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JUNE, 1915

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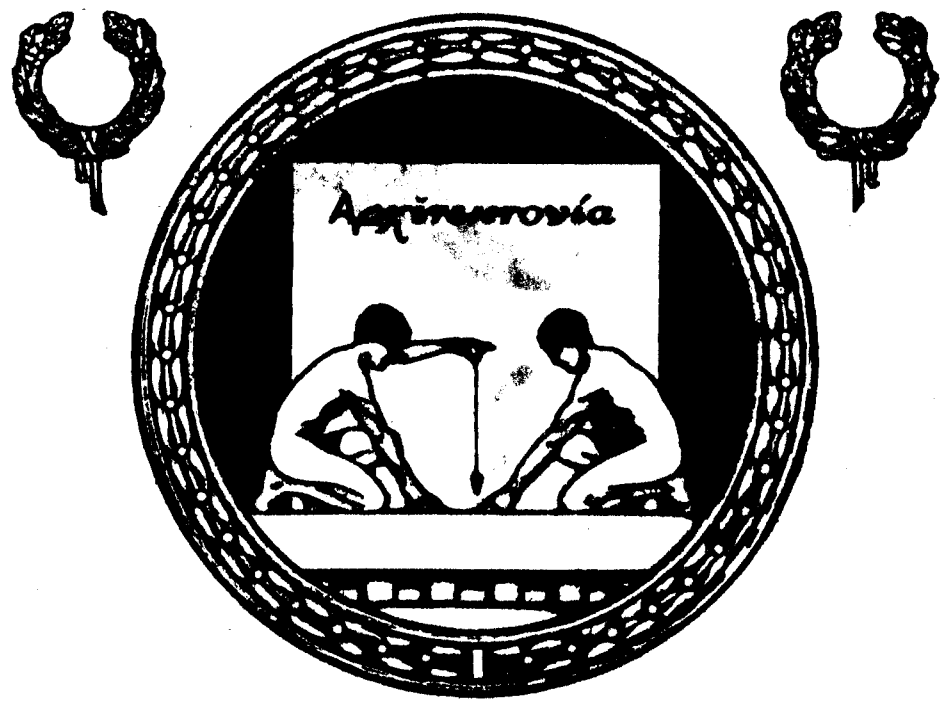
CONSTRUCTION

A · JOURNAL · FOR · THE · ARCHITECTURAL ENGINEERING · AND · CONTRACTING INTERESTS · OF · CANADA



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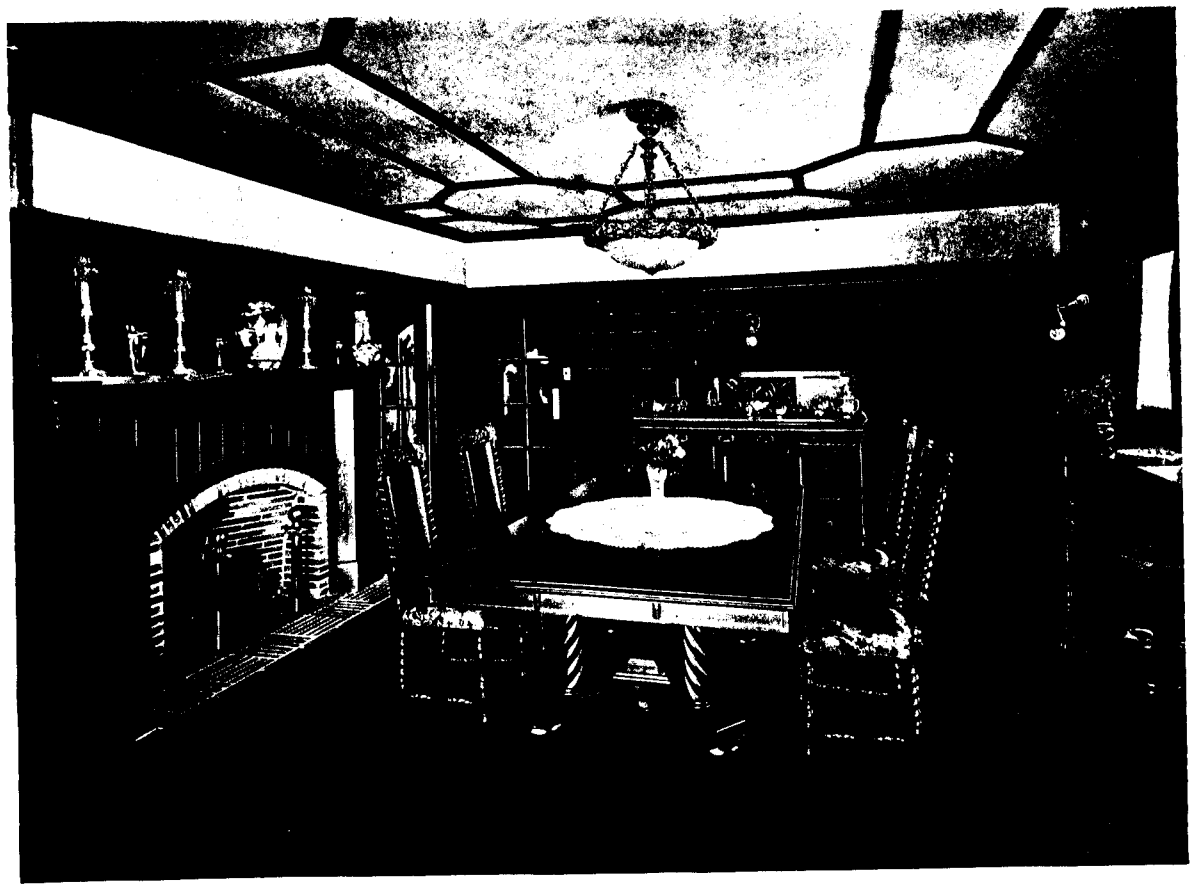

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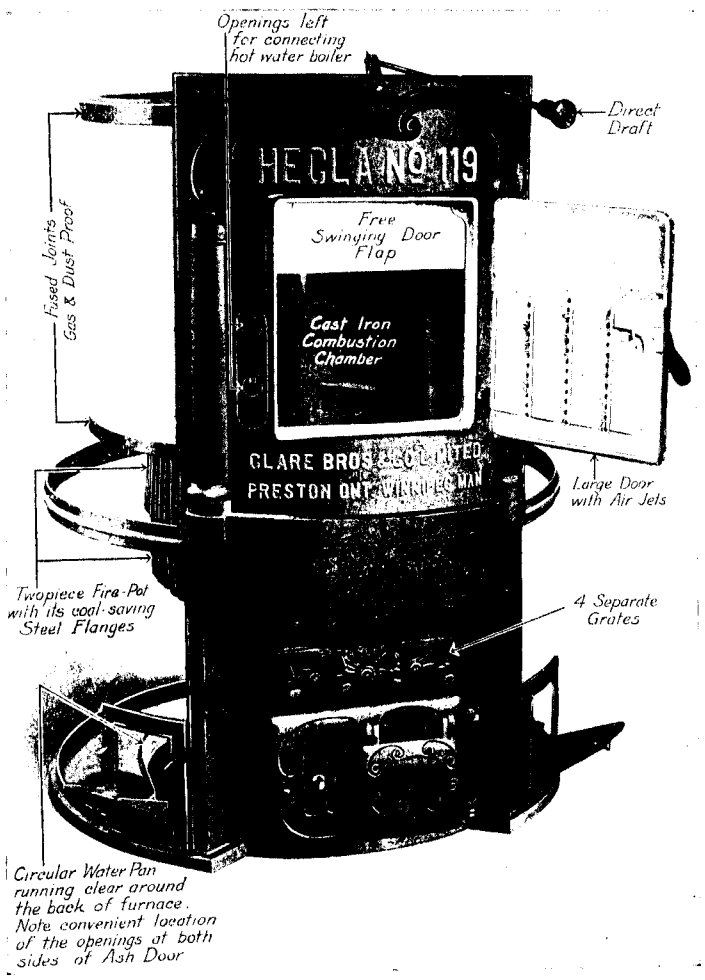

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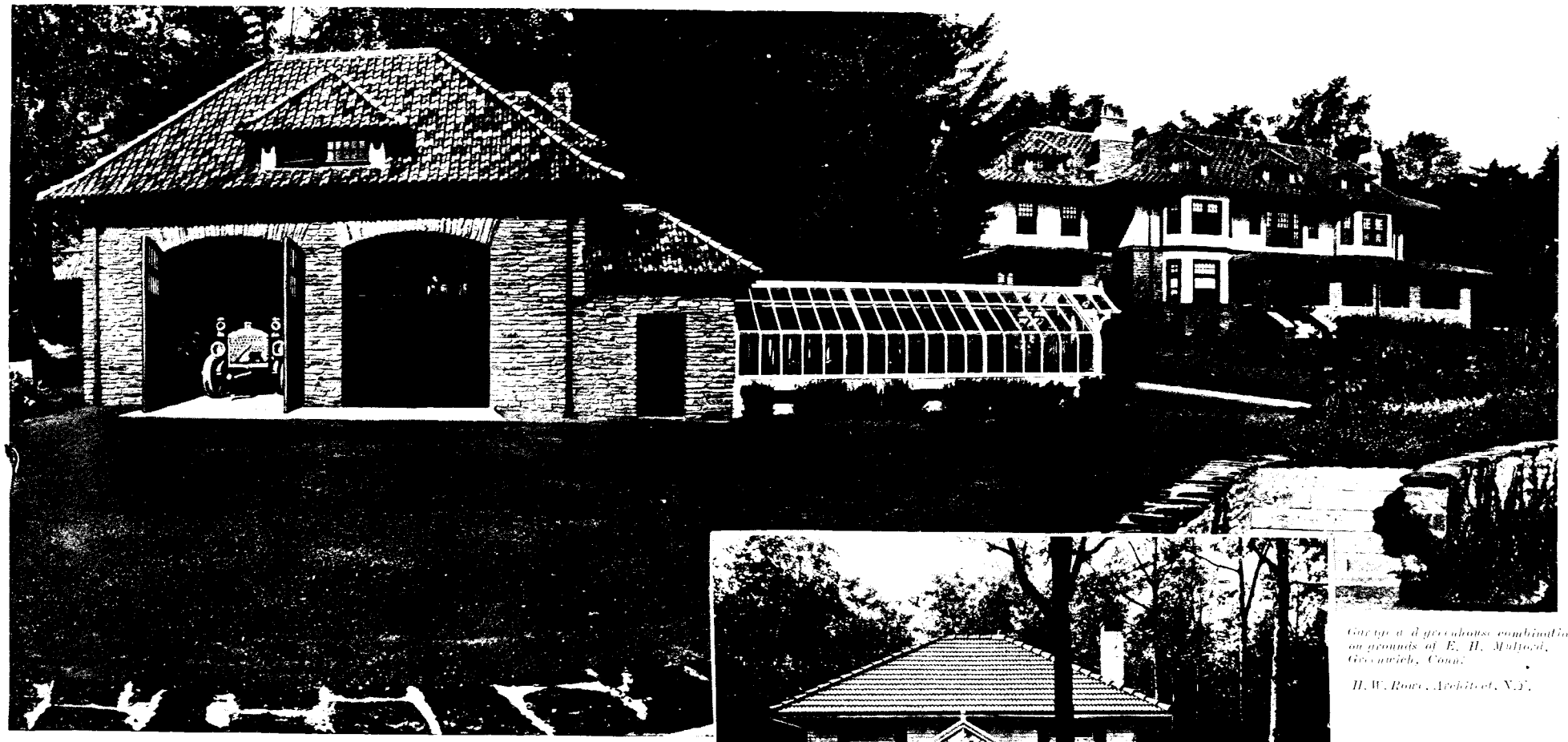

Garage and greenhouse combination on grounds of E. H. Mallory, Greenwich, Conn.

H. W. Rowe, Architect, N.Y.

Garage and greenhouse on grounds of O. G. Foreman, Glencoe, Ill.

H. L. Ottenheimer, Architect, Chicago.

BY WAY OF SUGGESTION

THE very practical practice of joining the garage and greenhouse, prompts us to take the liberty of suggesting a few points.

The necessity of having room for potting of plants, soil bins and the like, makes a work room essential. Whether it be a portion of the garage building or one joined to it, we would suggest there be no connection between the two; otherwise the fumes from the garage will injure the plants.

For both convenience and safety we would suggest that the boiler serving to heat the group; be placed under the work room.

Then there are the vital considerations of the placing of the greenhouse for best growing conditions; and the overcoming as far as possible of certain conditions apparently arbitrary; these are points for which we have frequently been able to suggest happy solutions.

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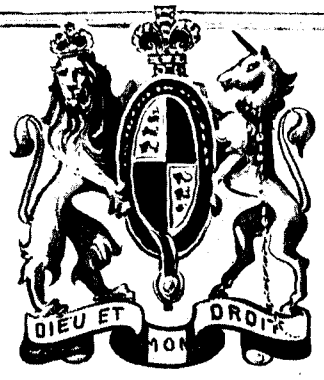

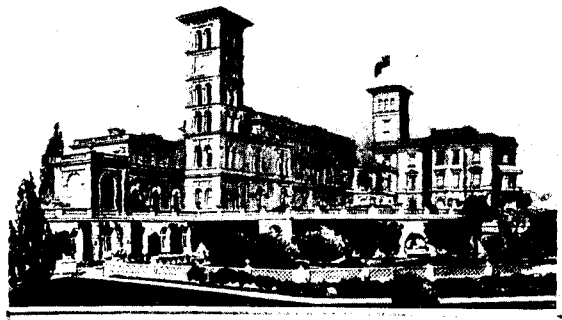

OSBORNE HOUSE, ISLE OF WIGHT
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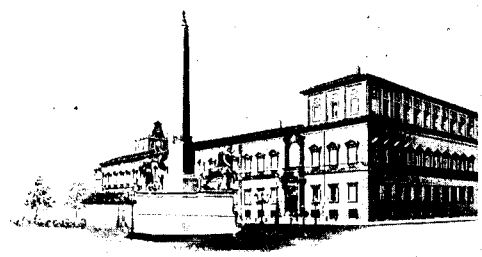

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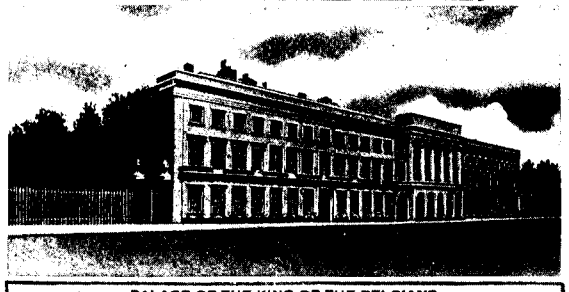
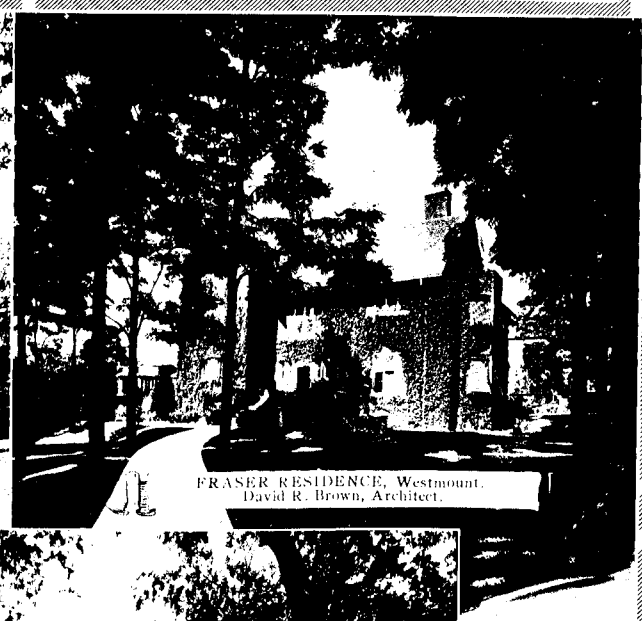


PALACE OF THE KING OF THE BELGIANS
BRUSSELS

BUTLER RESIDENCE, Montreal.
Robt. Findlay, Architect.



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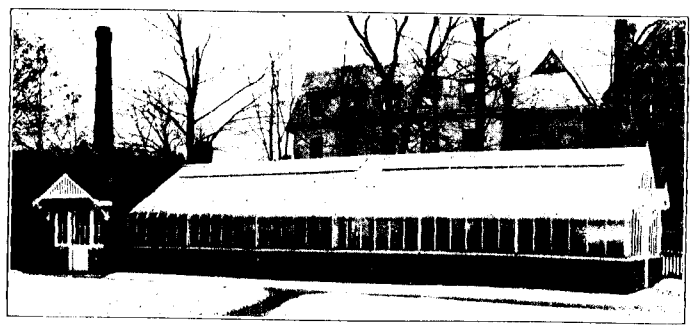

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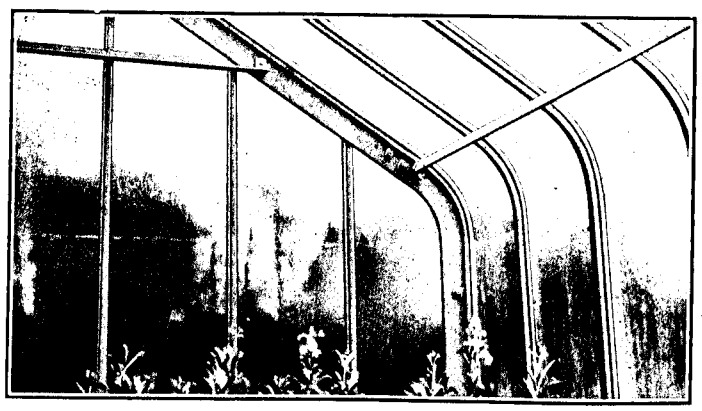

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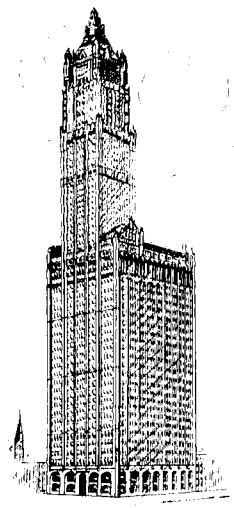

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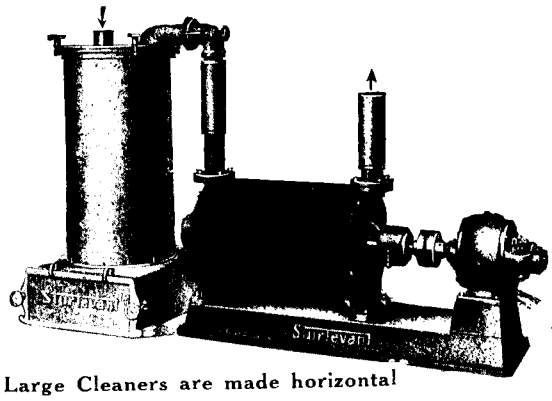

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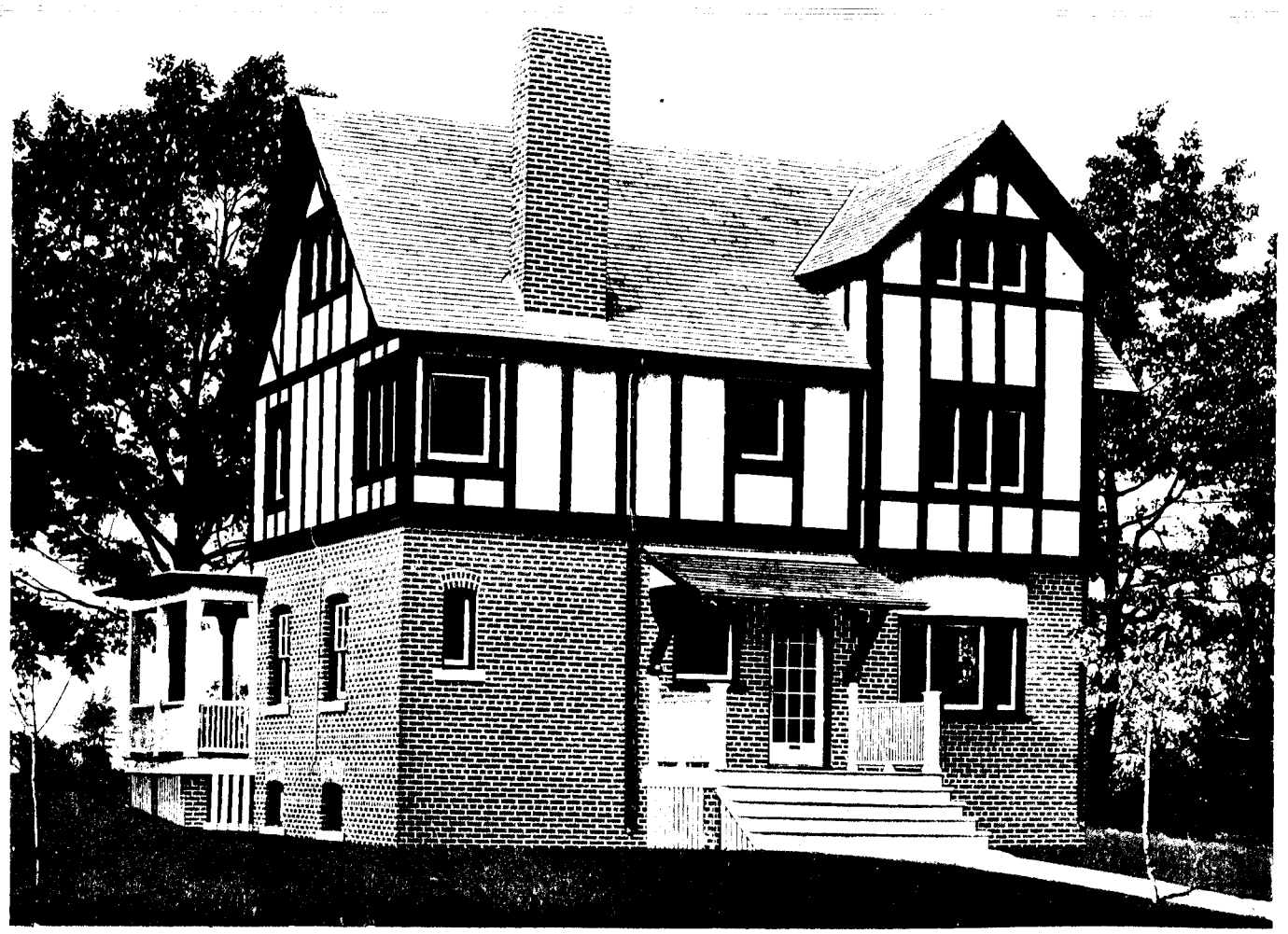

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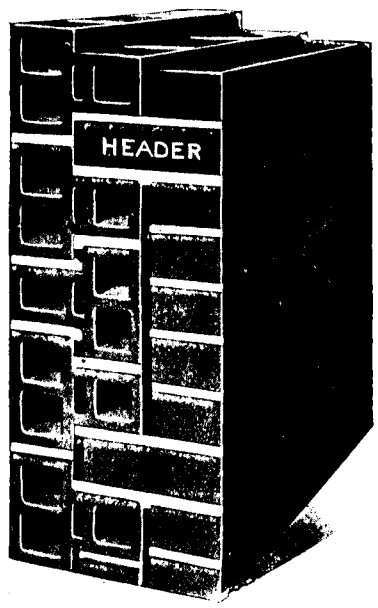

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It is the ideal method of construction, as the one size and shape builds all thicknesses of walls.

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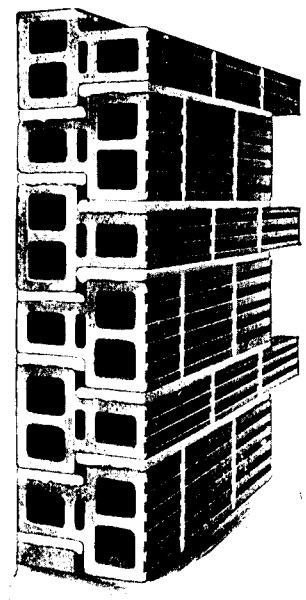

9-inch Wall.

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OPPORTUNITY is taken herewith to announce that we have taken advantage of the present condition of the building trade to re-arrange and overhaul our factory, making various changes to facilitate and handle future business; and that we have, through extensive experiments, perfected an improved process of manufacture which will enable us to supply a superior quality of "ROMAN STONE" at a considerable reduction from former quotations.

Our company was the first to introduce artificial or cement stone into Canada, and we have spent considerable money in developing and improving the composition and character of same. We have now the largest plant of its kind in Canada, at Weston, with a modern equipment of superior character in every respect.

It will be found that the new stone now being manufactured will give in every respect complete satisfaction to owners, architects and builders.

We have acquired an interest in the Canadian Art Stone Company, Limited, who make the best grade of face stone, and we are prepared to tender on all dressed stone work in both ROMAN and ART stone.

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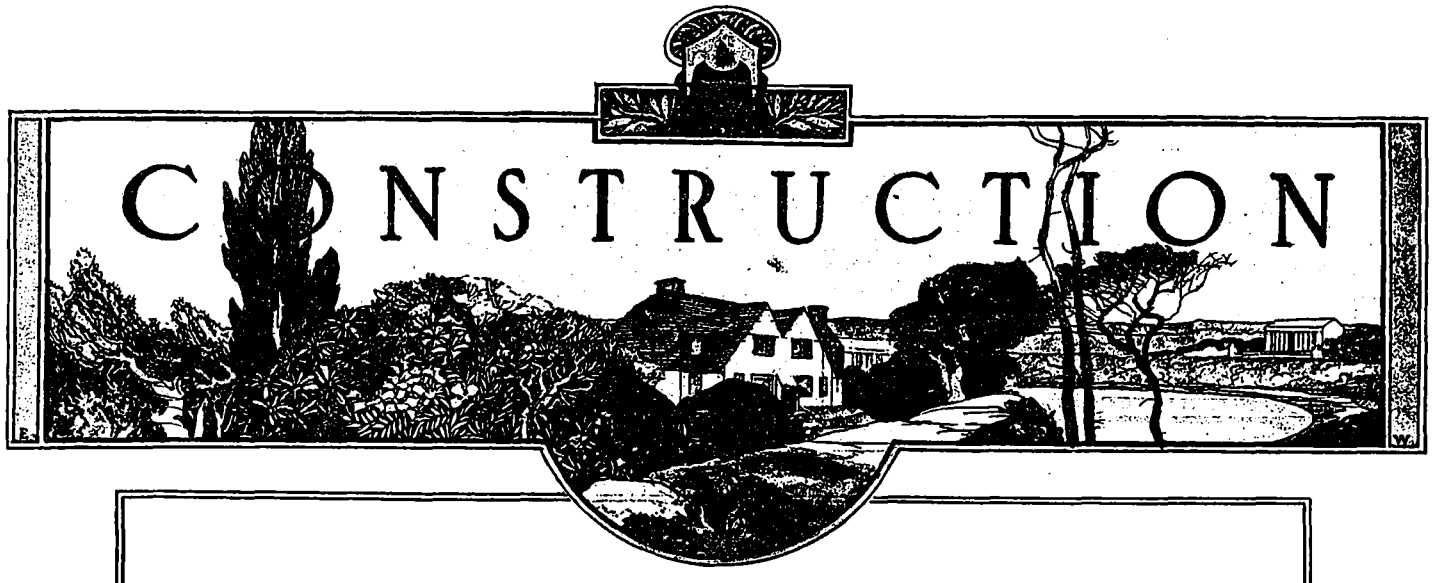

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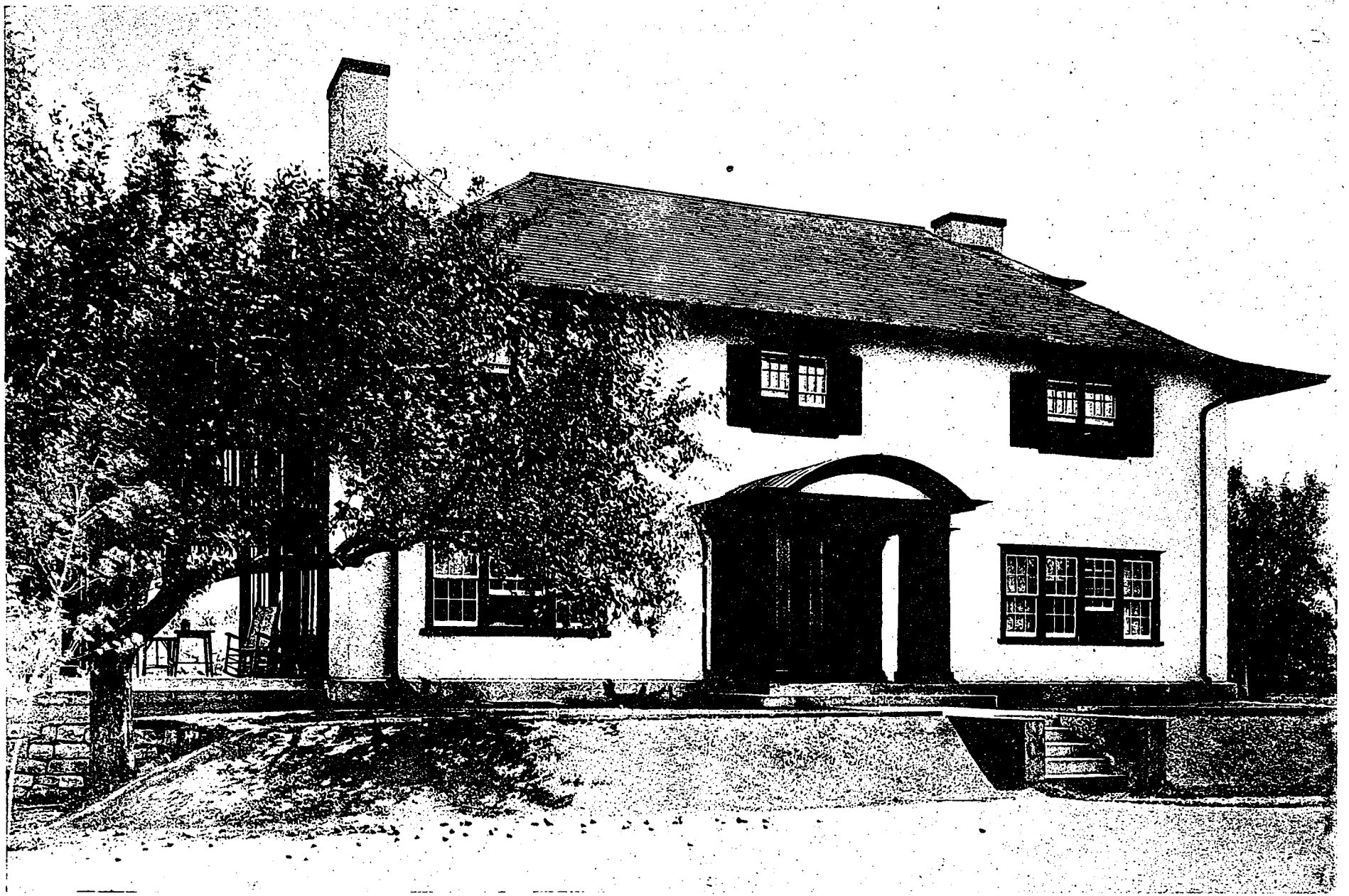


HOUSE AT ST. CATHARINES, ONTARIO.

A. E. NICHOLSON, ARCHITECT.

The Home of To-Day

"The call of the wild" is gradually changing our forests and streams from a rough, untenable region into vast country estates with pretentious homes and gardens or smaller divisions dotted with attractive bungalows and inexpensive but artistic dwellings. The former dread of rural living with its accompanying crudeness has disappeared. In its stead has come a longing to escape from the cramped and artificial atmosphere of our cities and enjoy the freedom and wholesomeness of natural surroundings. The desire is all the stronger since it is possible to combine the beauties of nature with modern conveniences.

Doubtless one of the great factors in producing such a radical change is the high cost of living, which has brought about a state of unrest. The price of food has risen rapidly, which naturally effects all phases of our existence. In direct contrast is the garden of our own fertile imagination, which we plant in hope, watch its daily growth with keen satisfaction, and take great pleasure in the final results. The same may be said of the live-stock, the grain, the chickens and the flowers—all a means of bringing color back into the wan expression and vigor to the care-worn body.

Along with the rejuvenation of the physical self from the abandonment of city shackles comes an eager desire to enjoy a real home in a real way. It must be convenient in arrangement, possessing the small accommodations which lend interest and charm to the general plan. The relation of the natural surroundings and the house, both externally and internally, should be brought into close harmony. The creation of man's genius should be inspired by the spirit of freedom, grace and beauty which affords such an artistic setting for one's work.

The last thought leads us to the conclusion that no dwelling can be termed successful unless it is built according to need rather than precedent. In this phase the designer can advise the client, thereby preventing the inclusion of any feature, antiquated or in bad taste. The owner in turn can keep the architect from yielding to the conventional and traditional, which often fails to meet the requirements of the size, the site or the amount of money available. By a careful analysis of the existing needs and a conscientious effort on the part of both to plan accordingly there is little doubt but that the finished product will be a real comfort from the esthetic side, as well as the practical.

So often the real harmony is lost by the introduction of too many craftsmen. After the architect comes the decorator, who, in turn, gives way to the furnisher. When completed there seems to be a discordant note. Somehow the sense of harmony has been lost and the client realizes that his dream is far from a reality. If the designer is really an artist he should be allowed to grasp the desired result from the very beginning and carry it through to the minutest detail. By so doing he plans with his decorations and furnishings in mind from the first, and consequently makes them a part of the whole scheme. This leads to creative work on a much broader plane and furnishes the right incentive for a man's best efforts.

It has been stated that the mainsprings of action in all of Barry Parker's home work in England and the reasons for the vitality and charm of everything he does, are the inherent principles that use and fitness alone must rule the planning and construction of all buildings, and that each structure must be designed as a whole and carried down to the last detail of furnishing. It is also true that Mr. Parker seeks the co-operation of his client in order to appreciate the tastes, needs and requirements of the people for whom he is to design the house. By adjusting his ideas of beauty to those of utility, and in turn persuading the owner to make certain concessions, the necessary sacrifices resulting therefrom produce a more artistic, comfortable and commodious house.

The love of the beautiful is a great boon to all progressiveness. Let us enjoy the constant appearance of inspiring buildings and the natural level of our character will be raised immeasurably. It is the unsightly which works on the nerves and makes people irritable, but let these same persons be surrounded by the beauty of sight, sound and smell, and they will immediately experience a feeling of restfulness. This, then, should enter into all home building, featuring such spots as the fireplace and the living room, with its comfortable furniture and pleasing design. One of the main essentials to this quiet repose is the question of color. Bright shades are conducive to cheerfulness, while others create a restlessness, dark ones are prone to engender melancholy or lend themselves by careful handling to ease and repose.

It is more than satisfying to see the high standard set by Canadian home builders, which betokens a development in domestic architecture that will eventually give us a characteristic style all our own, and as distinctive as the English house with its charming grace.

Characteristics of the Home

THE ENDURING QUALITY.

"I would have our ordinary dwelling houses built to last, and built to be lovely; as rich and full of pleasantness as may be, within and without. . . with such differences as might suit and express each man's character and occupation, and partly his history. . . When we build, let us think that we build for ever. Let it not be for present delight, nor for the present use alone; let it be such work as our descendants will thank us for, and let us think, as we lay stone on stone, that a time is to come when those stones will be held sacred because our hands have touched them, and that men will say as they look upon the labor and wrought substance of them, 'See! this our fathers did for us.' For, indeed, the greatest glory of a building is not in its stones, nor in its gold. Its glory is in its age, and in that deep sense of voicefulness, of stern watching, of mysterious sympathy, nay, even of approval or condemnation, which we feel in walls that have long been washed by the passing waves of humanity. . . And it is not until a building has assumed this character, till it has been entrusted with the fame, and hallowed by the deeds of men, till its walls have been witnesses of suffering, and its pillars rise out of the shades of death, that its existence can be gifted with language and life. For that period, then, we must build; not, indeed, refusing to ourselves the delight of present completion. . . but taking care that we sacrifice no enduring quality, and that the building shall not depend for its impressiveness upon anything that is perishable. . . And when houses are thus built, we may have that true domestic architecture, the beginning of all others, which does not disdain to treat with respect and thoughtfulness the smaller habitation as well as the large."—*John Ruskin.*

* * *

THE ESSENCE OF FITNESS.

