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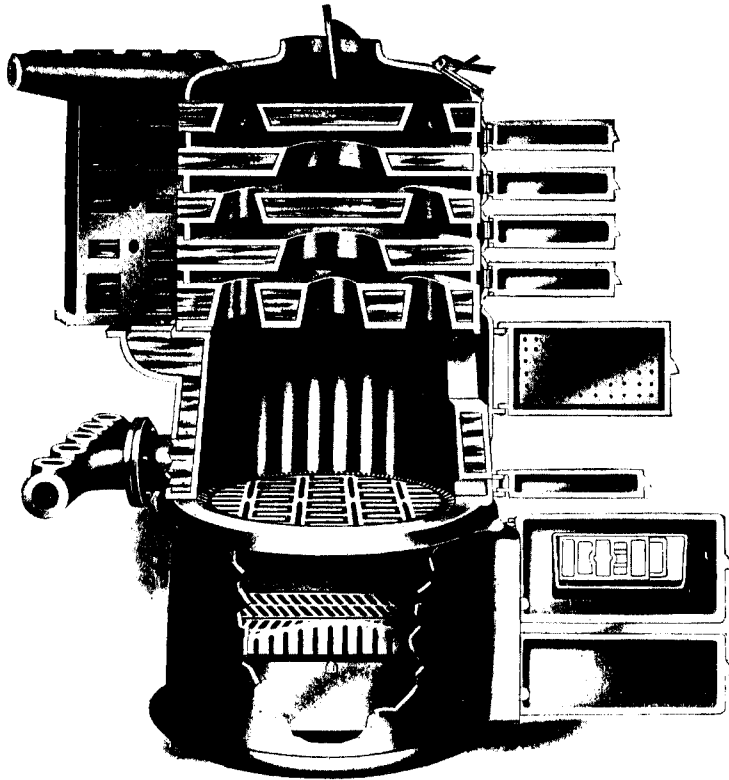
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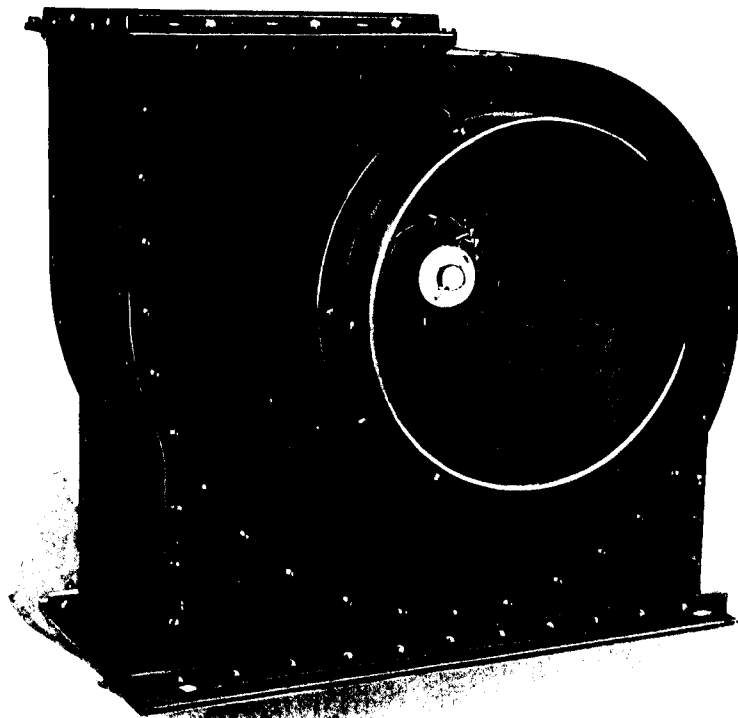
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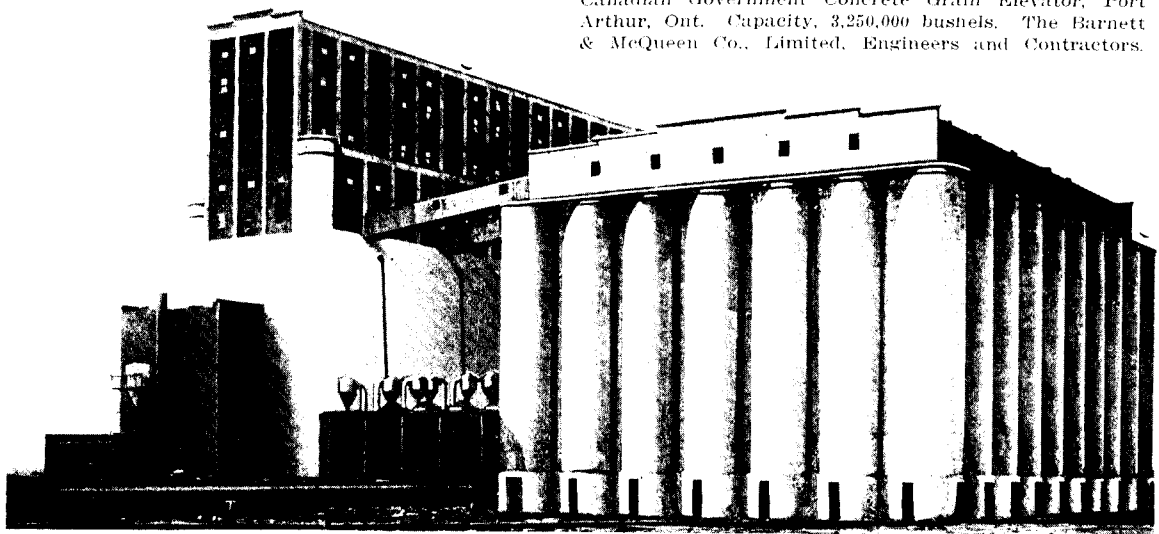
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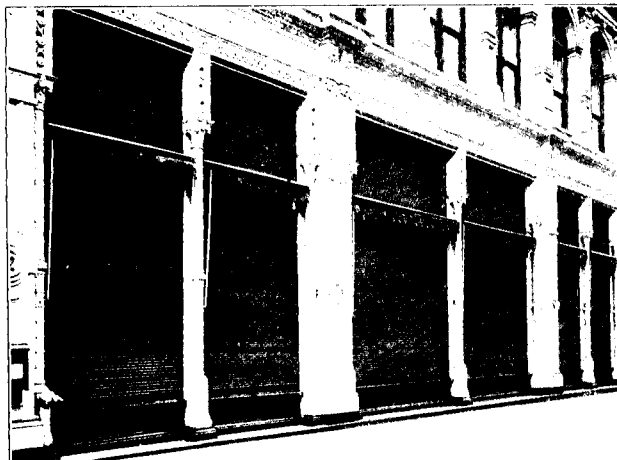
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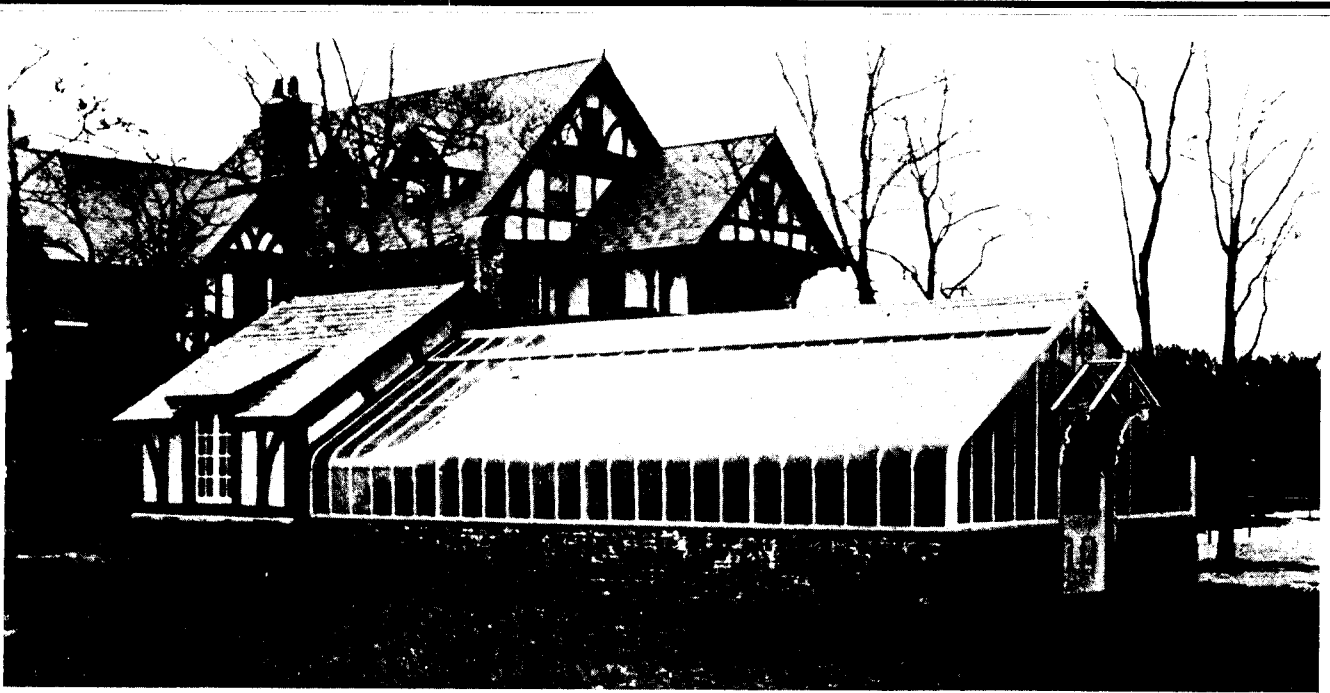
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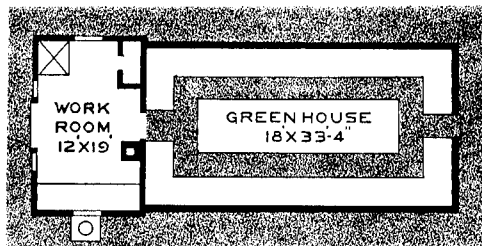
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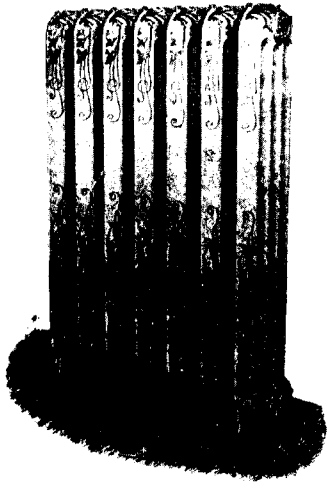
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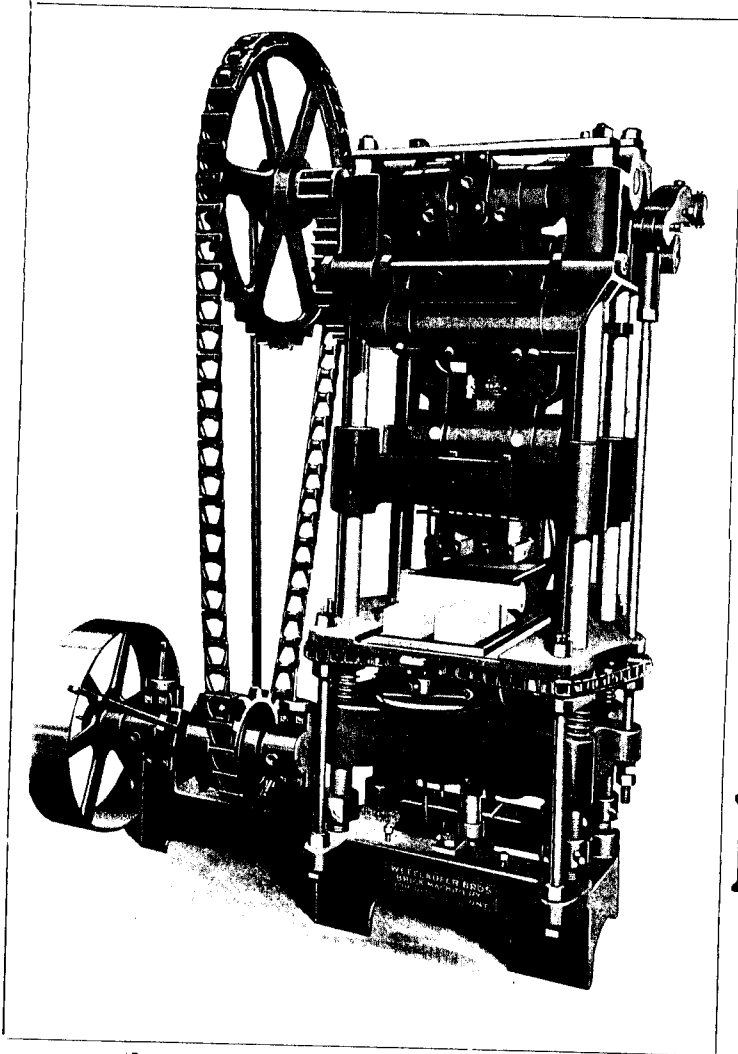


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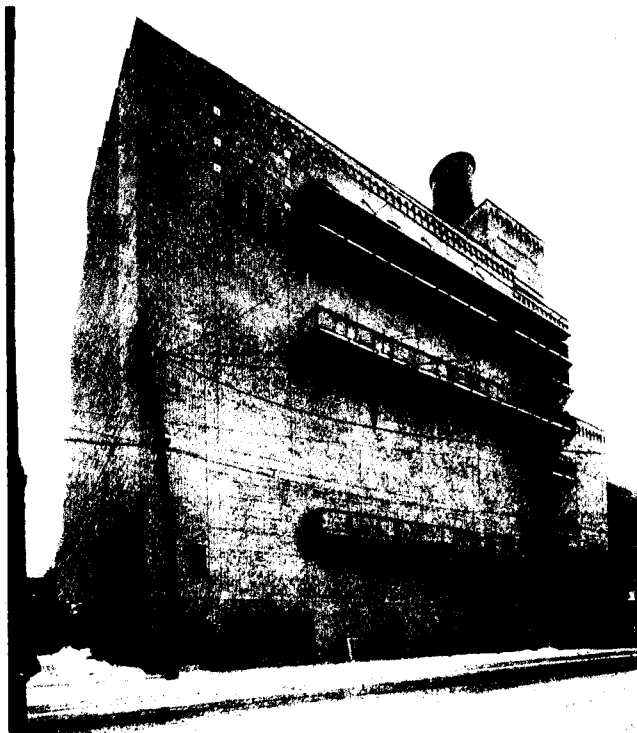
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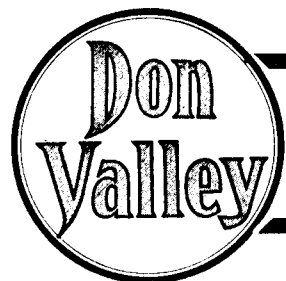
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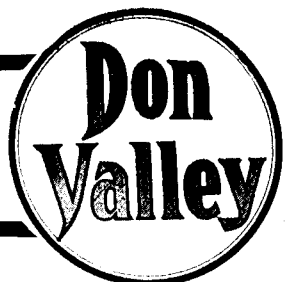
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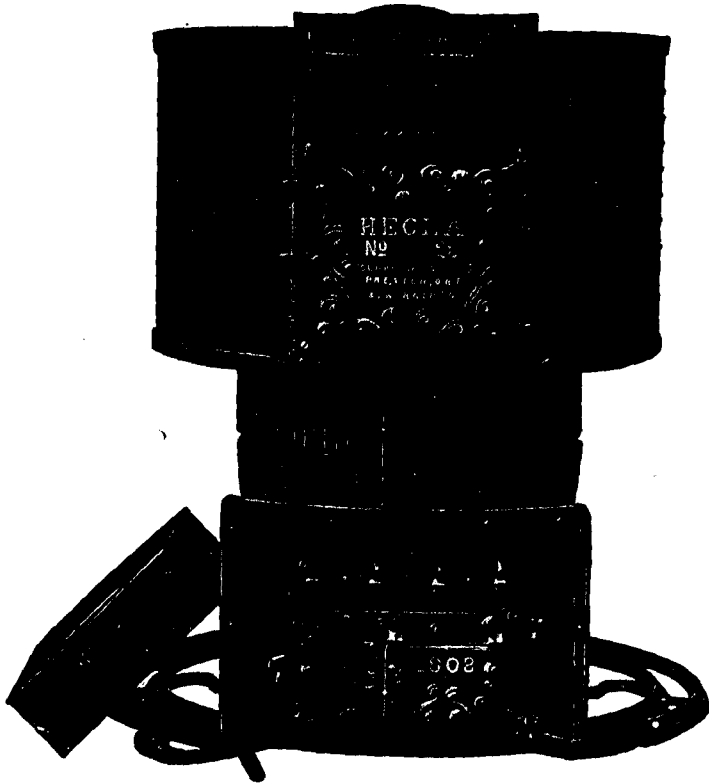
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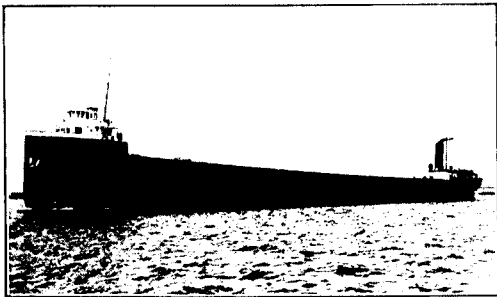
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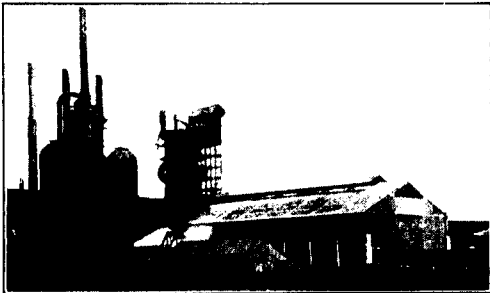
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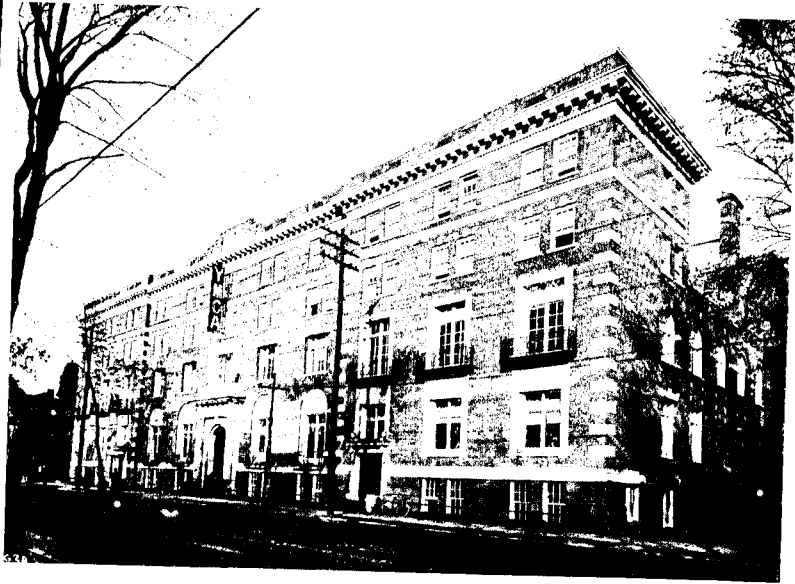
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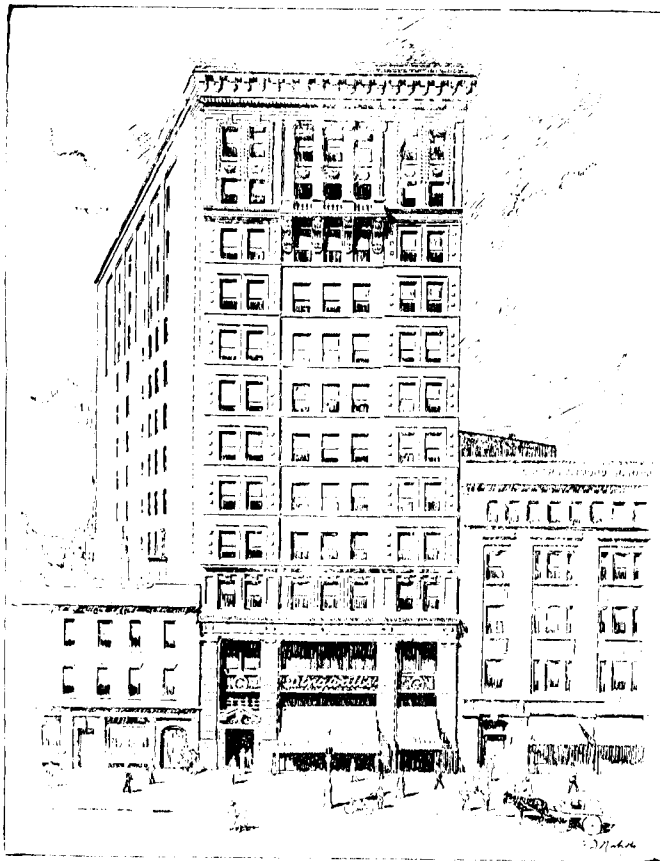
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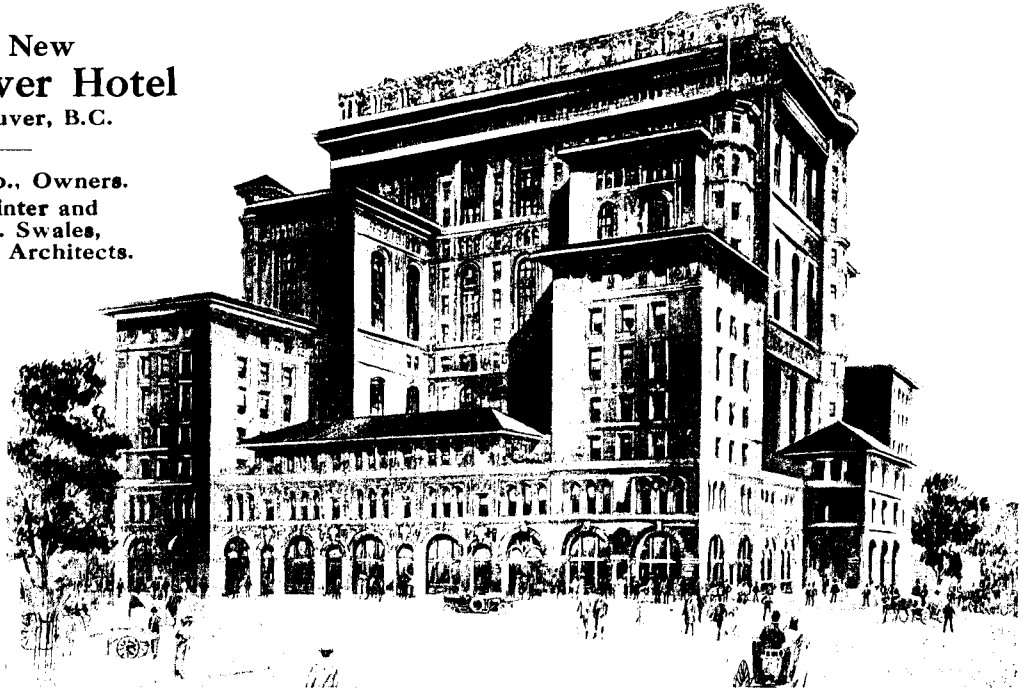
Works:
HAMILTON, ONT.

Two New Ones

The New Vancouver Hotel

Vancouver, B.C.

C.P.R. Co., Owners.
W. S. Painter and
Francis S. Swales,
Architects.

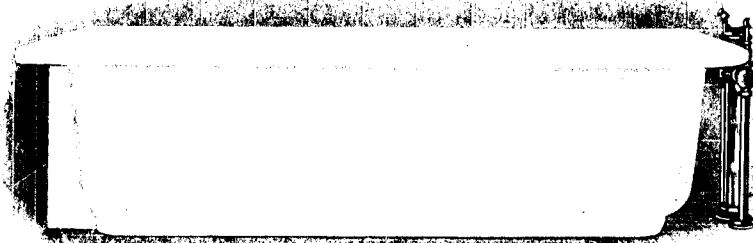


The New

VICTOR BATH
ONE PIECE

L. H. Corner
Pattern

**ENAMELED
ALL OVER**



Approximately 200 "VICTOR" Baths, Enameled All Over, will be installed in the new Vancouver Hotel now nearing completion.

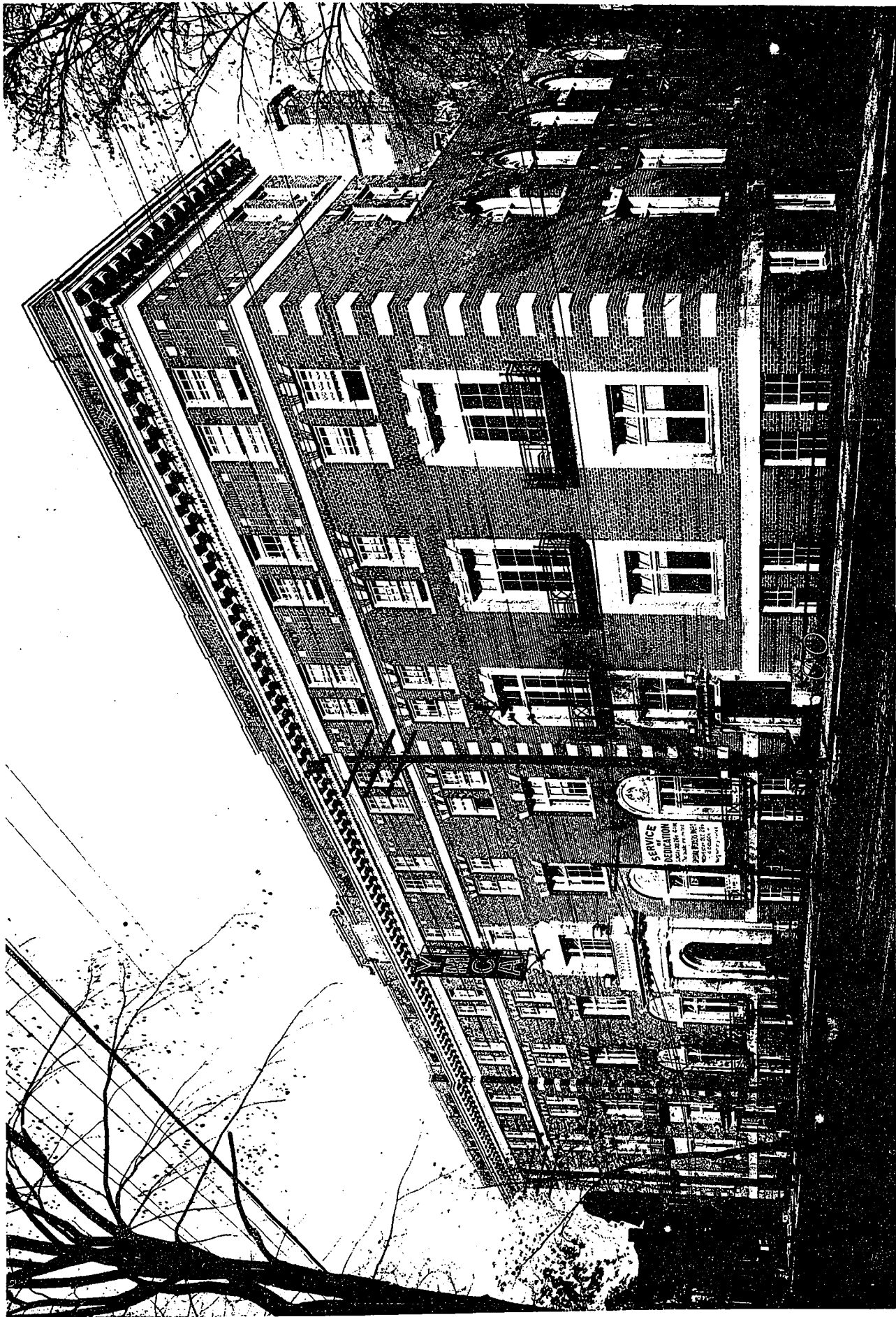
The "VICTOR" Bath is made in 5 ft. and 5½ ft. sizes, each in 25 different types, for tiling into recess, corner, back to wall, and end to wall; also open type. Supplied with 3½ in. rim or extension rim at end or back.

CATALOGUE showing the "VICTOR" Bath, descriptions, dimensions and prices will be sent on request.

The Standard Ideal Co. Ltd.

