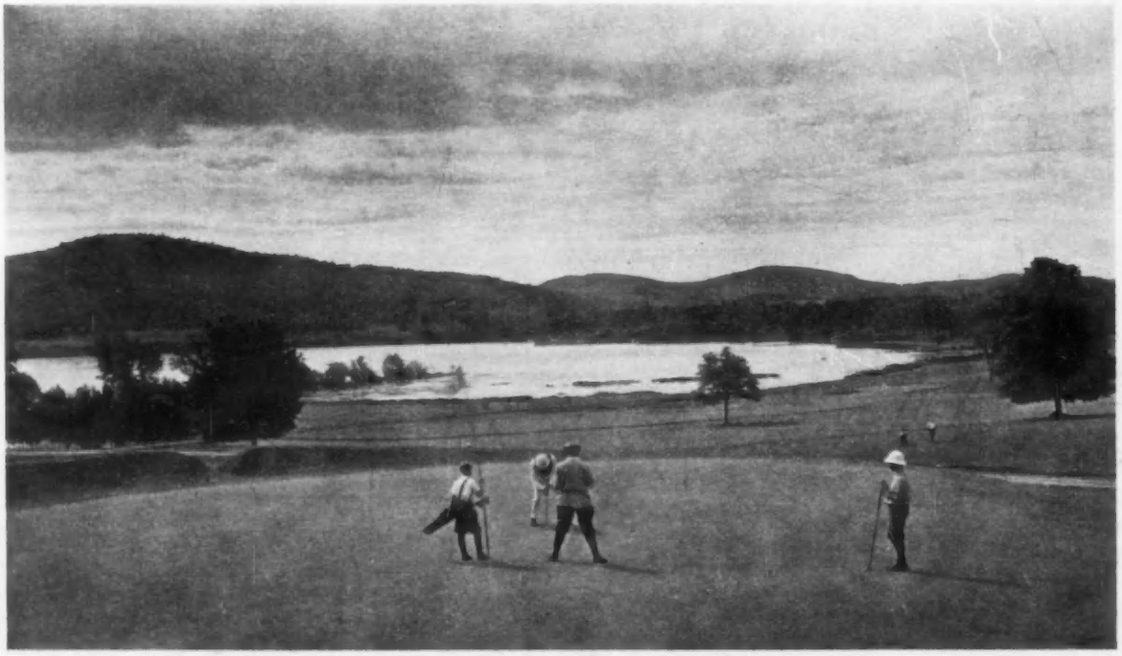
Seventeenth Green, Nassau Golf Course

tant. These drives must not cross the line of holes. It is a delightful thing to have some drives about the course so that people can drive around and watch the play. This works splendidly at the Mohawk Golf Club at Schenectady. Such roads can be allowed to grow grass on the surface. They are ordinarily used only in summer. Footpaths and walks should be arranged for where possible. Then a swimming pool should be provided for with proper planting. You observe I am spending money like water. I don't expect ever to see it done on a golf course, but it is nice to talk about it. About the time when the grass begins to thicken on the ground, the greens committee begins to function, and the members begin to get impatient and want to know when they can play. This demand gradually becomes so insistent that the United States Army could not keep them off the course. Then good-bye to trees and landscaping. What ought to be done is this: An arrangement should be made with some competent tree planter to carry out a planting scheme made by the golf architect or, in case he is not an expert on landscaping, then with a landscape artist in consultation with the golf architect.

When the trees are planted they can be looked after by the regular upkeep force under the greens committee. In most cases a great many evergreens can be used to advantage, and so I advise using small evergreens which can be bought, planted and cared for easily and cheaply. It takes time for them to grow. White pines in irregular groups and in the mass are the most valuable trees in landscaping courses. Hemlocks are very beautiful around a course, but they must be protected from the cold winds. On sandy courses there is no more valuable tree than the Austrian pine, which gets finer and finer as it grows older. These trees can be seen in their perfection on the Shinnecock Hills. Spruces and balsams and concolors are fine, but they must not be too near the course because of the lower branches. These trees are beautiful on the Lake Placid course, which is an example of what nature can do unassisted.

A whole chapter might be written on the planting of courses in the tropics. I have just completed a course at the Bahamas Country Club, recently made by the Munson Steamship Line at Nassau, Bahamas. There the main piece de resistance is the cocoanut palm. You can get an idea of how lovely this kind of backing for a green can be from the illustration of the 17th green at Nassau on page 155.

A good illustration of the value of a fine golf course from a scenic point of view is found on Otto H. Kahn's estate on Long Island. The 18-hole golf course surrounds the house on every side. The effect is inspiring and satisfying to the eye and furnishes a perfect way of entertaining guests and keeping them happy,—simply turning them out to grass, as it were. The growth of country clubs in America has been extraordinary, and yet we feel that the movement is yet in its infancy. Anything that throws light on any phase of the subject is important,—anything that cuts the cost or adds to the pleasure of the future toiling millions of golfers must be well considered and listened to with respect. The beauties of nature are bound to be seriously impaired by man's efforts to live; let us see to it that we add to those beauties where we can do so by taking thought and looking ahead. "Life is short and art is long" is as true today as ever it was.



Number 2 Green on the Golf Course at Cooperstown, N. Y.

Swimming Pools for Country Clubs

By CHARLES DOWNING LAY, *Landscape Architect, New York*

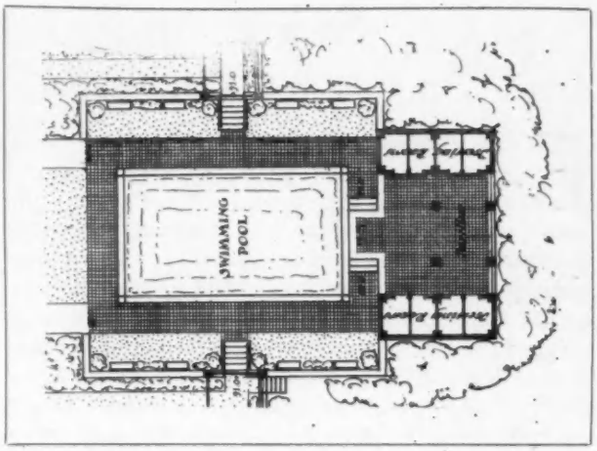
EVERY argument for installing a swimming pool on a private place has greater weight when used to urge a pool for a country club, with the added inducement that swimming is a social pleasure, increased by companionship. The swimming pool must not be considered as a simple detail of engineering, to be placed in any convenient spot. It must have attractive surroundings, being part of the garden perhaps, or having its own enclosure free from the observation of those who are not swimming. It must have shade and sun, green grass, smooth and clean walks for bare feet, and many places to sit before and after the swim. It should be far from the sound of motors, not overlooked by any of the buildings, and away from the service part of the place. To have a pool indoors seems of little advantage for a country club, unless it be one that is used more in winter than in summer. An indoor pool is never so pleasant as one out of doors, nor is it always quite as attractive.

Pure, clear, soft water is desirable, but these qualities may be dispensed with if the supply is sufficient and sure to remain so throughout the season. It will seldom be necessary to empty the pool and refill it, but every day the loss of water due to the displacement and splashing of bathers must be made good, to the extent of a foot or so. Water let in to fill the pool again can be filtered on the way in, and it is likely, too, that the filter will be run continuously to keep the water clear during days of little use. Water from artesian wells and springs seems to carry spores of *algæ*, which grow with great rapidity when brought to the light, making the water cloudy, and green or milky in color. The filtering equipment should be adjusted to keep the water crystal clear, to accomplish which the water should be analyzed. The filter must be bought to suit the quality of the water to be purified. Pools used by great numbers of people will probably need violet ray purification, but this is a matter for a bacteriologist to decide. A constant, small stream of water playing into the pool is delightful in itself, and serves to keep the water always up to level in spite of little waves and evaporation. An outdoor pool, warmed by the sun, seldom needs any heating apparatus. It is more likely to need cooling, which is usually best accomplished by pumping in fresh water. This should be quite cool if it comes from wells or springs.

It is better to have a pool a little too small than too large. It is astonishing how small a pool will satisfy our individual desires for diving and swimming. Fifteen by 25 feet would be delightful for a small family pool, but for larger places and larger parties 25 by 50 is a good size. Sizes beyond that must be calculated according to the space which can be used, the cost, the water required, and the expected patronage. Since people stay in the pool for only a small part of the time that they may take for a swim, a great number can be accommodated in a small pool, provided, of course, that they do not all want to go in at the same instant. Every foot added to length or breadth increases the cost of the pool itself, the amount of water required to fill it, and the extent of the walks and other features around it. Eight feet is a sufficient depth for any pool, unless it is to be used for exhibitions, which is frequently the case in clubs. A depth of from 9½ to 10 feet is then recommended. The greatest depth need only be at the end of the pool where the spring board is located. To reduce the depth is a tremendous saving in the cost of construction and in the amount of water used. If the bottom is slightly sloping, and if diving can be restricted to the deeper part, the rest of the pool can be quite shallow as in many instances it is. It would be only the clumsy swimmer who would be in any danger of striking the bottom, even when diving at the shallow end.

Local conditions must determine whether the pool is to be built of stone, of concrete or of brick. Although waterproofing is frequently dispensed with in outdoor pools built into the ground, it is a practice not to be recommended. In most cases there should be a watertight skin of felt and tar embedded somewhere in the masonry. The felt and asphalt course should not be outside the wall. It is usually best to have it built into the masonry or concrete walls, and covered by a brick course which holds the inside surface of smooth cement plaster or tile. This inner skin of brick and cement must, if it is over 3 or 4 feet in height, be tied through the waterproofing course to the masonry behind. The waterproofing is elastic enough to allow cracking of the masonry without resultant leaking. In designing the walls, it must be remembered that they are retaining walls when the pool is empty, and may have water pressure in the ground back of them besides. When the pool is full they have little work to do, so they must be designed to stand pressure from without, which will sometimes constitute the chief function of these walls.

Water which splashes out or is displaced by bathers or which overflows must be taken care of all around the pool by what is known as a scum gutter. This keeps the surface of the water clear of dust, dirt and scum and prevents the dark water line which comes on the tile whenever the outlets are pipes located at intervals around the pool. There is a difference of opinion as to the best type of overflow trough or scum gutter. In outdoor pools, some prefer the gutter to be located outside and a little below the coping around the pool, which per-



Pool, Loggia and Dressing Rooms, Estate of Alexander Van Rensselaer, Esq., Camp Hill, Fort Washington, Pa.
Charles Downing Lay, Landscape Architect

mits the surface of the water to stand at a level with the coping itself, instead of 1½ feet below the coping, as is the case when the more generally accepted inside scum gutter is used to surround the pool.

Although the appearance of pools where outside scum gutters are used may be more attractive on account of water being constantly flush with the top of the coping around the pool, it is generally conceded that the inside overflow trough or scum gutter is more sanitary. The inside scum gutter serves four important purposes: First, it automatically removes from the surface of the water all extraneous substances, such as dust, lint, scum, etc. Second, it acts as an overflow, regulating the depth of the water and keeping it uniform. Third, it serves the important function of a cuspidor, which is constantly flushed by the lapping and splashing of the water, and to a great extent prevents expectoration in or about the pool. Fourth, and finally, the front or "dam" portion of the gutter forms a support or life rail, that in all respects is far superior to metal or rope handrails. If the inside type of scum gutter is used, it is advisable to provide an outside gutter between the coping of the pool and the walk surrounding it. This walk must be smooth for bare feet, and easy to clean, and should add to rather than detract from the attractive appearance of the pool. Tile, as at the Van Rensselaer pool, or slate as at many other pools, has proved satisfactory and attractive, and their use is recommended.

For a private pool it is best to have small dressing rooms with dressing tables, mirrors, chairs, electric lights, clothes hangers and plenty of hooks. Six or eight such rooms will accommodate a considerable party. For a club or public pool, separate dressing booths must be provided for men and women. An arrangement of dressing booths with lockers outside along the aisles where clothes may be put, will be the most useful. A dressing booth which is hung with clothes while the owner is bathing is an extravagance, although it is customary at our beaches. A country club may not have to provide any such arrangements, since the locker rooms which are now used for dressing can be used as well to change to bathing suits. It may be wise to give an indoor pool the appearance of a bath tub by lining it with dead white, but this seems hardly necessary outdoors, where the light is so strong that any color is visible through the clear water. When the level drops through splashing, it is pleasant to see colored tile showing below the coping, and interesting to see it through the water when one looks straight down. Marble or any smooth stone would make an agreeable lining, though not so good as, and more perishable than, colored tile. White cement will serve, but a combination of cement panels and tile borders is better and not much more costly. Using tile in patterns or as distance bands in the cement reduces the cost, and is almost as good as using tile throughout.

The consensus of opinion seems to oppose leaving the pool full of water in winter in northern climates where the water is likely to freeze. A tile-lined pool in the north should be emptied to obviate the cracking of tile around the sides of the pool where the ice would be likely to press against it.

The filter with its motor and pump, and the pump for the water supply can be located in a small house near by. The nearer it is the less the piping will cost, and the easier the care of the pool will be. One man should be able to look after all the water supply of the place, watch the filter and keep the pool enclosure swept and cleaned and in good order. Shower baths should be provided for use before going into the pool, and toilets are necessary.

There is no feature of a country place or of a country club so delightful in summer as a swimming pool. It often makes endurable a summer spent far from good swimming water. For the man who has worked long hours in mill or office, it is a revivifying experience to plunge into the cool depths of the pool, leaving there, when he emerges, the worry and the rush as well as some of the cinders of the day's work. In fact a pool is generally worth all it costs.

Planning the Golf Course

By A. W. TILLINGHAST, *Golf Architect, New York*

BEFORE the golf course architect can lay out a single hole he must know to a certainty the exact site of the club house. This is his dominant, the Alpha and Omega in any event, since wherever possible the course not only starts and finishes close by the club house, but swings back with the ninth hole and away again with the tenth. The advantages of this arrangement are obvious. Often enough a player desires to cover only nine holes, and if the finish of these were not in the vicinity of the club house he would be forced to end his abbreviated round at a remote corner, or to "cut in" to avoid a monotonous trudge. The two swings of nine holes make it possible to get the players away over both, on days when the attendance is unusually heavy, and thus relieve congestion in a measure; and it must be remembered that there are many who like to lounge around the grounds and watch the play; bring more play under their observation, and the better the spectators are pleased.

Probably it has not occurred to some that it is desirable to turn in the direction of home with the second hole. True, the advantage of this might only be apparent on tournament occasions, when matches go to extra holes, and even if three had to be played, the contestants would find themselves not very far from the club house at the conclusion.

The arrangements which the preceding paragraphs outline are greatly to be desired, but certainly it is the height of folly to force the plan of the holes to attain them, if the scheme detracts from the merits of the course. Many of the most famous links in the world keep right on running away from the club house, which is seen no more until the last putt has been holed. There is another arrangement, a 27-hole scheme, which makes it very necessary to place the club house at the dead center of three swings of nine holes each. This permits various combinations of holes, which add much to the variety of play. For example, during one week swings A and B would combine for the main course, leaving C open for overflow; the following week A and C combine, leaving B open; and the next combination of B and C leaves A for the shorter round. It is plainly evident that this arrangement permits of only one selection for the club house site.

In recent years some of the large organizations have found it necessary to construct 36 holes. A number of such courses were given to me for planning and development. Each necessitated a different arrangement. For example at Baltusrol there stood the magnificent club house at the fag end of the property, and consequently both the upper and lower courses have the "turn" at distant points. But close by both ninth greens there stands a building which serves as a halfway house, with telephones and similar conveniences. The two new courses of the Baltimore Country Club find one course with two swings and the other running straight away from start to finish. Here again there was no choice of a site for the club house, for a fine mansion almost on the south boundary of the property could not be ignored.

However, when the two courses of the "Winged Foot," at Mamaroneck, were planned, the holes were laid out only after the selection of the club house site had been given careful study. Here both the east and west courses offer two swings each, to and from the house, and there also is ample room for a large driving practice area and an unusually generous practice putting course. The views over the Winged Foot courses from the club house are inspiring, and there is every opportunity for spectators on the lawns and verandas to look over play in every direction. Here is a model, and the new building in the Tudor type harmonizes beautifully and restfully with the surroundings. But it is not concerning the plans of the club house that I have been asked to write briefly; it is of the selection of sites strictly from the viewpoint of the golf architect.

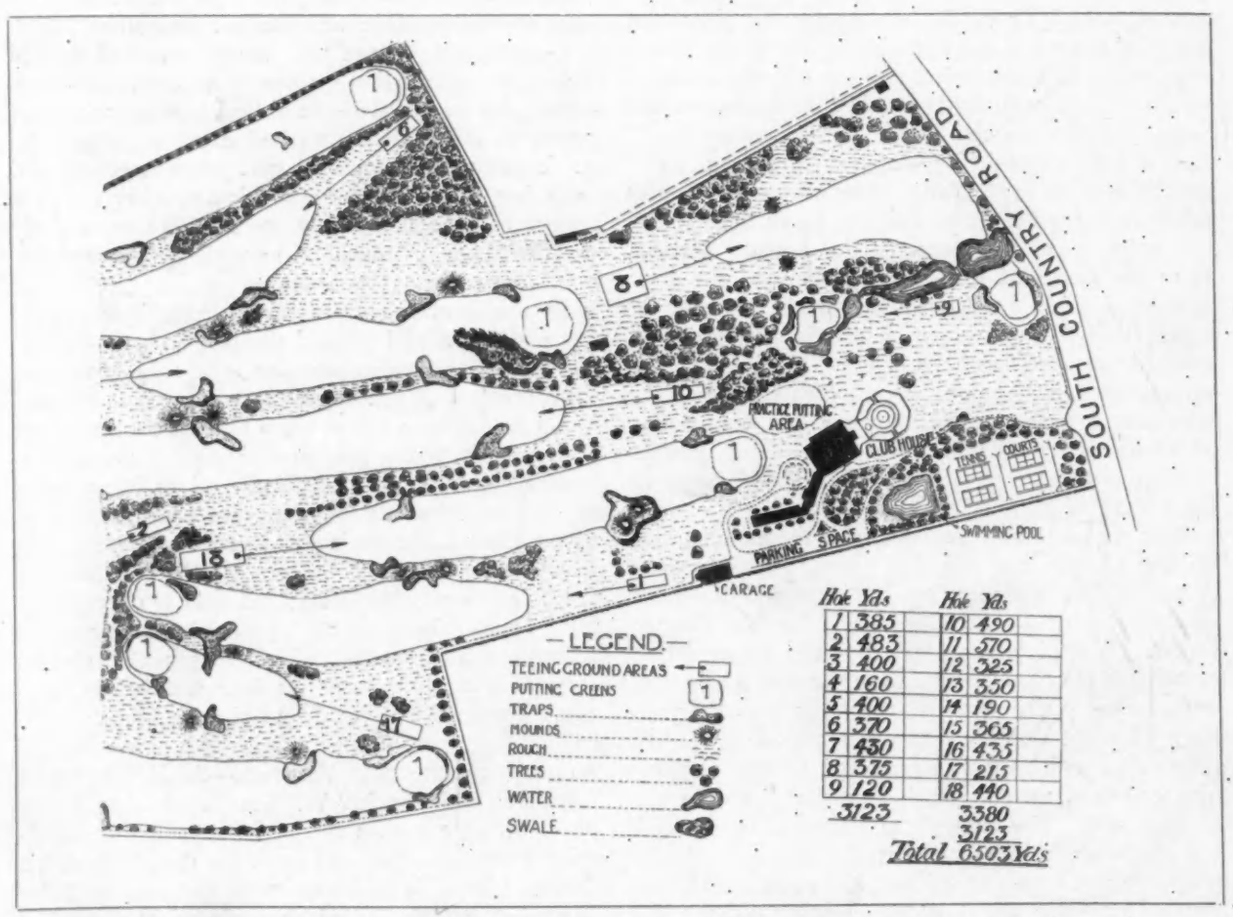
Generally, I believe that the presence of an old house or a mansion proves a distinct handicap. Often this sways the committee in the purchase of property. After all, it may be located unfortunately, so far as the demands of golf are concerned, and with few exceptions these residences, after they are remodeled, are not nearly so adequate as entirely new buildings, planned and located solely to provide comfort for the golfer of today.

In nine instances out of ten the committee already has a preconceived idea of the proper building site, and in as many cases that site is on a hilltop at the very greatest elevation on the tract. It is not the intent to question the wisdom of this choice except as it relates to the golf course itself. When club houses are built on unusual elevations it makes it difficult to construct true holes to and from them. Either there is the tendency to get away with a hole, which rather suggests driving off the roof, or the last hole presents blindness; and only too frequently there is also involved that great abomination,—an arduous trudge uphill, which brings the players home blowing like porpoises in a state of exhaustion. Personally, I incline to sites at lower levels. I recall discussing this point with two of the leading landscape architects in America,—A. D. Taylor of Cleveland and Charles W. Leavitt of New York, who both agreed with me. Mr. Leavitt was developing a tract of some 400 acres for the Philadelphia Cricket Club. It was my work to plan 36 holes there, but before any plans could be attempted it was vital that the club house site be fixed. The committee strongly considered a hilltop, but Mr.

Leavitt urged a much lower level. It was his idea to build the entrance roads along the higher levels, so that really the first view of the club house might be had by looking down into a small, sheltered valley, very much after the old English manner. He finally demonstrated that there was more breeze down there than on the hilltop. To be sure, the scenic beauty of any site must be considered to some extent, but golf values are of even greater importance.

The presence of fine trees, brooks and lakes, or the advantages of a particularly inspiring panoramic view, are to be greatly desired, but if they do not happen to be found around the site which lends itself best to the golf course, turn steadfastly away, even though it be to what seems at first a less attractive area; for a little imagination may enable one to visualize a future development, when many features have been added with the assistance of a master of landscaping. When the course of the Somerset Hills Country Club was built at Bernardsville, N. J., where there were many exceedingly inviting sites for the club house, the house was finally built where it served the best interests of the course, and it is regarded today as one of the most charming in America. The architect of the house made a great feature of a fine old apple tree at the center of a courtyard. It is probable that few people had ever noticed that apple tree before.

When a site is selected, of course due consideration must be paid to the locating of driveways, motor parking spaces, putting lawns, and all that goes to make the country club attractive to players and spectators alike. The holes of the golf course must not encroach too closely on the house and grounds, for when men, and women too, go to the country for relaxation they want to have breathing space, so to speak. The architect of the golf course should confer with the architect of the house and with the architect of the landscaping. "Every shoemaker to his own last," as this is a day of specialists. By working together in harmony, each at his own craft, the hit-or-miss methods of country club building should be relegated to the past even more effectively than they are at present. Many indeed are the golf and country clubs, where, owing to such coöperation, grounds and buildings have been planned and constructed in ways which satisfy the eye as to architectural harmony and afford every detail of physical comfort, thus adding to the pleasure of golfing.

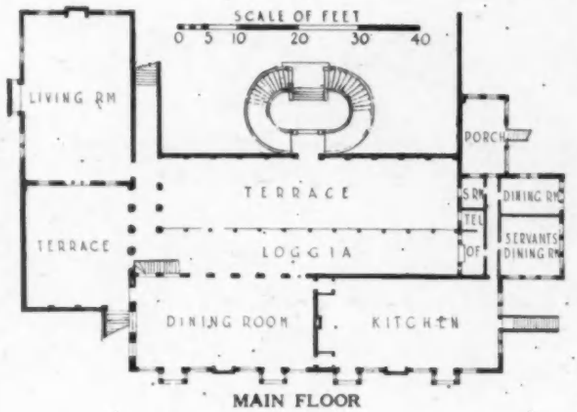


Portion of Golf Course Plan Showing Two Swings of Nine Holes from Club House Site
Southward Ho Country Club, Long Island
A. W. Tillinghast, Golf Architect

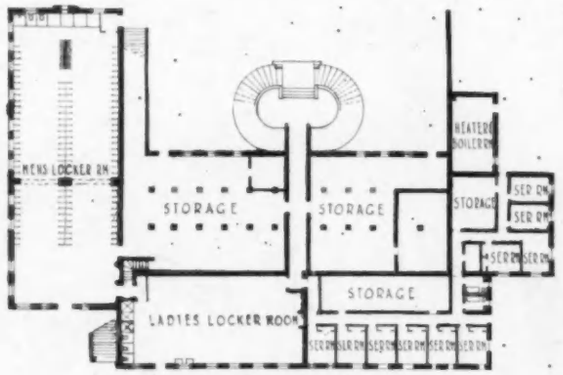
Plans on Back

GULF STREAM GOLF CLUB, PALM BEACH, FLA.
ADDISON MIZNER, ARCHITECT

Photos. F. E. Geisler



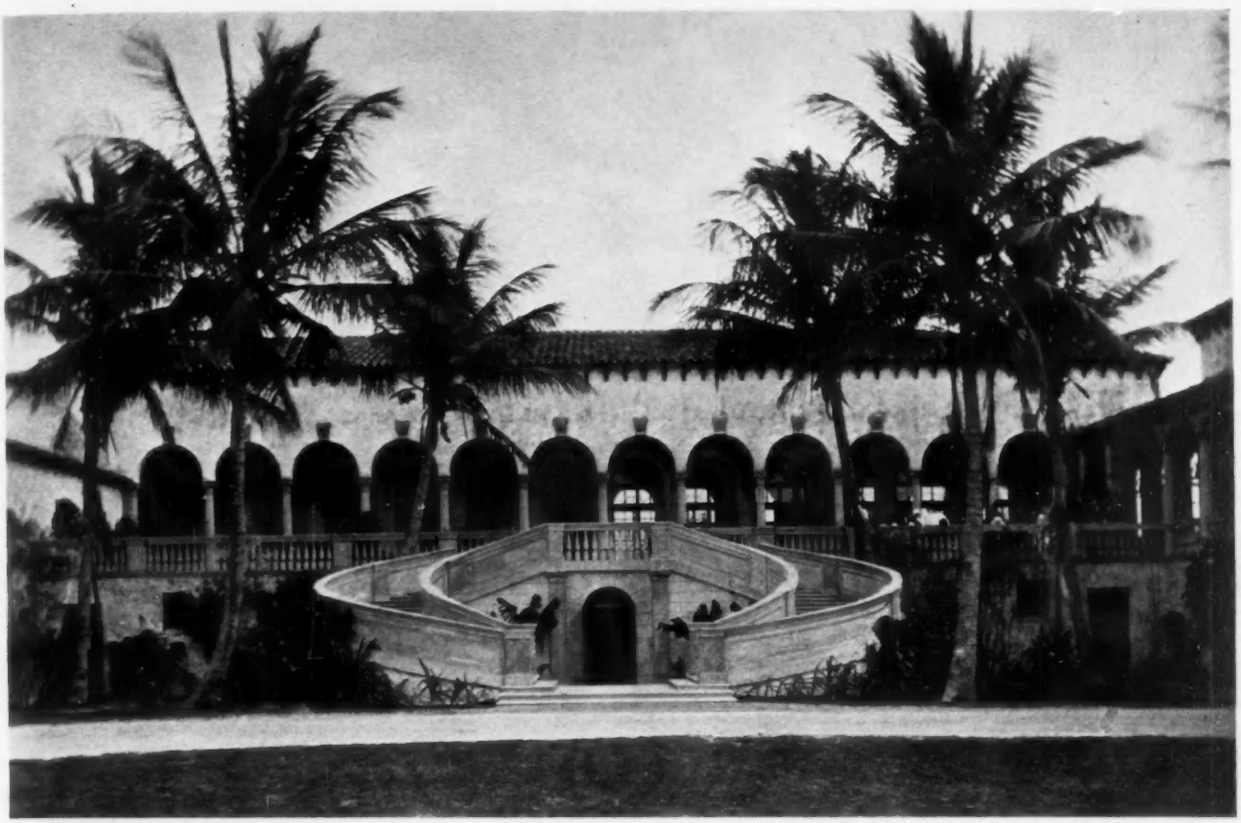
MAIN FLOOR



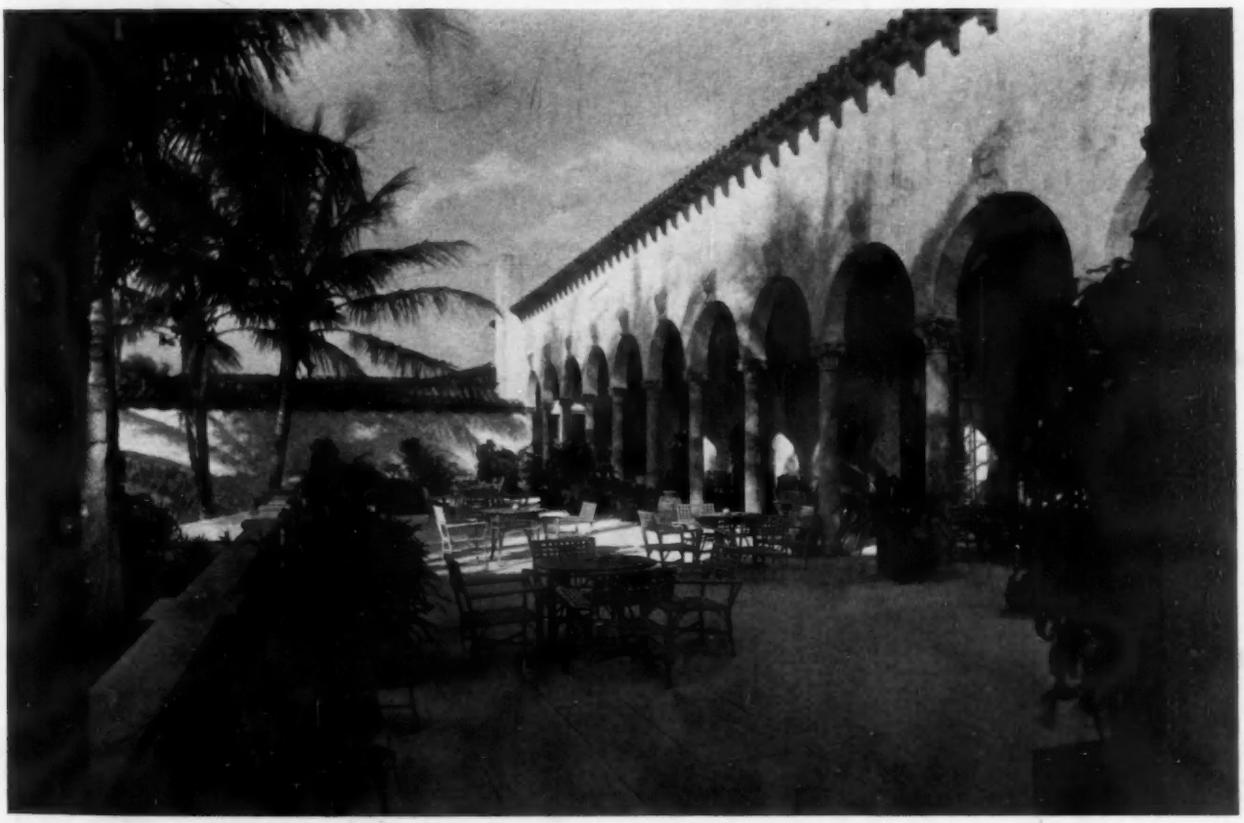
BASEMENT FLOOR

GULF STREAM GOLF CLUB, PALM BEACH, FLA.

ADDISON MIZNER, ARCHITECT



FRONT ELEVATION



TERRACE AND ARCADE

GULF STREAM GOLF CLUB, PALM BEACH, FLA.

ADDISON MIZNER, ARCHITECT

LIVING ROOM

DINING ROOM

GULF STREAM GOLF CLUB, PALM BEACH, FLA.

ADDISON MIZNER, ARCHITECT

ENTRANCE FRONT

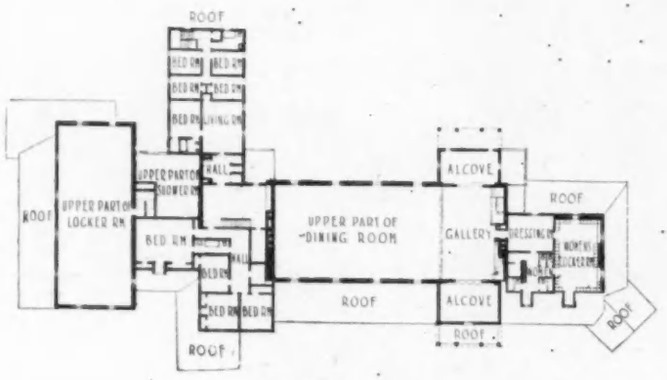
Photos. George H. Van Anda

Plans on Back

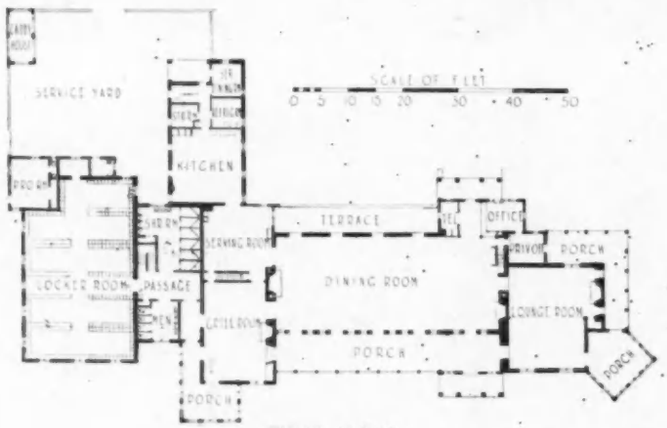
ELEVATION OVERLOOKING GOLF COURSE

PLAINFIELD COUNTRY CLUB, PLAINFIELD, N. J.