"On going over a house you feel cheated if you find polished hardwood and marble freely used in the reception rooms, while bedrooms and offices are in painted deal, cheap and tawdry. The same degree of durability may be used without any sacrifice of fitness, just as you may have fine finish and smoothness in a jewel case, while strength and durability, equally valuable, belong to the travelling chest. Let no one suppose beauty can be wed to greed or vanity. A nation produces the architecture it deserves, and if in the main it is materialistic and sordid, we shall find all material qualities considered first and the moral and spiritual ones scarcely at all. Greed will crush out generosity, and shams will smother poetry and sentiment. Men will prefer the imitation grandiose to simplicity and dignity. Things will not be what they seem. Bodily comfort and luxurious enjoyment will be valued above grace and refinement. Indeed, the modern materialist will not admit there can be any moral qualities suggested or conveyed by architecture. He sees no harm in jointing his stucco to imitate stone construction. So it is we see what we look for.

"We must look for noble moral qualities in our fellow-creatures if we desire to find beauty. At present the world does not seek beauty, but expects to be given it for nothing—thrown in with a pound of tea. But nothing can be had for nothing in this life; and we must be prepared to pay—that is, make some sacrifice—for beauty, the sacrifice at least of devoted thought and loving endeavor. Let breadth, goodness and strength be the keynote throughout your building, and then no one will feel cheated."—*C. F. A. Voysey.*

* * *

THE ART OF PLANNING.

"In planning the arrangement of the house itself one should always be careful to leave free and ample spaces for the social life of the family, avoiding all unnecessary partitions which would entail extra outlay and add complexity to the housework. The living room with its fireplace should centralize the interest of the interior and sound the keynote of comfort and hospitality. The dining room and kitchen should be so arranged as to minimize the housewife's steps, and where no maid is kept the most sensible plan is to have the kitchen large enough to allow some of the meals to be taken there. For there is no reason why this part of the house should not be as cheerful and attractive and homelike as any other, and certainly where the mother has to do all her own work, both she and the family would get more real comfort by simplifying the serving of meals as much as possible. The convenient arrangement of stairway, bedrooms and bath, and the provision of ample closet and storage spaces will likewise need serious consideration. And in this connection we cannot emphasize too strongly the fact that the servant problem as well as many others of individual and national importance may be solved by the right kind of architecture.

"In the first place, the house should be itself, not an imitation of other houses; free from all false pretense or affectation of a luxury it cannot attain. In fact, style is the least important thing. If the house is built strongly and care-

fully, of suitable materials, to meet the owner's needs, with due consideration for beauty of proportion and detail, then it will be a law unto itself; it will have created its own style. And how much more permanent and wholesome an influence will such a dwelling have upon the lives of those within, and especially upon the children whose minds retain so easily the impressions of their early surroundings. They will unconsciously learn from it independence of thought, fearlessness of expression, love of simplicity and beauty and the sincerity of a true home atmosphere. When the building of our houses is undertaken in this spirit, then, and then only, may we hope to evolve an architecture that will last. Then only can we express in our homes that spirit of practical democracy which promises to be the ruling influence in our coming national life.—*Gustav Stickley.*

* * *

THE INFLUENCES OF COLOR.

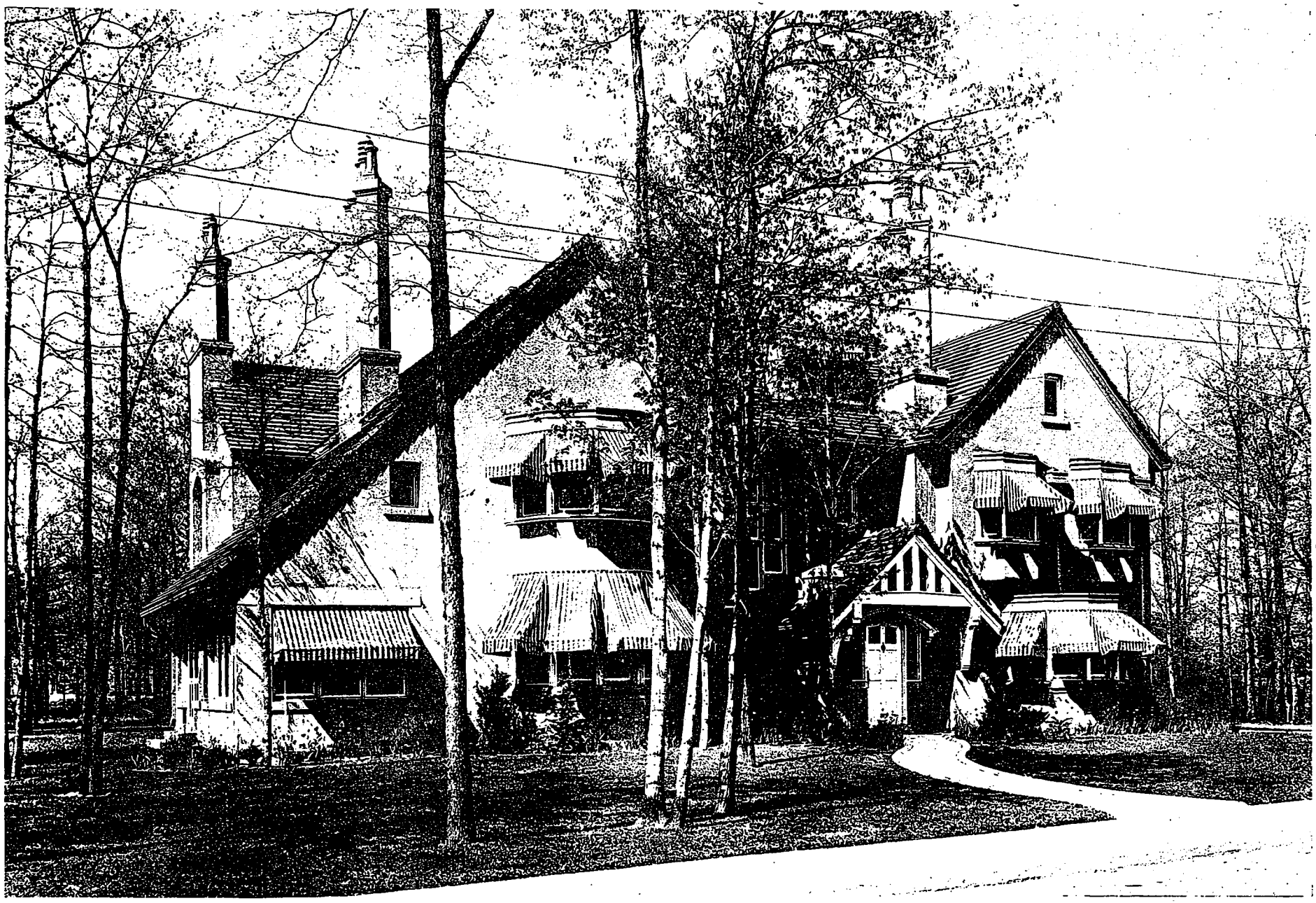
"In no other field has the right use of color been so neglected as in the furnishing of the home, and nowhere else could its influence be so wide or beneficent. The individual, spontaneous choice of color is not always best or wisest in the furnishing of a home. First, the mental influences of color must be taken into account. Consider, for example, the effects of the three elemental primary colors—yellow, red and blue. Yellow is nearest to sunlight. Morbid dispositions require this color, although they do not choose it. Yellow brings cheer and light into a dark, gloomy room. Red is symbolic of blood, fire and excitement. Since the keynote of all homes should be rest, and red in any large area destroys restfulness, it should be handled with special caution. It may be introduced successfully into drawing rooms, club rooms and dance halls, where gaiety and a certain amount of excitement are desirable. Turning now to blue, we find that it is calm, retiring, repressing in character. It is the coldest color note, and makes a room restful and cool. For this reason it is especially pleasing in warm sections of the country, in summer homes, in sunny south rooms, and also in bedrooms—for it is always suggestive of rest.

In addition to these primary elements, there are three equally powerful ones known as binary colors—orange, violet and green. Orange, the combination of yellow and red, is symbolic of light and heat, which makes it the hottest color possible. Since it is the strongest and most intense of colors, it should be used only in small areas, for emphasis. Violet, composed of red and blue, suggests heat and cold combined—which results in ashes. It is the color of shadows; it expresses restrained heat, or mystery and gloom, and this is the psychological reason for its use in mourning and in religious rites. The use of violet is not often practical in home furnishings, although it may be used to dim a room having too much sunlight. Violet hangings are pleasing where there is a large window expanse. Green, the result of mixing yellow and blue, expresses light and coolness. Generally speaking, it is the most successful color that can be used in interior furnishing, for it eliminates the nerve-exciting red, and combines rest and cheer—than which nothing can be better for a home. Color value should be consistent also with scale. That is, pale colors are appropriate for small rooms and for furniture which is light and delicate, while dark colors should be used in large, 'architectural' rooms and with furniture which is heavy in build."—*Marie Hall.*

* * *

THE OFFICE OF DECORATION.

"'Decoration,' said Morris, 'is the expression of man's pleasure in successful labor.' And this simple definition is particularly applicable to the art of home-making—from architecture down to the smallest furnishings and fittings of the interior. The office of decoration, he adds, is two-fold: 'To give people pleasure in the things they must perforce use,' and 'to give people pleasure in the things they must perforce make.' It is interesting to study these words—'pleasure in successful labor'—for they suggest an important principle—namely, that beauty, to be permanently satisfying, should be a natural, joyous outgrowth of practical conditions; that, like the flower, it should have its roots in the ground. The phrase recalls, too, that other axiom—that one may decorate construction, but never construct decoration—a rule that every home-maker should keep in mind. 'The world is still deceived with ornament,' lamented Shakespeare, and for many years this has been widely true. But the deception is one that is being gradually and steadily discarded, especially in the building of our homes. We are no longer satisfied with the kind of architectural frills that can be "nailed on." Ornate designs and gilded imitations are ceasing to attract us. The lure of the fake antique, the fascination of the imported product, and the charms of the once-popular but useless bric-a-brac, are on the wane. Instead we are building and furnishing and decorating for permanency. Good taste and intrinsic beauty are guiding our choice of fittings—not the ephemeral and unreliable tyrant known as "fashion." More and more we are doing our own thinking and planning and selecting, and expressing our own individuality in an environment that we ourselves help to create."—*The Craftsman.*

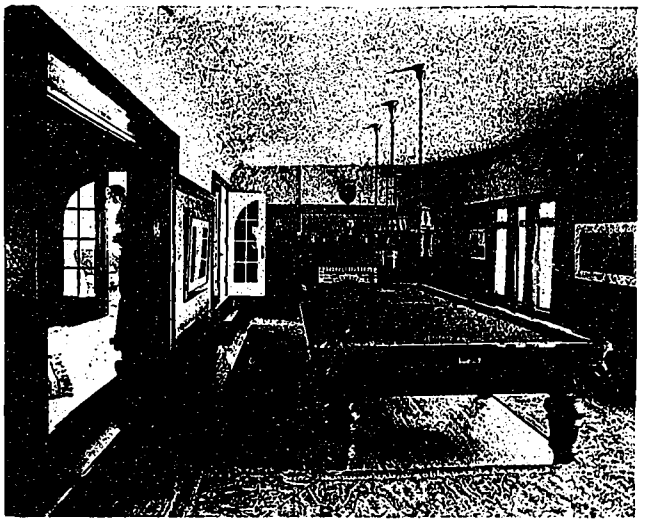


HOUSE NO. I.

PAGE & WARRINGTON, ARCHITECTS.

HOUSE AT TORONTO, ONTARIO.

DINING ROOM.



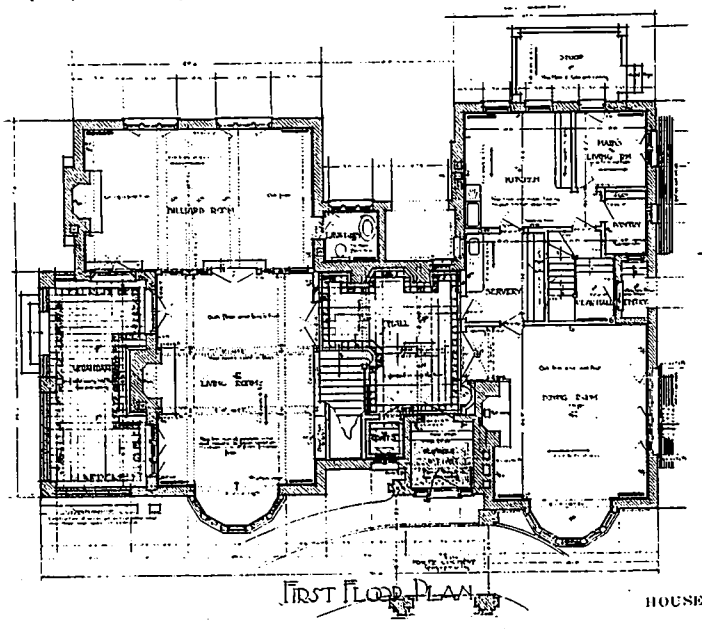
BILLIARD ROOM.

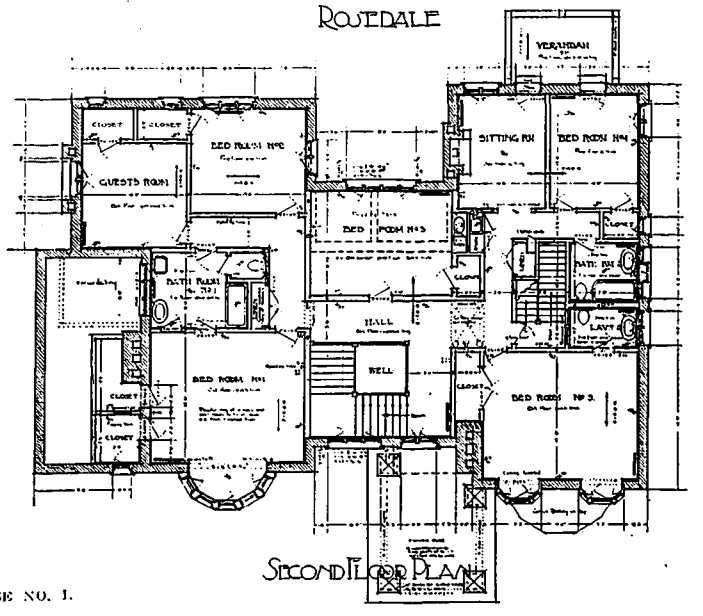
HOUSE NO. I.

Houses at Toronto, Ontario

THE house work in our suburban and country districts is gradually undergoing a complete change. Doubtless this fact is due to the interest manifested by clients who appreciate that the home of to-day is an important factor in their own happiness as well as a matter of no little importance in the education of their children. Another reason may be ascribed to the large increase of well-to-do people who believe in using part of their wealth at least for the betterment of their domestic living. Many sections are architecturally improved by the ruling that all houses must cost a certain fixed price and when such a condition exists the builder always seeks the services of one competent to design a home as tasty and attractive as those belonging to his neighbors.

With the abundance of building materials found in practically every locality, all of which play an important part in the artistic effect of carefully studied buildings, there is no excuse for the lack of proportion and harmony which has prevailed in the work of recent years. And it is evidenced everywhere that the home is assuming its proper sphere in the minds of everyone, a circumstance which enables us to illustrate houses of distinctive charm and esthetic value. The native field stone leads itself to rich and rugged results with colors varying from pale tones of blue and gray to the richer shades of green and red. Brick has and always will be one of the principal functions in residential work. The charm of the material is found in its mellowing qualities as years go by, as well as the intrinsic value of its colors, texture, varieties, bonds, etc. Another medium of unusual popularity is the cement finish capable of varying from the smoothest to the roughest surface and enriched by means of pebbles, tiles and color ingredients. Wood still retains its





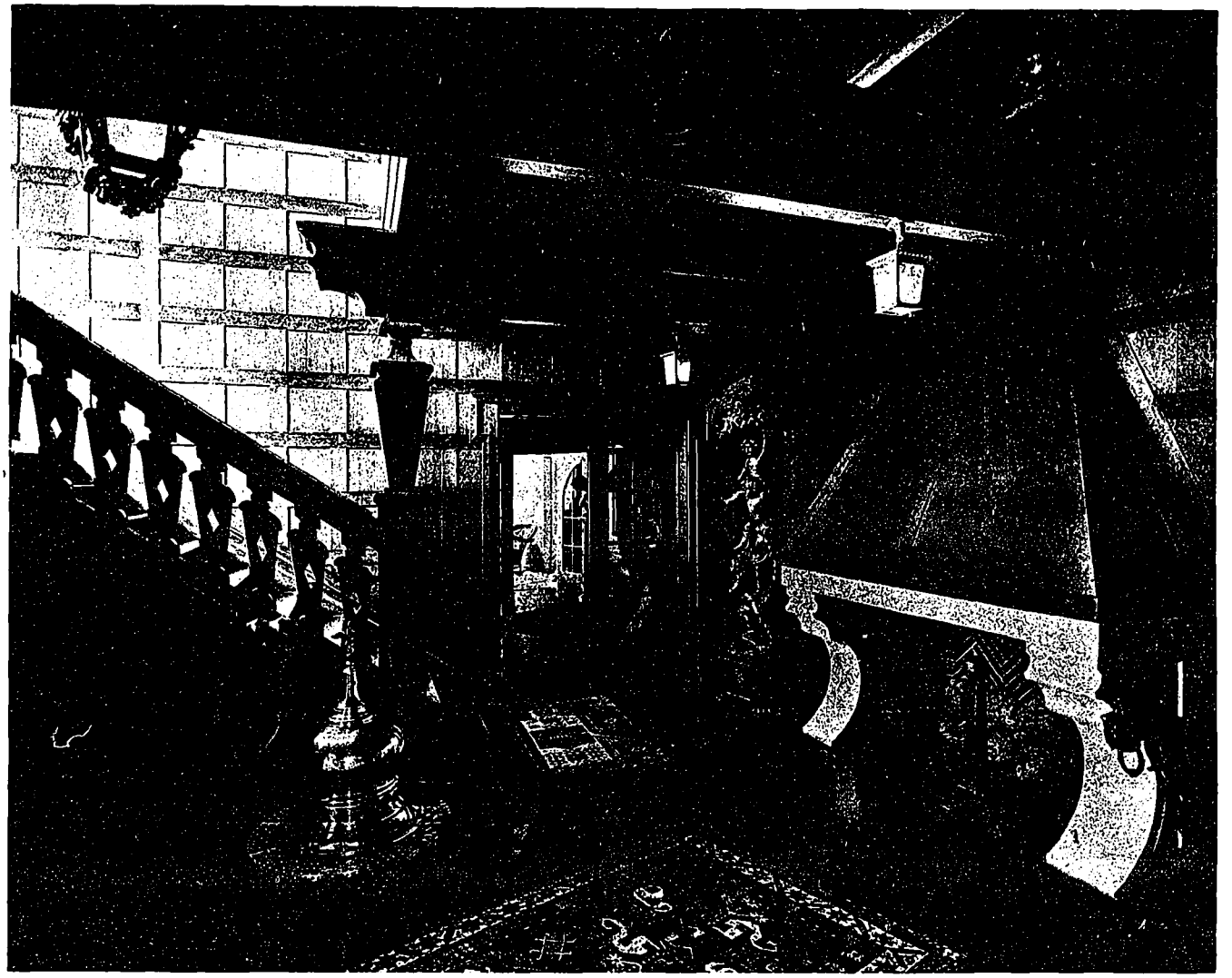
HOUSE NO. I.

HOUSE NO. I. LIVING ROOM.

charm when accompanied by natural surroundings. While half-timber work produces beautiful results if handled by artists who believe in honesty in workmanship and usage. Combinations of two or more materials are equally successful and afford a wide latitude to the architect.

The accompanying examples located in Toronto show exclusively the great strides made in house work among our suburban districts and should prove an incentive to more serious endeavor upon the part of all designers. A brief description of each building is given in order to add interest to the illustrations themselves.

House No. I.—The first residence to be shown in this connection is located at 30 Whitney avenue, and possesses an individual character in its white stucco treatment and green trimmings. The tile roofing, the chimney pots of tile, the down pipes, the rain water heads—all are of a greenish tone which brings the entire structure into perfect harmony. Casement windows are utilized with leaded glass. Upon the interior the vestibule, upper and lower halls are panelled to the ceiling in oak stained a rich dark brown. The halls are supplied with stone fireplaces, oak mantel and floors of red Welsh quarrie tiles with narrow black tile strips forming the joints. In the vestibule is laid flagstone for the flooring. The living room is panelled and beamed in mahogany, possesses a parquet floor, stone fire place and mahogany mantel; the dining room, while different in style, contains the same furnishings as the living room but executed in walnut. An attractive spot is the sunroom with its stucco walls and ceilings, floor of grey tile six inches square arranged in design with narrow green tile strips forming the joints. All rooms on the second floor have oak flooring; all bathrooms tiled floors and walls. The heating system is hot water supplied from twin boilers. One of the features which enter into the general effect of a successful design is the selection of the hardware, a matter of neglect among the majority of designers. In this plan considerable attention was given so that the thumb latch type of the various metals would match the general color scheme of the rooms; consequently black iron is found in the halls; polished brass in living room; bronze in dining room, and nickle in kitchen and bathrooms. The building has



HOUSE NO. I. HALL.

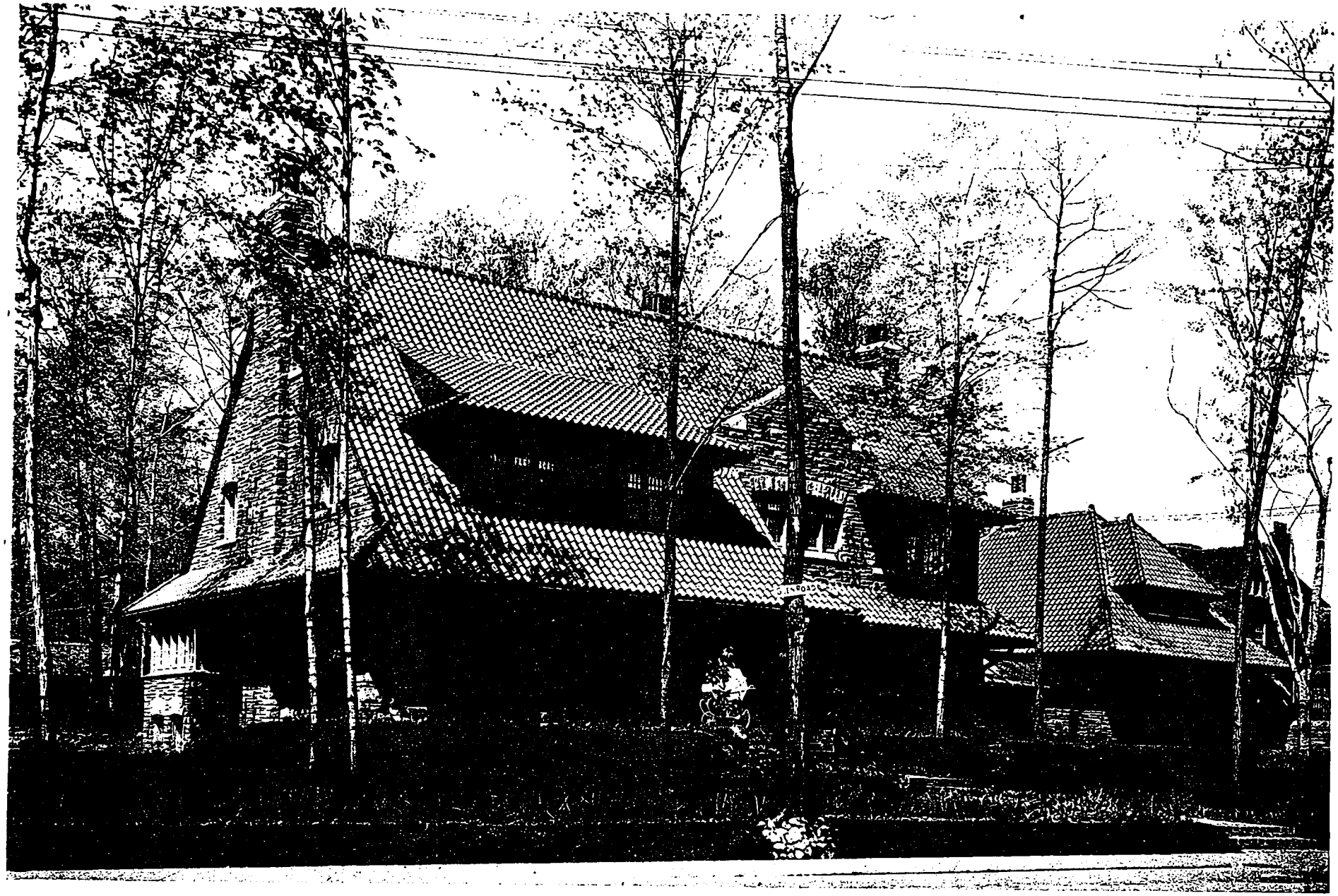
exterior walls of brick and cost approximately $30,000.

House No. II.—Probably no residence could have a better setting than this home situated on a corner lot facing the open square and located close to the new Government House. Exceptionally fine views are to be appreciated in every direction and lend additional interest to the structure finished in rubble masonary. The stone work is a mixture of Port Credit gray with a sprinkling of seam-face, red and blue Lakestone partly rounded. The roof is of Spanish tile; the verandah of Welsh quarry tile flooring. Upon the interior the hall is trimmed in quarter cut white oak; library and sitting room in cypress; dining room panelled in Circassian walnut in the Renaissance style with built-in side-board, carved mantel and heavy enriched staff ceiling containing inset electric lights; reception room has walls and ceilings decorated in the Adams style with marble fireplace; kitchen and bathrooms are tiled throughout. The windows are glazed with leaded glass. The house, conservatory and garage cost approximately $40,000.

House No. III.—Constructed entirely of mixed Credit Valley and Lakestone this building is charmingly located at Mimico Beach in a beautiful park of seven acres close to the lake shore. The feature of interest upon the interior is the large combined living room hall and dining room with two fireplaces finished in cypress. The building presents an attractive country residence and cost in the neighborhood of $9,000.

House No. IV.—It is situated overlooking the ravine in Strath Gowan estate in North Toronto and enjoys a setting of unusual interest and picturesqueness. The walls are of brick with the exterior finished in a smooth white stucco. The dining room is panelled in mahogany with a delicate staff ceiling; the hall and living room in quarter cut oak. The house was erected for $12,500.

House No. V.—Another example of the many homes which graces our suburban districts is this one located on Russell Hill road. The exterior is finished in yellow stucco on brick with a relief afforded by the white woodwork, green shutters and brown shingle roof. The entrance is in the basement with large billiard hall adjoining, all floored in red quarry tiles and walls panelled in quarter cut oak stained brown; which material is also employed for the ground



HOUSE NO. II. TORONTO, ONTARIO.

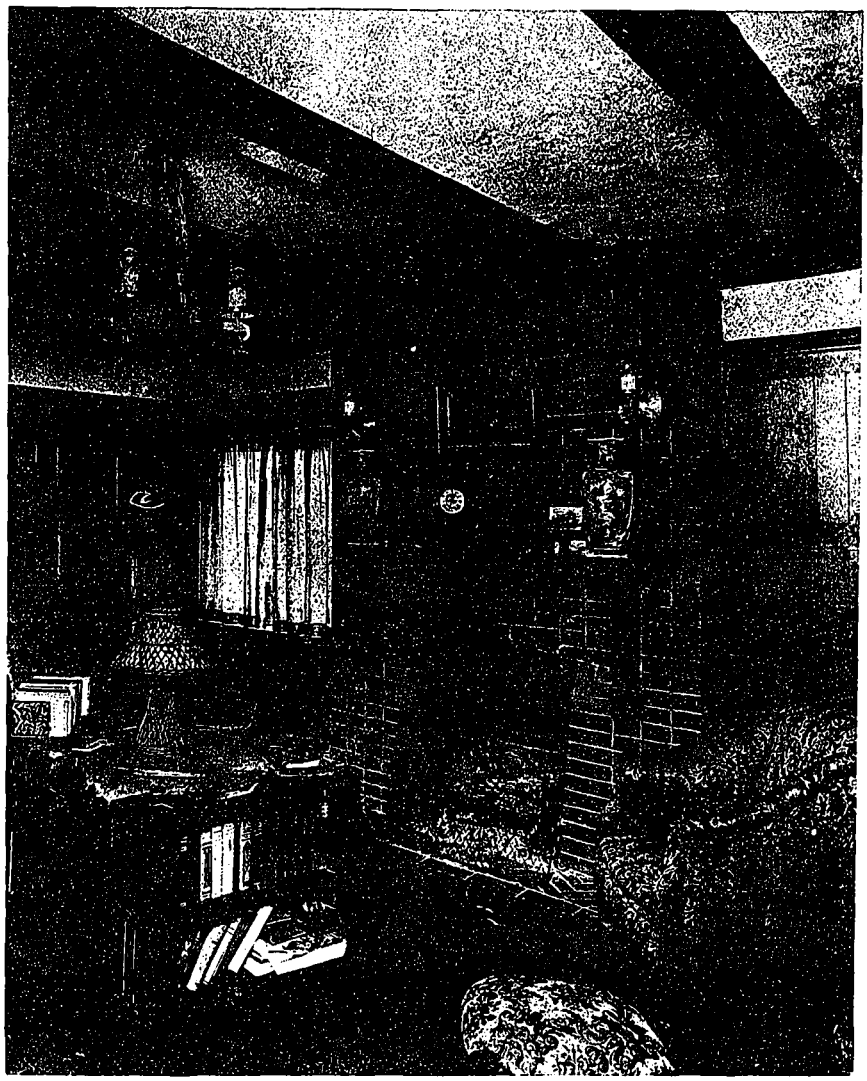
CHADWICK & BECKETT, ARCHITECTS.

floor, the hall and dining room being panelled. The cost per cubic foot was 33 cents.

House No. VI.—This structure occupying a prominent position at Clarendon Avenue and Poplar Plains is built of brick with gray stucco and brown woodwork. Upon the interior the treatment is in oak stained brown. One of the special features of the residence lies in the fact that all the important rooms have a southern exposure. It is well constructed and cost approximately 28 cents per cubic foot.

House No. VII.—This house is built on a lot overlooking the Rosedale Golf Course, the garden running down to the creek bounding the course, affording beautiful views from all sides. It has an area of fifty-four feet by one hundred and five feet, exclusive of the paved verandah twenty feet by fifty feet, which extends across the east end. The external walls and some of the partition walls on the principal floor are of hollow tile, and the outside is roughcasted in a natural color. There are five reception rooms, eleven bed rooms, five bath rooms, and the usual servants' quarters. A pleasing feature is the vista obtained from the hall and vestibule as you enter the house, the wooded ravine being seen through the glazed doors and screen of the garden entrance. The whole of the main floor and staircase is finished in quarter cut oak, the floors throughout being hardwood. Steel casement windows with leaded panes have been used. The cost is approximately twenty-two cents per cubic foot.

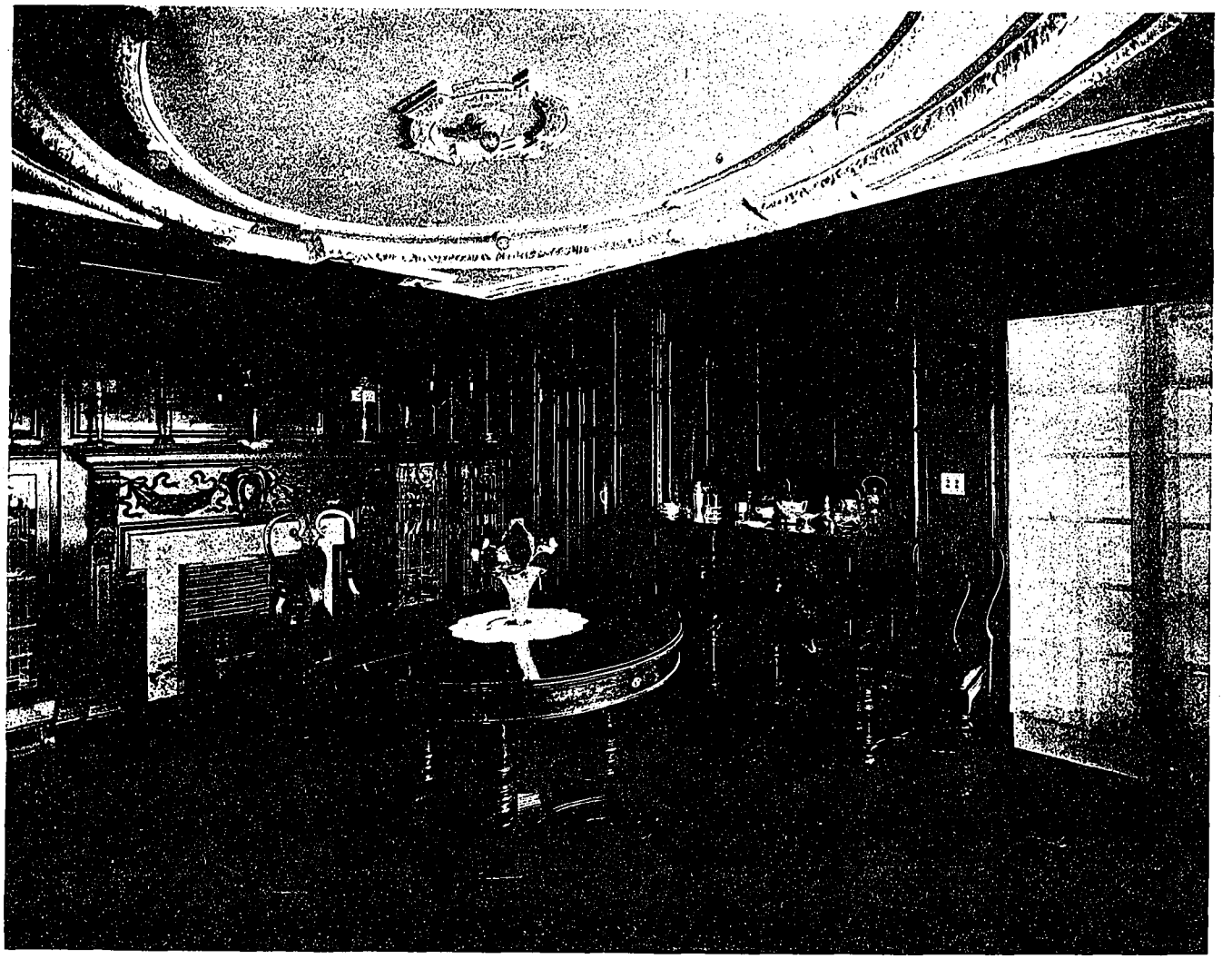
House No. VIII.—This residence, located at Weston, Ontario, is of frame backing, with pebble dash finish. In order to obtain perfect construction with a view to minimizing the danger of cracks in the exterior coating it was decided by the architect to have the carpentry work done by day labor. The decision was eminently satisfactory as no break in the pebble dash has appeared, the structure being built in 1912. In attaining this result it was found that solid brick could have been substituted in place of the frame at a lower cost which was approximately $5,600. The outside walls are constructed of two by four inch studding, covered with seven-eighths sheeting which in turn is protected by heavy fire and waterproof felt strapped with one by two inch pieces and over all is wood-lath reinforced at the angles with metal lath. The first coat of stucco was allowed to dry thoroughly before the application of the second and washed limestone chippings dashed into the surface. Attention was taken to avoid any construction which would tend to cause shrinkage in the walls. The interior trim is quarter cut oak fumed on the ground floor; the bedrooms of basswood painted white. Upon the verandah are laid nine inch squares of Welsh quarried tile, while the fire place in the living room is treated in ceramic tiles of various mixed designs.



HOUSE NO. II. SITTING ROOM.