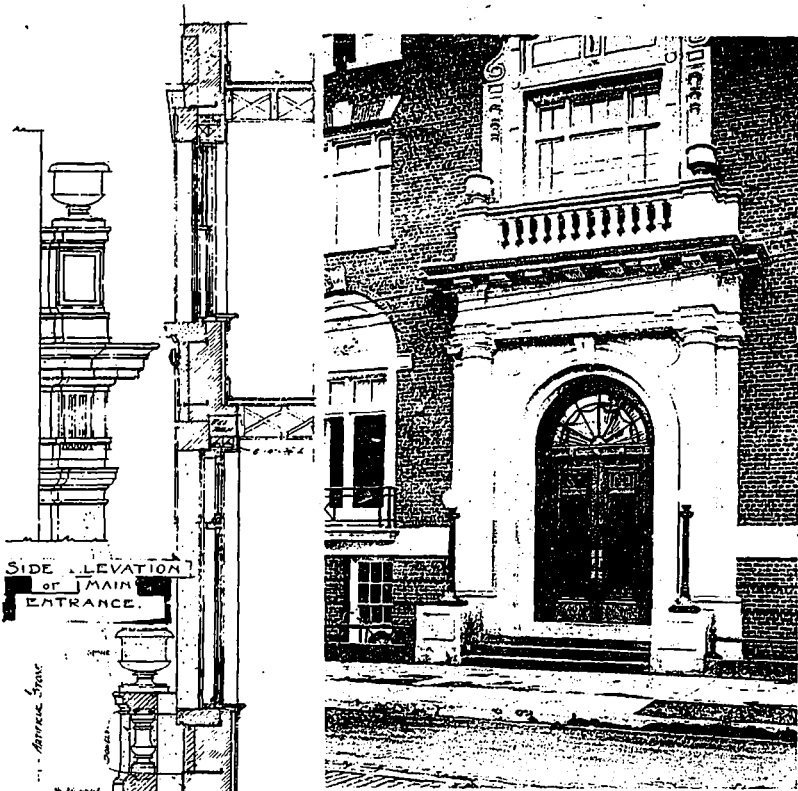
General Offices and Factories:
PORT HOPE, ONTARIO

Branches: Toronto, Montreal, Vancouver, Winnipeg

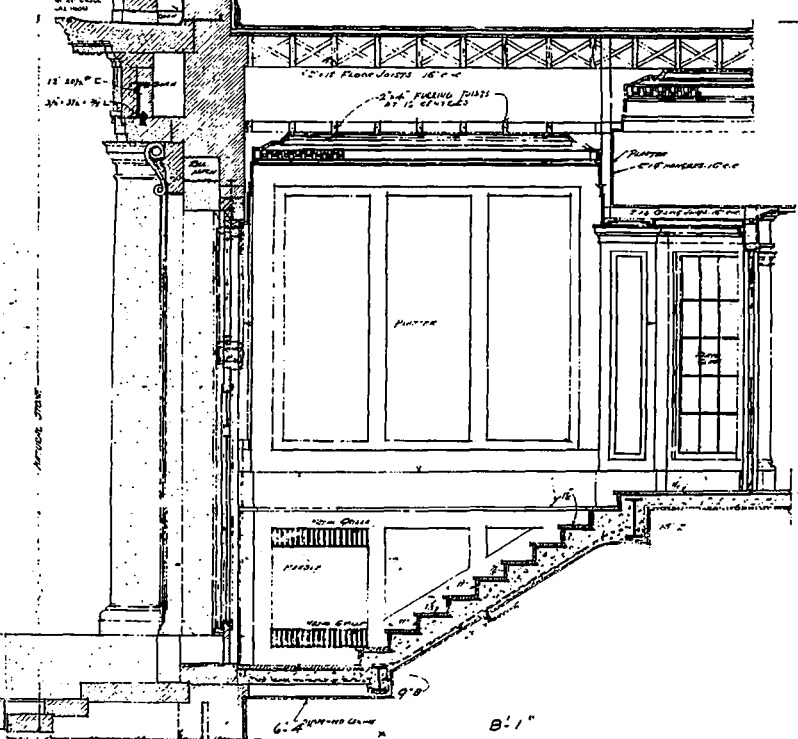


"Construction," 1914.

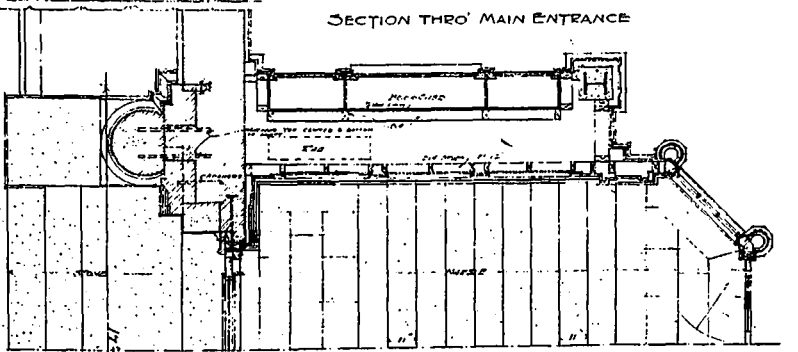
CENTRAL Y.M.C.A., TORONTO.
BURKE, HORWOOD & WHITE, ARCHITECTS.



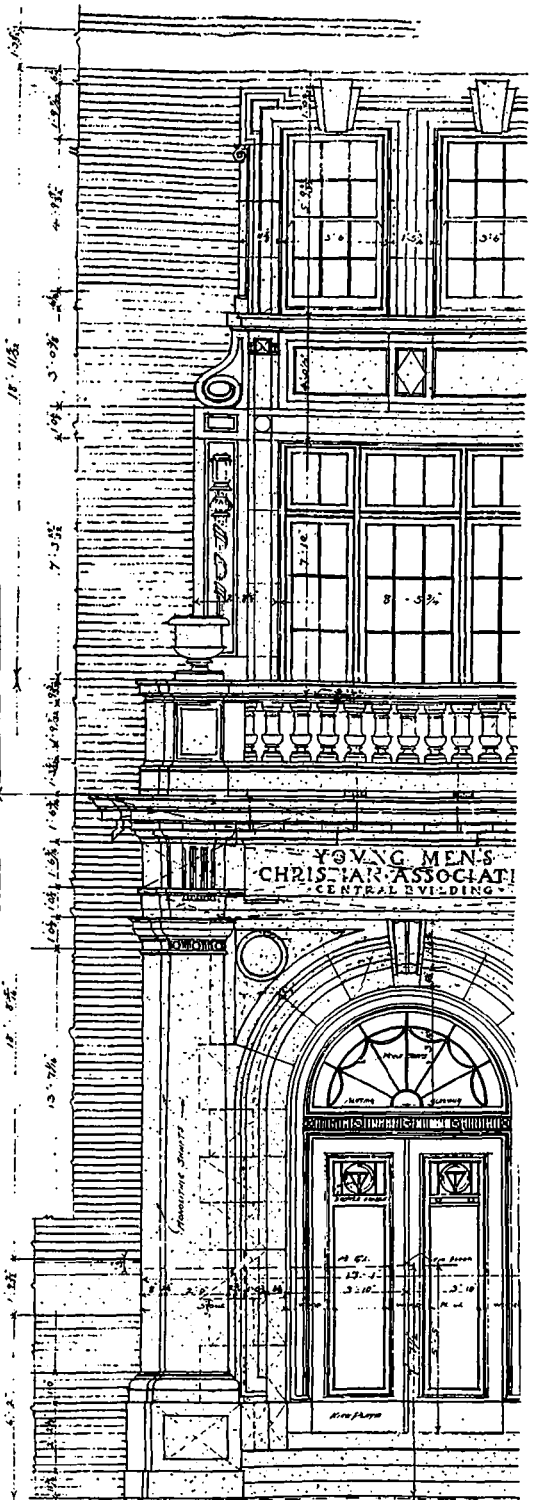
SIDE ELEVATION OF MAIN ENTRANCE.



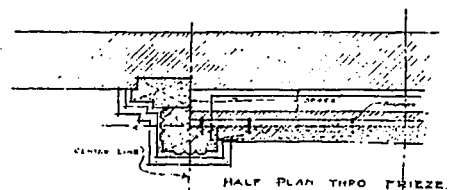
SECTION THRO' MAIN ENTRANCE



HALF PLAN OF MAIN ENTRANCE



ELEVATION OF MAIN ENTRANCE



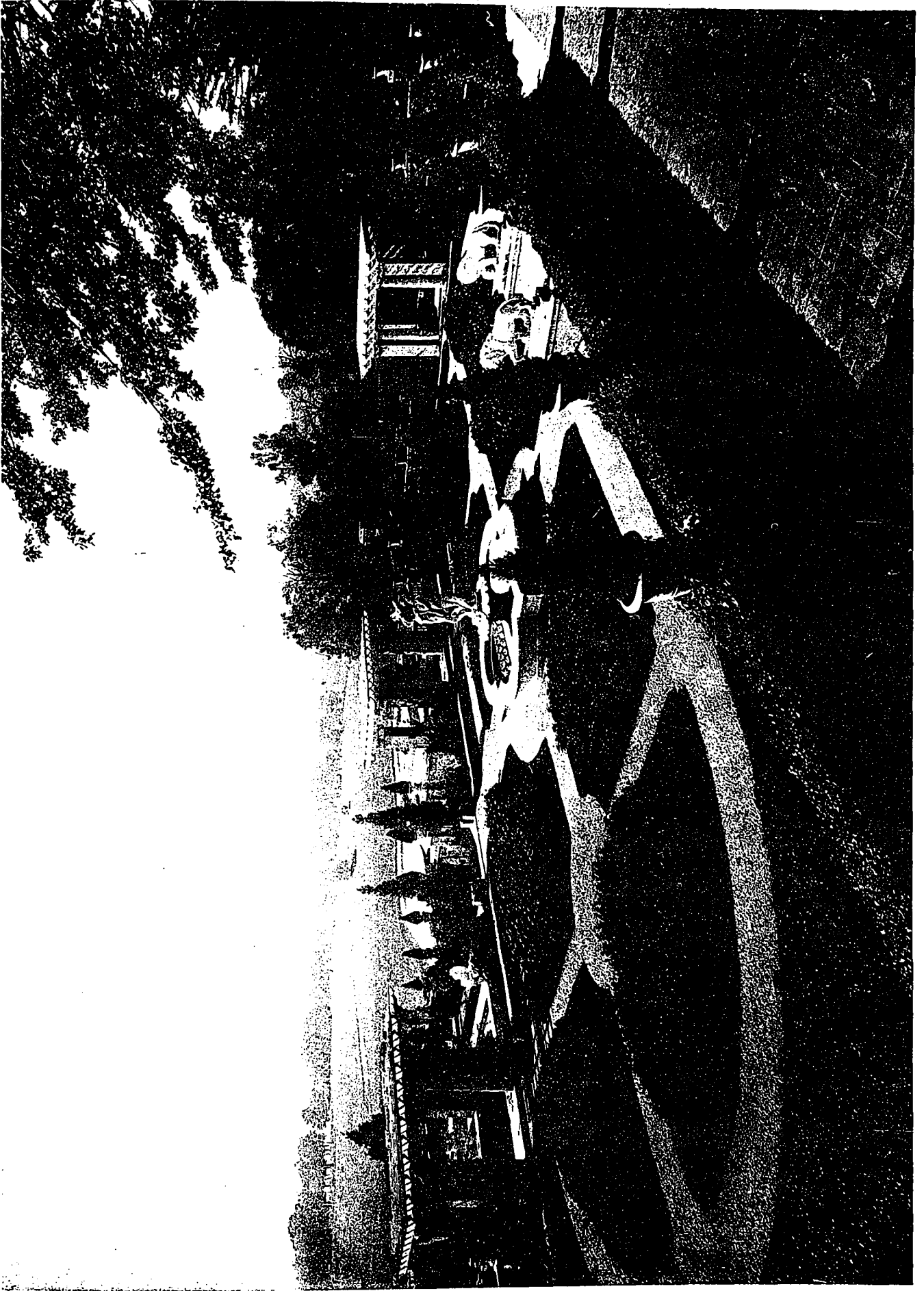
HALF PLAN THRO' FRIEZE.



"Construction," 1914.

ILLUSTRATION OF FORMAL GARDEN.

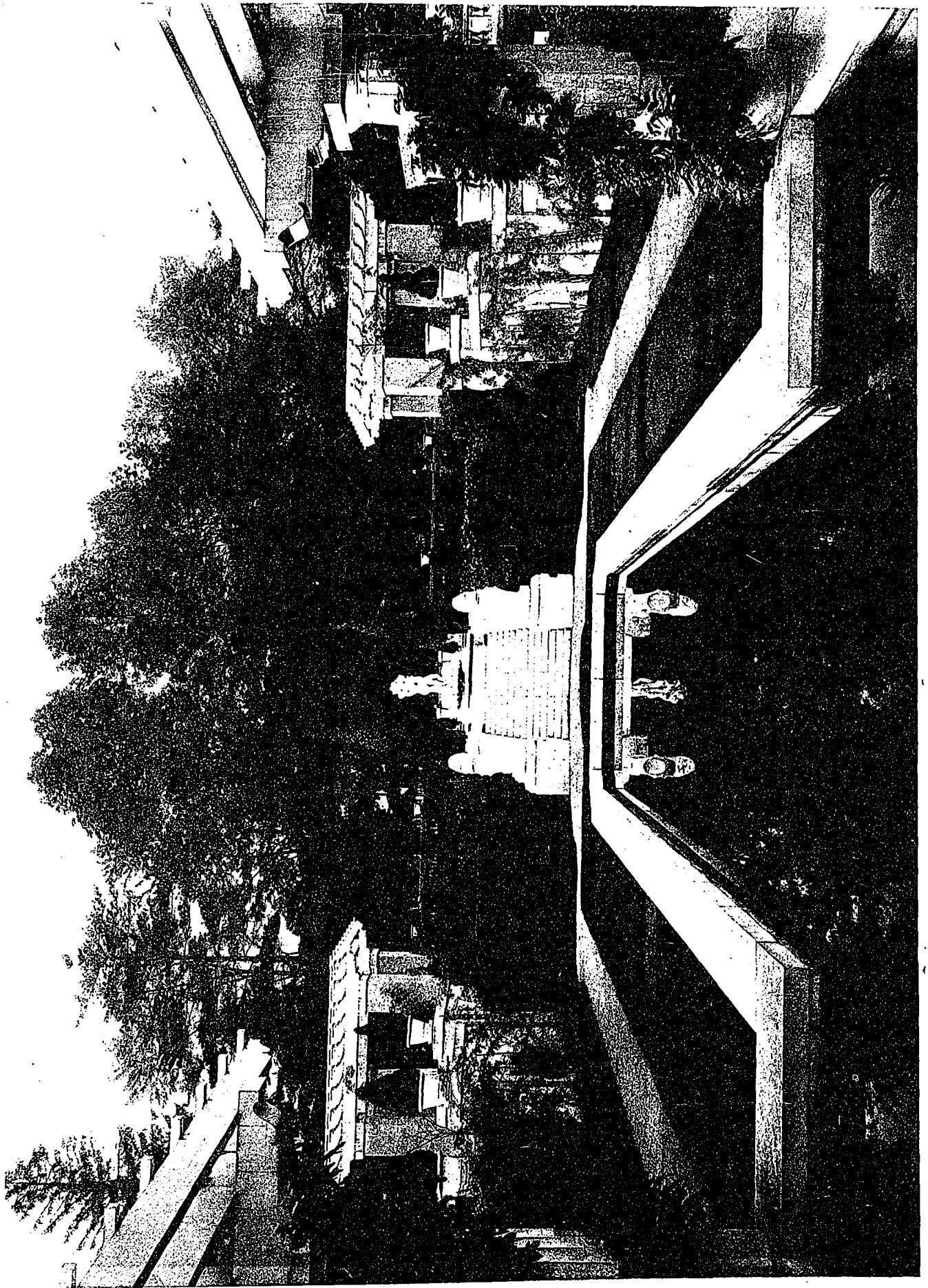
Plate XI.



"Construction," 1914.

ILLUSTRATION OF FORMAL GARDEN.

Plate XII.



"Construction," 1914.

ILLUSTRATION OF FORMAL GARDEN.

Plate XIII.

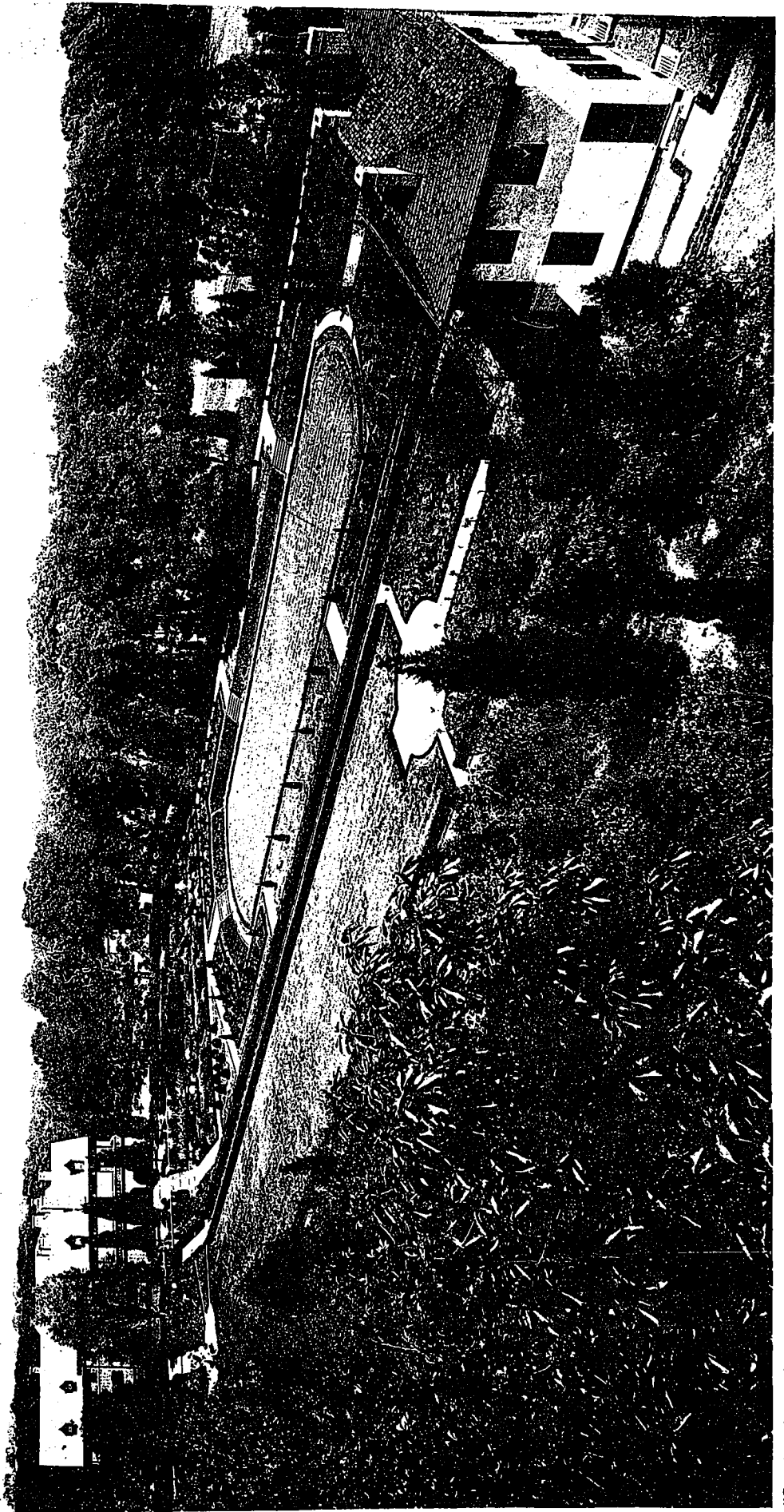
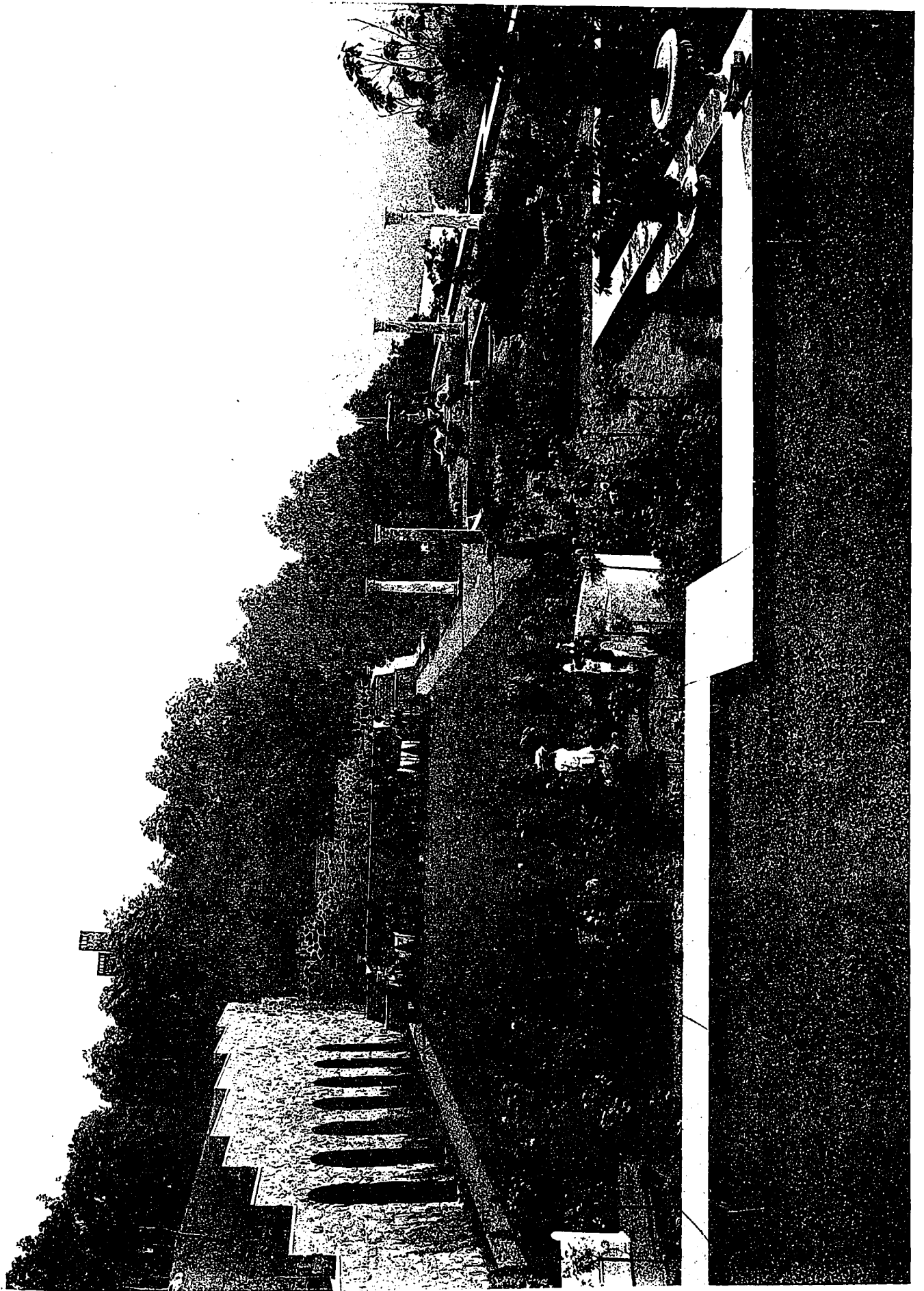


ILLUSTRATION OF FORMAL GARDEN.

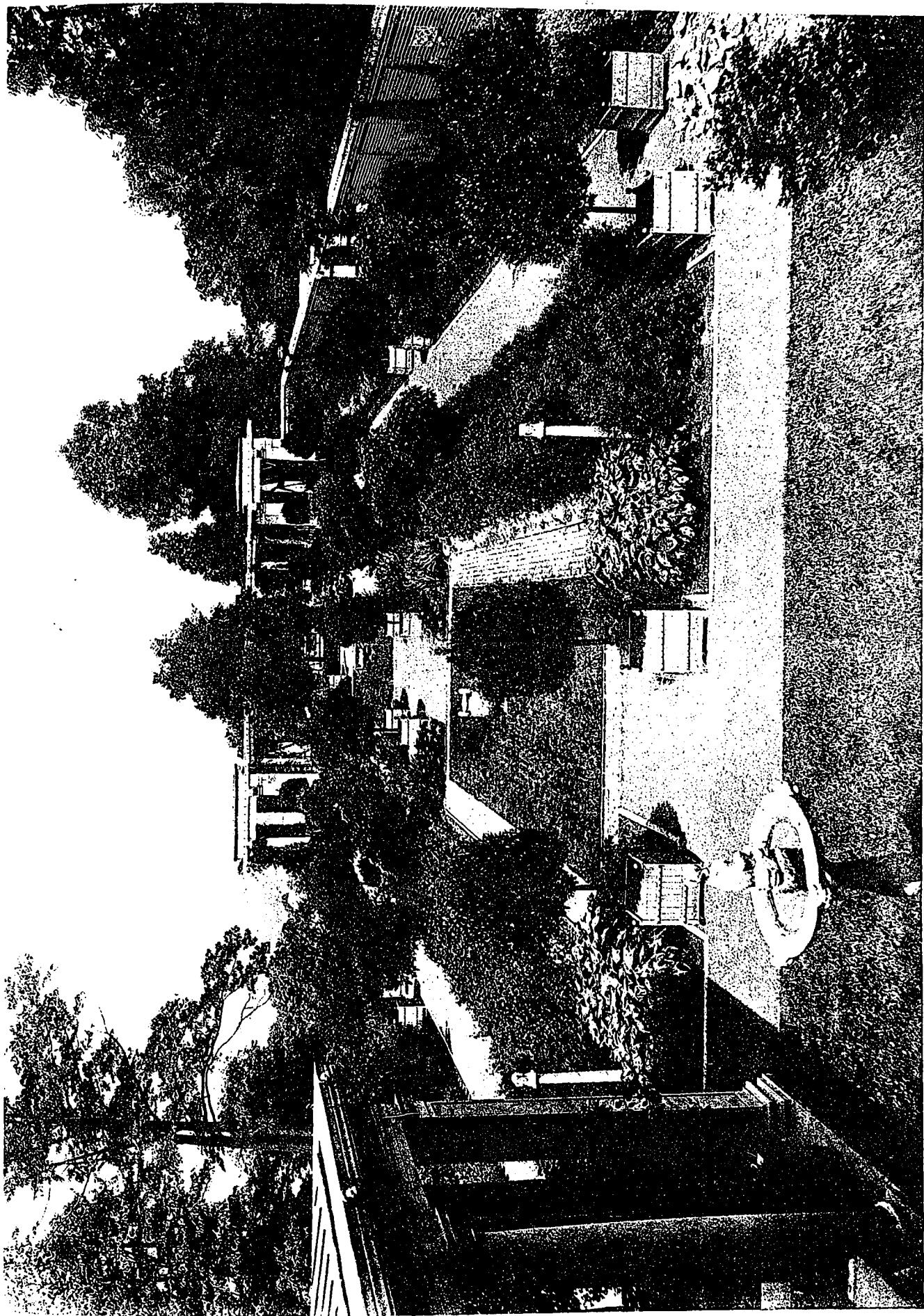
"Construction." 1914.



"Construction," 1914.

ILLUSTRATION OF FORMAL GARDEN.

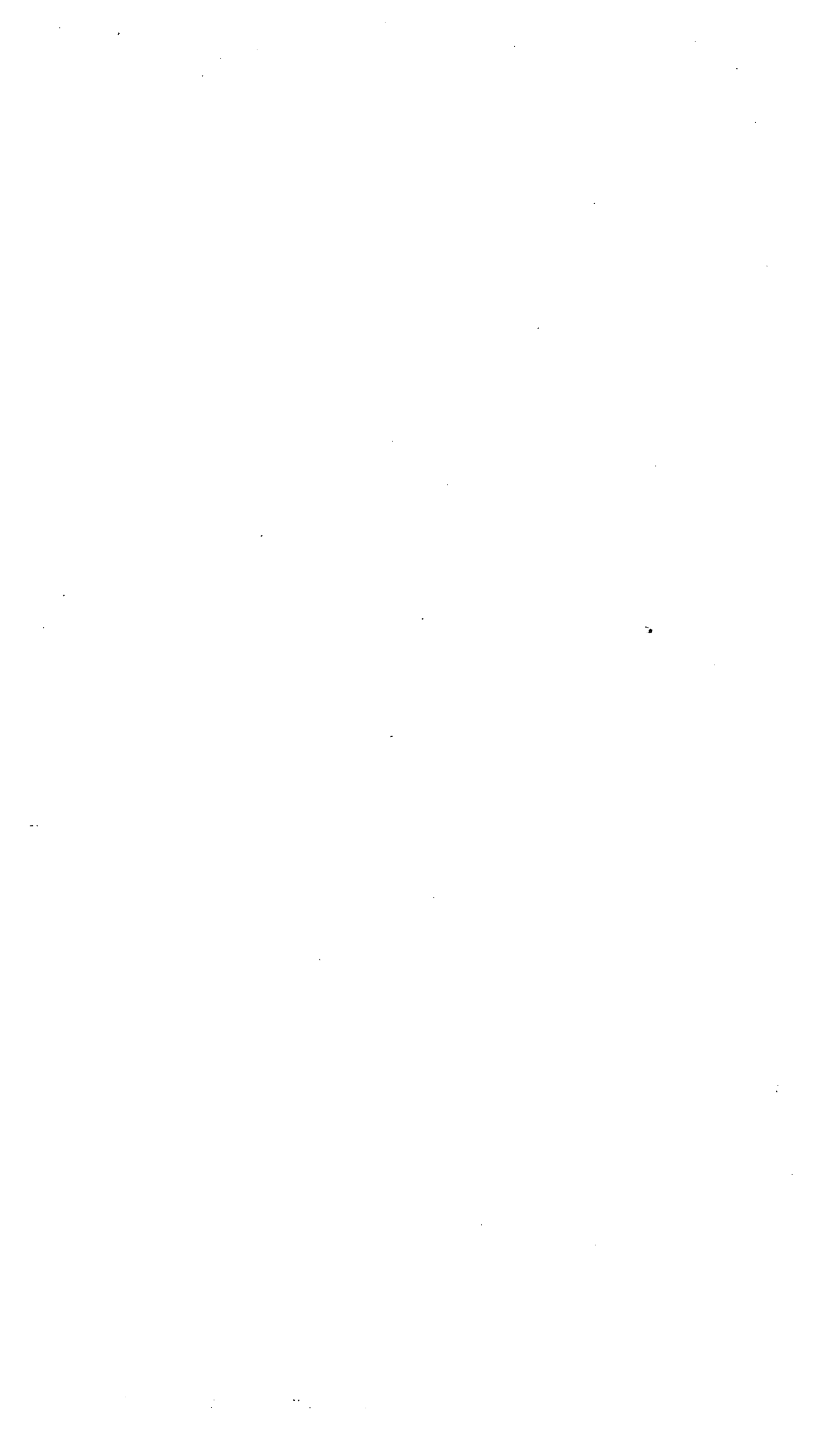
Plate XV.