ROGER H. BULLARD, ARCHITECT



SECOND FLOOR



FIRST FLOOR

PLAINFIELD COUNTRY CLUB, PLAINFIELD, N. J.

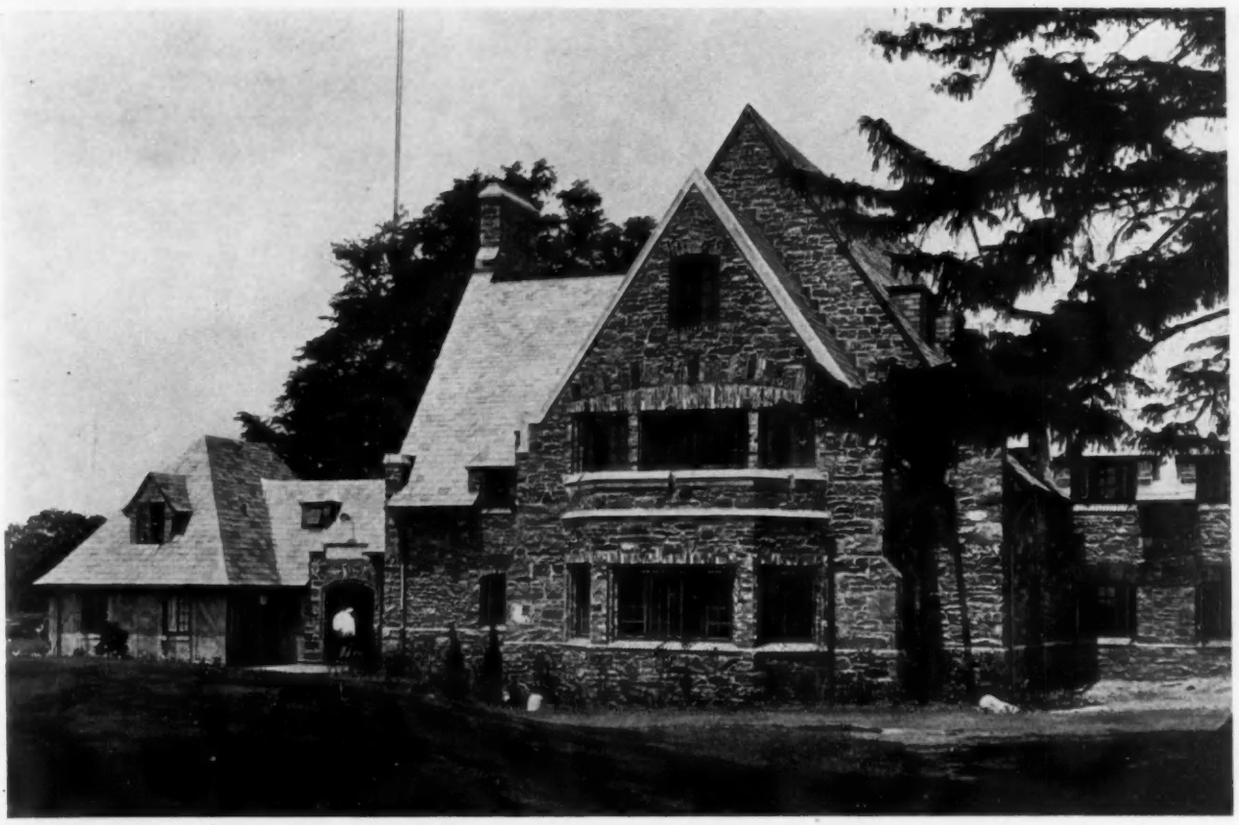
ROGER H. BULLARD, ARCHITECT

MAIN DINING ROOM

FIREPLACE IN LIVING ROOM

PLAINFIELD COUNTRY CLUB, PLAINFIELD, N. J.

ROGER H. BULLARD, ARCHITECT



LOCKER ROOM WING FROM FIRST TEE, EAST COURSE

Photos. Kenneth Clark

Plans on Page 141

ELEVATION OVERLOOKING TENTH TEE, WEST COURSE

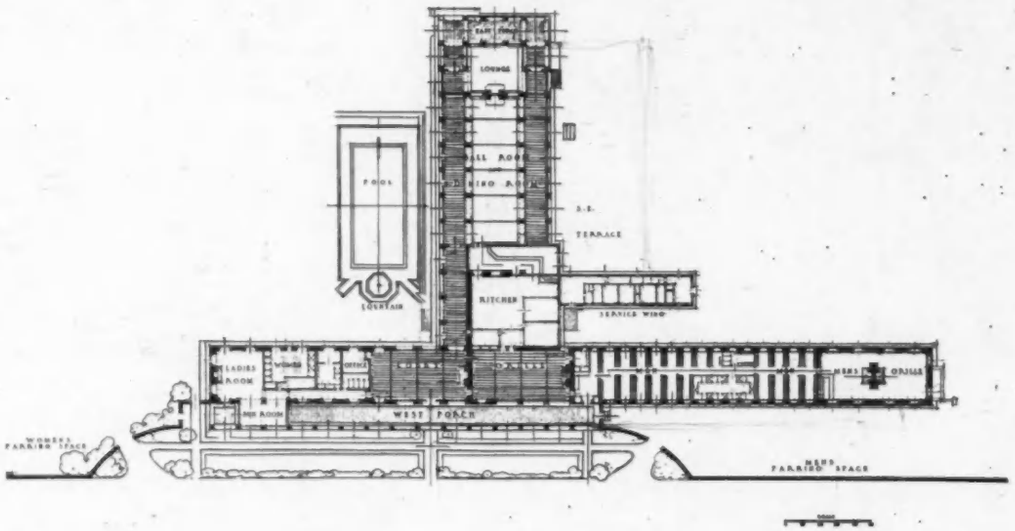
WINGED FOOT GOLF CLUB, MAMARONECK, N. Y.

CLIFFORD C. WENDEHACK, ARCHITECT

Plans on Back

FLINTRIDGE COUNTRY CLUB, FLINTRIDGE, CAL.
MYRON HUNT AND H. C. CHAMBERS, ARCHITECTS

Photos. Frederick W. Martin



FLINTRIDGE COUNTRY CLUB, FLINTRIDGE, CAL.

MYRON HUNT AND H. C. CHAMBERS, ARCHITECTS

WEST ELEVATION

ENTRANCE PORCH

FLINTRIDGE COUNTRY CLUB, FLINTRIDGE, CAL.

MYRON HUNT AND H. C. CHAMBERS, ARCHITECTS

Municipal Golf Courses

THOSE IN THE CHICAGO DISTRICT AND ELSEWHERE

By HOWELL TAYLOR, *Architect*, and THEODORE J. MOREAU, *Golf Architect*, *Chicago*

THAT golf is fast becoming America's most popular outlet for the pent-up desire to indulge in individual sport is more and more apparent as the number of municipal and public golf courses increases from year to year. In all parts of the country large numbers of people are being won to staunch advocacy of the "royal and ancient" game through opportunities for its practice offered on these courses.

A search for the initial infection which has caused what George Ade terms "the great American rash" might lead one to the Chicago district, if statistics only are considered, for here the number of public courses exceeds by 100 per cent that of any other city in the world. Golfers use nearly 20,000 acres of land in this territory, divided into 116 courses, 28 of which are public. Twenty-five years ago all of the golf grounds in the district would not have covered more than one section or 640 acres, and the only course open to the public consisted of little more than the 30 acres of park lawn set aside in Jackson Park and designated as a nine-hole "links."

The greatest impetus in popularizing the sport in this district is due largely to the development of public courses and to the remarkably low cost of playing,—from 15 cents per round in the parks to $2.50 per day on the best private courses. Every large park has now been given its carefully developed course, which is immensely popular, and many groups of persons who play regularly have formed clubs to facilitate the making of reservations, holding tournaments, etc., all this being part of golfing.

In recent years, however, certain elemental public demands for recreational and social service have become so insistent that small and backward indeed is the community where they have not been met in some form or other, however makeshift and primitive. Among these are swimming pools, gymnasiums, libraries, community halls, night schools, lecture courses, and various clinics. The demand for golf can almost place it among the number. In Chicago it has been so great that the seven park courses, recording more than half a million rounds of golf in a single year, have been unable to satisfy the continually growing demand. This has led to the development of public courses in the forest preserves, and to that of many privately owned public courses, some of which are more completely developed than those in the public parks, and often equaling the golf courses offered at private clubs.

In considering the general subject of municipal golf it is as well to assume that all privately owned public courses must be included, for in their use and operation they are practically identical, since the public actually supports them. These may then be divided into two classes: (1) municipally owned and, (2) privately owned. Roughly, the municipal courses may be considered as permanent features

Fig. 1. Club House at Coral Gables Golf Course, Near Miami, Florida. Adjacent to the Nine-Hole Course an 18-Hole Course Is Now Being Developed with a Club House to Cost a Quarter-Million

of a definite park system, while the private courses are more likely to be temporary expedients to attract buyers to real estate projects, to enhance the value of run-down property, or to tide over the holding period of some real estate owner until he may be able to realize better profits on his investment. There are, however, many privately owned golf grounds, installed as permanent attractions of some group development, an excellent example of which is that at "Coral Gables," near Miami, Florida, with its club house costing a quarter-million (Fig. 1).

The outstanding development of this character in Chicago is the transformation of a city dump of 100 acres into a beautiful, modern golf course, known as the "Mid-city," which has been opened recently. In the heart of a thickly built up locality, it not only forms a most welcome open space but has improved the appearance of the district appreciably, since the site had been a hideous eyesore for many years. A survey showed that nearly 100 acres were available, affording ample room for an 18-hole course. The property was bought privately and converted with most gratifying results as the plan (Fig. 4) indicates, from an ash dump, long an eyesore to the neighborhood. Such a development as this may be considered one step in preparing real estate for future subdivision; in fact a definite reclamation is often quite necessary to bring up the general tone of a district before profitable use of property can be made. There are many instances near Chicago where future subdivision property has been made into a public golf course as a means of returning interest on the investment, keeping up taxes, etc., until the day when growth in population and increased property valuations should warrant subdivision.

That municipal golf is rapidly reaching out into the smaller communities is evidenced by the bond issues of $250,000 in Key West and Lake Worth, Florida—the first to convert an island of coral rock into a municipal course, and the second to reclaim a narrow strip of lake front property for the same purpose. These are both first class courses, and are comparable with those of the finest private clubs. That at Key West is the more interesting example. The course was completed recently, and deserves attention not only on account of the benefit it affords the community but also on account of the material obstacles which were overcome in its construction. The business men of Key West found that they were losing business because they had no positive attraction for tourists except fishing. Many people came to Key West but did not stay there long, soon traveling on to other points where more diversified attractions were found. Golf was undoubtedly the solution, but the building of a course on a small coral island which is none too large for the growth of the city itself and where there was no city water supply,

Fig. 2. Lake Worth, Florida, Is Spending $250,000 for This Development Along the Lake Front. It is Municipally Owned and Operated

Fig. 3. At Davenport, Iowa, the Demand for Public Golf Has Led to the Building of an Excellent 18-Hole Course on Credit Island in the Mississippi River, an Unusually Delightful Setting

seemed at first to be an insurmountable difficulty. It soon developed, however, that the purchase of a nearby island and the use of creeping bent grass for the fairways and greens might remedy the difficulty if the water problem for keeping the greens in condition could be solved. That it was solved successfully is evidenced by Fig. 5, an illustration which shows the character of the golf course and the landscaping which has been done.

At Davenport, Iowa, a good sized river island has become a park and golf course at a considerable outlay. The attractions of such a setting are self-evident, and the plan (Fig. 3) reveals the possibilities of the site. Lake Worth, just south of Palm Beach, as already noted, is now filling a 2½-mile strip of land on the lake front for a park and municipal course (Fig. 2).

How fruitless it was for the old Scottish Parliament to decree before 1500 A. D. that "golfe be utterly cryit doun" and that "in na place of the realme there be usit futeball, golfe, or other sik unprofitabill sportis!"

Regarding the club houses on municipal golf courses, they are, of necessity, simple and unpretentious in design. By the time land has been acquired and the course laid out, a city government seldom has much money left for the erection of a club house. Often an old building located on the property acquired is made use of. By tearing down partitions and throwing rooms together, sufficient space can be provided for locker rooms and toilet facilities for both men and women. Provision for the usual social life of the players is not often made, on account of the public character of municipal golf courses. Rooms for the superintendent and greens keeper and caddies should always be arranged. In some of the larger cities, such as Chicago, a restaurant or cafeteria is included in the club house. This feature is a great convenience for golfers wishing to spend an entire day on a public course located in the suburbs of the city. If this provision is not made, small shanties, booths, tents and "hot dog" wagons will crop up along the adjacent highroad or on nearby private property, since concessions for such buildings on the public property are not always granted.

For the purpose of developing suburban real estate, companies often set aside extensive tracts of land for use as golf courses, which they later sell or lease to the city. Such was the case, says *Golf Illustrated*, in Portland, Oregon, where back in 1916 the Ladd Estate gave the city a five-year free tenancy of 148 acres of land to be owned and developed as the Eastmoreland Golf Links, a rolling stretch of land adjoining Reed College campus, with a lake on one part, and a creek on another, providing admirable water hazards. This gift of free tenancy was

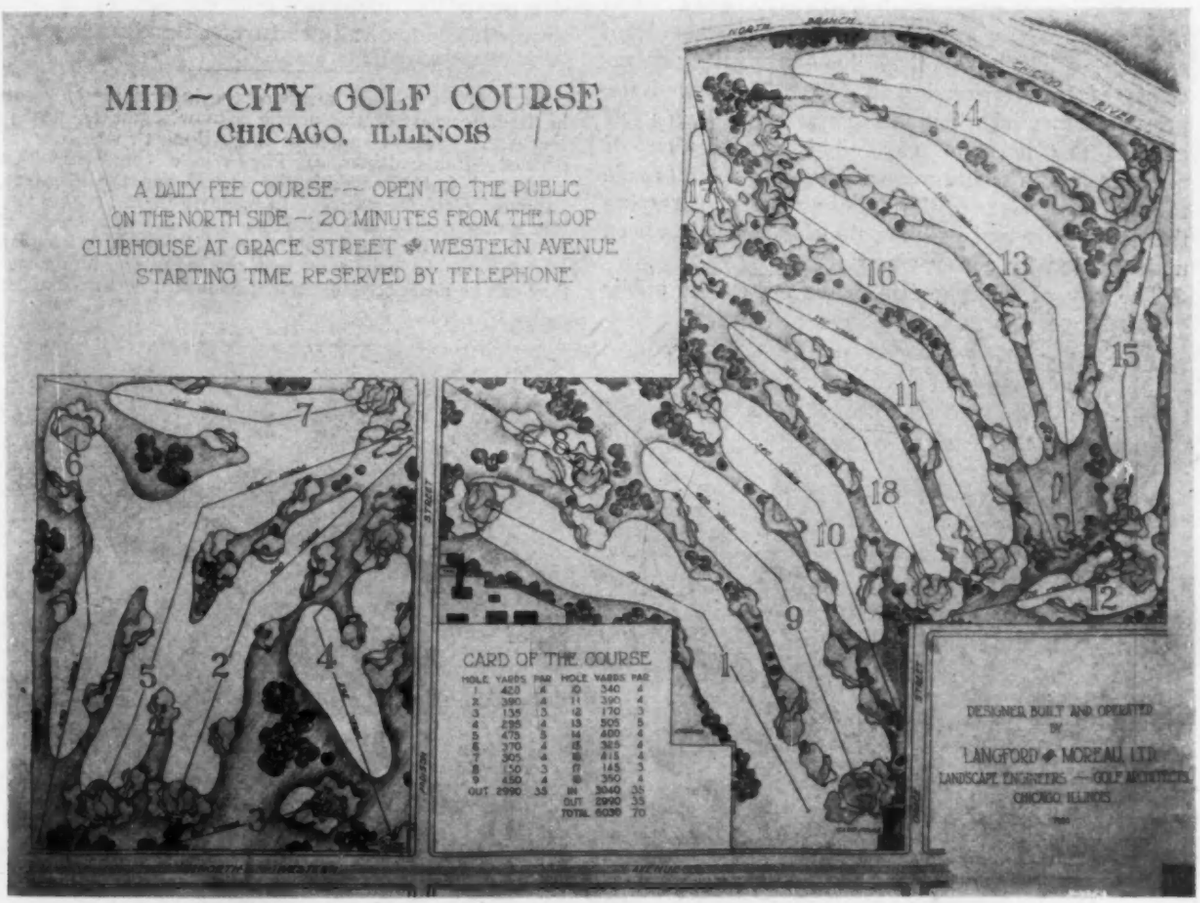


Fig. 4. Plan of Mid-City Golf Course, An 18-Hole Course in the Heart of Chicago. The Site Was Formerly a Dump

backed by a subscription of $1,800 by members of three private golf and athletic clubs. Subsequent generous gifts on the part of the Ladd Estate were a caddy house, extension of the five-year free tenancy, and the donation of the site upon which the present public club house stands. It required an expenditure of $40,000 by the city to develop the golf course. The trustees of the Ladd Estate, which paid the taxes and carrying charges of the land, admitted later that they would have done better had they donated the entire property outright, in the beginning. Interest in golf increased enormously at the close of the war, and with it receipts from the players. The operating expenses, first paid from the Park Budget Fund, were soon met by greens fees, rent of clubs, checking, concessions such as the cafeteria and the sale of merchandise, which altogether amounted to $42,877, of which sum the greens fees alone represented 75 per cent. Against these gross receipts there was entered a total expenditure of $37,605 for personal service, operation, maintenance and purchase of merchandise, thus making a profit of $5,272.

Taking into account the fact that municipal links are more costly to operate than those of private clubs and are subject to civil service rulings, through which a minimum of $5 per day is paid for common labor, personal service costs run higher when dealing with the more careless public golfer. When far greater numbers are using the links in a day, the mowing and watering of grass are not so easily handled, and the upkeep of the greens involves a more constant expense. In spite of these handicaps, the net receipts of the Portland club for 1923 showed the profit just named. Thus the game has shown itself able to pay its own way. This is only one of many instances where municipal golf has been made to pay for itself, once the initial cost of constructing the golf course and building the club house has been underwritten by a city government.

The city of Chicago has a fine system of public links built within its parks, and some if not all were built in spite of considerable objection on the part of officials, although these objections were in every case eventually followed by hearty approval. No matter how many public courses were built, and Chicago has been very liberal in this respect, there was continued congestion, showing the great and growing public interest in the game. Finally the public mind turned to the great forest preserve district, owned by the people, and located on the western side of Chicago, with its wonderful strip of 30,000 acres of woodland, reaching far to the north and south. Here many golf courses have been built, and there is still room for many more to be laid out within its confines.

For an understanding of the municipal golf course situation in the Chicago district it is necessary to go back into history to the time when the supposedly far-seeing park commissioners established a series of so-called outer parks. These included Lincoln, Humboldt, Garfield, Columbus, Marquette and Jackson, besides many smaller parks. All these are now in the midst of thickly settled sections of the city, with the park property worth fabulous sums. All of these parks contain golf courses. Of the 116 golf courses in the Chicago district, 88 of them are privately and 28 of them publicly owned. That such a large proportion of the golf courses in Chicago are public and not privately owned seems to be conclusive proof that municipal golf courses can be made to pay if economically constructed and managed.

EDITOR'S NOTE.—For much of the information presented in the latter part of this article acknowledgment is made to Mr. A. T. Packard and Miss L. B. Bunnett, whose articles entitled "Public Links of The Windy City," and "Can Municipal Golf Be Made To Pay?" appeared in recent issues of *Golf Illustrated*. In each of these articles many interesting details and statistics were given, showing the growing need for more municipal golf courses, and explaining the equally important fact that if properly managed they can be made self-supporting as indeed is often the case.

Fig. 5. Public Golf Course at Key West, Florida, for Which a Bond Issue of $250,000 Was Voted

Financing and Operating the Golf Club

By C. STANLEY TAYLOR

EDITOR'S NOTE.—The data for this article were provided by the president of a large Eastern golf club, which has recently been completed. Before developing this project, he made an intensive study of the financing and operating methods used successfully in many parts of the country, developing an authoritative background which insures the practicability of the various suggestions presented.

THE initiative in promoting a golf and country club usually emanates from one of three sources,—a group of individuals who are interested in the development of local golfing facilities from the viewpoint of individual and community benefit; a real estate broker, who uses this method to sell a large tract of land; or a real estate developer who desires to make a profit on turning over a tract of land or to enhance the value of neighboring land in which he may be interested. It matters little from which of these sources the original idea may spring, but it is important that the new club should be promoted and operated on sound principles, which will insure the rights of all members according to the class of membership, and will protect all investments, particularly during promotion stages.

The first important thing is that the land should be selected with care, not only for its physical attributes, but for its relative location in the community and in relation to transportation. The land selected for this purpose should preferably be of undulating contour, with a brook or stream to allow for water hazards. It should be as free as possible from rock ledges, as the expense of removing or covering rock is a large item in the construction work necessary to build the golf course. There is no standard of cost for the construction of golf courses, the variations ranging from a few thousand dollars to hundreds of thousands. It is quite evident, therefore, that in selecting one of several pieces of property, it is better to pay a higher price for that which has natural advantages and represents economy in the construction of the course. Before purchasing land for this purpose, it is advisable to have a golf course architect examine it.

The question of transportation should be given serious consideration. If the golf course is to be built in the vicinity of a large city or in a metropolitan district, it should be in a locality easily accessible by railroad transportation and by motor. If the golf club is to serve a city of small size or a suburban town, railroad transportation is not an important consideration, but accessibility by good motoring roads is of great importance, and this has an appeal to the individual when membership is considered. Access by trolley line is also desirable.

As the provision of proper sewerage and water supply is absolutely necessary, it is evident that considerable cost in final development can be saved if municipal water and sewer are available at or near the site selected. It is advisable not to attempt the development of a golf course in a heavily wooded district, because the expense of removing trees and shrubs to make ready for seeding is prohibitive. Also, the general character of the land should not be too rocky, because there should be at least 3 feet of earth to prevent the ground's baking.

The terms arranged for the purchase of the land should provide a cash and mortgage basis, paying as little cash as possible and obtaining as long a mortgage term as may be practical. The reason for this is that all money obtainable through the sale of memberships is necessary for the construction of the golf course and the erection of the building.

In organizing a golf and country club, there are two systems which are in common use today. The first method is to form but one corporation, which serves in the dual capacity of owner of the property and as operator of the club. The other (and newer) plan, which is recommended as being more practical, is that two corporations shall be formed, one a holding company which owns the property, and the other a membership corporation, which leases and operates the club. Where the first plan is used and a single corporation formed, the club owns the property and requires all members to pay an initiation fee and also to purchase bonds of the corporation, these bonds bearing a nominal rate of interest, generally from 2 to 4 per cent. The price of the initiation fee can be set at any nominal figure, irrespective of the value of the property, but the price of the bond should be established on a basis such as will now be suggested. The toal cost of the improved property is estimated by adding to the original cost of the land the estimated costs of building the golf course, constructing the club house and other buildings, equipping and furnishing, constructing the necessary roads and walls, and carrying out any required landscaping. From this amount is deducted the amount of the mortgage, so that the net required investment is determined. To this amount should be added a contingency fund of 15 or 20 per cent, because in almost all cases the cost of improvement is figured too low, and new ideas are developed during construction for which such a contingency fund is needed. Having determined this final sum, it is divided by the number of full privileged members who will be admitted to the club. In most instances a club having an 18-hole course will have from 250 to 400 playing members, and by dividing the required net investment by the established number of players, the value of the bonds which must be purchased by each member can be determined. It is not absolutely essential—in fact it is inadvisable—that the mortgage be en-

tirely removed. In most metropolitan areas the cost of the property and its development is so great that it is impossible to sell membership at a price high enough to remove the total indebtedness. It is not infrequent for a club in the metropolitan districts to have a fixed indebtedness in the form of a mortgage, ranging from $150,000 to $300,000. In the second plan, where two corporations are formed, the stock of the holding company should have no par value, and the number of shares issued, whether in blocks of five or ten, makes little difference so long as the total number of blocks issued is not greater than the number of members who are to enjoy full playing privileges. In this case the funds for land purchase and construction are obtained through the sale of stock in the holding company, which is in favor of the club because the stock does not bear interest, while in the first plan the bonds do carry an interest charge. In both instances the original investors, who enjoy full membership privileges, have an equal equity in the ownership of the land and buildings and the money increment in value which might accrue, but in no case do members who come in on a part privilege basis have any part of this interest.

The question naturally arises why it would not be simpler to charge an initiation fee to cover the full amount necessary for the investment, or in other words, an amount equal to the price of stock or bond issues, thereby eliminating these issues. The reason for this is that it is necessary to pay 10 per cent government tax on initiation fees, and this is avoided by adoption of the stock or bond system.

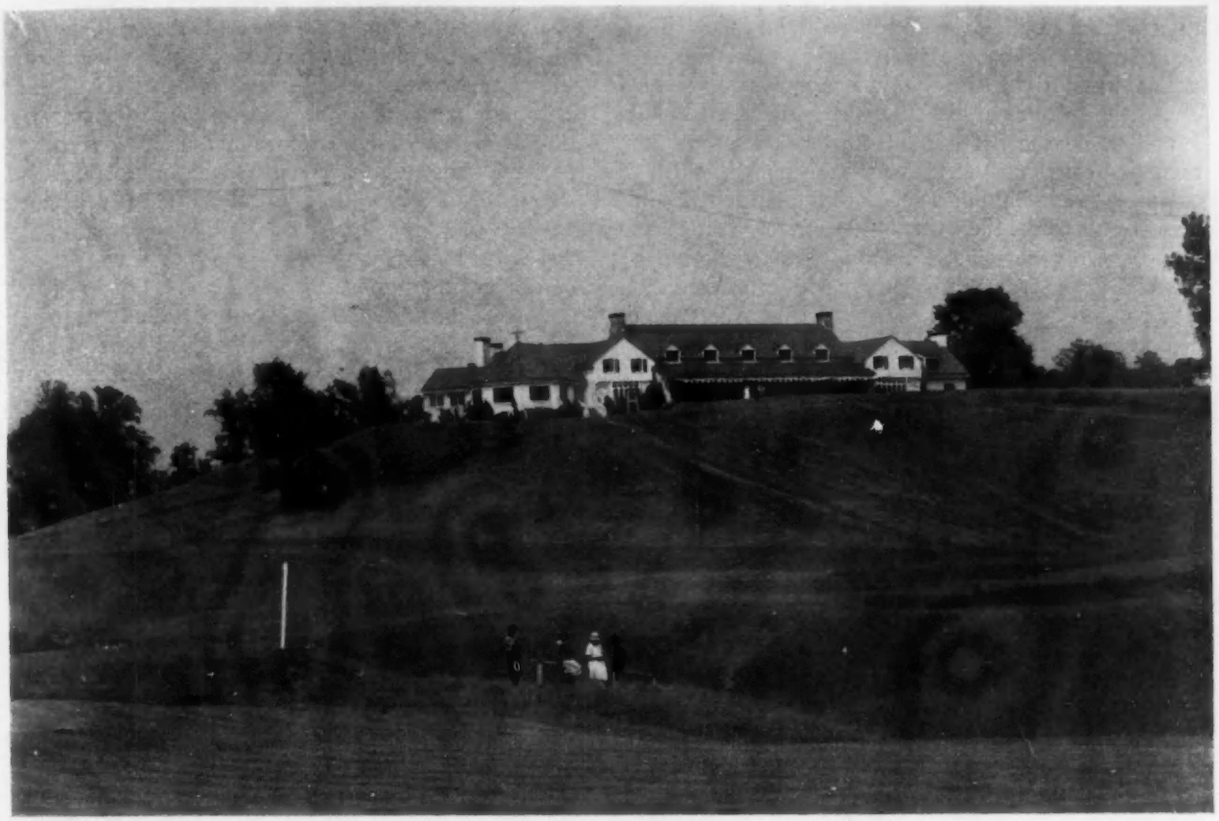
It is also our understanding that for tax purposes even stock and bond proceeds of the single holding and operating company (first plan) *are counted as initiation fees, and subjected to luxury tax.* The plan of having two corporations is recommended in every instance.

In the promotion of a typical club of 300 members, an interesting procedure has been successfully developed: the total amount of stock or bonds is divided into three equal lots for 100 members each. The memberships in the first group are sold at 25 per cent below the actual established price. The 100 memberships of the second group are sold at the established price, and those of a third group at a 25 per cent increase over the established price. Thus the total sales provide the desired investment. The establishment of this sliding scale offers an objective for the first group of investors, who must perforce come in on a speculative basis. By the time the second group comes in the project is well under way, and when the last hundred members join, the club has been established and the speculative element has been entirely removed. Also, the security is greater, because the land has increased in value and the project is fairly well assured of success. It may also be noted that the first members who join will have to wait for a period of anywhere from one year to 18 months until the club is sufficiently completed for them to enjoy its privileges. The last members who join come into a going club, where use of privileges is immediate.

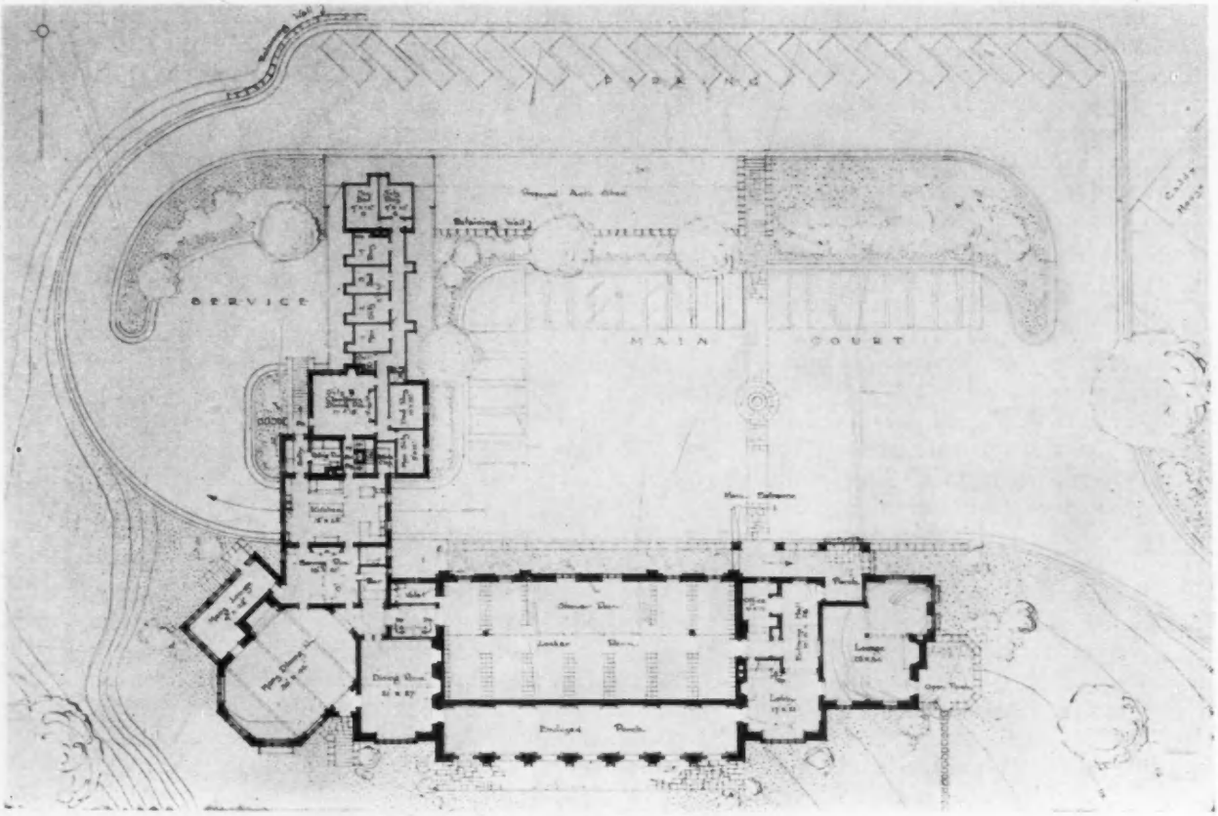
In selling the stock or bonds, it is preferable to obtain full payment at once, but if because of existing conditions it seems desirable, payments may be arranged on a time basis. In no case should payment of less than 10 per cent of the purchase price of the stock or bonds be allowed, as in most states payment of this amount is necessary by law to constitute an agreement, and when a membership contract is entered into, it should be sufficiently definite in its legal nature to make it difficult for the member to change his mind during the period of development.

