

RAIC JOURNAL

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	<i>The Kinkaku (Golden Pavilion)</i> <i>The Golden Pavilion is the name of the three storeyed pavilion at the edge of Rokuonji, originally a villa of Yoshimitsu 11thrd. Asbikaga Shogunate (1397). It is the oldest and most beautiful garden pavilion, having been built not only to beautify the garden but to afford a place where a splendid birds-eye view could be enjoyed. Unfortunately the pavilion was destroyed by fire in 1950, but a replica is now under construction.</i>	

The Institute does not hold itself responsible for the opinions expressed by contributors

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EDITORIAL

THE EDITORIAL BOARD is greatly obliged to The Architectural Association of Japan for providing material for this issue, and to His Excellency, the Japanese Ambassador for his interest and cooperation over several months of correspondence. It is likely that most of us are more aware of Japanese landscape design than we are of the architecture of that country. The house at the Museum of Modern Art and great films like the *Gate of Hell* would certainly suggest that we should know more of a country with cultural traditions of such antiquity. However, it was to know something of modern, rather than historic architecture, that we first approached The Architectural Association of Japan through the Embassy in Ottawa. Our hopes have been more than realized by the buildings illustrated in this issue.

The traveller in Europe is always amazed at the post-war building program of the countries most affected by the war. The architect on tour is amazed less by the size of the program than by the imagination and the courage of the architects doing the work, and by the limited range of materials that are available to them. It would seem as though a good bombing and a cleared site did something for the creative spirit. And yet, one cannot generalize on such matters because, while one's point is proved by recent work in Germany and Italy, nothing even faintly comparable has appeared in London.

Here in North America, we look, as a rule, with a sort of smug satisfaction at what we did before. We are still concerned inevitably with what used to be called good manners in architecture, and the buildings flanking our restricted sites have too often a limiting effect in material and form on new building. Obsolete building codes do nothing to stir the imagination of the designer. How different, therefore, must it be to be a participant in a building program where an overall plan is not hampered by vested interests or obsolete structures; where the well being of the community is the only concern of planners, architects and private and public interests. If bombing could be arranged without loss of life or livelihood, we could make a good case for it in all Canadian metropolitan centres.

Architecture has always reflected the society of an age, and it may well be that the buildings of the new Japan represent more effectively than words the democratic aspirations of its people. The architects responsible are quite frank in expressing their indebtedness to modern architecture in Europe, but they see it as a great movement in which they are playing a part. Time, genius and the work of many anonymous individuals will give Japanese architecture those regional characteristics that will distinguish it from the architecture of the rest of the world. In the meantime, a spirit of adventure is abroad in the land, and the pre-war commercial classicism that was a compound of inferiority and superiority would seem to be almost extinct. If that is so, we can congratulate our colleagues in Japan on an achievement yet to be realized in Great Britain or Canada.

In domestic architecture, Europe and America have little to give and much to learn from Japan. What we think of as admirable in the modern house in such things as delicacy of detail, refinement of proportion, beauty of material and freedom of plan are all to be found in the traditional Japanese house. More than that, the Japanese must smile at suggestions in our architectural literature that the marriage of house and garden was a modern and European idea. So ancient are such customs and so adapted to modern living is the Japanese house, that we are sure Professor Saito, whose charming house is illustrated here, does not think of calling his house modern. It is simply a house designed by a Japanese in Japan with local materials — for the particular requirements of his family. Before the war, it is more than likely that we should have looked on Professor Saito's house as something quite foreign, remote and incomprehensible. It is surely proof of the validity and strength of modern architectural philosophy that today, it will be seen and studied from Vancouver to Halifax with pleasure and understanding.