"Construction," 1914.

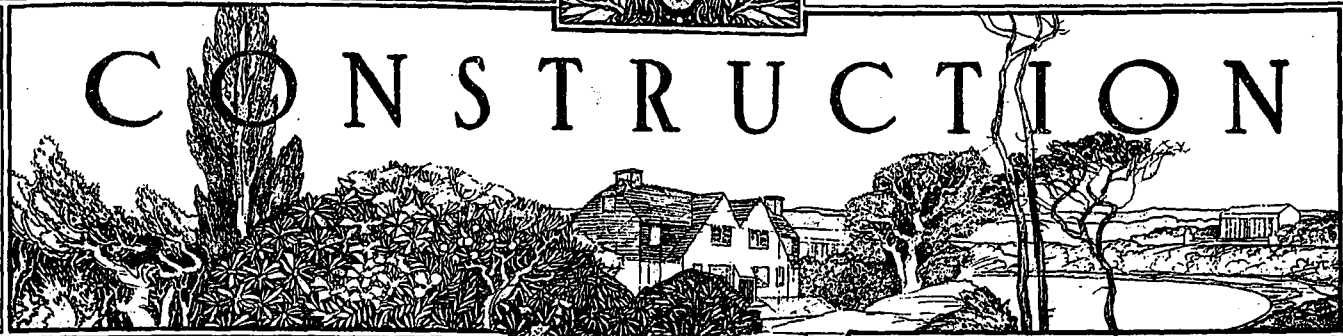
ILLUSTRATION OF FORMAL GARDEN.

Place XVI.





CONSTRUCTION



February, 1914

Vol. 7., No. 2

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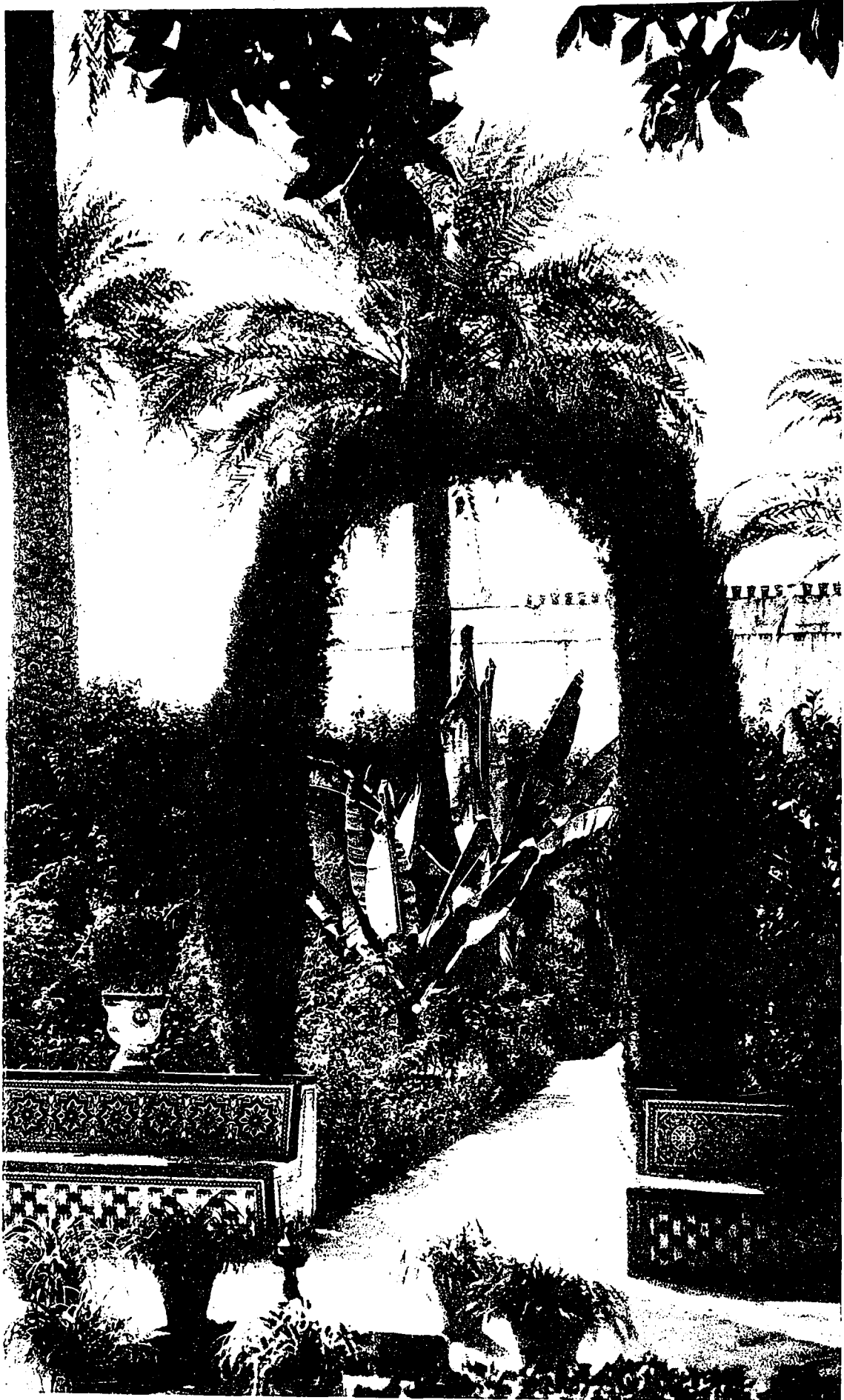
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H. GAGNIER, Limited, Publishers

GRAPHIC ARTS BLDG., TORONTO, CANADA

BRANCH OFFICES:

MONTREAL WINNIPEG CHICAGO NEW YORK



GARDEN OF ALCAZAR,
SEVILLE, SPAIN.
Photo by F. R. Major.



The rapid growth in gardening—What the twentieth century means to this work—The need of creative genius and far-reaching personality.

IN THIS ISSUE will be found a treatise on formal gardens, belonging to a series of papers, the first one, "Entrances to an Estate," appearing in the August number of last year. The aim of the author is to suggest allowing the architect or the landscape designer to feel the great need of a more thorough understanding of the possibilities before him. The twentieth century is witnessing a Renaissance far reaching in its influence, and which will assemble the illustrious work of the past, eradicate the chaotic conceptions of recent years, and formulate the natural and artificial into one harmonious whole. The desire to provide a suitable setting for the three room bungalow up to the most expensive of homes is prevalent throughout this new country. And the enthusiasm will continue until every section will boast of gardens vieing in charm, grandeur, and extent with the spicy groves of Ecbatana or the Babylon hanging gardens. To accomplish this the sympathetic nature of the designer will comprehend the utmost possibilities of the materials with which he works. He will sense the proper fitness of combinations, blending harmoniously the trees, grass, flowers, water and rocks to the artificial in such a manner as to impress even the most critical with a feeling of contented admiration. Such a result when analyzed will illustrate the genial relationship of form, color and texture. The mind will have grasped the changes necessary, eliminating here and there the growth foreign to its scheme, introducing whatever nature has failed to supply. The work will not only satisfy the present need, but is planned so as to grow more beautiful each succeeding year. And it is safe to assume that if the lay-out is wholesome and practical at the beginning there will be little, if any, cause to worry over the future development. The one essential, therefore, is to comprehend our idea from every standpoint, viewing it in perspective as well as entering into the very existence of its component parts. Let the freedom of nature permeate our every step and then there will be no cramping, no absurd imitations. In doing this the garden will breathe the song of life and the natural along with the creative will bespeak the personality of one who has risen above the limitations of self and enhanced, if possible, the wondrous symphony of nature herself.

The quantity system of estimating a commendable scheme for the elimination of faults detrimental to prompt and disputeless construction of the building.

THE QUANTITY system of estimating is being presented before the architects, contractors and engineers throughout the States in a spirited manner which cannot help but eradicate the unwholesome methods of to-day. G. A. Wright has recently covered an architectural tour on this subject, visiting twenty-seven cities and travelling eleven thousand miles. The aim of the work is to adequately protect the architect, contractor and owner. By adopting some method whereby the exact quantity of materials and labor required is given each bidder, this protection will become an established fact and the building world in general will accrue the benefits derived therefrom. That there is a great need for better ethics is quite evident from the amount of overhead charge made in each contractor's office; from the numerous law suits over the failure of bidders to interpret the drawings and specifications correctly or the architect's omission of certain materials; from the time lost by the various sub-contractors in studying the drawings and endeavoring to eliminate as much as possible the element of chance. That a greater percentage of bankruptcies occurs among contractors than in any other trade leads us to feel that there must be something radically wrong with the present system. As matters stand to-day, the bidder is forced to adopt a defensive attitude since accurate bids are impossible, while the conditions are constantly changing in respect to prices, labor, weather, etc. The contractor makes considerable allowance and if the work progresses naturally and no mistake has been made in the guessing of quantities for the various materials, the owner unconsciously pays for this improper charge. But who will blame a party for taking such a license when the majority of specifications are capable of a double meaning, or, as often happens, the drawings and specifications are contradictory and too little time given to clarify the differences. Another injustice often arises in capable firms losing the work through the omission of certain items by the successful competitor. Then, too, the incompetent or the dishonest party assumes the responsibility, knowing full well that their bid is too low for first-class work, which can only result in a building loosely put together with inferior materials. To avoid this there is an ever-increasing de-

mand for concerted action upon the part of the architects and contractors. They should adopt some method whereby there could be little, if any, embarrassment to either during the process of construction and which would guarantee the owner full value for his money invested. The quantity system of estimating, which consists in giving each contractor an itemized copy specifying the exact amount of all quantities of materials and labor necessary to complete the work in hand, unquestionably furnishes an admirable solution. The scheme is not new, but has been successfully employed in European countries. In fact at a conference in Great Britain some years ago, a resolution was adopted by the National Federation of Building Trade Employers, the London Master Builders Association, and the Institute of Builders, not to bid unless bills of quantities were supplied at the owner's expense. In England the drawings and specifications are handed to the quantity surveyor, who prepares the quantities and delivers same to all contractors who are invited to bid. By furnishing a list of materials giving amount and concise description of each item, together with a set of the specifications and drawings, little chance arises for disputes. The quantity surveyor, properly trained, acts as arbitrator between contractor and owner, accomplishing the work now assumed by many, saving to all bidders considerable time, and leaving no uncertainty as to what drawings and specifications mean. It is a highly commendable plan and should be adopted in every city of importance.

A graduated schedule of charges on buildings prepared under the direction of the American Institute to be universally adopted in the States.

A COMMITTEE, consisting of Irving K. Pond, R. Clipston Sturgis, and Joseph C. Llewellyn, were appointed by the American Institute of Architects to propose a scale which would classify the buildings and make allowance for varying costs. The great need for this is and has been felt for some time. England has a regular charge of 5 per cent. for all buildings above \$12,500, and a graduated scale on all work up to that amount; France also follows certain rules, while Germany possesses a detailed classification of structures to which the graduate system is applied, allowing a higher rate on the artistic than on the structural.

The committee, while recommending a series of minimum charges, still believes that the architect of unusual ability should formulate his own rate in ratio to his larger grasp of the work for which he may be hired. While the efforts of the committee seem to be generally approved, still they were instructed to continue, as a revision at this time would be most inadvisable.

In order to give an expression of the general consensus of opinion as well as the three prom-

inent men on the committee, a table containing the type of building, cost and per cent. is given:

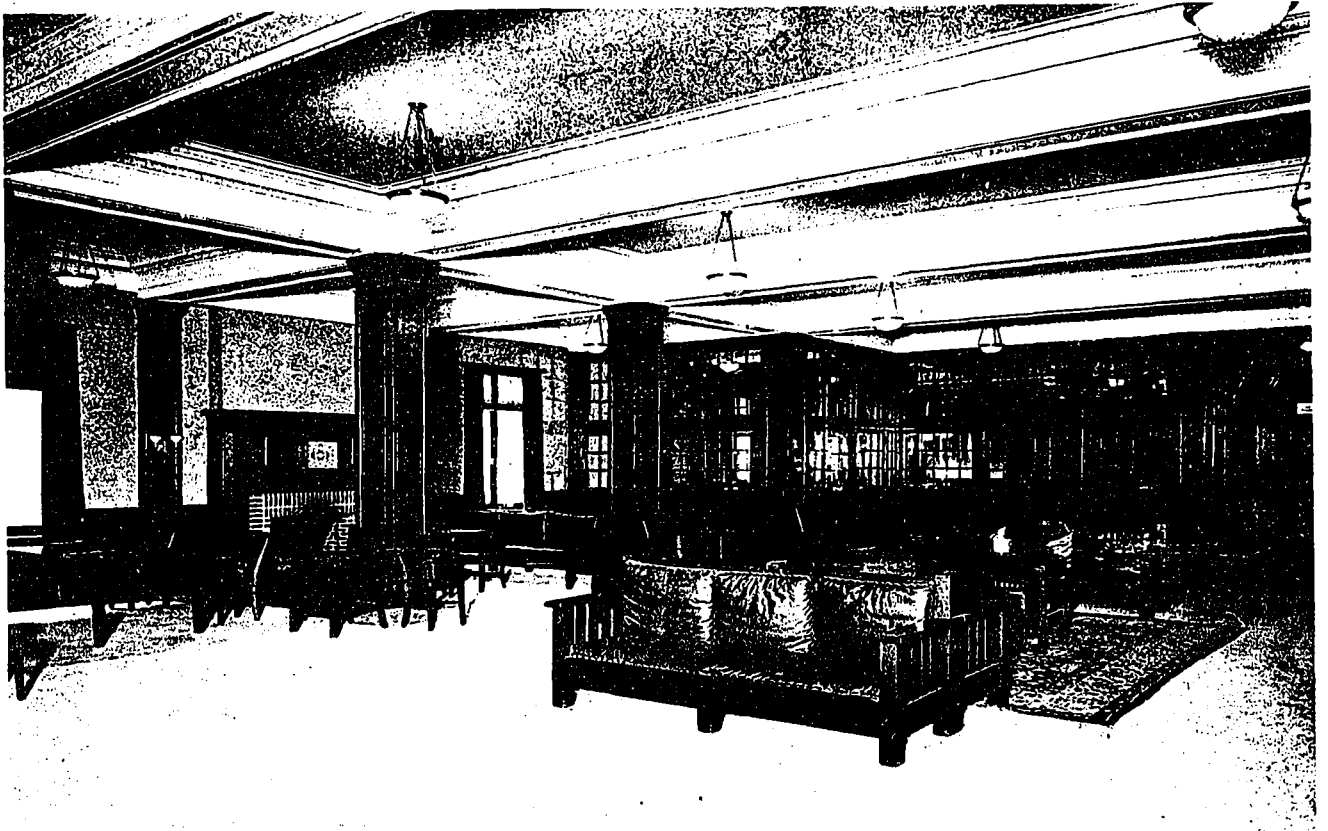
Cost.	Lofts, factories warehouses, power-houses Per Cent.	Public and private work generally Per cent.	Residences*
\$20,000	5.5	6.5	7.9
30,000	5.4	6.4	7.8
40,000	5.3	6.3	7.7
50,000	5.2	6.2	7.6
75,000	5.1	6.1	7.5
100,000	5.	6.	7.4
150,000	4.9	5.9	7.3
200,000	4.8	5.8	7.2
250,000	4.7	5.7	7.1
300,000	4.6	5.6	7.
350,000	4.5	5.5	
400,000	4.4	5.4	
450,000	4.3	5.3	
500,000	4.2	5.2	
750,000	4.1	5.1	
1,000,000	4.	5.	

*Residences of 10,000 or under, 8 per cent.

For monuments, fixtures, furniture, etc., the charge graduates from 20 per cent. on \$100 to 12 per cent. on \$7,500. The division of the total fee in relation to the various services rendered with corresponding values in the tenths of the total fee are: Preliminary studies, .15; working drawings, .35; full size details, .05; specifications, .15; contracts, supervision and auditing accounts, .3.

What the unionization of the architectural profession would mean to the moral attitude of its members and the position it holds among the people.

THE GREAT centralizing spirit of the architectural profession is revealing itself as never before. The reception offered in England to an atelier with a direct French influence after the Beaux Arts methods is highly commendable; the interchange of architectural lectures among certain institutions and the accepted invitation of a local architect to deliver a paper before the R.I.B.A. cannot help but augur well for the unionization of this phase of art. The American Institute of Architects for the first time in its history selected a southern city, New Orleans, for its convention. That such a friendly relationship and interest in the work of others is growing will undoubtedly place the personnel of the profession on a higher plane. This in turn will help eradicate the existing evils within and produce a standing of each member above and beyond the just censure which prevails at the present time. It is not a pleasing sensation to have men continually citing instances of personal greed which not only belittles the architect himself, but also reflects discredit upon the whole institution. Such a condition is of the gravest importance and should receive its death knell before the fever for a few paltry dollars corrupts the morals of those whom we know are free from these dishonest methods.

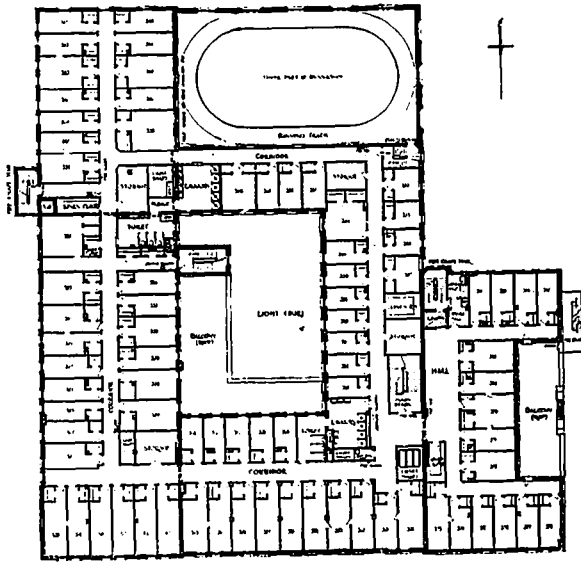


MAIN LOBBY.
BOYS' LOBBY.

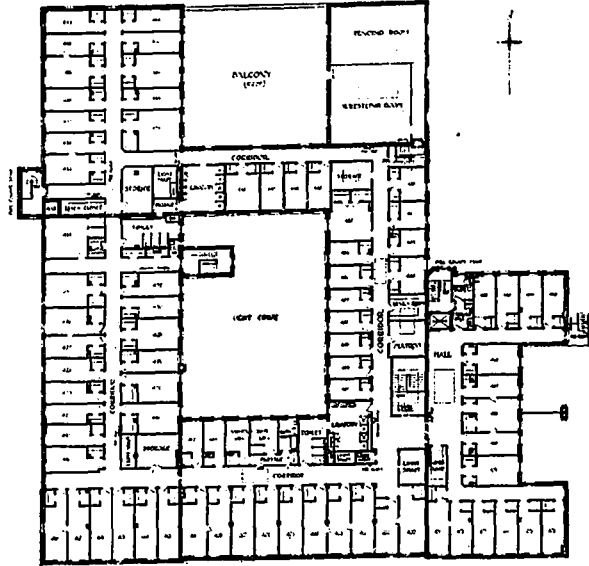
CENTRAL Y.M.C.A., TORONTO.

BURKE, HORWOOD & WHITE,
ARCHITECTS.

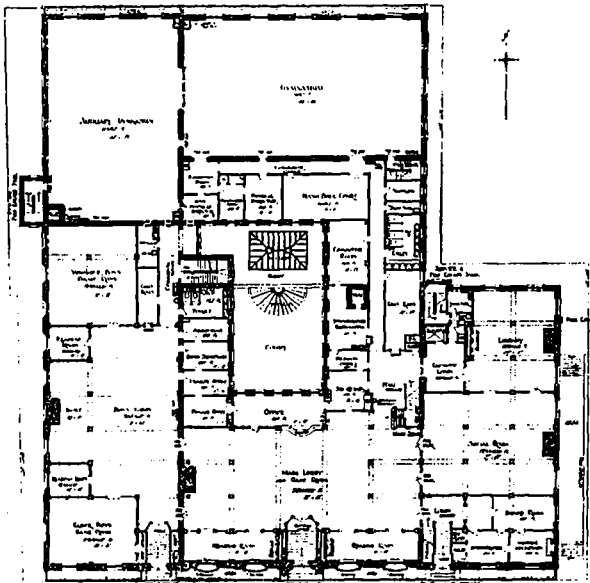
CONSTRUCTION



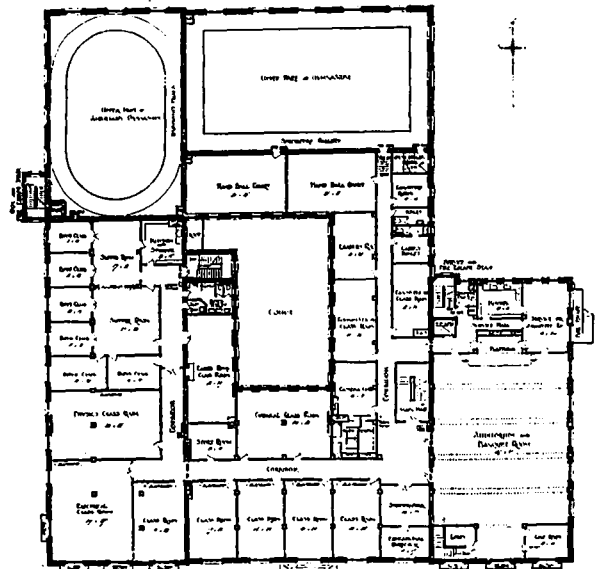
Third Floor Plan



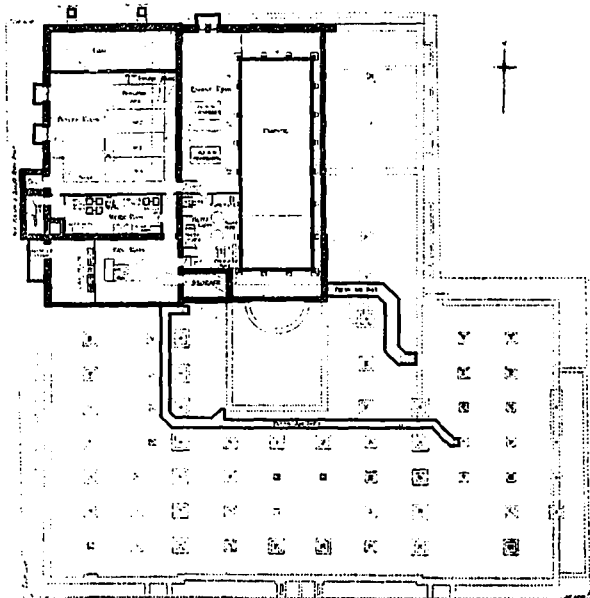
Fourth Floor Plan



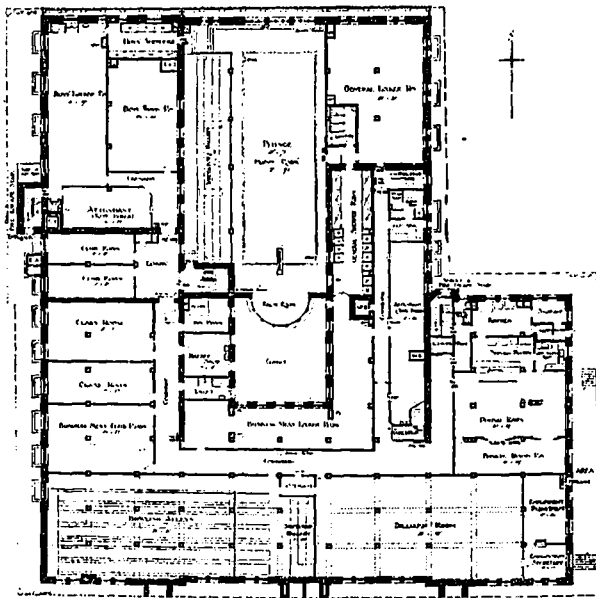
Office on First Floor Plan



Second Floor Plan



3rd Basement Plan



1st Basement Plan

BURKE, HERWOOD & WHITE,
ARCHITECTS.

CENTRAL Y.M.C.A., TORONTO.

WILLIAMS & COLE,
ENGINEERS.

Central Y. M. C. A. Building, Toronto

W. H. RATCLIFFE

THE PROBLEM presented in the designing of a Young Men's Christian Association Building is a very complex one. Unlike the majority of other buildings, it must contain within its walls, several distinct features, each of which would ordinarily form an organization of its own, such as the social club, athletic club, school, lodging house and restaurant, as well as the various smaller departments that go to make up the modern Y.M.C.A. While the main work of the Y.M.C.A. is among men, yet many of these departments must be duplicated for the boys and arranged in such a manner that both branches may be carried on without any interference with each other and still be under the one management.