It is, of course, important that the property be tied up by an option or a sales contract before the promotion of the club is undertaken and during the period when the fact is being definitely established that there is a logical demand for the new club. After the option is obtained, a golf architect should be employed to definitely lay out the course. Minor changes may be made at a later date, but in selling the memberships it is a great asset if the layout of the golf course and the elevation and floor plans of the club house can be shown to prospective members. The first funds available through the sale of stock or bonds and through initiation fees should be used for building the golf course, as even after the construction period about six months must elapse from the time that the course is seeded until it is played upon. In the northern part of the country the best results for establishing turf are obtained if the seeding is done in the fall, while in the south the period of planting is not so important. Another reason why the golf course construction should be started before beginning the erection of buildings, is that prospective members are impressed by the fact that work has already been begun, and this can be done, even in a small way, with the very first funds obtained. Judging from the general experience on a number of golf club developments, it seems inadvisable to build a golf course on a straight contract price, since no matter how well the course is laid out, changes are made as the construction work is being done. Golf course architects can give a fairly well approximated estimate of the cost of construction, but to this estimate it is wise to add about 25 per cent, because various unforeseen items develop which should be amply covered in the general estimate made at the beginning of operations.

When the plan of two corporations is used in promoting and operating a golf club, it is customary for the holding corporation to lease the completed property to the membership or operating corporation under a standard form of lease whereby the building and premises must be maintained in good order and all taxes and insurance paid regularly. The rental involved in this lease is established by computing the interest charges on all mortgages or other indebtedness plus any sum which the directors may wish to establish as an amount which they intend



VIEW OF SOUTH FRONT OVERLOOKING GOLF COURSE



PLAN OF CLUB HOUSE AND SURROUNDINGS
OAKLAND GOLF CLUB, BAYSIDE, N. Y.
Roger H. Bullard, Architect

to use as a sinking fund for reducing funded indebtedness. When the club reaches the stage of a going institution, the holding corporation which owns the property becomes virtually inactive, its functions having been fulfilled when the promotion, financing and construction are finished. No funds accruing to the holding corporation are used for improvements on either the golf course or the club house. Only revenue accruing from operation of the club and from membership dues or initiation fees is used for this purpose. The lease is usually made for a period of five years, and as the full playing membership of the club and the stockholders of the land corporation are identical, it is not necessary to have the privilege of renewal or other restrictive clauses, except to clearly define the rental and the responsibilities of both parties. It is, in fact, inadvisable that the lease should be for a period longer than five years, since a number of unforeseen contingencies might arise which would necessitate an increase in the rental charge. For instance, refinancing might be necessary, involving legal fees and a higher rate of interest.

It is important that the resale of stock by members shall be definitely controlled, so that playing memberships may not pass to undesirable persons.

Usual practice calls for having not more than five directors in the corporation owning the property. The organization of the membership corporation, which leases the property, is made along the usual club lines, calling for 15 governors or trustees, with the usual offices of president, two vice-presidents, secretary and treasurer. The annual dues for the full playing member (who holds stock or bonds) in the average club runs anywhere from $125 to $200. Other classes of membership in the average club are: junior; house; associate; non-resident, etc.

To qualify for a junior membership, one must be under 21 and the son of a regular member. No initiation fee is charged, and very nominal dues are established, for example, from $25 to $40 per year. House members pay an initiation fee of anywhere from $100 to $200, and dues from $50 to $100. Associate members pay an initiation fee anywhere from $150 to $200, and dues from $75 to $125 per year. The non-resident members usually pay $50 initiation fee and nominal dues, the definite amount depending upon whether they have to pay the greens' fees. The qualification for non-resident membership is that the individual shall live at least 50 miles from the golf club. All of these prices are established as based upon custom in metropolitan and Northeastern golf clubs. The full-playing or stock-holding member has full privileges of golf course and club house without payment of additional fees. This usually holds true for his wife and daughter under 21 (whose hours of play on Saturday and Sunday are restricted). The associate member has full privileges of the club house or golf course excepting on Saturdays, Sundays and holidays. The house member has full privileges of the club house, but no privileges of the golf course. The junior member has privileges of club house and golf course, with the exception of Saturdays, Sundays and holidays. The non-resident member has full privileges of club house and golf course. If the club has tennis courts, swimming pools or other additional facilities, these are usually granted gratis to all members, or if a fee is charged, all classes of membership pay the same fee.

In operating a golf and country club there are two sources of income which might be termed net profit. These are the membership dues and the greens' fees. Generally, the total amount obtained from these two sources is divided into three parts: one third for the maintenance of the golf course; one third for the maintenance of the buildings, and one third paid to the holding corporation. It is customary to have the operation of the club under committees' control, and these committees appear in practically all golf clubs: executive; finance; house; admissions; greens; handicap and tournament. Additional committees are sometimes added, depending upon the type of club or the extent of the facilities which the club may have. These might include the entertainment committee; insurance; tennis; furnishings and equipment; grounds, etc.

In operating personnel, three executive individuals are necessary: (1) club manager, who is nominally in charge of the entire premises, but whose duties are directly limited to the operating of the club; (2) greens' keeper, whose duty is limited to the maintenance of the golf course; (3) a professional, who is in charge of the golf shop and caddies. In some cases the professional employed has had considerable experience in golf course maintenance, so that he has charge of maintenance as well, thereby doing away with necessity of having a greens' keeper, and replacing him with a foreman.

The problem of operating a restaurant is difficult at best, and when this is done it is advisable that a manager be employed who is thoroughly experienced in restaurant operation. In addition to the regular restaurant service, most clubs have also a grill room service which is used principally for luncheon. The question of food service is discussed in another article in this issue, making it unnecessary to undertake any further consideration here.

During the period of construction it is advisable to establish two committees, one to handle the problems involved in the construction of the golf course, and the other to function similarly for the construction of the club house. These committees should be small, having not more than three members each, in order that they may function without delay. The golf course architect should be employed not only to lay out the course but also to supervise its construction. The golf course architect usually completes the entire layout of the property except of the grounds immediately adjacent to the club house, where a landscape architect is employed to design walks, gardens, and other decorative features.

FRONT ELEVATION

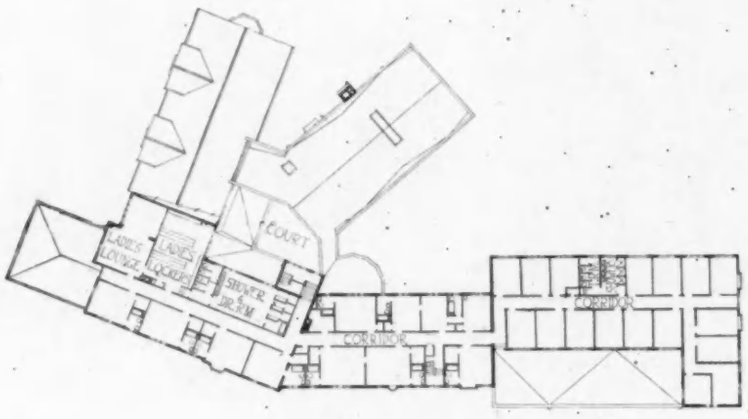
Photos. R. W. Trowbridge

Plans on Back

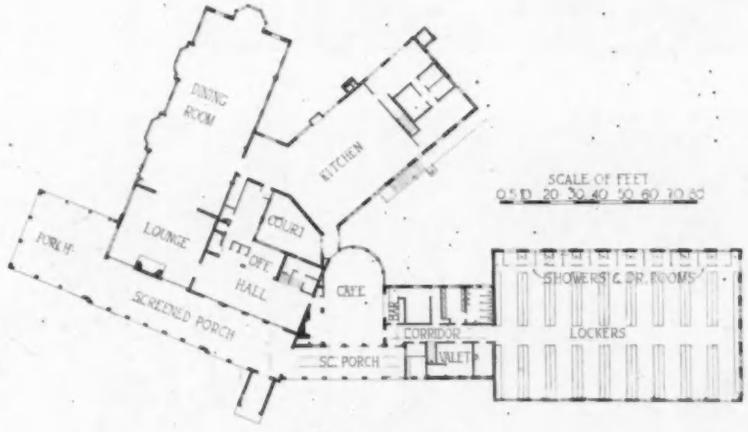
VIEW OF DINING ROOM FROM THE LOUNGE

GLEN VIEW CLUB, GLEN VIEW, ILL.

HOLABIRD & ROCHE, ARCHITECTS



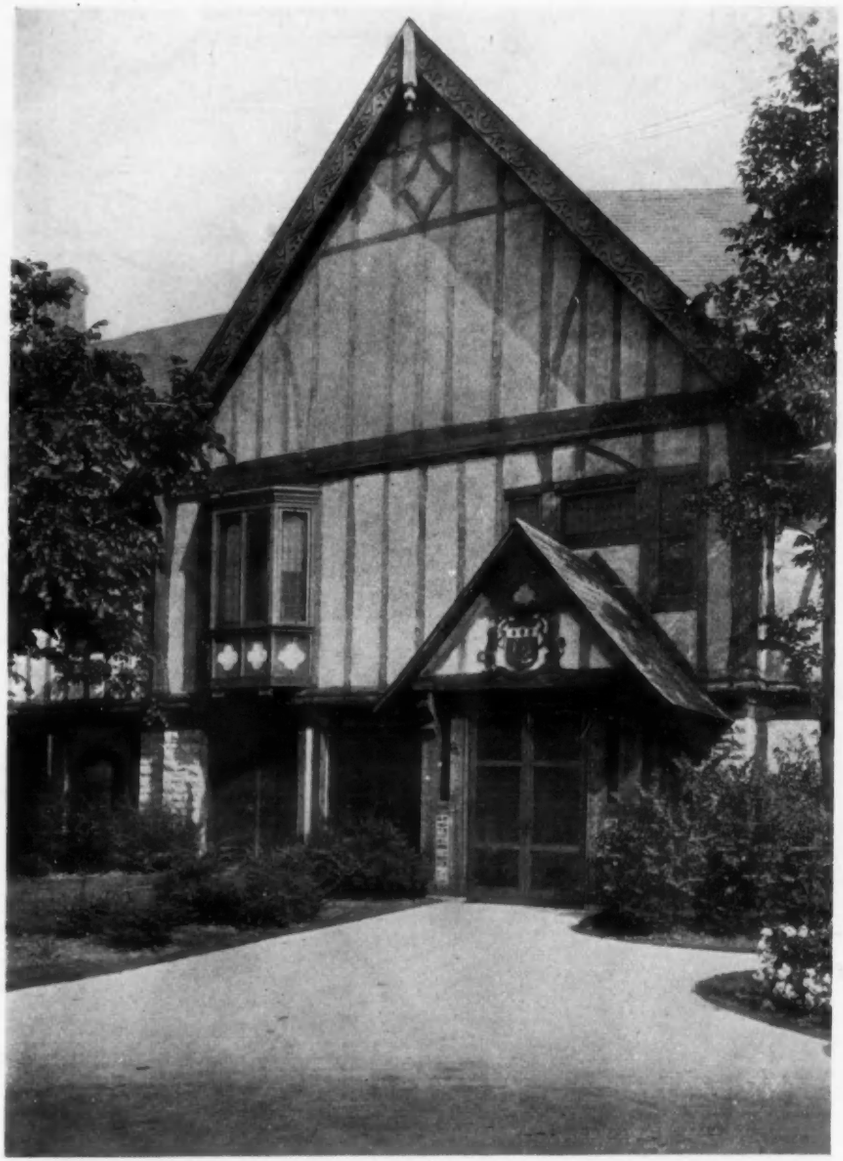
SECOND FLOOR



FIRST FLOOR

GLEN VIEW CLUB, GLEN VIEW, ILL.

HOLABIRD & ROCHE, ARCHITECTS



ENTRANCE DETAIL

DINING ROOM

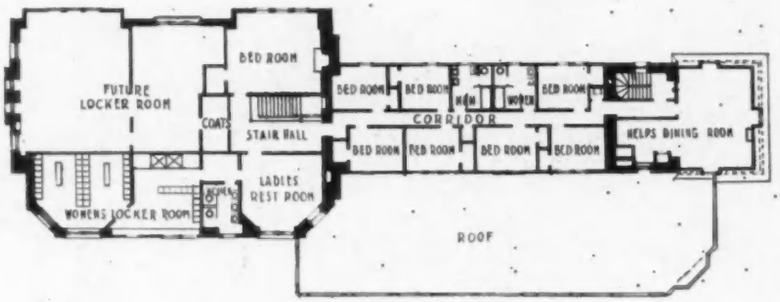
GLEN VIEW CLUB, GLEN VIEW, ILL.
HOLABIRD & ROCHE, ARCHITECTS

SOUTH ELEVATION

DETAIL, LIVING ROOM

Plans on Back

BONNIE BRIAR COUNTRY CLUB, LARCHMONT, N. Y.
TROWBRIDGE & LIVINGSTON, ARCHITECTS



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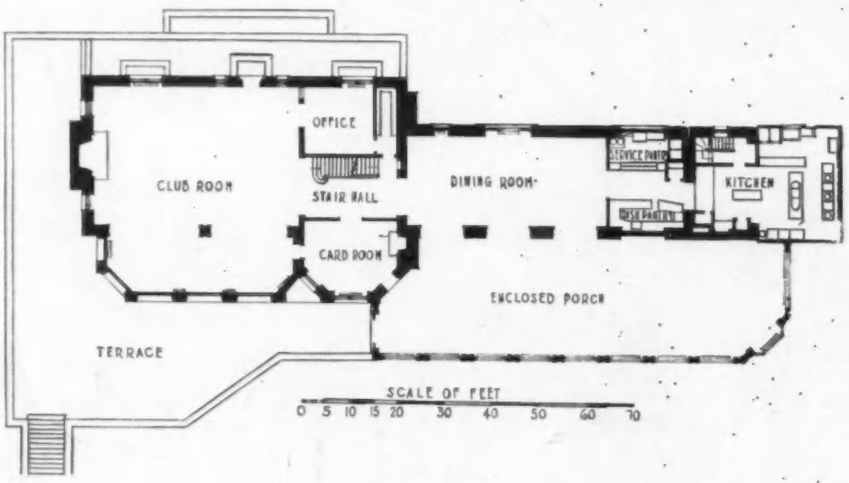


FIRST FLOOR

BONNIE BRIAR COUNTRY CLUB, LARCHMONT, N. Y.

TROWBRIDGE & LIVINGSTON, ARCHITECTS

"DORMIE" HOUSE

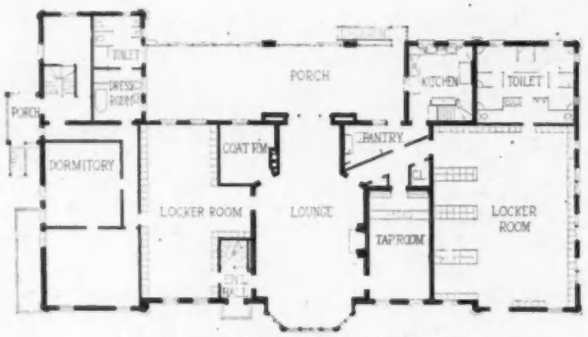
Photos. Mattie Edwards Hewitt

MAIN BUILDING

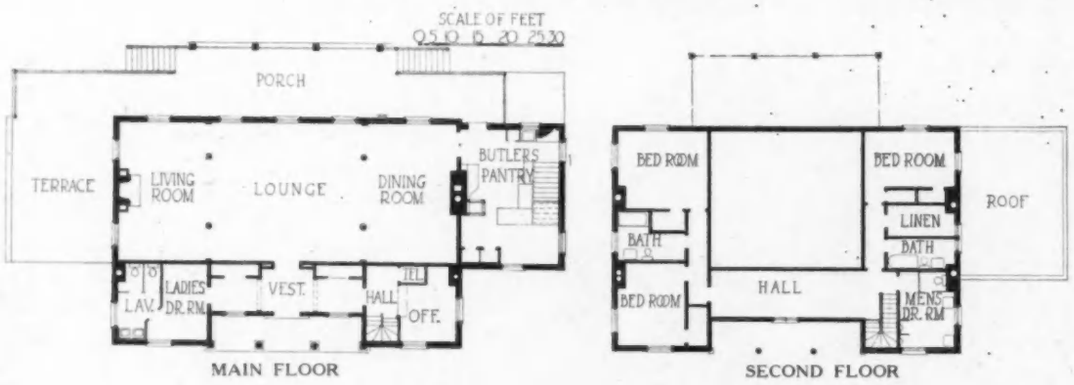
CREEK CLUB, LOCUST VALLEY, N. Y.

WALKER & GILLETTE, ARCHITECTS

Plans on Back



FLOOR PLAN OF "DORMIE" HOUSE



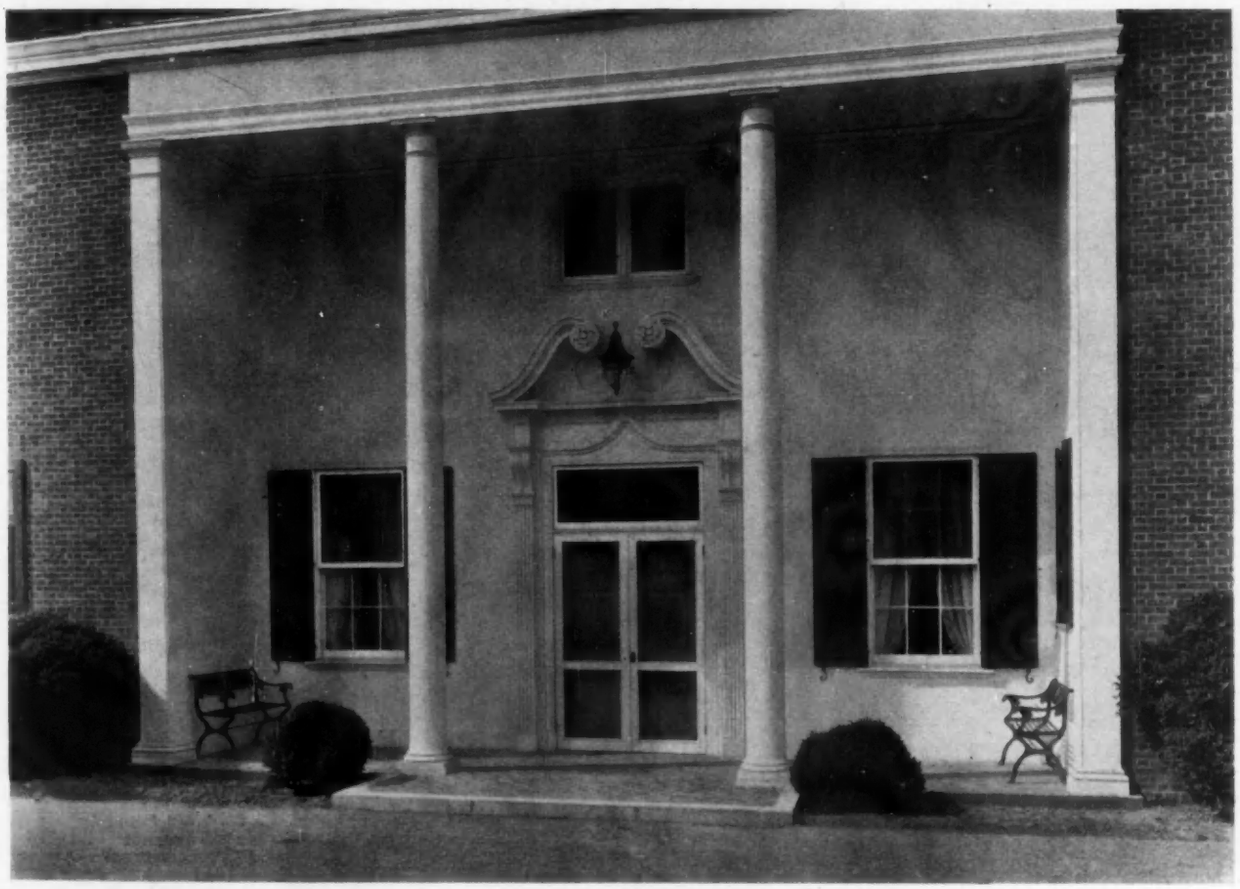
MAIN FLOOR

SECOND FLOOR

CREEK CLUB, LOCUST VALLEY, N. Y.

WALKER & GILLETTE, ARCHITECTS

LOUNGE IN "DORMIE" HOUSE



ENTRANCE DETAIL

CREEK CLUB, LOCUST VALLEY, N. Y.

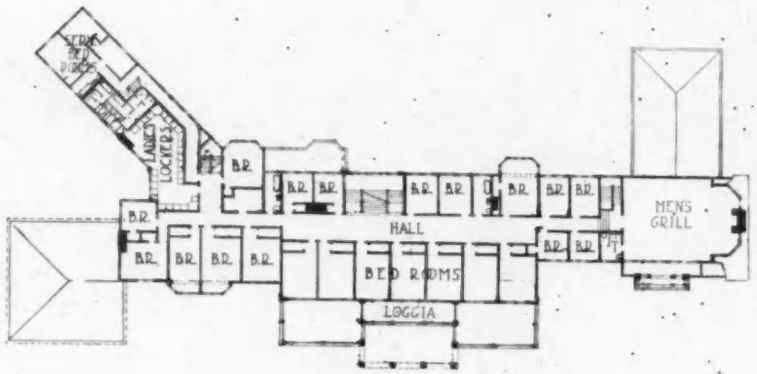
WALKER & GILLETTE, ARCHITECTS

Photos. Levick

Plans on Back

MIDLOTHIAN COUNTRY CLUB, CHICAGO

FROST & GRANGER, ARCHITECTS



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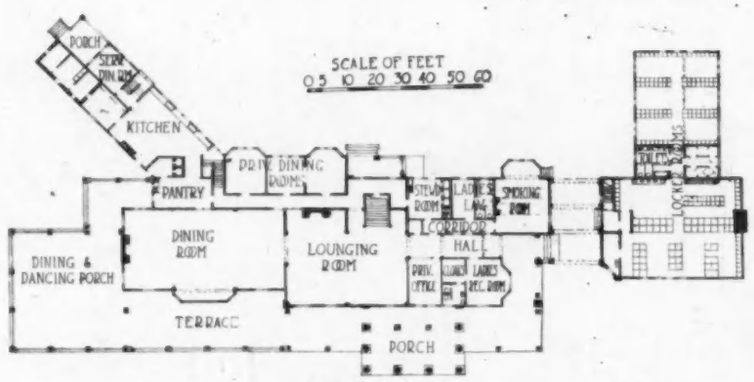

SCALE OF FEET
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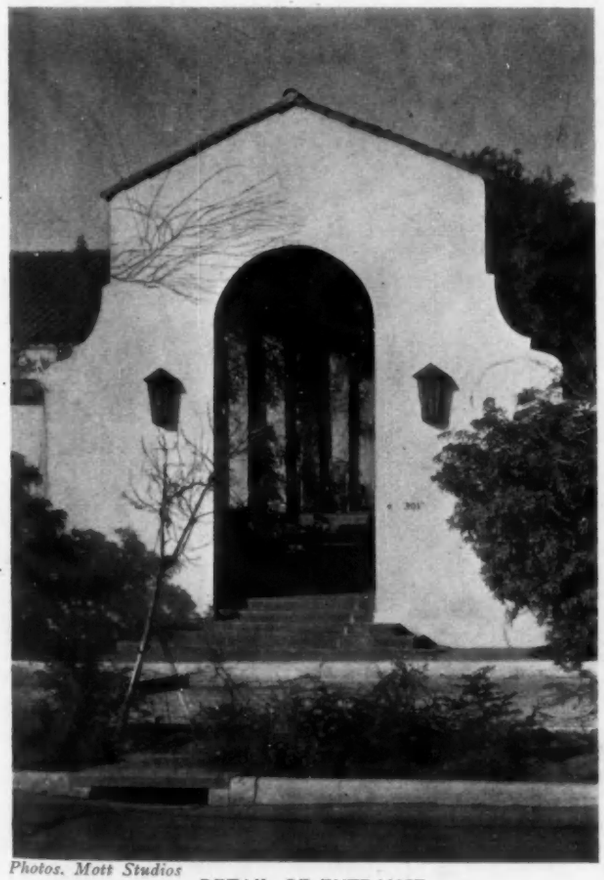
FIRST FLOOR

MIDLOTHIAN COUNTRY CLUB, CHICAGO

FROST & GRANGER, ARCHITECTS

GENERAL VIEW



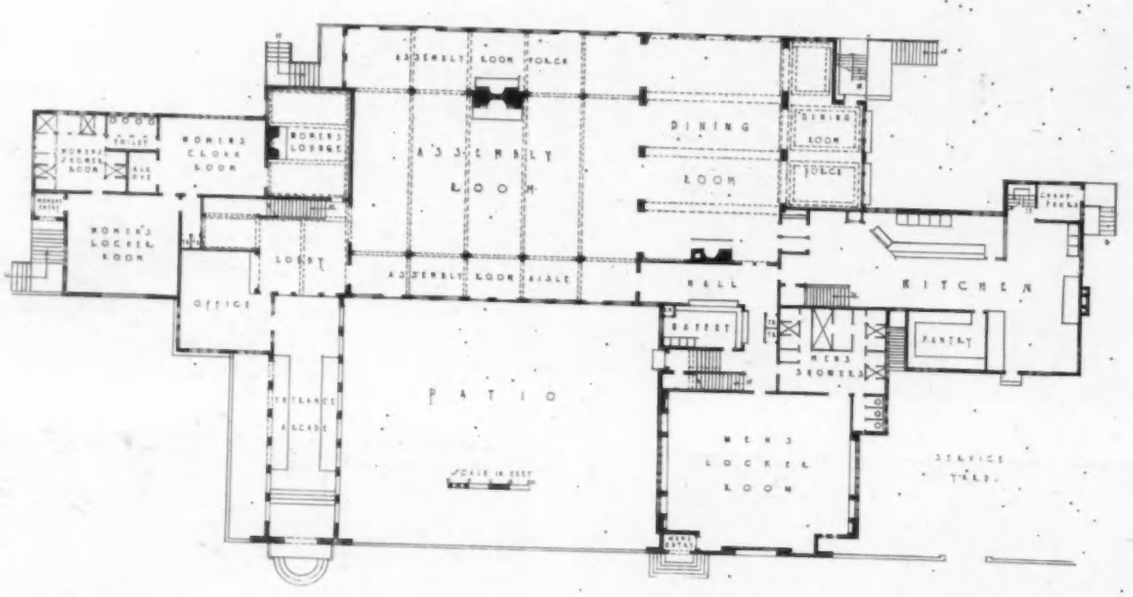
DETAIL OF ENTRANCE

LOCKER ROOM WINDOW

Photos. Mott Studios *Plans on Back*

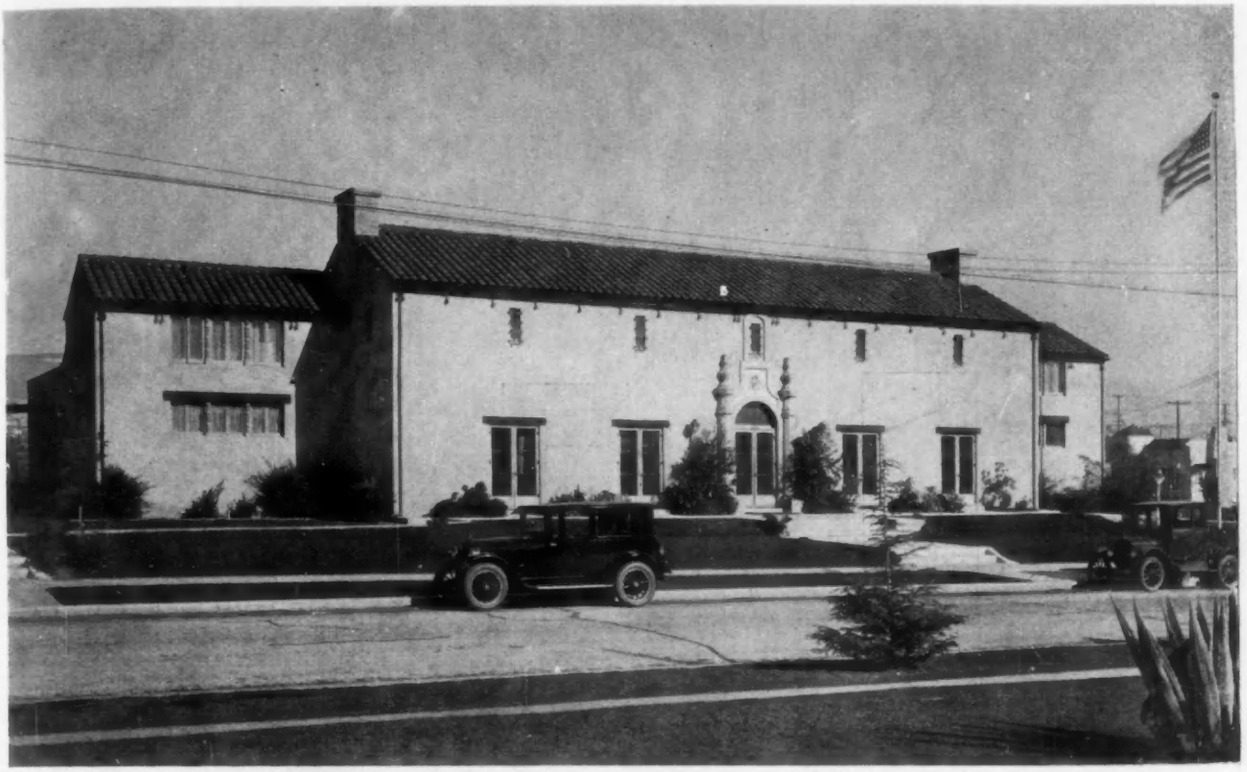
WILSHIRE COUNTRY CLUB, LOS ANGELES

HUNT & BURNS, ARCHITECTS

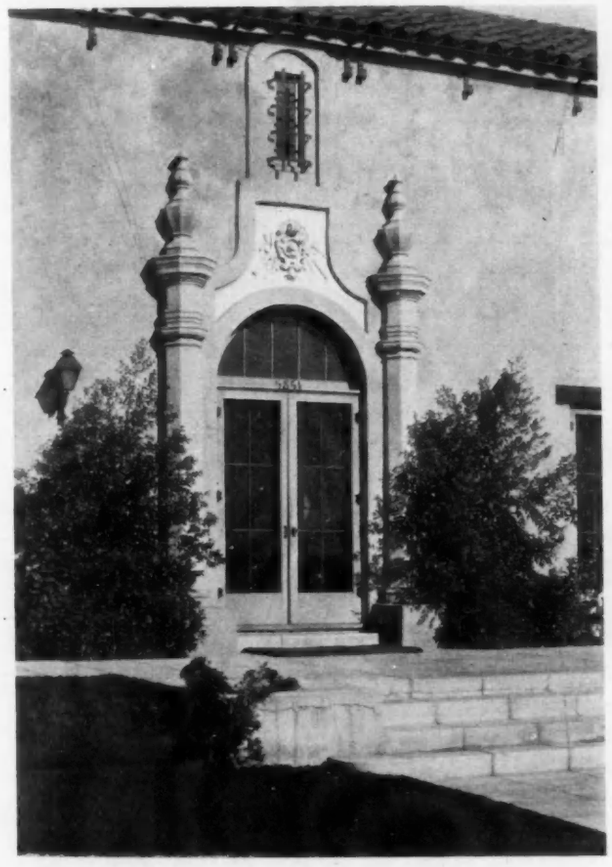


WILSHIRE COUNTRY CLUB, LOS ANGELES

HUNT & BURNS, ARCHITECTS

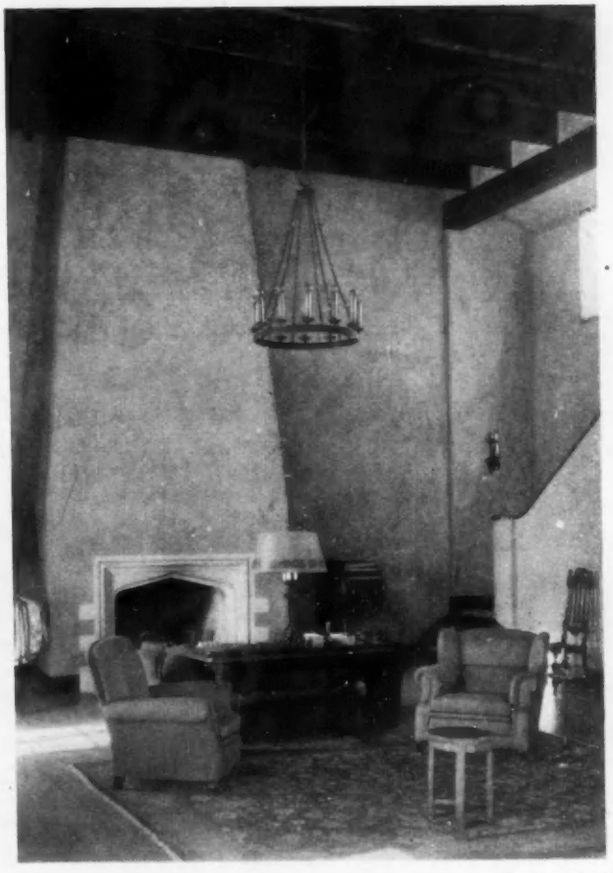


FRONT ELEVATION



Photos. Mott Studios

ENTRANCE DETAIL

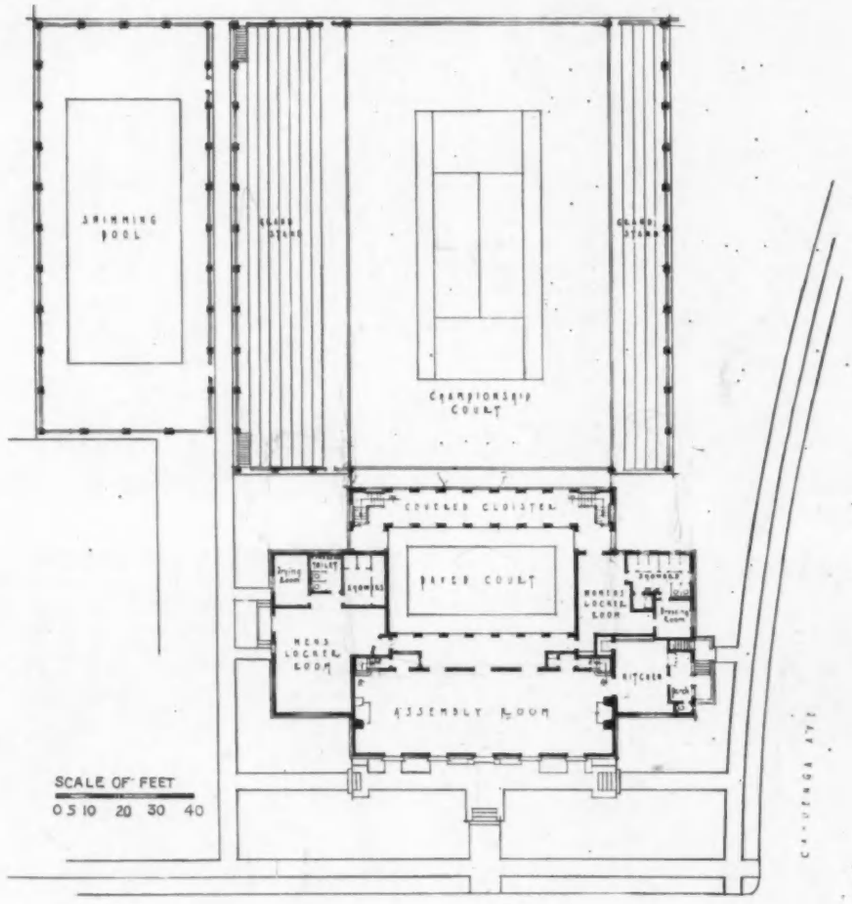


END OF ASSEMBLY ROOM

Plans on Back

LOS ANGELES TENNIS CLUB, LOS ANGELES

HUNT & BURNS, ARCHITECTS



LOS ANGELES TENNIS CLUB, LOS ANGELES

HUNT & BURNS, ARCHITECTS

The Small Country Club

ITS REQUIREMENTS AND PLAN

By AYMAR EMBURY, II, *Architect, New York*

THIRTY years ago the country club was a little building with a few wooden lockers where the baseball teams and tennis players could keep their clothes in summer, and with a stove where skaters could warm themselves in winter. At that time there was probably no club house in the United States that cost as much as $10,000, and while there were perhaps a few which had some sort of cooking arrangements, there was certainly none which had any bedrooms for its members. Today the country club house has grown to be a very important,—a seemingly indispensable feature,—of the life of the time; the small city which has no country club is no longer to be found; the suburban towns frequently boast of three or four; the little isolated villages of a few thousand people feel that a country club is a necessity as a community center and a place for entertaining, and even the summer and winter resorts, where there are few cottages and where practically all visitors are housed in hotels, build country clubs at the golf courses or on the beaches.