讀者の皆様へ

在カナダ特命全權大使

松平康東

カナダの皆様のための日本建築紹介記事に対して一言つけ加えておきたい機会を得ましたことは私の大きな喜びとする処であります。今回発行されるカナダ王室建築協会のジャーナルが日本建築に関する特輯をかかげ、日加両国民の相互理解を更に深めることに貢献せられることは誠に喜ばれません。知ることは愛することであり、という古いフランスの諺があります。皆様も本誌の特輯記事をお読みになつた後この諺通り日本建築を愛するようになっていただきたいものであります。

日本の建築は純粹な建築にして庭園にしても二千年の長きに亘つて築き上げられた日本文化の最もすぐれた産物の一つであります。その長い歴史を通じて日本の建築は中国の唐・宋王朝の影響やインドの建築様式を取り入れ咀嚼し、多年に亘る改良の後に現在のような輝かしい状態に到達したのであります。この日本の建築の発展過程を辿ることは必ずや皆様の深い興味をそゝるものがあることを疑ひません。

日本建築の根本的な特長は一言にして云へば自制的であり、簡素であり又機能的である点であります。又若干印象主義的でもあります。

私はこの雑誌の讀者の皆様にいつか皆様が日本を訪向され御自身で華麗な日本文化を御覧になる機会の来ることを希望し御挨拶の言葉にかえたいと思ひます。

Foreword by His Excellency the Japanese Ambassador

It is a great pleasure for me to have been given an opportunity to contribute to the introduction of Japanese Architecture for the Canadian public. It is a privilege, indeed, for me and I am happy in the knowledge that this issue of the *Journal* of the Royal Architectural Institute of Canada will contribute to a better understanding between our two peoples. There is an old French saying that "savoir, c'est aimer" (to know is to love) and I hope this will be the case when you have read the articles in this magazine.

Japanese architecture, pure or landscape, is one of the finest products of the two thousand years of Japanese culture. During its long history, it absorbed and digested influences of the Chinese Tang and Sung Dynasties and some Indian styles, and, after many periods of renaissance, has developed into its present flourishing stage. I can assure you that it is a fascinating experience to follow its development through the ages.

The fundamental characteristics of Japanese architecture are self-restraint, simplicity and functionalism, lightly tinged with impressionism.

I wish to send to every one of the readers of this magazine a message of goodwill, with the hope that one day you will be able to visit my country and see for yourselves the splendours of Japanese culture.

KOTO MATSUDAIRA

Some Aspects of Japanese Architecture

Keiiti Morita

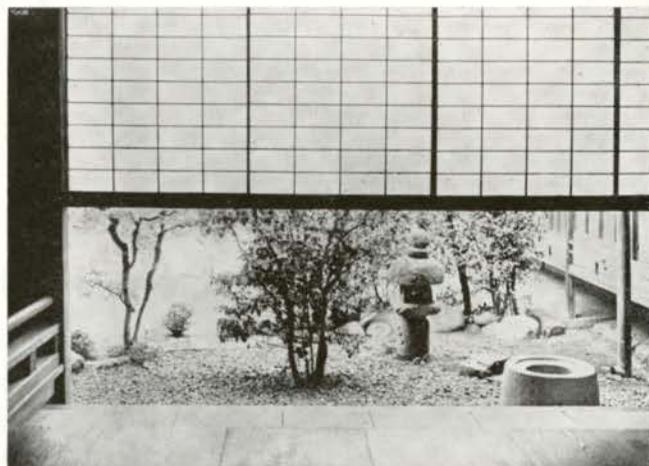
OBVIOUSLY IT IS IMPOSSIBLE to describe thoroughly the entire range of Japanese Architecture in such a short paper. It is only from the sixth century that works of art which may be called architecture were created in the several islands scattered in the sea east of the Asian continent. At that time Japan learned this art from China, a country already civilized; and since that time, it is true, Japan has continued to be influenced continuously by China. But Japanese architecture is not an offshoot of Chinese architecture as many Westerners believe. In a natural environment characterized by a moist climate caused by monsoon weather, Japanese architecture has followed its own

course. It has created and maintained its own tradition which has been transferred into our own day. Here, we may tell about some of the main characteristics of Japanese architecture.