Such a problem has been very successfully solved in the design and construction of the new Central Y.M.C.A. Building. While the Association is for the central portion of the city and is near the business heart, yet it is far enough removed to be free from its noise and tumult. The site is ideal, located as it is on the north side of College street near Yonge street, overlooking the beautiful grounds of the Bishop Strachan School for girls. The lot has a frontage of 204 feet on College street and extends through to Grenville street a depth of 208 feet, with a frontage on Grenville of 156 feet. The building itself is 186 feet wide by 202 feet in depth and is designed in the Georgian style, built of red brick with wide white mortar joints and trimmed in grey stone. The appearance of the building readily suggests to the passerby the nature of the work carried on within its walls. The main entrance, flanged by large Doric stone columns, is in the centre of the front on College street, and while massive in appearance, for the treatment extends to the fourth floor, yet it is quiet and gives the impression of the welcome that awaits one on the inside. The entrance opens into a large vestibule with marble steps and wainscot and walls of tinted panelled plaster. From this, one enters into the main lobby, a spacious room 37 by 86 feet, paved with terrazzo floor and finished with quarter-cut oak dado and columns and plaster beams and cornice. The walls are decorated in a rich olive green. Opening directly from this, and sepa-

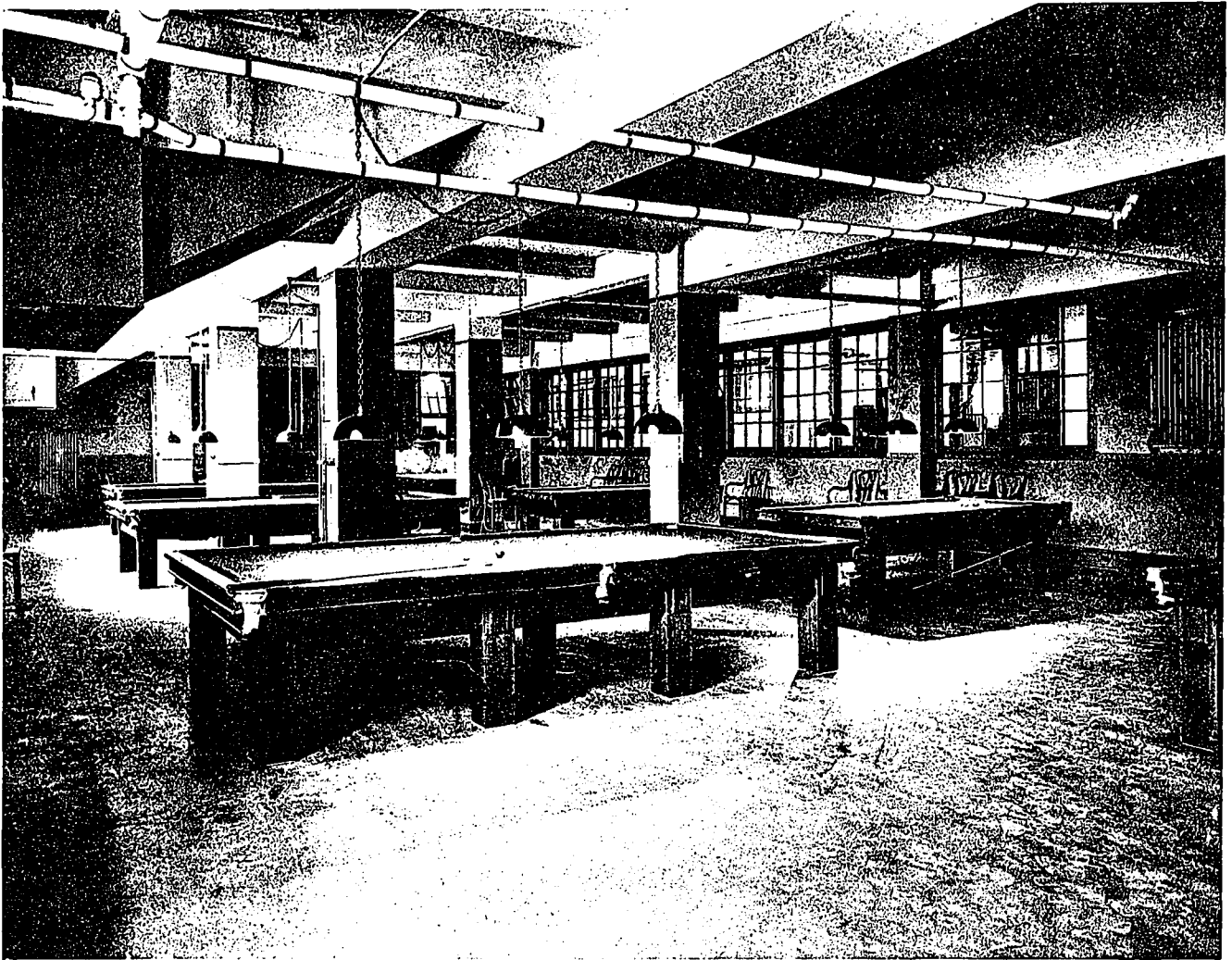
rated only by a low railing, are two reading rooms, each 10 by 34 feet, well equipped with writing desks and large reading tables, book-cases, and racks for current newspapers. The main office is separated from the main lobby by a low railing and counter only. This is a new departure in Y.M.C.A. planning, as it leaves the secretaries of the various departments in constant touch with the members and strangers. In connection with this office is a battery of private post office boxes for those rooming in the building. A very complete telephone system has been installed, with private switchboards connecting the one hundred and eighty telephones in the various offices and dormitory



EAST ENTRANCE TO BOARD ROOM.

rooms with each other or the six trunk lines for outside service.

In the front portion of the eastern section is located the offices of the general secretary and the board room. Directly behind them and opening off the main lobby is a social room 37



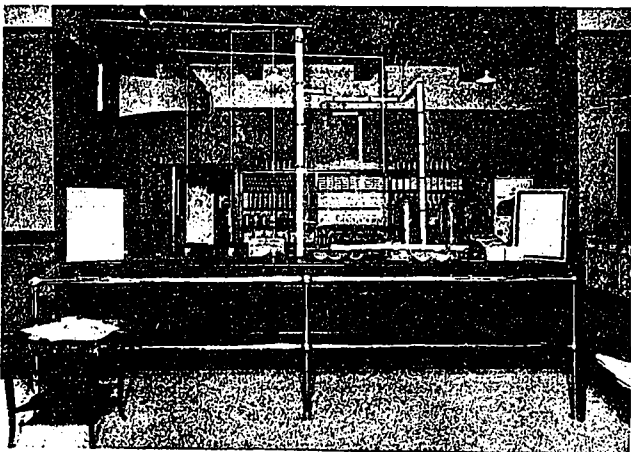
BILLIARD ROOM.

by 48 feet, furnished with easy chairs and divans, where quiet conversations or small social gatherings may be held. Behind this again is the library, 29 by 37 feet, with built-in bookcase and splendid facilities for study or reading. The social room and library are decorated in a deep terra cotta color.

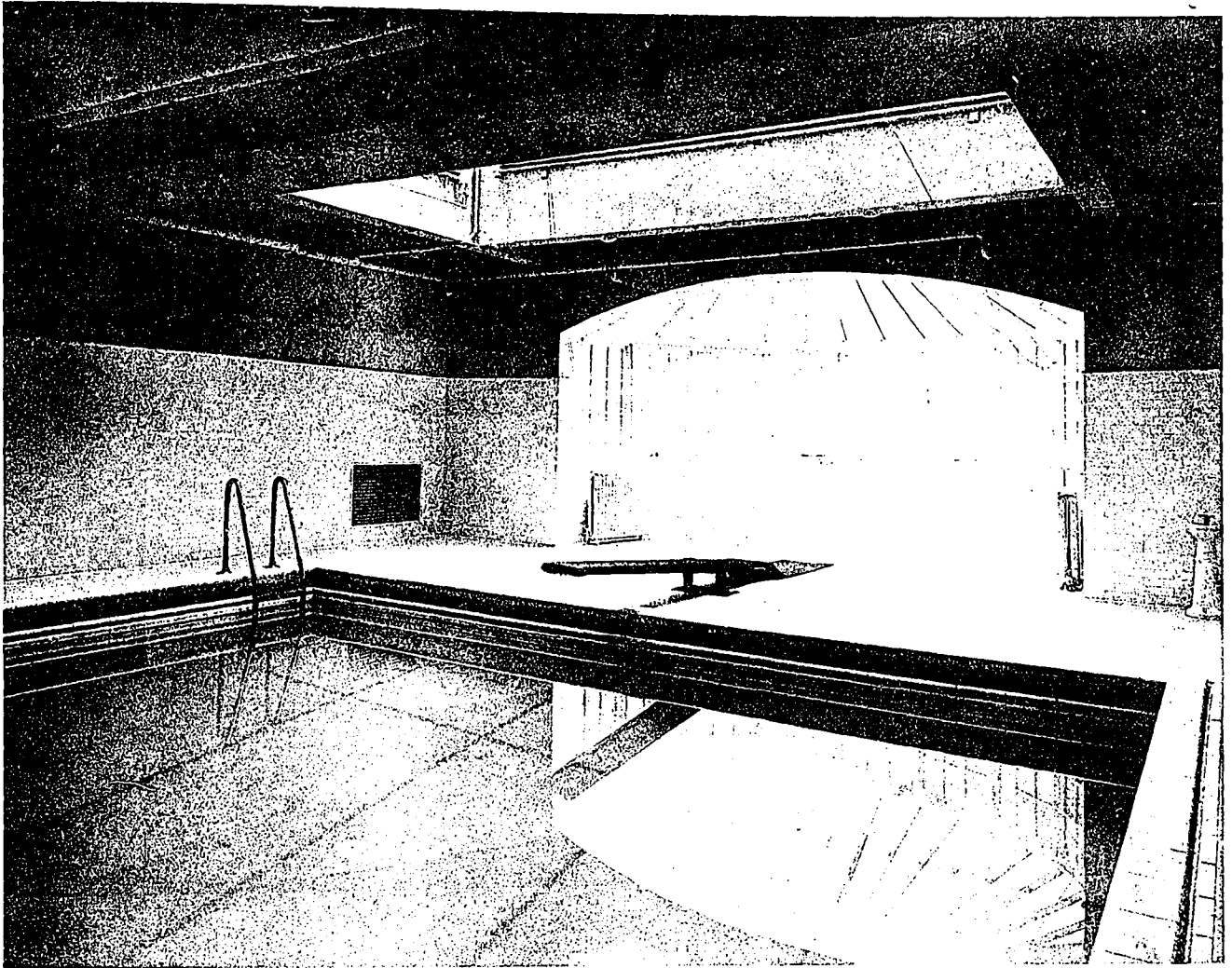
In the western section is located the boys' lobby, with game and reading rooms opening off. All of these larger rooms have the same

treatment as the main lobby, a very attractive feature being fireplaces built of brick with overmantels of quarter-cut oak in the Georgian style, which give a most hospitable and homelike feeling. Connected with both the main and boys' lobbies are large coat rooms.

The rear portion of the first floor is devoted to the athletic department, containing the men's and boys' gymnasiums and the physical director's offices and examination room. The main gymnasium is 50 by 86 feet and extends through three stories of the building, having a spectators' gallery at the second floor and running track at the third floor level. This track is banked for speed, and contains twenty-six laps to the mile. The boys' or auxiliary gymnasium is 47 by 74 feet, and extends through two stories, with running track at the second floor level. Both gymnasiums are lined with buff pressed brick and floored in maple, making very bright rooms. Between these is an opening 15 feet wide protected by an automatic rolling steel shutter, which is kept closed except when desirable to use both rooms as one. Each gymnasium is served by four separate stairs from the showers, etc., below or to the running tracks above. One feature of the work, and one that proves to be very attractive, for it is almost



CAFETERIA COUNTER.



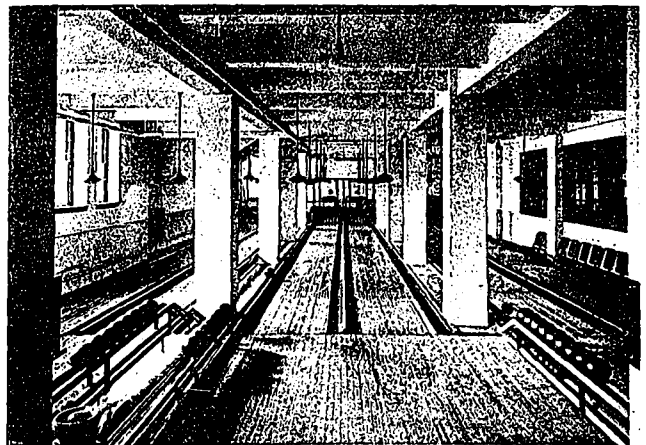
DETAIL OF PLUNGE ROOM.

constantly used, is the game of hand ball. There are three large rooms devoted to this, one being on the first floor and two on the second floor. These rooms are floored in maple and plastered in cement with Keene's cement finish. All the walls are finished absolutely flush, as any projection, even a door knob, hinders the game.

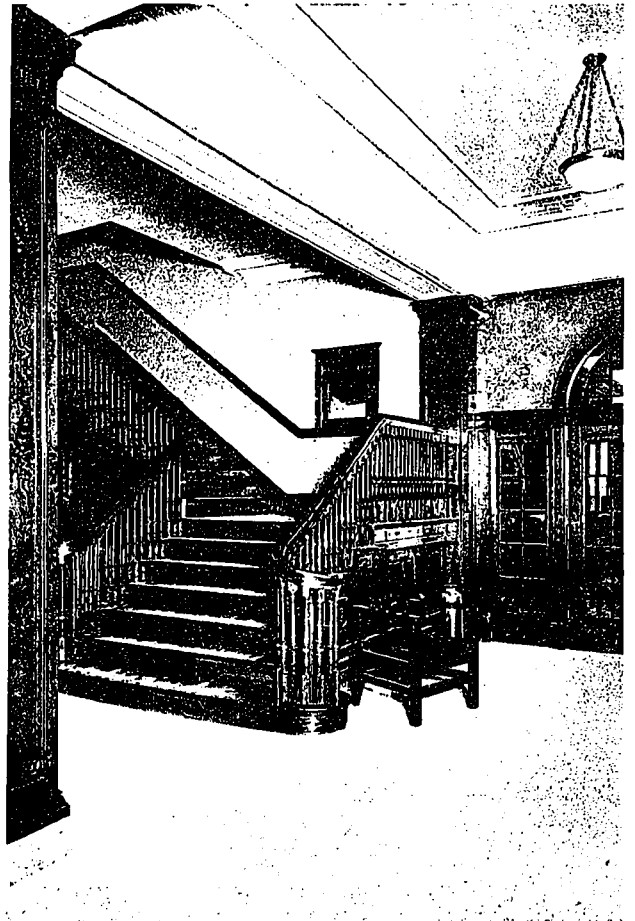
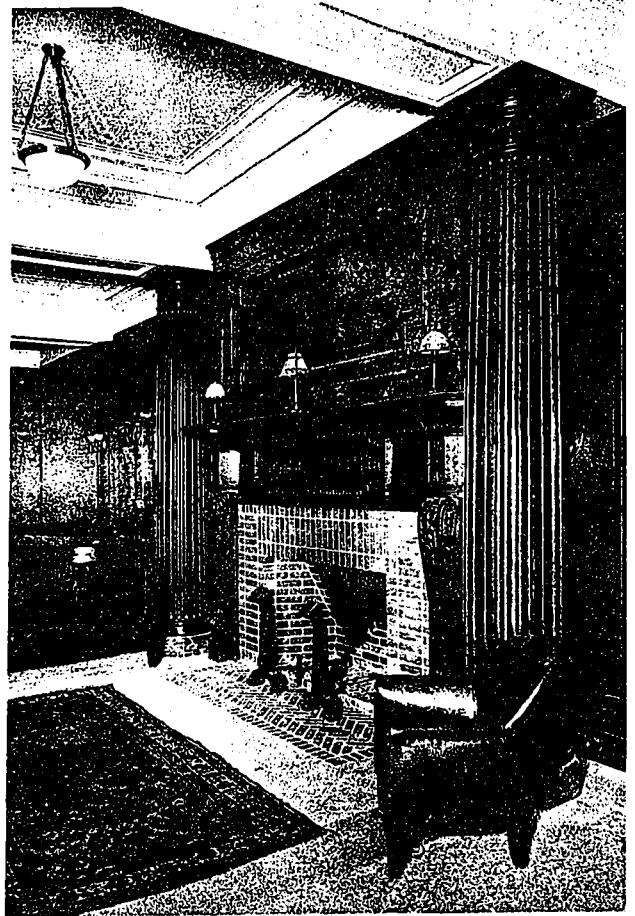
In the rear of the basement are located the various locker rooms, shower rooms and the plunge, the business men, young men and boys having their own locker rooms, which are finished in cement stucco walls and concrete floors, with a hard surfaced finish. Each contains about three hundred lockers, the business men having private ones, while the young men and boys have individual tote boxes 8 x 8 x 10 inches, in which they place their gymnasium clothes. These are stored in the attendant's room on steel shelving, where the members call and, on presenting their membership tickets, receive their boxes and take any available locker. As it is compulsory for each man to take a shower bath before he enters the plunge, the shower rooms have been arranged so that it is necessary to pass through them to reach the plunge. The business men and young men use the same room, which contains twenty-six showers, one of which is a needle bath. The shower partitions and

backs are of marble, while the floor and walls are of tile. The boys' room contains fourteen showers in two large open stalls.

Separated by a wire screen from the plunge room, which has tile walls and floor, is a spectators' gallery with banked seats accommodating two hundred persons. The plunge proper is twenty-five feet wide and seventy-five feet long, built of concrete with tile lining. In the walls and floor are marked with darker tile the various



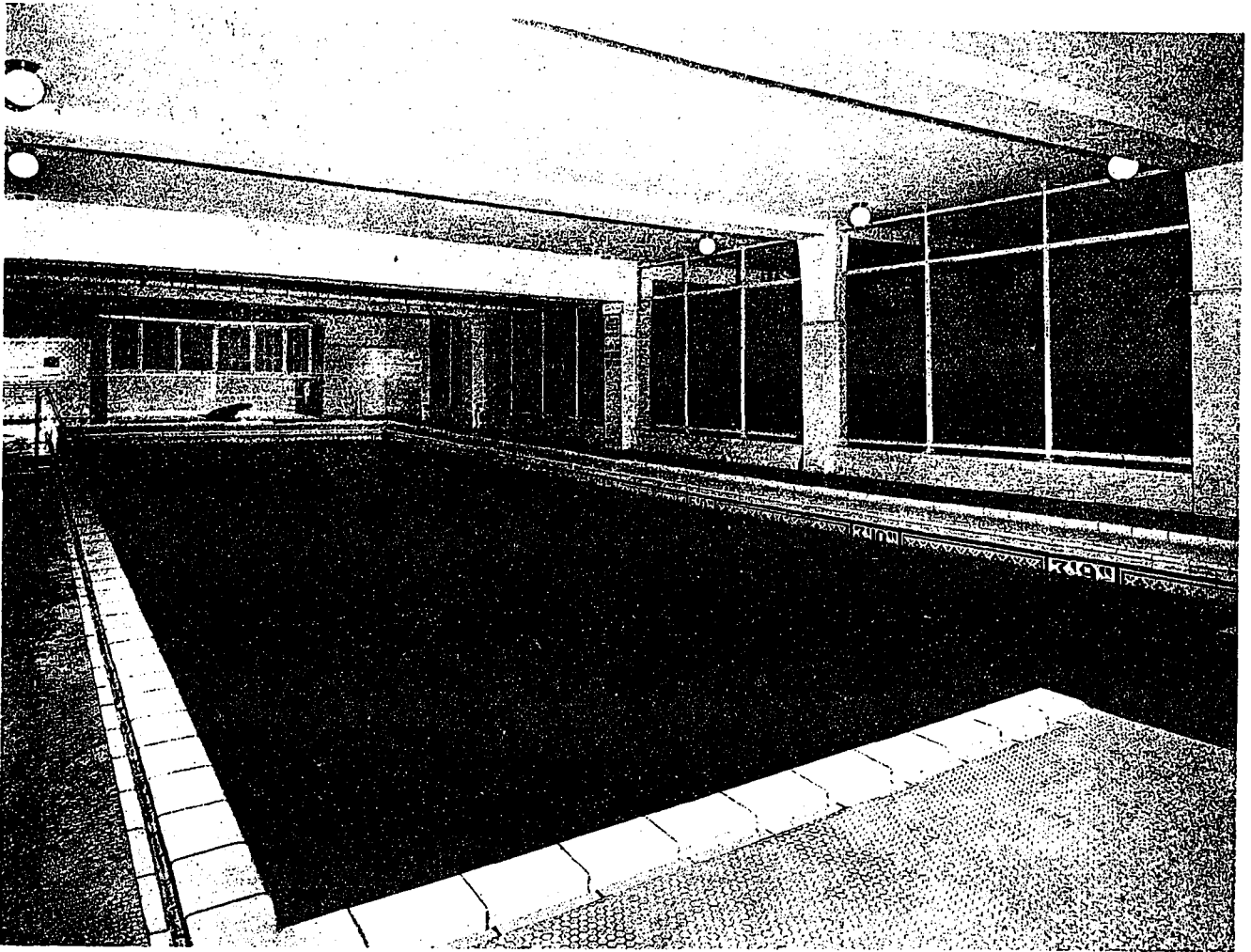
BOWLING ALLEYS.



MUSIC LOBBY
WRITING SPACE.

DETAILS OF MAIN LOBBY.
CENTRAL Y.M.C.A., TORONTO.

FIREPLACE.
MAIN STAIRS.



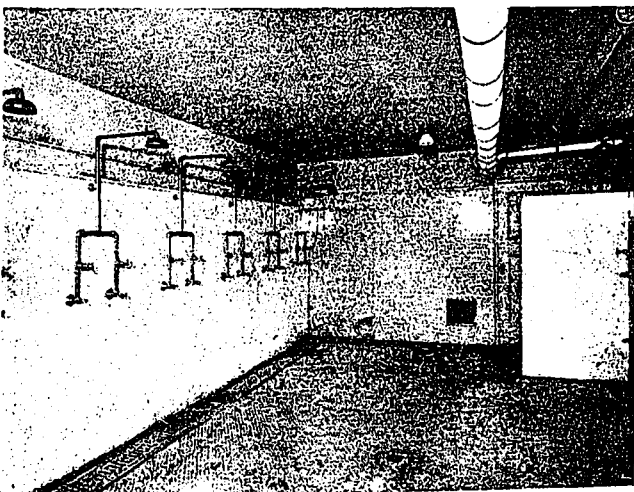
PLUNGE ROOM.

depths of water, swimming lines and diving distances.

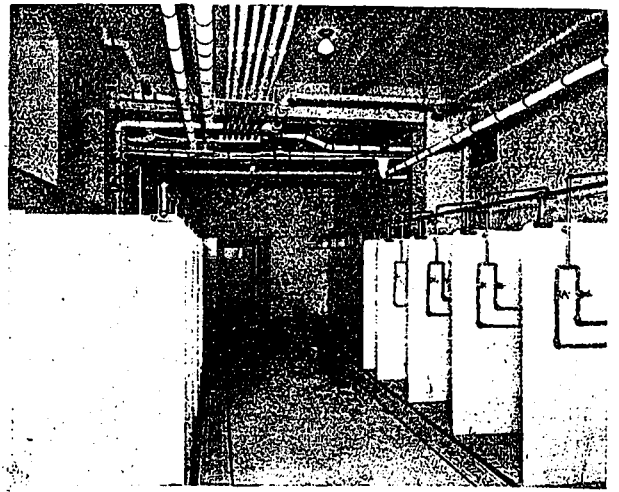
In the front portion of the basement are located five regulation bowling alleys, the billiard room, with four pool and three English billiard tables, and the employment department, which has a separate entrance on the east, thus isolating it from the rest of the building. Directly behind the billiard room and employment department is the dining room with its

serving room, kitchen, storage, refrigerator and dish washing room. The dining room will accommodate ninety, and the self-serving system has been adopted. In the western section are located various class and club rooms, a toilet, barber shop, and a drying room for the clothes in the tote boxes.

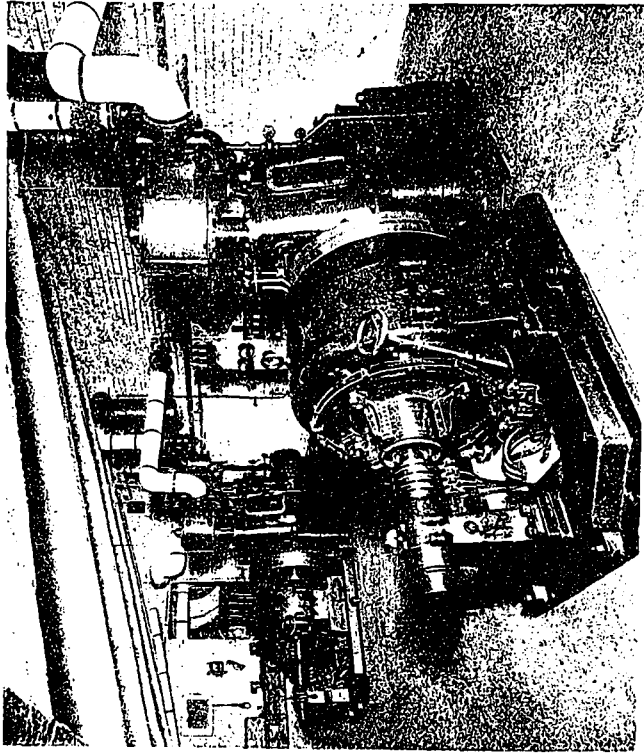
The sub-basement, in which is located the large power plant necessary for a building of this type, is about one hundred feet square, and



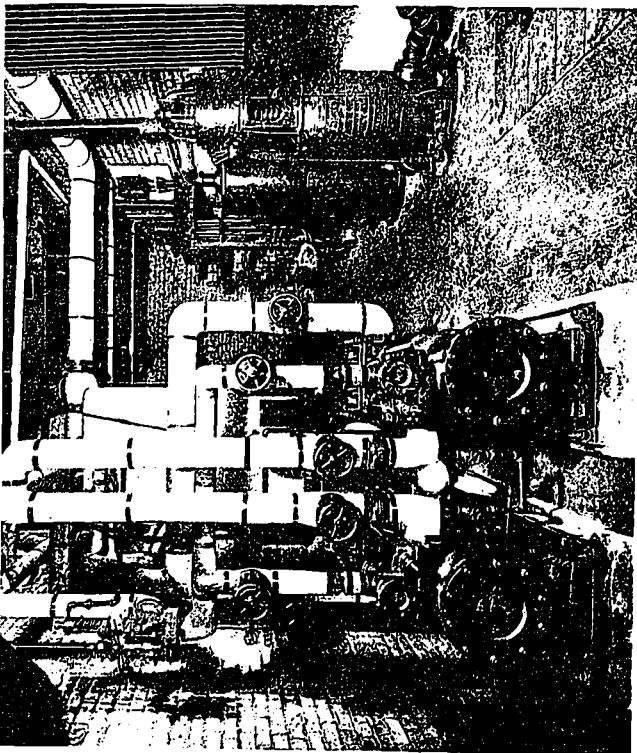
BOYS' SHOWER.



GENERAL SHOWER ROOM.

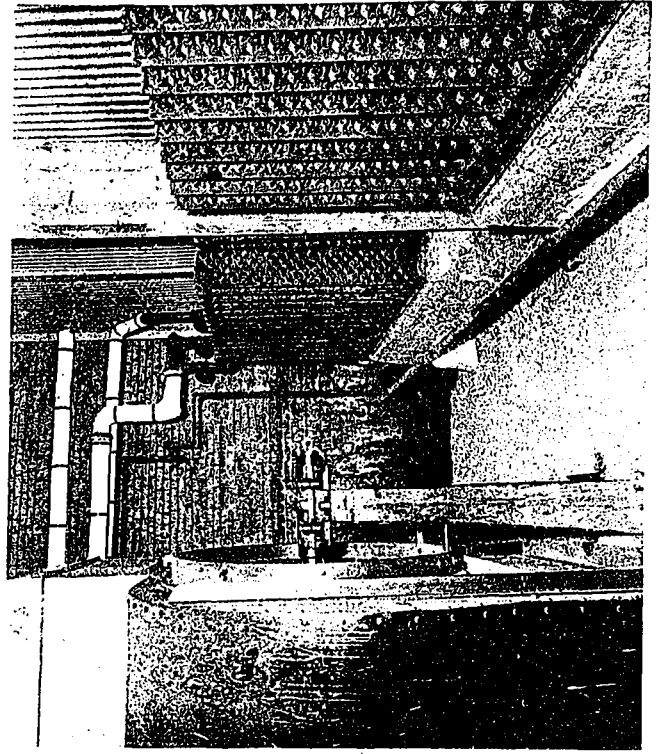


ENGINE ROOM.

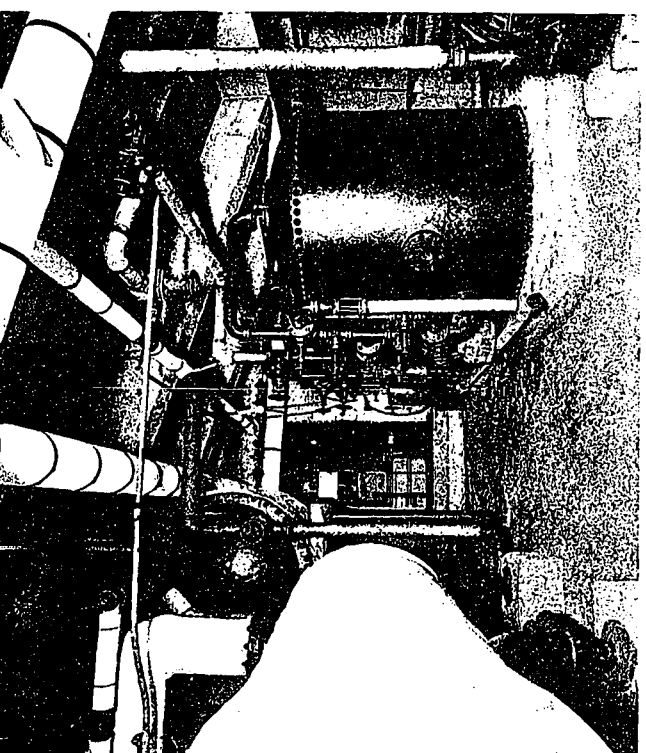


PUMP ROOM.

MECHANICAL EQUIPMENT,
CENTRAL Y.M.C.A.,
TORONTO.