It will be readily seen, then, that there can be no standard type of house, because there is no standard set of requirements. We do not find a large building and a small containing the same features in a greater or less degree, but rather that there is a wide variety in the features included in buildings of the same size. Even if we except from consideration specialized clubs, designed to cater to but one form of sport, as for example, shooting clubs, fishing clubs and the like, we find a wide divergence in the apparent aims of the clubs, and in the relative amounts of space devoted to these activities. However, there are certain features which are common to all types of buildings, large or small, and they form a main stem from which the others branch out. Fundamentally, a club of any kind is intended to provide its members through mutual support and congenial associates with what most of them could not afford individually; and the country club was devised to provide opportunities for outdoor sport. The first essential of the club, then, is adequate facilities for outdoor recreation, including some or all of the popular sports of golf, tennis, bowls, croquet, baseball, football, polo, swimming, sailing, skating and trapshooting. Since practically all of these require special clothing, locker rooms and showers are of primary importance, and no club house in which these are not adequately lighted, spacious, well ventilated and convenient of access can be called successful. Too often in the earlier club houses the locker rooms were obviously an afterthought, perhaps located in the cellar, where the room was not wanted for something else, and with little regard for proper ventilation. The locker room should be so placed that it may be reached directly from the main entrance, with an exit leading to the tennis courts or the first tee without having to pass through other rooms, and in such proximity to the kitchen that direct service from the kitchen or pantry is possible. These requirements create a problem which is difficult, and often not properly solved. There comes to mind a very handsome club house, built at considerable expense by one of our leading architectural firms, in which it is necessary to go outside the club house to get to the men's locker room, to walk around the house to get to the first tee, and with the main lounge and the dining room between the locker room and the kitchen. The house committee was forced to install at one end of the locker room a small grill room, requiring double service, in order to remedy the last defect; there was no remedy for the other two.

Besides the locker room there is one requisite which is common to all clubs, and that is an opportunity for community social life. This may be only a small lounge with an oil stove in an alcove for tea making or it may be a series of lounge rooms, ball rooms and restaurants as complete as that of a large hotel,—but the principle remains the same. Before designing any club house, the relative importance of

Entrance Detail, Ottowa Country Club, Ottowa, Ill.
John Hannaford, Architect

Palmetto Golf Club, Aiken, S. C.

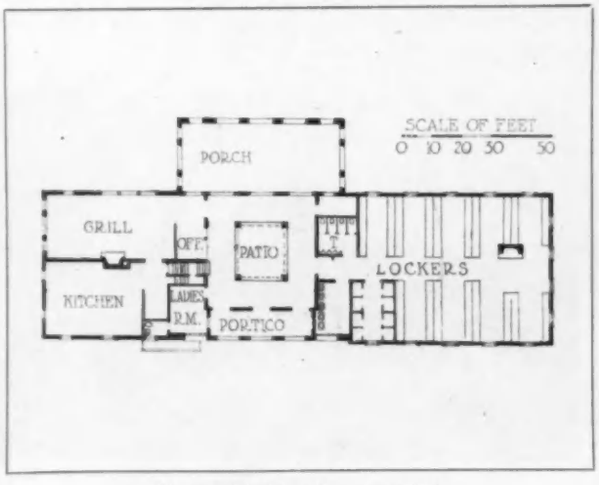
Entrance Detail

South Elevation

Old Elm Country Club, Fort Sheridan, Ill.
Marshall & Fox, Architects

the various rooms for public purposes must be carefully considered, and if restaurant service is part of the program, the type of meal to be served is of importance in determining the kitchen and dining room plan. Certain country clubs, as for example Inwood on Long Island, have a comparatively large proportion of the public area devoted to the dining room, and the space for lounge rooms is reduced to a minimum; this is reasonable, since the club is little used in winter, and in summer the lawns and terraces serve as lounge rooms; on the other hand, one rather smart country club in Westchester County has a very large lounge and a tiny dining room, buffet lunches only being served. These represent, of course, two entirely different solutions of the highly seasonal and occasional use of the country club dining room. The average hotel can count on a daily patronage which varies not over 10 per cent, but the weekday restaurant patrons of the country club will usually not exceed 30, while the Saturday or Sunday patronage will often run to over 300. Here is a real problem. It makes no difference how much money a club is willing to spend, it should be spent wisely. To provide facilities for the peak load and cause them to be used daily, means not only a heavy initial expenditure in building but an unreasonable maintenance cost. It must also be remembered that in many clubs members are permitted to give invitation dances or musicales, and as it is obviously unfair to exclude from the club, even for a time, those members not on the invited list, provision must be made to care for them comfortably in a part of the building while the rest is being used for a private affair. All this means that many features of the club house of small or medium size must be of dual purpose if true economy is to be consulted, and it may be well to consider the requirements in such a club together with their interrelations, before going further.

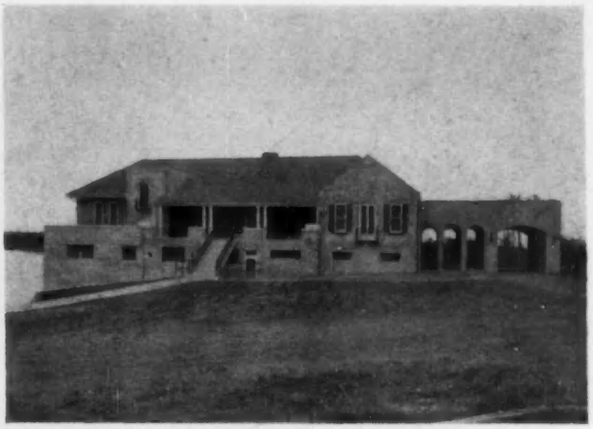
In the first place, there should be a single entrance to all parts of the house, instead of one entrance to the public rooms and another to the locker rooms; this simplifies door service and gives better "control" of the club. Near this there should be the main office for convenience in registering guests, obtaining guest tickets and the like. Where this is not the case, cashier service is duplicated, or a long walk from the locker rooms to the desk is necessary. Both



Plan, Old Elm Country Club

Entrance Court, Old Elm Country Club

The Lounge



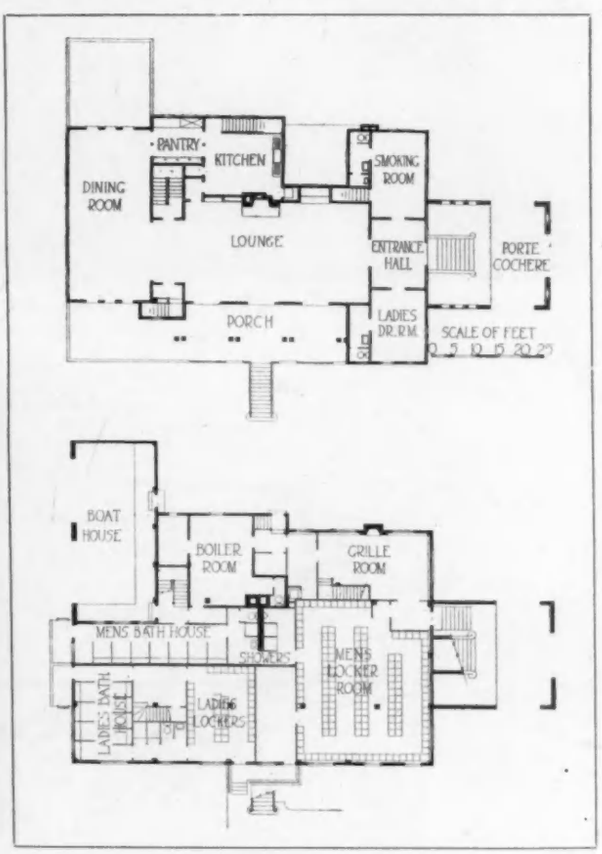
Entrance Front

Rod & Gun Club, Dennison, Tex.
Glyce & Rolfe, Architects

men's and women's lockers should be directly accessible from the main entrance without having to pass through the lounges or restaurant; this is especially useful when entertainments are given, since no additional cloak room attendants are necessary for the guests, and also since members of the club not guests at the entertainment may reach the lockers without passing through the main rooms. It is very desirable to plan a women's reception room or tea room between the women's locker room and the hall to insure the privacy which such a room requires.

The restaurant is usually the club's most difficult problem; one scarcely knows how to seat adequately 150 or 200 people, not unusual at a dinner dance or a club dinner, in a room which will not seem large and empty during the times when it is little used. Probably a certain duplication of rooms is here necessary,—first a small grill room next to the men's locker room, where men can lunch or dine in sport clothes, and with a floor that spiked shoes will not damage; then a general dining room, which should be comparatively small and placed next to the general lounge in which additional tables may be set up, with service through the dining room. In the smaller clubs it may be expedient to combine the general dining room and the lounge, separating the dining space by light screens, so that the entire room can be used either for club dinners or for dances. Where the grill room and women's reception room are really comfortable, this is far from a bad scheme, and if there is in addition a card room, it is quite the best arrangement for clubs of moderate size. The grill room should be large enough so that when all tables are filled there is still space for men to sit

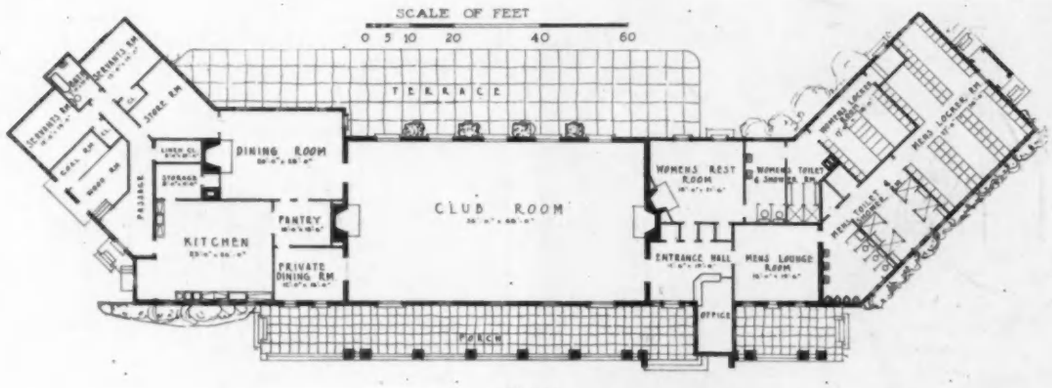
Mess Room, Rod & Gun Club



Plans, Rod & Gun Club

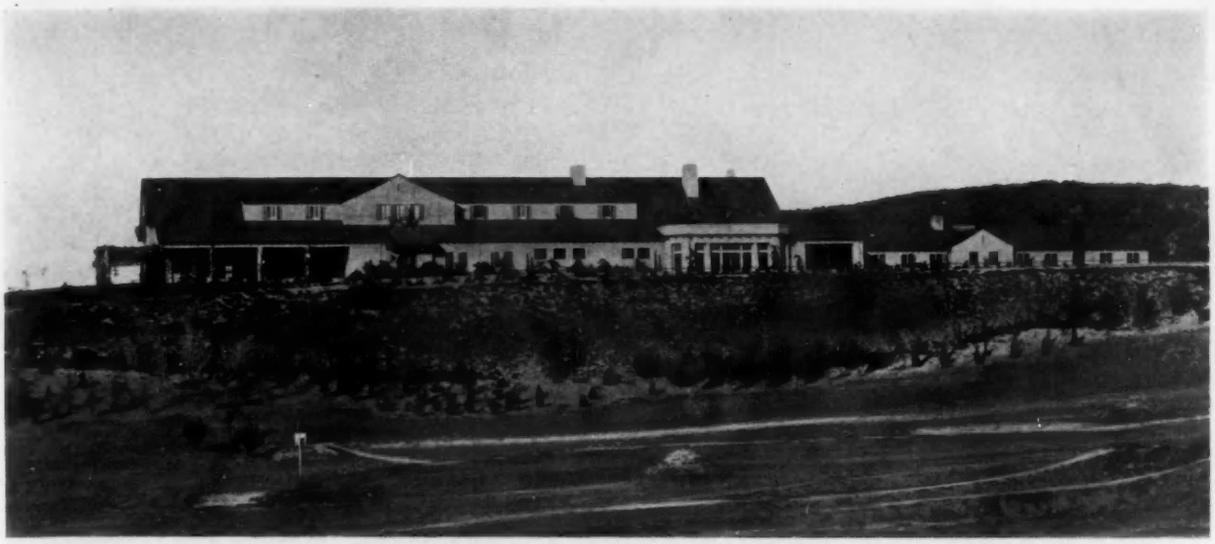
ENTRANCE FRONT

GARDEN FRONT



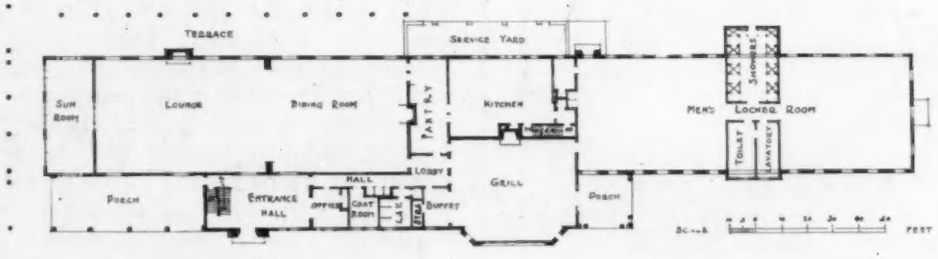
PLAN

PHOENIX COUNTRY CLUB, PHOENIX, ARIZ.
LESCHER, KIBBEY & MAHONEY, ARCHITECTS



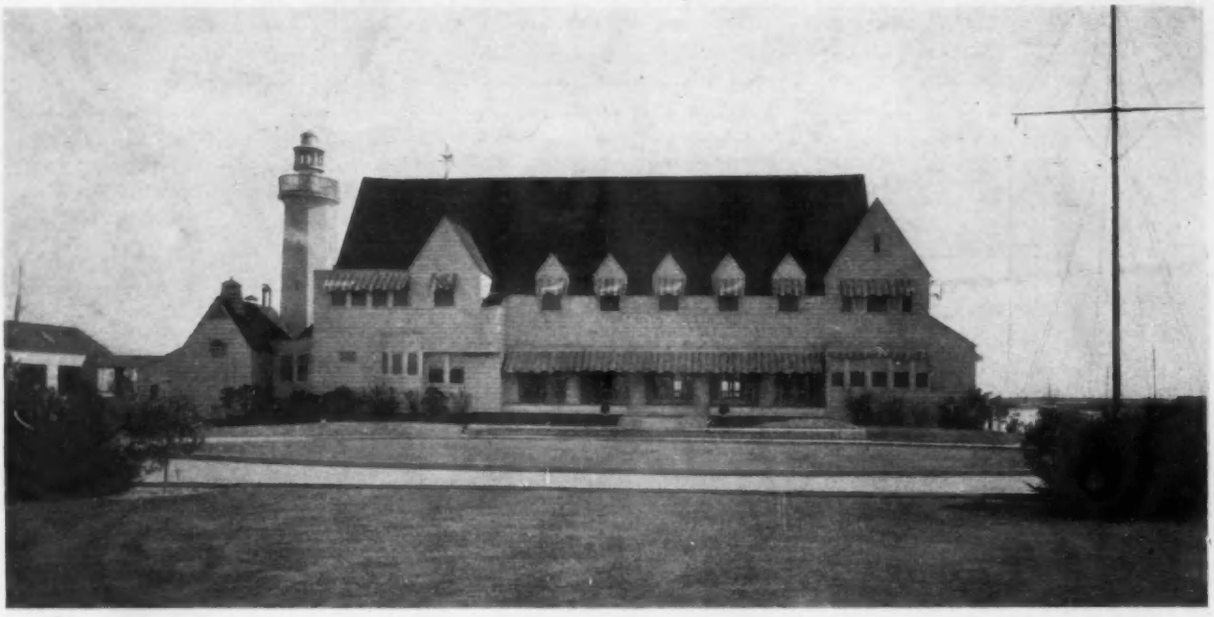
GENERAL VIEW FROM GOLF COURSE

ENTRANCE FRONT



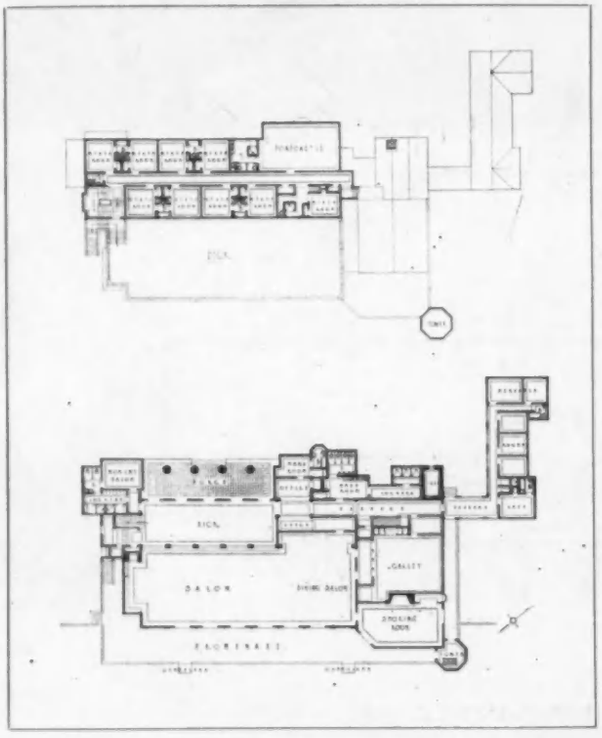
PLAN

ANNANDALE GOLF CLUB, ANNANDALE, CAL.
REGINALD D. JOHNSON, ARCHITECT



Entrance Front, California Yacht Club, Los Angeles
Edwin Bergstrom, Architect

around the fireplace for coffee after their meals; and if the house committee is wise, the use of the grill room will be increased by setting it up after meals for cards. This is especially true in a crowded golf club where starting times are given, since the players will come in for lunch not simultaneously but in rotation and will always have a little time to spare after lunch,—and a more pleasant place than the grill in a properly managed club is difficult to find.



Plans, California Yacht Club

What has been spoken of here as the lounge may be either one living room or a series of rooms,—parlors, card rooms, reception rooms or the like; but there should always be one room of sufficient size for club meetings, club dinners or dances, which can be so furnished that small groups may be formed without either appearing snobbish or feeling lonely. This plan is much to be preferred to a series of smaller rooms, since man, and especially the country club man, is a gregarious animal, and will always fill one small room to overflowing while the rest are left vacant. This is the common experience in clubs.

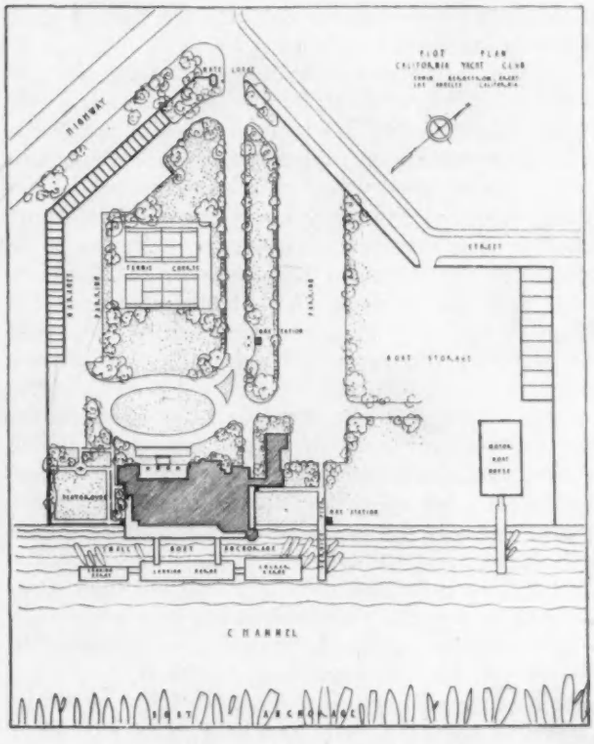
If there are bedrooms, these also should be reached from the hall and not through the lounge. It very often happens that the men or women who spend the summer at the country club desire to be for some little while by themselves, and if they have to pass friends and acquaintances on the way to their rooms they are unavoidably drawn into groups they would rather not join. This sounds perhaps a little foolish, but it is just such things which make a club comfortable or the reverse. Another similar consideration is the placing of the men's locker room so that it will not be within either sight or hearing of the women members. Men are seldom careful while dressing, and often remarks made among themselves should not be overheard by those within earshot.

The kitchen must be so compact that a small staff can handle weekday business, while a larger number can work without crowding on Saturdays, Sundays and holidays. Perhaps the simplest solution of the uneven use problem is to serve only table d'hote meals on the crowded days and to give a la carte service on others. If the house committee is unwilling to accept this, there remains nothing to do but to equip the kitchen to take care of the peak load. In any case, the ice boxes and storage spaces will have

Harbor Front, California Yacht Club, Los Angeles
Edwin Bergstrom, Architect

to be larger than those necessary in a hotel with a kitchen of the same size, since the variety of food demanded of a country club exceeds that required of a small hotel; the sources of supply are often remote, and a large surplus of food supplies may have to be carried over from a rainy weekend. In one country club the steward says that he prepares for 600 meals every week end in the busy season, but when bad weather sets in he serves about 30. Another steward says that he always carries 50 meals in excess of his expected requirements; he can never tell when some one of the members will telephone out that he is having an office tournament, with a party of 20 or 30 men for luncheon and dinner to make heavy demands on the larder.

The interior of the country club is probably of more importance than that of any class of buildings except monuments, since the pride which the members feel in their building is directly reflected in the size of the membership and is a very vital factor in the success of the club. It is true that the best designed club house in the world will not compensate for bad food, indifferent service and poor golf greens and tennis courts, but that a handsome club house will jack up the committees in charge of these things is a fact which is also beyond doubt. The architectural style to be selected will naturally be governed by the same factors which affect the design of the country house, the most important being the surroundings and the historic style of the locality, if there be any. It is to be regretted that the enthusiasm of both our architects and our building committees often leads them to select styles which either have no local significance or which are distinctly unsuited to their settings. We have on Long Island, for example, country clubs done in our American Colonial style, the English cottage type, and according to Spanish and Italian precedents. While in the hands of a skillful designer any one of these styles may be made to appear reasonable, there should certainly be preserved the same relations between climate, topography and architecture which originally caused their development. One thing only can be stated as of general application; whether the house be of Spanish mission style in California or of Colonial style in New England, it should be easy,



Plot Plan, California Yacht Club

graceful and informal. It should spread out upon the ground rather than compel its surroundings stiffly to conform to it.

Likewise as to its materials. All are appropriate to the country club providing they will stand hard wear—and are appropriate to the design. We have perhaps a tendency to associate certain styles with certain materials, as for example stucco with Spanish and painted wood with Colonial. But it should be remembered that brick was as common in colonial America as it was in Italy, and that half-timber was hardly less common in France than it was in England. So with the roofs; any material is satisfactory for any type of house, except that one could hardly advise shingles save as a measure of economy, and that Colonial houses were rarely roofed with tile. We have too strong a tendency here in America to put our materials into compartments with our styles, forgetting that slate roofs and half-timber walls are not essential to English design, nor stucco and tile to Italian. It is not well to forget, however, that large, covered verandas in the north in summer and in Florida in winter are almost an essential, and these must often be screened; so in selecting a style it should be one which offers some freedom of treatment in this most important respect.

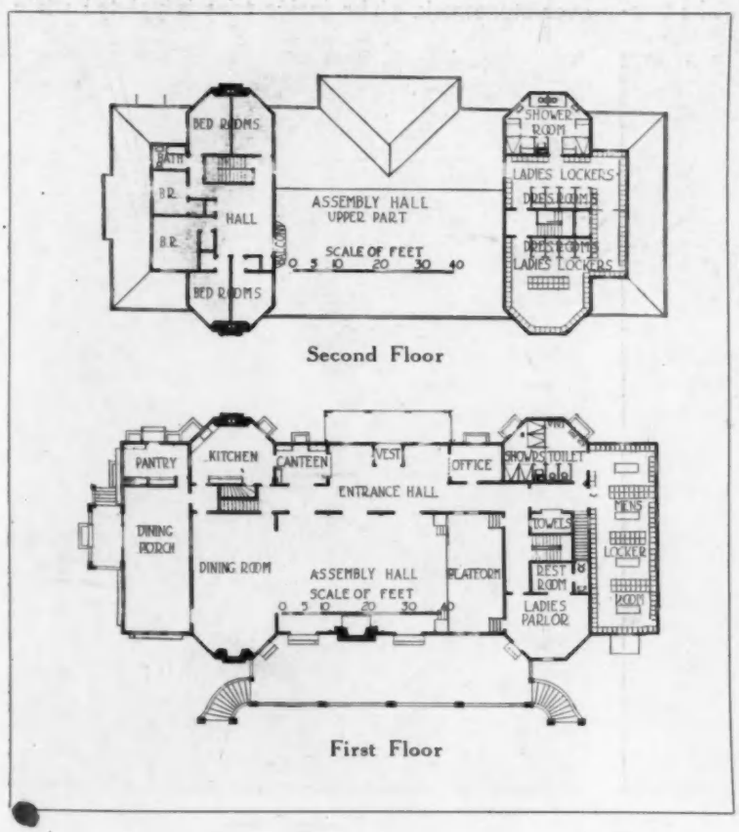
Grill Room, North Hempstead Country Club, Port Washington, N. Y.
Wesley Sherwood Bessell, Architect

The veranda question brings to mind another rather important subject, that of orientation. In many country clubs this is fixed by some peculiarity of the site and means of access from the public road; but, as in all cases where golf is a principal feature of the sport, and in many where tennis is important, the porches, terraces or verandas ought to be so placed as to give them full views of the first and 18th holes and perhaps of the tennis courts; and if these verandas are to be genuinely useful they ought to be on the north or east sides. Nothing is less pleasant than to sit on a covered porch squinting at a golf course in light strongly reflected from the floor, and even the use of porches as outside dining rooms, has been made impossible in some club houses by the glare from the table linen. On the other hand, the lounge and the locker rooms should have southern and western sunlight where possible. If all the desirable requirements were met, the approach could only be by aëroplane, and this is not yet common.

The interior, both architecturally and in regard to furnishing, has too often been approached with the idea that the golf club is a small hotel and should be decorated and furnished like a hotel. Leaving out of consideration the question as to how a hotel should be furnished, there is no doubt that a club house is the temporary residence of a group of people who do or should constitute a single family, and the club house, must, therefore, be considered as if it were a residence. Furniture which is heavy in reality or appearance is out of place, for owing to the varied uses to which a club house is put it must often be moved. The atmosphere of the whole interior should be that of pleasant gaiety or, to use an often misused word, of gentility. In fact, the design of the successful country club, both exterior and interior, should express ease, comfort and well ordered gaiety. One recalls club houses which are plain, simply furnished and badly planned, but which are still splendidly successful, because somehow they convey the impression that well bred people enjoy themselves in comfort within their walls. Formality is to be avoided as carefully as jazz design; the lounge must look like neither the meeting room of the Peace Conference nor a night club on Broadway; and if the clubs illustrated in this number of THE FORUM are examined, it will be found that those which most attract are those possessing these qualities. All of these suggestions apply quite as much to small clubs as they do to large. The principles of successful club designing are the same.

EDITOR'S NOTE.—To mention only a few of the clubs used to illustrate Mr. Embury's article, in the selection of which an effort was made to find examples which would show how varied may be the styles of architecture successfully employed in the design of this type of building, the country club at Ottowa, Ill., illustrated at the bottom of page 169, shows the picturesque use of low, sloping roofs combined with stucco walls, which give an English effect to the design. There is a very pleasant, homelike atmosphere about this small country club which is always desirable in this type of building. The low story and a half golf club at Aiken, S. C., also shown at the bottom of page 169, possesses to a remarkable degree this quality of homelike informality, although it is designed in a simple adaptation of the Colonial style. In the Old Elm Country Club, at Ft. Sheridan, Ill., shown at the top of page 170, the design has been carried out with stucco walls and a tiled roof. No very noticeable attempt has been made to suggest Spanish or Italian architecture, although the low arches used at the entrance to the club house and for the large porch at the rear rather suggest the arcade motif so often found in the villas of Spain and Italy. The charm of this example of club architecture lies chiefly in the simplicity of the design and in the building's location amid beautiful lawns and fine old oak trees. The low, rambling appearance of the building possesses a certain interest seldom found in so simple and straightforward a design. Use of the covered interior court or patio, with its flagstone floor and box-edged geometrical flower beds, is a pleasant innovation.