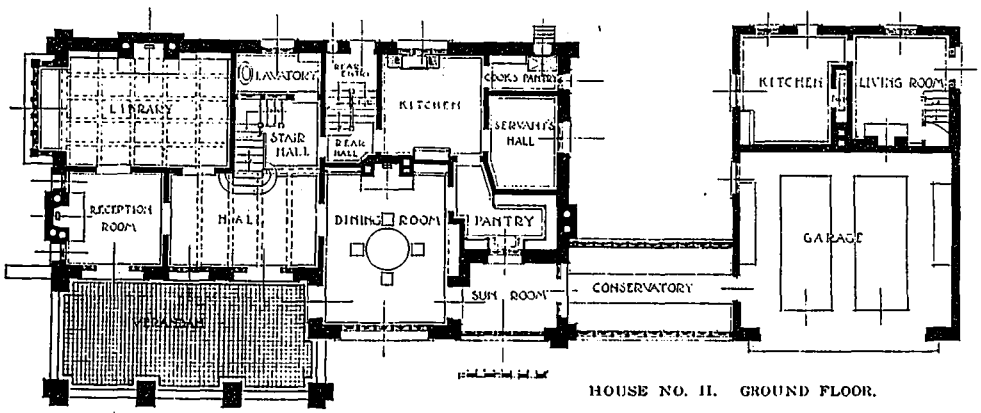
This last example in avoiding sham recalls Ruskin's statement that, "whenever the arts and labors of life are fulfilled in this spirit of striving against misrule, and doing whatever we have to do honoraby and perfectly, they invariably bring happiness. A great architect does not build with less instinct than the beaver or the bee, but with more—with an innate cunning of proportion that embraces all beauty, and a divine ingenuity of skill that improvises all construction.

House No. IX.—The problem of this house at



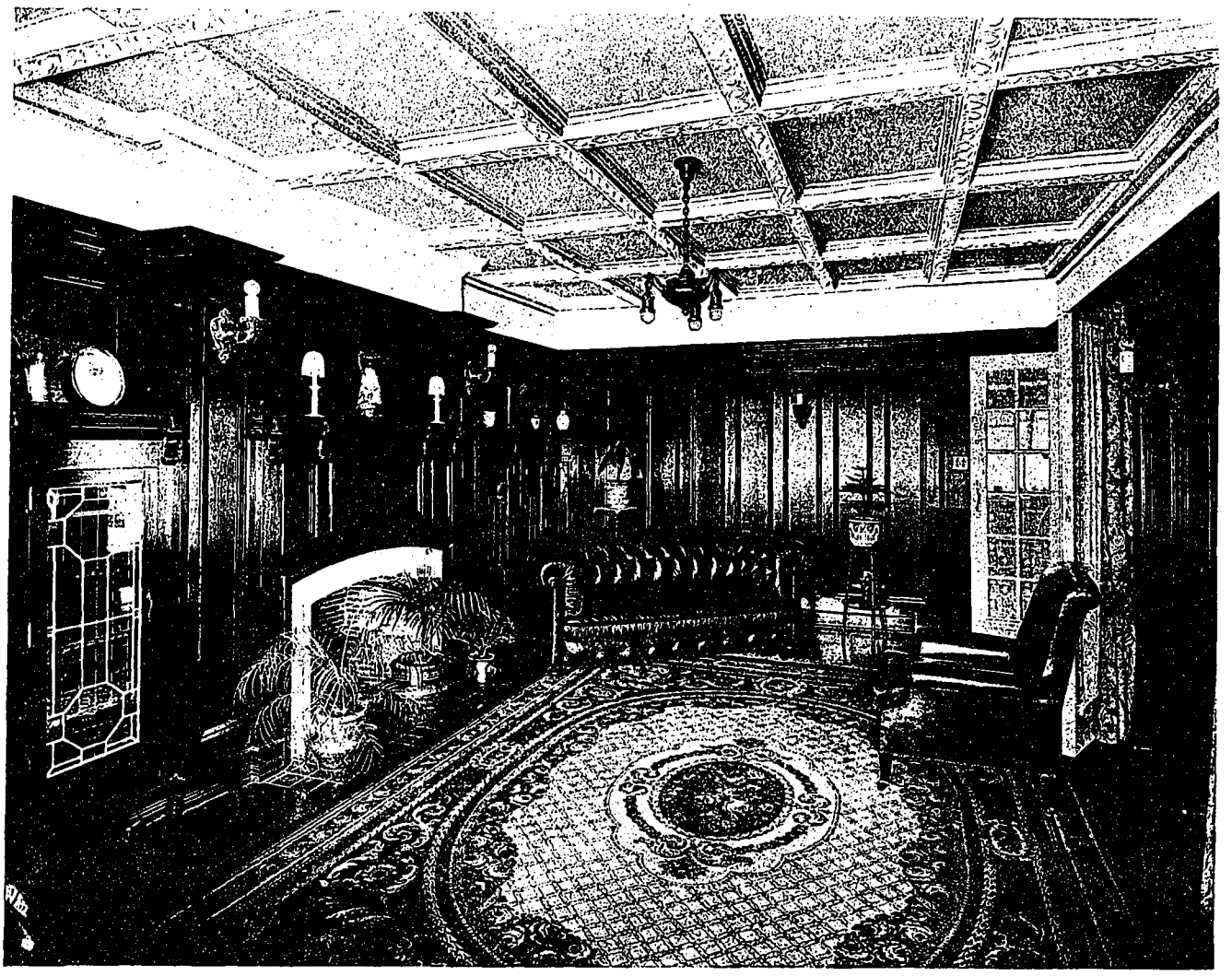
HOUSE NO. II. DINING ROOM.

Weston was to erect a six roomed dwelling with bath and other accessories at an outside figure of $3,200, inclusive of everything. The building was completed for a sum slightly less than the amount stated, accomplished by using direct methods without detracting from the esthetic value for which the designers had striven. River stone is used for the foundation walls up to the ground floor joist-level as this material is local; plain red brick laid on one-half inch white weather cut joint is employed up to the light gray line, mortar applied to solid brick with deep yellow marble chips dashed into same when in a plastic slate. The lintels over the ground floor windows as well as beams of the porch and verandah are constructed of two by twelve inch pine in the rough, fastened together with the large bolt heads showing, there being no attempt made to conceal the fact that these supporting members are built-up beams. There are practically no eaves, the gutters being attached to the fascia which is in turn fastened securely to the pebble dash. A further reduction in cost was effected by detailing the inside of the window frames so as to take the place of extra trim around the openings. The verandah with concrete floors and accessable to the dining room faces the south and has absolute privacy from the public. Located at the angle formed by the street, the bay window of the living-room takes advantage of an extensive view. The house was built in 1914 and presents a charming ensemble without any suggesting or straining for effect.



HOUSE NO. II. GROUND FLOOR.

House No. X.—This residence is situated on Douglas

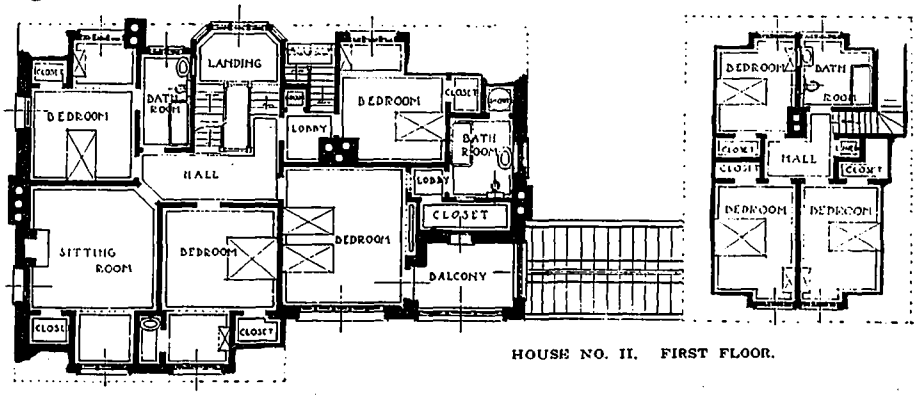


HOUSE NO. II. LIBRARY.

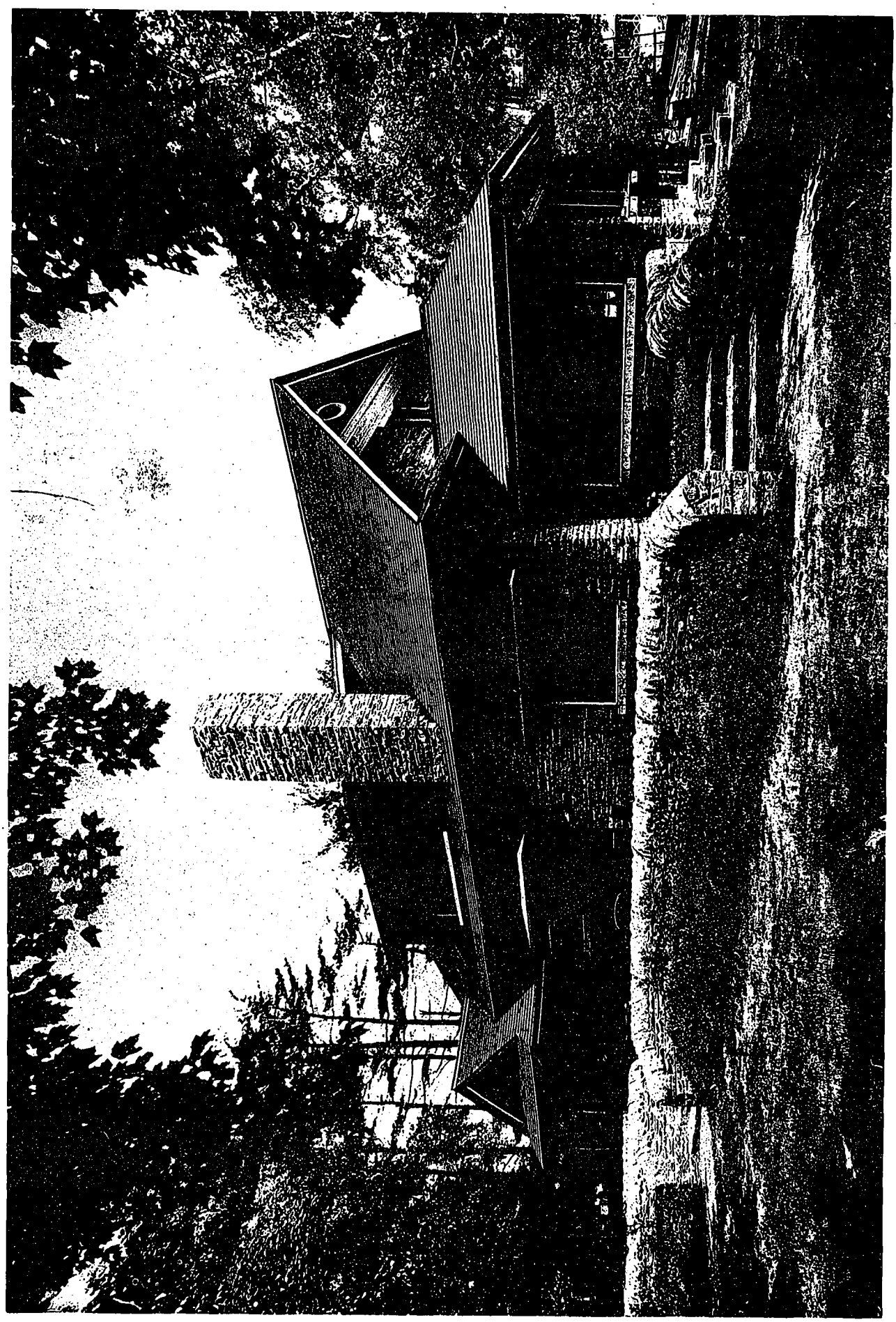
Drive, North Rosedale, overlooking the new Government House property. It is in the Georgian style, built of dark red stock brick with wide white mortar joints and trimmed with grey stone, stone rail and balusters on the front balcony. The exterior woodwork is painted white, and furnish a contrast to the shutters, which are painted a dark green color. The floors in all rooms and closets on first and second stories are of oak, while those in the attic are quarter sawn Georgian pine. The halls from first floor to attic are finished in white enamel with mahogany doors and mahogany newels, rails and steps on the stairs.

The living room is treated in dark English quarter sawn oak, and the dining room and reception room in birch mahogany. The walls of these principal rooms, as well as the halls, are painted on fine canvas having a general tone of color carried throughout with a soft stippled and slightly shaded effect. The rooms in second story are all decorated in white enamel, the doors in this story being of select mahogany with surfaces finished entirely flat and without mouldings, but having a small insert of holly and ebony carried around same, forming a flush panel. The attic in general is finished in similar manner to the second floor. The bathrooms on the second floor have tile floors and wainscots, also Italian marble shower enclosures, while the one in the attic has a wood floor and cement wainscot. There is a large billiard room in the basement with a brick fireplace, a servants' bathroom and the usual laundry, store rooms, furnace room, etc. The cost of the building was twenty-one cents per cubic foot.

In treating of the various essentials which combine to make "the house enduring,"

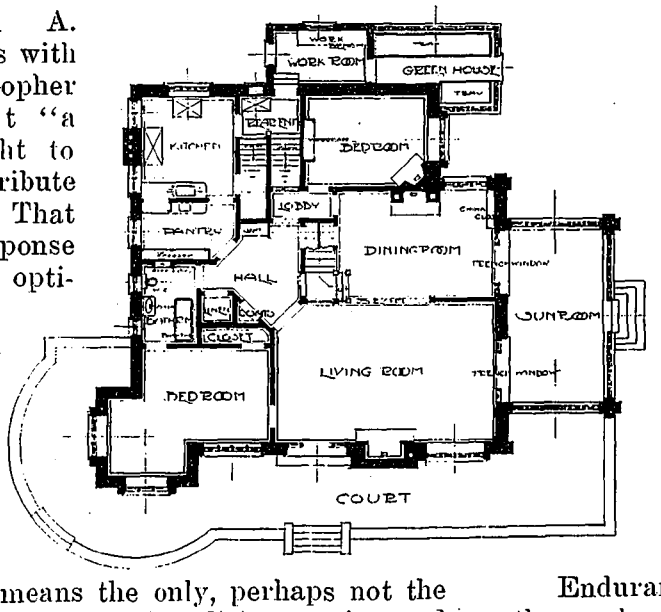


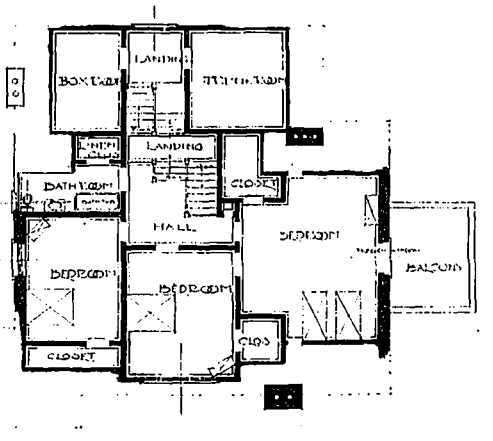
HOUSE NO. II. FIRST FLOOR.



HOUSE NO. III. MIMICO, ONTARIO.
CHADWICK & BECKETT, ARCHITECTS.

LIVING ROOM AND PLANS.

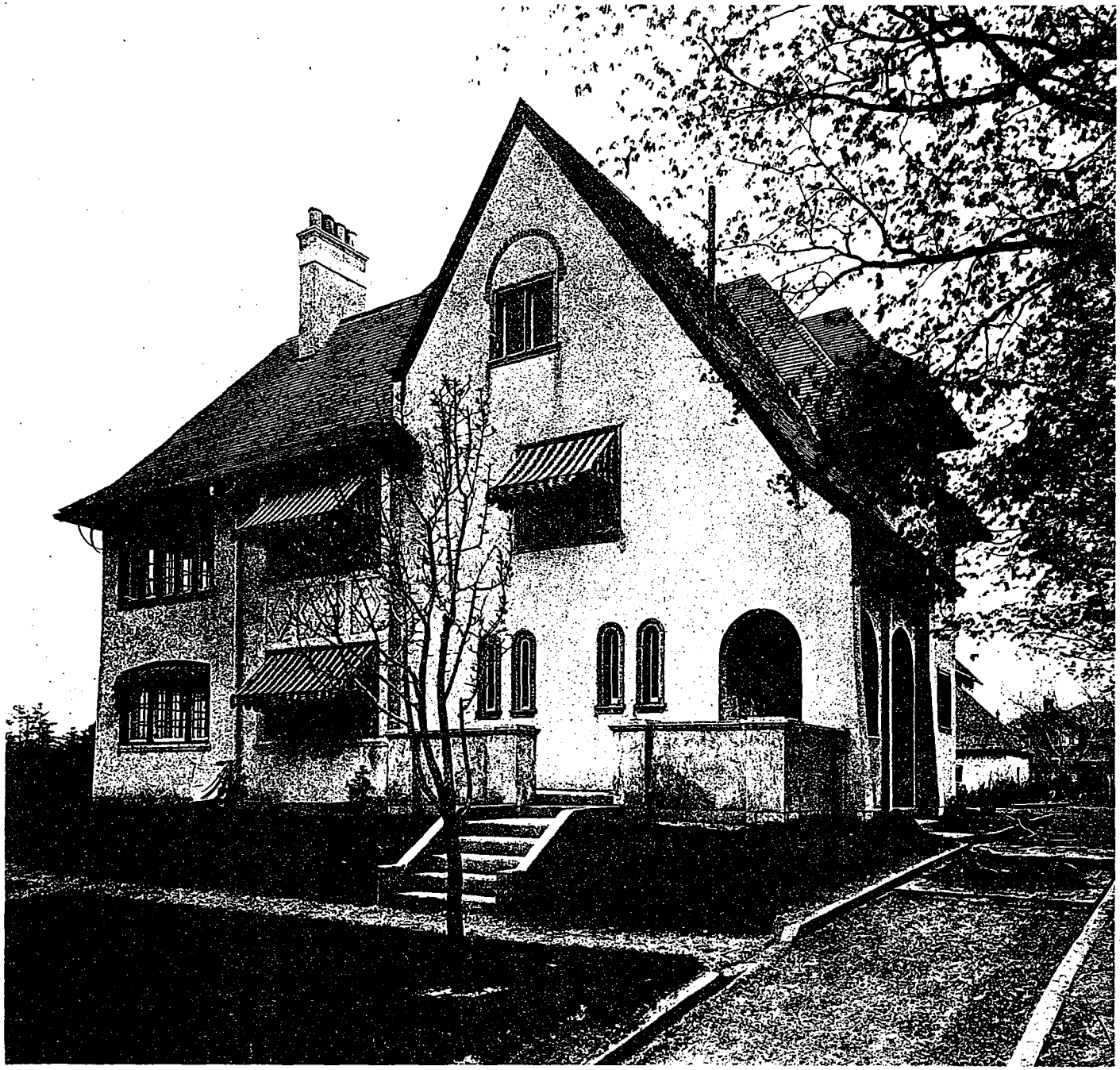


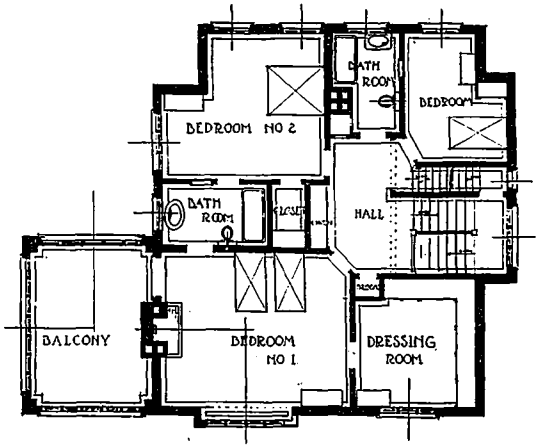


HOUSE NO. III.

Benjamin A. Howes agrees with Sir Christopher Wren that "a building ought to have the attribute of eternal." That the first response of our easy optimism to this is to point to the increasing tale of our fire-proof structures. But the accident of fire is by no means the only, perhaps not the principal, agent of building disintegration and destruction. Barring the hazard of earthquake, tornado, and flood, many fire-resisting buildings yield extensively to the tooth of time and of weather. Certain it is that the truly enduring house must add to fire safety many other qualities which are very deserving of study by those who plan a permanent home.

Endurance is after all, and in spite of theory, less a question of materials than of integrity of structure and protection against destructive agencies—rending movements, water penetration, and fire. The reason why reinforced concrete makes the most indestructible building is not that it is fireproof, but that it stands highest on all three of these counts. But protection against weather and against strains can

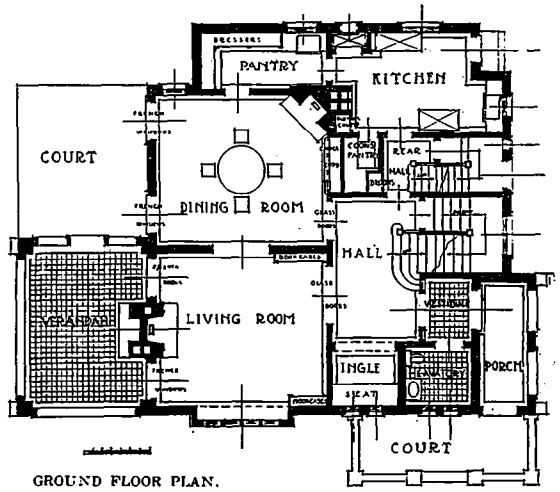




FIRST FLOOR PLAN.

HOUSE NO. IV. TORONTO, ONTARIO.

CHADWICK & BECKETT,
ARCHITECTS.



GROUND FLOOR PLAN.

result in great endurance even in a non-fireproof house.

The most universal and fundamental requirement for endurance is protection; and the two regions for most intensive protection are the foundations and the roof. In other words these are the two most important and most neglected parts of a house from the point of view of endurance. People think that in the cellar, at least, economy will not much matter. But the fact is that settling and movement in the foundations is the most fatal agency of destruction to the house as a whole. Cracks in walls about chimneys, displacement and rupture of pipes and wire connections follow inevitably. Deterioration of plaster and woodwork is often blamed on the materials themselves or their placing, when it is only the result of abnormal strains in the structure, due to movement in the foundations, or to the destructive effect of weather through the roof.

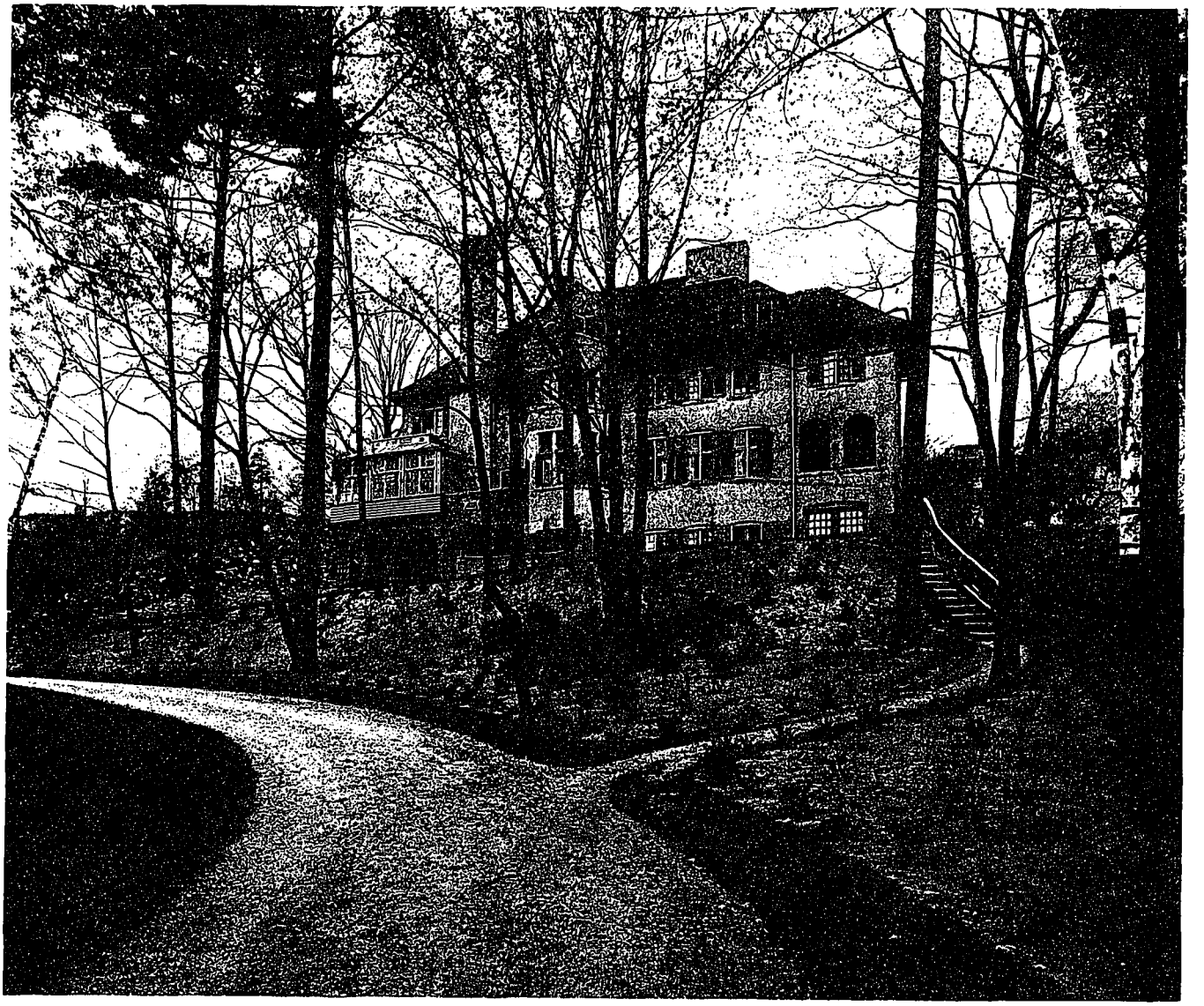
HOUSE NO. IV. DINING ROOM.

With the fireproof requirement, under some limitation of cost (shutting out cut stone, for instance) for the outer walls of the house, reinforced concrete, brick, and rough stone (all furred with hollow tile), are all extremely lasting. Without the fireproof requirement, but with the demand for an exterior which needs no refinishing, the cypress siding or shingle, creosote stained, will be found the most lasting.

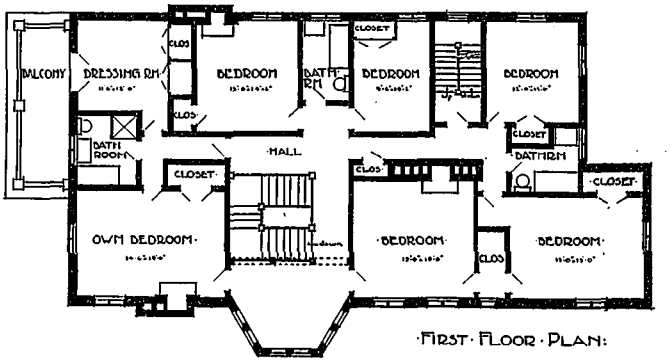
Whatever the material of walls, however, the danger point, and the firing line, too, of the house that shall be enduring, is the roof. Doubtless the roof materials most permanent in themselves are clay tile and slate. As for the stained shingle roof, everyone knows about what its average life is—longest, probably, in cypress, as the present supply of lumber goes.

But it is the conditions of protection that are fundamental, and to these the shape is very important. It may be said in general that the simpler the roof, the longer-lived, for the more dormers, hips, and valleys, the more weak spots. The timber roof—and ninety-nine out of a hundred roofs are timber below, even if slate or tile above—should be first of all close-boarded. Then, under slate or tile, should be two layers of reliable tarred or asphalted felt.

HOUSE NO. V. DINING ROOM.

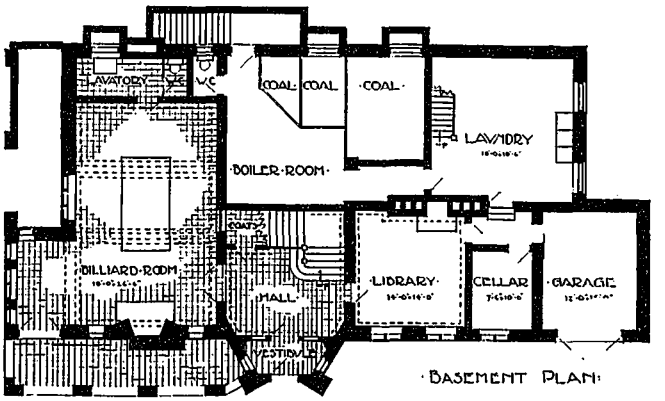


HOUSE NO. V.
TORONTO, ONTARIO.

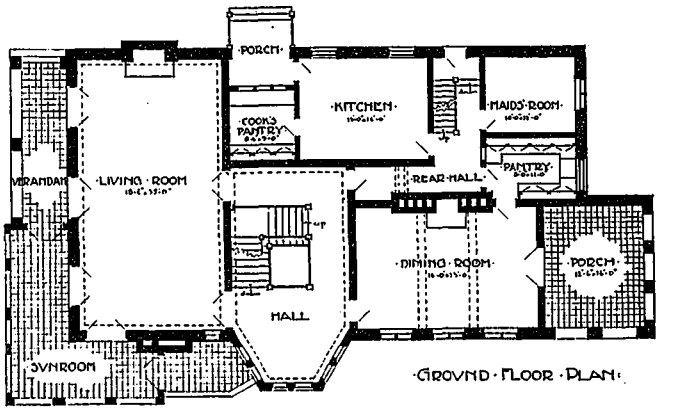


FIRST FLOOR PLAN.

EDEN SMITH & SONS,
ARCHITECTS.



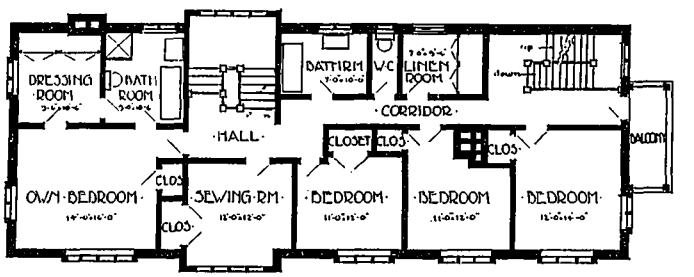
BASEMENT PLAN.



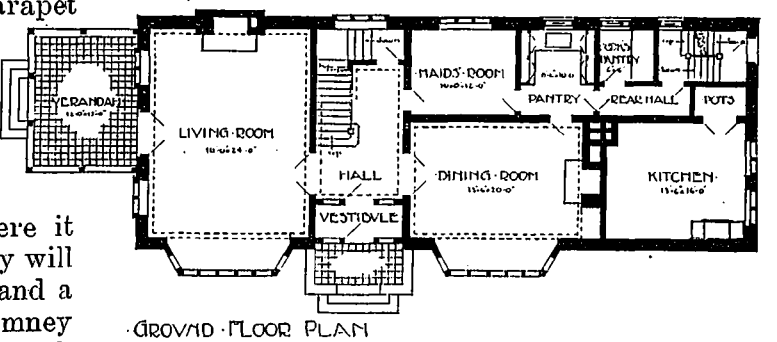
GROUND FLOOR PLAN.

HOUSE NO. VI. TORONTO, ONTARIO.

EDEN SMITH & SONS, ARCHITECTS.



FIRST FLOOR PLAN.



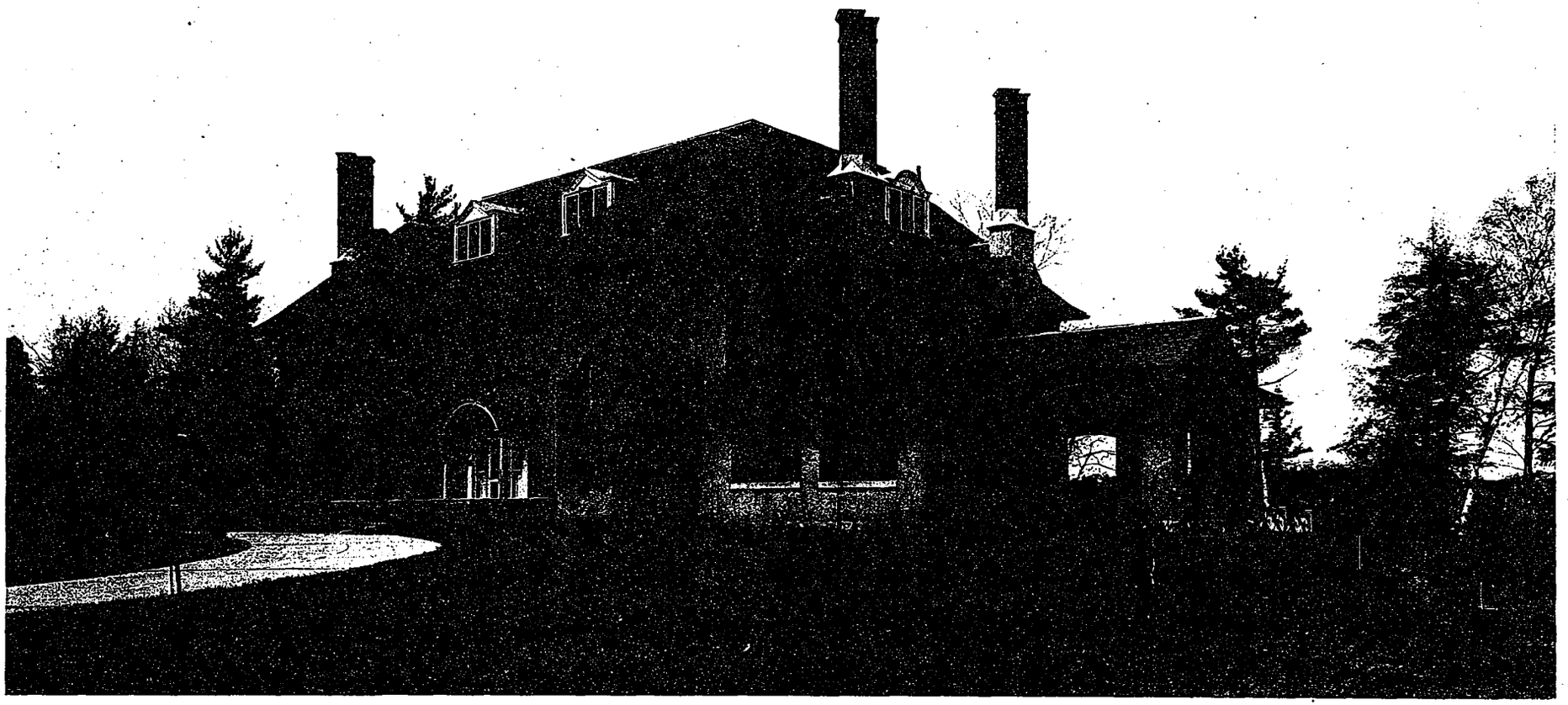
GROUND FLOOR PLAN

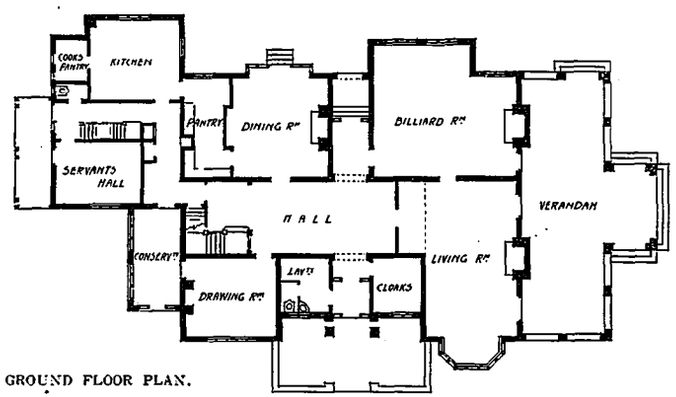
There are tiles of special shape for ridges and valleys; but when tile meets an opening or wall, or when slate, asbestos or wood shingles meet at an angle, flashing is necessary.