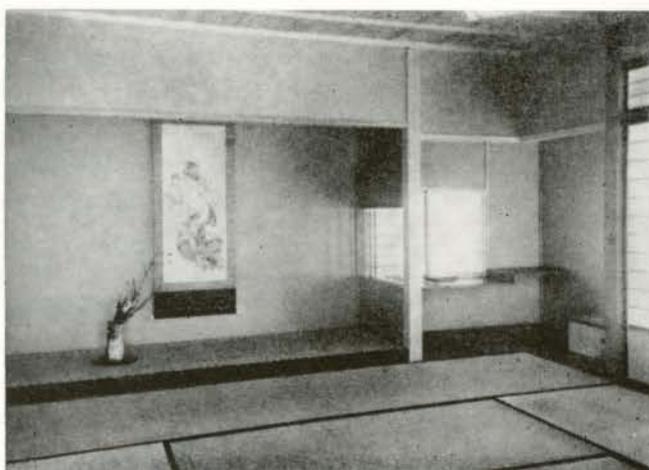
It is quite natural that the characteristics of Japanese architecture are preserved in the dwelling house. We begin the discussion of its architectural character with the treatment of its space. To compare, in Europe, each room-space which composes a dwelling house is independent of each other according to its function — absolutely separated by solid walls and capable of being shut off mechanically with lock and key. In Japan, however, each functional



ZAIHO-KANKO-KAI



SHOKOKU-SHA



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1) An Entrance Gate and Fence of a City Dwelling, Kyoto.

The gate faces directly to the street. Entering it is reached a small fore-garden which is composed of stone paving and some of greenings. The fence is made simply of the thin mud wall and crowned by roof tiles.

2) A Corner of the Guest Room of Kobo-an, Daitoku-ji, Kyoto. 17th Century.

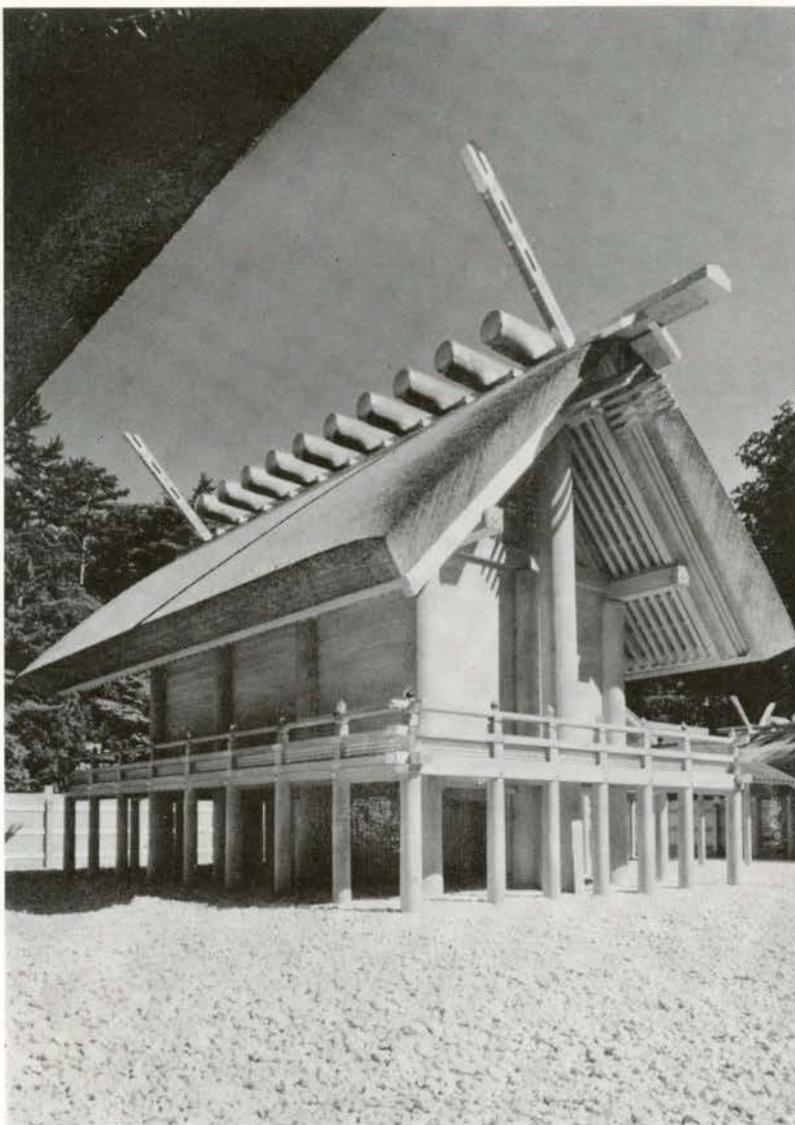
The photograph shows the garden side of the interior. The verandah is depressed in two steps. This side, opened in full width, is divided in three horizontal bands by the thin mullions (the upper-most strip is not seen in this photograph). The upper two are furnished with four panes of paper screen ready to be opened, and the lowest band, being left opened, may be shut in bad weather.