LONGWOOD CRICKET CLUB, CHESTNUT HILL, MASS.
PUTNAM & COX, ARCHITECTS



THIS attractive club house, which was originally designed for a neighborhood club, was altered to suit the requirements of the Longwood Cricket Club. The exterior of the building is modern English in design, combining, under a mottled slate roof, rough plaster walls and brick piers and terraces. Small panes and green blinds give a homelike atmosphere to the entire building. The entrance porch is surrounded with lattice work, which is an unusually pleasant departure from the more common use of square piers or columns for entrance porches. The building originally had a two-story portion containing men's and women's rooms, with an entrance and 12-foot hallway at the center leading to a one-story ell, in which was the assembly hall with a temporary stage. These two portions were cut apart and moved separately about 500 feet to the new location overlooking the tennis courts. When joined together, the assembly hall was brought about 8 feet forward

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 17

Longwood Cricket Club, Chestnut Hill, Mass., Putnam & Cox, Architects

OUTLINE SPECIFICATIONS

EXTERIOR:
Rough stucco on wire lathing and hollow tile; copper leaders and gutters.

TRIM:
White pine.

ROOF:
Slate, sea green with 33 per cent of non-fading, mottled purple.

WINDOWS:
Wood, casement and double-hung, small lights.

FLOORS:
All floors are of birch.

HEATING:
Steam heat, exposed radiators. Service hot water heated by separate gas stove.

PLUMBING:
Enameled iron fixtures.

INTERIOR MILL WORK:
Birch throughout, painted.

STAIRS:
White pine with oak treads.

WALL FINISH (INTERIOR):
Scoured plaster, slightly tinted.

NUMBER OF MEMBERS:
700.

CUBIC CONTENTS OF BUILDING:
202,000 feet.

COST DATA

Actual cost per cubic foot, $.312 at time of completion, September, 1922.

of its original central location in relation to the wing, so that its front wall coincided with the angle of the octagonal end of the two-story portion. This assembly hall became the new lounge. The dining room, which serves also as an extension to the lounge, was obtained by throwing together the women's parlor and the old entrance hall, and substituting for the partition a series of glazed folding doors.

The new entrance hall or foyer is located in the relative position of the old assembly room. The five pairs of windows are changed into five pairs of French doors, three of which connect the foyer with the assembly hall, while the other two open on the terrace. The dining porch is the old piazza glazed in. A new permanent stage is provided. The two-story portion, which was added at that end of the building to balance the design, contains a women's parlor, rest room, etc., and two men's locker rooms.

The original structure was shingled, but because of building restrictions covering halls of public assembly, all outside walls of the new portion had to be fireproof. Hollow tile was therefore chosen, which gave an opportunity to plaster the outside. This was done over the shingles on the old parts. The foundations and all floors of the basement are of concrete, the terrace walls of brick, and the roof is of sea green slate with about 33 per cent of the non-fading, mottled, purple slate added. The outside plaster was put on in a manner to suggest plaster over stonework. The inside trim is painted white.

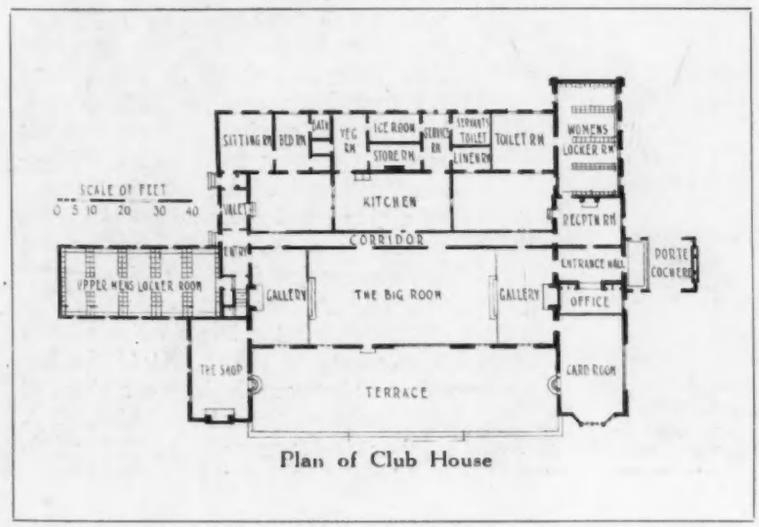
Entrance Porch

Living Room

SOUTHERN PINES COUNTRY CLUB, SOUTHERN PINES, N. C.
AYMAR EMBURY, II, ARCHITECT

THIS attractive small club house is intended primarily for the winter use of northern people who desire to spend part or all of the winter in the south. It is designed principally for the use of both hotel guests and cottage tenants in Pinehurst and Southern Pines. This club is called the Southern Pines Country Club, but in reality it is chiefly a golf club, although it is possible to have meals served in the "Big Room," a combination living and dining room.

The exterior design shows a long, low building with broken roof lines and low projecting wings, carried out in a simple adaptation of modern English architecture, in which stucco has been used with brick and stone details. The principal facade, which overlooks the golf course, has an open terrace bounded on the ends by the projections of the wings of the building and on the back by the main part in which the "Big Room" is located. Two tall gables with high casement windows accentuate and break the long roof line of this principal elevation, which plainly indicates the plan of the building. The importance of that part of the building in which the "Big Room" is located is further accentuated by the additional height of this roof and large end chimneys, which give emphasis to this main part of the design. The exterior possesses dignity and character.



Plan of Club House

The plan shows a logical, well balanced and convenient arrangement of the various rooms of the building. The "Big Room" dominates the center of the plan, as it should, with a good sized kitchen directly back of it, from which it is separated by a long corridor. This corridor connects the entrance wing of the building with the men's locker room wing at the opposite end. In the entrance wing are located a large card room and office on the left of the entrance hall, with reception room and women's locker room on the right. In the men's wing are located the two-story locker room and also the professionals' shop.

(Outline Specifications, Details and Cost on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 18

Southern Pines Country Club, Southern Pines, N. C.; Aymar Embury, II, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Stucco on terra cotta blocks; brick and stone trimmings.

EXTERIOR TRIM:
White wood, painted.

ROOF:
Shingles, stained.

WINDOWS:
Steel casements.

FLOORS:
Pine.

HEATING:
Steam, exposed radiators. Service hot water heated by separate coal-burning stove.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting, and service for refrigerator and dish-washing machinery.

INTERIOR MILL WORK:
Cypress, stained.

INTERIOR WALL FINISH:
Three-coat plaster; rough finish throughout.

NUMBER OF MEMBERS:
250.

COST DATA

Approximate cubic footage of building, 124,000, at a cost of 23 cents per foot in year of completion, 1924.

Terrace Front, Overlooking the Golf Course

Detail of Entrance Front

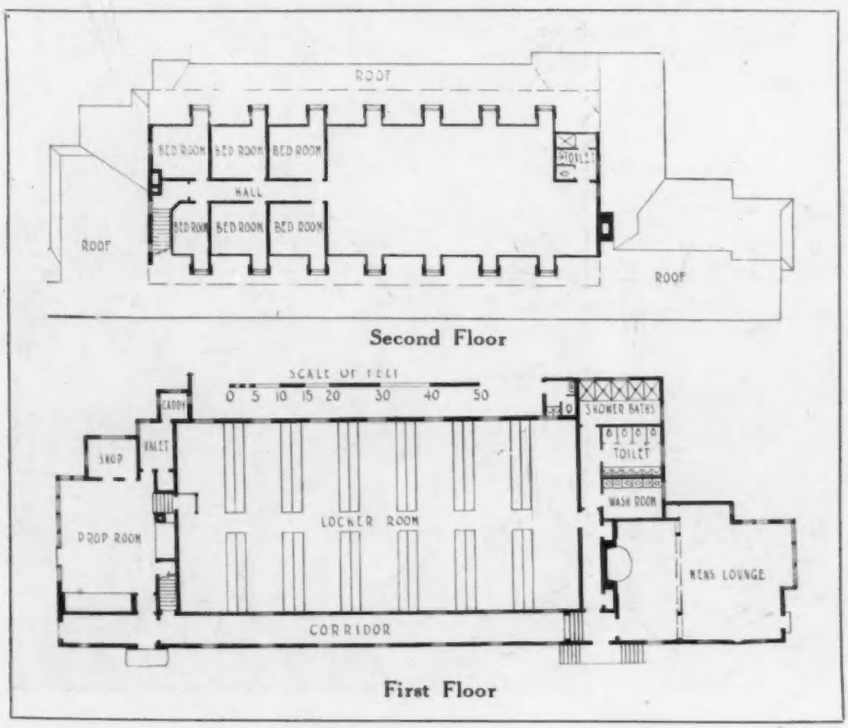
On the basement or first floor level of the locker room are located the men's showers and toilet rooms. Back of the kitchen are the various necessary service rooms for the preparation and storage of food, the linen room, servants' living rooms and toilets. Adjacent to the servants' toilets are the large dressing and toilet rooms connecting with the women's bathroom, so located that all of the plumbing lines in this section of the building are in one place. A servants' entrance at the rear furnishes access to this part of the building. A feature of the plan of this club, which should be carried out as far as possible in all club plans, is the complete separation of, and distance between the men's and women's locker rooms.

The "Big Room," the dominant feature of the club, is 30 x 90 feet in dimensions; it has a low gallery or platform at each end. This arrangement permits the use of this room for theatricals and dances. When used for theatricals, one platform or gallery may be used as a stage and the rest of the large room as an auditorium. When used for dances, comfortable chairs and sofas on each of these galleries give an opportunity for rest and observation for those who are not dancing. Another interesting feature of this plan is the introduction of two light courts on either side of the kitchen and between the long corridor and the service section of the building. A more compact, convenient and well balanced club house plan is rarely seen.

LOCKER BUILDING, NORTH HEMPSTEAD COUNTRY CLUB, PORT WASHINGTON, N. Y.
WESLEY SHERWOOD BESSELL, ARCHITECT, NEW YORK

THIS long, low country club building is interesting and attractive, not only because of the excellence of its plan, but because of the quiet simplicity and dignified severity of its design.

The use of shingles and clapboards painted white, together with the stained shingled roofs, gives an old fashioned appearance, such as one might expect to find in a country tavern of a century ago. The exterior design perfectly interprets and indicates the interior plan, which is always considered the best form of architectural expression. The long main building, two and a half stories high, with lower wings at either end, has a low one-story shed across the entire front, which encloses the corridor connecting the professionals' shop with the men's lounge. This shed-like treatment of the corridor creates a pleasant break in the front elevation, giving added emphasis to the predominating horizontal lines of the design. A slight rise in the grade makes it possible to locate the men's lounge and shower rooms on a slightly higher level than the rest of the building. The use of two doorways, of similar size and design, one at either end of the long corridor shed, helps to tie together the design.



The principal feature of the plan is the large, high studded

(Outline Specifications on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 19

Locker Building, North Hempstead Country Club, Port Washington, N. Y.; Wesley Sherwood Bessell, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Wood frame, shingles and clapboards.

TRIM:
White pine, painted.

ROOF:
Shingles, stained.

WINDOWS:
Wood frames and sash.

FLOORS:
Pine.

HEATING:
Steam, exposed radiators. Service hot water heated by separate coal-burning stove.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White pine.

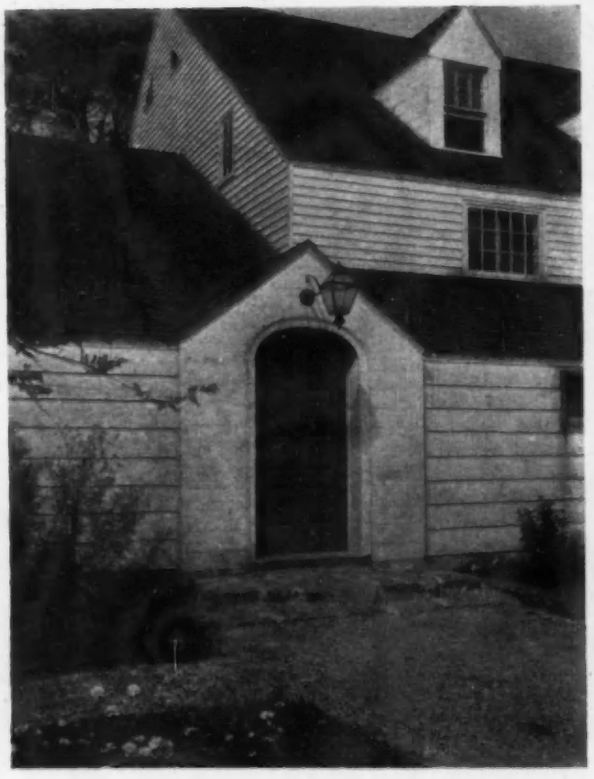
INTERIOR WALL FINISH:
Plaster board.

NUMBER OF MEMBERS:
250.

COST DATA

Total cost, approximately $33,000, at 25 cents per cubic foot, in the year of completion, 1923.

locker room, 80 x 38. This room is lighted and ventilated by a series of fourteen windows, 8 feet above the floor, seven on each side. On the floor over the locker room are a large dormitory and six individual bedrooms for use of members for week ends. These rooms are lighted by dormer windows, which pleasingly break the long stretch of roof, as may be seen in the illustration included here. In the one-story wing at the left end of the building is the professionals' shop, which connects by a short stairway with the men's locker room. This room is well lighted by a series of windows which look out on the golf course. The one-story building at the opposite end contains the men's lounge, a spacious room 33 x 23, having a stone floor, rough plaster walls and exposed ceiling beams. A large fireplace adds to the attractiveness of this room. In the rear of this wing are located the washroom, toilets and shower baths, which connect by a corridor with the locker room, the floor of which is on the same level as the floor of this wing. The informal balance of this plan adds to the interest of the elevations in a manner which shows that much care and study were given to the design of the club house as a whole.

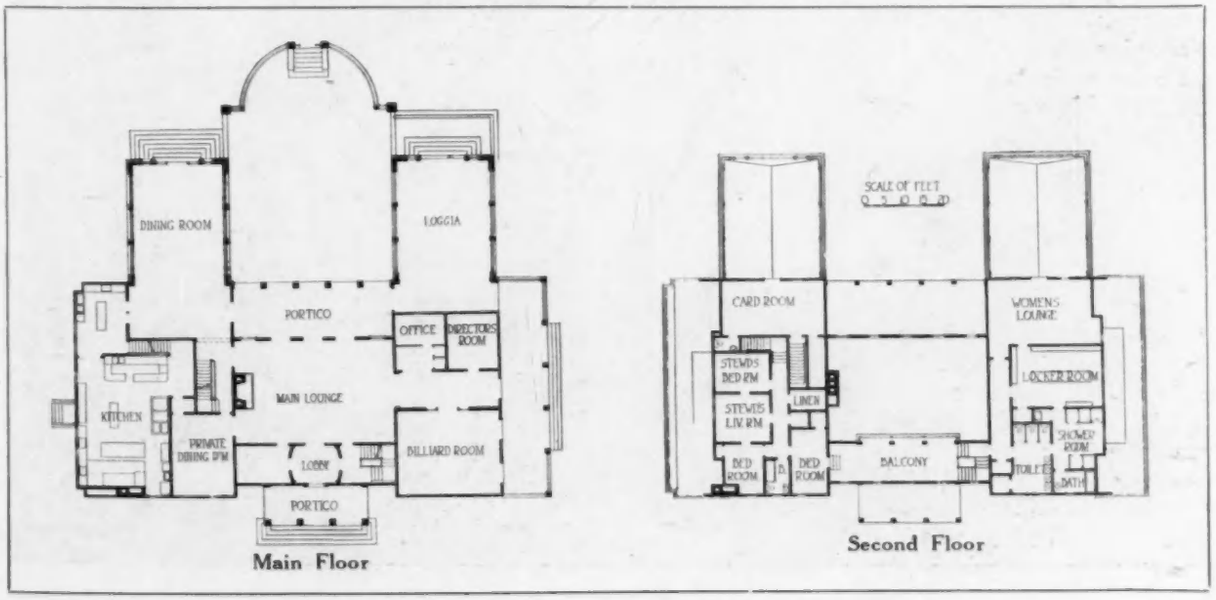


Entrance to Professionals' Shop and Long Corridor

Entrance to Men's Lounge

GARDEN CITY COUNTRY CLUB, GARDEN CITY, N. Y.
MORRELL SMITH, ARCHITECT

Rear Elevation



Main Floor

Second Floor

FORUM SPECIFICATION AND DATA SHEET — 20

Garden City Country Club, Garden City, N. Y.; Morrell Smith, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Frame, with sheathing and clapboards.

TRIM:
White wood.

ROOF:
Shingles, stained.

WINDOWS:
Wood frame and sashes.

FLOORS:
Straight oak.

HEATING:
One-pipe steam system.

PLUMBING:
Enameled iron fixtures.

ELECTRICAL EQUIPMENT:
For lighting only.

INTERIOR MILL WORK:
Generally white wood, painted.

INTERIOR WALL FINISH:
Three-coat plaster, smooth finish.

NUMBER OF MEMBERS:
About 300.

COST DATA

Approximate cubic footage of building, 209,000, at a cost of 32 cents per foot, at time of completion, May, 1918.

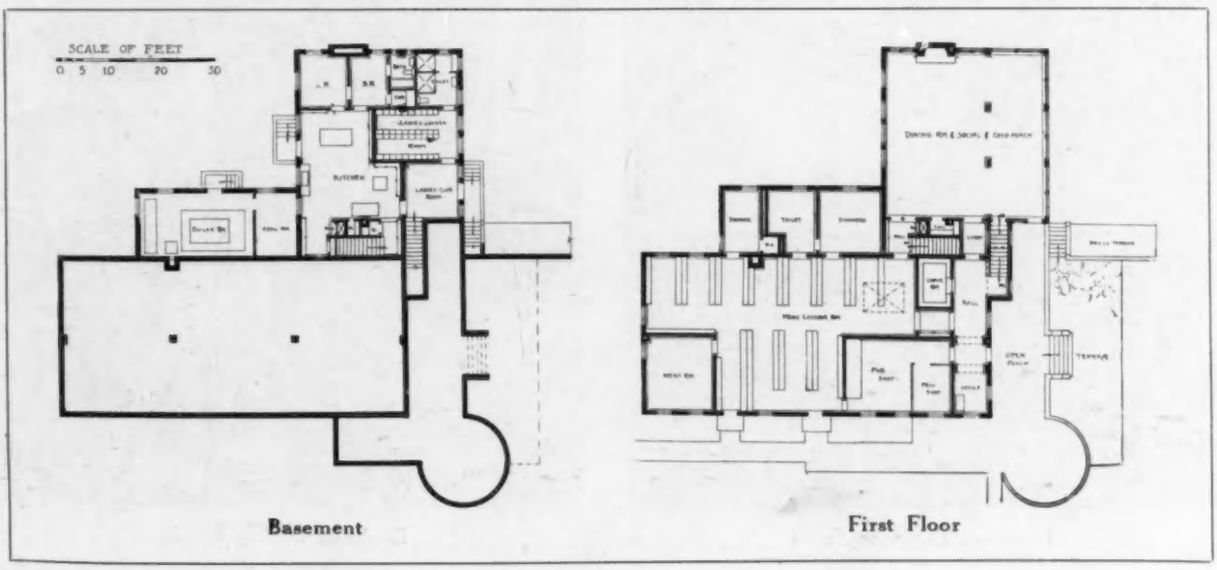
THIS small country club, designed in the Colonial style, has low roof lines and many porches which help to give a homelike quality to the design. Clapboards, painted white, and green painted blinds at some of the second floor windows still further add to the domestic character of the building. The plan shows a basement and two stories which contain all the chief features of a small country club, such as lounge, dining room, billiard room, bowling alleys, and locker rooms for men and women. The projecting dining room on one side and the open loggia on the other enclose a simple formal garden with curving balustrades and formal gateway at the outer end. The well studied plan of the main floor gives comfort and convenience for use in either summer or winter, when the enclosed portico outside the main lounge is a pleasant feature of the plan, connecting as it does the lounge with dining room and large loggia. It affords a place where dancers may sit or rest and converse between dances.

Main Lounge

SLEEPY HOLLOW COUNTRY CLUB, BRECKSVILLE, O.
FULTON & TAYLOR, ARCHITECTS

DESIGNED in a simple adaptation of the Italian style, this small country club house shows much originality and study. Built on a sloping grade, it is possible to have a basement floor under part of the building. This fact adds a picturesque quality which could not have been so easily obtained had the building been located on level ground. The entrance front is broken into three parts by a low square tower, containing stairways which separate the combination living and dining room from the men's locker room and the professionals' shop. The entrance terrace with its awning-covered circular end is an attractive feature of the design. The gay colored awning contrasts pleasantly with the warm color of the stucco walls. The importance of the entrance door is emphasized by heavy pilasters, brackets and canopy in the Italian style. The iron balcony rail, the tiled decorations above the upper windows of the tower and the red tiled roof of this central feature of the design further accentuate the Italian style. The many arches and high parapet with open panels of

(Outline Specifications, Details and Cost on Next Page)



FORUM SPECIFICATION AND DATA SHEET — 21

Sleepy Hollow Country Club, Brecksville, O.; Fulton & Taylor, Architects

OUTLINE SPECIFICATIONS

EXTERIOR:
Stucco on terra cotta blocks.

TRIM:
White wood, painted.

ROOFS:
Composition and Spanish tile.

WINDOWS:
Metal casements.

FLOORS:
Straight oak and tile.

HEATING:
Hot water system.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting, and motor for cistern and refrigerating plant.

INTERIOR MILL WORK:
Birch, stained light green.

INTERIOR WALL FINISH:
Rough plaster, painted.

NUMBER OF MEMBERS:
250.

COST DATA

Approximate cubic footage of building, 145,000, built at a cost of 29 cents per foot in the year of completion, 1924.

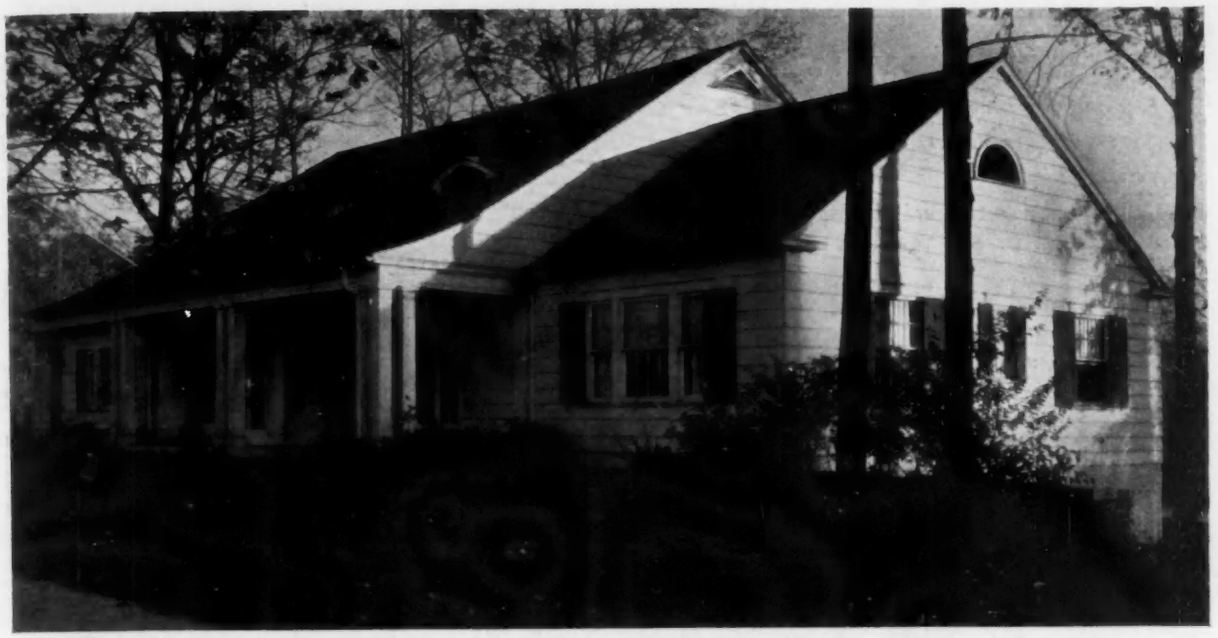
the living and dining room wing well interpret the use of this part of the building, and give a feeling of gaiety to the entire design. Arcades are invariably an architectural feature of buildings intended for the congregating of many people.

The plan, which is well indicated in the exterior design of the building, shows a long, low locker room with a professionals' shop, coat room and office at the front, near the entrance to the club, while suitably located at the rear are the smoking room, showers and toilets. The combination living and dining room, with its many arched windows, is reached from the entrance hall, and the men's locker room through two small halls or lobbies. The front part of this large room is really an enclosed porch with a broken slate floor, and is separated from the main living room by means of folding glass doors which may be closed when the weather or season requires.

Service for this room, when it is used for dining purposes, is secured by means of a large dumbwaiter. Basement locker rooms are seldom desirable when they can be avoided, but in this instance the fall in the grade permits large windows in all the rooms; in this way there is no suggestion that the women's department is underground, other than the fact that stairs are necessary to connect it with the main floor.

Detail of Entrance Front

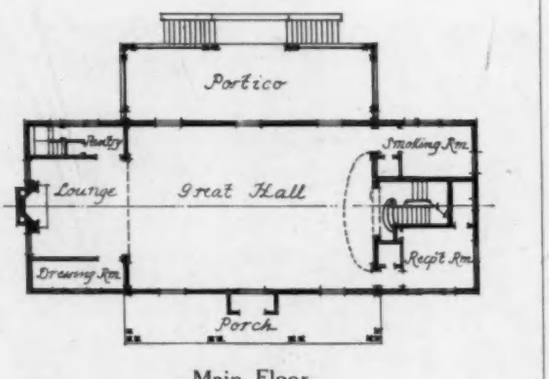
Enclosed Dining Porch



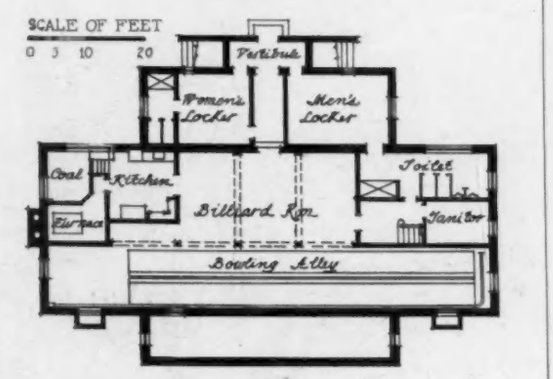
RIVERDALE COUNTRY CLUB, RIVERDALE-ON-HUDSON, N. Y.
DWIGHT JAMES BAUM, ARCHITECT

DESIGNED in a simple version of the Colonial style, almost Dutch in feeling, this attractive small country club possesses to an unusual degree an atmosphere of homelike charm and domestic simplicity, due to the use of low, sweeping roof lines, small paned windows and the white painted siding. The sloping grade permits use of two floors, on the

(*Outline Specifications, Details and Cost on Next Page*)



Main Floor



Basement

Detail of Veranda

FORUM SPECIFICATION AND DATA SHEET — 22

Riverdale Country Club, Riverdale-on-Hudson, N. Y.; Dwight James Baum, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Clapboards on wood frame; matched siding used on wall of veranda.

TRIM:
White wood, painted.

ROOF:
Shingles, stained two shades of green.

WINDOWS:
Wood, double-hung.

FLOORS:
Pine.

HEATING:
Steam; exposed radiators.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White wood, painted gray generally; cypress, stained, in service portion.

INTERIOR WALL FINISH:
Plaster, three coats; sand finished and left natural.

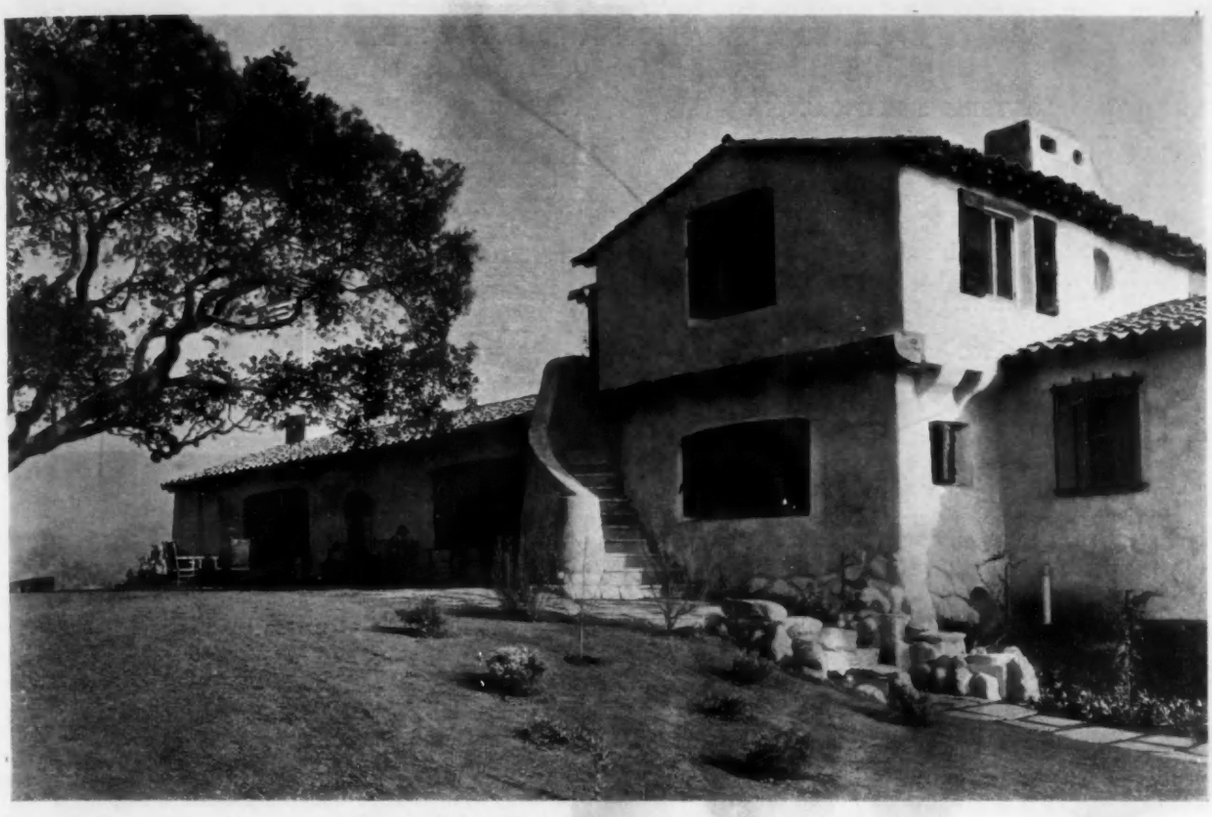
NUMBER OF MEMBERS:
55 families, or about 200 members.

COST DATA

Approximate cubic footage of building, 99,145, at a cost of 20 cents per foot, in year of completion, 1915.

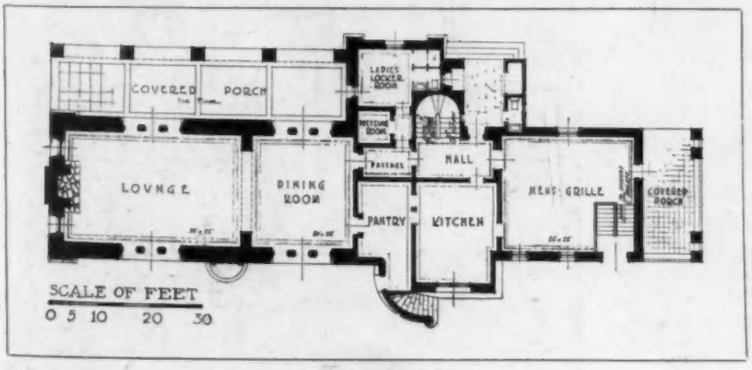
lower of which are located a bowling alley, billiard room and small locker rooms for men and women, as well as kitchen and toilet accommodations. On the upper or main floor is a large room with a barrel vaulted ceiling called the "Great Hall," at one end of which are a deep alcove and fireplace, and a pantry and stairs to the kitchen below. At the other end of this hall is a stairway leading up to a small balcony and down to the basement floor. The simple architectural treatment of this "Great Hall" is unusually successful in its combination of buff painted, paneled, plaster walls, and gaily decorated, chintz-hung windows. Space does not permit as detailed a description as this successful interior really deserves.

Stairway End of the Great Hall



OJAI VALLEY COUNTRY CLUB, OJAI, CAL.
WALLACE NEFF, ARCHITECT

Main Porch



Floor Plan

AWARDED a certificate of honor by the American Institute of Architects, this interesting small club, built in the Spanish style so appropriate to southern California, possesses unusual charm of design and logical arrangement of plan. Located on a small plateau, overlooking the Ojai Valley, this long, low building perfectly fits its high location. The warm tones of the stucco walls contrast pleasantly with the deep reds and browns of the handmade roof tiles, while the dark stain of the exterior trim accentuates the window openings.