Flashing is the special protection provided at joints to make them water-tight, such as where the roofing meets chimney or parapet wall, or meets itself at ridges and valleys. While flashing is done with everything from tarred paper to tile, the universal and the only material for enduring work is copper. Tin or galvanized iron will rust out in spite of painting.

The weakest link in your roof is where it meets the chimney. The enduring chimney will be of brick, with burned clay flue lining, and a slab of concrete cast in place for the chimney cap. This keeps water out of the joints. Look at the jerry-built houses you pass, and see how many chimneys show mortar washed out of the joints of the top bricks. Where bricks are laid in lime mortar you see, the acids from the smoke attack the mortar, and loosen the bricks, and it is principally to prevent those acids washing down that the wide cap is necessary. Better still is a big flagstone cap, with a hole cut in the middle.

But to return to our flashing. In its simplest form it is a piece of metal lying over the edge of the roofing and turned up on the chimney and built into a joint. But this does not allow for the go-and-come of the structure, and sooner or later pulls away somewhere. For enduring

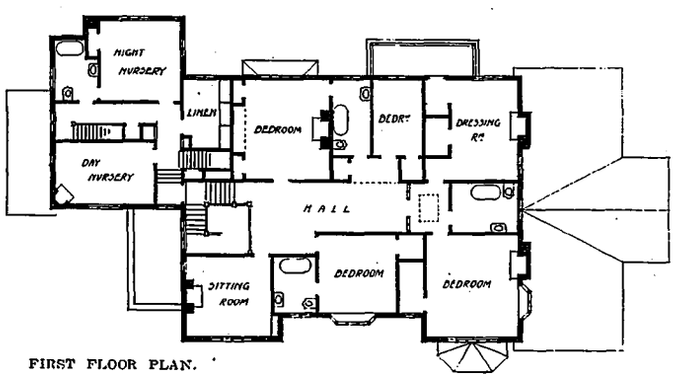




GROUND FLOOR PLAN.

HOUSE NO. VII. TORONTO, ONTARIO.

ALLAN GEORGE & MOORHOUSE,
ARCHITECTS.



FIRST FLOOR PLAN.

work, counter-flashing is necessary. The chimney flashed and counter-flashed can give to a hurricane, the lapping allowing for such strains. The counter-flashing must be built into the chimney, and turn up again on the inside. This keeps dampness from following the chimney down through into the interior plaster by lamp-wick action,—a destructive consequence of skimped flashing.

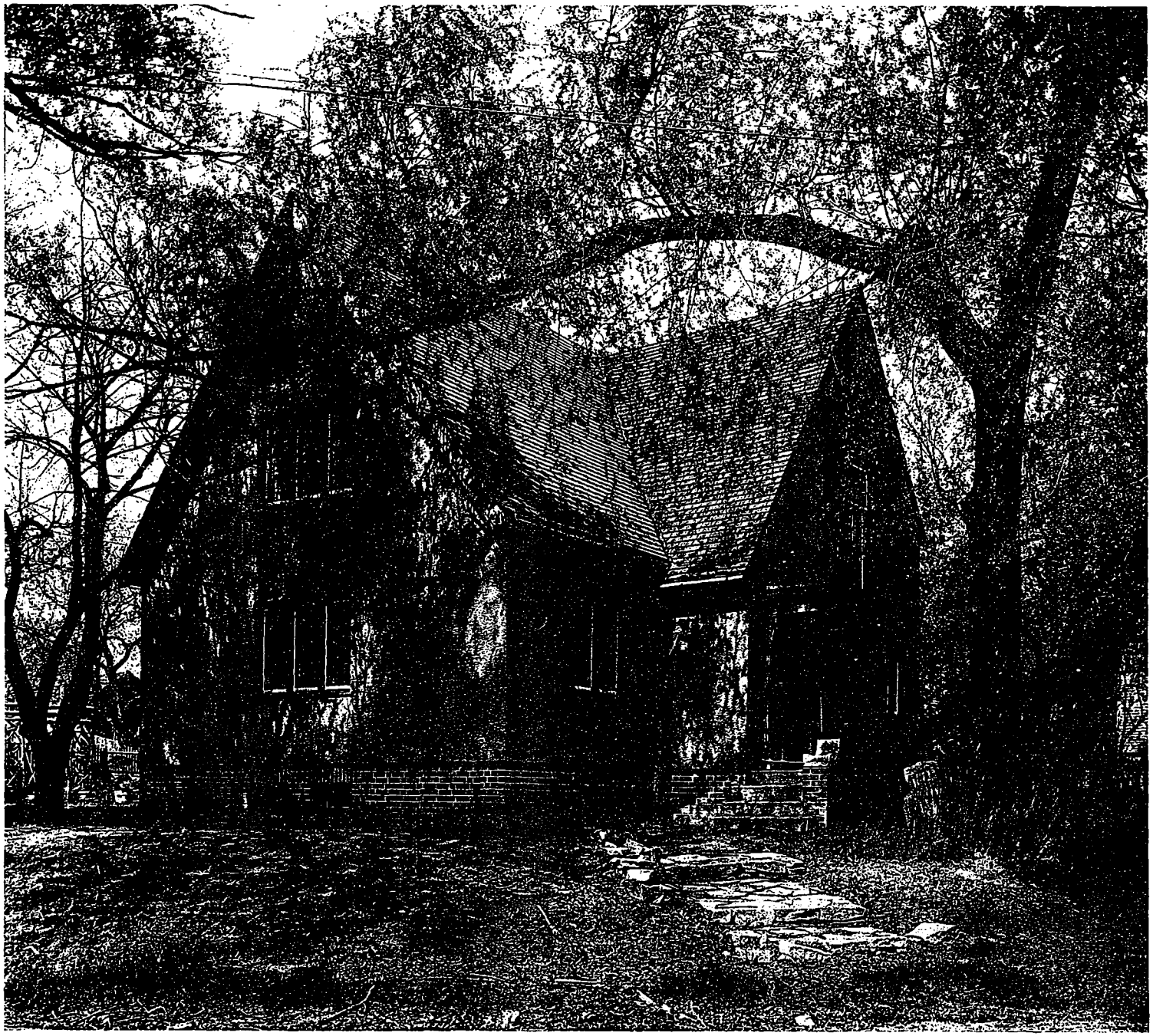
In the matter of roof drains (gutters and leaders), copper is also essential. The best gutter is hung from the eaves with a copper apron running back under the slate or tile. This is a protection against firebrands lodging in the gutter, the only way the wooden underpinning could catch fire from the outside. It also provides for a condition common in regions of large snow-fall and continued cold. Snow melts at the apex of the roof, where it is warmed from the inside, and water runs down and freezes at the eaves, forming an ice dam, then backs up against this under the lower slates, and comes through.

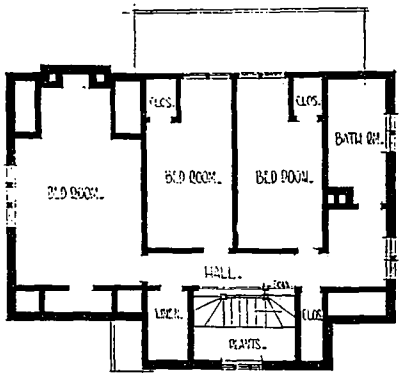
The leaders or vertical rain-pipes should be of copper and corrugated, better square than round. Not many people see the reason for this until they stop to think that when such a pipe freezes, the square contour allows the sides to bulge out, just as do the corrugations. They will flatten out into a cylinder, giving the maximum content, without breaking. The leader should enter a cast-iron pipe at least two feet above the ground, connected with the underground drain-pipe. Windows are a much disputed point for the enduring house. The steel casement is indispensable to the fireproof house, and most durable for the non-fireproof. The better grades are perfectly weatherproof, require fewer repairs than the double-hung type, are more favorable to ventilation—and more resistant to over-draping!

HOUSE NO. VII. LIVING ROOM.

The last weak point of the house exterior is the porch floor. This, to be lasting, should be of brick, tile, or cement (cement or tile upstairs), with an imperceptible slope away from the house. If the sleeping-porch must have wood underfoot, this can be obtained as a sort of removable wooden carpet, in sections, on top of the cement.

HOUSE NO. VII. HALL.



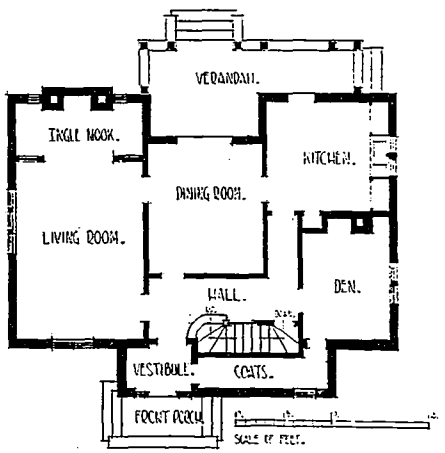


FIRST FLOOR PLAN.

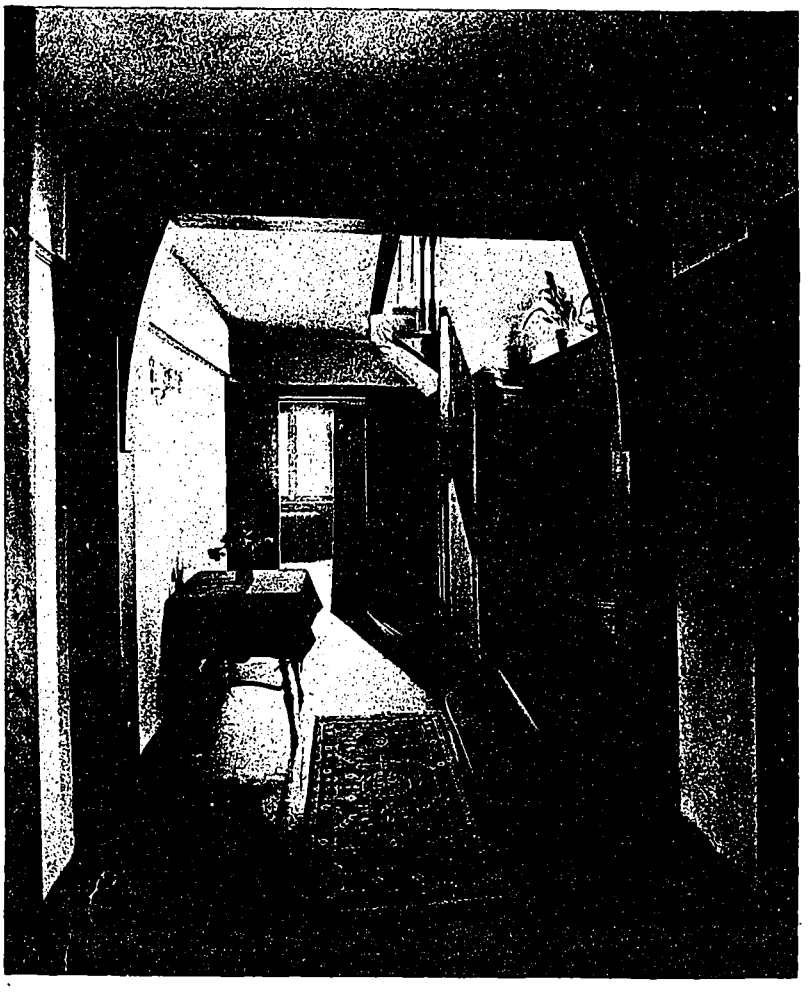
HOUSE NO. VIII. TORONTO, ONTARIO.

LINDSAY, BRYDON & GREIG,
ARCHITECTS.

GROUND FLOOR PLAN.



Even if the outside of the house be invulnerable, verily the cellar is its Achilles's heel. Nothing can bring black despair to the suburbanite like a creeping insidious trickle behind his good stored potatoes or his furnace pit. And the worst of it is that the cellar that once develops a leak is hard to cure. To be enduring, it should be built staunchly from the first, somewhat as follows: First of all, drains should be laid about the foundations to intercept ground water. If it appears that the ground water level is high, it is better to build the cellar floor above the water-level and then terrace, than to go into the costly and elaborate waterproofing of pitch and felt that will be necessary to make the cellar a watertight bowl. The cellar walls should be of solid concrete, rubbed smooth, with a band of reinforcement run just below the first floor, especially where openings occur. In all cases a separate concrete foundation should be built under the chimneys. Further reinforcements is not needed except in the event of unstable foundations.

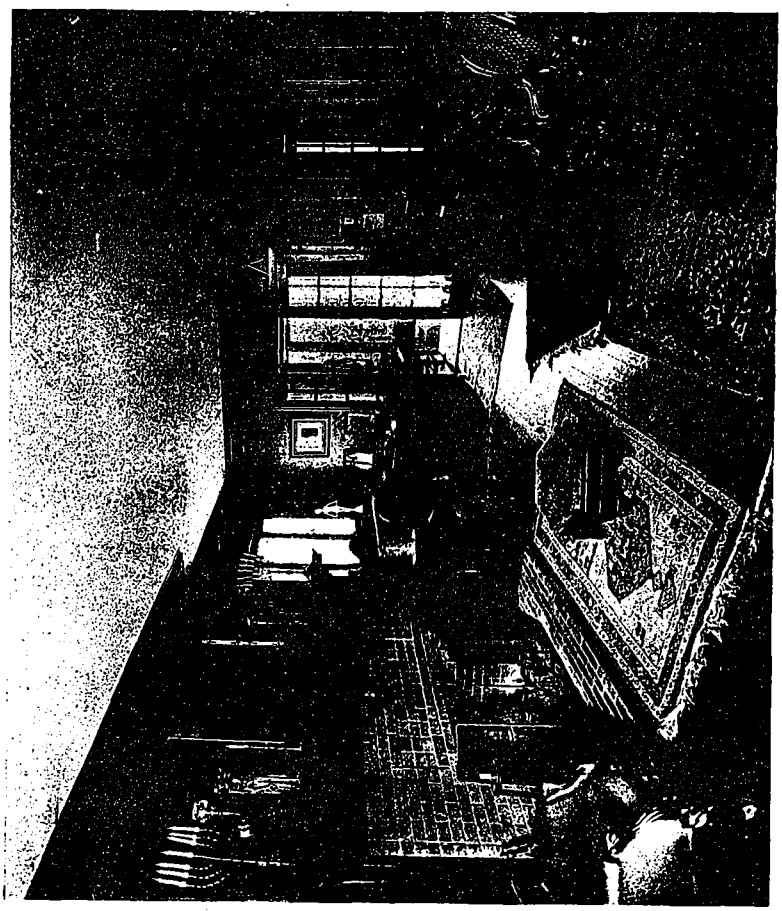


HOUSE NO. VIII. HALL.

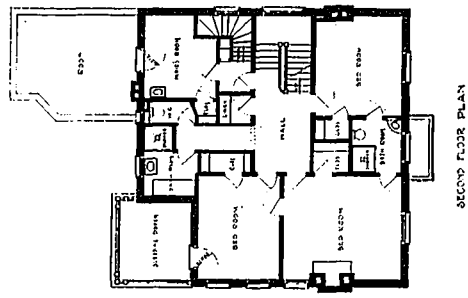
Ventilate the cellar by a flue from the waterheater, so that a continuous slight heat in all seasons will draw the air upwards, preventing damp and consequently rusting. Illuminate the cellar by means of a vault light, as this form of a cellar window is not easily broken. Though not strictly required, a cool room partitioned off from the warm space and ventilated from without, will furnish ample refrigeration for stored apples, preserves, vegetables, etc. If possible the room should project out from the cellar.

The main scheme of the modern cellar is to accommodate the furnace and plumbing connections, for which purpose it need extend only under part of the house, provided a proper concrete base is laid. Every client is interested in the question of the most enduring heating plant. Probably in this form the problem is misleading, since all good systems have a long life and need little repair. It would be better to seek one which is least destructive to the other materials of the house, and accordingly to certain critics it would seem that hot water is advisable as giving a gentler and more equal heat. With some indirect heat for the living and dining rooms, by means of air passed through a dust straining chamber; together with fireplaces in living and dining rooms, air conditions are nearly ideal. Hot air is universally accepted for a small house that is often closed in winter; or for a large summer house, because of the danger and destructiveness of frozen pipes. To-day it is

HOUSE NO. VIII. LIVING ROOM.



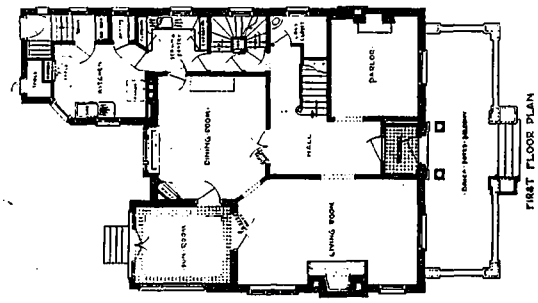
LIVING ROOM.



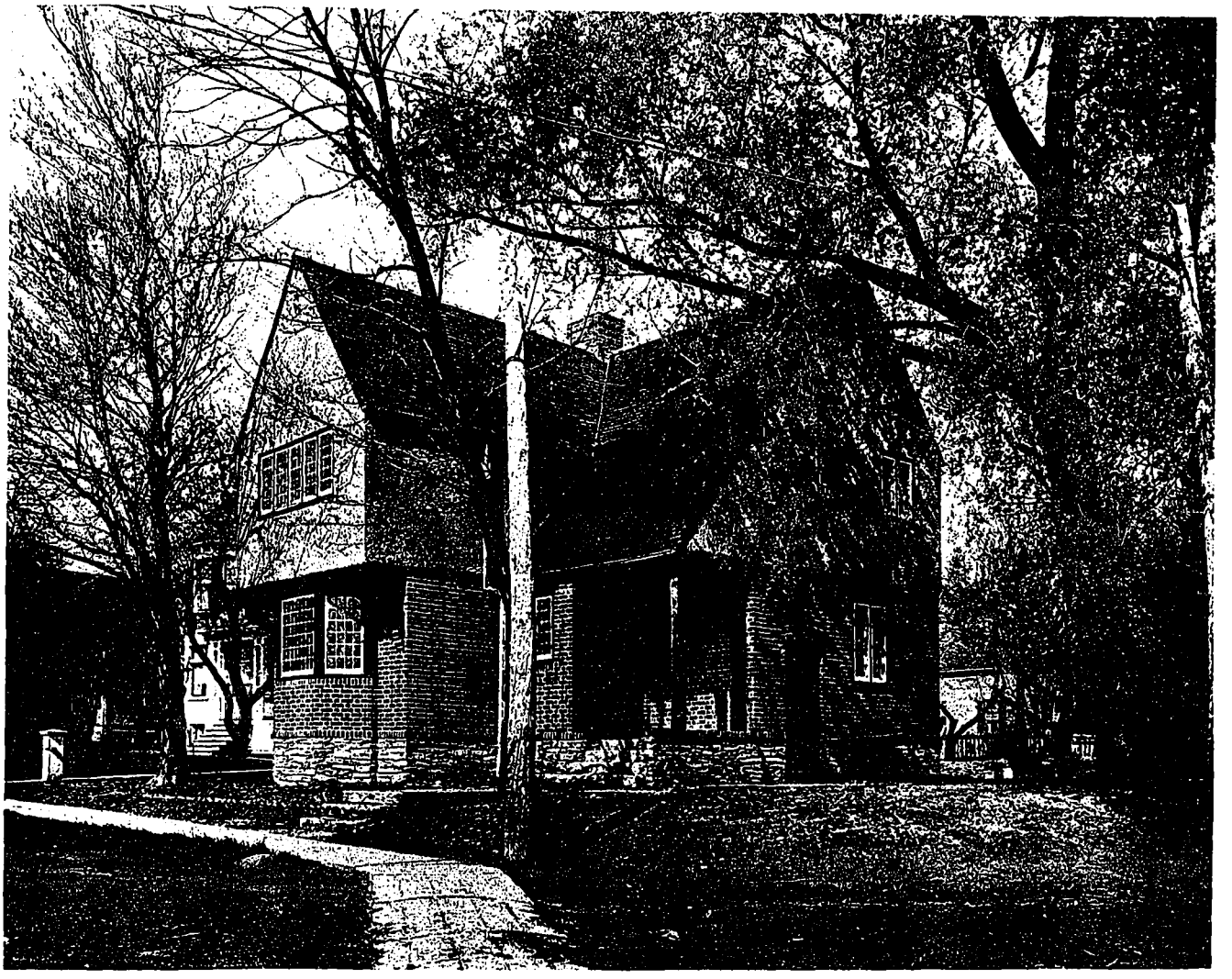
SECOND FLOOR PLAN

HOUSE NO. X.
TORONTO, ONTARIO.

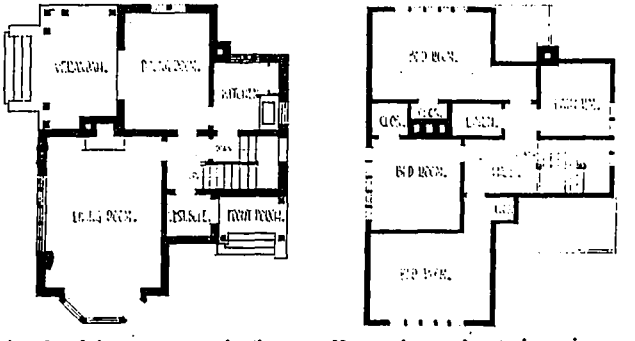
BURKE, HORWOOD
& WHITE,
ARCHITECTS.



FIRST FLOOR PLAN



HOUSE NO. IX. TORONTO, ONTARIO.
LINDSAY, BRYDON & GREIG, ARCHITECTS.



commonly believed that hot and cold water pipes above the cellar ceiling should be of brass, standard iron pipe size, tinned and nickle-plated where exposed; that drain pipes above the cellar floor should be galvanized wrought iron. Lead pipes are subject to sagging, pocketing, freezing, and are liable to be gnawed by rodents in search of water, while galvanized steel is liable to pitting and rusting. The piping layout should be such that distribution takes place in the cellar and runs straight up through the partitions. As for the fixtures in the lavatories, toilet bowls and tanks, those of vitreous are preferable. The enduring pantry sink is of white enamel with ash drain boards hinged from the wall; the kitchen sink may be porcelain or enamelled iron.

Far wider in importance is the interior structure of the walls, floors, and stairs, together with their finish. While not fireproof the frame structure may be very durable if built in the fashion of our grandparents, and prove to be "fire-delaying" by having all pockets and runways filled with mineral wool in addition to four feet of mineral wool or cinder concrete behind the lathing on each floor. Running electric wires of all kinds in conduits will further decrease fire hazards, all of which is problematic; electric fittings sometimes pulling apart owing to the shrinkage of wooden supports, and where fire protection depends so much upon hidden work, some of it may be slighted. The most enduring house will have an interior floor and stair structure of reinforced concrete or of hollow tile in concrete. While partitions will combine endurance and convenience by being laid upon hollow tile or plaster blocks. With the present tastes in interior decoration, a patent self colored plaster is probably the most enduring finish for walls; ceramic tile, terrazzo, composition flooring and hardwood being practical for the various needs of floor materials.

Domestic Architecture and Sanitation

WALTER CAVE, F. R. I. B. A.

IT is generally supposed that an architect's connection with sanitary conditions of a house is summed up in the one word, "drains." Whilst there is no doubt that he is primarily responsible for these important and necessary adjuncts to all dwellings, I venture to think that there are other matters which come within his province which have a great deal to do with the health and comfort of the inhabitants, and I shall endeavor to point out some of those details in the design of a house for which he is responsible, and which, if not carefully considered from the outset, are much more difficult to rectify in the future than the actual drainage.

Dirt of all kinds is undoubtedly one of the greatest enemies to health, and its evil effects can be largely avoided by taking due precautions in designing the details of a house and its fittings. For instance, the floors of sculleries, kitchens, larders, bathrooms, water closets, etc., which it is usual to make of some hard impervious material, such as tiles or cement, should be made to join the walls with a hollow angle, and not at a right angle which no broom can clean, so that in the constant washing they require a rim of dirt is not allowed to remain all round the rooms.

It has been argued that cement floors are inclined to become dusty with wear and are cold to stand on. As an alternative, I know of a distinguished architect who lays these cement floors in the offices of his houses, and after they are thoroughly dry has linoleum or a cork carpet glued direct to the cement, with good results.

Hardwood floors, such as oak, teak and maple, are better than deal if they can be afforded, but where deal boards have to be employed, as is usually the case in bedrooms, they should not be washed with a scrubbing-brush, as this tends to make the floors swell and then contract, so that the joints eventually become wide open, and, if for economy's sake they are not tongued or otherwise jointed, the water, and with it the dirt, is deposited on the top of the plaster ceiling of the room below. Anyone who has seen the floor boards removed from a floor with "butt" joints will appreciate what I mean, and shudder at the accumulation of dirt, which is a menace to health. If deal floors have to be used, even of the cheapest sort, I think the best treatment is to stain and wax polish the floor boards so as to ensure a hard surface, which should be wiped over with a damp, not wet, cloth.

Another important point is the window, generally the only means of ventilation, both its position in the wall and its construction. From the point of view of health the top of the window should be near the ceiling, and that part nearest the ceiling made to open easily. If the window is a sash one, known in France as the guillotine, this is easily achieved, but with the casement it is not so simple. Should there be a transom, there are many methods of opening the upper lights involving gear, or cord, or a pole, but all those appliances are of a more or less complicated nature, and as these lights are usually inaccessible, care should be taken to select the simplest form.

The cleaning of windows must not be overlooked, and the casements which have a hinge halfway along the sill so that they open both outwards and inwards are very easily managed, and unless in a very exposed position are watertight.

Again, the position of the window in relation to the door, bed, and fireplace is a matter that often seems to be left to chance or entirely subordinated to the exterior elevation. How often do we find, especially in hotels, a fair-sized bedroom, in which it is impossible to put a bed without its being in a direct draught, a very serious mistake which is often impossible to correct. Speaking of the position of bed and window reminds me of a certain client of mine who found fault with a bedroom I had planned for him, where the bed was against the wall at right angles to the window, an ideal position, I thought, which I had taken some pains to arrive at. He complained that he did not like facing the light. I explained that I thought this was not the case, and that he would have had cause for complaint if the window had been opposite the foot of the bed. His reply was that he did not sleep on his back, but on his right side! This was a view of the matter which was new to me, and I now consult my clients on this point beforehand.

Dirt and dust can be minimized nowadays to a large extent by the use, where possible, of electric light, which not only does not deposit a dirty layer on all available surfaces, but from its simplicity and effectiveness can light up many of the dark corners which we find in old houses before it becomes almost universally used. There is also the vacuum cleaner, which has now become a simple and economical method of getting rid of dust in the household, and if installed at the very beginning of things not an expensive luxury, and I firmly be-

lieve will soon be considered a necessity in every house.

Another distracting cause of dirt is the hot-water pipe, which we cannot do without. The greatest care should be taken in casing it and covering it with non-conductive material, though this latter is often a horrible mass of dirt, and only hidden by a thin casing of wood, which is usually cracked at all its joints, which are in perpetual mourning with their black edges. How can this be overcome? Firstly, what is the cause? The pipes being hotter than the wall of the room, there is a constant current set up between the hot and the cold surfaces, and where this takes place the dirt floating in the air is deposited on the rough edges between.

Another instance of this, and one which is not always understood, is that one often sees a white line in the corner of a room, especially where the inner wall joins the outer. This again is due to two surfaces of different temperature. The outer wall, varying with the outside temperature, is generally several degrees hotter or colder than the inside walls, hence a currrent of air is set up between the two, and, as a current does not enter an angle with the precision of the paperhanger, it shirks the actual corner itself and deposits the dirt on either side, leaving, as I have said, a white angle innocent of dirt. This, to a large extent, can be avoided by again a precaution in the first place. A good hollow outer wall, with its air-cushion, is an excellent non-conductor, and when the two walls are the same temperature no draught is set up. Draughts are not only dangerous and disagreeable in themselves, but they are always laden with dust, which is deposited, as I have shown, in all kinds of places —doors, keyholes, badly-fitting windows, etc. The greatest care should be taken with all joinery in a house, and here again the architect comes in, and money spent on good joinery is well spent.

The amount of dust that can be collected in book-shelves is extraordinary, and in towns bookcases should have glass doors; but this is, to my mind, objectionable, and I think a great deal of the pleasure to be got from books is done away with if doors have to be opened before a volume can be reached.

Amongst the many details in a house that require special attention are the sanitary fittings. Baths, for instance, should not be cased in, and should stand clear of the wall, so that they can be easily cleaned, and should be carefully selected, so that they empty themselves quickly and thoroughly. The same also applies to lavatory basins and sinks. Cupboards frequently placed under both the latter fittings should be avoided, as they are generally receptacles of all kinds of rubbish which collects dirt and dust.

Wardrobes and cupboards should all have a floor of their own raised a few inches above the floor of the room, not only to facilitate cleaning out, but to prevent the dust on the floor entering under the doors whenever the room is swept.

Dust traps should be avoided as far as possible, and can be, with care and thought in designing a house and its fittings, not to mention furniture.

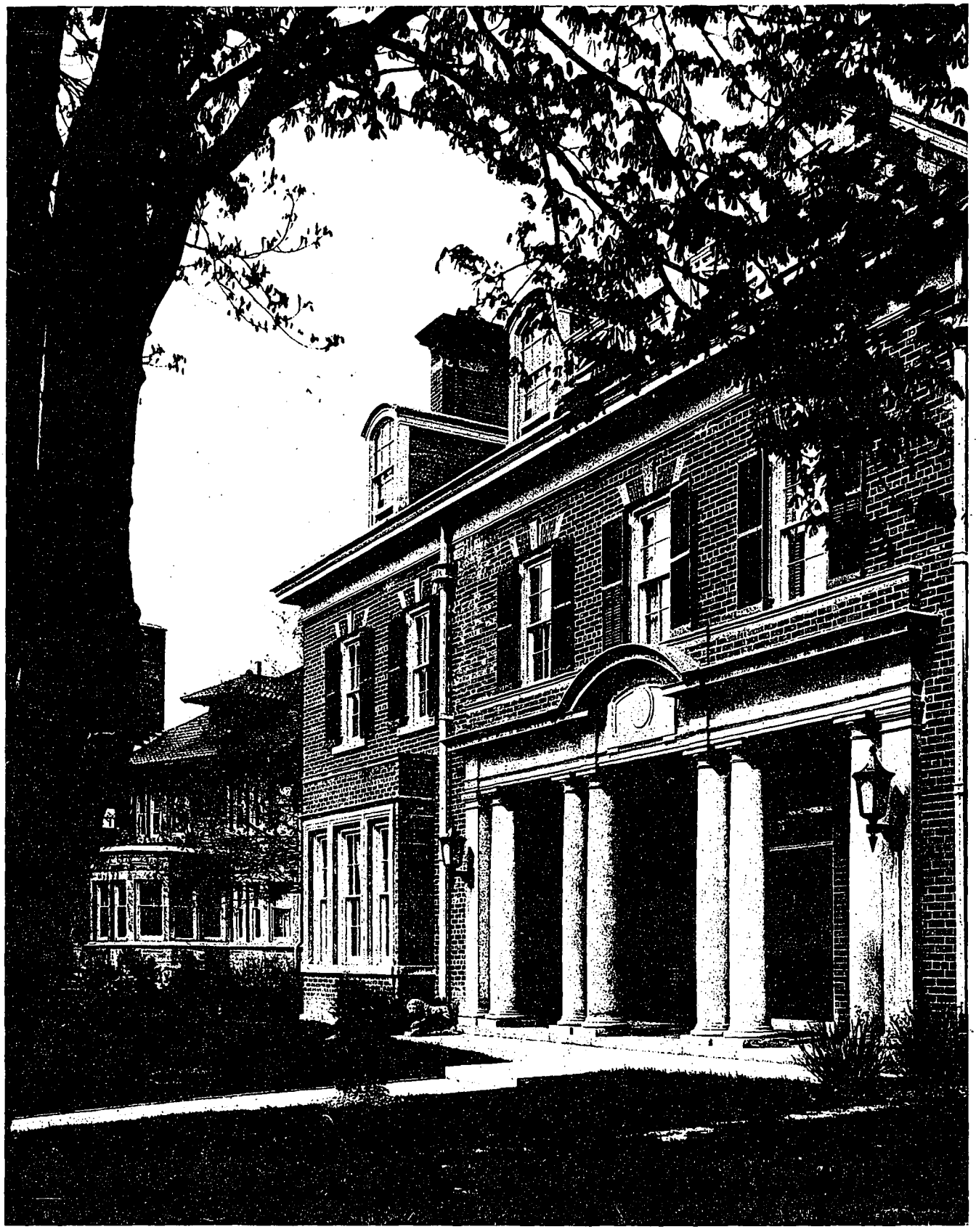
These remarks apply more particularly to town houses, where dust is ever present; but even in the country this cannot be avoided altogether, and the same care in designing is required. The open fire, almost a religion amongst English people, is responsible for a great deal of this dust; but the more modern kinds of slow combustion grates, with a grating through which the ashes fall into an enclosed receptacle, can reduce this dust to a large extent, and are certainly a most economical form of the open fire. Gas fires and gas cooking stoves are gradually superseding the open coal fires, and are cheap and efficient, and overcome many of the above objections and help to minimize work, which is, needless to say, an important point in domestic economy to-day.

Cupboards, the delight of womankind, should be lit if possible. The opening of the door so as to let the light in is often neglected.

The old houses which delight the housewife, with their deep cupboards, which were usually hideous dust-traps, were often due to thick walls and to bad planning, or rather to no planning at all. The rooms seem to have been arranged quite haphazard, with ill-lit passages at various levels. All this can be rectified with care in the first place. I heard of an architect who told his client's wife that he always began his plans with the cupboards and then fitted his house round them!

The careful planning of a house with a view to economizing service is becoming more and more important, and the inside lines of communication between the various parts want careful attention. Again, the position of the larder is very important from the point of view of health. How often do we find it placed between the servants' water closet and the coal-hole, and the dust-bin under the window outside! Care and experience in planning are most necessary to overcome such difficulties.

Again, the storage cisterns for drinking and ordinary domestic water require special attention. They are frequently placed in the roof, which in itself may or may not be properly boarded and dust-proof. Generally it is not, and the condition of these cisterns holding the drinking water for the house is disgusting. They should always be properly cased and covered in, easy of access, and lit in such a way that they can be readily cleaned.



DETAIL OF MAIN ENTRANCE.
HOUSE AT TORONTO, ONTARIO.

BURKE, HORWOOD & WHITE, ARCHITECTS.

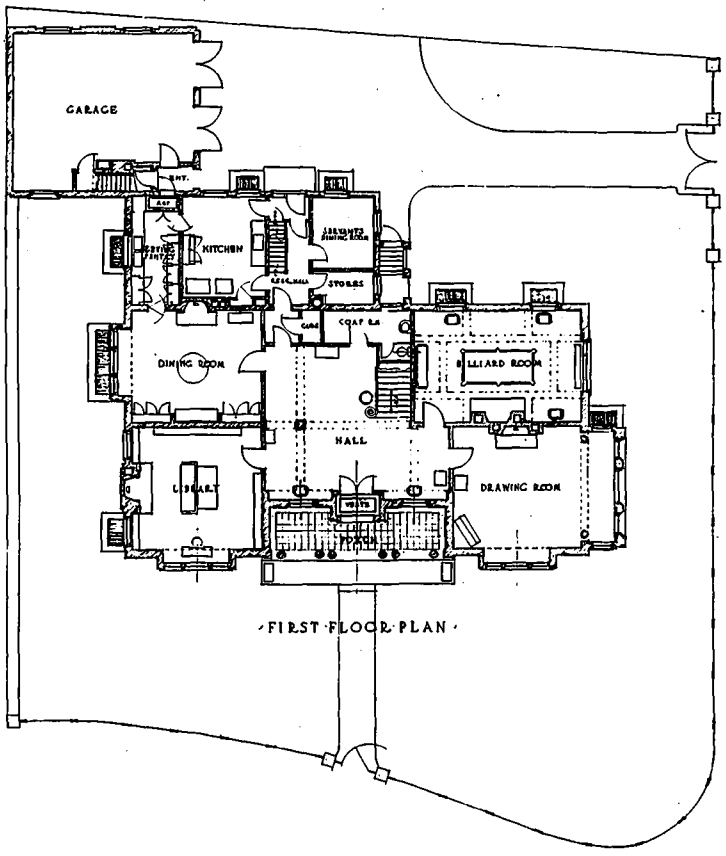
House at Toronto, Ontario

BURKE, HORWOOD & WHITE, Architects

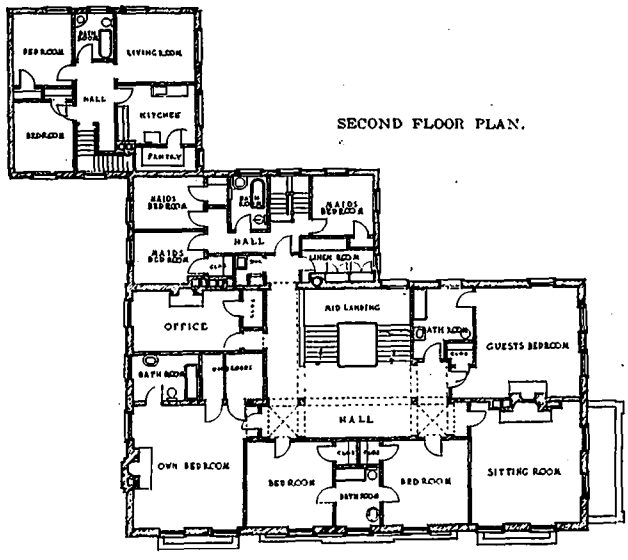
AMONG the problems with which an architect has to deal, there are probably none of greater interest to the profession and public alike than house planning; this is particularly true of Canada, where so many people own their homes, and where, on every side, are evidences of progress and development along sane and sensible lines of domestic planning and building.