3) The Alcoves of a Guest Room, Kyoto. Koji Fujii, Architect.

The alcoves are situated on one side of rectangular room of ten mats. Toko-alcove is wider than usual and tana-alcove with two shelves and a box-closet is arranged to turn inward. Here square pillar separates each alcove.

4) The Interior of a Guest Room, Kyoto. Koji Fujii, Architect.

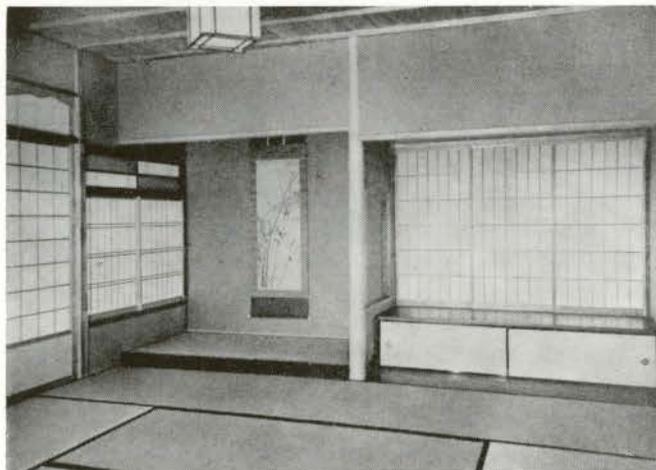
Toko- and tana-alcove are of equal division. Toko space and painting bung on its rear wall are lighted by a flank window. Tana-alcove has no shelf but low box-closet and well lighted by an ample window of three panes.



5

5) The Main Shrine Building of Ise-jingu, Ise.

The purest classic order of Japanese architecture. The members are of a kind of cypress (*chamaecyparis obtusa*), whose quality is noble and durable. The roof is covered with thick layer of the rush canes.



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space, differentiated for sleeping, dining, cooking, and sanitary provisions, is never enclosed by solid walls, but is only casually separated. The spaces can easily be made freely interpenetrable. We also know that, in the modern architecture of the Western world, such interpenetration of architectural spaces is splendidly realized by the genius of Frank Lloyd Wright. Japanese architecture, however, has sought for this from long ago in its own manner.

Such differences in the treatment of space may be of course explained by the fact that the mode of living of both worlds is not the same. However, fundamental to the conception of Japanese domestic architecture is the idea of "in" and "out". In Europe, one leaves the street, enters the house, and turns down a corridor. Then, having crossed over the door sill of a room, one feels at ease at last

6) *An Audience Hall of Nijo Castle, Kyoto. 16th or 17th Century*
 One of the most formal and gorgeous interiors of the residence of the feudal lord in Japan. In the front are found at the left toko and at the right tana. All the walls as well as the rear wall of alcoves and the sliding panels which are seen at the right side are decorated with fine paintings as are the coffered ceilings.