In design the principal rooms of the interior agree with the Spanish style of the exterior. Heavy, rough hewn beams, with exposed roofing boards, give to the lounge and the men's grill the atmosphere of the simple farm buildings of old Spain. In the ceiling of the dining room are rough beams and surfaces decorated in brilliant colors, characteristic of Mediterranean interior architecture. All the walls are finished in rough plaster, whitewashed. The furnishings, except in the dining room, follow the American desire for

(Outline Specifications on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 23

Ojai Valley Country Club, Ojai, Cal.; Wallace Neff, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Stucco on terra cotta blocks.
TRIM:
Pine, stained.
ROOF:
Handmade Spanish tile.
WINDOWS:
Wood casements.
FLOORS:
Chestnut, stained brown.
HEATING:
Steam; oil used as fuel.
PLUMBING:
Enameled iron.
ELECTRICAL EQUIPMENT:
Lighting.
INTERIOR MILL WORK:
Pine, stained.
INTERIOR WALL FINISH:
Rough plaster, whitewashed.
NUMBER OF MEMBERS:
300.

COST DATA

Approximate cost per square foot, figuring each floor separately, $5.50, in the year of completion, 1924.

comfort rather than for stylistic appropriateness, but much use is made of materials in bright Spanish colors. Such furnishings, however, as built-in dressers, sideboards, tables, etc., have a distinct, Spanish feeling.

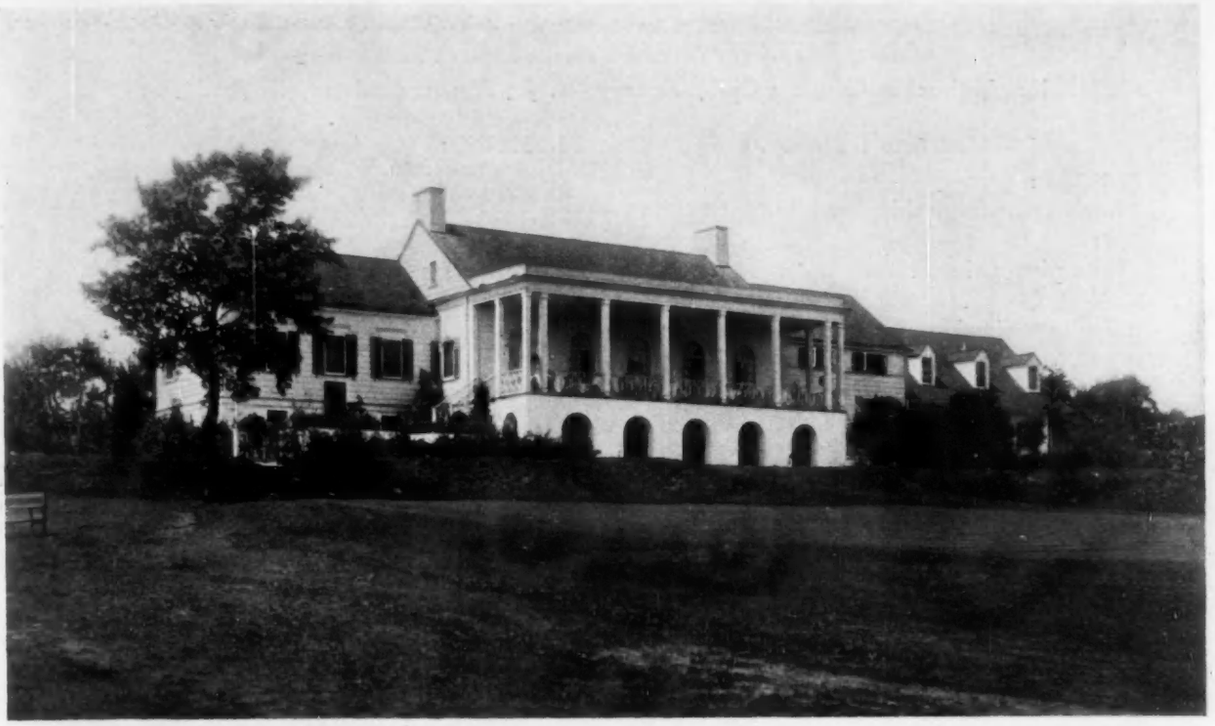
The long, simple plan shows an arrangement of lounge, dining room and men's grill occupying the entire width of the building, which makes possible windows on all three sides of the lounge and grill, and on two sides of the dining room. This important feature is one that should always be considered in planning clubs for warm climates or for summer use alone. Cross-ventilation is not always possible, but the more windows used, the more open and attractive is a club room for summer use. The kitchen and pantry are conveniently located in the center of the plan between the men's grill and dining room, while the women's locker and dressing room are placed on the main floor, off the entrance hall. In the basement directly below the grill is the men's locker room, where excellent light and ventilation are made possible by the sharp drop in the grade at this end of the building.

No collection of views of recent American golf or country clubs would be complete without an appreciative presentation of this charming southern California club house, in which comfort and local color have been so very successfully combined.

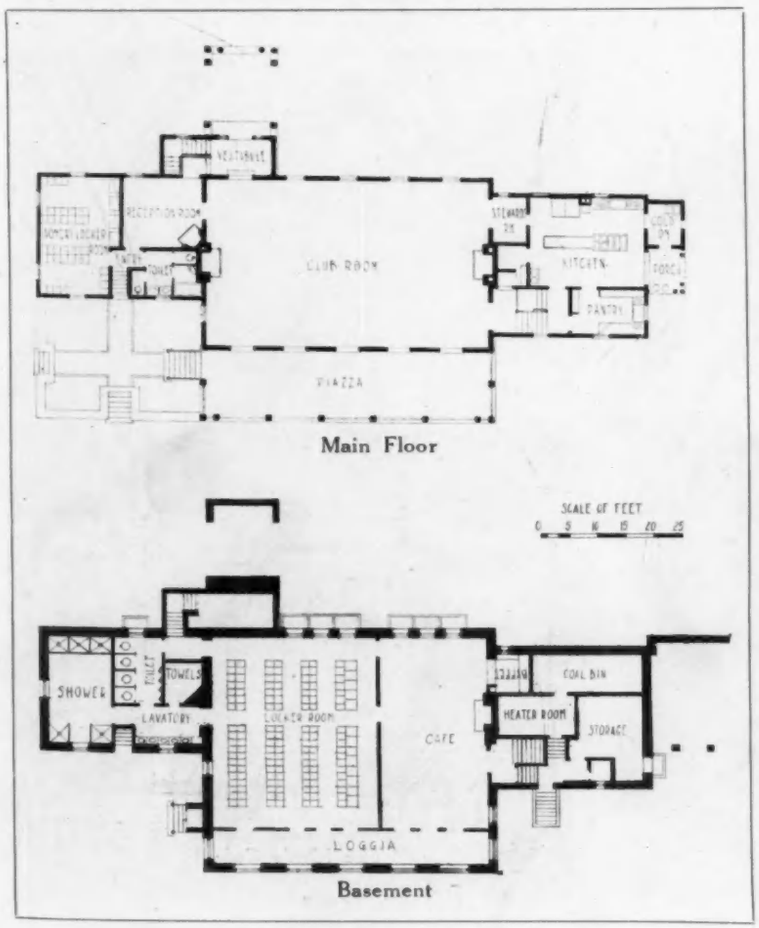
The exterior of the Ojai Valley Club, quite as much as the interior, has been designed for comfort and use. The long covered veranda extending the length of the lounge and dining room on the one side is balanced by an open terrace on the opposite side. The veranda is paved with large square tiles, varying in color from brown to deep red. The main roof of the building is brought out in low, sweeping lines over this porch, thus successfully tying it into the design of the building itself. The rafters and boarding of this roof are left exposed, adding to its rugged and informal character. Iron grilles and gates protect the windows and doors in true Spanish style, further carried out in the wrought iron lighting fixtures. The furnishings of this porch repeat in their massive construction and rugged lines the furnishings of the interior of the club house. Modern rush-bottomed chairs are combined with the early Spanish tables and benches. An occasional old Italian oil jar still further heightens the atmosphere desired. From the covered porch, as well as the open terrace, views of unusual breadth and magnificence are obtainable. Far-stretching fields lead the eye to low-lying hills, beyond which tower rugged crests of distant mountains, closing the vista.

Lounge

Dining Room



KNICKERBOCKER COUNTRY CLUB, TENAFLY, N. J.
AYMAR EMBURY, II, ARCHITECT



AS this small country club was built to accommodate, primarily, the residents of the northern part of Bergen County, no guests' bedrooms were required. The amount of money available for construction was small, and the building is therefore typical of the average country club house in the neighborhood of small towns and cities. The location is on a hillside, close to the Knickerbocker Road, the old Dutch thoroughfare leading northward from New York, after which the club was named. It seemed appropriate, therefore, that the architecture should follow the historic Dutch architecture of northern New Jersey. Advantage was taken of the hillside slope to place the men's cafe and men's locker room on the basement floor, with the kitchen at a level midway between this and the main floor, so that service to the cafe, to the lounge, or to the piazza should be convenient.

On the main floor of the club are the lounge, a small office, women's reception and locker rooms, and the professionals' shop. Dining service during the summer is on the piazza on the main floor or on the terrace at the basement floor level, as well as in the men's

(Outline Specifications on Next Page)

FORUM SPECIFICATION AND DATA SHEET — 24

Knickerbocker Country Club, Tenafly, N. J.; Aymar Embury, II, Architect

OUTLINE SPECIFICATIONS

EXTERIOR:
Wood, frame and shingles.

TRIM:
White pine, painted.

ROOF:
Shingles, stained.

WINDOWS:
Wood frames and sash.

FLOORS:
Pine.

HEATING:
Vapor, steam.

PLUMBING:
Enameled iron.

ELECTRICAL EQUIPMENT:
Lighting.

INTERIOR MILL WORK:
White pine, painted.

INTERIOR WALL FINISH:
Three-coat plaster, smooth and rough finishes.

NUMBER OF MEMBERS:
325.

COST DATA

Approximate cubic footage of building 100,000, at a cost of 31 cents per foot in the year of completion, 1914.

cafe. In the winter, a portion of the lounge is arranged for dining service by dividing off a section of it with screens, leaving a space sufficiently large for small dances and receptions. The kitchen department is reduced to a minimum for full club service, and has bedrooms for servants over it. There is direct access from both the men's and women's locker rooms to the terrace in front of the building, and thence to the last green and also to the first tee.

In order to reach any part of the grounds, it is not necessary to cross the entrance road, which is at the rear of the building. The interior decorations, which were carried out by the well known interior decorator, Louise Putnam Lee, in collaboration with the architect, follow closely and pleasingly the Dutch Colonial character of the architecture.

Detail of Terrace

The Men's Cafe

Locker Room Planning and Equipment

By PHILIP S. TYRE, *Architect, Philadelphia*

WITH the development of the country club idea and the addition of various pleasant social features, the golf club building has become a decidedly complex problem. Architectural design has been called upon for both exterior and interior to meet the æsthetic tastes of those accustomed to the comfortable walks of life; lounges, card rooms and other facilities have been added, while the requirements of food service have made necessary the provision of dining rooms, grills and restaurants. Always, however, there remains the problem of the locker room, which has been often overshadowed by other considerations, so that in many clubs today there will be found locker rooms poorly located, equipped and ventilated.

There are perhaps more golf and country clubs in the United States than the average person realizes,—at least 3,000 individual clubs being on record. This number indicates an almost unbelievable growth in the popularity of golf during the last few years, and indicates plainly that the physical requirements established for this game must be analyzed with extreme care and with primary consideration of this subject of locker room planning and equipment. In a recent comprehensive study of many locker rooms throughout the eastern part of the United States, it was found that in few cases only had a detailed analysis of requirements been made before planning, and that very often a mistaken attempt at economy was evident in the locker room, while comparatively lavish expenditures had been made on the various rooms used for social functions and dining.

The first consideration in deciding upon a locker room plan is whether this room should be located in the main club house or established as a separate locker house. There is a third alternative, which is to build a locker house as a wing with service connections to the main building. Each of these methods of handling the problem has its advantages. The only logical reason for locating a locker room directly in the club house is that of structural economy, and when this is done great care should be taken to isolate the locker room and to place it in a position where it may enjoy as much privacy and natural ventilation as possible. The locker room is a carefree place, conducive to loud arguments and perhaps slightly flavored conversation and remarks which would not sound so well if overheard.

The better solution of the problem is to have an independent locker house, which may be located away from the main club house if the money is available for such an expenditure, or at least made a separate wing of the club house. There is, of course, a definite structural cost saving in having the

Main Locker Room, North Hills Country Club, North Glenside, Pa.
Philip S. Tyre, Architect

Locker Room of North Hills Country Club, North Glenside, Pa.

locker house as a wing rather than as an independent building. This method of planning makes possible the use of the same lavatories and other service features for both the locker house and the main club house. It also provides for food service into the locker house from the main kitchen instead of making it necessary to establish an independent food service unit. This decision is, however, primarily based on money considerations and policy, but it should be seriously considered by the board or committee in charge of the original plan.

There are certain fundamentals which the golf player requires and should have in a locker room. These include good light and good ventilation; lockers of ample size and convenient arrangement; aisle spaces of comfortable widths, which will prevent obstruction of aisle traffic; a good shower room and dressing room with proper facilities for drying clothes, shining shoes and similar forms of service. There should also be some way of serving food and particularly facilities for quick luncheons and informal meals after the game is over. For purposes of ventilation, light and convenience, the locker room will be one large room, very often planned with two floors to provide the total locker space requirements. In any case a comfortable lounge and eating place should be provided. This may be at the center of the room if the dimensions are such as to allow for the necessary space, or it may consist of an adjoining room convenient for service.

The locker room after all is much used by members, and a considerable amount of time is spent in various stages of undress before, and particularly after, the game. Here, with the proper facilities for relaxation, the player can enjoy his happiest hours discussing the day's score, presenting his own excuses and his prophecies of scores to be made another day. This gives a pleasant atmosphere, without restraint, and one problem of the architect is to sufficiently realize this natural requirement so that he may incorporate in the planning of the locker room those features of comfort and convenience which so much enhance the enjoyment of the game.

In approaching the more detailed phases of planning, we might well stress the point that for the planning of the locker room house the architect can for the moment forget architecture and think only in terms of comfort and convenience of the members. Such a room or building should be planned from the inside out. If, for the sake of economy in money or in space, it is decided that the locker room must be in the club house, let it at least be anywhere but in the basement or in the attic. A great many country club builders have evidently thought that the otherwise useless space under the roof would be a good place to put golfers' lockers, and you may find members by the hundreds climbing stairs and suffering inconvenience during the day while elaborate, spacious and accessible dining rooms, reception rooms and lounges are almost totally empty and useless. A canvass would probably show more locker rooms in basements than elsewhere, because often after all the other departments of a conventional club layout have been provided for, the locker room, which is the most important room of all, is disposed of in a basement location of dampness, darkness and poor ventilation. Of course, there is often some condition of grade which allows some windows and doors, but in too many instances provision is not made for thorough cross ventilation or for good lighting.

The locker room should be near the parking space and near the first tee. If possible, it should be on the ground floor, with a good outlook and freely circulating air. It should have seclusion of sound and sight. If the locker room is located in a separate wing, its exterior will naturally conform to the general architectural scheme of the building. If it is a separate building some conformity is desirable, but it is not necessary to provide an elaborate exterior. This building should be primarily a locker house, and if it appears to be such it is in its favor.

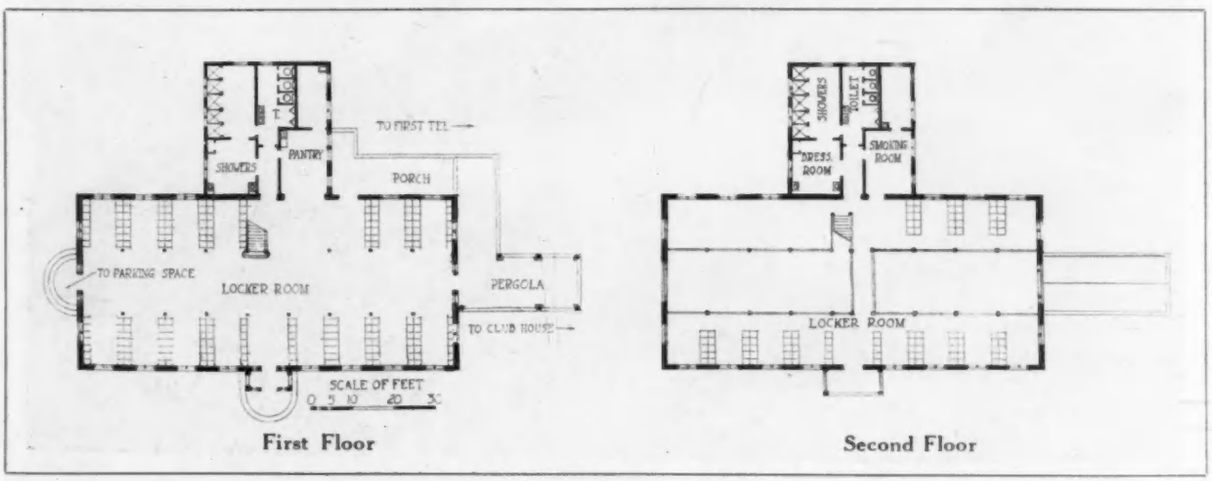
In regard to arrangement and equipment, it is perhaps the simplest method to take up point by point

Lounge and Dressing Room in North Hills Country Club

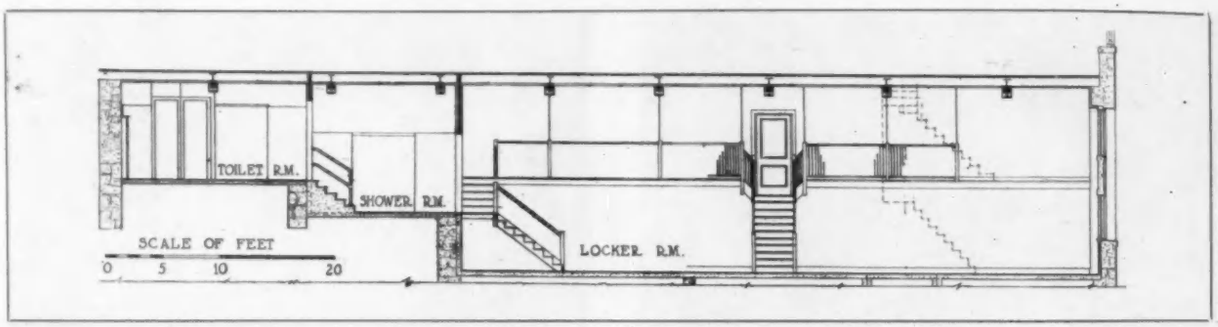
suggestions which may prove of value to the designer. All the wall surfaces should be treated in light colors which will increase the efficiency of natural and artificial lighting by reflection and diffusion. The sanitary appearance is also enhanced by the use of light colors. Where possible, the wainscoting throughout the locker room, corridors and other rooms should be of marble, tile or enameled brick. In toilets, showers and dressing rooms this treatment should be carried up as high as the appropriation will allow,—7 feet at least, to prevent the damage done by steam and to provide sanitary conditions. The junctures of floors and walls should be treated with a sanitary cove base for easy cleaning. It is recommended that soft floorings, such as rubber, cork or linoleum, be used throughout all rooms. Of course the floors must be strong enough to resist defacing by cleats on golf shoes, but resilient floors are found quite satisfactory for this purpose. In some cases perforated or woven mats are used over concrete floors and found fairly satisfactory. Floors in shower rooms and lavatories should preferably be of non-slip material with a cove base.

Lighting fixtures should be ample in number and carefully placed so that not only will all aisle space be well illuminated but locker interiors as well. This point is particularly important, because in many instances golfers play up until the time darkness sets in. The electrical equipment should also include electric fans to make the locker room more comfortable on warm days, and annunciators should be placed at the end of each set of lockers so that service calls may be conveniently made.

A very desirable feature is the incorporation in the plan of a drying and dressing room which will be about the same size as the shower room and provide facilities for towel drying, hair combing and shaving, away from the steam and humidity of the shower room. In regard to the relative provision of toilet, lavatory and shower facilities, reference can be made to the accompanying plans of the locker room of the North Hills Country Club, which represents a careful analysis of this problem in many golf clubs. Here will be found on the first floor



Plans of Main Locker Room, North Hills Country Club
Philip S. Tyre, Architect

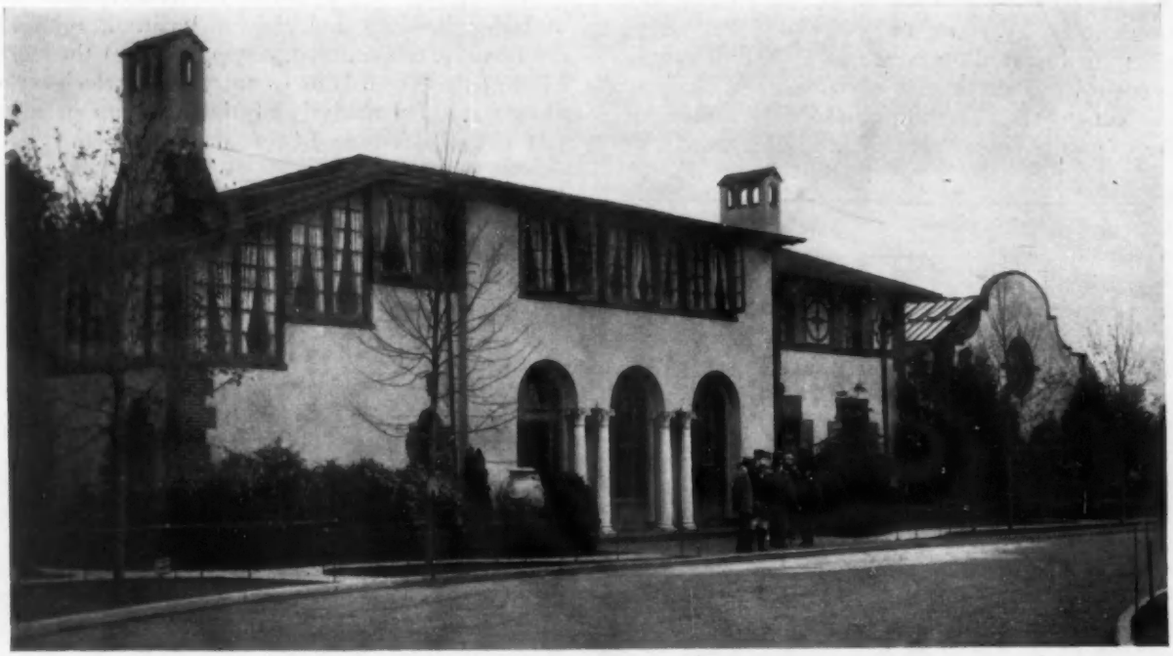


Section Through a Locker Room at the Bonnie Briar Country Club, Larchmont, N. Y., Showing Economical Location of Toilet and Shower Rooms to Serve Both Locker Levels
Trowbridge & Livingston, Architects

provision for 203 lockers and on the second floor for 130 lockers, making total accommodations in the locker room for 333 playing members. It will be noted that each floor has shower room and lavatory facilities, also a dressing room. On this basis there are in all two dressing rooms, ten showers, eight wash basins, four stalls and six booths in proportion to the total 333 lockers. This relative proportion forms a sound basis for estimating needed facilities.

Dimensions should include clear ceiling heights of 9 feet minimum. Shower stalls should be from 3 feet, 6 inches to 4 feet square, and there should be a clear space in front of the showers of 7 or 8 feet. Lockers should be arranged in double rows wherever possible, locating these rows at right angles with exterior side walls to allow a window in every locker aisle. The width of aisles for the locker rows should be never less than 6 feet, and 7 feet preferably. The minimum width of stairways and ordinary aisles should be 4 feet. Lockers should be of metal, which can be obtained in the standard green or may be painted in other colors which harmonize better. The height of lockers may be 5 or 6 feet, the lower locker making it possible to see around the room, but the greater height allowing a more comfortable disposition of clothing and shoes. Lockers should be of ample size, none smaller than 18 by 24 inches and preferably larger. It is well to have one shelf at the top tilted up to prevent golf balls from rolling off. No legs to lockers are needed.

There are, of course, many special details of comfort and utility which may be considered. The showers should be equipped with dependable mixing valves and be of metal which will not rust. Floors in showers should be at the same level as the shower room floor, but depressed about 2 inches around sides and fronts of stalls in order to drain easily. A sill projecting above the shower floor is dangerous.



Locker House of the Westchester-Biltmore Country Club
Warren & Wetmore, Architects

The Ventilation of Locker Rooms

By JAMES H. RITCHIE
of Ritchie, Parsons & Taylor, Architects, Boston

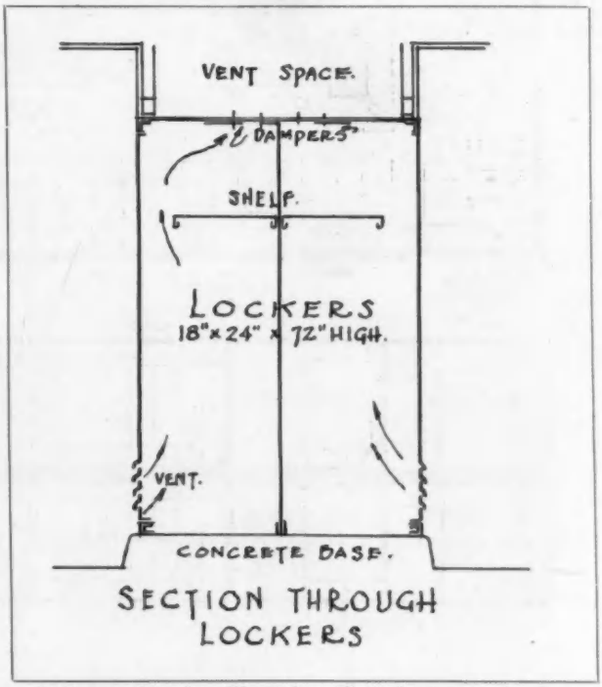
IMPORTANT as it is, the proper ventilation of lockers and locker rooms in golf and country clubs is frequently overlooked or neglected. When it is remembered that clothing is sometimes hung in lockers before it has been thoroughly dried, and that in order for it to become dried there must be adequate circulation of air, the absolute necessity of ventilation will be quite apparent.

Use of two general types of ventilation is open to the designers,—the first, natural ventilation provided by large air spaces, ample window areas, a monitor type roof, and at least a 12-foot clear room height; the second, a system of room and locker ventilation secured by use of a positive exhaust fan. The first system is perhaps the simplest, since it contemplates only the provision of a sufficient amount of room volume and air current to minimize the foul air conditions. The circulation of air through the lockers themselves is merely nominal, being entirely through the openings at the top and bottom of each locker door. These ventilators should be generous in size, but at the same time they should not be too open, nor should they extend the whole height of the locker door. If this system is adopted, it must be understood that since the windows are depended on for the movement of fresh air, the room will be somewhat drafty. Due to this fact the users of the room, being for at least a part of the time of their occupancy scantily clad, are inclined to close these natural sources of fresh air and thus close off the room's only means of ventilation. The designer must also realize that with this natural system of ventilation the circulation of air through the lockers themselves is to a great extent impeded by the contents of the lockers being so disposed as to prevent any great amount of circulation, since the only means of creating a draft through the lockers is the difference in the temperatures existing opposite the lower and upper door openings. Use of the locker door which has its entire front open in the form of a grille may tend to defeat whatever natural flue effect, small enough to be sure, two openings in the door might have. There being no operating cost is perhaps the greatest factor in favor of this system. With this natural type of ventilation, however, there can only be approximated the ideal freedom from body odors in the lockers and room that will be attained with use of the positive system.

The second or positive exhaust system of air from the room through the lockers has many points in its favor, more particularly the fact that there is a positive circulation of air through each individual locker and its contents, thus drying out perspiration-saturated clothing and at the same time providing a constant supply of pure air in the space adjacent to the lockers. The argument may be advanced that exhausting this amount of air to the outside will place an added tax on the heating plant of the building in winter, but it will be recognized that the greatest need of locker ventilation comes during summer months, when no heat at all is required in the building. It is proposed to use a blower fan to supply the room with warm air, but to depend upon infiltration and direct radiation to supply the warm fresh air in the room for such infrequent times during the heating season as the exhaust fan is used. Some simple system of by-passing the fan should be employed that will allow of the room to be vented by natural means when the fan is not used.

Whether natural or exhaust ventilation is employed, the windows of the room should be placed with their sills about 5 feet above the floor and their lower sashes so fitted that, excepting when they require cleaning, they cannot be opened. This not only affords more privacy to the room, but gives more even ventilation, since the fresh air must circulate through the room before being exhausted. When the positive exhaust system is used, the fact that there are numerous vent openings from the main room, that is at least one to each locker, prevents the development of drafts.

An ideal arrangement of lockers for the positive system places the lockers in groups, back to back, in double rows, with a furred space over them con-

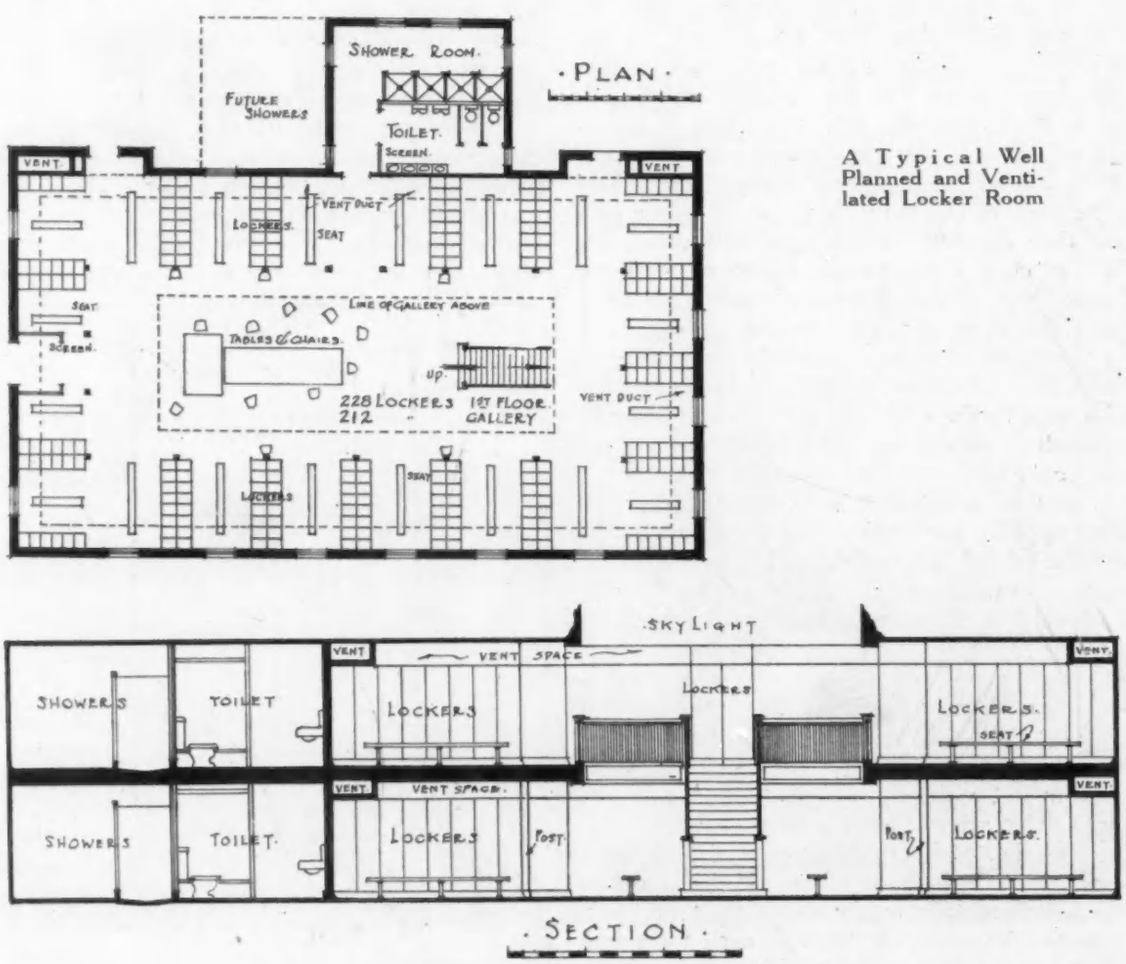


A Suggestion for Obtaining Flue Action in Lockers

taining the ventilating ducts. The lockers are set up off the floor on a concrete base; the locker doors are provided with ventilating openings at the bottoms only, and dampers are arranged for adjusting the air through each locker. These dampers should be so fitted as to allow of their being locked in position after the air flows through each group of lockers are balanced. Ventilating a locker near the bottom, with ducts under the room's floor, works fairly well for industrial locker rooms, but the up-draft scheme as here outlined preserves for use some of the most valuable space in the locker,—the floor space, which is needed for shoes and club bags. Such a disposition of the lockers requires no special apparatus. The lockers themselves with ventilating openings near the bottoms of the doors and equipment with control dampers are stock articles, carried by nearly all the manufacturers of steel lockers. With such an arrangement it is quite possible to arrange the lockers in two decks, the upper deck being set on a gallery with an open court in the center, and all this in a room of which the total height is not over 16 feet. This permits of a large number of lockers in relatively small floor space. The plan of such a layout is shown just below. With the positive system all the air in the room is exhausted through the lockers and carries off the odors of the room and the odors of the clothing.