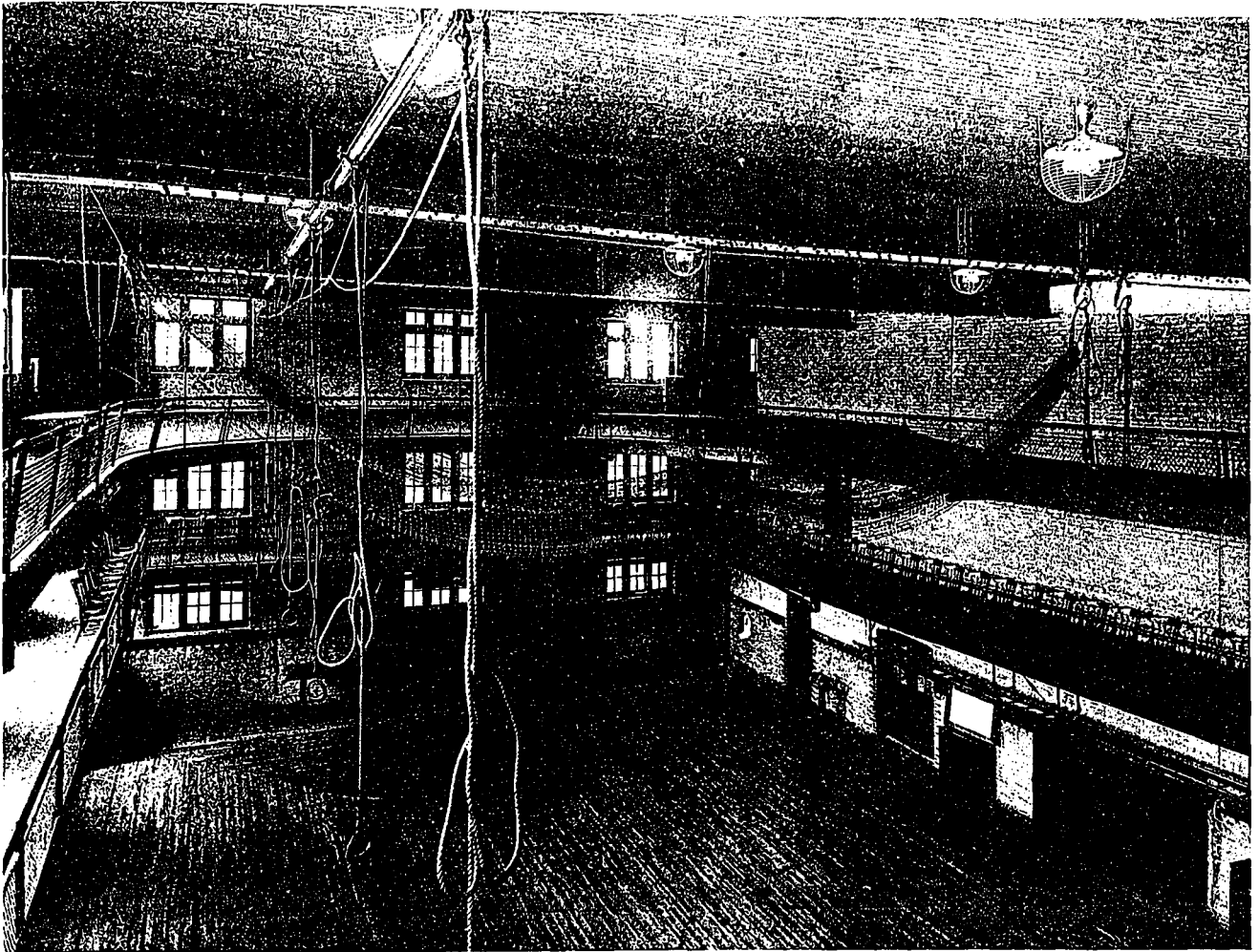
SUPPLY FAN ROOM.



FILTER ROOM.

BURKE, HORWOOD & WHITE,
ARCHITECTS.

WILLIAMS & COLE,
ENGINEERS.



MAIN GYMNASIUM.

is sub-divided into the various fan, pump, filter, generator and boiler rooms. This power plant is the subject of a separate article in this issue.

The second floor is devoted mainly to the class rooms, boys' club room and the auditorium. The class rooms are light and airy. The boys' club rooms are arranged in a very interesting manner on two sides of a large supper room, being separated only by a glass screen, the doors of which may be thrown open when required for a large supper. This supper room has its own kitchen in connection with it.

The auditorium is a room 47 feet wide by 61 feet long, with a seating capacity of six hundred. It is treated in a very simple though interesting manner with circular headed windows and plaster pilasters supporting the beams above. It is decorated in grey tones, giving a very quiet and dignified appearance. Here may be held large banquets, served from a kitchen and serving room in the rear. Located also on this floor is the camera club, with separate developing and enlarging rooms.

The third and fourth floors are devoted entirely to bedrooms, of which there are 157, some of them being double, giving accommodation to about 180 men. These rooms are very attractive, being decorated in delicate tones. Each is

furnished complete and equipped with a telephone. On each of the dormitory floors are located two toilets and shower rooms finished in marble and tile. A passenger elevator gives service to all floors in the building.

The building is divided into five distinct fire zones, separated from each other by brick walls and fire doors. The first floor is of fireproof construction, while the other floors are of wood supported by steel. The completed structure cost about 18c. per cubic foot.

The architects of this building also designed the two branch buildings, one on Broadview



BOILER ROOM.

avenue and the other at the corner of College street and Dovercourt road.

MECHANICAL EQUIPMENT.

Williams & Cole, Engineers.

In the general arrangement and type of the mechanical equipment the Central Y.M.C.A. Building of Toronto ranks favorably with the best equipped structures of its kind in America. The sub-basement is given up entirely to the mechanical works, and consists of boiler and engine rooms, coal pit, meter and fan rooms, plunge, filter room, and storage.

The private power plant generates all the heat, light and power necessary for the entire building. A complete system of ventilation of the blower type has been installed, with adequate supply and exhaust blowers; high pressure steam is provided for the kitchen and serving apparatus, in addition to a thoroughly practical and up-to-date filtering, heating and circulating system for the swimming pool. The boiler room is equipped with four 125 H.P. horizontal return tubular steam boilers fitted with quick closing water gauge cocks, self closing tri-cocks with chain levers operating from the floor. Two vertical high speed engines have also been installed, of a direct-current compound wound type, three wire dynamos with balancing coils, which generate electric current for the entire building—250 volts for power and 125 volts for lighting.

The exhaust steam from the engines, taken through an oil separator to the low heating system, heats the open feed water heater, filter and purifier, the hot water generators for shower baths, domestic service and swimming pool. The boilers supply steam to the engines at 125 pounds pressure. In the kitchens and other domestic service quarters live steam reduced to 40 pounds is used, while an auxiliary live steam connection is taken from the boilers

THERE are certain fundamental principles that must be wrought into the plans of a modern Association building.

1st. *It must be inviting, convenient and comfortable.* The Association is a leisure-hour institution to which men and boys feel no obligation to come unless attracted by the fellowship and activities of the place. If the building of the Association be uninviting or ill suited to its intended activities, the Association will lose its constituency to competing leisure-hour attractions of less helpful influence.

2nd. *It must have considerable revenue-producing capacity.* It is the common purpose of Y.M.C.A.'s to keep down to the minimum the cost of the privileges to members so as to make them accessible to the maximum number.

3rd. *It must be capable of economical maintenance and control.* An Association is used

to the low pressure piping system through a balanced pressure vacuum regulating valve.

The heating apparatus is equipped with the vacuum system, and the water of condensation is drained into a receiving tank at the low point, from which is connected the suction of a 10 x 12 x 16 vacuum pump. The pump discharges into a separating tank on the ceiling of the pump room, from where the condensation flows to the feed water heater by gravity.

The boilers are blown off under pressure to a 42 by 108 inch blow-off tank on ceiling of boiler room, which drains by gravity to the sump well, provided with an automatic electric bilge pump, discharging to the sewer.

The water in the swimming pool is circulated by means of a centrifugal pump, which draws from one end of the pool and discharges through filters and an instantaneous hot water generator into the opposite end of the pool. In this way the water is kept pure and tempered. A hot water meter is connected into this line to measure the flow, which is estimated at 1,200 gals. per hour, maintaining a temperature of 72 degrees in the pool.

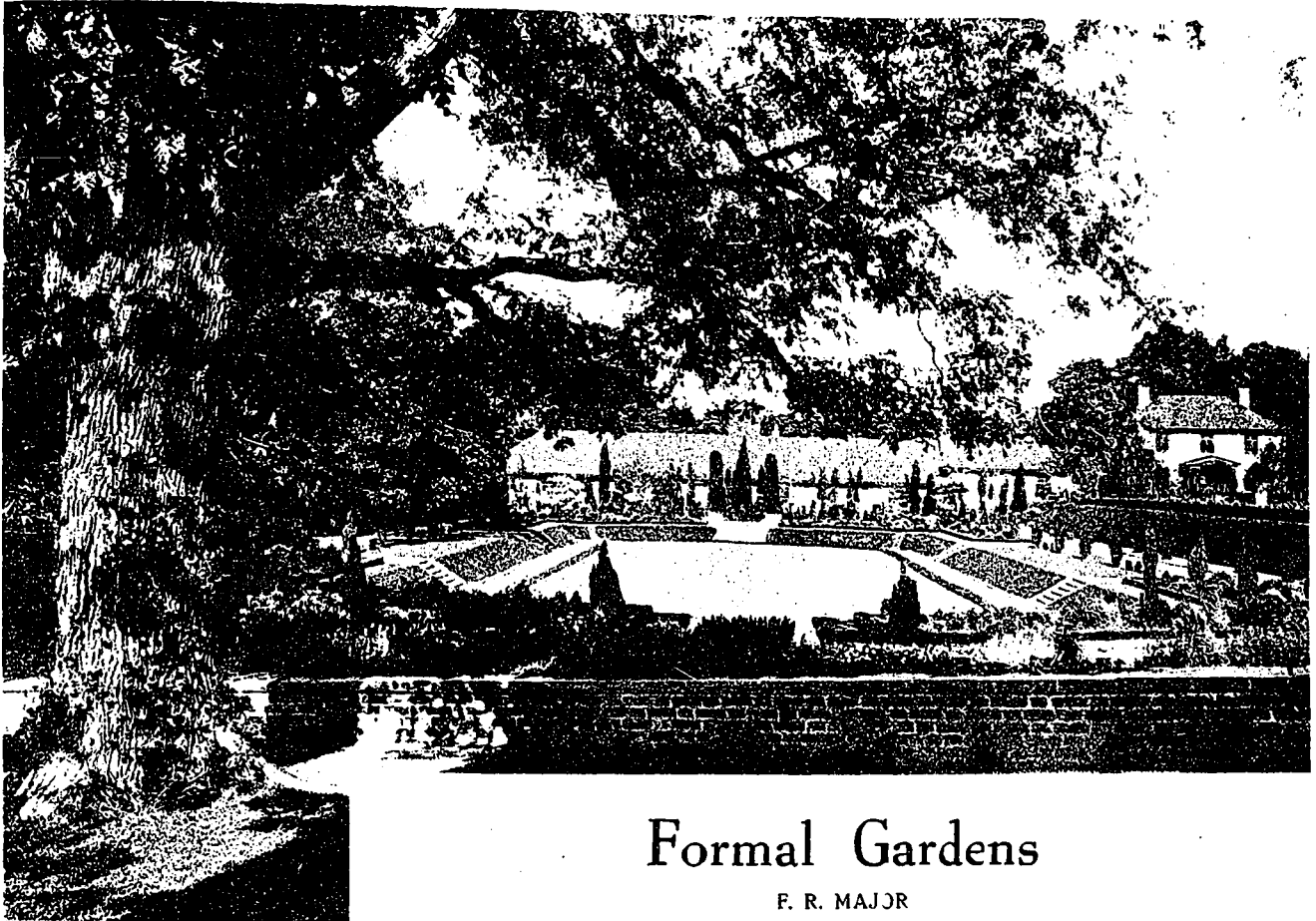
In the sub-basement is installed a supply blower, which draws fresh air from outside, through air filters and tempering coils, supplying the main lobbies, banquet hall, gymnasiums, natatorium and main auditorium through galvanized iron ducts. The capacity of this fan is 20,000 cu. ft. per minute.

The exhaust blowers are located in pent houses on the roof. There are four of these, exhausting a total of 25,000 cu. ft. per minute from the toilets, locker rooms, natatorium, kitchens, serving rooms, auditorium and shower bath rooms. These are all slow speed fans, direct-connected to motors with speed-regulating rheostats. The pipe covering is 85 per cent. magnesia and asbestos air cell sectional covering.

day and night for varied purposes by a considerable number of people, and consequently must be able to stand rather hard usage. It is also true that the fees charged users are always scaled lower than the cost of operation. These two facts make it necessary to so plan and construct the building that a minimum current expense shall be incurred in repairs and maintenance, in janitor service and in supervisory force for the proper control of activities.

4th. *It must be so designed and constructed as to facilitate internal remodeling and rearrangement of rooms for changing uses, also the attachment of additions or annexes.*

The variety of features conducted by an Association makes it expedient that the adaptation of the work to current needs may not be hampered by fixity of the building arrangement and equipment.—W. M. Wood.



Formal Gardens

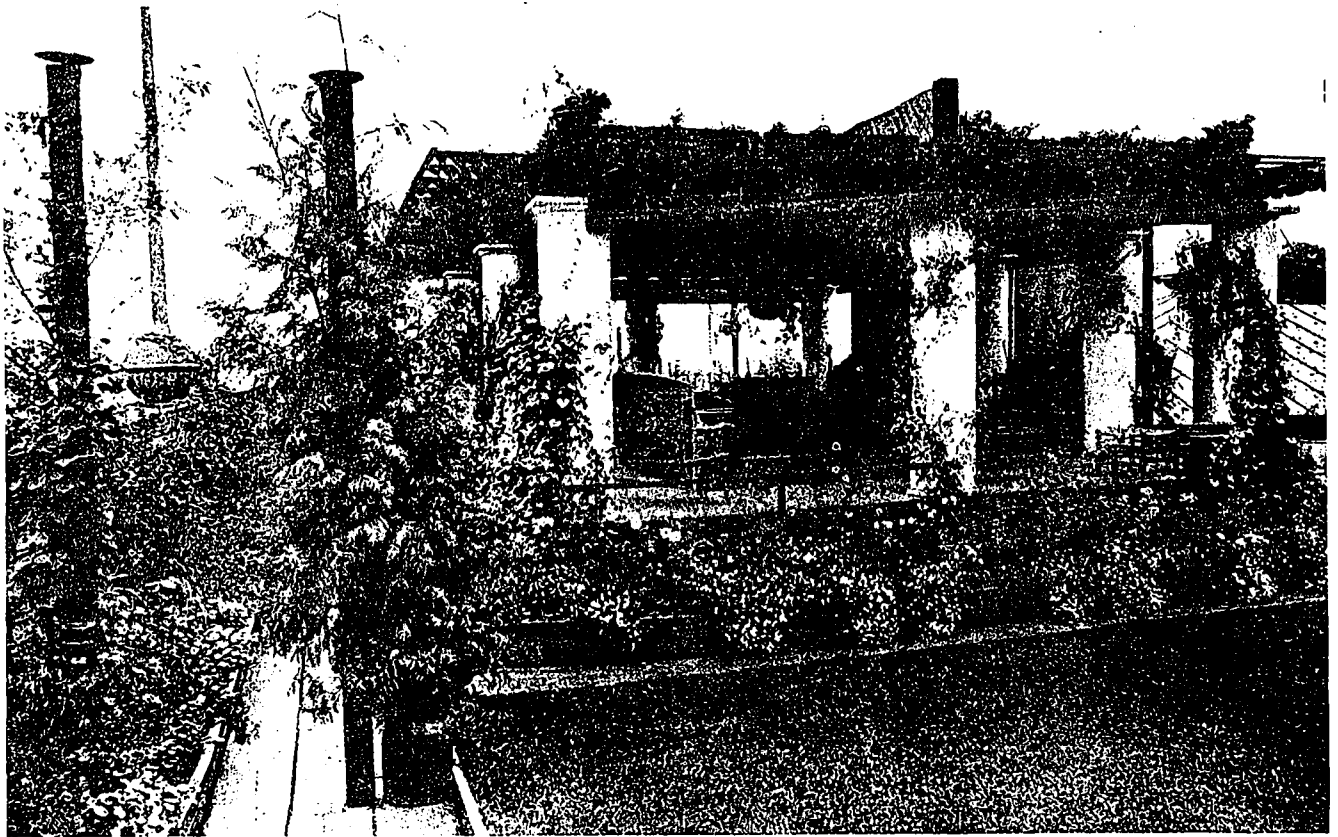
F. R. MAJOR

THE MODERN GARDEN is in an embryonic state, capable of wonderful possibilities if based upon a wide knowledge of past masters and a keen appreciation of the present conditions and future needs. By this we do not mean that gardening is a new art, but rather, that our climatic conditions, diversity of people, and natural surroundings are so varied as to require a new individual treatment of each problem presented. Our life tends to formalism. It demands that the units be symmetrical, decorative and co-ordinated. Each tree, planting, path, lawn or hedge must fit into the ensemble so as to produce an æsthetic feeling of grace and at the same time correlate the individual units into one frank, harmonious plan.

The skill of gardening dates back to the Roman and Norman eras, although our best and most adequate accounts of early work are contained in the existing illuminated manuscripts of the monastic orders. These mediæval scholars held to a certain formality, although the natural foliage was interspersed with hedges and adorned with flower beds of all patterns, arbors, seats, etc. It is remarkable how the monks invariably selected the spot most conducive to beauty and grandeur. With an ideal site they erected their abbeys, keeping in mind all the time the relationship of the materialistic to the natural and gaining added charm by the combining of buildings, hills, rivers, trees, gardens, etc., into a perfect symmetry.

From the Middle ages to the present time, garden design has had a varied experience. During the Tudor period it took new life, and after the War of the Roses, English work advanced, under the influence of the Italian, French and Dutch. The revival of classic architecture during the Renaissance lent an added impetus to the gardening, and under the direction of Inigo Jones the yoke of artificiality was thrown off and through his intimate knowledge of the neo-classic style in Italy a fitting revival spread throughout the country. The French style was encouraged by Charles II, who brought le Notre to instruct the English gardeners on the broad lines by which he produced the admirable plan at Versailles. While in England le Notre extended himself as much as possible in the parks of St. James and Greenwich. The Dutch held sway under William and Mary, destroying the restful simplicity of the previous work and encouraging an extravagant use of topiary. Through all these years when foreign invasion was rampant, and of all nations the Italian influence was the strongest, we find the classic development prevalent without the warmth found in the other countries. It was not these influences which created the living charm to be found in English gardens, but rather the restfulness of the lawns and the peaceful arrangement of the flowers—homeliness and grace instead of grandeur and ornateness.

The architect of yesterday grasped the broad



ROOF GARDEN ON HOTEL, FIRST HALF.

principles which resulted in a ready solution of all problems. While his work is open to criticism, it behooves us to have a care or else we will throw ourselves open to even more severe censure. The man who grasps a comprehensive scheme and is able to carry it through with consistency will be a potent factor in the eradication of the non-homogeneous efforts of our present age. We have such men, but the country demands that every home designer possess the ability to master the details so indispensable to the whole treatment. He must be imaginative and creative with an intuitive knowledge of just how his carefully thought-out plan will look when completed.

What better plan could the architect adopt

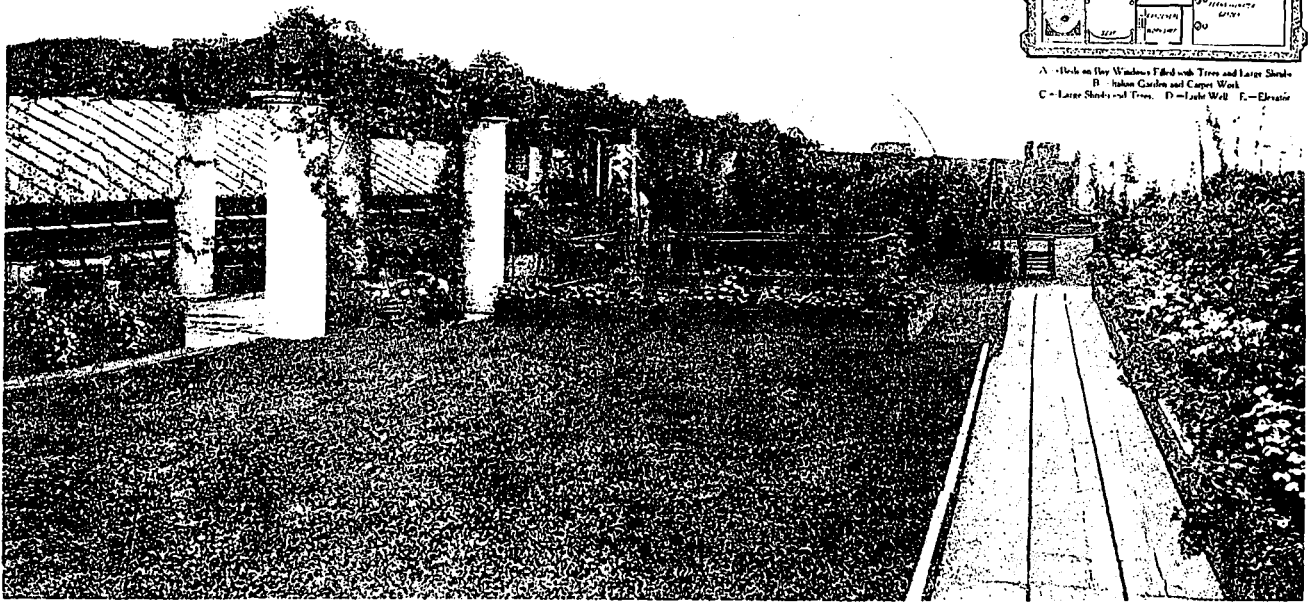


than to consider the house with its homeliness within and its charm without as his "Castle in Spain." He might benefit by spending some little time in musing over the problem at hand just as Richard le Gallienne did when he depicted the following dream of his ideal home:

"I should need volumes in folio adequately to describe my Castle in Spain, and at least three of them would be needed to tell about my garden. Ah! what a garden there would be in my Castle in Spain! Perhaps, aside from other fancies which I should expect to indulge, there would only be three on which I would really set my heart: a garden, a library, a private chapel.

"I should not hope, nor even could I wish, to be original in my garden; for man's early desire of gardens had developed into a learned convoluted art even before Solomon wrote: 'A garden inclosed is my sister, my spouse; a spring shut up, a fountain sealed. Thy plants are an orchard of pomegranates, with pleasant fruits; camphire, with spike-nard; spikenard, with saffron; calamus and cinnamon, with all trees of frankincense; myrrh and aloes, with all the chief spices. A fountain of gardens, a well of living waters, and streams from Lebanon. Awake, O north wind, and come thou south; blow upon my garden, that the spices thereof may flow out.'

"My garden would, first of all, be



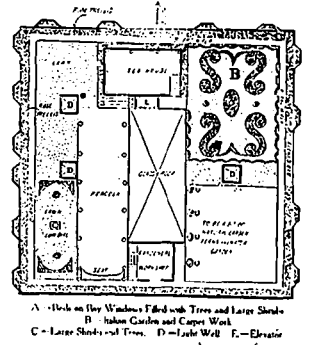
ROOF GARDEN ON HOTEL, SECOND HALF.

made of dew; next of grass, and then of very old trees. Oak-trees, poplars, and beeches would dominate my garden; and as for the other trees, they would all be trees of veritably *living* green—chestnuts and sycamores and willows. Nothing but freshness and sap and leafage of transparent emerald would be trees in my garden; and the flowers of my garden would be all spring and summer: snowdrop, crocus, and daffodil; violet, rose, and honeysuckle.

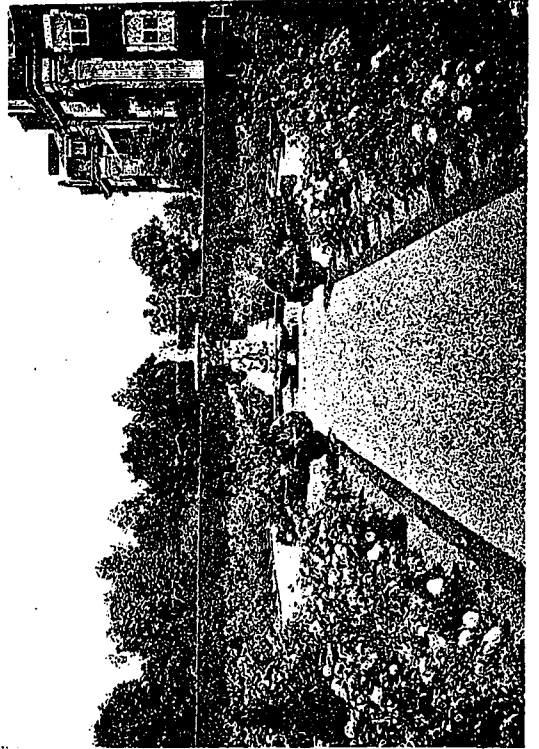
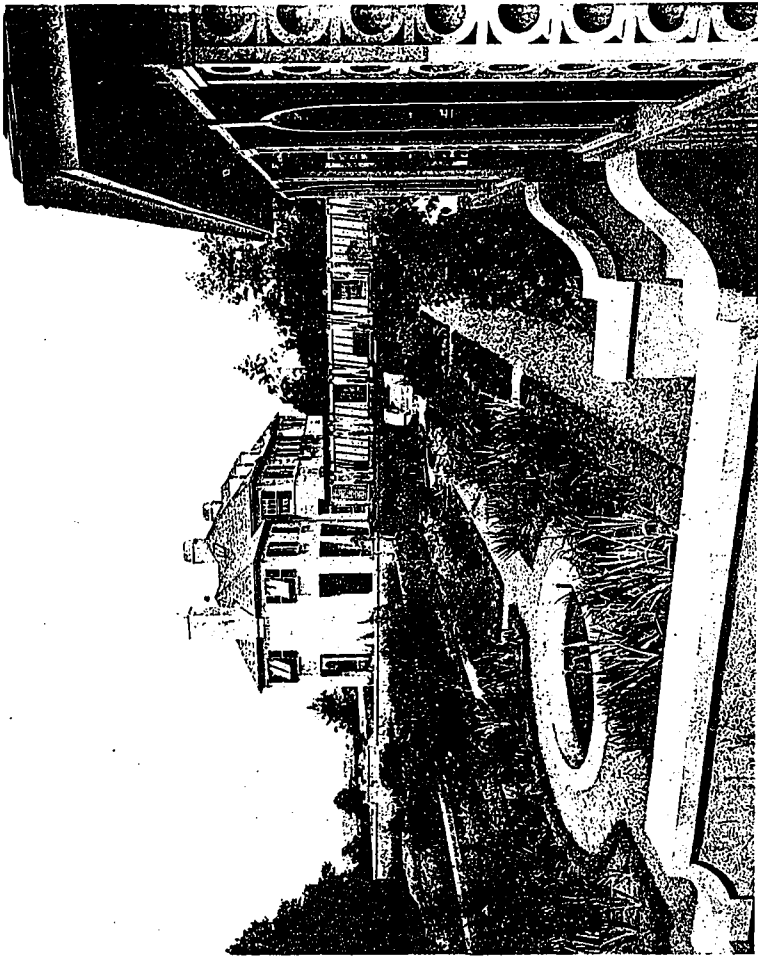
“Here are but, so to say, the first principles of my garden. As I said, it would take volumes in folio adequately to tell about it. But this much further I may say: that among the many divisions and sub-divisions of my garden, there would be three. First, there would be my star garden: In this would be planted flowers that only bloom under the influence of the stars; flowers that open at the setting of the moon, and close with the rising of the morning star. For these flowers I should build a high hanging garden dizzily thrust up into the sky, on the summit of some cloud-encircled turret of my castle. The flowers in this garden would be whiter than snow and purer than my first love. Then there would be my sun garden. In this would be planted the warm-breathed, earth colored flowers, the yellow, scarlet, flowers, the purple and saffron, the orange and crimson—all the hot and savage flowers of the

sun. And again, there would be my moon garden—a subterranean realm of pale leaves and ghostly flowers, a dim garden of excavated terraces descending beneath the dungeoned foundations of my castle, irrigated from its green-mantled moat, and fed through slanting shafts of hollowed stone with the surreptitious light of the moon.