7) *The Main Edifice of the Buddhist Temple Tosho-daiji, Nara. 8th Century.*
 This is a perfect example of the classic architecture of Japan, whose order belongs to that of China. At the front is an open portico of wooden columns which have slight entasis.

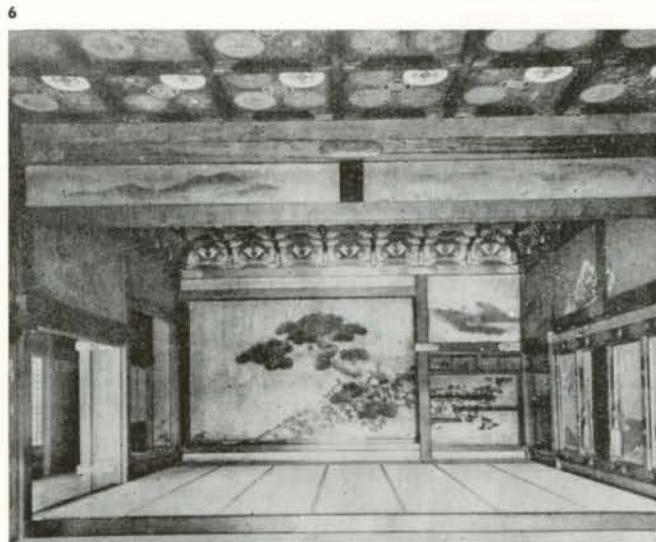
8) *A Corner of the Tea-room, Kyoto. Koji Fujii, Architect.*
 This is an example of the tea-room attached to the dwelling. The composition is rather informal. Floor of toko is not elevated. There is no distinct sign of separation between the room proper and toko-alcove. For central column is employed a natural log slightly bending. Woven mat of lotang fibre covers the ceiling. Sober, tranquil and serene!

9) *Entrance Facade and Fore-garden of a Residence in Tokyo, 1929. Isoya Yoshida, Architect.*
 Two storied city dwelling with a narrow turning fore-garden enlivened by the stone paving, the graveled terrain and the tiny bush of the bamboo.

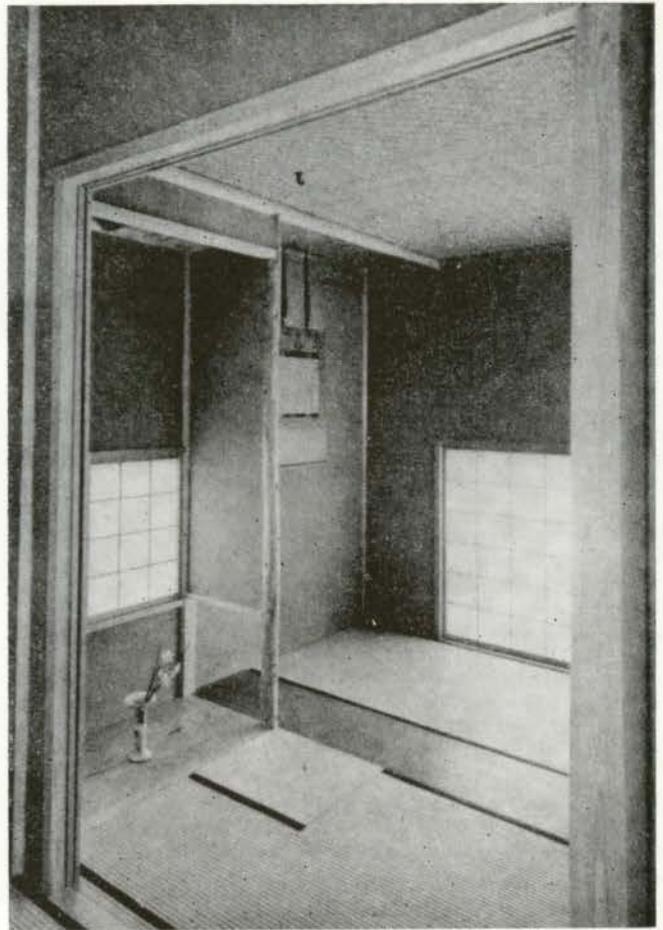
10) *Castle of Himeji. 17th Century.*
 In rear ground towers the principal building of five storeys, on the summit of the hill planted thickly with the pine trees. This tower was the symbol of the feudal city itself as well as of the castle. Ramparts, turrets, strong gates and moats encircle and guard this kernel, and the ensemble creates the fine scenery of the monumental character.