It is an undisputed fact that the most successful house plan is the one built around and expressive of the home life of the family; it is this feature that makes for the homelike atmosphere so characteristic of English domestic work, and one that until recently has not been appreciated by our American neighbors, who are now, however, becoming, so to speak, very much more at home with their domestic work. Proof of this is to be had in the many excellent examples of recent work which show serious thought, have a delightful atmosphere, and are carried out with a feeling of restraint which has resulted in a distinct individuality. This is due in a great measure to the advance and improvement of architectural training and its influence on the public. Restful simplicity and an appreciation of the simpler and more refined forms has taken the place of over-ornamentation, and that striving for effect at the sacrifice of utility and economy which was errant in a great deal of the work up to a few years ago in the various cities.

Probably in no other city on the continent has domestic work attained more variety or a greater measure of success than in Toronto, which has frequently been referred to as a "City of Homes." Our residential and suburban districts have offered many opportunities for the development of house work on a high standard, but while our homes have, as a general rule, been well planned and well built, we are as yet in the early stages in the study of the development of properties and the possibilities of landscape work. To locate a house upon a site without due regard to its setting and surroundings, is an injustice to both the house and to the site. Occasionally a well-designed house is placed to great disadvantage on a lot without any apparent consideration having been given to the setting which such a house requires and deserves. A bit of green lawn with shrubs, plants or a few flowers placed at proper points, will do much to relieve a house of its bare look. The value of trees on a site should be carefully considered, as they form a pleasing break in the sky line, soften and lend color to the landscape, and give character, scale and outline to the building.



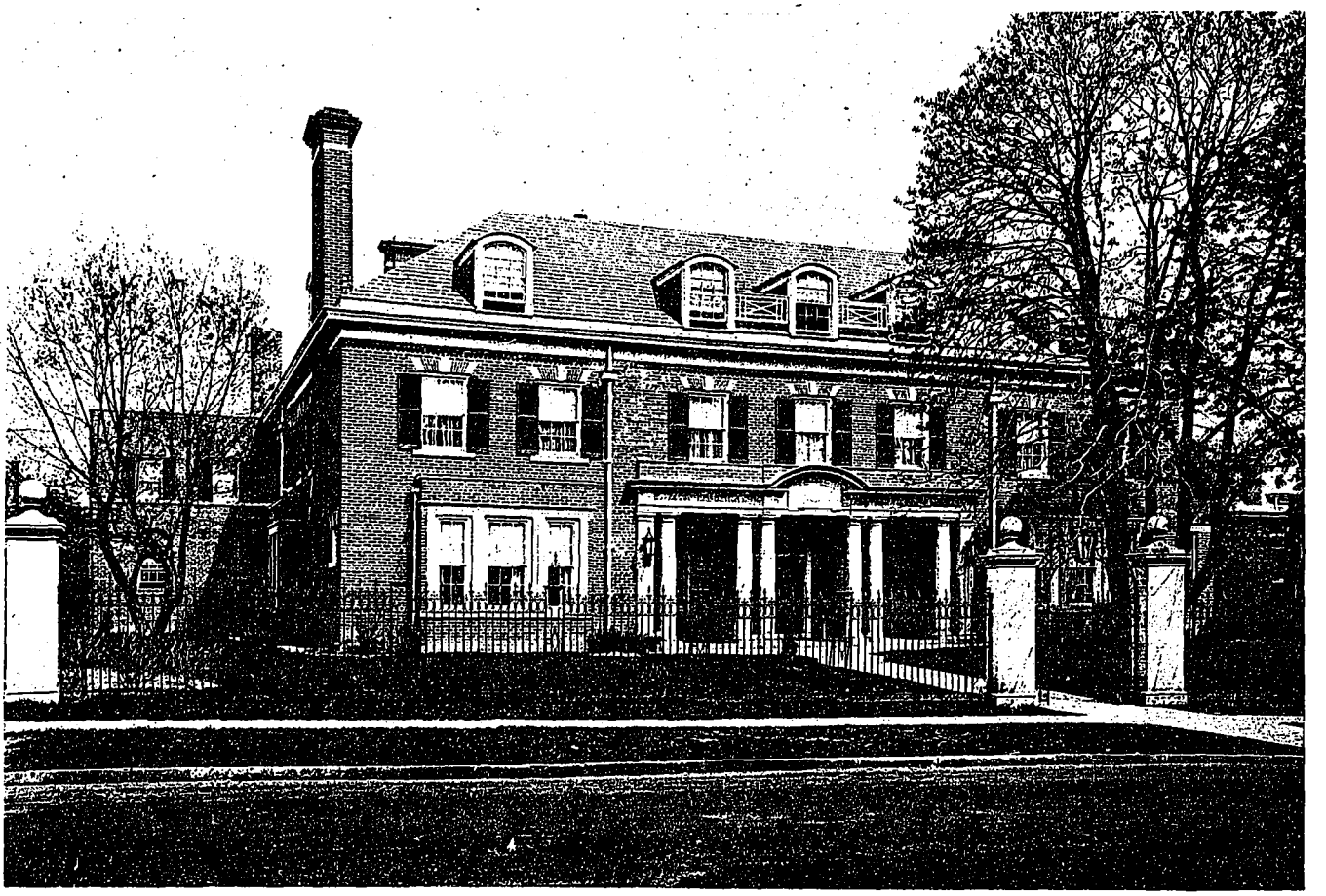
FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

The proper decoration and furnishing of the house is just as important as the general design. It is rather a matter of considerable regret that many clients seem to think the services of an architect are not required beyond the actual planning and building of the house itself, and without wishing to unduly criticize the ability and taste of the client in such matters, it seems essential that the architect should be consulted on the decoration and furnishing of the building which he has designed. Failure to do this

is often due to a desire for economy, in the belief that architects have expensive tastes, but it it probably more often due to the client's desire to be left alone to do as he or she pleases. How many houses have suffered in the decoration and furnishings through this policy? It may here be pointed out that most architects of any standing have a sincere pride in their work and are naturally concerned in anything that adds to or detracts from the appearance of their building in the way of furniture and decoration. A good house can be dropped to the commonplace by lack of attention to its furnishings, but on the other hand, a poor house, architecturally, may be lifted considerably and made quite acceptable by proper and suitable decoration and furnishing.



GENERAL VIEW OF EXTERIOR.

A consistent endeavor by the architects to make the plan and furnishings in complete harmony is quite manifest in the accompanying illustrations of the James Ryrie's house.

Situated on a lot of irregular shape, following the curved and pleasing outlines formed by the intersection of Chestnut Park road with Roxborough street, the structure is in every way suitable to the site, which forms the apex of an interesting group of properties at one of the principal gateways to western Rosedale. Designed on Georgian lines, and carried out with a feeling of restraint, the house possesses that quiet, homelike atmosphere which is so characteristic of the style and expressive of the owner's purpose.

The broad front, featured by a dignified loggia, is approached from Chestnut Park road through an arched gateway. The walls are built of deep red stock brick, laid up English bond, with large white motar joints, the trimmings and features being executed in a grey limestone, which, combined with the white woodwork and green shuttered windows, forms a pleasant and attractive color scheme, that is further enhanced by the foreground setting of trees and green lawn, enclosed by an iron fence of effective and suitable design, the entrances and driveways being flanked by well-proportioned stone piers.

The plan indicates a well studied scheme, direct in its arrangement, the rooms being grouped around a large central hall, which forms the keynote to the general scheme, the feature being a broad stair with spacious landings, which, owing to their size and location, lend themselves admirably to decoration.

On the ground floor, to the left, are the library and dining-room, and on the right the drawing-room and billiard-room, the arrangement being such that the privacy of each room is readily preserved. The size of these rooms, and the manner in which they open up on the hall, permit of good circulation and interesting vistas. The service portion is approached from the main hall through a lobby to the service hall, which has a back entrance from the court at the rear.

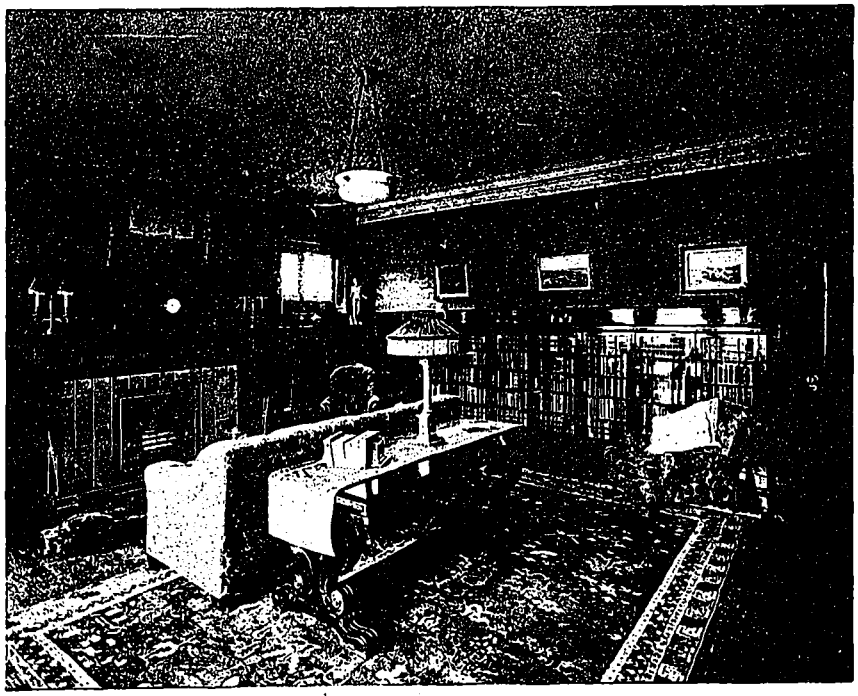
On the left of the service hall, and adjacent to the dining-room, are the kitchen and serving pantry, and on the right are the servants' dining-room and stores. Facing south on the rear court, and connected to the service wing, is a large garage, with accommodation for two cars and with chauffeur's apartments over same, consisting of living-room, kitchen, bedrooms and bathroom.

The arrangement of the second floor is similar to the first. The bedrooms open off the main hall, the servants' quarters being at the rear, approached by a separate stair. The staircase hall on this floor is flanked by a corridor treatment, the ceilings being groined at the intersections. The third floor contains four large bedrooms, a bathroom and a storage-room—the service wing being stopped at the second floor—and the hall is featured by a pipe organ, the case being of special design to conform with the architectural character of the surroundings, and opens out on to the right side of the hall overlooking the stair. The organ is operated from a console located on the south side of ground floor hall opposite the main entrance.

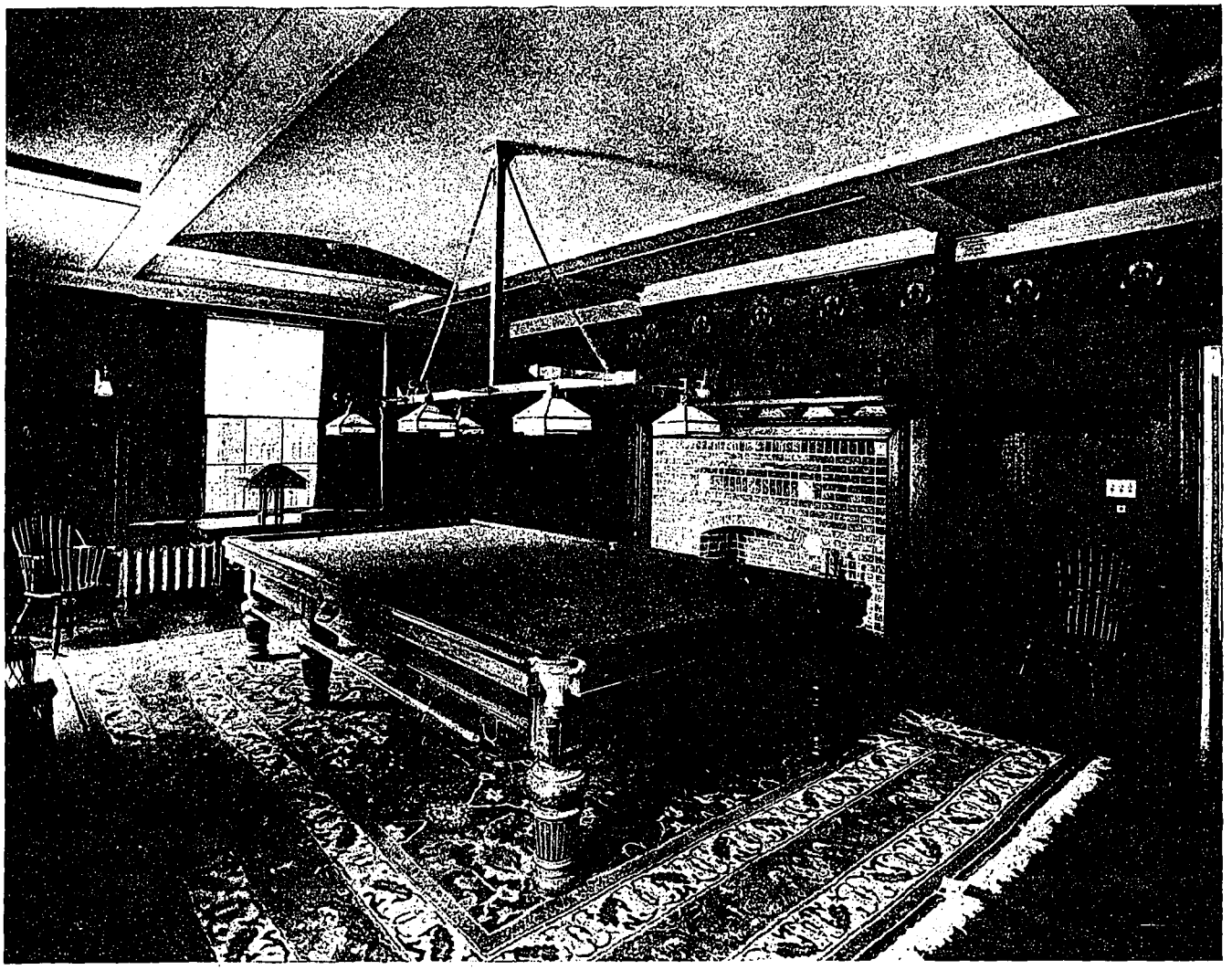
The interior finish, decorations and furnishings are carried out in a manner that indicates careful consideration, every detail being studied with a view to preserving the architectural character and quiet homelike atmosphere. The main hall is finished in white enamel, the doors and stair trim being in mahogany, with furniture to match. The walls are hung with a patterned paper of suitable design, the field color being buff and the ceiling and enriched cornice is finished in a soft cream tone. At the first landing of the main stair is a stained glass window designed in keeping with the general architectural treatment. The drawing-room is finished in white enamel, and is featured by a typical Georgian fireplace, with bronze lining, Grecian marble facings, and a delicately detailed trim, enriched with simple and effective carving. The large bay to the south is screened by side columns and pilasters. The ceilings and enriched cornice are finished in old ivory, and the walls are hung with a pink-toned pattern paper. The window hangings are in French grey. The library, with its built-in bookcases surrounding the room, is finished in mahogany, with furniture to match, and is featured by a large fireplace with soft grey tile facing, and polished steel grate and fittings of Georgian design. The walls are covered with Japanese grass cloth of a buff tone, and the hangings and rugs are of blue with gold relief.

DRAWING ROOM.

The dining-room is panelled to door height, and the woodwork is finished in white enamel, the west side being featured by built-in china cupboards and sideboard recess, and the east side by a fireplace of excellent proportion. The furniture is mahogany. The billiard-room is panelled to a height of 6 feet and finished in



LIBRARY.



BILLIARD ROOM.

quarter cut oak, with a large brick fireplace on the west side. The ceiling is divided into panels by shallow plaster beams, the centre panel being vaulted.

The bedrooms are of large size and are tastefully papered, the woodwork being finished in white enamel with mahogany doors. The fireplaces to the principal bedrooms are of simple design, well detailed and of a refinement and scale in keeping with the general treatment. The sitting-room on second floor is finished in fumed oak, and is featured by a large fireplace flanked by pilaster trim. The bathrooms are tiled and fitted in the most modern manner, with plumbing fixtures of the latest design.

DINING ROOM.

In the basement is a laundry with outside approach, boiler rooms and general storerooms. The house is heated with hot water, circulating from boilers set up in twin arrangement, and cost when completed approximately twenty-five cents per cubic foot.

In referring to the sanitary science on the comfort of country homes, H. Freyberg, of England, furnishes the following items, which may prove of benefit in connection with work in the Canadian field: The importance of elevation, position, aspect and subsoil of the site can scarcely be over-rated. Rarely, if ever, does the architect find a site ideal in all respects provided for his use. Fortunate is the professional man who is allowed to exercise an actual selection between two or more alternative positions, but in so many cases the client is already bound down to one particular spot before the architect's advice is sought, and even where he is able to advise, his decision must of necessity be influenced by many factors in addition to that

MAIN HALL LOOKING NORTH-EAST.

of simple sanitary suitability. The duty of the architect is, after careful examination of the site with its particular difficulties, to make up his mind to deal with them by skill and forethought, so that the result shall give satisfaction to his client and reflect credit on himself, bearing in mind that the greater difficulties there are to overcome the more interesting the piece of work becomes. Should the architect be allowed much scope in site selection then he should bear in mind that an elevation of moderate height possesses many advantages, while extremes in either altitude or depression present many disadvantages, possibly attended with discomfort to the future occupants of the house. Sunshine is absolutely indispensable, and a site upon which the sun's rays do not shine very much must be eschewed, unless it is capable of improvement by felling timber or the removal of other obstructions to light and air.

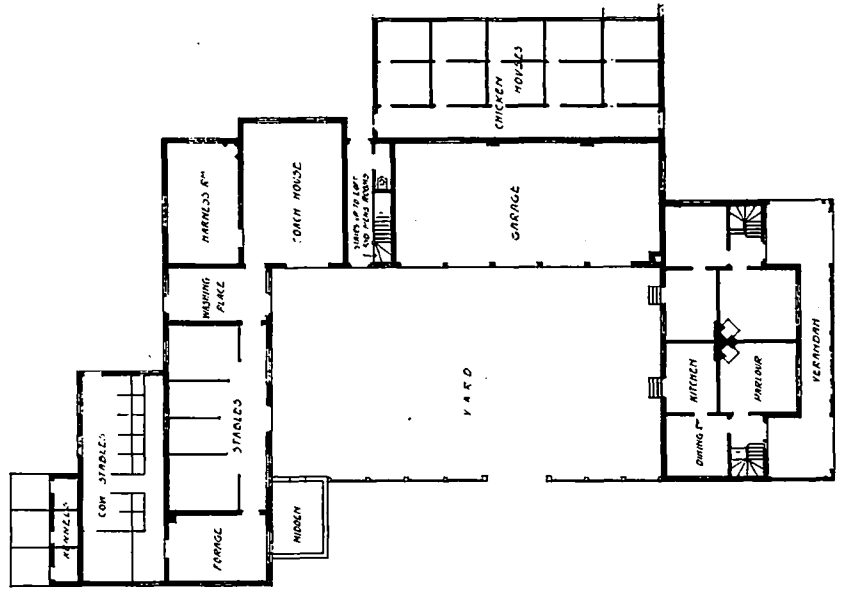
In the country, if there is no street to face, the principal front can generally be constructed towards the S.E., where the morning room, dining-room, library and entrance hall should be. This will leave the S.W. front for the drawing-rooms, boudoir, conservatories, etc., the kitchen and domestic offices will be most suitably placed on the N.E. side, and then, with a large central hall and grand staircase, the planning will be completed by placing the sanitary arrangements on the N.W., if possible in a wing to themselves. This arrangement will allow the sun to get right round the house during some parts of the year at least. The principal views must be taken into account in order that the best may be made of both aspect and prospect, but avoiding, if possible, a due north and south arrangement.

MAIN HALL LOOKING SOUTH.

COTTAGES, GARAGE AND STABLE BUILDINGS, ARMOUR HEIGHTS, TORONTO, ONTARIO

ALLEN GEORGE & MOORHOUSE, Architects

THIS group of buildings is erected a short distance from the big house now being built on twenty acres of property above York Mills. The pair of cottages are occupied by the gardener and cow man. The garage, 50 feet long, coach house and stabling are arranged around a paved court yard, after the English plan, the cow stables and kennels being at the back abutting on a large meadow, while extensive chicken houses and runs are planned with a southern aspect behind the garage. There are stable mens' and helpers' rooms with a bath above the garage, and a heating plant below it which takes care of the cottages, garage, coach house and harness room. Each cottage contains three rooms on ground floor, three bedrooms with a bath above, and a laundry in the basement. All external walls are of hollow tile construction, rough casted; the roof being shingles, stained brown.



Roof Coverings

R. E. LINDSAY, B. A. Sc.

THE builder of to-day realizes more and more the necessity of permanent construction. To obtain this end he must give careful consideration to the selection and application of those parts which are to protect the building and its contents from the action of the elements. In the selection of materials, the elements of chief consideration are:

1. Resistance to weather. The primary essential of roof coverings is that they successfully withstand the attacks of rain, wind, heat, cold, snow and ice. The joints of the covering material should be so constructed as to permit of all expansion and contraction consequent upon variations of temperature. They also should not be retainers of water, since this on freezing would cause their rupture. The roofing material should not absorb too much moisture, for if frozen in this condition it would mean its failure. To satisfy all these conditions not only must the surface be impervious, but the joints must be constructed so as to prevent the failure of the covering at its connections.

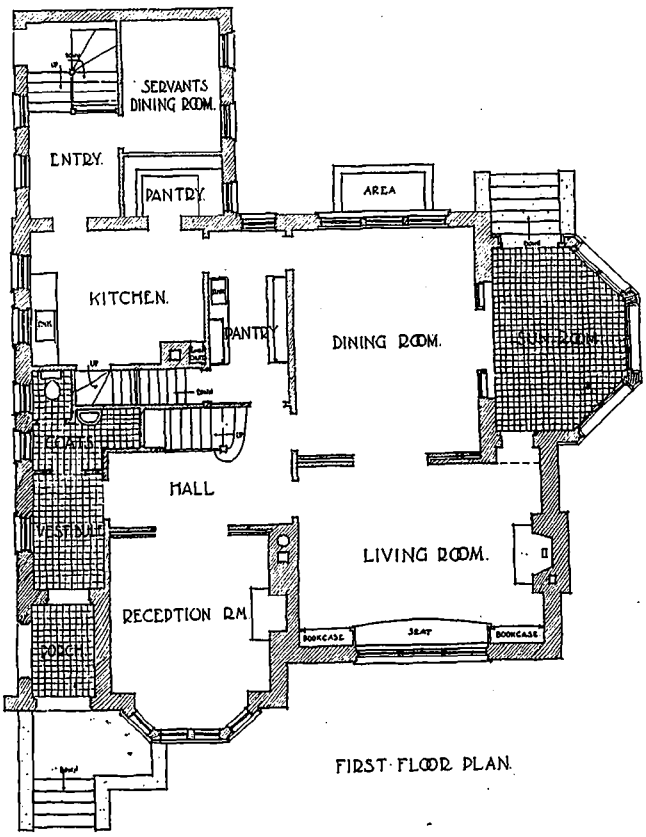
2. Strength and Rigidity.—In addition to acting as a covering and enclosure, the roofing material should be capable of bearing its part of the imposed loads and transfer them by arch or bending action to the trusses or walls. Under ordinary conditions the covering should be strong enough to withstand without excessive deflection, the wind pressure, snow load and any accidental live load which it may from time to time have to endure. The wind load on roofs varies for different pitches and with the amount of exposure of the roof. The snow load depends upon the latitude of the place where the building is located, the pitch of roof, and to a certain extent on the kind of covering. In addition to carrying the imposed loads the covering should, if necessary, be capable of contributing to the lateral stiffness of the building. The connection of the covering to the purlins or rafters should possess sufficient resistance to prevent its bodily displacement by the wind and such qualities of resistance as conditions necessitate.

3. Fireproof.—While resistance to fire is a requirement which varies somewhat with the character of the building and its location, the importance of it generally may be more forcibly impressed by the treatment under this heading. Moreover, nearly all roofs are more or less subjected to the action of fire, and the use of a fire resisting roof on any building will affect a saving in the matter of insurance. A large percentage of the enormous fire losses on this continent are due to exposure; that is, the fire is spread from one building to another. One of the most important factors contributing to the spread of such fires is the combustible roof. The report of the National Board of Fire Underwriters on the San Francisco conflagration emphasized strongly "the importance of fire-resisting roofs," and similar comments may be noted in reports on other conflagration. As a result, the use of fire resisting roofs in the central parts of many cities is now obligatory. In designing a standard to afford a means of classifying roof coverings independently of the roof structure upon which they are applied and according to their fire resisting value, the National Fire Protection Association has considered the following: (1) inflammability of the roof covering; (2) fire retardent properties, (a) ability to resist spread of fire on the surface, (b) protection afforded the roof structure against exposure to high temperatures; (3) blanketing effect upon fires within buildings; (4) flying brand hazard of the covering. Outside of the ordinary dangers from fire some roofs possess an advantage over others in the case of lightning. "Roofs constructed of good conductors of electricity do not require any other protection against lightning, as they serve to scatter the currents and thus dissipate their energies without danger of actual ignition."

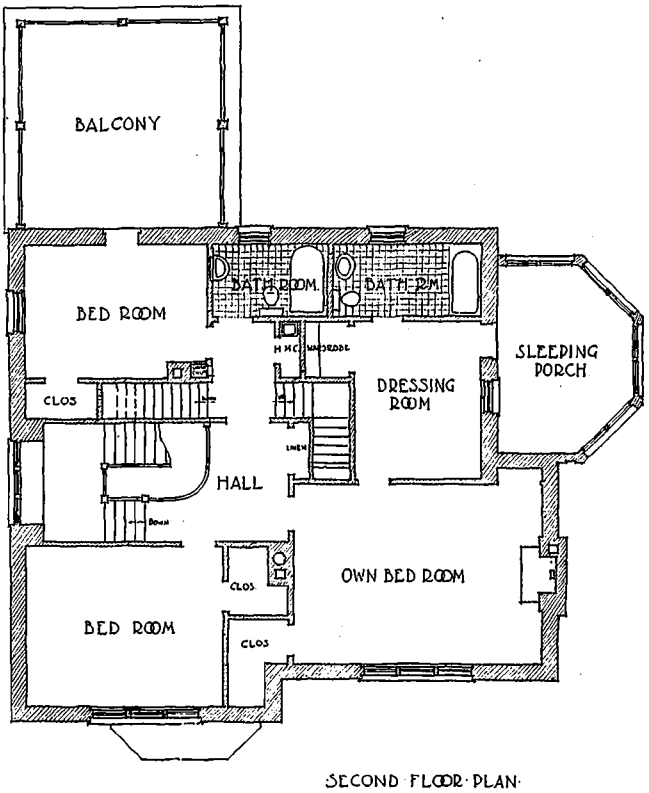
4. Durability.—A good roof should last without repair as long as the building it covers stands without repair. It should wear well, resisting abrasion from weather. Thoroughness in the preparation of the flashings, around openings and other parts subjected to special wear is of vital importance. The thickness of material used at these points should be such as to provide sufficient resistance.

5. Least Expense. The roof covering chosen for a certain building should be that which in the ultimate analysis gives the greatest service for the longest time at the least expenditure, including original cost and maintenance. Herein lies the necessity of careful selection. The first cost may be low and the maintenance cost high. "The annoyance and indirect expense occasioned by leaky and short lived roofs is rarely compensated for, by any possible saving in first cost. It is the duty of the builder to balance the factors of first cost and maintenance computed on the probable life and service of the structure.

It is obvious that no one roofing material will be satisfactory to cover all classes of buildings. Attention must be paid to the uses for which the structure is intended and to its temporary or permanent use, as also the effect on the appearance of the building.—*Applied Science.*



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

HOUSE NO. I., WINNIPEG, MANITOBA.

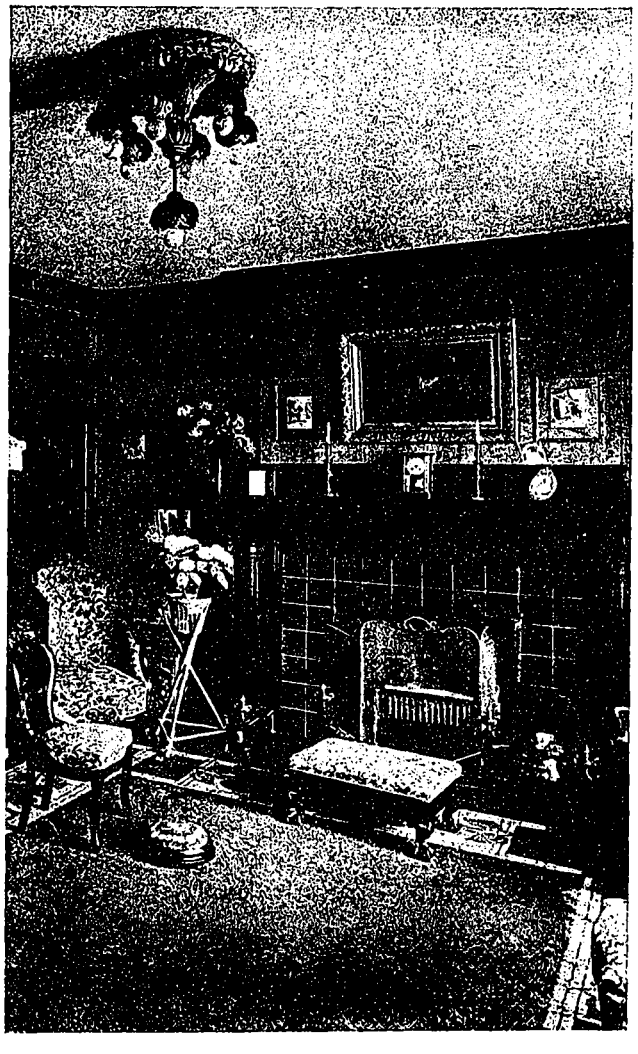
JOHN D. ATCHISON & CO., ARCHITECTS.

Houses at Winnipeg, Manitoba

FRANK N. RUTTAN

THE houses illustrated in this group range in cost from $20,000 to $25,000, and give a good indication of the type of medium sized residence being erected in Winnipeg at the present time. In all of these examples is evidence that the architect not only endeavored to produce an economical and well arranged plan, the first consideration in a house of this class, but he also has been able, through the co-operation of the client and the extent of the appropriation, to produce a design of artistic merit, carried out in materials of high quality and of a character in keeping with the desire to build a substantial home, unpretentious and in perfect taste.

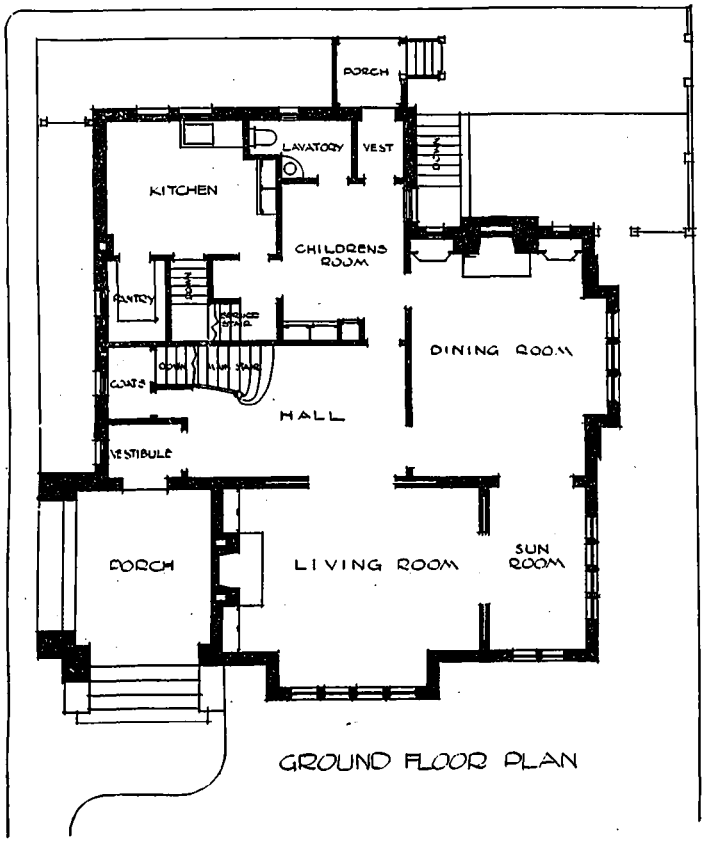
In any city you may notice houses by the score whose chief claim to attention is the multitude of ideas, or one might more properly say "stunts," with which they have been loaded, until they fairly seem to groan under the burden. As public taste develops under proper guidance, the simple, well-proportioned house is happily more frequently met with, while the house of countless unrelated and ill-proportioned parts gradually gives way. Not the least of the influences which guide the public to an appreciation of good architecture has been the desire for and study of old furniture, the best types of which combine many of the good qualities of a well-designed house, the abstract qualities of which are more readily understood from the furniture than from the house, which is by nature more complicated.



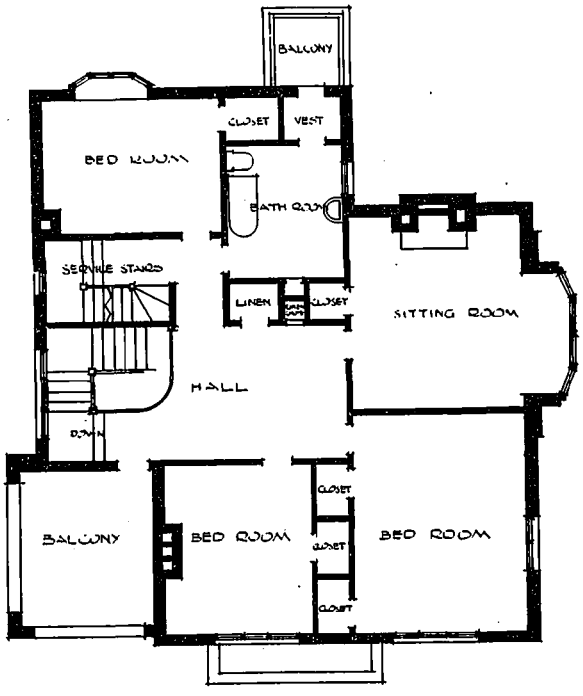
HOUSE NO. I. LIVING ROOM.