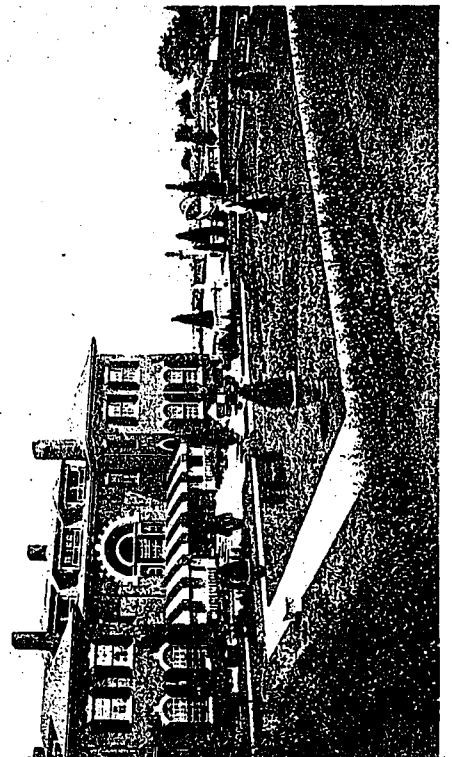
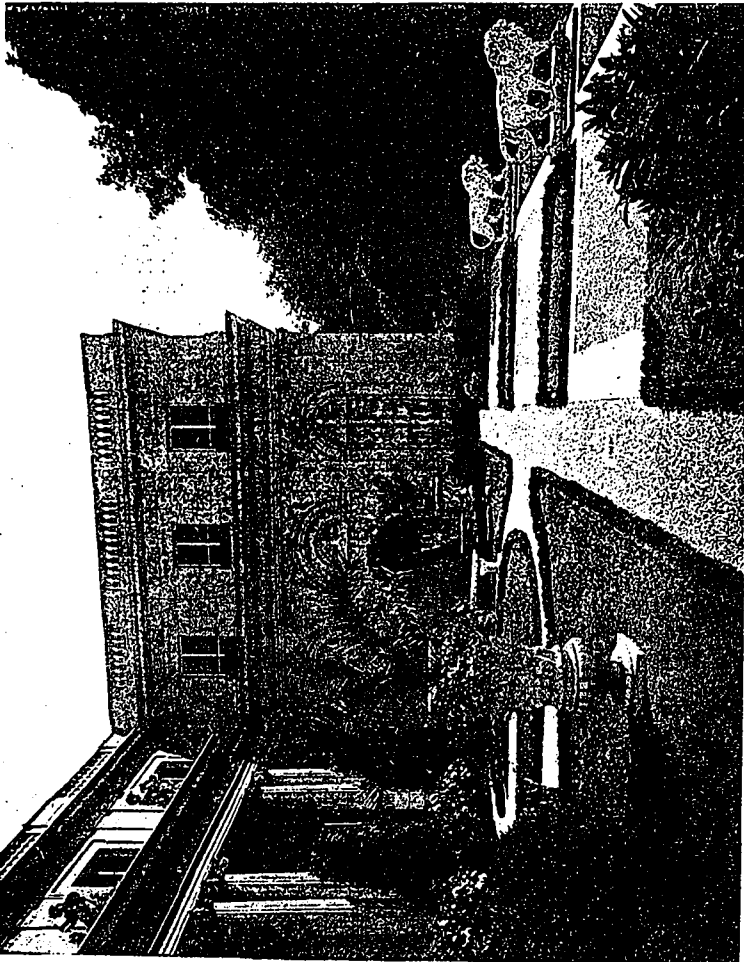
“I should allow but few birds in my garden. The eagle should nest, if it would, on some crag-like corner of my battlements, and the hawk would be welcome to soar and swoop about my towers. Only the simple sincere-throated birds should sing in my garden: the thrush and the blackbird and the robin; the starling with his simple-minded whistle, the curlew with his lost,

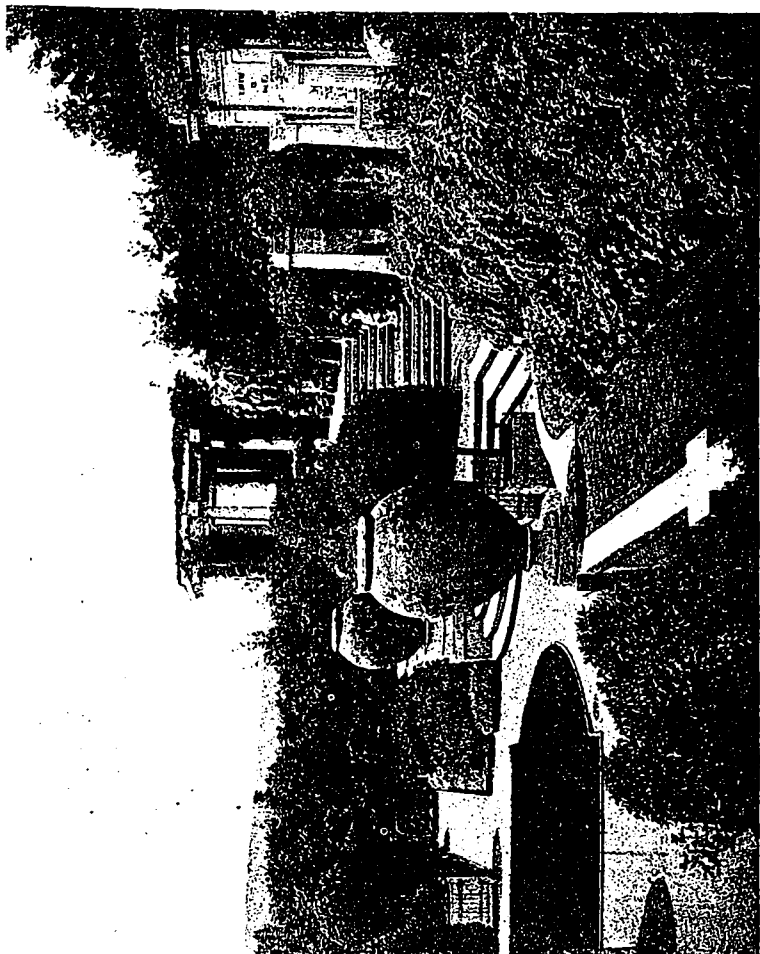
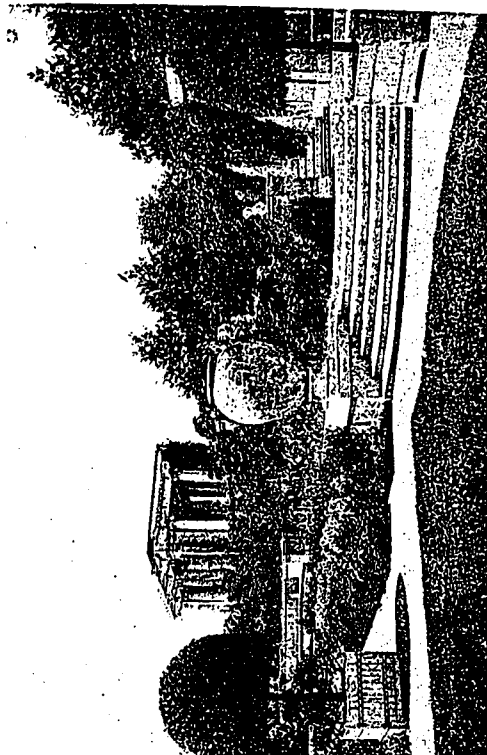


A—Hole in Fly Window Filled with Trees and Large Shrubs
 B—Kitchen Garden and Carpet Walk
 C—Large Shrub and Trees, D—Lawn Wall, E—Elevator

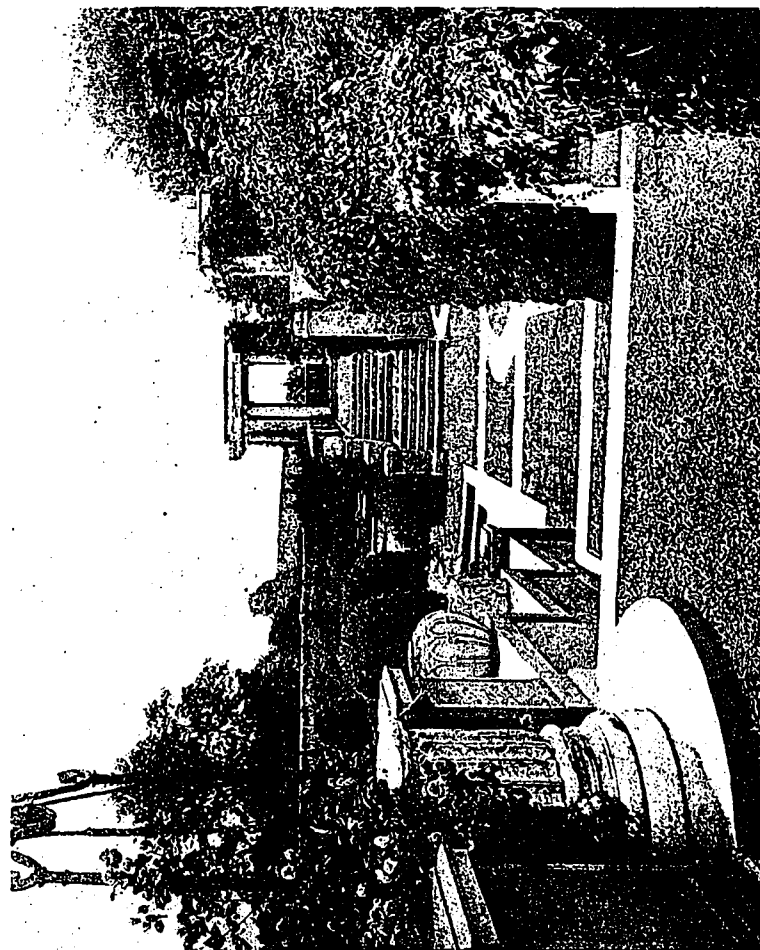


ILLUSTRATIONS
TO ARTICLE ON
FORMAL GARDENS.





ILLUSTRATIONS
TO ARTICLE ON
FORMAL GARDENS.





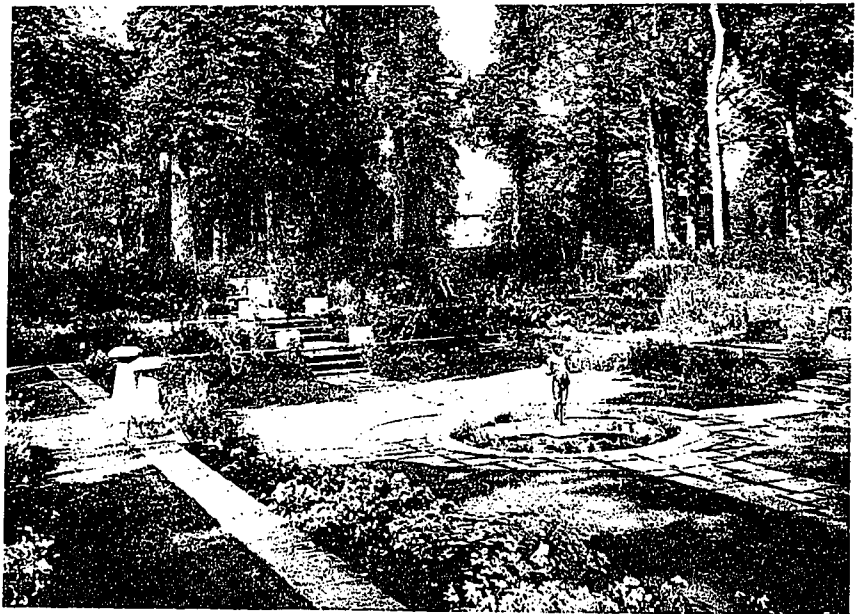
broken-hearted call; and at twilight, the night-jar should make his rugged music amid the fern. And the swallow and the sparrow should be made welcome in every corner of my dominions. Generally, I should encourage the quiet birds, the working, building, fighting birds, the birds that sing no more than is necessary, or natural.

“Everywhere in my garden shall be heard the sound of running water, brooks making their way unseen under secret boughs, and fountains whispering to themselves on solitary lawns. There shall be such a rustle of fresh boughs in my garden, and such a ripple of streams, that you shall hardly be able to tell whether the leaves or the brooks are talking. Also there shall be pools hidden away in sanctuaries of the garden, pools sacred with water-lilies, and visited only of the dragon-fly and the lonely bee. And there shall

be other ponds in my garden, green mossy ponds as old as the foundations of my castle, fish-ponds, the ancestral home of monastic carp, strange ancient fish with wise, ugly faces, and gold collars round their necks, telling how some old king caught them and threw them back into the pond two hundred years ago.”

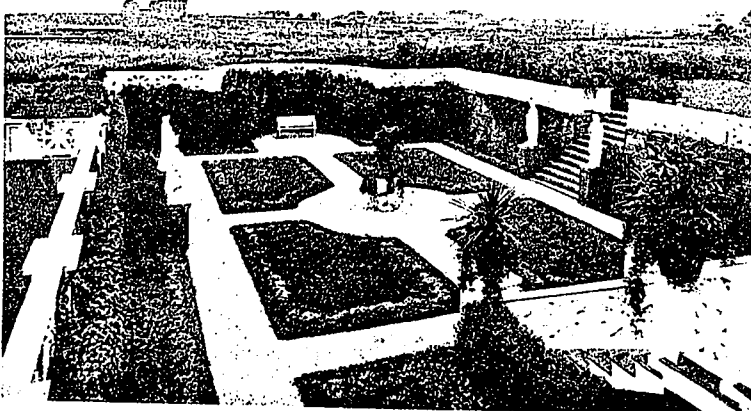
Along with the development of our country and the ever increasing horde of wealthy citizens, comes a desire for formal gardens. This is evidenced by the large number of estates which have already been laid out, the thousands which are being planned at the present time and the establishment of courses for landscape architects in our universities. The question arises as

to whether the architect is broad enough to grasp the essentials of a harmonious treatment between the home and its environs. In the



small scheme, yes; in the larger ones it is safe to say no. While we have a few men capable of handling both, still the majority of practising architects are not big enough, a fact readily appreciated from existing conditions.

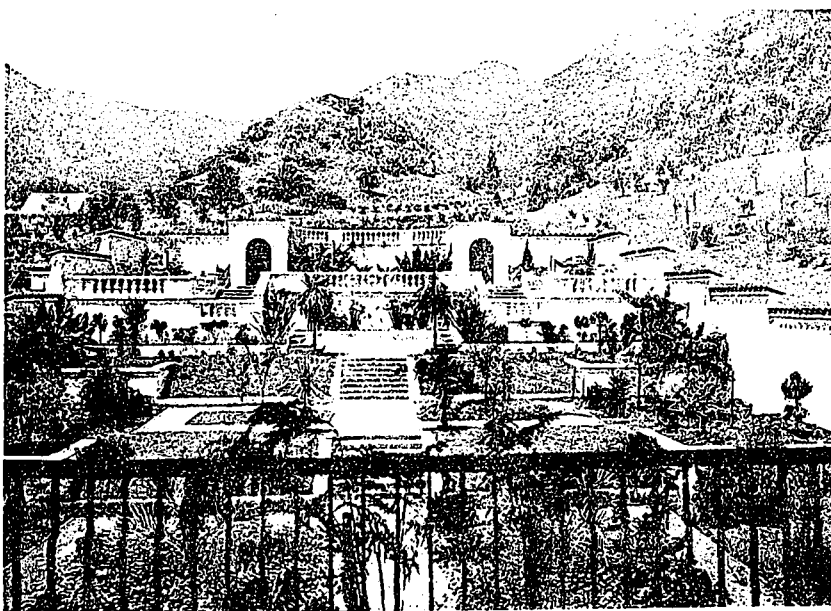
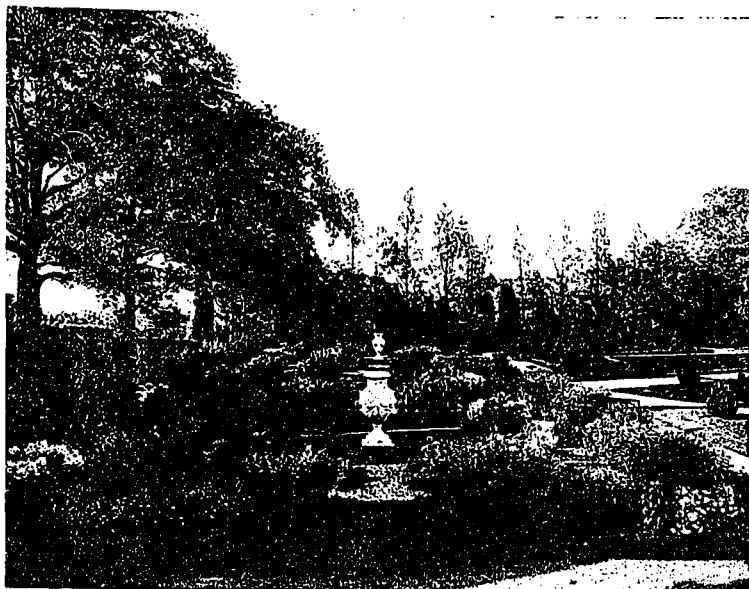
It is an age of specializing, and as the architect allows his engineer to handle the structural phases of his building, so he must employ the landscape expert to arrange his grounds. Care must be taken to see that he fully comprehends the architect's original plan and is sympathetic in respect to the fundamental principles underlying same. Working in complete unison from the very commencement of a project, the outcome will unquestion-



ably be a product creditable in every way to both architects, and a constant source of delight to the privileged.

In referring to the future progress of gardening, T. H. Mawson, in the "Art and Craft of Garden Making," suggests that we should consider first, the training and requirements of the landscape architect; secondly, the ideal which should inspire him throughout his life-work; the former giving us some insight into his practical, and the latter into his artistic equipment.

First of all, he says, must come a general training, which shall be framed with the intention of inculcating that catholicity of ideas, power of concentration, and love of orderly progression and logical sequence which is best attained by an all-round classical education, the fruits of which find their use and expression in every walk of life, and which will be particularly appreciated in work that con-

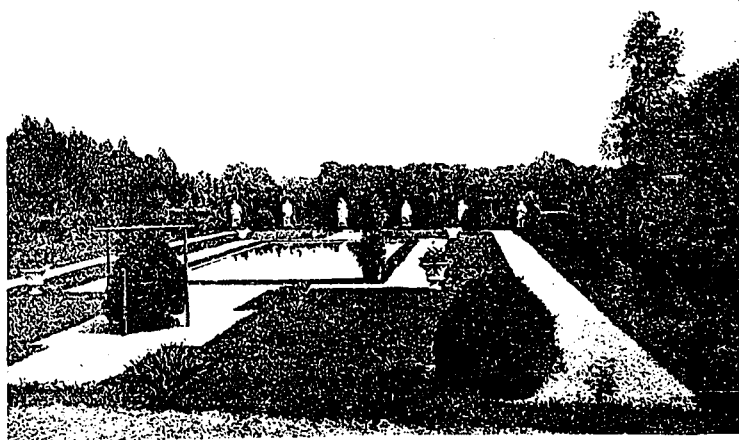


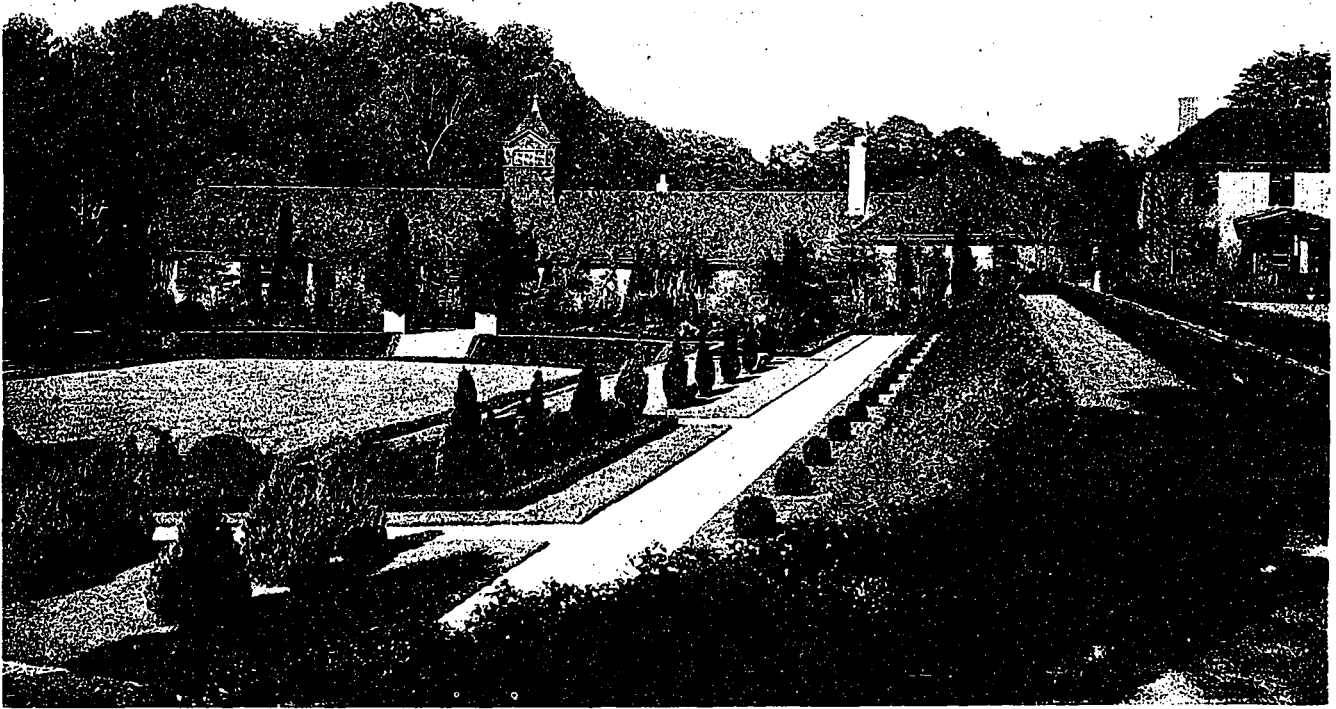
sists primarily in the welding of component parts into a balanced whole. On this foundation must be built a knowledge not only in every branch of architecture, but also in arboriculture, forestry, engineering and many other most divergent sciences which all go towards the making of a city or the embellishment of its parts. Superimposed on this academic training must be a marked natural versatility which will enable him to appreciate the efforts and the points of view of all the various designers or craftsmen of the component parts of the scheme, and so give to each its proper place and correct emphasis. It thus follows that he must possess the judicial mind with the soul of the

artist, a rare combination, it is true, but a necessary one if the confidence of his fellow-workers is to be obtained and held, a condition absolutely essential to success. He must also be able to judge the whole effect before the commencement of the work, and possess the gift of being able to present his conception to the minds of others so sympathetically that they too become fired with his enthusiasm for the ideal, and grasp the spirit of his work.

Mr. Mawson goes on to state that the landscape architect must mark his work with his own art vision. This will be done by the masterly application of the three factors which, for want of more expressive terms, he has designated realism, romanticism and symbolism.

"This is his province, to infuse the drab necessities of existence with an inherent beauty, to divert the common crowd from low ideals by the elevation of their environment,



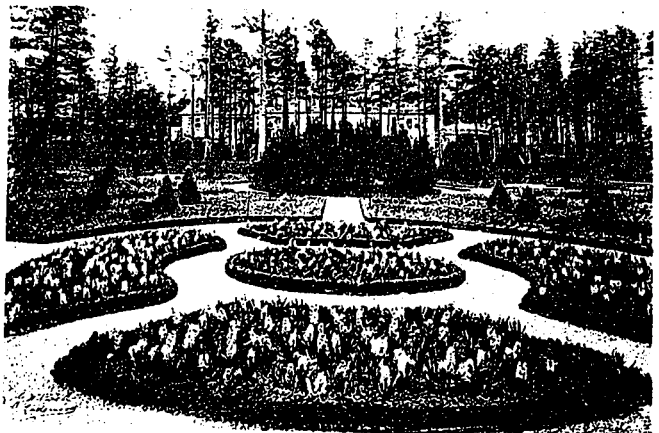


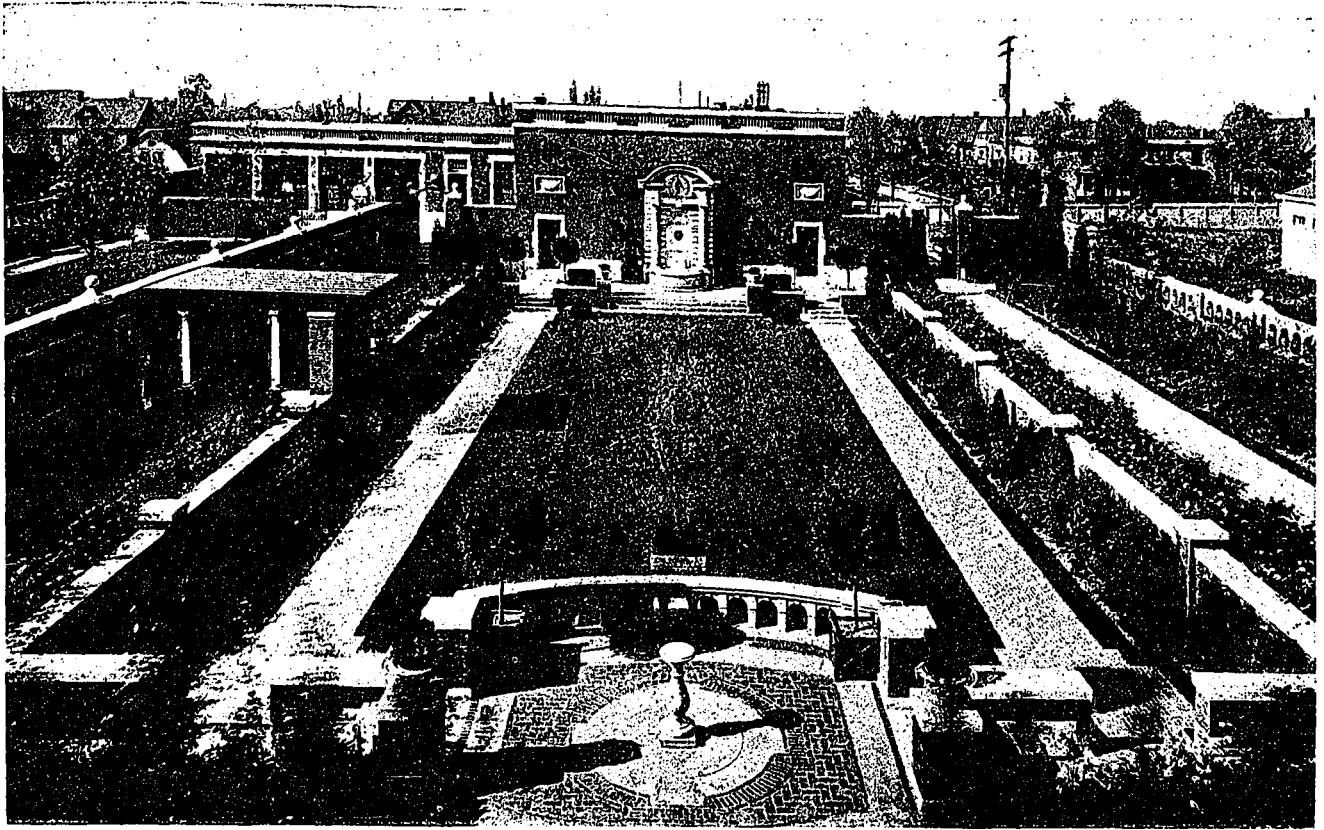
and to cause those who never really loved art and who resent it as a departure from their own level of mediocrity, to rise to more worthy aims. Filled with a right conception of the dignity of his art, and fired with a great desire for its advancement, he expresses out of his own soul his passion and persuades his audience to see what he chooses by materializing his dream, using, as a medium to this end, architecture, verdure, flowers, and the other materials of his craft, weaving the whole into one rhythmic, harmonious composition."

In planning it is necessary to take into consideration the climatic conditions. Our problem is an individual one and while we have the famous Italian gardens as the origin of all subsequent work, the English, French and Spanish accomplishments, still we can do little more than formulate their suggestive qualities into ideas which may be incorporated into our own general

scheme. At first English influences produced the open lawn, trees, ponds and bridges with statuary and vases surrounded in beds of flowers. Then as travel, foreign study and literature acquainted us with the famous gardens of other countries a new era began. The fountains, pergolas, balustrades, clipped trees, wide steps—all became incentives towards formal treatment. The open lawn, with only a few gravel paths, the sections with flower beds massed as to color and size, the pool with fountains and walls encircling it, the sunken garden with ornate terraces—all lend themselves to a symmetrical and harmonious ensemble.

In a country so large and with such a varied population, it is impossible to limit our planning to any one fixed historical style. Here as in the States, the Eastern conditions are as unlike the Middle West as that section in turn is different from the land bordering the Pacific coast.