A further particular advantage in this system is that it lends itself well to the venting of the shower room at the ceiling, and this point alone is of no inconsiderable importance, since if left unvented or at best provided with gravity ventilation, the air in the room soon becomes so humid that it is practically impossible for the bather to completely dry himself. It is quite possible to tie the ventilation of these lockers and shower rooms into a common exhaust vent fan serving the kitchen and pantries, this being done by means of a series of ducts in the attic space.

Of course there is an attendant operating charge with the positive system, but assuming, for example, ten changes of air an hour for the room shown herewith at an average power rate and covering a six- to eight-hour period of fan operation per day for eight months, the annual operation cost would probably not exceed $180 or $200 for the service.



A Typical Well Planned and Ventilated Locker Room

Golf Club Water Supply

By DUNCAN SHAW, *Mechanical Engineer, New York*

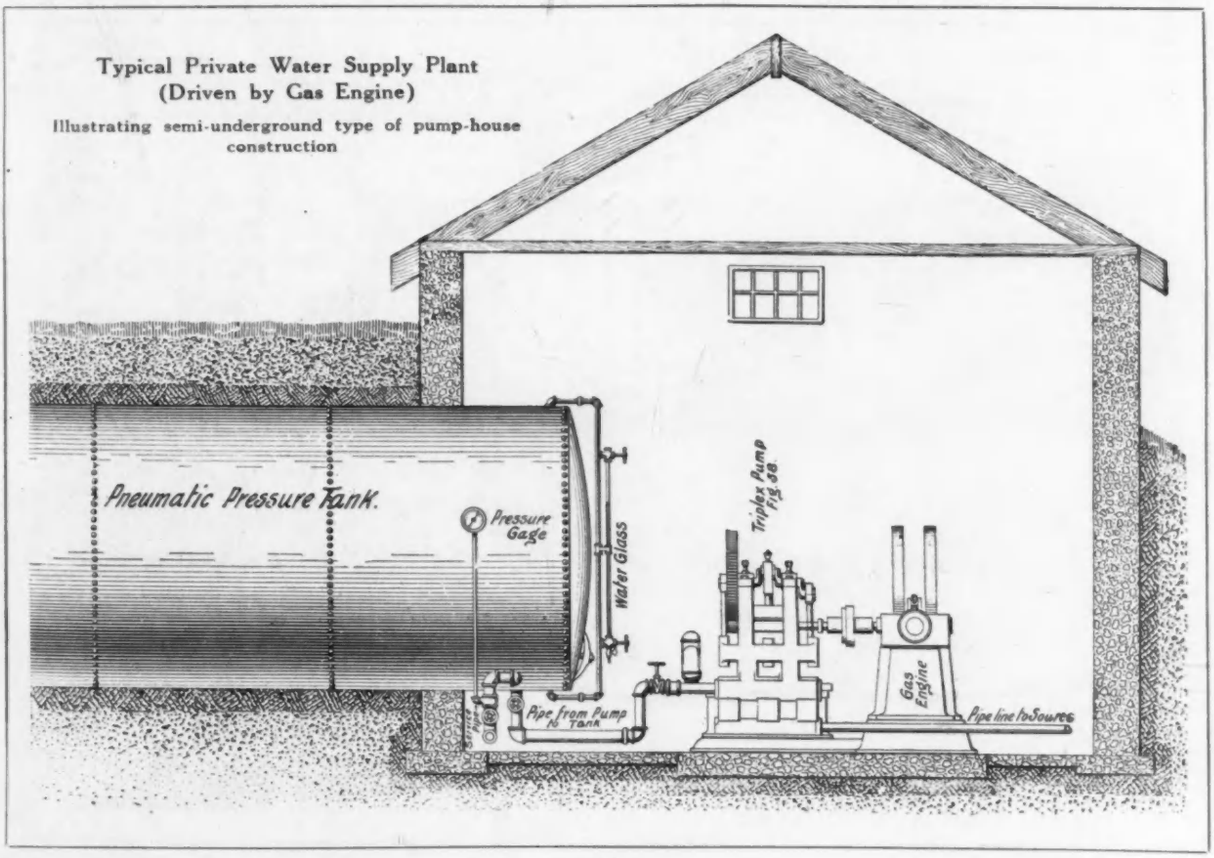
WATER supply is unquestionably the most important utility to be considered in the planning, designing and construction of a modern, complete golf club. Not only should it be thought of as a source of water for drinking, cooking, shower baths, greens sprinkling, fire protection and sanitary facilities, but it has an underlying economic importance that is often overlooked. By far the larger number of golf clubs are dependent for their ultimate growth and prosperity on the members that they are able to attract. The playing members' first consideration is the condition of the course and greens. In the proper maintenance of turf on both the fairways and greens water is unquestionably the most important factor.

The sources of supply for a private water system may be classified under three general headings: brooks, ponds (either artificial or natural), and driven wells. In all cases the water for irrigation should be drawn if possible from some surface source, such as brook or pond. Well water is very likely to be too cold for good turf irrigation, and it may in addition contain harmful mineral ingredients. Warm surface water is an ideal irrigating agent. Of course if the irrigation water is drawn from some surface source, an additional supply must be provided for house use, to avoid the danger of contamination. This separation of the pumping plant into two units is very often done. If possible the source of supply for irrigating water should be located approximately at the center of the course. This will materially reduce the length of the pipe runs and, as a consequence, the cost of installation. It can be assumed as a general rule that the underground piping installation will constitute the major portion of the original investment.

If it becomes necessary to create an artificial pond or lake by the damming of a brook on the course, careful planning will enable the course architect to make it a distinct addition to the scenic beauty of the club property. In the complete absence of any source of surface supply adequate to the club needs, an artesian well is the only remaining water source available. Such wells cover a wide range of type, depending on the geological formation of ground in the locality in which the club is situated. The well may be a so-called gravel well, of rather moderate depth and comparatively inexpensive to drive, or on the other hand the location of water may necessitate a deep artesian well driven into rock. In the latter case the cost will be considerably increased. The determination as to the type of well and its location on the property is again a question for expert decision. A good deal of the gamble in this connection is, however, eliminated by the practice of driving small test wells to afford a prior determination

Typical Private Water Supply Plant (Driven by Gas Engine)

Illustrating semi-underground type of pump-house construction



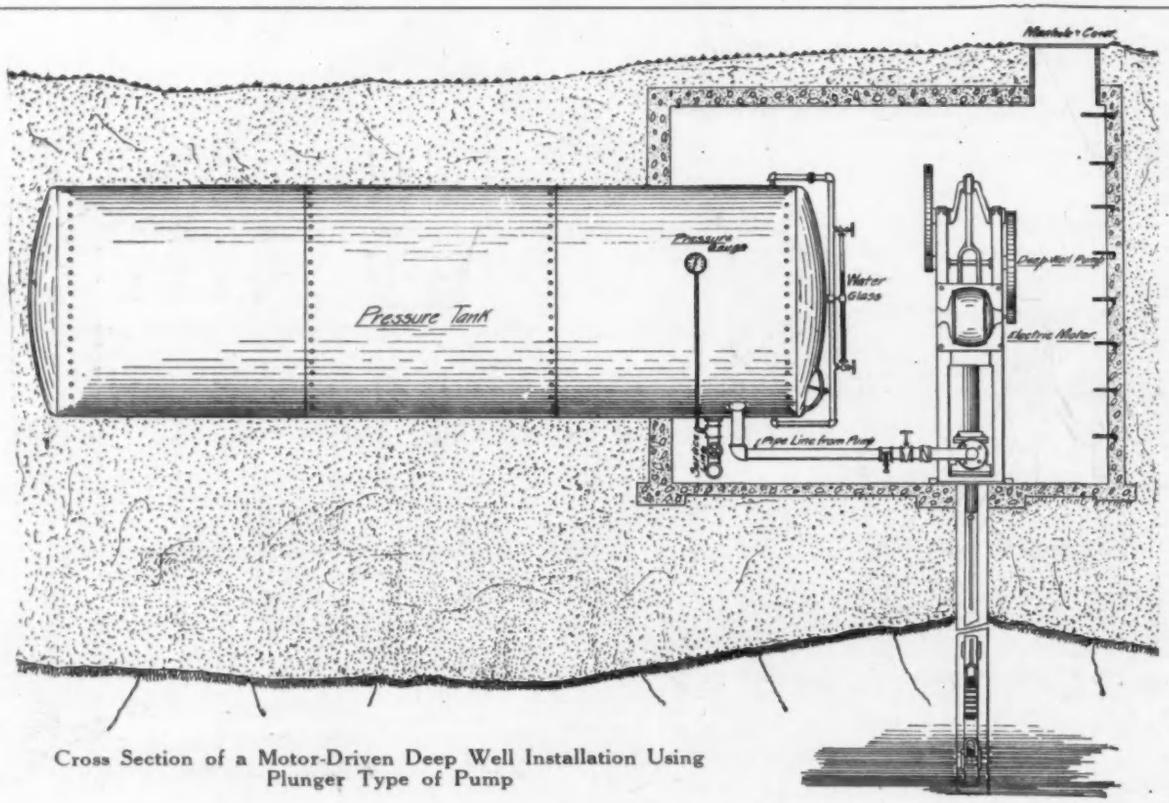
of the location of the possible water-bearing strata.

Having finally located and decided on an adequate and proper source of water supply, the next general problem confronting those concerned with the golf club water system is choice of the mechanical equipment. This equipment falls naturally into four general subdivisions: motive power; pumping machinery; storage facilities, and pipe lines and appurtenances. The motive power must be given first consideration, since its choice is largely predicated on local conditions, and its type materially limits the range of usable pumping equipment. Under the heading of motive power the general types to be investigated cover electrical motors, gasolene engines and fuel oil engines. No consideration will be given in this article to such natural sources of power as waterfalls, although such power should be used wherever possible. They are, however, of such rare occurrence that they are not of general interest. Whenever the availability of power transmission lines makes it possible, electric motor-driven pumping equipment should always be used. Resultant maintenance costs will be lowered, expert attention necessary will be reduced to the minimum, and full automatic operation simplified.

Lacking power mains within a reasonable distance of the club, the choice of necessity is narrowed down to the use of either gasolene or fuel oil engines. For small or moderate sized plants gasolene engine equipment generally proves most desirable because of its lower initial cost as compared to that of fuel oil engines. There is no necessity, moreover, for having a highly trained engineer such as is required to operate certain types of fuel oil engines. An analysis in the case of some larger plants may indicate that both the greater initial cost and greater personal attention required by a fuel oil installation will be more than offset by the materially higher efficiency of this type and its resultant fuel economy in ordinary operation.

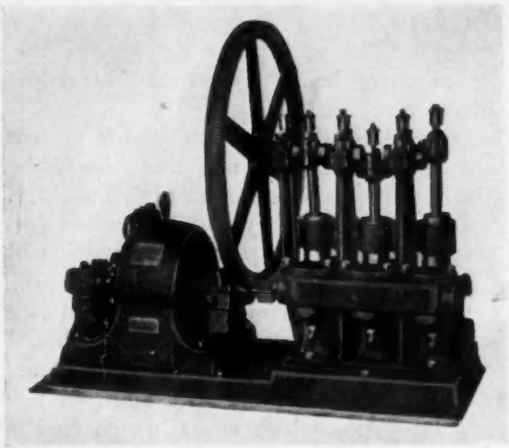
The decision as to pumping equipment will automatically narrow itself to one of three general types, —suction pumps, deep well pumps, and air-lift pumping equipment. It is possible to use a suction pump only when the water is drawn either from a surface supply or from a well in which the water level while pumping rises naturally to within approximately 20 feet of the ground surface.

There are two general subdivisions of suction type pumps,—the centrifugal type and the plunger type, —the latter most commonly seen as a triplex or three-plunger unit. When electric power is available there are many features to recommend use of a centrifugal unit. It is an extremely simple affair mechanically, consisting of an outer shell in which revolves an impeller. The water is picked up at the center of the impeller vanes and thrown by centrifugal force to the outer periphery, where the discharge is located. The absence of reciprocating parts makes for long life and low maintenance cost. There are, however, some disadvantages to be considered. Unless the water supply is at a point higher than the pump, permitting water to flow to the pump by gravity, the suction must be filled with water before the pump will operate. This operation is known as "priming." In other words, a cen-



Cross Section of a Motor-Driven Deep Well Installation Using Plunger Type of Pump

trifugal pump cannot of itself pick up a suction lift. As a class centrifugal pumps are also of much lower efficiency in the smaller sizes than plunger pumps of similar capacities. The current consumption is therefore materially increased, which is reflected in larger power bills. Again, it will be noted that the final decision involves a balance of judgment based on several factors. Broadly speaking, the triplex plunger pump is by far the most popular suction pump in installations of this general nature.



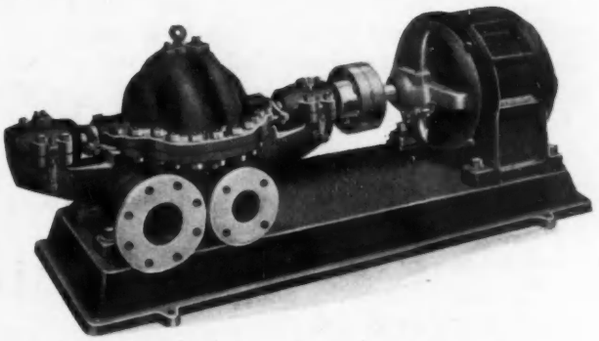
Motor-Driven Duplex Plunger Pump

Before leaving the subject of suction pumps it might be well to say that in all cases where the water is taken from a surface source of supply, a so-called suction chamber should be incorporated in the plant design. This is generally a concrete cistern-like structure into which the water is diverted from the main source and from which the pump suction leads. Its chief advantage is that it permits the pumping of only the warmer surface water at temperatures best suited to grass stimulation. This object is accomplished by placing a baffle plate in the lead channel built from the pond or lake into the suction chamber, the baffle plate being raised until only the surface water flows off.

In the absence of surface water supply or a driven well in which the natural underground pressure lifts the water to within suction distance of the pump level, the so-called deep well type of pump must be used. Both reciprocating and turbine type pumps are available for work of this nature. The reciprocating type consists of a pump head erected over the well with a pipe (known as a drop pipe) running from the pump head down into the well to whatever depth is necessary, and carrying at its lower end a pump cylinder. This cylinder is equipped with valves operating on the same principle as a suction pump. The plunger is moved up and down by a long rod, joined together in sections, to which is transmitted the reciprocating motion of the crank on the pump head above. This rod is generally made of octagonal ash in order to reduce the strain on the pump head through its added buoyancy. Reciprocating deep well pumps of this nature are built in both the single-acting and double-acting types. The single-acting pump is equipped with one plunger, lifting water only on the up-stroke. The double-acting type, on the contrary, has two plungers with independent rods, one inside the other, whose strokes overlap, thus more nearly approaching continuous flow. The double-acting pump, of course, is less subject to vibration because of its more steady load, and it is generally much more efficient. A more complex mechanical construction is, of course, entered into with a higher cost per gallon output.

Of more recent development in deep well pumping generally is the so-called deep well turbine, which is becoming more widely known and adopted each year. In essence it is a centrifugal pump with several stages in series suspended vertically in the well at a depth required by the normal water level. While somewhat less efficient than the reciprocating type pump, its first cost is considerably lower. The mechanical construction is very much simplified, and as a consequence less expert attention is required. Unless use of a belt drive is resorted to, it is not ordinarily practicable to use a deep well turbine installation where electric power is not available, since this type of pump requires high rotative speeds, whereas the gasolene or crude oil engines of the heavier types are comparatively slow speed units.

Air-lift pumping equipment has had some popularity in the past because of the comparative simplicity of the installation. A typical plant consists of an engine or motor-driven compressor with an air receiver from which air is forced through a perpendicular pipe into the well. By an admixture of air and water the latter is raised to the surface with no moving parts in the well. Such an installation has, however, a very low overall efficiency, and



Motor-Driven Centrifugal Pump

chiefly because of this fact the modern tendency is away from use of this particular type of equipment.

The structure in which the pumping equipment of a golf club is housed is generally the subject of considerable attention by the architect, since in most cases it is located in a more or less conspicuous position on the club grounds. With a moderate amount of planning it can be made an object of considerable architectural interest. In a few notable

cases architects have gone to some length to achieve this result, such as for example in designing the pump house in the form of an old Dutch windmill. Very often the pump house is either of stone or concrete construction to assure permanence and low upkeep. In the majority of cases it is also considered wise to construct the pump house partially underground, with the pump floor 4 to 5 feet below the normal ground level. The principal reason for this is to eliminate any possibility of the pump's freezing during the winter months.

It is standard practice in modern water supply engineering to provide pumps of a much larger capacity than the normal steady demand. An accumulated water reserve is then kept in a storage tank. This provides insurance against lack of water during a temporary breakdown, and it also gives more constant pressure conditions. There are several types of tanks in more or less common use. The older practice involved the erection of an elevated tank, either on high ground or on an erected tower. The obvious disadvantage of high initial cost and upkeep, together with scenic objections, has gradually tended toward the elimination of this type of storage. Present practice, in most cases, dictates the use of what is known as a hydro-pneumatic tank. These tanks are built of steel, either riveted or welded, of a cylindrical form and of a capacity determined by the demands on the plant. In almost all cases the tanks are buried in the ground adjacent to the pump houses, with the ends extending inside. On the exposed ends are mounted the pressure and water level gauges. Such underground tanks assure an even temperature of water. The water is pumped into these tanks, compressing the original air volumes into cushions at the tops of the tanks. The tanks are generally pumped up to a predetermined pressure, and a considerable volume of water may be drawn off for use, the pressure being supplied by the compressed air cushions. These tanks, as just said, are much used.

On the larger installations, involving use of hydro-pneumatic tanks, a separately driven air compressor of small capacity is always installed. This serves to replenish the air supply in the tank and thus prevent water logging, and it also permits a larger drawoff in case the pump is out of service. By this means the entire tank capacity is available for use in an emergency.

A hydro-pneumatic tank installation lends itself admirably to complete automatic control, by means of a simple pressure-operated switch, when electric motor drive is used. The pumping equipment may be started at a fixed minimum pressure limit and stopped at a fixed maximum pressure limit. Automatic control is, of course, feasible and is often used with the open type elevated tank by means of a float switch, but the installation is not as simply made or maintained. An additional advantage of the closed type pressure tank that merits consideration is its aërating effect on the water. A considerable mixing of air and water is assured, with the result that the water is not only made more potable but undoubtedly an appreciable sterilization is had.

The tank capacity for any given installation is, of course, dependent on the normal water demands, and it may be accepted as a rough working rule that a one-day supply from the tank should be assured when operating with gas or oil engine drive to guard against a mechanical tie-up. The tanks may be somewhat smaller with motor drive, since the possibility of there being any lengthy breakdown is considerably reduced.

The subject of the pipe distribution system for golf course irrigation is one that should be approached with a good deal of careful thought. This part of the water supply installation involves, as has been previously said, the major portion of the plant investment. As a result, pipe sizes and layout must be carefully planned by an expert in order to keep down the expense as much as possible. With the pump house at the center of the course, the general practice is to run a large main with ample sizes of sub-mains which again branch to laterals, forming what is known as a herringbone system. In all branch-offs it is wise to use Y's rather than T's to reduce pipe friction as much as possible. The pipe sizes are determined by the capacity carried and the pressure desired at the sprinklers. On an average installation the pipe of the network will gradually decrease from a 4- or 5-inch main to 1½-inch laterals. All laterals should be provided with gate valves in order to permit segregation during repairs. The submains should also be so equipped.

Drainage of the entire water system must be carefully provided for in order to prevent freezing and consequent broken pipes and fittings. As many lines as possible may be so graded as to drain back to the pump house. Drips should then be installed at all other low points over the system. Ordinarily the pipe runs on a course are laid in shallow trenches.

As to the kind of pipe to use, this is very often a subject of considerable debate, since there is a wide price difference between steel and wrought iron pipe. However, it cannot be too strongly emphasized that conditions of the installation and the chemical properties of the local water supply should be carefully studied before selecting pipe.

It does not seem wise in this article to go into details as to irrigation appurtenances. Sprinklers and sprinkling equipment cover a wide range of type and form a fitting subject for a rather broad consideration. It is perhaps sufficient here to say that the soil conditions of the individual course, as well as the maintenance fund available for turf irrigation, will be the deciding factors in the choice of this equipment. Securing an ample supply of water for both fairways and greens, as decided by an irrigation expert on the ground, should be the ultimate aim. Whatever initial and maintenance expense may be involved will, in the light of past experience, be generally very profitably expended.

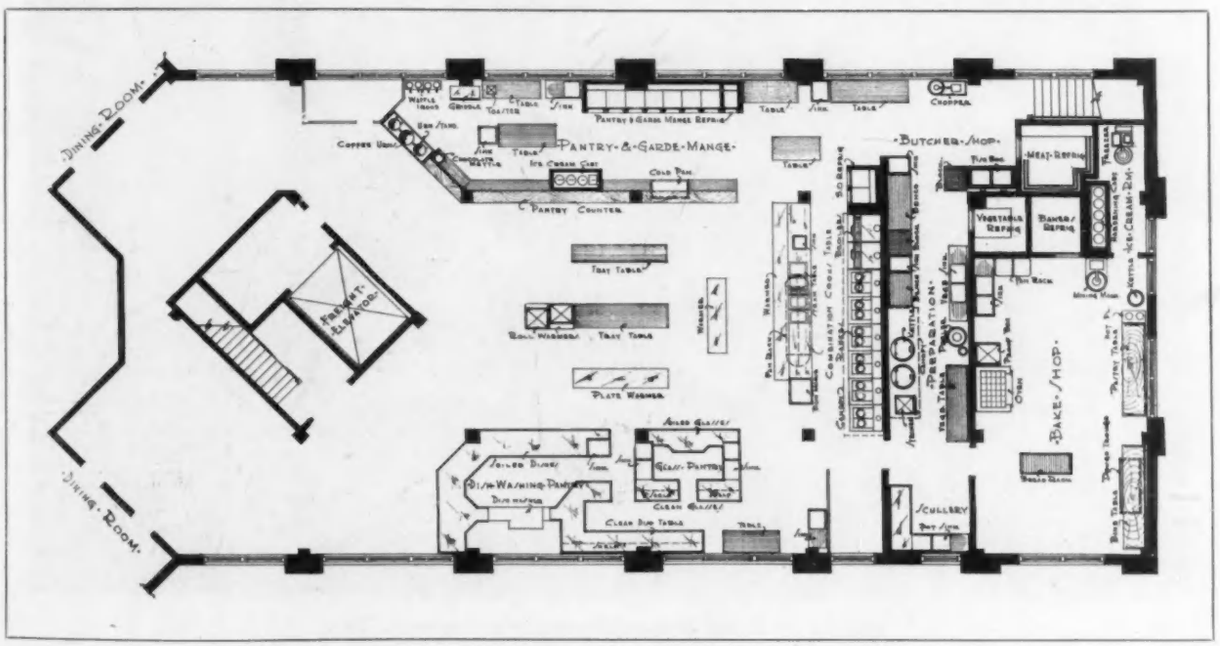
Planning for Food Service

By ALBERT E. MERRILL
Equipment Engineer, Chicago

WITH the development of club life, and especially the outdoor country club to which men are attracted for both the social side and the opportunity for gaining needed exercise, there have been promoted almost numberless organizations surrounding every city, even of medium size, and naturally there has been a wide variation in the financial resources back of them. These clubs have utilized a large proportion of the available farm land, which has been converted into golf courses, and the expense connected with the laying out of an 18-hole course has often necessitated the alteration of an existing building or the erection of a hastily improvised club house at the start. In many instances these buildings will be utilized for several years, and consequently preparation has to be considered for more or less permanent equipment. The general tendency in a large number of clubs is to reduce below what is practical or even possible the expenditure in kitchen and dining room equipment, with the result, judging from an examination of the average club kitchen, that standardization according to modern methods of food preparation and service is hardly possible. However, all of them have in view permanent homes fully equipped, and in the original purchase consideration is generally given to such equipment as may be used in the scheme later to be adopted.

Fraternal organizations often take the lead in country club development, and as most of these organizations are familiar with banquet service only and do not attempt a daily service, they are likely to view the club situation in a similar light. It is natural that Saturdays and Sundays should furnish the main demand for the week, and the tendency has been to eliminate everything that would aid in giving balance and order to the daily food service.

After studying the requirements of several smaller or more or less struggling clubs, both in the east and central west, it is found that all seem to be united in the desire to establish a stand-up service very similar to that rendered in a "coffee shop," where the golfers may come in and rapidly secure the best of sandwiches, both hot and cold, hot coffee, pastry, and possibly some kind of dessert. This has the double advantage of requiring very little service, which is an important factor with the country club, and being speedy. This also will be the only paying department of the food service. As long as these rooms seem to be universally in demand, it would be well to originally equip them with complete and attractive service, consisting perhaps of a small soda fountain, where a limited number of cold drinks and ice creams could be served at all times, a "luncheonette," which would furnish a bowl of hot soup, coffee, and possibly tea or chocolate, together with one entree or roast for making hot sandwiches. The counters should be sanitary, similar to those in the old fashioned bar, and about 42 inches in height. These could be built either of marble, glass or metal, decorated in keeping with the decoration of the room, to have black glass tops either decorated or plain and to contain the various fixtures just suggested arranged



Main Kitchen Plan, Olympia Fields Club, Matteson, Ill.

in an orderly manner for easy and convenient service. If possible, such a counter should be located in front of a slide opening into the kitchen proper, and the back wall should be supplied with an ice chest and ice cream cabinet and means for storing quantities of ices, ice creams and cold drinks.

The size of such a room would naturally vary with the size of the club, but should, if possible, open onto a veranda where tables and chairs are provided for those who desire to sit down while they eat, and the room itself should have several high tables with glass tops at which club members may stand while eating their hasty repasts. The dining rooms of even the smaller clubs seem never to be large enough to take care of the peak flows, and the problem seems best handled by utilizing the greater portion of the main floor for this purpose, dividing it into rooms which may be cut off for other purposes when not so required and fitted with doors leading out to a broad veranda which should surround the entire building and which may be fitted with tables and chairs to meet the summer demand. Naturally, in winter time the club either closes entirely or the requirements are very small, and the smaller space would fully answer.

In one of these smaller clubs the essential equipment would consist of a battery of ranges 6 to 8 feet in length, a broiler, steam table 6 to 8 feet in length, a cook's table, pantry refrigerator at least 7 feet long, a meat block, butcher's bench, vegetable sink, dishwashing pantry including a small dishwasher, and a large storage refrigerator, this preferably located in the basement where bins for storage of dry and canned goods are also supplied. The pantry service is very meager, generally consisting of a counter, a small ice box and a single coffee urn. In the smaller clubs the waiters do not enter the kitchen at all, but their service is secured through a slide opening into the kitchen proper, and the washing of dishes is handled in a separate room to which the waiters come directly and deposit the soiled dishes, silver and glass.

We shall now consider the requirements in a larger institution, where demands even in excess of those of the largest hotel, cafe or club are not unusual. Even in the larger clubs the self-service idea seems to be the most practical, particularly from the members' standpoint, and we find complete cafeterias with separate kitchens which supply the club members who desire to eat hastily at the noon period. In addition to this, the larger institutions are now supplying cafeterias where caddies, chauffeurs, employes of the guests, and others who do not belong to the clubs proper are fed, and who in this way do not mingle with the club members themselves. All these cafeterias should be fitted with the most sanitary equipment, consisting of metal frame counters with metal or glass panels,

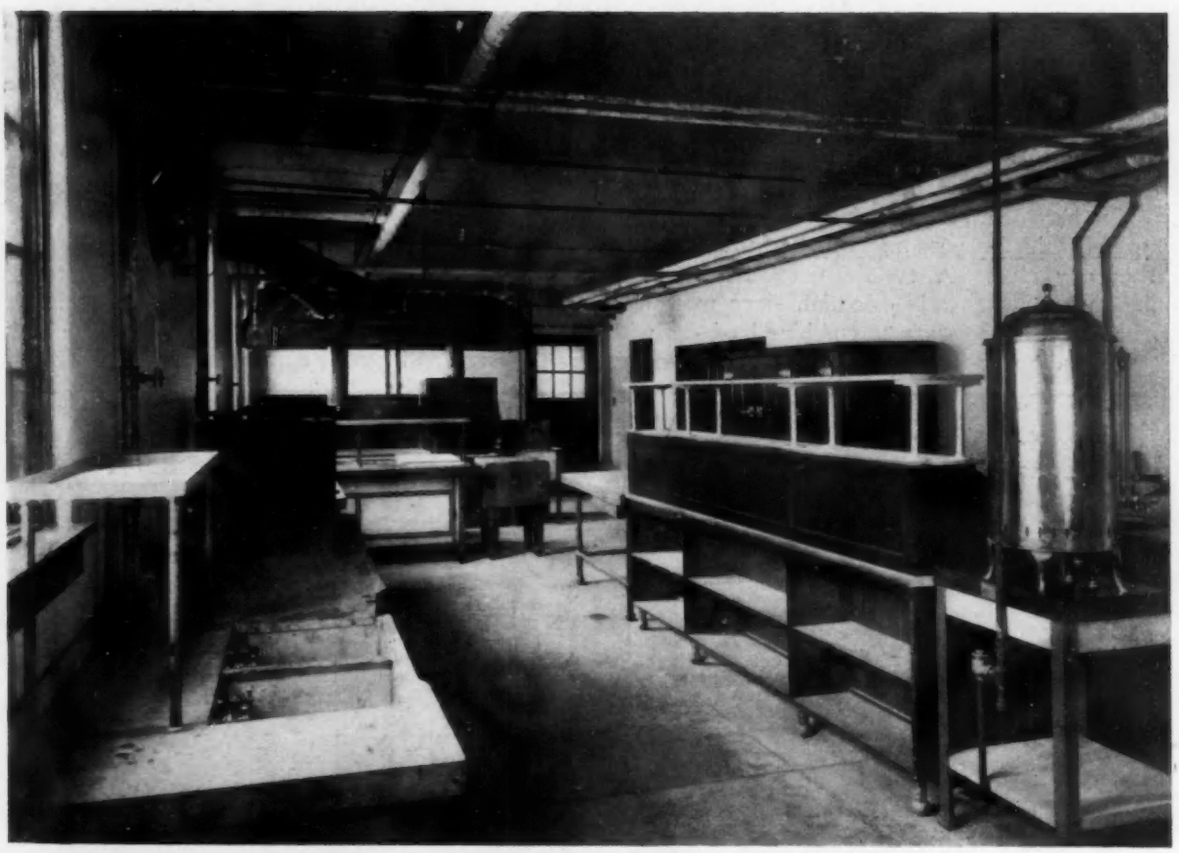
Kitchen in River Oaks Country Club, Houston, Tex.

glass tops and metal fixtures throughout, salad pans, ice cream cabinets, urn stands and cup warmers, silver boxes and steam tables. The exposed parts of these fixtures should be entirely of approved metal over heavy steel with heavy copper pans. The ice fixtures should be insulated, and all fixtures should be mounted on 6-inch sanitary legs. These cafeterias and counters will vary in length from the shorter units, such as we find in high schools and industrial institutions, to the complete commercial cafeterias found in the larger cities.

If we turn to the main dining rooms and kitchens we shall also find them completely equipped with every modern device for food service and preparation, including the separate departments for silver cleaning, dishwashing, baking, the work of the scullery and vegetable steaming room, etc. Probably, if anything, the club kitchen differs from that of the hotel in having a larger proportion of plate warmers and tray stands than would be found in the latter, and this is due to the more limited number of servants and the greater difficulty in securing them for the short periods that a heavy demand for such service exists. In the type of equipment which is used in the club kitchen the tendency, unfortunately, has been toward purchasing the least expensive that would give satisfactory life and service. This is a mistake, since the equipment in the kitchen itself should make it a show place, and the more attractive it is made at the start the greater the probability of its being kept and maintained so.