ZAIHO-KANKO-KAI



SHOKOKU-SHA



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having reached a private space and achieving an "in" feeling. But, in Japan, a person entering the main gateway of his dwelling and taking off his shoes is already distinctly conscious of an "in" feeling. The garden, even if only an area of twenty or thirty square yards around a humble dwelling, is symbolically an architectural space. The "in" feeling of each of the rooms and of the house as a whole extends into the garden, the whole being enclosed with a fence and gate.

Thus the treatment of the space as a means of artistic expression in Japanese domestic architecture is very complex. An interior room consists of a complete space yet, at the same time, by taking away the movable partition, it always maintains a space relation to adjoining rooms. Fig. 2 shows a garden side of a guest's room belonging to the abode of the high priest of the Buddhist Temple Daitoku-ji in the city of Kyoto. This side of the rectangular room is completely opened to the exterior and separated physically, but not separated symbolically, from the garden by a depressed wooden verandah and by movable translucent paper screens. These screens, although they separate two spaces, do not isolate the interior space, nor exclude the space of garden from it.

Foreigners who have been guests in the private house of any Japanese may wonder about its constituent rooms which are so small and standardized. Namely, the floor area is generally about nine to twenty square yards, and

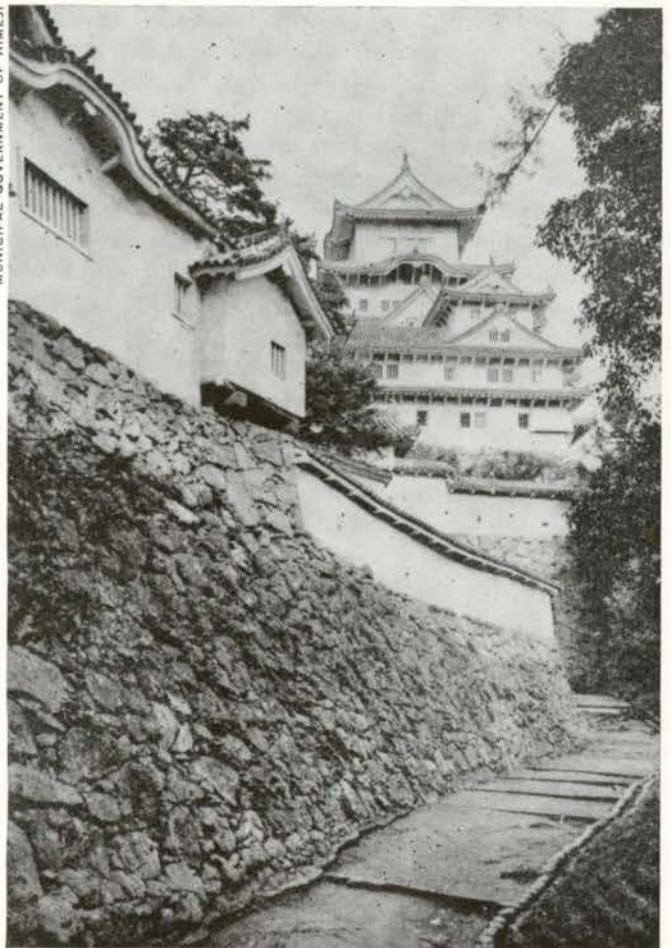


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this square or rectangular floor consists of four and a half, six or eight sheets of thick pliable matting (*tatami*) whose standard size is about 3' x 6'. The ceiling height is about eight feet. (Fig. 11)