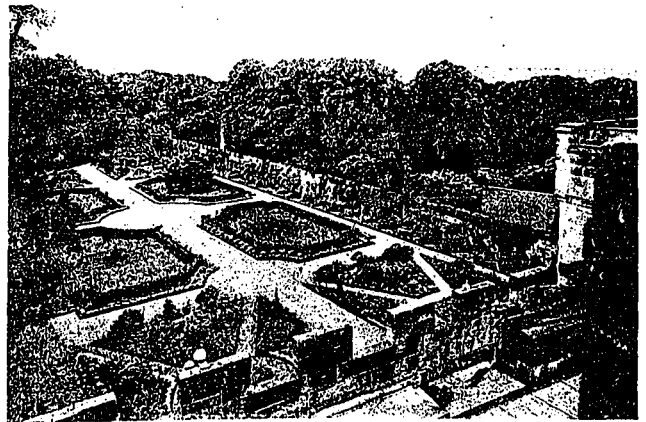
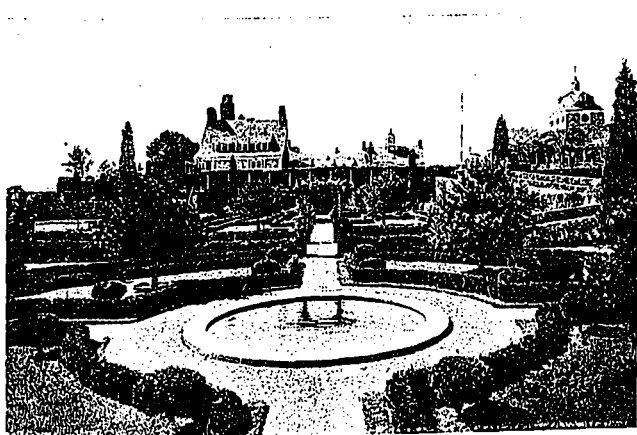


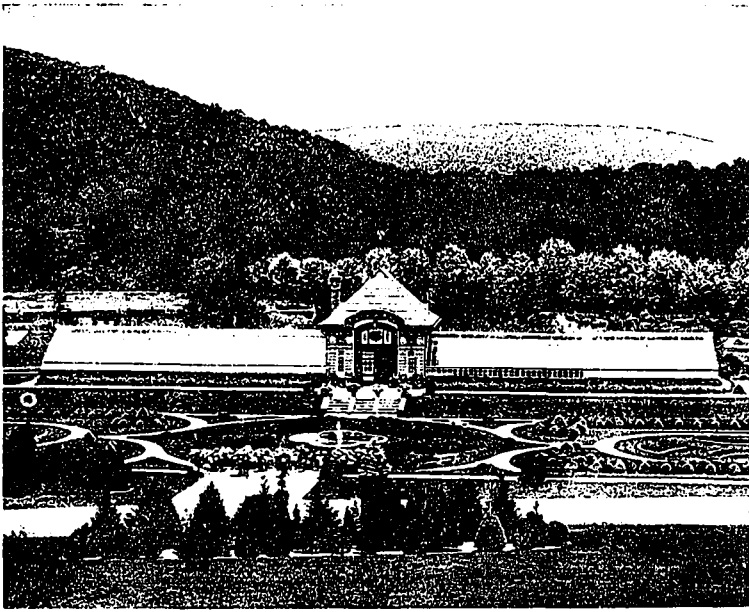


While we might imagine in the low land and sloping valleys an English garden with trees carefully studied in their setting, winding paths leading through the long stretch of well kept lawn, pools and small lakes, flowers and plantings; still in the statelier and more rugged places we would look for an arrangement of another character altogether. In fact the client often loses sight of the harmonious relations between the garden and its surroundings and wants an effect which will make a decided impression at the first glance. While this may strike the visitor in a forceful manner for the moment at least, yet after the initial delight has faded away he will see the insincerity and lack of judgment. For what could express a more artistic temperament than to have the garden plot developed in a natural way as well as in perfect harmony to the home it is expected to adorn and the original growth and contour of

the remaining estate in its every characteristic.

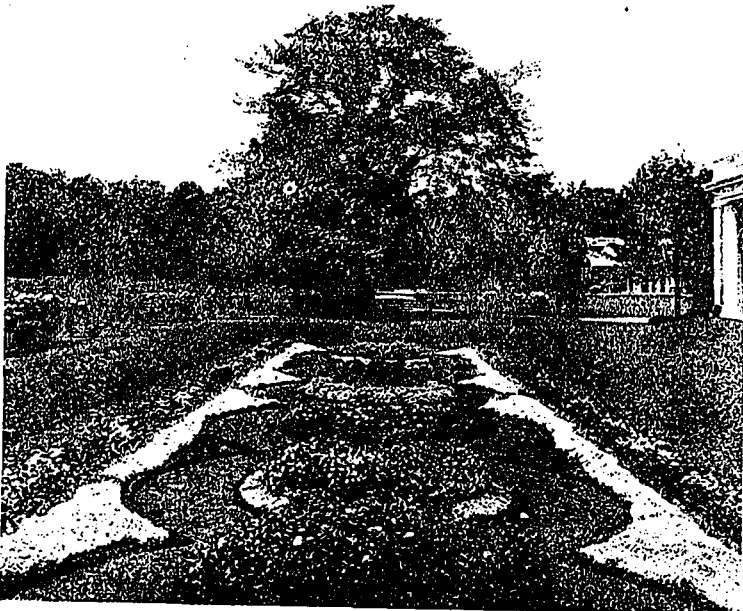
A harmonious ensemble expressive of beauty and character seems to be a fitting key to the whole solution. To explain the point several instances might be cited, the first one being the Rockefeller garden at Pocantico Hills. Here the ground gradually slopes on all sides from a slight eminence some distance to wooded sections conveying the impression of endless boundaries. After due consideration of the natural contour the main axis of the garden fell parallel to the building at the south side. To the north the view is brought to a focus in a marble fountain, the centre of a semicircular garden; while to the south it terminates in a round marble temple. Opposite the iron and bronze gateway to the east is an exedra fountain located in front of the forecourt, which consists of an oval with encircling driveway in the centre of a well kept grass plot. Following the axis from the main





entrance, it passes through the porte-cochère and house to the western terrace where the open lawn between the two principal gardens permits of an uninterrupted view of the river and distant mountains.

One of the unusual features of the above garden is the lighting facilities which have been described as follows: All of the fountains and water effects are equipped with electric lights, so that, together with the lanterns which occur in connection with the iron grilles or are here and there suspended from the pergola roofs or bracketed out from the walls, the garden is as usable by night as in the daytime. There are lights in the heads of the exedra fountain fronting the entrance gates, making three bright streams of water. The basin also has lights beneath its rim, which throw rippling reflections from the waving water on to the curved surface of the niche above. These lights are arranged to be turned on at the house door to welcome or to speed the parting guest.



The figure of the Donatello fountain is lighted by a tiny searchlight concealed in the roof of one of the pergolas. There are Japanese bronze lanterns and stone lanterns and many forms of light posts, while the driveway lights are of open wrought iron resting on cast iron pedestals and were the result of many experiments.

The most effective lighting is the water treatment in front of the tea-house in the inner garden. Here the cascades are lighted and each little basin in the canal forms a luminous bouquet along the central path. The composition is terminated at the farther end by a larger grouping of jets in a basin composed of a monolith of white marble lying on the pavement, in the centre of a decorative mosaic of various colored marbles.

Confined spaces, on the other hand, demand an entirely different scheme, which must also enjoy a harmonious relation to the enclosure, whether that be a series of terraces, high mountains or a wall of marble, hedge or flowers. Take the vicinity of Los Angeles, where wealth settled and the soil is very responsive. One of the most interesting plots developed was a small canyon or unsightly gulch which presented a sorry appearance in the rainy season as the cliffs were gradually washed away. The possibilities were grasped and out of the chaotic condition sprung a number of beautiful sunken gardens. The sides of the unattractive cliff were terraced and the whole planted in grass, furnishing a restful spot among the California oaks and rugged aspect of the promontory.

The rock garden conveys still another situation and demands its own individual handling. Allowance must be made for the hardy flowers and borders planted among the rocks, which

keep the soil cool and moist during the summer months and at the same time furnish a warmth and protection during the cold season. The wildlings of the woods, the hardy perennials, the various cacti, the columbine and other rugged growths bespeak of vastly different clothing than the well kept beds of less hardy flowers.

A phase of formal gardening which should be constantly kept in mind is that some time must elapse before we can hope to see the desired results. Too often the scheme, so quickly evolved, is forced aside by the layman because the initial steps show little but crudeness. Nature works slowly and the designer and client must consider together the unsightly walls which they wish eventually to be covered

with luxuriant foliage, the bare boulders which need the rock plants and mosses, in fact all the features which must necessarily at first present a rawness most objectionable to the owner. The ultimate effect must be the ideal of the parties concerned, and if sufficient patience is shown in the beginning their aim will be accomplished to a larger degree than originally anticipated.

An example of the amusement grounds for the English knights and ladies of the seventeenth century is seen in the garden maze. Planted in 1896, the scheme carries out the plan of the one at Hampton Court, England, having

tastefully furnished and its exterior equally attractive. Many authorities say that one-fifth of the total expense for house, decorations, etc., should be devoted to the garden. This may be excessive, but the expenditure on the exterior should be sufficient to have the surroundings an integral part of the ensemble, fitting them to the style of the building. The house must necessarily fail, no matter how artistically it has been designed, if the framework does not show the picture within to the best advantage. As Sedding the Englishman said, "To leave a house exposed upon the landscape unscreened and unterraced

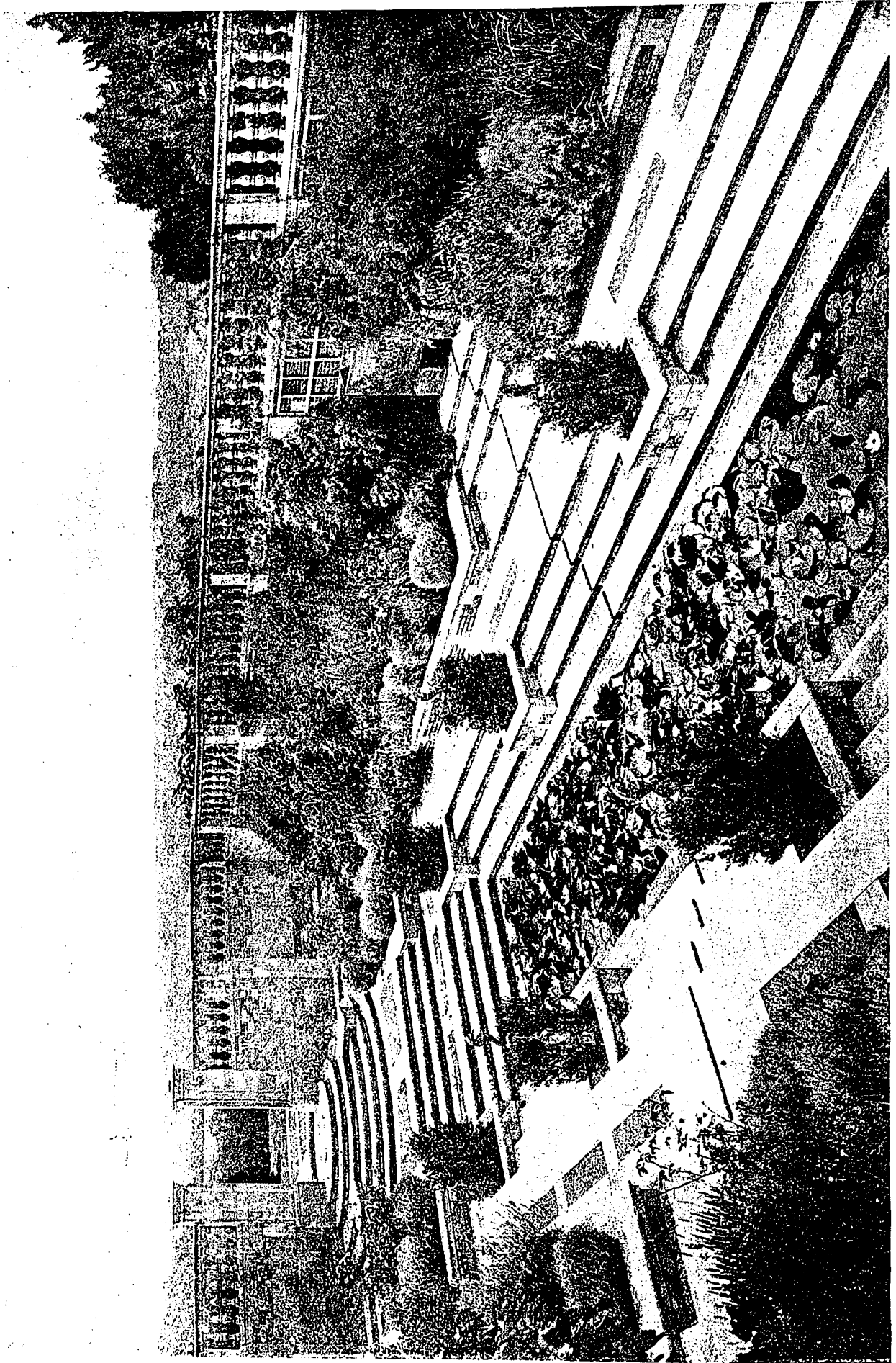


A MODERN EXAMPLE OF A SEVENTEENTH CENTURY MAZE.

one thousand trees of arbor vitæ approximately three feet in height. The shortest communication to the centre is nine hundred and forty-nine feet, while the total length of the paths is three-tenths of a mile. The seventeenth century maze is attributed to the reign of William and Mary, 1689-1694, but evidences point to a restoration at that time of an earlier garden planted under the direction of Cardinal Wolsey, 1515-1530.

The home should be the most attractive spot on earth to those who are destined to spend most of their time within its walls. This can only be accomplished by having its interior

is not to treat the site or house fairly. . . . The gardener's first duty in laying out the grounds is to study the site and not only that part of it on which the house stands, but the whole site, its aspect, character, soil, contours, sectional lines, trees, etc. Common sense, economy, nature and art alike dictate this. . . . There is an individual character to every plot of land as to every human face, and that man is unwise who, to suit preference for any given style of garden, or with a view of copying a design from another place, will ignore the characteristics of the site at his disposal."



SUNKEN POOL AT "MARSHCOURT," HAMPSHIRE, ENGLAND.

From "Country Life."

CONSTRUCTION

A JOURNAL FOR THE ARCHITECTURAL
ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



FREDERICK REED, Editor

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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.

Entered as Second Class Matter in the Post Office at Toronto, Canada.

Vol. VII Toronto, February, 1914 No. 2

CURRENT TOPICS

CHARLES S. COBB, architect, has removed his offices from the Canadian Pacific Railway Building to 71 Bay street, Toronto.

* * *

IN TURKEY, where cement is hardly known, a mixture of slaked lime, linseed oil, and cotton fibre is used in exposed places, for filling crevices in water pipes, and covering joints in stone floors, fountains, etc. Generally a hollowed-out stone is used, although a flat, hard surface will answer, and the process is started by pouring the oil on a handful of cotton, after which the lime is dusted in. It is then kneaded until the whole is thoroughly mixed and about the consistency of dough.

* * *

A SCHEME for holding a world's fair in Montreal to celebrate the jubilee of Canada has been presented to the officials at Ottawa. W.

Leonard Palmer, who had charge of the British manufacturers' tour through Canada in 1912, is the promoter. The proposal is to have an exhibition which shall be national, Imperial and international in character, and has been commended by the late Lord Strathcona, Earl Grey, Sir Charles Tupper and others. Plans have been prepared by Septimus Warwick, a member of the R.I.B.A., which provide for an exhibition covering two hundred acres and costing five millions. They show a main thoroughfare called Confederation Avenue, on which would be erected Dominion and provincial buildings. A square to be called Strathcona Square is to occupy the centre of the exhibition, in which will be erected a large congress hall. Other squares are to bear the names of King George V and Jacques Cartier. Wide avenues are planned, to be called the Avenues of the Old and New World, with cross roads bearing the names International, Imperial, Laurier and Borden. Four miles of tramway are proposed in connection with the undertakings. The exhibition, according to present proposal, would be opened on Dominion Day, 1917.

* * *

THE FOLLOWING tables indicate the respective gains or losses in building throughout the various provinces. The west has suffered most, only two cities showing an increase, while fifteen out of twenty-five eastern cities have gained in spite of the general depression. The result should be encouraging.

	EAST.			
	12 Mos., 1913	12 Mos., 1912	Inc.	%
Berlin	\$ 647,571	\$ 834,213	\$ *186,742	22.3
Brantford	1,015,886	1,167,105	*151,219	12.9
Chatham	338,310	201,591	136,719	67.8
Guelph	357,335	338,499	*31,164	8.0
Halifax	835,850	589,775	246,075	41.7
Hamilton	5,110,000	5,491,800	*381,800	7.0
London	1,789,920	1,136,108	653,812	57.5
Maisonneuve ..	2,454,923	2,685,823	*230,905	8.6
Montreal	27,032,097	19,408,690	7,623,407	39.2
North Bay	492,940	462,675	30,265	6.5
Ottawa	3,991,380	3,621,850	369,530	10.2
Outremont	1,819,000	1,582,000	237,000	14.9
Peterborough ..	488,540	465,905	22,635	4.8
Port Arthur	1,935,185	2,494,179	*558,994	22.4
Preston	400,055	337,160	62,895	18.6
Quebec	1,929,781	933,002	996,779	106.8
St. Catharines...	759,478	811,335	*51,857	6.3
St. John	2,380,660	566,200	1,814,460	320.4
St. Thomas	154,471	89,946	64,525	71.7
Stratford	334,085	439,496	*105,411	24.0
Sydney	321,198	656,111	*334,913	51.9
Toronto	27,038,624	27,401,761	*363,137	1.3
Welland	611,157	469,744	141,413	30.1
Westmount	2,009,544	1,824,369	185,175	10.2
Windsor	1,148,975	988,063	160,912	16.4
	WEST.			
Calgary	8,619,153	20,394,220	*11,775,067	57.6
Edmonton	9,242,450	14,446,819	*5,204,369	36.0
Lethbridge	504,954	1,358,250	*843,296	62.0
Medicine Hat...	3,851,572	2,836,219	1,015,353	40.0
Moose Jaw	4,225,000	5,275,797	*1,050,797	19.9
N. Battleford...	850,195	896,970	*46,775	5.2
N. Westminster..	958,975	1,634,518	*675,543	41.3
Prince Albert ..	1,330,290	2,042,450	*662,160	32.4
Red Deer	149,250	389,015	*239,765	61.6
Regina	4,018,305	8,047,309	*4,029,004	50.0
Saskatoon	2,633,845	7,640,530	*5,006,685	65.6
St. Boniface	1,038,840	1,251,512	*212,672	16.9
Swift Current ..	1,018,308	791,014	227,294	28.7
Vancouver	10,423,197	19,423,432	*9,000,235	46.3
Weyburn	177,400	766,660	*589,260	76.5
Winnipeg	18,621,650	20,595,750	*1,974,100	9.6
Yorkton	437,777	735,966	*298,189	40.5

* Decrease.

THE FOLLOWING comments are taken from an address upon fire prevention delivered before the Up-to-Date Club at Youngstown, Ohio. Although relating to the States, it is more than applicable to Canada, since our fire loss for 1913 in cities over 20,000 population was \$2.88, while that in the United States was \$2.55.

Fire prevention as distinguished from fire protection or suppression is a question of social economy, coupled with sound architectural construction.

It concerns the removal of the causes of fires and the adoption of means for their prevention.

Beyond the individual pecuniary interest in his own losses from fire, there is also the obligation of each citizen to his fellows to protect his own property and so conduct his own affairs as not to endanger the lives and property of his neighbors.

The waste of resources in America due to fires and fire protection is greater than the net earnings of all the railroads. The fire loss, if it could be saved, would pay the enormous amount spent for pensions, also the interest on the national debt and leave a surplus of one dollar for every man, woman and child. If the amount expended for fire protection and wasted by fire could be put into good roads, we could build over 50,000 miles of the best roads each year.

We are a nation of money makers, Europe is a people of money savers; we are a people of waste, they are a people of thrift.

Here, we figure a fire is an exchange of property for the ready money; there, they figure that a fire is an absolute loss of toil and resources. We endeavor to extinguish the fire, they labor to prevent it. We are losing a fortune every year, they are saving one.

As a further illustration of the inadequacy of fire extinguishment to meet the situation, we might compare Berlin, with a population of about 3,000,000, with Chicago of two-thirds the size. Berlin has an annual fire loss of \$175,000; its fire department costs a little over \$300,000. Chicago's fire loss is \$5,000,000; it has a whole lake of water along side of her and the fire department costs over \$3,000,000.

There is very little inflammable material used in buildings in Berlin and the owner of a building in which a fire starts is made to bear the expense of extinguishing his fire, also to reimburse all losses to others and if he is particularly culpable, he may have to pay a fine, too.

Further comparisons may help to a fuller appreciation of the ridiculous position we occupy from a broad economic standpoint.

Birmingham, Eng.	550,000	226,506	.41
Baltimore, Maryland...	553,669	916,603	1.65
Toulon, France	101,602	55,391	.55
Atlanta, Georgia	104,984	225,237	2.15

In Europe where building laws have been in vogue for many years the fire records show conclusively the efficiency of building regulations. In 1891 the National Board of Fire Underwriters requested the United States Department of State to make inquiries through its consular service regarding building conditions, building regulations, and fire losses in cities throughout the world, the figures to cover the year 1890. I will use just a few examples of the smaller cities reported. The consul at Calais, France, reports a population of 56,000 with practically no wooden buildings, all being of stone or brick. This latter material being the most plentiful. The number of fire alarms for the year was 7, of which 6 were only chimney fires. The fire department was a volunteer organization and the total loss for the year was less than \$4,000.

The consul at Carthagenia, Spain, reported a population of 50,000, all buildings of brick and stone; no fire alarms for the year 1890, the fire loss was but \$3,000, and for 1891 it was \$2,400. This city has no fire brigade. Huddersfield, England, population 95,000, practically no wooden buildings, 28 fire alarms for the year, and a total loss of about \$8,000. No fire got beyond the building in which it started.

Every fire is due to one of three crimes: the crime of ignorance—the man don't know that certain conditions will burn his place; the crime of carelessness—the man don't care whether his place burns or not; the crime of dishonesty—the man wants to have his place burn and cash in at the expense of his neighbors. The first can be corrected by a systematic plan of education and in this connection much might be done to overcome the everyday condition of fire hazard by instruction in the schools. Our schools are the greatest mediums for molding character. Poor construction tends to enormous loss and conflagration but every conflagration has a tiny beginning and it is necessary that we be cured of this "mind habit" of indifference in order to remove the common causes of fire.

The essentials of fire prevention are an elimination of over-insurance; restrictions on the use of the strike-anywhere match, and other measures of that sort to prevent accumulations of litter and waste and to insure the proper control of explosives and inflammables, etc. Finally, we must have non-inflammable buildings. There are other phases of fire prevention worthy of lengthy discussion which the limit on our time prevents entering upon.

The average person having the belief that Nero was an imperial incendiary will be apt to suffer a shock when he learns that a most com-

	Population	Loss	Per Capita
Frankfort, Germany..	324,500	\$ 99,492	\$.31
Cincinnati, Ohio	324,230	1,971,217	6.08

prehensive and practical fire prevention building code was formulated and enforced by this ruler whose name is heard more often in obloquy than in praise. Some historians say Nero's act of burning Rome in the year 64 A.D. was not without design; that it was, in fact, an efficient way of removing buildings to make way for a great city plan. However this may be, it is a fact that a better order of things resulted. Ruins were hardly cold before the working population of the city were set to work clearing away the debris, and the royal architects, without regard to former ownership, laid out avenues, squares and parks on a grand scale. A law was enacted that no residences should be higher than twice the width of the adjacent street. This seems to be the earliest record of provision for limiting the height of buildings with relation to the width of the street on which they faced. Tenement houses were required to be isolated, and the two or three lower stories had ceilings resting on stone or brick arches, wood construction being permitted in upper stories only.

It was a magnificent city that Nero began, but after his death in the year 68 A.D., his ambitious plans were ignored or forgotten; the public squares were sold to speculators and high tenements along narrow streets again became the order. In later times we learn that Venice limited the height of buildings to 70 feet, Florence to 100 feet, Paris to 60 feet, and Toledo to 75 feet. Rheims had a curious law forbidding any structure to be higher than the eaves of the cathedral, and it was the duty of the sexton to look daily from the port holes of this cathedral when a building was being constructed to see that it did not rise higher than the level of his eyes. Practically all ancient and medieval building laws dealt with residential structures, since the problems of office and industrial buildings were reserved for this age to deal with. The problem before us must be met in a prompt and forceful manner if the great fire loss is to be thoroughly checked.

* * *

IF YOU WANT to get an idea of how some people are bombarded with circular matter these days, take a look at the daily mail of an established architect—the man who is in the various directories and lists of architects. It seems that everybody from the hardware and paint men to the shingle and slate concern are on his trail, and the result is that some architects are using printed slips, asking manufacturers to refrain from sending advertising matter until such a time as their products are of particular interest. This seems to make out a good case for the architectural magazine that holds a position of authority. Undoubtedly it offers the most auspicious and economical way of reaching architects.—*Printers Ink*, January 8th, 1914.

A SPECIFICATION for making artificial stone is given herewith after the formula of P. L. Andestad, British Columbia. The composition consists of Portland cement, washed sand, dry blue clay, unslaked lime, coal tar and water in the following proportions: Portland cement, 100 gallons; washed sand, 300 gallons; dry blue clay, 25 gallons; unslaked lime, 25 gallons; coal tar, 10 gallons, and water. The amount of water required varies with the condition of the other ingredients and the purpose for which the artificial stone is intended to be used, said amount of water being sufficient, first to slake the lime, and second, when worked up with all the other ingredients, to produce a mortar of the stiffness desired. The manner of combining the ingredients of the composition for making artificial stone consists of slaking the lime and mixing therewith the coal tar while the lime is still warm and allowing the mixture to cool; second, mixing the Portland cement and dry blue clay separately, and then adding the two last-mentioned ingredients to the sand and thoroughly mixing them therewith; third, thoroughly mixing all the ingredients together, sufficient water being put in to make a mortar of the necessary stiffness. Place the mortar in moulds of the shape desired, and subject it to heavy pressure for a few seconds; then take the blocks of mortar from the moulds and allow them to dry.

* * *

THE TELESCOPIC hoist manufactured by Gillis & Geoghegan has been installed in the following Canadian buildings: Trust and Loan Co., Winnipeg; McGill Street Building, Montreal; Bank of Commerce Building, Toronto; La Sauvegarde Building, Montreal; Canada Life Insurance Co., Regina; Brunswick Hotel, Moose Jaw; Willoughby Building, Saskatoon; Laura Secord High School, Winnipeg. The hoist takes up little space and has proven so satisfactory as to merit the commendation it is universally receiving.

* * *

ACCORDING to the report of the census of England and Wales relating to occupations and industries, there are eighty-six women who ply the calling of plumber. Of these seventy-seven are widows. It shows that women have succeeded in establishing themselves in a number of industries where their presence is unexpected. There are seventy women paperhangers and whitewashers, and four bricklayers.

* * *

PROPOSED Government Buildings, Ottawa, Ont. Notice is hereby given that the time for the reception of designs in the first competition for the erection of Departmental and Courts Buildings, is extended for three months to Thursday, April 2nd, 1914. By order, R. C. Desrochers, Secretary.

THE FIRM of Thompson, Daniel and Colthurst, architects practicing in Saskatoon for the past few years has been dissolved. T. B. Daniel and G. B. Colthurst have re-entered a co-partnership under the firm name of Daniel & Colthurst, and will continue to occupy offices in the Central Chambers, Saskatoon.

* * *

CONSIDERABLE interest has developed during the past few years among manufacturers and consumers of steel products, especially sheets, regarding the question of corrosion and the devising of changes or improvements in manufacture to reduce such deterioration to the minimum. A product recently placed on the market by the American Sheet and Tin Plate Co., of Pittsburgh, Pa., known as "Copper Bearing Steel Sheets," has solved this problem to a large extent. It has been demonstrated by tests and experiments extending over a period of some two years or more, that a limited quantity of copper introduced into molten steel during the process of manufacture has a remarkable and beneficial effect on the finished product, and steel sheets rolled from this grade of steel have developed much greater rust-resisting powers than ordinary sheets without copper or those products based on alleged "purity" of the metals. This new grade of copper-bearing steel sheet is softer and more ductile than ordinary sheets and has proven to be more satisfactorily worked into forms and shapes, especially when subjected to severe drawing or forming operations. A copy of a pamphlet issued by the United States Steel Products Co., describing this new commodity and illustrating by photographs the various tests made by their chief chemist, will be supplied on application to B. & S. H. Thompson & Co., Ltd., Montreal, selling agents for Eastern Canada.

* * *

"DOORWAYS" is the title of a monthly booklet issued by the Richards-Wilcox Canadian Co., Ltd. The January number is the architects' edition and contains information regarding flush door hangers, tracks and brackets which should prove very beneficial to architects and engineers. Each issue strives to present clearly some important subject in a descriptive and illustrative manner, and will be welcomed by all members of the architectural world.

* * *

McDONALD & WILSON carried out an important contract in the installation of the lighting fixtures in the Central Y.M.C.A. Building illustrated in this issue. The work is indicative of the advance made in this direction and conforms to the needs of the Association in every respect.

ANNOUNCEMENT is made that Bird & Son are now at work on an extensive addition to their present large plant for the handling of their increased demand for Neponset waterproof wallboard and a Neponset shingle which the company will place on the market—the first of its kind in Canada. The addition will cost \$15,000 and will be equipped with \$10,000 worth of modern machinery. The company is introducing another innovation by sending H. F. Nobles, of St. John, N.B., to Australia in order to enlarge their trade in that country. Mr. Nobles has handled the Eastern territory for years and will enter his new field with a successful past experience which should auger well for the company's progress in foreign fields.