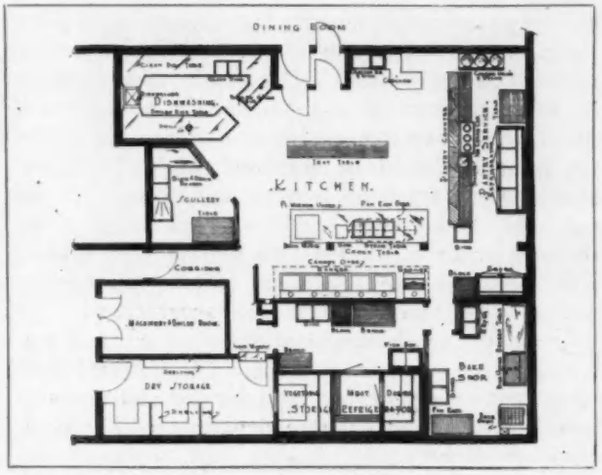
Wherever the club is so located that gas is available, gas ranges are preferable, but in many localities gas is not piped, and the club is compelled to use electricity as fuel. With the development of a special unit which encloses the heating element in a metal tube, there has been introduced a type of cooking equipment that is lasting and serviceable, and the electrical heavy-duty equipment has really come into its own. This may be used with equal effectiveness in range ovens, range top plates, broilers, cake griddles, waffle irons, steam tables, coffee urns, etc. It has been tried out and proved satisfactory, and provided that a fairly uniform voltage is assured, the user may fear no unpleasant experiences with electrical equipment so constructed.

Steam tables, coffee urns and bain marie pans should, wherever possible, be heated by steam. The great advantage of sectional steamers, steam jacketed stock kettles, etc. in food preparation makes it advisable where steam is not available to install a separate coal fire boiler for this purpose. In special equipment the large club needs a power dishwasher, a mixing machine, ice cream freezer, meat chopper, meat slicer and a meat grinder. Waffle irons, cake griddles and toasters, all heated by electricity, should be provided in every club pantry. The roll warmer is a valuable and necessary fixture for service.



Kitchen in Broadmoor Country Club, Indianapolis

Kitchen in Madison-Lakelands Golf Club, Madison, O.

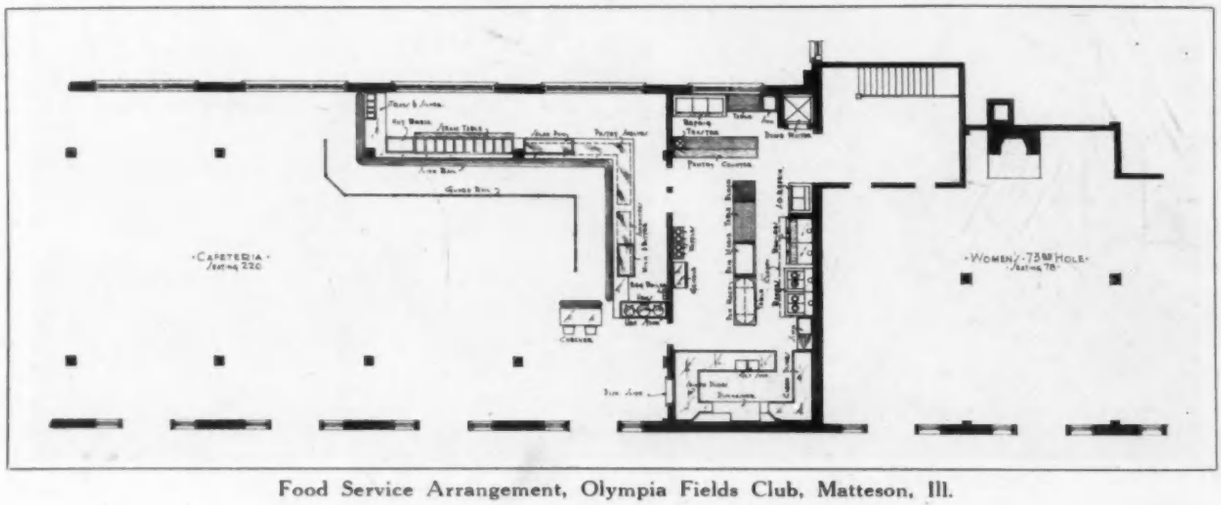


Kitchen Plan, Hollywood Golf Club, Hollywood, Fla.

As most clubs are more or less distant from a city, a completely equipped bake shop is essential. Ice boxes should be plenteous and of the best construction. Sheet cork insulated walls, cork and cement built-in construction are the most serviceable and sanitary. If possible coil space should be arranged overhead for all service and storage boxes, as it is taken for granted that no club of any size would be without an ice machine for mechanically refrigerating all service boxes, ice cream hardening cabinets, prepared ice water for the building and for manufacturing a limited amount of ice for use in drinks and for other purposes.

If the dining room permits, or in other words, if a building is being designed for club purposes rather than an old building being made over, the center should be left open for dancing space during supper hours. There seems to be a return wave of dancing in all parts of the country; nobody is now too old to become an efficient dancer, and the absence of space for this purpose might make for dissatisfaction in any club. A certain number of private dining rooms are equally essential, since most club members find it necessary to combine business with pleasure and to invite their business acquaintances to the club to enjoy a meal and at the same time discuss matters which it would not be advisable to discuss in a main dining room. One large private room should always be available for parties.

In general, the same conditions hold true in reference to clubs as to hotels. The tendency is to cut down the kitchen space to half or less than half of that which is necessary and to select a quality of equipment which is not lasting and a quantity which is inadequate to take care of the maximum demands of the dining room. In the club it is more essential than in any other type of kitchen that equipment be lasting to adapt itself to the very meager requirements of week days as compared with the very large demands that would be made on Saturdays and Sundays. At best, the club kitchen must be operated at a loss, and every consideration should be given to eliminating every bit of unnecessary service and making it possible for each employe to operate in the most efficient manner. This can partially be accomplished by having all of the equipment as automatic as possible, providing all the labor-saving machines that money can buy, using mechanical refrigeration even in the smaller clubs, and electrically-driven and heated apparatus where possible.



Food Service Arrangement, Olympia Fields Club, Matteson, Ill.

Sewage Disposal for Isolated Golf Clubs

By A. E. HANSEN, *Hydraulic and Sanitary Engineer, New York*

THERE are at least three general conditions which should be particularly borne in mind and which require special care on the part of the designer of sewage disposal systems for golf clubs.

The fact that the golf players may roam all over the club grounds makes it imperative that the sewage should be disposed of in a manner that will not offend the senses of sight and smell, and that will not produce soggy ground, soaked with sewage and perhaps indented with small pools of liquids into which unsuspecting players may step or drop their golf balls. This condition is aggravated by the additional fact that golf clubs generally produce an unusually large quantity of sewage, caused principally by the almost continuous use of shower baths in different parts of the club house buildings.

The third factor which should be borne in mind by the designer of a sewage disposal plant for this type of institution, is the fact that the golf or country club house is usually partially open in the winter for members and guests, and that under this condition the amount of sewage produced is materially less than that of the summer months. Special provision should be made so that the sewage disposal plant may be adapted to the small as well as to the larger flow, depending on the season of year.

It is necessary to decide on the ultimate disposal of the sewage before the treatment plant can be designed. Sewage will be discharged after purification, either directly or indirectly into some water course. By "direct discharge" is meant the flow of treated sewage through a conduit directly into a water course. By "indirect discharge" is meant the flow of treated sewage either over or through the soil into a water course. In most instances, especially in the East and in some of the Middle Western states, the discharge of sewage, whether treated or untreated, is subject to the approval of state Departments of Health. Sometimes these departments do not exercise their control over the design of disposal plants which have indirect discharge into the water courses of the state. It is always advisable for the designer to submit the plans for any sewage disposal system to the state Department of Health for its approval, whether the plans provide for direct or indirect discharges, for the reason that such official approval may, sooner or later, be most valuable legal evidence of competent design in case claims are made by other property owners for damages due to contamination of surface or sub-surface waters. The state health departments have also accumulated in their records very valuable data on the sanitary qualities of the waters of the state, on the absorptive qualities of various soils, on the dangers of well or spring contamination, and on such other matters as may properly come under their jurisdiction, and which may affect the design and operation of sewage disposal plants.

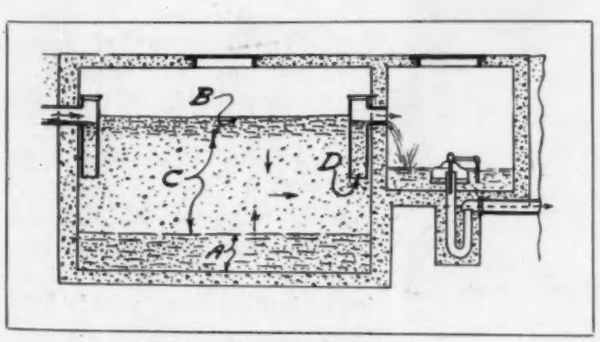


Fig. 1. Typical Settling Tank

The treatment of sewage, whether from golf clubs, institutions, residences, or municipalities, may be properly divided into three successive steps: clarification, oxidation and disposal. It is unfortunate that the word "disposal" is so frequently misapplied to mean "treatment." "Disposal" means the actual final disposition of the liquids and solids which together form sewage, after it has undergone purification by "treatment;" that is, an outfall sewer into a stream or mere cesspool is properly a "disposal" plant, but it could not by any means be called a "treatment" or "purification" plant.

Clarification. The clarification of sewage for country clubs is usually done by means of tanks or screens. Screens have been used only for large sewage treatment systems, particularly for municipalities, and are therefore not necessary to consider in this article dealing specifically with club houses.

The principle of clarification by tank treatment is that of settling the heavier particles at the bottom of the tank, and of floating the lighter solids at the top. The liquid occupies and passes through the space between the "sludge" at the bottom and the "scum" at the top.

The tanks which are most frequently used for institutional or club treatment plants are those which are technically known as "single-story horizontal flow," "settling" or "septic" tanks. The term "settling tank" or "sedimentation tank," as differentiated from the term "septic tank," means that the former is only of sufficient capacity to permit the solids to separate from the liquids without creating conditions of putrefaction, while the latter (septic tank) is of sufficiently large size to retain the sewage long enough to become putrid or "septic." Septic sewage is black and offensive; fresh settled sewage is milky and inoffensive to the smell. Clarification tanks for golf clubs should not be of such sizes that the sewage effluent from them is in a septic state. It will be seen that in

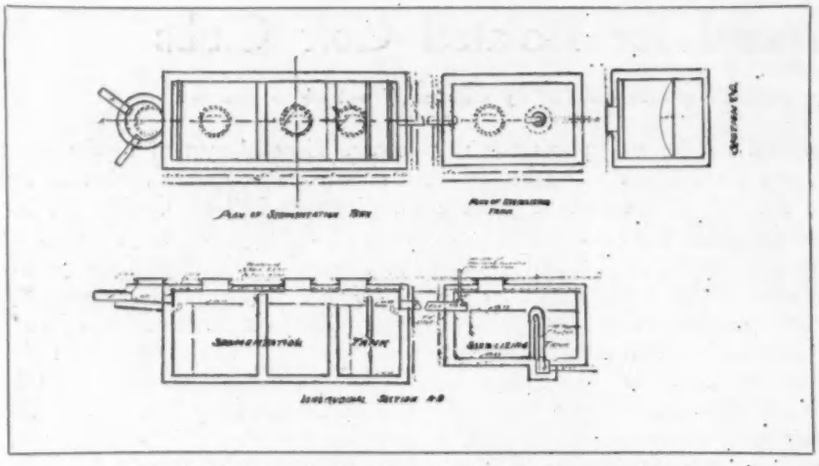


Fig. 2. Rectangular Settling Tank with Concrete Roof

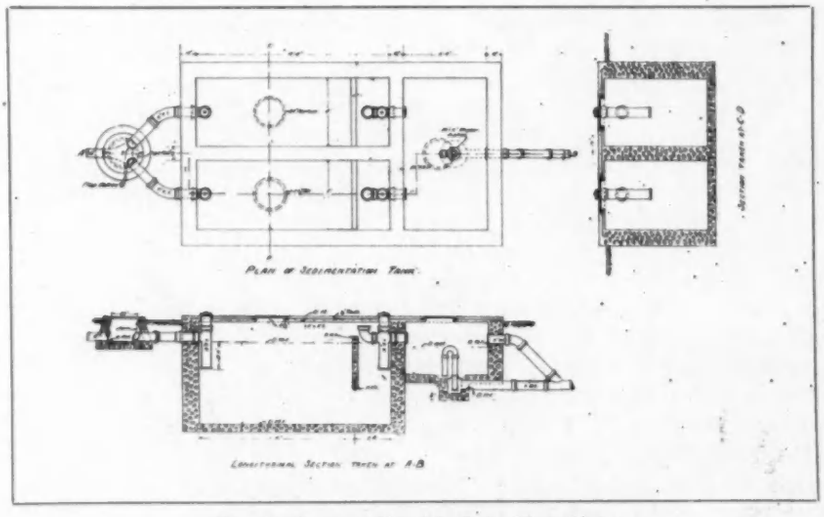


Fig. 3. Rectangular Tank in Two Units

Fig. 4. A Large Type of Sewage Tank

common parlance the term "septic tank" is a misnomer and is frequently used to mean "settling" or "sedimentation" tank. This explanation is given so that the reader's attention is called to the necessity of designing golf club settling tanks for use in summer and winter. A tank designed for summer use will be too large for proper operation during the winter and will probably deliver a septic putrid effluent. The golf club tank should be designed properly in two units, both together for use in summer, and one only in winter.

The accompanying Fig. 1 indicates the principles of the settling tank. The arrows at the tees show the inlet and the outlet from the tank. "A" shows the sludge at the bottom; "B" the scum on top; "C" the liquid between the two. The sewage flow enters on the left and passes out through the outlet tee branch at "D." When the sludge "A" decomposes, it will produce gas bubbles which rise and carry along with them small particles of sludge. The horizontal flow of the liquid tends to float these particles toward the outlet at "D" and over into the adjacent tank, called the siphon or dosing tank, and thence into the subsequent treatment units. If a tank of this type is designed of too ample capacity or is not cleaned sufficiently often, the sludge will become septic. Since the purpose of a settling tank is to clarify the sewage by separating the solids from the liquids to the greatest possible degree, a septic sludge which produces gas and causes a violent disturbance of the sludge, with consequent liberations and even discharges of sludge particles into the effluent, is most undesirable. For this reason the frequent cleaning of settling tanks is necessary, especially where sewage undergoes further treatment by filtration or soil absorption. It has been said frequently that the cleaning of settling tanks once in from three to five years is satisfactory. Such is not the case.

Where the clarified sewage from settling tanks is subjected to further purification by filtration or soil absorption, settling tanks should be cleaned regularly, at least once a year, and if the tanks are in use for the entire year, they should be cleaned once in the fall and once in the spring. Such care will prevent expensive removal of clogged subsurface disposal tiles and of sand filter surfaces.

Tanks may be constructed in either circular or rectangular form, as shown in Figs. 2, 3, and 5. Fig. 2 shows a rectangular settling or sedimentation tank, with a reinforced concrete roof, an inlet gutter, three baffles, and an outlet gutter, discharging into a siphon tank which is also used as a sterilizing tank, the sterilizing agent being liquid chlorine in solution, which is fed into the tank inlet. The function of the inlet and outlet gutters is to provide distribution over the width of the tank. The purpose of the baffles is to retain the sludge and the scum. Manholes are needed to remove sludge and scum.

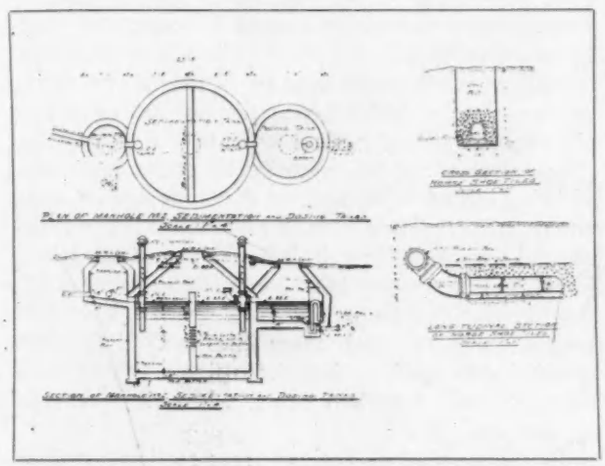


Fig. 5. Circular Brick Tank Fig. 6. Horseshoe Tiles

Fig. 3 shows a rectangular tank of concrete, having two units, both together for summer and one for winter operation. The inlets to the tank units are controlled by flap valves. In this instance the estimated winter sewage flow was about 50 per cent of the estimated summer flow. The intermediate baffles are omitted in this tank, because investigation showed that the probable amount of solids, such as water closet discharges, and of scum, such as grease, would be less than the sludge and scum expected in the installation represented by Fig. 2. Grease traps permit omission of baffles.

A larger sewage tank installation is shown in Fig. 4, the inlet end being at the bottom of the illustration, the sewage passing through the apertures in the first baffle, then under the second baffle, up through the narrow space between the second and third baffles, over the third baffle, and down into a space beyond the fourth baffle, which was filled with broken stone as a roughing filter. The valve rods shown in the illustration control sluice gates at the bottom for drawing off the sludge. Fig. 5 shows a circular tank, built of brick masonry, cheaper in construction than the rectangular tanks, but less efficient, though it suffices for many clubs.

The preceding remarks refer to single-story horizontal flow tanks. Other tanks have been developed for clarification of sewage, such as the "Imhoff" or "Emscher" tank (see Fig. 15). The perspective view of this tank shows its general design. It is a two-story horizontal flow tank, the upper story being the "flowing through" chamber for sewage, the lower story being a "sludge" chamber. The sewage enters at the top marked "Inlet," passes through the upper chamber and leaves at the opposite upper end of the tank, marked "Outlet." In passing through this upper chamber, the solids settle and fall through the slot at the bottom of the upper story, into the lower story or sludge chamber. The solids are removed from the sludge chamber by gravity through the sludge pipe shown. To my best knowledge this type of tank has not been used for golf club sewage disposal or treatment plants. It is quite expensive to build and is not particularly well adapted for comparatively small sewage treatment plants, for the reason that it has a tendency to boil over at the gas vents when used with unmacerated, fresh sewage, such as would be received from a near-by club house.

Fig. 16 is an illustration of still another type of tank, designated as the "Byolitic Tank," and combined with an Imhoff or Emscher Tank. The Byolitic tank is an upward flow, single-story tank, in which the sewage enters at the top and flows downward through a vertical, central pipe to the bottom, thence upward to peripheral effluent gutters. The combination of these two tanks gives an excellent effluent and can be built at reasonable cost where an exceptionally efficient clarification plant is desired.

Attention was called in the earlier part of this article to the unusual condition of exceptionally large shower bath discharges from golf club houses. This practically clear water should not be allowed to enter a settling tank of any type. It will result in the carrying over of sludge particles into the siphon or dosing chamber, clogging the soil or filters. This water should be by-passed around the settling tank into the siphon chamber for further treatment, or separately fed to a rapid sand filter, where subsurface disposal by absorption is used.

Settling tank sludge and scum may be disposed of by burial or by drying on sludge beds. The latter should be in the form of small greenhouses, glass-covered to avoid the constant re-wetting of sludge by rain, and the dissemination of odors. In larger plants, hand-operated sludge pumps should be provided to facilitate sludge removal from the tanks. The sludge dried under glass-covered beds can be removed by spading from the bed into ash cans without serious odor troubles.

Oxidation of Sewage. Oxidation of sewage is intended to change its organic content into innocuous mineral matter. The degree to which such oxi-

Fig. 7. Disposal Lines

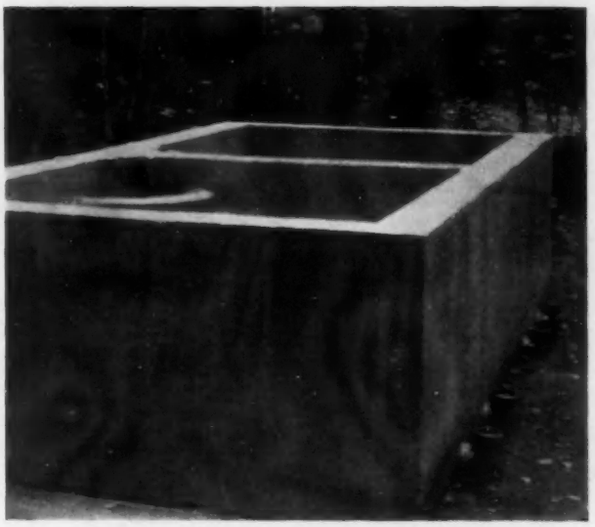


Fig. 8. Sand Filter for Bath Waste

dation must be carried depends chiefly upon the conditions of final disposal. Where the soil is practically non-absorbent and it becomes necessary to dispose of the sewage by direct discharge into a water course, the designer should ascertain whether the water course is used as a source of water supply below the point of sewage discharge. In such event, the oxidation should be as complete as it can be with the aid of sanitary science. If the water course is, however, tidal water and of large dimensions, such extreme refinement would not be necessary.

Soil Absorption. Where the soil is sufficiently porous and absorbent, the oxidation and final disposal occur simultaneously by subsurface disposal methods. The bacteria and the higher forms of life contained in the soil, with the assistance of the air which permeates it in its upper layers, perform the required oxidation before the oxidized sewage enters the deeper strata. Great care must be taken, however, to guard against the possible pollution of nearby wells or springs. Sanitarians generally consider a distance of 300 feet of an efficient subsurface sewage disposal plant as an adequate safeguard against well or spring pollution, unless local conditions, such as fissures in limestone, carry the sewage directly without oxidation to the water supply sources. Proper plant operation is most vital.

Subsurface disposal systems have the advantage of being out of sight, and the disadvantage of being out of mind. They usually consist of porous tiles about 12 inches in length, laid end to end with open joints, with the tops about 14 inches below the surface, in trenches from 12 to 24 inches wide. Good practice requires that these tiles should be surrounded with cinders, free from fine ashes, or with sand, gravel, or broken stone, when they are laid in non-sandy soil.

Tiles are made of various cross sections, such as horseshoe tiles, laid on hollow terra cotta blocks, or horseshoe-shaped tiles with horizontal partitions. These tiles should be laid with a fall not exceeding 6 inches in 100 feet. They are fed by main feeder lines,

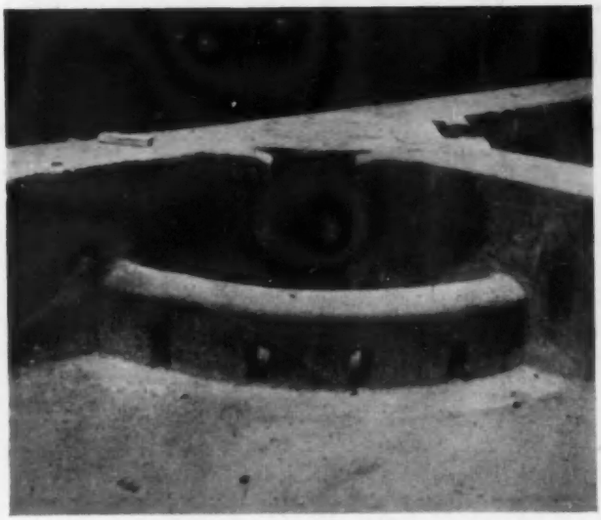


Fig. 9. Inlet to Sand Filter

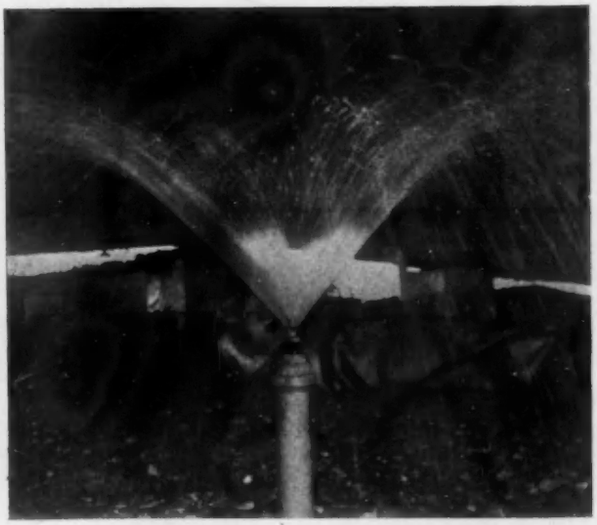


Fig. 10. A Sprinkling Filter Nozzle

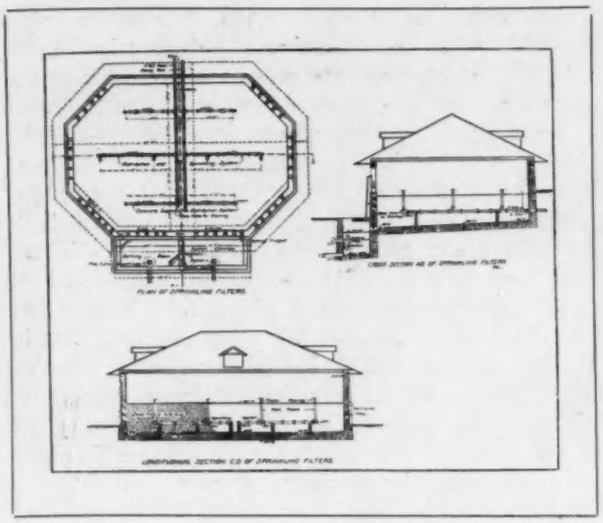


Fig. 11. Plan of Sprinkling Filter House

Fig. 12. Filter House of Good Appearance

usually of vitrified sewer pipe, with cemented joints. The connections between the feeder lines and the disposal tile branch lines should be made with great care, so that each disposal line branch will receive its proportionate share of sewage. Various means are employed to achieve this result, such as that shown in Fig. 6, which consists of vitrified tee branches facing down at a 45° angle, with a one-eighth bend connection to the disposal tile line.

Disposal lines (see Fig. 7) should be laid not closer than 3 feet on centers, and may be as far apart as the available area will permit. The absorptive qualities of the soil are also a deciding factor in this distance. A sandy soil will permit a greater percolation and therefore a greater distance between disposal lines.

Sprinkling Filters. The use of sprinkling filters may advantageously be resorted to as a comparatively cheap and efficient method of oxidation of sewage in cases where the ground is practically non-absorbent, and where the effluent can be discharged into a large or tidal stream, which is not used as a source of potable water supply. A sprinkling filter consists of broken stone, usually of about 1½-inch size, deposited to a depth of about 6 feet. The sewage effluent from the settling tank is applied to the top of the stone by means of sprinkling nozzles (see Figs. 10 and 11); it filters down through the stone, becoming thereby oxidized, and is collected in underdrains, which discharge it into a secondary settling tank. The effluent from this tank flows to the stream. While the degree of oxidation in an efficient sprinkling filter is quite high, the effluent is usually not quite clear and may contain pathogenic bacteria, so that it should not be discharged without disinfection, by liquid chlorine or otherwise, into a stream used for potable purposes. The sprinkling filter shown in Fig. 10 is housed in. This is a necessary precaution in golf club installations, in order to prevent objectionable odors in the near vicinity of such filters. The enclosures of the particular filters shown in Fig. 12 may be construct-

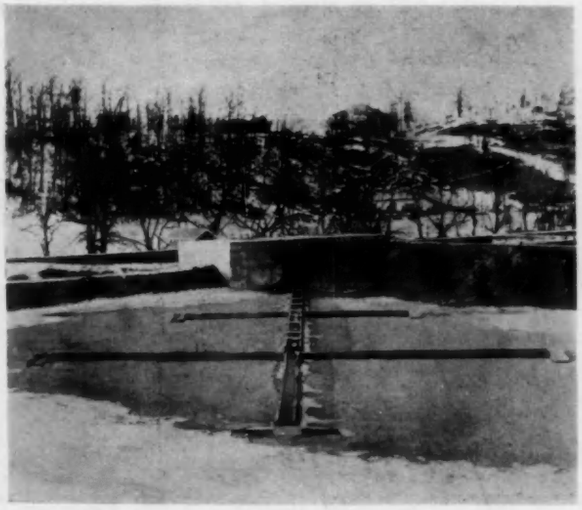


Fig. 13. Distribution by Wooden Troughs

Fig. 14. Well Concealed Pump Housing

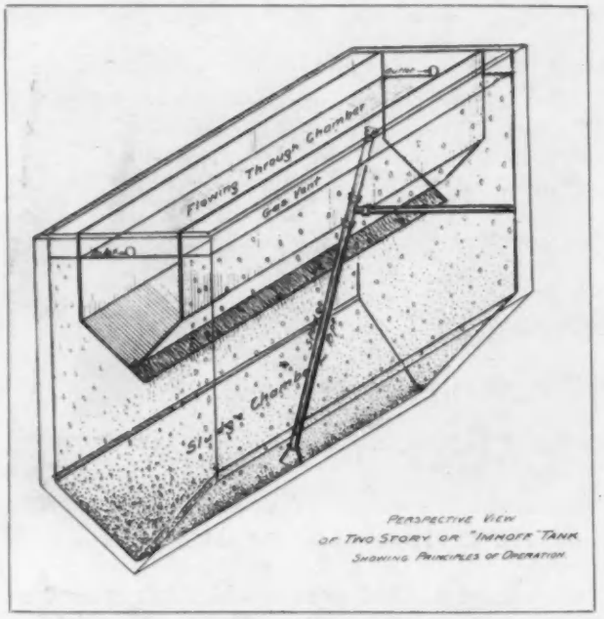


Fig. 15. Two-Story Horizontal Flow Tank

ed of a less expensive material, such as dry rubble.

Sand Filters. Where subsurface disposal systems are used for golf clubs, the installation of a rapid sand filter for the treatment of shower and bath wastes has already been recommended. A sand filter of this type is shown in Fig. 8, and a detail in Fig. 9. Cheaper construction than that shown in the illustration can sometimes be obtained by placing the filter in an excavation rather than building it within a concrete enclosure. In either case, if a filter is located among trees, a wire mesh screen should be placed over it to prevent an accumulation of leaves. Care must be taken in the design to guard against the erosion of the sand at the point of application of the sewage to the filter.

Sand filters are used where the effluent from the settling tanks cannot be absorbed by the soil and must be discharged into streams used below for drinking purposes. Sand filters are usually built in excavations and surrounded with earth banks. They consist of sand, as their name implies, and are underdrained to a common point, from which they discharge into a stream. They are usually 3 feet in depth, and the sand must be such as to have an effective size of not less than .35 mm. and a uniformity coefficient not much greater than 2. The distribution of the sewage over the sand filters is accomplished by means of wooden troughs, such as that shown in Fig. 13, or it may be accomplished by a series of half-tiles, as shown in the foreground of Fig. 12, which must be well supported.

Sprinkling filters are sometimes used to precede sand filter treatment, in order to reduce the size of the sand filters. Such procedure may result in the partial elimination of odors around the sand filter.

Sewage Pumps. It happens not infrequently that the sewage from golf club houses cannot be carried by gravity to the treatment or disposal plants. The use of motor-driven pumps may have to be resorted to in some instances, and it is suggested that their location and the design of their housing be such that they will be unobjectionable, as shown for instance in Fig. 14. A little study, with very little additional expenditure, will make even a sewage pumping station attractive in its appearance.

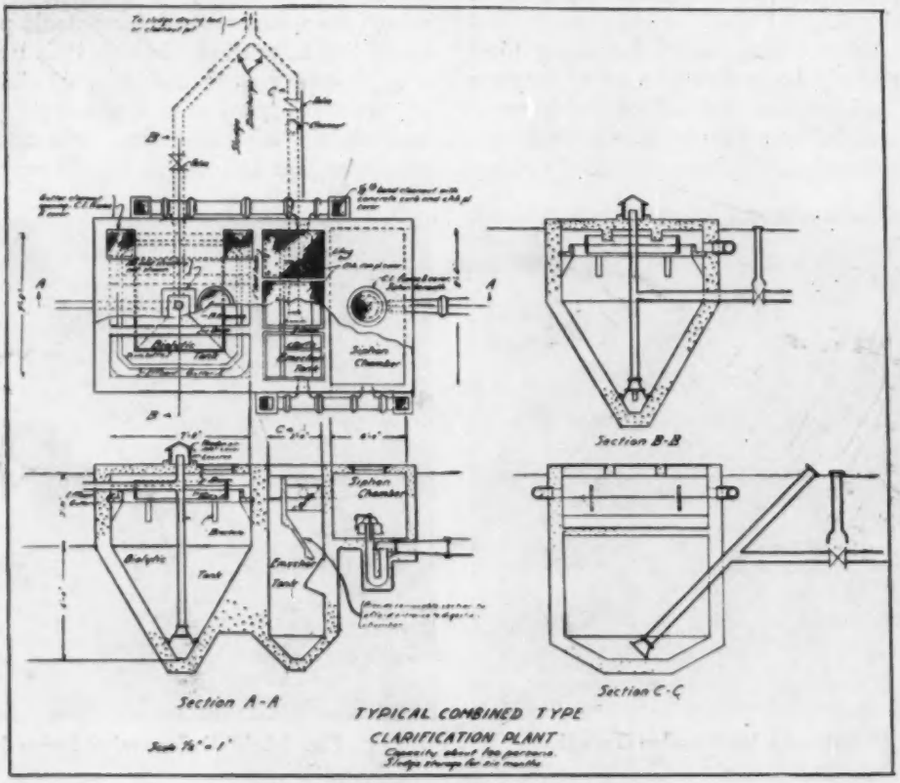


Fig. 16. Combined Clarification Plant