House No. I.—Set well back from the street line on a wide lawn, a quiet and restful appearance is presented by this house, due largely to its simple lines and the harmonious combination of tapestry brick in the walls and the well blended slate roof. Bedford stone is used in the base, entrance and corbels. Together they produce a very satisfactory color scheme. The rooms are not large, but are well arranged and well proportioned. The upper floor also is well arranged and presents all the essentials necessary to produce a satisfactory bedroom floor. In the roomy attic are located servants' bedrooms and bathroom. The entrance porch is paved with tile, as are also the vestibule and coat-room beyond it. The hall is finished in oak, and is lighted by a large, lead-glazed window on the stair landing. The living room has a mahogany cornice and trim, and contains a large fireplace and built-in bookcases, with a window seat between them. The dining-room, with the sun-room off it, is well placed to obtain the morning light, and is, perhaps, the most successful room in the house. The woodwork is white, and the plaster work in the ceiling very agreeably executed. The bedroom floors are finished in white, with wardrobes in the principal bedroom and dressing-room.

House No. II.—This dwelling is interesting from a structural point of view, in that it was probably the first house in Winnipeg to be constructed of hollow tile, interlocking tile having been used with a facing of rough face brick in dark tones. The gables and oriel windows, half-timber and wide verge boards are typical of the old English type on which the house is modeled, the ensemble being interesting, both in composition and detail. In the lower storey the groups of casement windows dressed with stone are also in keeping, and add much to the appearance of the interior. The casement sash and frames are of steel of English manufacture. The living-room, dining-



GROUND FLOOR PLAN

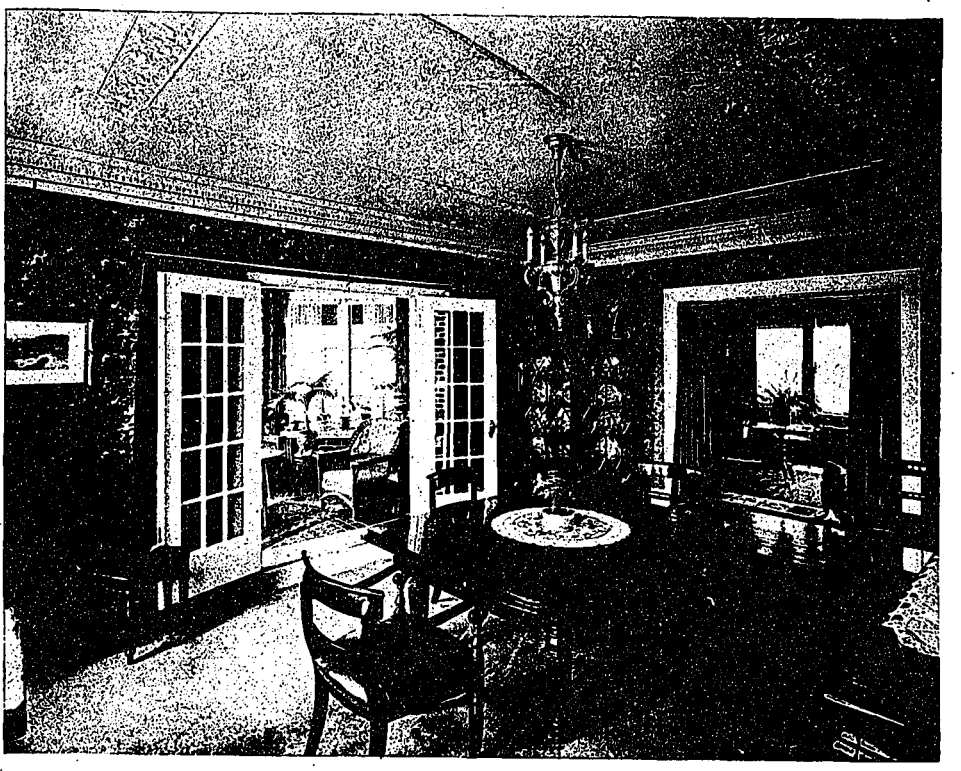


SECOND FLOOR PLAN

HOUSE NO. II., WINNIPEG, MANITOBA.

JORDAN & OVER, ARCHITECTS.

room and sun-room are nicely placed in relation to one another and to the hall, which is quite large. This portion of the house as well as the upper floor hall, is finished in oak, the sitting-room in fir. Between the kitchen and the dining-room is placed a small room, planned chiefly for the use of the children, who may use it as a dining-room. Entrance is had from the rear entry, and the upper storey reached by means of the service stair, so that it is not necessary for the children to use the front hall or main stairway.

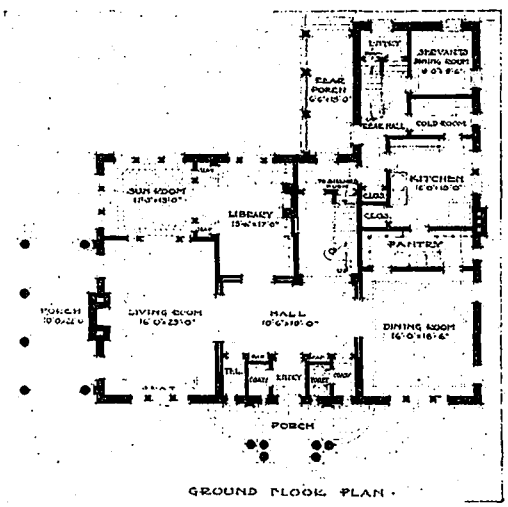


HOUSE NO. I. DINING ROOM.

House No. III.—No more suitable or appropriate model for domestic work can be found than that based on the old Colonial type, combining as it does both dignity and charm. Graceful and pleasing, its forms may readily be adapted to present use, so that the design loses nothing in character or individuality if due observance is given to the spirit of colonial work and care taken to harmonize its forms in such a manner that full expression is given to the intention and purpose of the design.

The exterior of this house expresses well the straightforward and simple plan, and fulfils the promise of orderliness and comfort which greet one on entering. The entrance hall is well proportioned and pleasing in detail. The whole of the interior, with the exception of the library, is finished in white. The photographs show the principal rooms and the stair hall, which has a typical colonial stair. The dining-room has a plaster cornice with narrow enriched frieze, and the walls are painted a light ivory tone, the surfaces broken up by panels formed by mouldings planted on. This room has a low panelled dado at chair rail height, at which level there is, on the side next the entrance from the hall, a wide shelf supported on carved brackets and used as a service table. The living-room and sun-room, like the dining-room, show the same good taste in detail and color scheme, which latter is quiet and harmonious throughout, the rugs and hangings having been designed particularly for the rooms in which they are placed. The kitchen and pantries are well fitted with shelving and cupboards, all arranged to minimize work and render it systematic. In the basement a future billiard room is provided for.

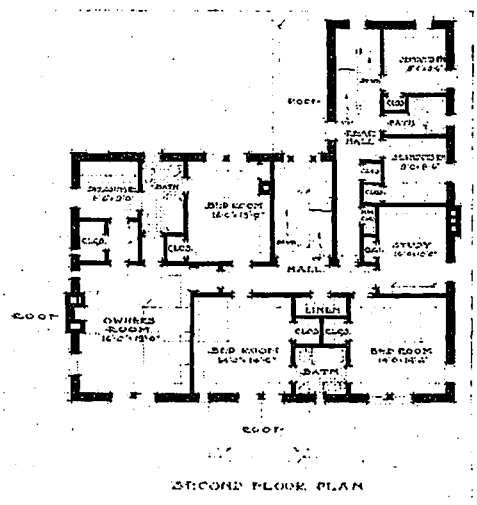
HOUSE NO. II. DINING ROOM.



GROUND FLOOR PLAN.

HOUSE NO. III.,
WINNIPEG, MANITOBA

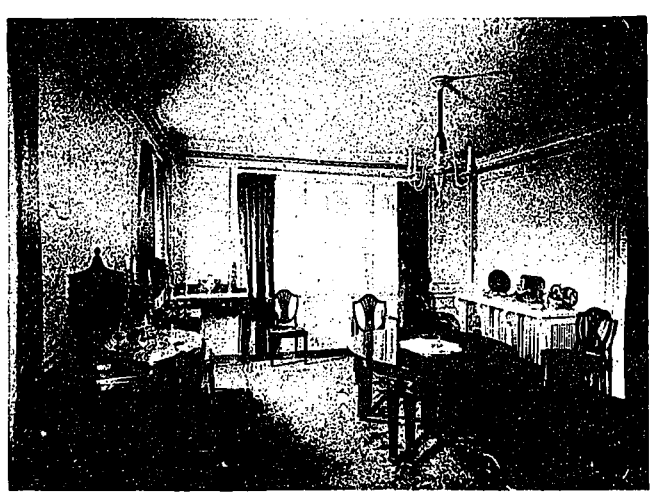
R. G. HANFORD,
ARCHITECT.



SECOND FLOOR PLAN

LIVING ROOM.

DINING ROOM.

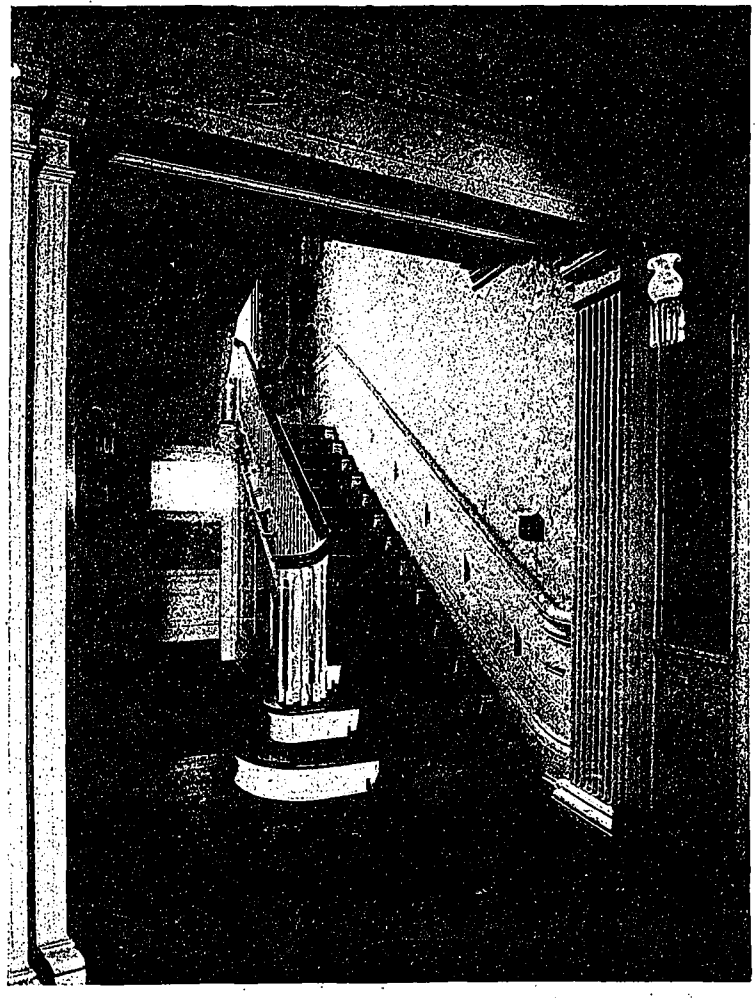


House No. IV.—Based on one of the types of modern English domestic work, this house exhibits a certain severity of outline, due to the square, compact plan, but relieved skillfully by the long sloping roof lines and quaintly combined gables. The house is built of solid brick, roughcast, the sills and window arches and the gable copings in red brick, giving a pleasing touch of color. The roof is shingled and stained a deep brown. At the rear the sleeping porch is included under the main roof, where it adds to the appearance of the house, instead of, as so often happens, forming an incongruous adjunct. The entrance hall and living-room are trimmed in quarter-cut oak, the hall panelled to a height of six feet, while the dining-room and reception-room are in white enamel. The upper floor is finished throughout in white, and includes two tiled bathrooms, while there is also a servants' bathroom in the attic. This house was built, with the garage, at a cost of $24,000.

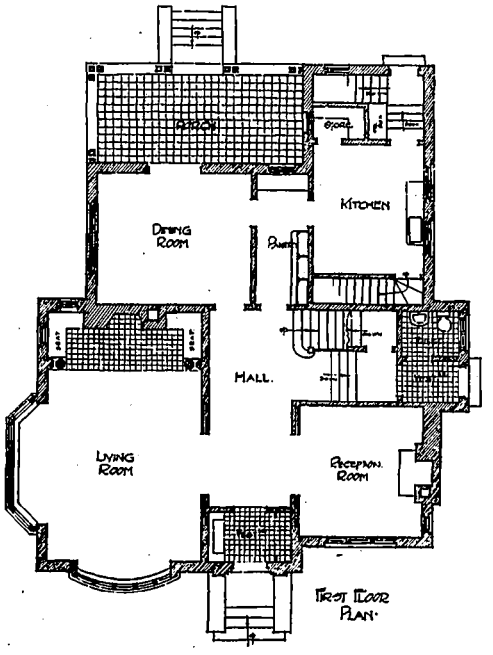
HOUSE NO. III. HALL.

House No. V.—The building is a good example of the advantage and value obtained by the use of one constructive material combined with simple lines and pleasing proportions. Striving after effect is always a mistake, particularly in the design of small houses, and here may be seen how much character can be obtained by very simple means. The entrance feature harmonizes well with the general proportion of the front elevation, and as it is set only one step above the grade it brings the house into pleasing relation with its grounds. The living-room is finished in oak, with a fireplace in oak and tile. The dining-room has a low panelled dado in white wood, the base and capping being birch stained mahogany. The ceiling is divided into nine equal panels by narrow mahogany members. On one side of the room china cabinets are built-in on either side of the casement window, with a seat between over the radiators. The hall, panelled in white to the height of five feet, forms, with its colonial stair, a very pretty feature. The second floor of the house is finished in white, the doors of mahogany in perfect accord.

The question of lighting our homes has become such a vital question that the following



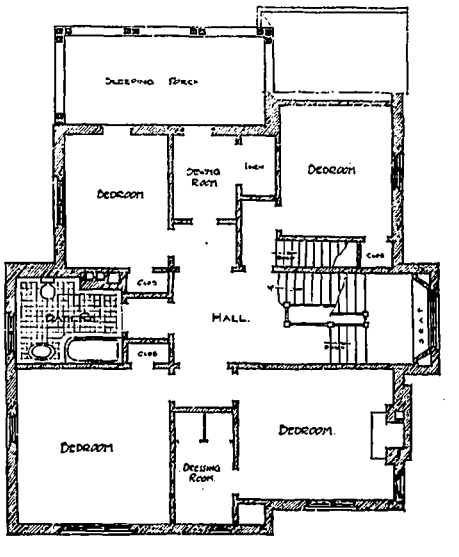
HOUSE NO. III. STAIRWAY.



First Floor Plan.

HOUSE NO. IV.,
WINNIPEG, MANITOBA.

HENRY R. LINNELL,
ARCHITECT.



Second Floor Plan.

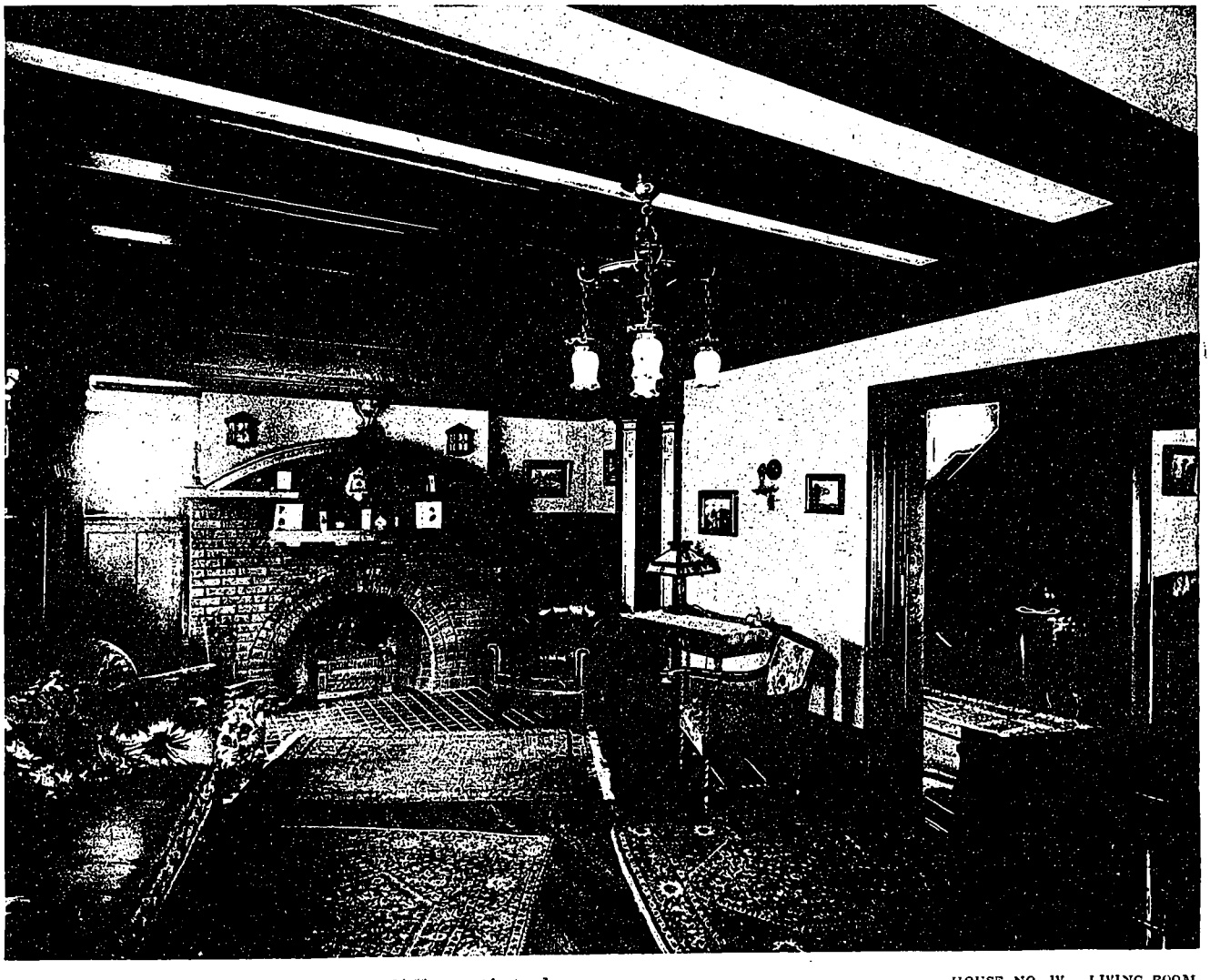
is presented from an article on the theoretical, scientific and practical phases of the subject, by F. Laurent Godinez, in the "Architectural Record":

The problem of home lighting resolves itself into a discussion of those conditions which can best be satisfied by the application of a few basic principles. It is indeed a wide gap between the city house and the three-room flat—and the interval separating the city house and country house is equally hard to span. The tendency has been to limit lighting discussions to a consideration of isolated cases which are not representative, because they are extremes, excepting the writings of manufacturers' press agents, which unfailingly prescribe one remedy for all lighting ills. The mind of the reader has been confused in attempting to differentiate between various forms of lighting equipment, whereas the real issue involves a co-relation of fundamentally important factors, without which the equation of light cannot be solved.

It is, of course, necessary to consider extremes where thousands of dollars are expended upon the lighting of a single room, but it is more important to consider the other extreme where the entire lighting equipment of the small flat must be restricted within the sum of one hundred dollars, including wiring, gas piping and fixtures.

We have reached a stage of "economy" in the use of illuminants which enables us to take a step from out of the beaten path and use artificial light, so that the occupants can derive something more than the wherewithal to see by.

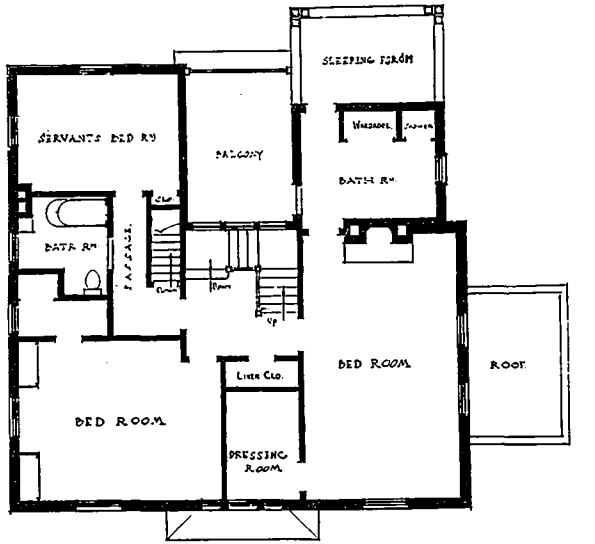
In Germany the tenant is expected to bring his lighting fixtures with him, only the outlets being provided, which at least gives him the opportunity of satisfying individual requirements, and not being obliged to put up with lighting fixtures which do not illuminate in the implied sense. In discussing this subject, my object is to present a critique of residence lighting which includes an analysis of fundamental



HOUSE NO. IV. LIVING ROOM.

principles, which are violated in either the extremes or average condition, and first amongst these is the question of color of light involving a consideration of physiological and psychological phenomena.

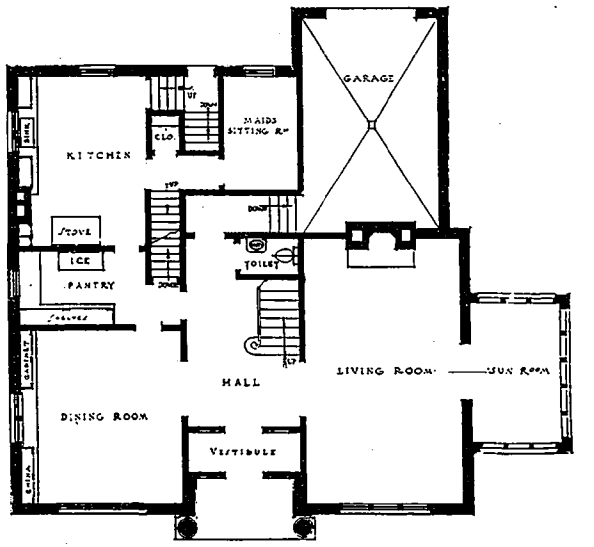
Technically, the human eye must not be exposed to light sources having an apparent brightness greater than five candle power per square inch. The following table shows how we



SECOND FLOOR PLAN.

HOUSE NO. V., WINNIPEG, MANITOBA.

HERBERT B. RUGH, ARCHITECT.



FIRST FLOOR PLAN.

have exceeded the danger mark in the past few years:

Source of Light.	Apparent Brightness (in candle-power per square inch).	Color of Light.
Candle	4	Yellow
Oil lamp	8	Yellow
Edison electric lamps, carbon 3.5 watts per candle	375	Yellow
Mazda (tungsten), 1.15 watts per candle	1,000	White
Welsbach gas mantle	50	White or Yellow
Sun on horizon	2,000	.....

From the above it is apparent that the increase in source brilliancy of our illuminants has been gradual, and the color of their light yellow up to the advent of the tungsten lamp, when an abrupt increase in apparent brightness and an equally abrupt change in color (from yellow to white) took place.

This change affected the lighting of the home in that the advertised economy of the new electric lamp (at that time discounted by its fragility) persuaded its adoption, under the impression that the white quality of light was desirable, being so advertised.

HOUSE NO. V. LIVING ROOM.

Considering first the effect of white vs. yellow light on the eye, we find that for centuries humanity has been accustomed to a white reading page, made yellow by the color of artificial light, and that with each successive illuminant improvement the relative increase in brightness was offset by the color permanence of the light, which remained yellow. With the advent of the Welsbach mantle in 1887, following the first electric lamp in 1880, the eye was subjected to a change of color from the yellow gas flame to the (then) greenish-white incandescent gas mantle. The Welsbach makers, however, soon realized that a white light while suitable for color matching and other industrial occupations, where true color values are important, was unsuitable for lighting of the home, and therefore perfected a gas mantle which appears to the eye as agreeable and mellow as the oil lamp. With the advent of the tungsten lamp, however, no word of warning as to its dangerous intrinsic brilliancy or the unsuitability of its white light was forthcoming, and as a result, its adoption over the carbon filament type, for economic reasons, transformed the reading page from yellow to white, thereby making reading more difficult, owing to the abrupt contrast of the small black type against the glaring white page. While glazed paper causes sharp reflections of light, which blurs and obscures one's sight, an unglazed paper diffuses light without glare. It is too much to ask or expect of publishers that they immediately change their methods to compensate for the negligence of the illuminant manufacturer, who should print some few words of warning upon the boxes in which his lamps are sold, thereby having a far-reaching effect. It is equally unfortunate that there is no society organized for the purpose of discriminating between lighting equipment which is conducive to eye comfort, or absolutely unphysiologic. Regarding this question of white or yellow light, Wm. J. Beardsley, an architect, who is responsible for the New York State Penitentiary buildings, informed the writer that his draughtsmen (over fifty in all), who are employed from all sections of the country, are continually taking the tungsten lamps out of the sockets in the draughting room and substituting lamps of the carbon filament type, owing to their decided preference for a working light of a yellow amber tint, not causing too decided a contrast between the black ink and the tracing cloth or white paper. Thousands of letters have been received from those who have tried the experiment of reading with a white, or amber light, as suggested by the writer (through the medium of leading magazines and newspapers) and the expression of opinion is unanimous in favor of a yellow over a white as a reading light. It is a simple matter to satisfy one's self regarding this by substituting an amber light gas mantle for a white light gas mantle, or by placing over a tungsten lamp some translucent material, such as yellow silk, paper or gelatine film. One trial will convincingly demonstrate my contention, which applies equally to installations of indirect lighting, where the remedy lies in placing a film of

yellow gelatine over the silver-plated reflectors, so that a white ceiling becomes a diffuser of yellow instead of white light, after which the ceiling can be permanently tinted the proper color. Up to this point I have discussed the physiological aspect with reference to the reading page alone, my object being to indicate one physiological requirement of good lighting, which applies with equal force to the opposite extremes represented by the plebeian's tenement or the patrician's mansion. There is another very good reason why a yellow light is more desirable for the home, and that has to do with the actual appearance of a room's occupant as influenced by the color of light therein.

The idea of considering the effect of light, as it looks to the eye, is new and quite opposed to the "efficiency-economy-utility" doctrine of most illuminating engineers, but when all has been said it is the eye alone which tells the story to the mind, and there is no reason why the "economy" of modern illuminants should not be utilized gracefully, in lighting which appeals to both the physiologic and aesthetic. The home is presumably a haven of rest. Repose is the one element which should predominate in its atmosphere. All reasoning is by comparison, whether by conscious or sub-conscious mental activity. The predominance of what may be termed the "white light effect" in office buildings, where thousands of workers engaged in clerical labor are obliged to ruin their eyesight by unnatural lighting which is unphysiologic to the degree superlative, has impressed the subconscious mind forcibly with an association of white light with working conditions. But the light in the home should not suggest to the tired mind of the business man the glaring lighting of the office, subway or shop window. A prominent ophthalmologist states.

"So many of my patients suffer whenever they go out at night, that it has become necessary to prescribe auxiliary glasses opaque to ultra-violet light (amber in tint) to be worn over their refracting lenses, in order to subdue the excessive glare which the eye is exposed to from all sides in these days of unphysiologic lighting."

The engineering element seems utterly at a loss to comprehend why a light approximating the harsh white daylight effect is not desirable for the home at night. In their endeavor to imitate Nature so closely, they have evidently forgotten that the setting sun indicates a period of rest—in the Creator's plan—and that an attempt to turn night into day is diametrically opposed to Nature's teachings. But it is entirely natural to emphasize the peace and quiet of eventide in the home by lighting which is subdued yet harmonious—in itself a symbol of repose to the eye.

It is amazing to note the transformation of an interior effected by changing from white to amber light—for the white light, which is so unkind to the features, creates likewise a garish atmosphere, showing everything to its worst advantage. The rich brown, yellow, gold and red tones, which predominate in furniture and decorations, are rendered flat and lose all their warmth and feeling. Architectural draughtsmen should try this experiment of changing a white to an amber light and observe the pleasing modification.

As to the design of lighting by the architect, providing for this subject of color, the question naturally arises as to the advisability of modifying the color of the source itself, or accomplishing the desired effect by enclosing the source within some color-modifying device. Maintenance is always an important subject to be considered, and very often through negligence a lighting arrangement, which was quite effective when first installed, becomes entirely unsatisfactory by substitution of wrong sized lamps. Assuming that amber light gas mantles, or tungsten lamps with amber-tinted bulbs, were specified by the architect, what assurance could he have that these would not be replaced by white light lamps, as renewals?

The better plan is for the architect to design equipment for residential use, which is constructed to insure the proper color effect, based upon the use of a white light source. With indirect lighting, as previously mentioned, the ceilings can be tinted, unless such procedure is opposed to the color scheme of the room.

There are times when even a greater variety than is afforded by general or local lighting, in any form, is an agreeable change, and in order to make possible such lighting, the architect can assist by specifying an adequate number of base-board outlets. The lighting of the pianola-piano, where silk candle shades are placed so as to compliment the players' or soloists' features, yet give sufficient light for reading (evidenced by clearness of the metrostyle line on the pianola roll) would have been difficult to accomplish had not the architect placed a base-board outlet below the lamp, on the side wall. Lights like these must always be subordinated—and predominance on their part unbalances the ensemble. The charm and appeal of these small lights is very great, and it is to be regretted that manufacturers in this country have ignored the possibilities lighting affords. Undoubtedly the day will come when lighting equipment, comprising fixtures, glassware and lamps, will be designed and manufactured with a view not only to conform with architectural requirements, but with living requirements as well, and we will then realize that we were in the "Dark Ages of Lighting."

Importance of Ventilation in Our Dwellings*

THE few remarks that I will make on this subject are merely reminders of the one great fact—the importance of good ventilation in our dwellings.

I shall take no time at all to dwell on the different methods or any particular system that would be introduced for the purpose of ventilating, for, in order to do that, figures and illustrations would also have to be introduced.

Records of ventilation by means of bellows and blowers are to be had, by the Romans, and later by the Germans. Without doubt, however, the British attempt marked the beginning of ventilation as we to-day understand and use the term.

Probably the first effort to ventilate a room of any considerable size was made by Dr. J. F. Desaguliers, who in 1723, arranged a ventilating apparatus for the British House of Commons. This apparatus was used for upwards of eighty years, being replaced early in the nineteenth century by a system of fans propelled by hand. These fans were arranged to exhaust the foul air at the top of the building.

The early attempt at ventilation was to remove the air vitiated by the exhalations of many people occupying a single room and of the candles or various styles of lamps used for lighting.

With the introduction of the present day type of heating apparatus came the greater need of ventilation in order not only to exhaust the foul air, but also to provide a supply of fresh air to replace that vitiated by the breath of the persons occupying a building, and also the oxygen consumed by lamps or gas burners for illuminations.

We know that the all-important element or quality of the atmosphere is oxygen, and without it we can have neither heat nor light. It is necessary to sustain life, for without its presence all living beings would die. Without oxygen, fuel will not burn, for it is required in the chemical process of combustion.

The atmosphere we breathe is composed principally of about one part oxygen to four parts nitrogen, together with more or less vapor, or water in a gaseous state, which is known as humidity. Oxygen is the life sustaining quality of air, which is diffused by the nitrogen.

There is also present in the atmosphere carbon dioxide, or carbonic acid gas, which by itself is not so particularly harmful. However, under certain conditions it is detrimental to health, not from the small amount usually present in the air, but when present in larger quantities due to the exhalations from the lungs of several persons congregated in one room. It then produces a feeling of closeness or stuffiness, causing headaches, and is otherwise detrimental to health.

The poisonous matter thrown into the air, or given off, by our bodies is also the source of great danger to health; for example—confine a person in a tight enclosure, that person will live as long as there is oxygen to breathe, depending of course upon the size of the enclosure; the oxygen will eventually be consumed and the person choke or suffocate, being poisoned by the carbonic acid gas and the impurities exhaled from his own body.

If our exhalations are poisonous to ourselves, what then may be said of the risk entailed by living in or temporarily occupying crowded rooms, such as offices, workrooms, or places of amusement even, where we are breathing the foul air exhaled from the lungs of our neighbors, some of whom may be suffering from tuberculosis or other diseases, and so contaminate the air with the germs of such diseases?

As another example, enter your own friend's house where a social gathering is celebrated. Enter the house from outside where the air is pure into brilliantly lighted rooms not sufficiently ventilated, and possibly more or less crowded, a feeling of suffocation is at once apparent. A person not strongly constituted or in good health may in a rather short time faint from lack of air, while a stronger individual may perhaps become accustomed to it and soon fail to notice the oppressing effects of the foul atmosphere of the room.

However, it might be to advantage to remember that the use of electricity for lighting purposes has done much towards maintaining the purity of the atmosphere under such circumstances. That the need of ventilation has long been recognized by physicians, architects and engineers is shown by the several works by the most prominent men treating upon this subject.

It is repeatedly asked what amount of air is necessary for ventilation? This question may be answered by a number of examples. Perfect ventilation might be said to be the exhausting of the foul air and the admitting of the fresh air in such quantities that the inhabitants of a room or building would never inhale the same air twice, or, in other words, would breathe air inside the building of the same purity as that on the outside.

Such a state, however, is neither practical nor necessary. With the size and condition of a building and the probable number of occupants

*An article read before the Sanitary Inspectors' Association of Western Canada by J. E. Thomas, Sanitary Engineer and Health Inspector for the City of Moose Jaw.

known, it is possible to estimate very closely the air supply necessary to maintain a certain amount of purity within the building. We know that not so many years ago a fresh air supply of 30 cubic feet per hour per person was considered sufficient; to-day we look for six times that amount, i.e., 1,800 cubic feet per hour as being the minimum supply essential, even in an office or a dining room. In hospitals we want 3,600 cubic feet per bed, assembly halls 3,660 per seat, bedrooms and workshops 3,600 per person, theatres and ordinary halls of audience 2,000 per seat.

Last September Dr. Evans, of Chicago, during his lecture in the Public Health Convention, told us that within a certain congested area in New York City there were 75,000 consumptives; that there was no question but that this terrible showing is due to the over-crowded dwellings, especially the sleeping rooms, and the workshops, or more popularly designated as sweat shops, where the admission of a small percentage of air would work wonders in the elimination of disease.

The average individual spends one-third of his, or her, life in the bed or sleeping room. How much rest or physical relaxation do we enjoy without the necessary amount of fresh air to breathe? Sleeping rooms should, therefore, be well ventilated, and this may easily be accomplished by the thorough airing of the sleeping room during the day, and the opening of the windows at night. By giving the matter a little thought and attention the bed may be so located that no severe draughts are felt by the occupants.

However, to properly ventilate the room it should have its separate pure air supply, tempered by heating and ventilating duct leading from the room to the main ventilating stack of the building.

A building may be properly ventilated only when adequate provision has been made by the architect and builder of such stacks, flues or ducts as may be necessary for the system of ventilation to be adopted. There are two general methods of producing ventilation, namely, natural and mechanical.

However, as we are considering the ventilation of dwellings, my remarks must be confined to the former, as the latter is seldom, if ever, utilized for buildings used as dwellings otherwise than flats in conjunction with business blocks of large dimensions.

Natural ventilation as expressed and understood is caused by ducts so constructed that the velocity of the outside air or difference of temperature produces a change of air within a building. This method by itself is hardly satisfactory, but when assisted by heating surfaces placed within the exhaust flues and warming the entering air by passing it over or between the heated surfaces of radiators in a manner commonly styled indirect heating, is productive of good results.

The two methods most commonly adopted to answer the purpose of good ventilation are: (1) By employing a main ventilating shaft centrally located in the house, into which foul air ducts from the various rooms should be connected. (2) By utilizing the chimney as a ventilating shaft.

As most modern houses are equipped with a fireplace, the latter method would probably be more favorably considered. However, it must be said, that the importance of chimneys as ventilating mediums is not always recognized. The open fireplace, when in use, provides a most successful means of exhausting the foul air from a room.