* * *

THE FRID LEWIS COMPANY, of Winnipeg, will open an office in Regina about February 15th, in order to make preparations for the erection of several large buildings for which they have been awarded construction. One of the largest undertakings that this company will handle will be the erection of the new Cameron and Heap warehouse. This building will be situated on Dewdney street in the heart of the industrial section. It will be five storeys in height, of reinforced concrete, fireproof construction, and it is estimated that it will cost in the neighborhood of \$80,000.

* * *

THE Eureka Refrigerator Co., are moving into their new offices at Brock Ave., Toronto, where ample show room will be provided for the display of their stock. This firm has installed one of their large refrigerating plants in the Central Y.M.C.A. similar to those supplied to numerous public institutions during recent years.

* * *

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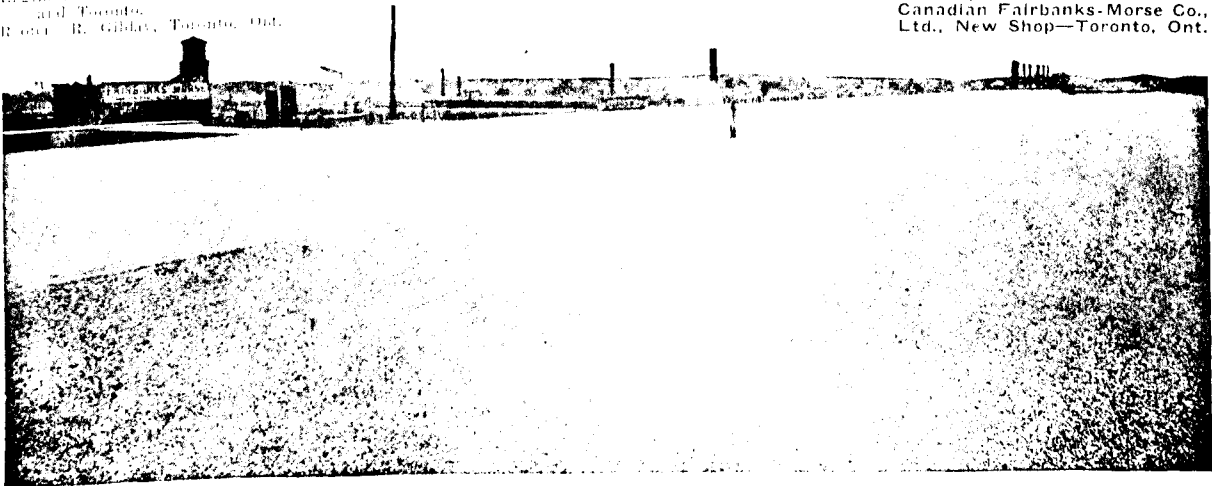
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They know, further, that its cost is less than that of any other permanent roofing and that its maintenance cost is nothing, making a net cost per foot per year of service, of about ¼ cent.

A copy of the Barrett Specification will be sent, on request, to any architect, engineer or property owner. It formulates a precise and practical way of laying these roofs to secure the best results at the least expense. Address our nearest office.

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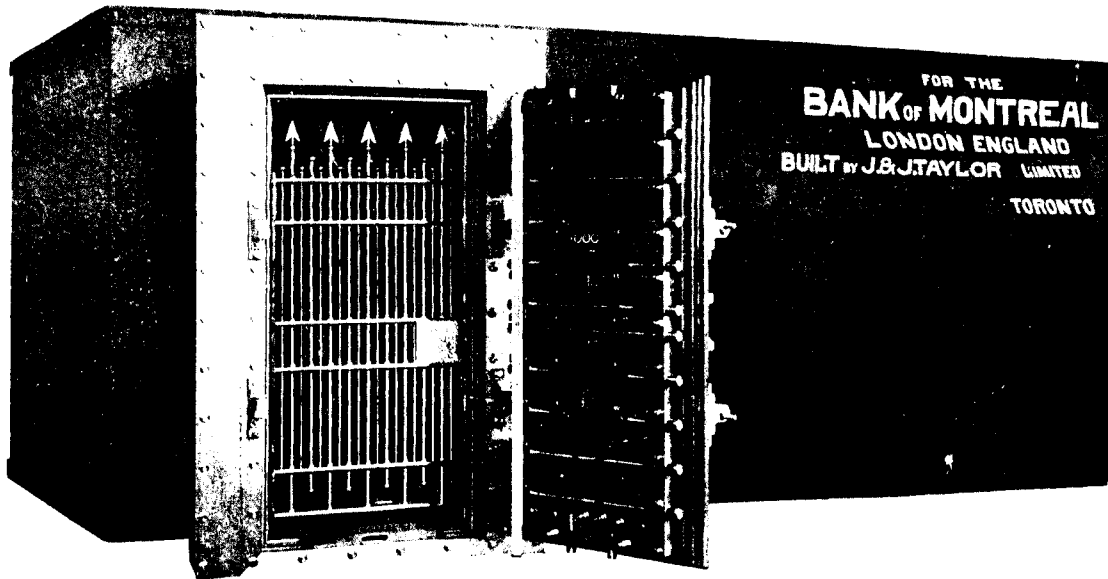
We advise incorporating in plans the full wording of The Barrett Specification, in order to avoid any misunderstanding.

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

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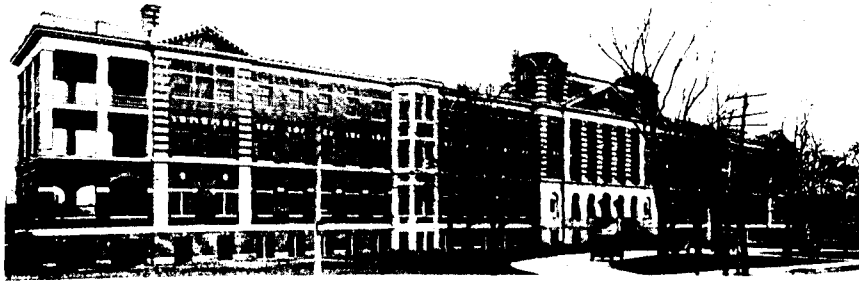
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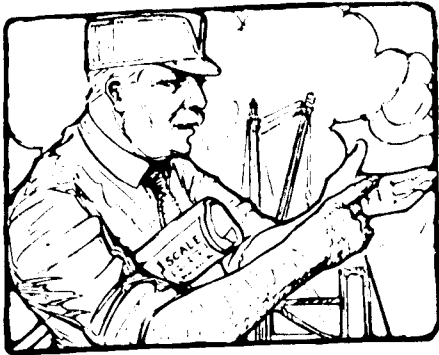
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(12)

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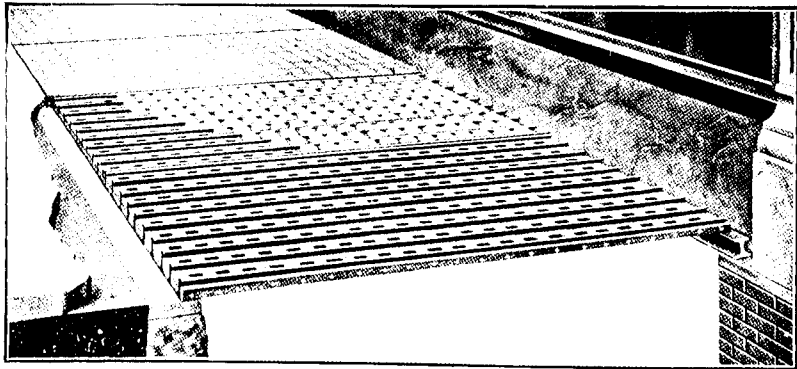
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In this way additional glass area and consequently additional light is secured. Furthermore, our material is shipped in slabs ready to fit openings and can be installed



by any competent cement finisher at a very nominal sum, giving a purely reinforced concrete construction at a price which is less than the labor alone in concrete constructions which are set in the usual manner with wood forms and cardboard centering. In addition to this, expert mechanics are not required, as any ordinary cement finisher can install these lights at a cost not exceeding 8 to 10 cents per square foot, depending on the size of the job.

This construction is furnished with the soft Tanex annealed glass made from a special process which prevents the action of contraction and expansion

upon the glass which results in breaking and shaling, in addition to which each lens is coated with a soft cushion of our malleable coating further insuring the life of all the lenses against contraction and expansion. The pre-formed slab is thoroughly water-proofed at the factory insuring an absolutely watertight construction free from rust or corrosion from beneath or on the surface which is common with vault light construction having cast iron or wrought steel forms.

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An Enamel-like coating of a bituminous nature for the protection of all kinds of Iron or Steel surfaces, such as Pontoons, Bridges, Roofs, Girders, Tanks, Tubes, Car Trucks, Steel Cars, Ships' Bottoms, Foundations, etc.

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Great covering capacity.

Possesses great elasticity and tenacity.

Dries quickly and hard with a smooth surface.

Will not crack nor peel off.

Easily applied, does not require heating or melting.

Is sent out ready for use.

Is impervious to rust and moisture from within and without.

Is unaffected by 1 per cent. of boiling caustic water.

Absolutely waterproof, as a coating for foundations of buildings to render them waterproof it has no superior.

Walls coated inside before being plastered will be rendered perfectly damp-proof.

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Steel pontoons coated eighteen years ago still perfectly protected and good.

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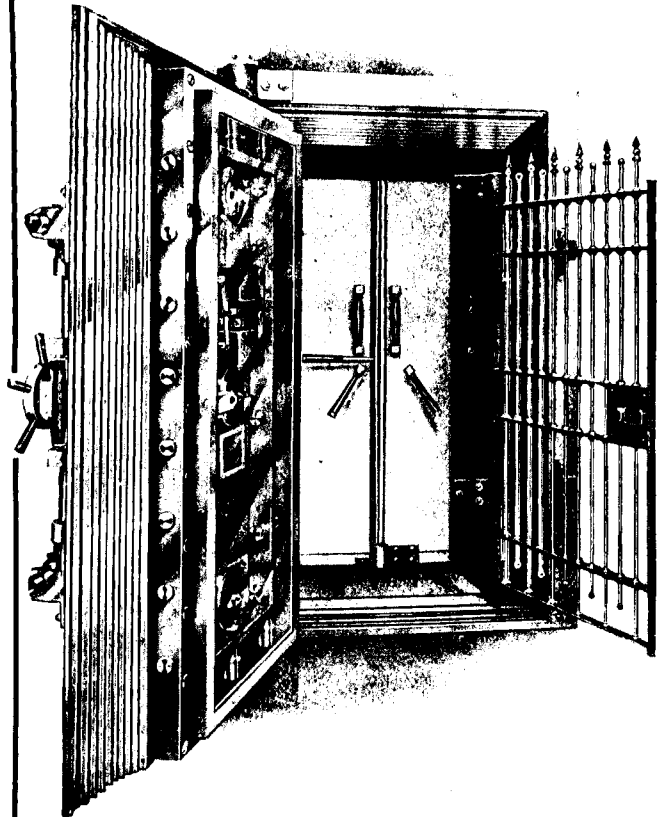
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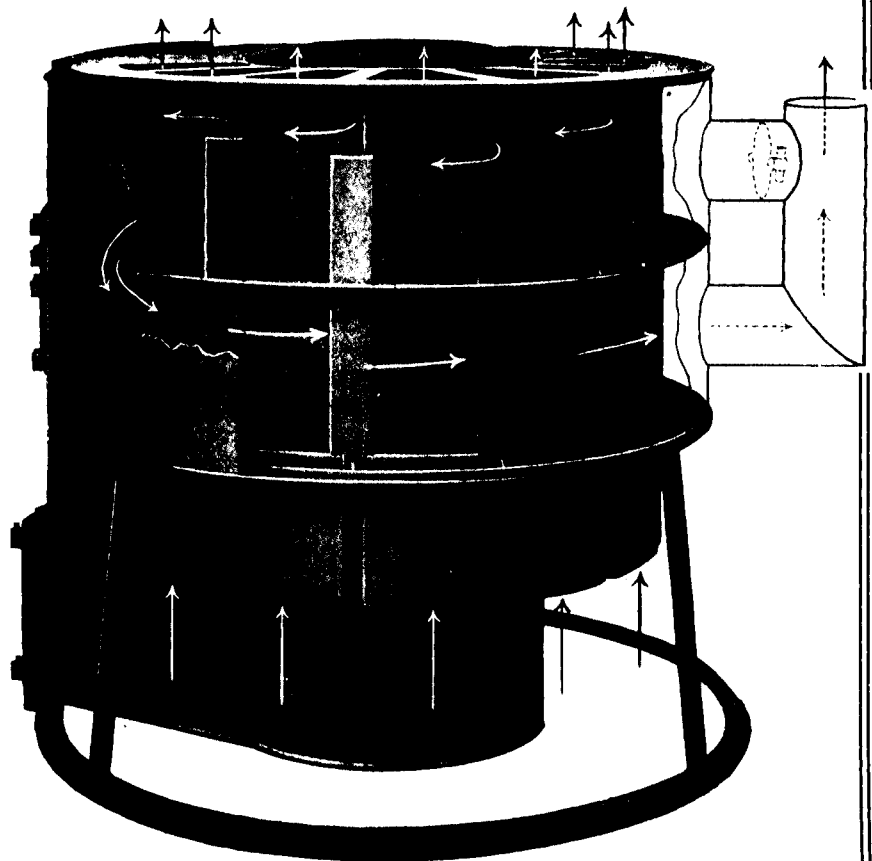
Let us send full particulars of this thorough and economical heating system. Then you will always specify the Calorific.

Record Foundry and Machine Company

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A typical view in Montreal West P. Q.

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Montreal West is the Garden suburb of Montreal, and as you can see from the type of houses illustrated above, it is as substantial as it is charming.

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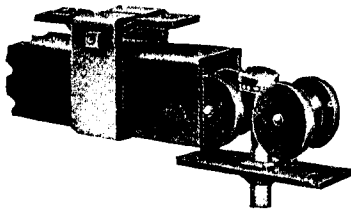
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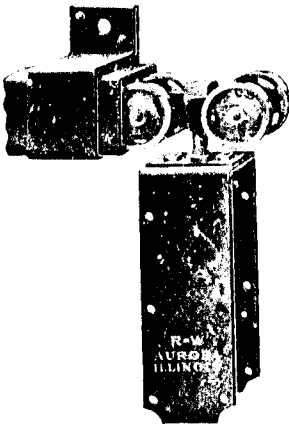
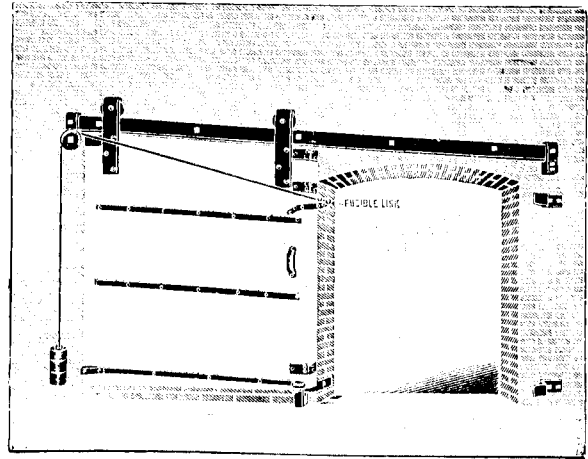
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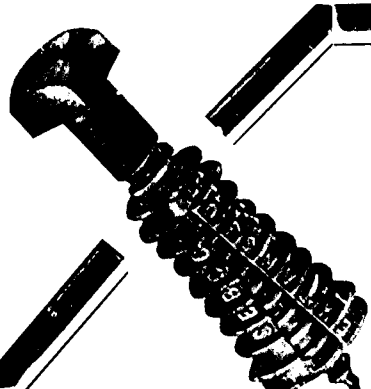
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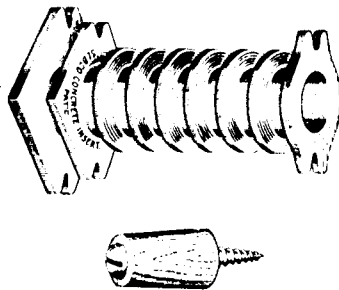
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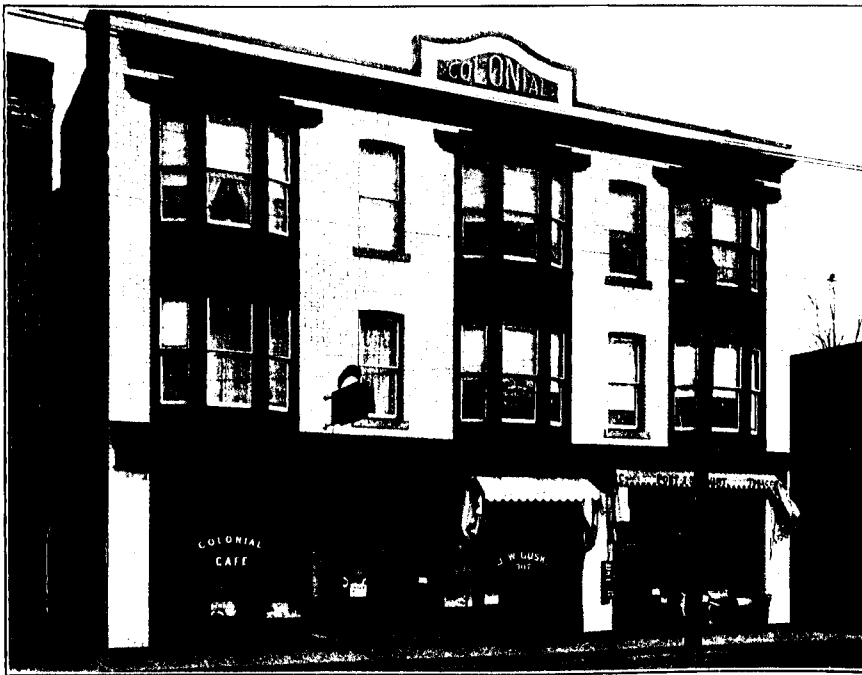
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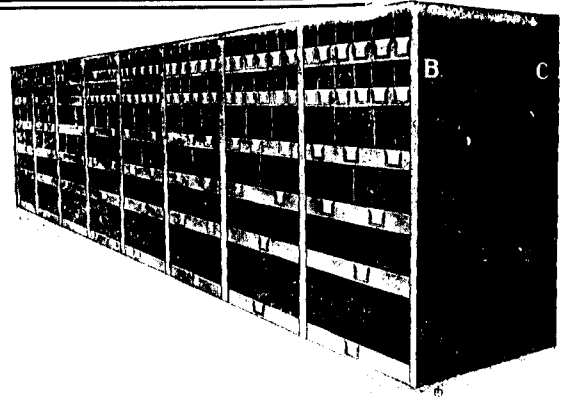
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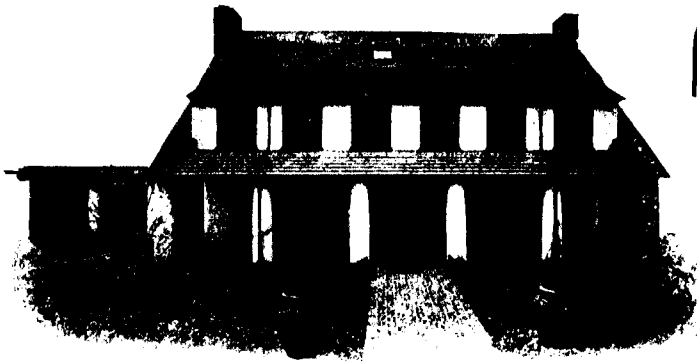
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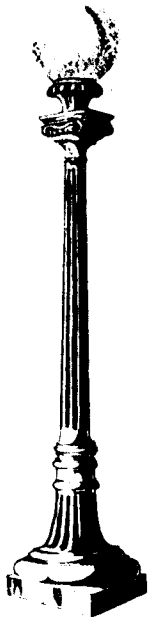
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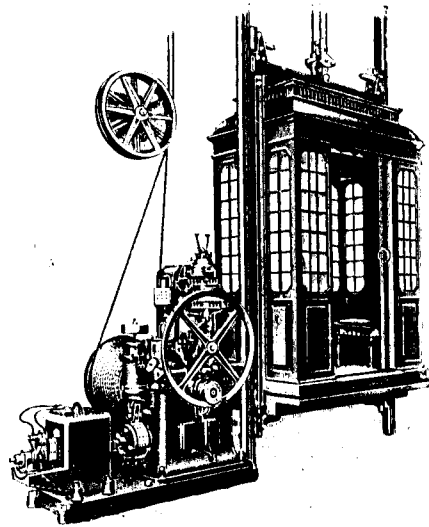
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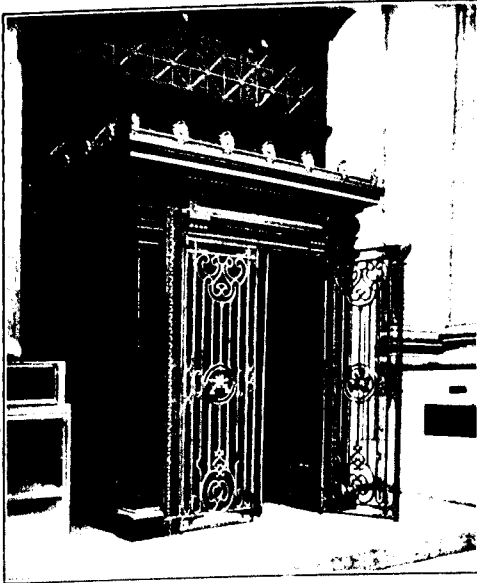
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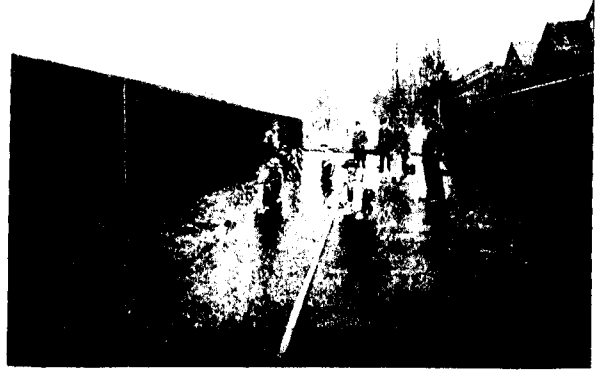
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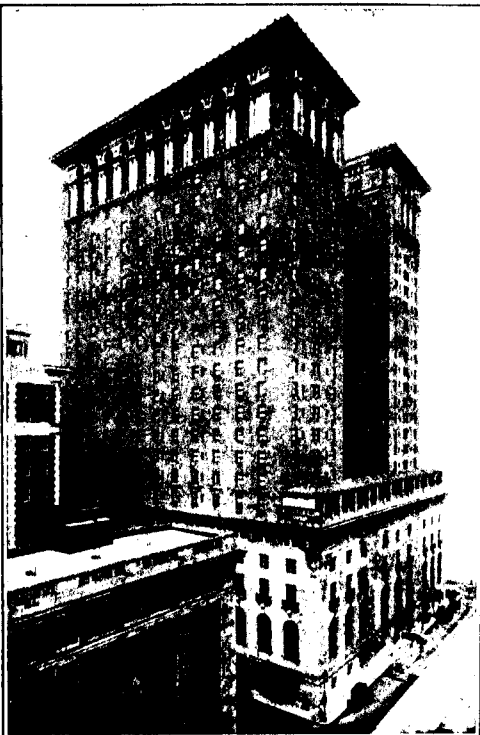
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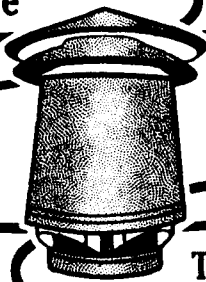
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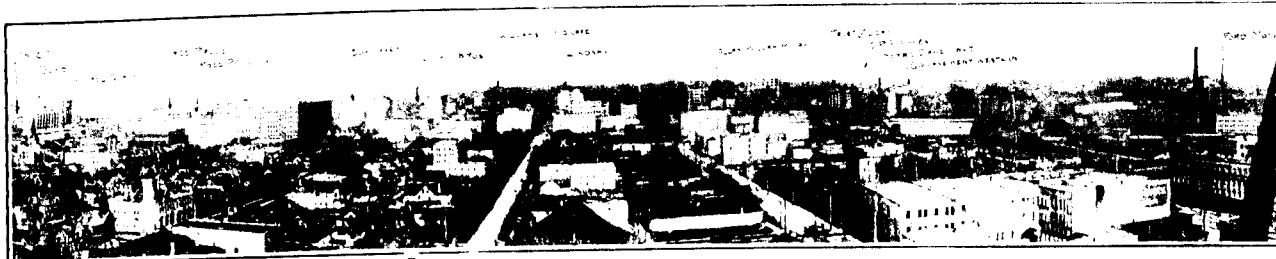
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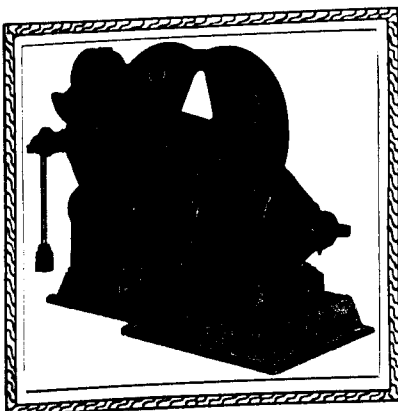
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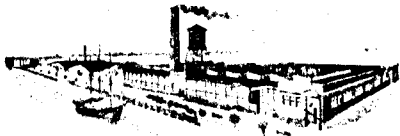
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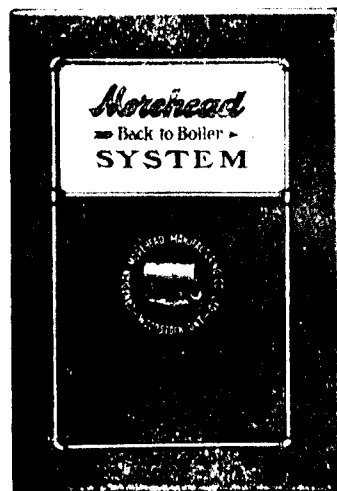
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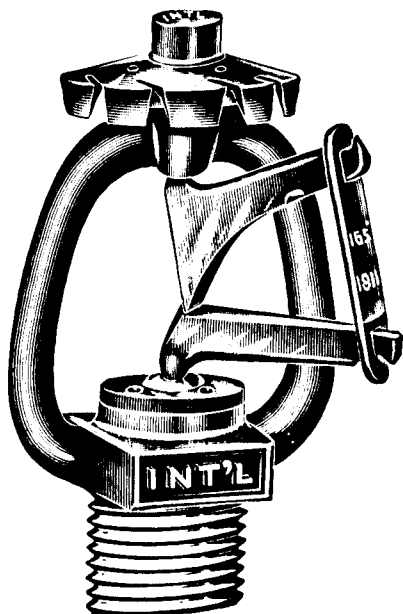
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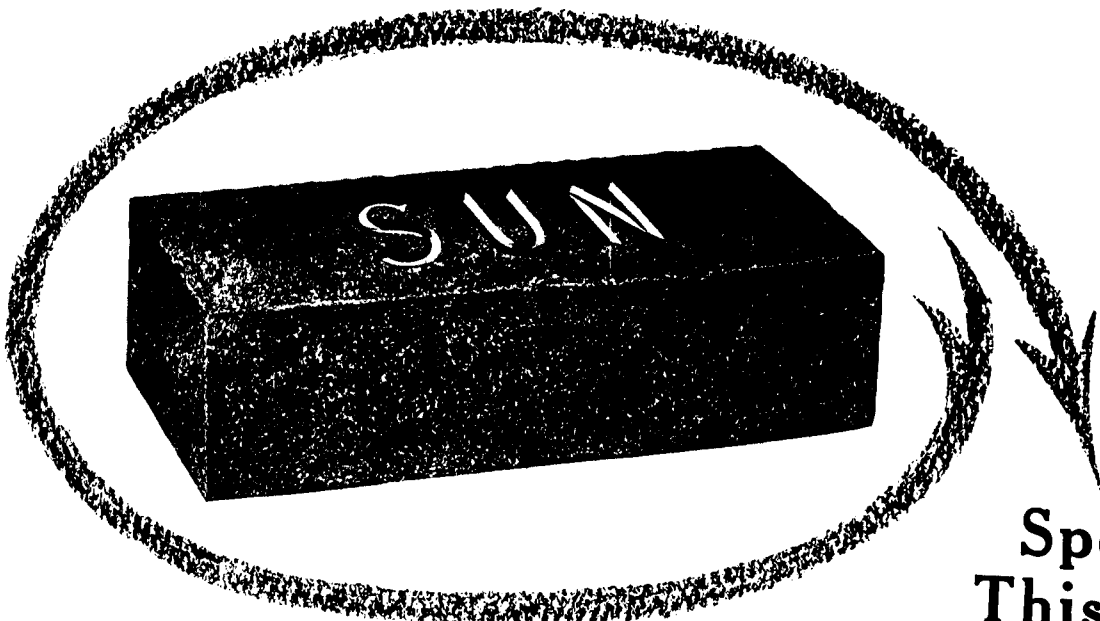
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	Sheet Metal. Leslie, A. C. Pedlar People, The.		

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