A chimney or stack may be successfully used by running a smoke flue constructed of boiler iron through the centre of the shaft and surrounding it with ventilating ducts of such number and size as may be necessary to accommodate the rooms to be ventilated. These ducts should rise to the height of the brickwork of the chimney, on the top of which there should be erected an iron canopy open at the sides. The smoke flue should protrude through the top of the canopy.

The smoke flue warms and expands the air in the ventilating ducts, inducing an upward circulation which exhausts the foul air from each room and discharges it into the atmosphere outside under the canopy at the top of the chimney.

This method of ventilation, in connection with indirect radiators for warming, is quite successful and by slight modifications may be readily adapted for many small buildings. For residences this is quite a satisfactory arrangement.

* * *

One of the most important points to observe in building operations is that of keeping dampness out of all parts of the structure. The dampness may be caused by there being no damp-proof course; the damp rising from the ground; the damp earth against the walls; rain soaking in through porous parapet walls and copings; driving rains against walls; burst pipes or leaks in roofs and other causes avoidable by a proper state of repair being maintained. Beyond this last cause, which should never occur at all, to attempt after the building is occupied to remedy any of the other five omissions or faulty construction is a costly operation. For example, the cost of inserting a damp-proof course into a wall constructed without one is about as five or six to one, according to the material used, as compared with the cost of putting one in at the time the building is erected.

Houses at Montreal, Quebec

PHILIP J. TURNER, F. R. I. B. A.

AN architect at the present time has to be the sole creator of his work. Such was not the case in the olden days when trade and craftsmen's guilds existed. The architect was then the master mind with a body of trained men under him who not only worked with him, but understood his aims and ideas, each in his own department, carrying them out, not mechanically but with a personal interest which reflected itself in the general result. This old spirit of craftsmanship is dead and the workman now produces nothing but what is detailed for him.

In spite of many handicaps it will almost invariably be found that if an architect of good standing is given a free hand, the house he designs will be a real success—harmonious in all its parts, being carried out as a single scheme in obedience to the direction of one trained mind. But it is seldom that an architect has a free hand, and as Guy Dawber, one of England's foremost domestic architects has so aptly said: "His art is usually a thing of compromise, and what can be more disheartening to a man of genius than compromise in an essential of design and art?"

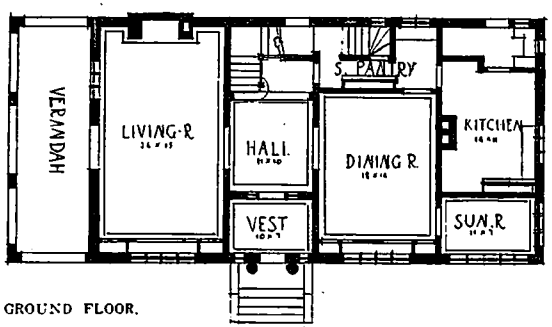
An architect's zeal for his profession forces him to look ahead; he cannot be content to stand still and take things as they are. New schemes, better and more modern methods, simpler treatments and broader effects are ever before him in his thought, and he is inclined to lose heart when compelled by a client to abandon his efforts to produce something really artistic and good. It is well known that both Montreal and Toronto possess several excellent examples of Domestic Architecture. "What are some of the features of a good house?" it may be asked. In the first place the use of different kinds of building materials in the same house should be avoided. What is more distressing, for instance, than to see such materials as stone, brick, roughcast and half timber-work employed on the building of a single house? In the construction of suburban or country houses the texture and color of the walls play a far more important part than a variety of features in different materials. Breadth of treatment is absolutely essential to the repose and dignity of the whole composition and this can never be obtained if the wall surface is broken up with ornament and unnecessary detail. Then again, position and locality should be taken into consideration when building. Nothing could be more out of place than the use of imported glazed tiles for the roof of a house which stands among fine old trees.

Now that building materials can be so easily imported from other countries, some clients select strange and often startling materials for their homes, with the result that the whole neighborhood is spoiled by the jarring effects of widely varying types of houses, built of

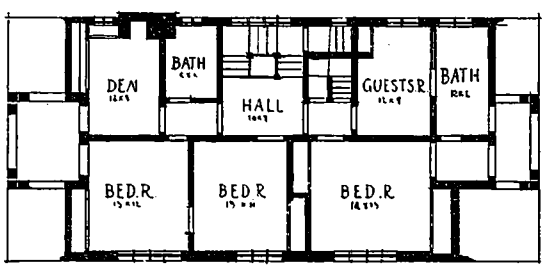
HOUSE NO. I. MONTREAL. SAXE & ARCHIBALD, ARCHITECTS.

HOUSE NO. II.

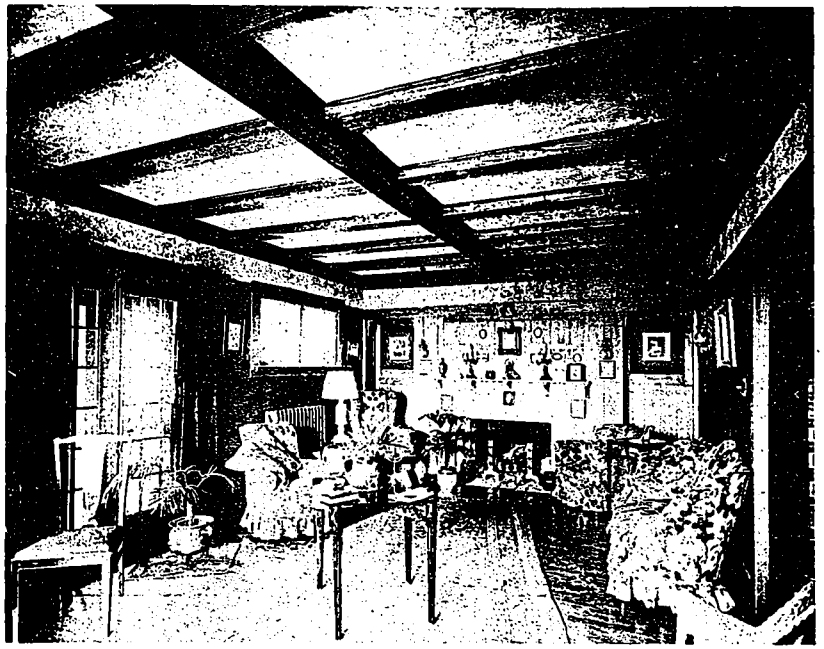
SAXE & ARCHIBALD, ARCHITECTS.



GROUND FLOOR.



FIRST FLOOR.



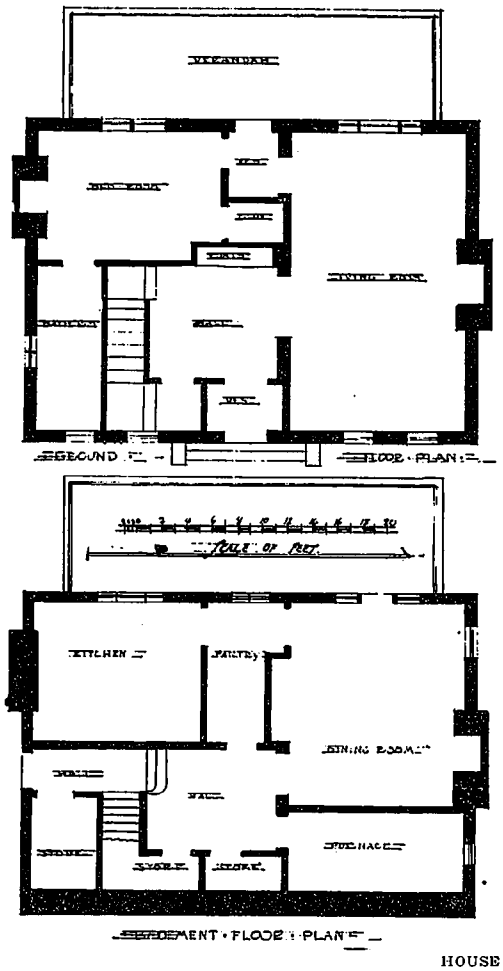
VIEW ABOVE—LIVING ROOM.

VIEW BELOW—DINING ROOM.

violently contrasting substances. A successful architect in the best sense of the word should foster local traditions, and encourage local industries and trades. It is better to build with materials which have been tried than to employ those which are out of harmony with the district.

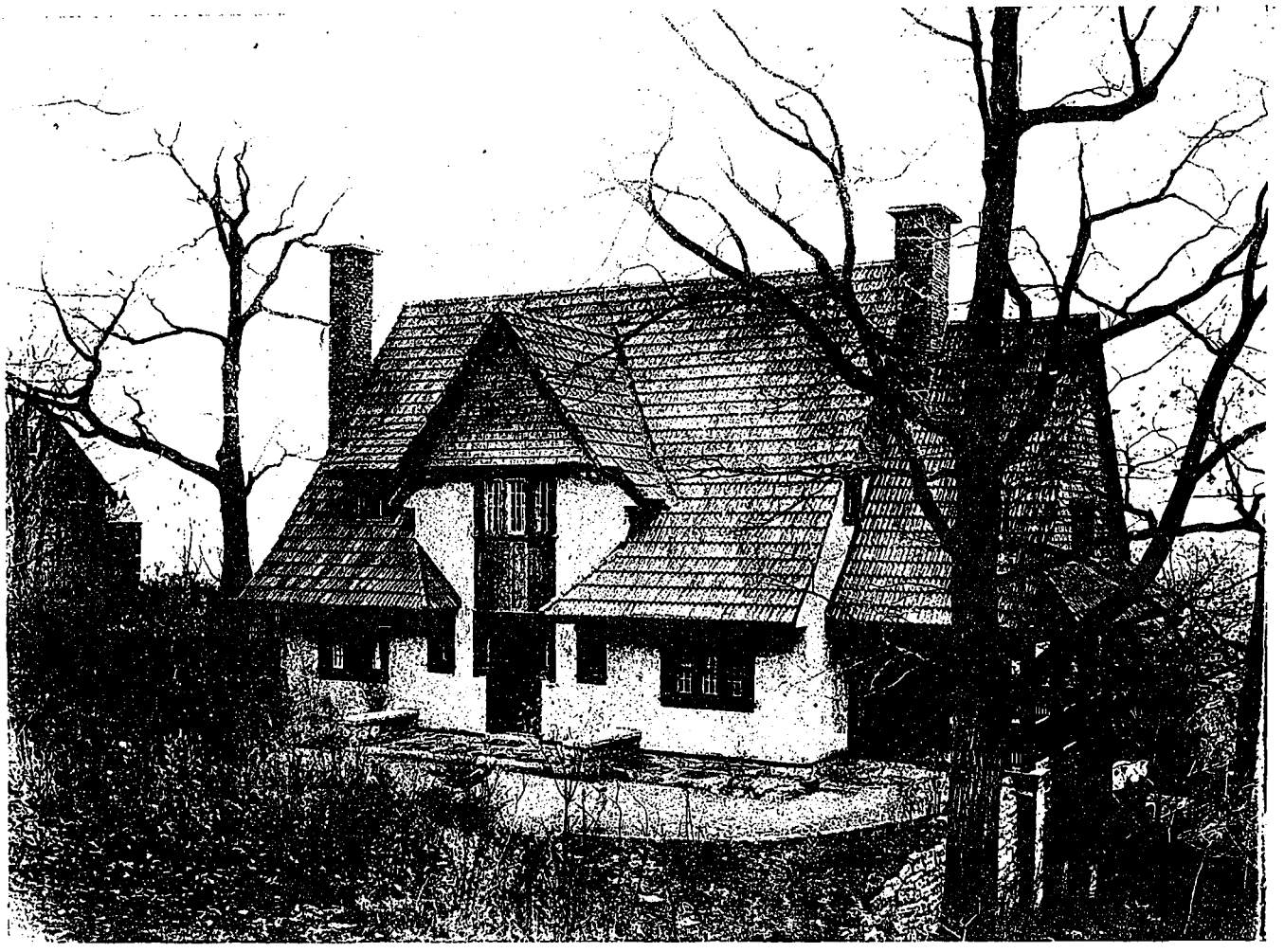
The illustrations in this article give examples of some of the smaller houses of a better type to be found in Montreal and Westmount. The favorite residential districts are undoubtedly on the slopes of Mt. Royal. Here a splendid panorama is to be obtained, in most places, of the St. Lawrence River and the city itself, while in the far distance the mountains of Maine State can be seen on a clear day The mountain, having many natural advantages, forms a unique setting for residences. In many cases the slopes are very sharp, which fact involves unusual and careful planning on the part of the architect. The front walls of a house, for instance, will often be two or three floors above the back. Whilst such conditions lend to a properly designed house much that is interesting, constructional difficulties are considerably increased, the matter of surface water, which abounds in the peculiar lamination of the rock composing Mount Royal, being one of the greatest.

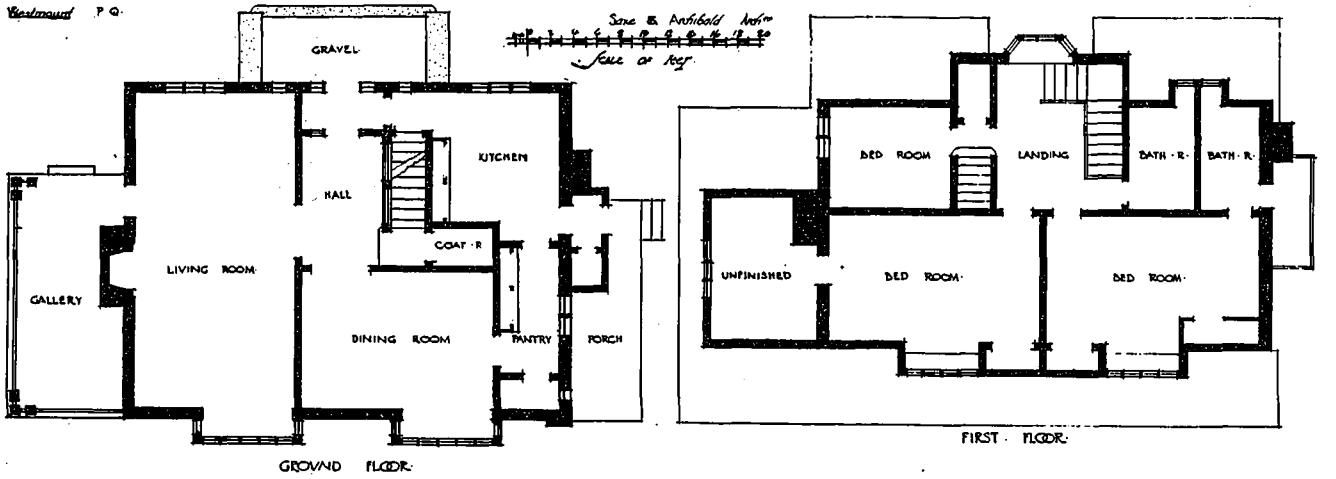
The flat-hopper type of roof, with the down-pipe taken through the house is considered by some Montreal people to be the one and only form of roof to be used for the cold and heavy snow-falls experienced in this district. From a practical point of view the flat pitch and gravel roof is certainly satisfactory. We know the objection, if not danger, of occasional avalanches of snow from a sloping roof, also of icicles falling from the eaves when melted by the sun. Granted these objections—which are only serious when a house is built directly on the street line—there is no question but that a pitched roof is far more pleasing to the eye than a flat one. To look down from a high level upon a vast stretch of flat roofs, embellished for the most part with strange looking skylights and scuttles projecting above the roof, is, to say the least, not an inspiring sight.



HOUSE NO. III. SAXE & ARCHIBALD, ARCHITECTS.

A good example of a house with a flat roof, is however, to be found in House No. I, located at 128 Cedar Avenue. It was erected by Saxe & Archibald, who have gained a well-deserved reputation in Montreal for their domestic work, their designs always displaying true artistic individuality. This house was built two years ago at a cost of $23,000. The exterior is simple in treatment but carefully considered. The stone panels on the front, the recesses formed in the brickwork, the projecting band cornice, are all introduced with good effect, giving in-



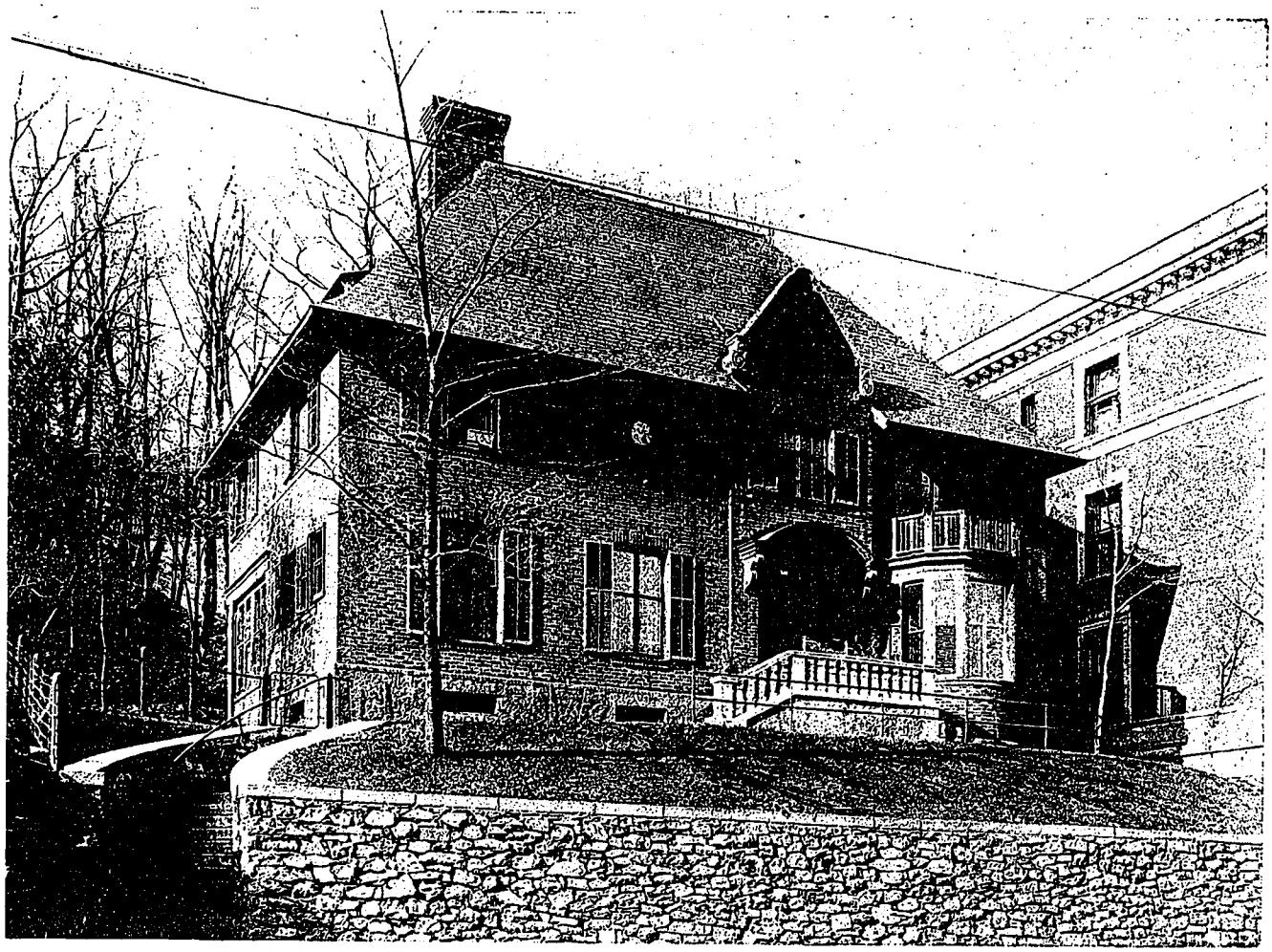


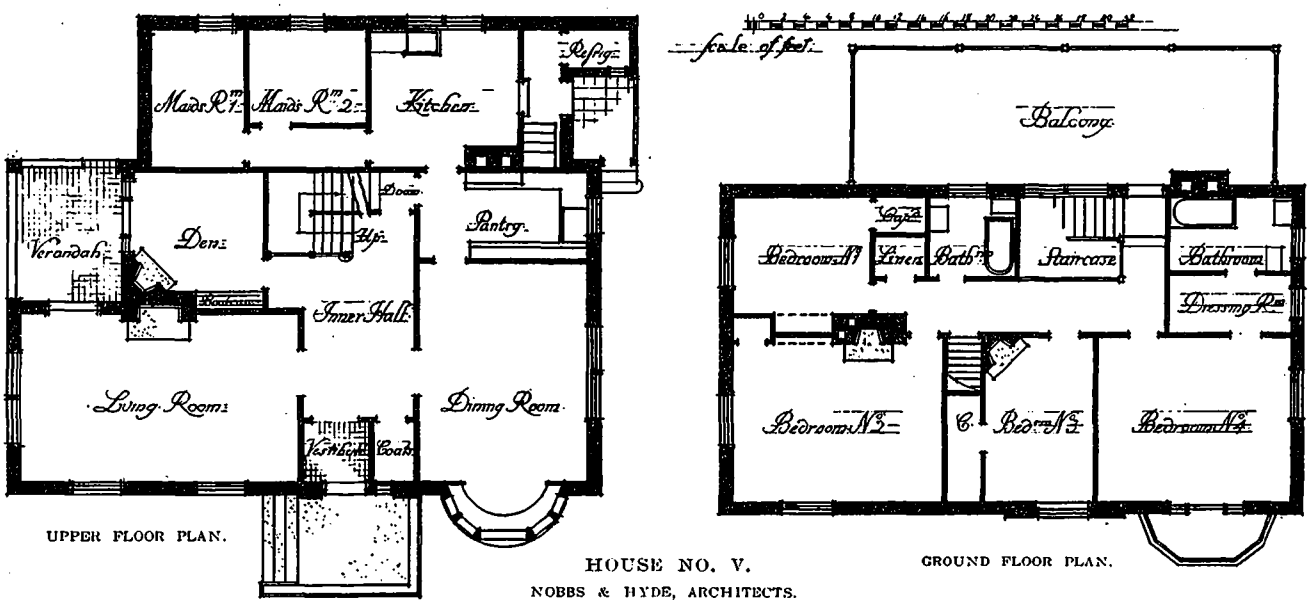
HOUSE NO. IV. SAXE & ARCHIBALD, ARCHITECTS.

terest to the whole design. The walls are built of plastic bricks, which are carried down to the ground instead of being erected on a base of stone and concrete at the ground floor level, which is the more usual practice in this district.

House No. II at 305 Cote des Neiges, is a well-designed and economically built house of red plastic brick, by Saxe & Archibald, costing approximately $13,000. The proportion is particularly good and shows a very satisfactory roof of green slate, well adapted to a perfectly straight plan. In houses of this type it will be noticed that the grouping of the whole is what gives complete satisfaction--simplicity, without the introduction of a great variety of features and materials, being the key note. The woodwork is painted white and the main eaves are panelled. One feature of the exterior is the sleeping porch at the end of the building; this addition is found in most of the modern houses of to-day. The interior shows the same care and thought of the artist as is portrayed by the exterior.

Another house by the same architects is No. III, at 68 Westmount avenue, built for H. Mortimer Lamb, Esq. It is built on a steep slope, with a fine view of the city and St. Lawrence from the verandah at the back. The house is





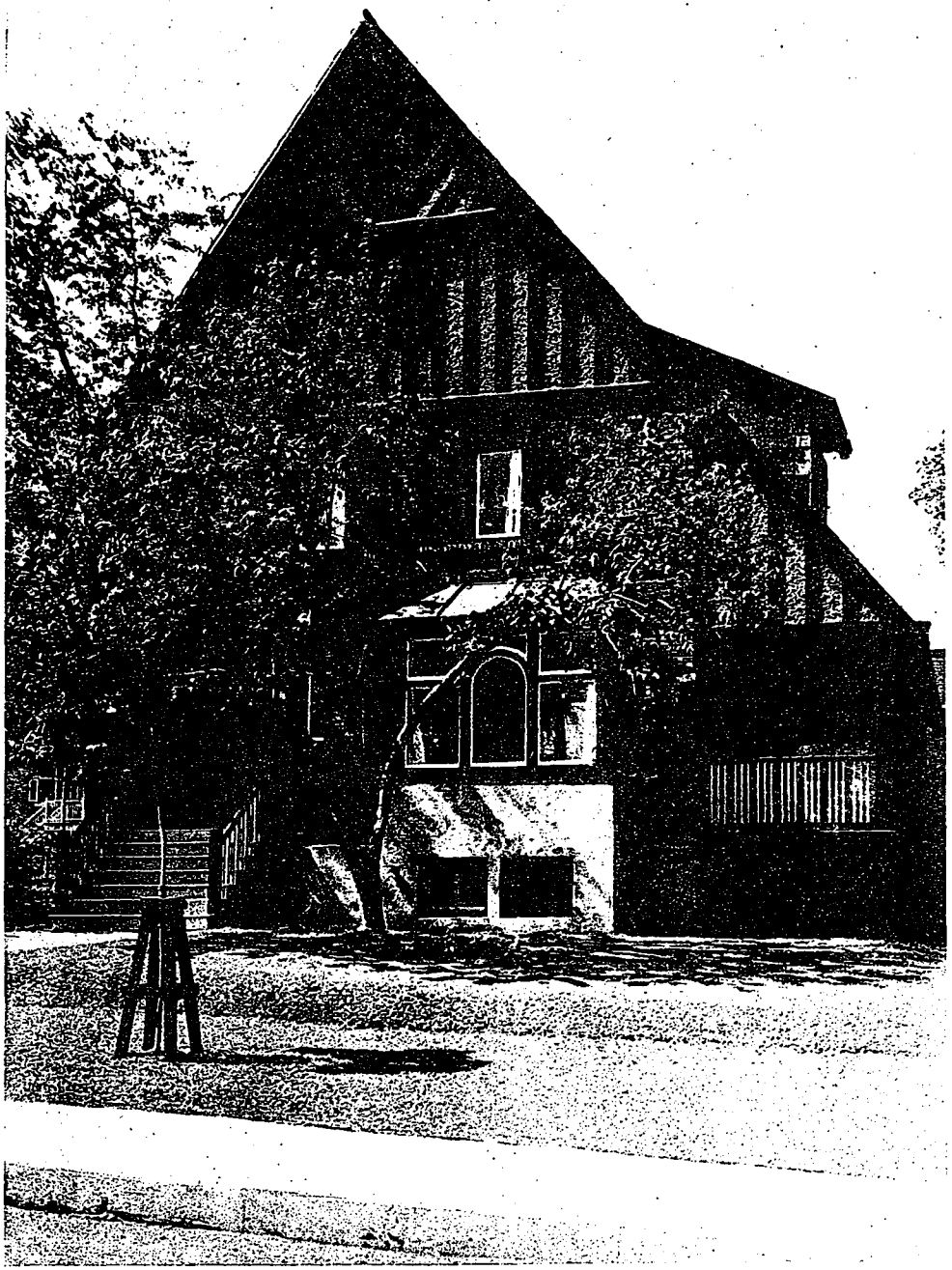
UPPER FLOOR PLAN.

HOUSE NO. V.
NOBBS & HYDE, ARCHITECTS.

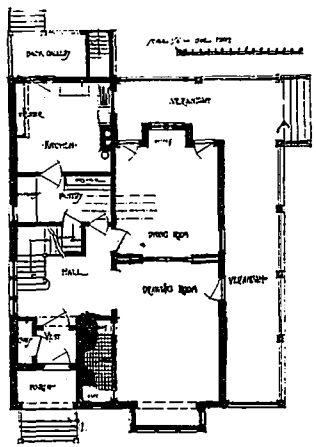
GROUND FLOOR PLAN.

constructed of wood framing on a plastic brick foundation, the former being covered with metal lath and cement roughcast. The overhang at the first floor just gives the necessary breadth required to a house of this type. The white birch trees form a delightful setting to the whole. The large roof covered with English red tile provides space for an artist's studio, with large windows to the north end, whilst on the first floor there are four bedrooms and bathrooms.

House No. IV. on Sunnyside road, Westmount, is one of Saxe & Archibald's earlier houses, and has a distinctly Old Country aspect about it. From the illustration it will be seen that it is built on a steep slope of the mountain side. The base is of stone, taken from the site with cement roughcast walls above on metal lath. The steep pitch roof is covered with a heavy American red tile and plain red tiles on the gable ends. The plan is carefully thought out. Both the front and tradesmen's entrances are conveniently placed to the kitchen, access



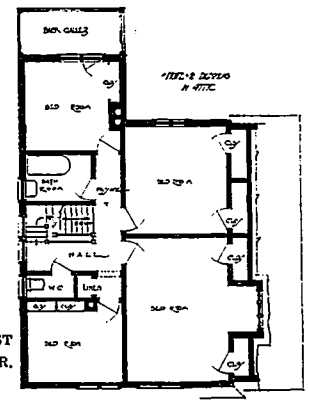
DRAWING ROOM.



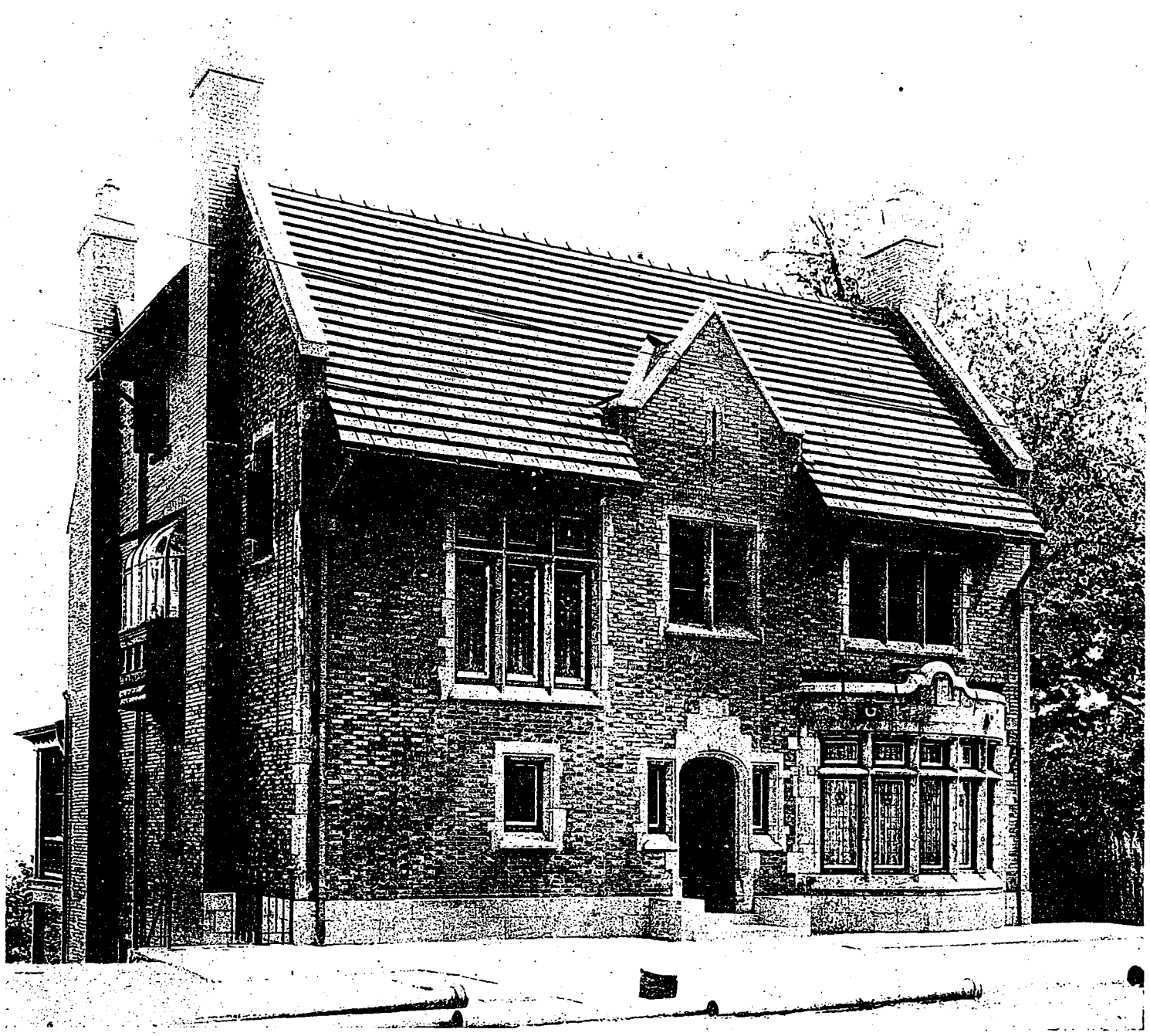
GROUND FLOOR.

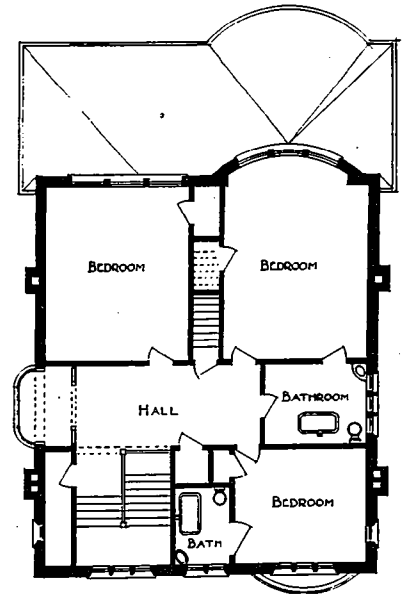
HOUSE NO. VII,
MONTREAL.

PHILIP J. TURNER,
ARCHITECT.



FIRST FLOOR.

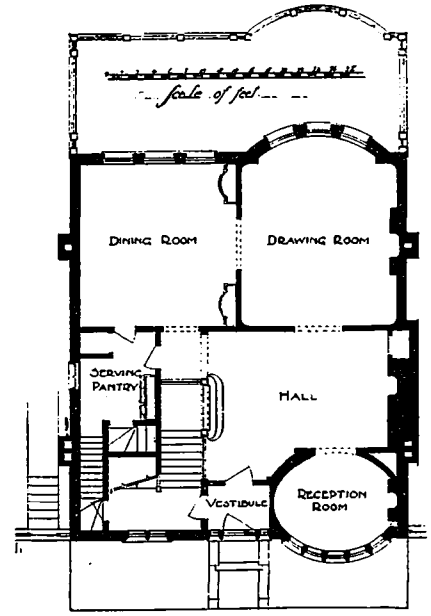




GROUND AND FIRST FLOOR.

HOUSE NO. VI,
MONTREAL.

ROBERT FINDLAY, ARCHITECT.

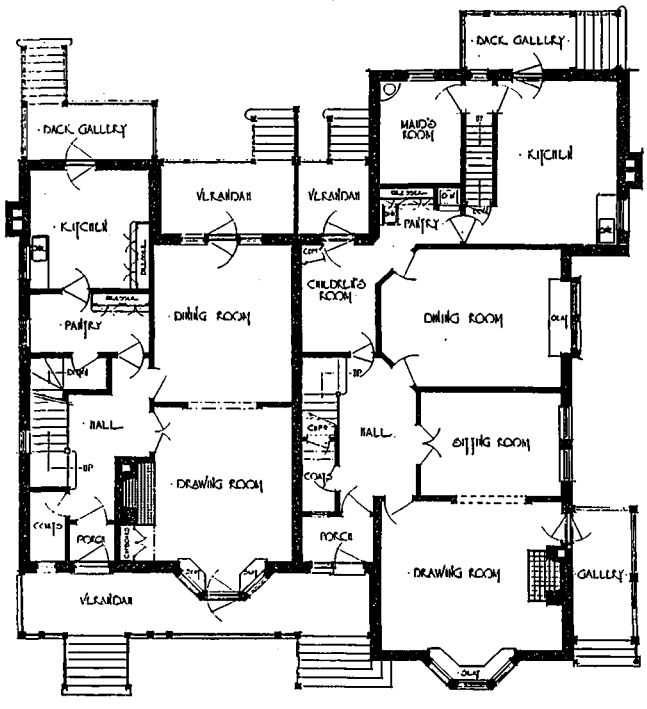


being obtained through the former without passing through the hall. The principal rooms are situated on the opposite side of the building to the entrance, so as to command the best view and aspect.

GROUND AND FIRST FLOOR PLANS.

HOUSE NO. VIII.

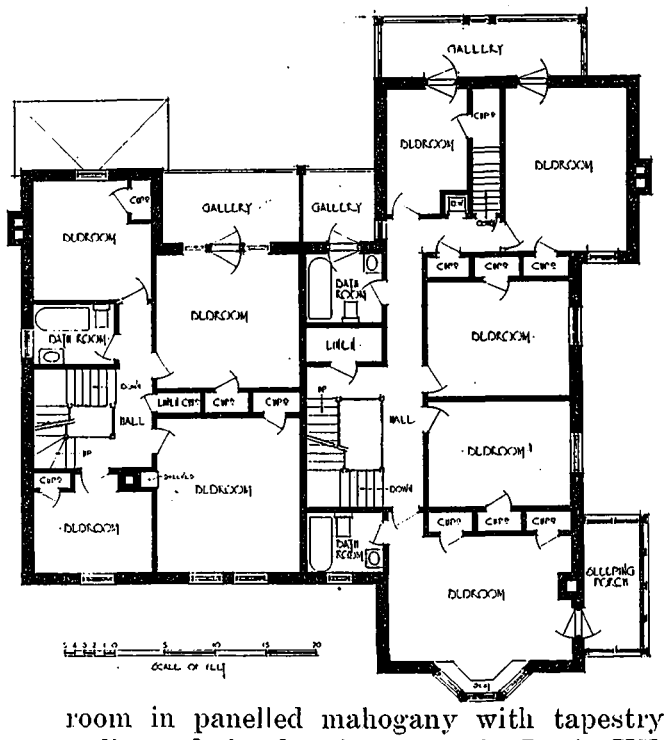
TURNER & CARLESS, ARCHITECTS.



At 595 Pine avenue is house No. V., designed by Messrs. Nobbs & Hyde, and built in 1911. The roof is of green slate, with a bell-mouthed curve at the eaves. The walls are of varicolored tapestry bricks, with pressed red bricks at the quoins string, and base courses. The base of the walls is finished in cement roughcast.

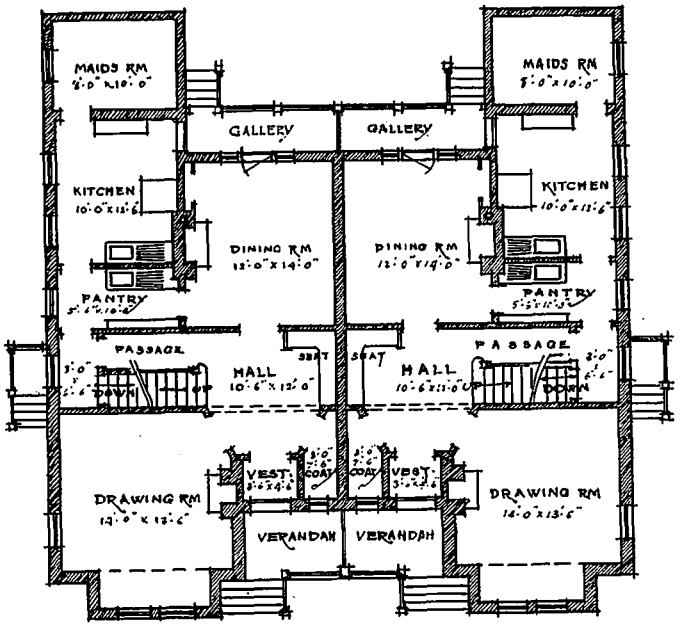
The architect of house No. VI. at 598 Pine avenue is Robert Findlay, the walls being of light buff pressed bricks, with Indiana limestone quoins and trimmings, the roof of shingle tile. The base is of Montreal limestone, and the roof of large American red tiles. In front of the house the sidewalk is paved with red quarry tiles with a margin of red brick and stone.

Situated on a steep hillside, with verandahs overlooking the city towards the south, this building, erected in 1911, lends additional charm to its natural warm and domestic appearance. Upon the interior the reception hall follows the sixteenth century French style in white; the main hall Georgian, the dining

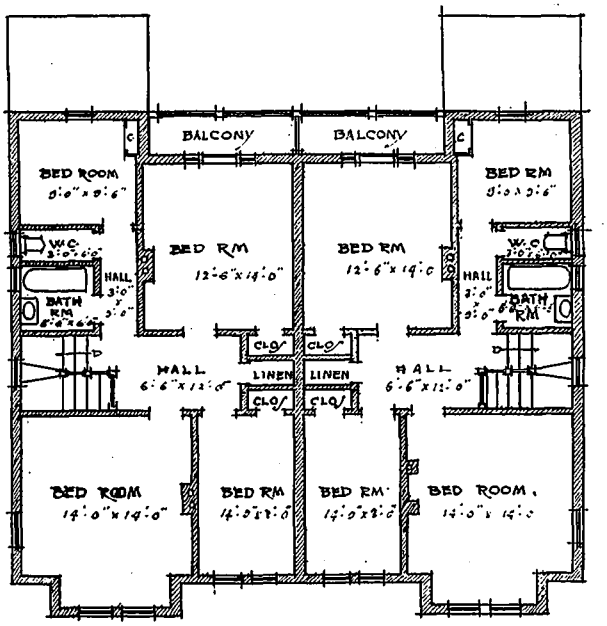


room in panelled mahogany with tapestry walls, and the drawing room in Louis XV. The approximate cost was $20,000.

House No. VII. at 272 Macdougall avenue, Outremont, was erected in 1910 of solid three-inch plank construction; the outside walls being covered with plastic bricks, having a concrete base. The cost of this house completed was $9,000. Half timber construction, with cement roughcast between the studs, has been introduced in the main gable, the upper portion of which overhangs the lower. The roof in turn overhangs eighteen inches in front of the main gable, giving to the whole design



GROUND FLOOR.



FIRST FLOOR.

HOUSE NO. IX.

PHILIP J. TURNER, ARCHITECT.

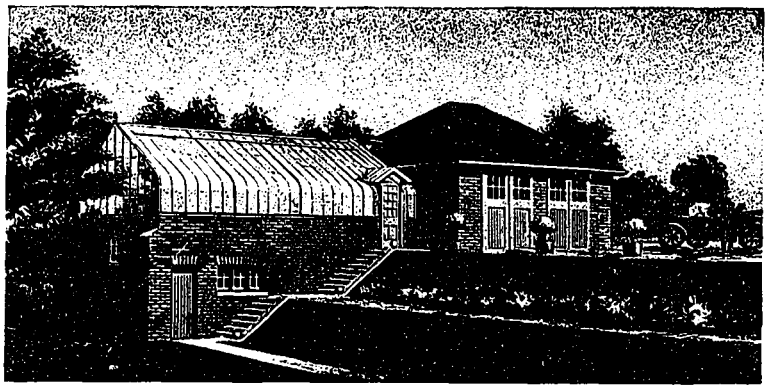
the effect desired by the owner—of an Old Country half-timbered gable end. The steep slate roof on the west side is continued down to first floor level as a cover for the gallery, ten feet wide, which extends the whole length of the house. The living room, dining-room and hall are finished in chestnut. The main feature of the living room is the ingle nook, which is paved in red quarry tiles. The accommodation shown by the plans comprises on the first floor four bedrooms and bathroom, and two large bedrooms in the roof.

The semi-detached houses, No. VIII., located at Maplewood avenue, completed this year, were planned with a desire to avoid the appearance of semi-detached houses of the usual type. The larger part is occupied by the owner, is absolute simplicity, and was dictated by taste and economy, bringing the total cost to $23,500, which is at the rate of 24 1-2 cents per cubic foot. This low figure was obtained on a rocky site, where a considerable amount of blasting and uphill haulage was inevitable. The brick walls are covered externally with roughcast of small limestone clippings and cement.

The semi-detached houses No. IX. at Grosvenor avenue, Westmount, were built in the winter of 1908-9 at the low cost of $10,250, which is equivalent to 17 1-2 cents a foot cube. They are of solid plastic brick construction, and, as the plans indicate, each house provides accommodation for four bedrooms and three open fireplaces. The finish of the downstairs rooms is in chestnut, with birch floors.

The problem of the home is not confined to the desire of shelter only, but rather to express the individuality of the owner and the designer. We are endeavoring to feel once more the

spirit of our forefathers, who worked with a sincere appreciation for beauty untarnished by the commercialistic tendencies of to-day. When the small home builder longs to feel that his dwelling breathes the spirit of himself, and that the architect has given every attention to making his desires a creation of charm and dignity, then we will see the suburban districts and country highways teeming with small artistic structures, each possessing in itself a harmonious relation with the surroundings and the people who live within. Some one has said that there is so much that is vital in this matter of the building of a home; it is so closely allied to the most intimate and wonderful of human experiences, so irrevocably bound up with both individual and family growth, that one cannot help feeling that those who go through life without at some period or other achieving this primitive but important undertaking, have missed one of the most subtle and far-reaching opportunities for personal happiness and self-expression that the world can hold.



The Greenhouse and The Conservatory

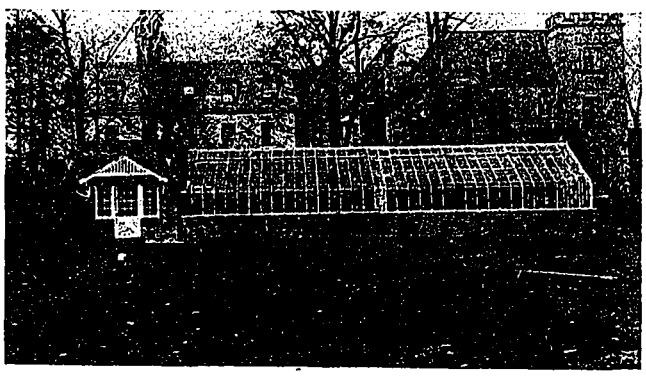
NO house is quite complete without a glass-covered section, a fact which meets the prevailing opinion among home builders. It may be of ample proportion or inexpensive, suitable to the character and style of the living structure itself. That the Canadian field is adaptable for conservatories and greenhouses is proven by our climate, which furnishes plenty of sunshine even in the coldest weather, so necessary in the proper cultivation of flowers and vegetables. The exterior is considered from the esthetic side, and every endeavor is used to make it harmonious to the other surrounding buildings; while the interior is planned in reference to utility and practicability. In other countries the greenhouse has become an integral part of the general scheme, and is gradually assuming a similar position in our own provinces.

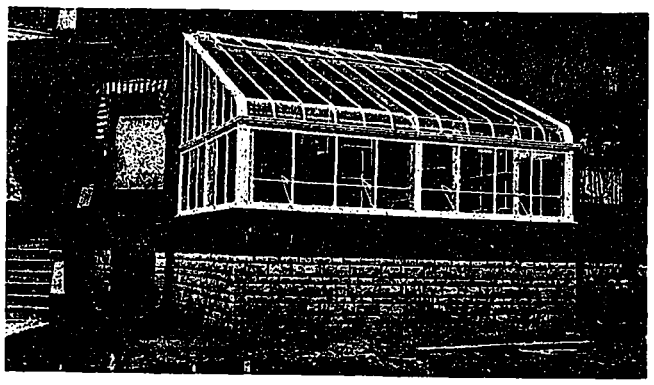
The expert advice of men who devote all their time and energy to this phase of work is enabling the architect to carry out his idea from the very beginning, so that no discordant note is introduced after his work is completed. This assistance is necessary in view of the technicalities arising from such construction, and also to the condition that the ordinary laws of radiation, light and ventilation do not apply. Many characteristics have to be taken into consideration, and it is essential that the client, architect and greenhouse critic hold conference in order that each may feel the final results satisfactory from every viewpoint.

The problems arising from existing circumstances, such as position, general contour of land, shape, etc., are so varied as to make this adjunct a matter of considerable importance. As seen in the accompanying examples the general surroundings figure extensively in the character of the building. One shows a combination of greenhouse and garage, where the heating plant answers for both and illuminates all danger arising from gasoline fumes coming in contact with the heater. All undesirable background of fences and buildings can be hidden, and that which often proves an eye sore is replaced by an attractive setting for flowers and shrubbery.

Conservatories can be divided into two main types—the wood and the iron frame. Of the two the latter is the most permanent and satisfactory, for when properly designed is far more rigid than the wood, reducing the breakage of glass from wind stress. The members also are smaller, thus reducing the shadow cast to a minimum, heavy pillars and woodwork being a great detriment to efficiency. With the metal frame construction we have an opportunity of using the curved eave, which adds to the attractiveness of the building, as well as to its effectiveness. With the curved eave the gutter is run in combination with the sill, cast in one unit, and laid as a cap on the foundation wall, to which all the superstructure is bolted. The best form of glazing is the lapped glass, laid in putty and secured by good strong glazing points. Care must be taken not to make too large a lap or moisture will collect in winter under the lap, freeze and crack the glass, while the best putty should be used.

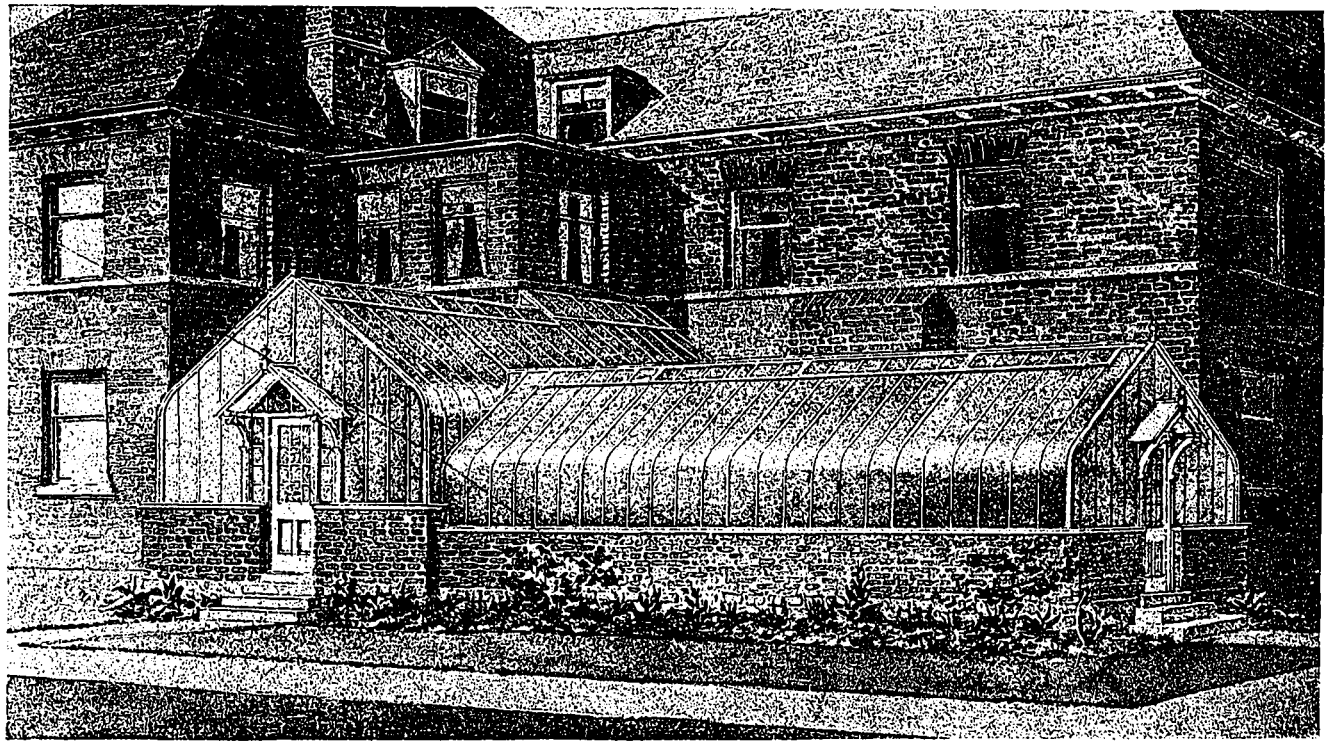
Probably no question arises of more importance than heating. As it is practically a horizontal system it varies considerably from the ordinary house equipment. From an economical standpoint the hot water is preferable, since it





furnishes the required temperature at night without the need of a fireman. It also prevents a drying out of the soil in the trenches and gives an equable heat. Care should be taken in the selection of the system used, as it is important to have a perfect and rapid circulation of the water, which can be obtained only by the proper introduction of control valves.

In referring to the various types of greenhouses, F. F. Rockwell, in an article published recently in "American Homes and Gardens," states that the practical advantages of a home greenhouse are numerous. First of all it offers the means of having a real garden all through those months of the year which are usually barren, and fresh vegetables can not only be grown more cheaply than one can buy them in the winter markets, but they are of greatly superior quality. And then there are the flowers which



have the practical value of bringing the cheerfulness and sunshine of their beauty into the dreariness of winter days. In addition there is the saving which can be effected by carrying through the winter plants that would otherwise perish and have to be bought new again in the spring, and the possibility of propagating one's own supply from cuttings and from seeds. Still another item of importance is the early spring vegetable garden out of doors; the possibilities offered with the home greenhouse at one's command are very great, as it can be put forward several weeks and made much more efficient in every possible way than it otherwise could be.

The glass structure which offers you the above conveniences may vary from the simplest sort of a glass-covered addition to the house to an elaborate structure with a high dome for the accommodation of large palms and various compartments for fruits and orchids and roses, with the respective conditions required for their special culture. But, fortunately, the amount of pleasure will not depend upon the size of the house at all, as you may derive considerable enjoyment from a few square yards which you can manage yourself in your own way.

The simplest type of greenhouse is the conservatory, which may be built on to one of the living-rooms or made by putting a glass side or roof on part of the verandah, or by utilizing for this purpose some other adaptable feature of the house; but the conservatory usually is simply a place to keep flowers and is used largely as a living-room also, but does not as a general rule present the facilities for growing vegetables and for starting plants which in most cases will be desirable to the garden-maker.

The lean-to-type of house, which may be described as half a greenhouse set against the side of a dwelling, is the next simplest form and has the advantages of economy in cost of construction and in space required, and usually in heating arrangements, as it is quite customary that the heating system used in the house can be readily utilized also for heating the greenhouse under these conditions. Then being thoroughly sheltered and having one side composed of the house wall it is very easy to heat. Its chief disadvantages are that the light is admitted from one side only and frequently sunshine cannot be had for the entire day, while sometimes it is difficult to arrange for thorough ventilation in hot weather; but, nevertheless, where the amount to be invested is limited, and the house and grounds are so arranged that a good position for it can be found with a southern exposure, it is generally the best to use.

CONSTRUCTION

A · JOURNAL · FOR · THE · ARCHITECTURAL ENGINEERING · AND · CONTRACTING INTERESTS · OF · CANADA

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CONTRIBUTIONS—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and duly returned.

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Vol. VIII Toronto, June, 1915 No. 6

CURRENT TOPICS

BUILDING permits issued in 67 American cities during the four months ended April, 1915, totaled $191,056,490, or only 6 per cent. less than in the corresponding period of last year.

* * *

FRANK N. RUTTAN has opened an office in suite No. 802, Confederation Life Building, at Winnipeg, for the practice of architecture. Mr. Ruttan, son of Col. H. N. Ruttan, who held the office of City Engineer of Winnipeg for thirty years, is a McGill graduate, receiving his degree in 1908. Manufacturers' supplies and catalogues are solicited.

CHARLES LEONARD WEISNER, for the last five years general manager of the National Fireproofing Company of Canada, Limited, died at his home in Toronto on May 15th. He was born in Buffalo, N.Y., in 1863, and located in Toronto eleven years ago, being connected with several contracting firms until he became agent for the National Fireproofing Company, of Pittsburgh, Pa., and later, when the Canadian company was formed, was appointed to the position he held at the time of his death. He was a member of the Engineers' Club of Montreal. He is survived by a widow, a daughter and two sons.

* * *

AT the present time there is $1,450,000 worth of school building going on in Toronto, and the Property Committee of the Board of Education has only lately awarded contracts for the construction of the new Administration Building on College street, which, it is expected, will cost $100,000. This will bring the total well over the million and a half mark.

The following additions are being made to schools: Leslie street, $54,000; Regal road, $105,000; North Toronto high school, $55,000; Roden school, $35,000; John Fisher, $60,000; Withrow avenue, $50,000, and Bedford Park, $28,000. The following annexes are being constructed: Ryerson school, $60,000; Essex school, $67,000; Palmerston, $58,000; Brock, $55,000, and Huron, $35,000. The new schools in course of construction are: Runnymede, $57,000; Givens, $180,000; Pape evenue north, $57,000; Commercial high school, $280,000; Leslie street north, $59,000; Dewson street east, $50,000, and Niagara street, $110,000.

* * *

THAT the conservation movement has made distinct progress during the past year is clearly indicated in the "Fifth Annual Report" of the Commission of Conservation, which has just been issued. In his annual address, the Chairman of the Commission, Hon. Clifford Sifton, covered the commission's activities with respect to waters and water-powers, minerals, public health, agriculture, fisheries and fur-bearing animals and forests, indicating clearly and succinctly a number of the problems that had been grappled with and the advances that had been made in their solution.

With respect to water-powers, lengthy reports are presented covering the work in connection with the water-power surveys carried out in Western Canada. Two volumes will be issued later giving the results of these surveys, and will prove of great value to those who are interested in the development of the water-powers of Canada. The work contains a number of splendid illustrations, and gives in concise form much information that is of importance to all Canadians devoted to national conservation.

THE Post Office Department at Ottawa announces that letters addressed to prisoners of war in Germany (letters should be left open), postcards and postal parcels should be addressed as follows: 1, Rank, initials, name; 2, regiment, or other unit; 3, British (or Canadian, French, Belgian or Russian) prisoner of war; 4, place of internment; 5, Germany. Place of internment should be stated always, if possible, and parcels cannot be accepted unless place of internment is stated. All addresses must be in ink. Communications should be limited to private and family news and to necessary business communications, and should not be sent too frequently. No references to the naval, military or political situation, or to naval or military movements and organizations are allowed. Letters or postcards containing such references will not be delivered. Friends of prisoners of war are advised to send postcards in preference to letters, as postcards are less likely to be delayed. If letters are sent, they should not exceed in length two sides of a sheet of notepaper, and should contain nothing but the sheet of notepaper. On no account should the writing be crossed. Letters cannot for the present be accepted for registration. Postage need not be paid either on letters or parcels addressed to prisoners of war. No letters should be enclosed in parcels, and newspapers must not on any account be sent. So far as is known there is no restriction on the contents of parcels; tobacco may be sent, and will be admitted duty free, but foodstuffs of a perishable character should not be sent. Parcels should not exceed 11 lbs. in weight. Remittances can be made by money order to prisoners of war. Instructions as to how to proceed can be obtained from postmasters of accounting post offices. The transmission of coin, either in letters or parcels, is expressly prohibited. Postal notes and bank notes should not be sent. It must be understood that no guarantee of the delivery of either parcels or letters can be given, and that the Post Office accepts no responsibility. In any case, considerable delay may take place, and failure to receive an acknowledgment should not necessarily be taken as an indication that letters and parcels sent have not been delivered. So far as is known, prisoners of war in Germany are allowed to write letters or postcards from time to time; but they may not always have facilities for doing so, and the fact that no communication is received need not give rise to anxiety.

* * *

TOLSTOY asked a Russian peasant what he would do if he were told that to-morrow would be the day of judgment. "I would plough," said the peasant—and it was the best answer in the world. If judgment day should come, let it find us doing our duty.—*Luxaberry News.*

THE variety of things which modern science is able to evolve from a lump of coal is shown in graphic fashion by the Barrett Manufacturing Company in its exhibit at the San Francisco Exposition. An enromous block of soft coal is shown surrounded by its innumerable children; ammonia, illuminating gas, crude benzol, coal tar and coke. The crude ammonia is the parent of household ammonia and of the anhydrous ammonia used in producing artificial ice; also ammonium chloride, an important element in electric batteries; ammonium nitrate used in the production of high explosives; ammonium bicarbonate, valuable in the modern baking of food; and most important of all ammonium sulphate, a powerful soil nitrifying agent which is becoming of enormous importance to farmers as a fertilizer. Plants of various kinds are shown that have been grown with and without the ammonium sulphate under identical conditions, exhibiting a striking difference in the strength of the crops. Crude benzol has a progeny of analine dyes in all the colors of the rainbow; is of great importance in the manufacture of automobile tires and in the production of artificial leather, while toluol is a basis for modern high explosives and much in demand during war time. Coal tar enters into the composition of tarvia, the bituminous binder for building automobile-proof roads; tarred felt and pitch used for roofing all the great commercial buildings; ready-roofings employed by farmers for their barns; felt and building papers for the lining of walls to keep out heat and cold; waterproofing felts allied with pitch for the lining of excavations, basements and tunnels to exclude dampness of the soil. There also is paving pitch used in the joints of block pavements for city streets, and creosote oil which can be impregnated into wood, thereby making it proof against decay and furnishing wood blocks for street pavements, durable piling, long-lived fence posts and mine timbers. In addition, coal tar is the parent of innumerable chemical and medical products, especially phenol or carbolic acid, an indispensable medical disinfectant with innumerable industrial uses, including the process of manufacturing phonograph records. Naphthalene or coal tar camphor is useful in keeping moths out of clothing. Among the other products in the carbolic branch are picric acid, a high explosive, and a long list of bactericides and disinfectants, including pyxol, which is twenty times as powerful as carbolic acid, and is death to germs of all kinds, yet perfectly harmless to animal life. Coke is useful as fuel and has special value in the steel industry. The Barrett Company's exhibit shows many of the processes, has been well planned, and is located in the Palace of Mines and Metallurgy.

BURROUGHES & WATTS, LIMITED, in a hundred-page catalogue, show a limited selection of examples from the large and varied stock of billiard tables, accessories and fittings which may be seen in all branch offices throughout the Dominion. The work contains particulars of the improvements made in billiard table construction, especially the steel vacuum cushions which have received universal recognition for their fastness and accuracy. Specifications are included for each table illustrated, as well as for marking boards, cabinets, cue racks, etc. Many cuts of settees, card tables, lighting fixtures and other sundries are also included, which tend to make this book of extreme value.

* * *

A HIGHLY instructive booklet on concrete reinforcement comes from the Canada Wire and Iron Goods Company, containing working tables assembled by their engineering department. The properties of concrete are clearly defined; tables presented on bending moments; formulas for slab depths, reinforcing and quantity. With additional information such as the weights of different materials, bearing power of ground, pressure of wind and violent hurricane, as well as various wire gauges, this work should be highly beneficial in handling problems wherein concrete is employed. Engineers and contractors may obtain same by addressing this company at 182 King William street, Hamilton.

* * *

THE catalogue published recently by the Dominion Bridge Company, Limited, reviews the wonderful growth of this concern from the original small factory located in Toronto, and known as the Toronto Bridge Company, to its present extended works at Lachine. Illustrations of their plant and shops at Lachine, Ottawa, Winnipeg and Toronto are shown, as well as bridges, subways, ferry landings, viaducts, buildings, roof trusses, cranes, etc., erected by them. The book is neatly bound in a sage green and gold cover.

* * *

THE new 296-page catalogue just issued by the Richards-Wilcox Canadian Co. is notable for the care that has been shown in supplying architects and engineers with very complete detail. The comprehensiveness of the line and the service rendered by the engineering department make this work worthy of just consideration at the hands of all architects who aim at the best results in sliding door hardware.

* * *

THE Walkerville Roofing Manufacturing Company has issued a circular relative to their "Red Ribbon" materials employed in roofing, sheathing, painting, etc. Reasons are stated why their slate shingles have proven satisfactory and reliable.

AN unusual and highly commendable book has been compiled by the John Lysaght, Limited, under the title, "Men on Service in the War and Roll of Honor, 1914." In the introduction it states that 1,449 men from their works and 67 from their office staff, or over one-quarter of the total number of employees in their firm, were—at the time of publication—on active service for their country. The text reviews the causes leading up to the war and gives a complete list of the men who volunteered from the company's works at Bristol, Newport, Scunthorpe and Wolverhampton. At the end is given the Roll of Honor, with space for additional names of those who might be killed or wounded in action. It is a worthy tribute from a large concern to the men who have given their best to forward the interests of the company and now their country.

* * *

THE Otis Elevator Company, with offices in ninety-nine cities in the States and twelve throughout Canada, have issued a fifty-six page catalogue on gravity spiral conveyors. The book contains descriptive matter, photographic illustrations and drawings of work already executed, with a partial list of their installations.

* * *

BY addressing the Cast Stone Block and Machine Co., Limited, of Windsor, Ont., the architects may obtain a valuable catalogue on hollow cement building blocks made by the poured system. A Toronto plant has been located recently at Yonge street and St. Clair avenue under the firm name of Granite Concrete Block Co., Ltd.

* * *

PROBABLY no more attractive or better illustrated booklet has been published than the one on Presto radiators by the Pressed Metal Radiator Company. The Canadian territory is handled by the Waldon Company, Limited.

* * *

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THE roof is apt to be one of the very last things to be considered in the construction of a building. It really ought to be among the first.

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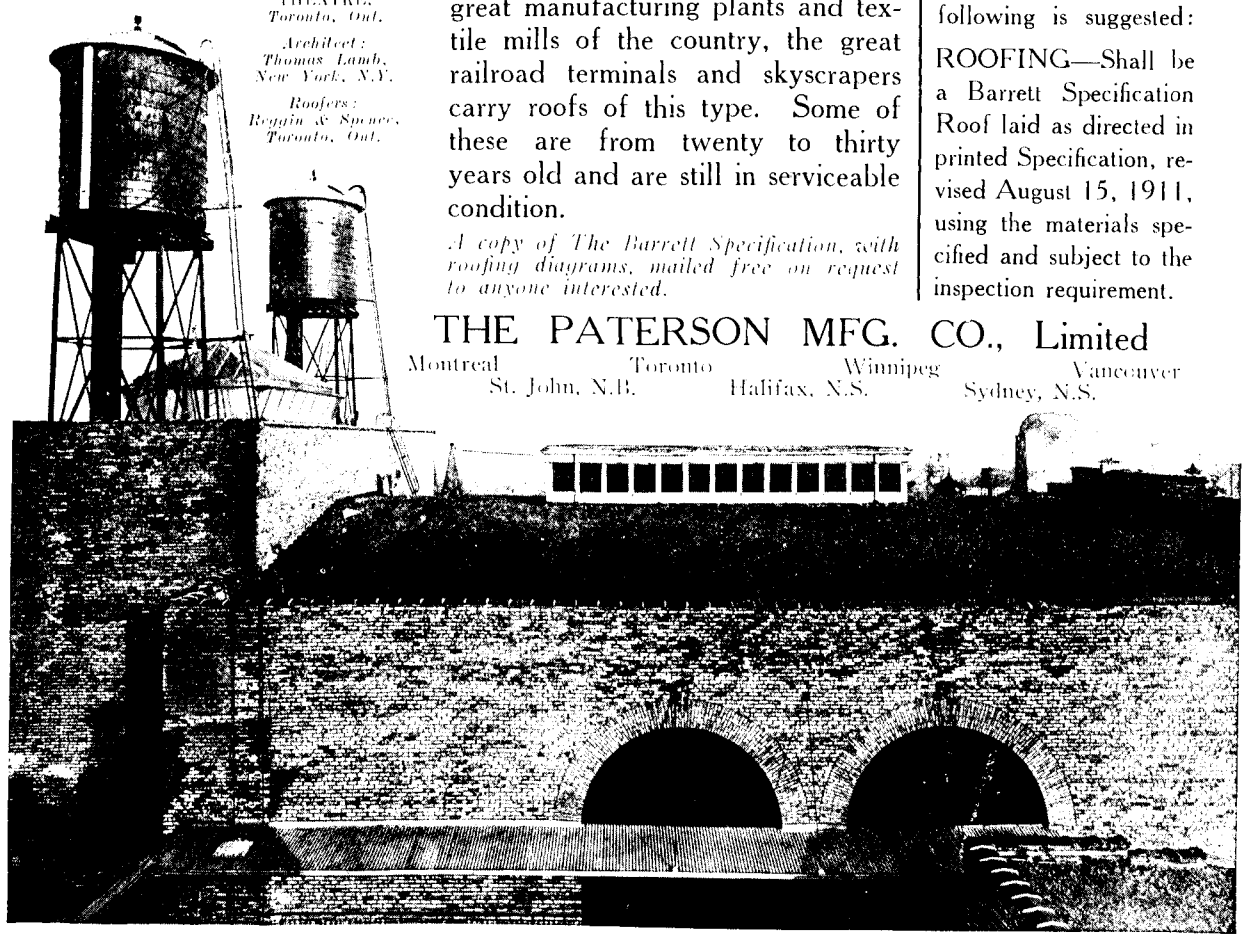
Architect: Thomas Lamb, New York, N.Y.
Roofers: Reggin & Spence, Toronto, Ont.



It is for this reason that most of the great manufacturing plants and textile mills of the country, the great railroad terminals and skyscrapers carry roofs of this type. Some of these are from twenty to thirty years old and are still in serviceable condition.

A copy of The Barrett Specification, with roofing diagrams, mailed free on request to anyone interested.

Special Note

We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding.

If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof laid as directed in printed Specification, revised August 15, 1911, using the materials specified and subject to the inspection requirement.

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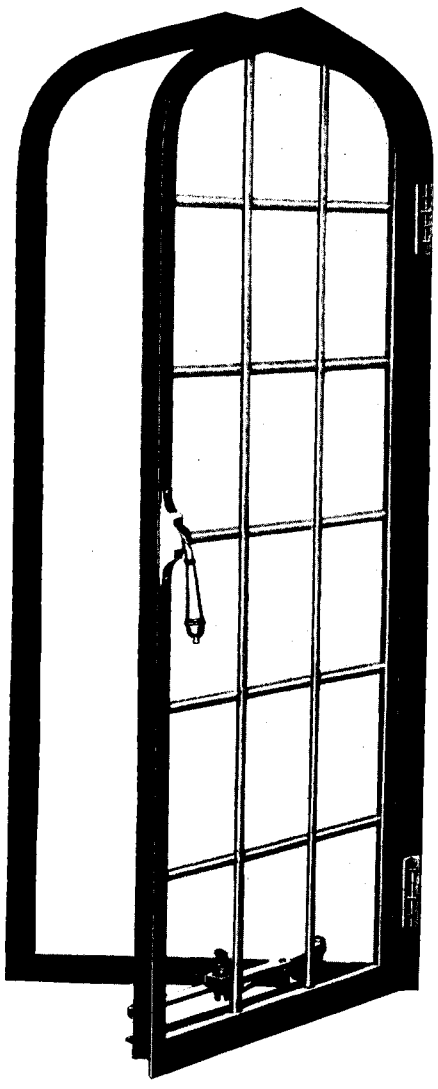

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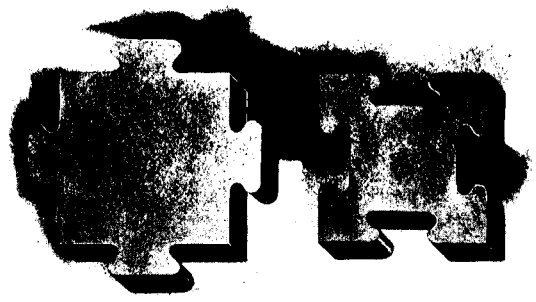

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Vogel Co. of Canada, Ltd.

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Reid & Brown.

Fireplace Goods.
Dennis Wire and Iron Works.

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Pedlar People, The.
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Dominion Bridge Co.
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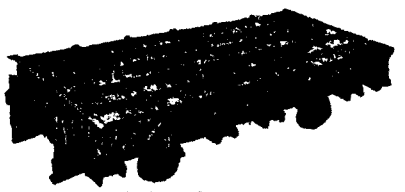

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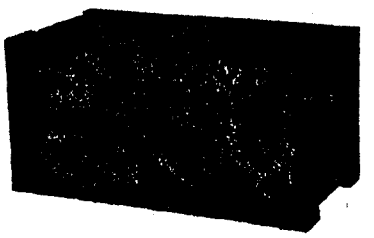

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