This wholly simple cubic room, if it were a principal room of the house, has, as a rule, on one side, alcoves called *toko* and *tana* which serve an aesthetic purpose. Another side which joins it, generally the south side, is thrown open to the garden, with a narrow wooden verandah interposed. The third side opens into another room or corridor. The separation between this room and another one or the corridor is carried out by two or four panels of light papered sliding screen which fill the opening extending to more than half the width of this side, and are always readily opened. The garden exterior is provided with light sliding sashes with translucent paper pane placed at the inner edge of the verandah. Moreover, the outer border of the verandah is generally furnished with sliding doors, now-a-days with glass panes. The ceiling consists of thin wooden boards which show a straight grain or other beautiful natural patterns. These boards rest on thin strips of wood which are arranged parallel to the long side of the room. (Figs. 3 and 4)

This room-cube is constructed very simply with a frame work of square posts and horizontal members which connect these at the top and the bottom, the greater number of posts being located in the interior walls. These hori-



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zontal structural members are put beyond the ceiling and floor, and can not be seen. But the posts, all being exposed to the eye, are decorative as well as structural. Mullions and sills of the openings which are laid from post to post, compose linear divisions of the space horizontally. All the wood used shows its natural surface and is not painted or varnished.

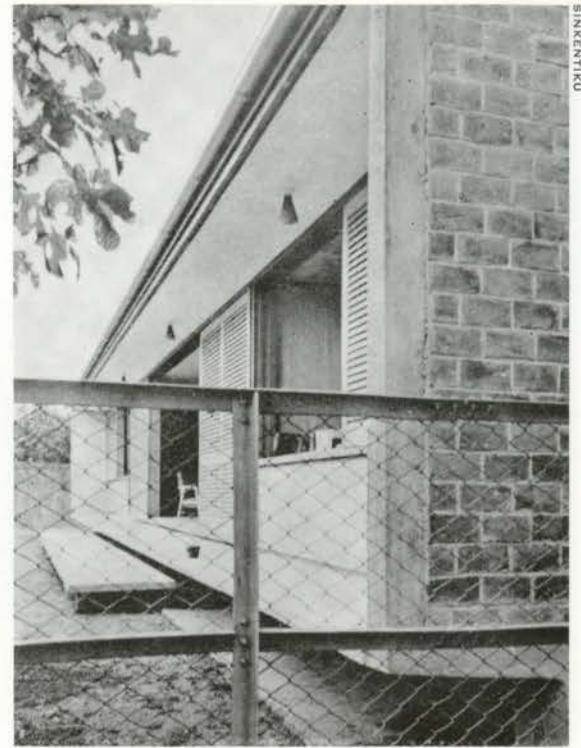
The most important side of the interior is that of the alcoves. The alcoves are divided by a column and a light spur wall into two parts which are called *toko* and *tana*. The proportion of this division is not fixed and each may vary three to six feet in width, the depth varying from two to three feet. The floor of *toko* is slightly elevated from the main floor of the room and is made of polished wood planks or sometimes of *tatami*. On the surface of its inner wall is hung a long vertical tableau of painting or of calligraphy. On its raised floor are arranged flowers in a pottery vase or other objects. As for the *tana*-alcove, the floor is also of polished wooden planks, and, here, at the height of proper proportion, a wooden shelf or shelves are hung horizontally. One usually places on this shelf a porcelain, metal-work or other objets d'art. Sometimes the bottom or top of this *tana*-alcove contains small built-in box-closets. Indeed, the alcoves are no more the space of material life, but a sacred space dedicated to the muses. The central column is carefully chosen in consideration of its surface texture, colour, polish and even its fragrance. The height

of the alcove opening must be harmonious with its width. The thickness of the mullion which defines the upper side of this opening, the thickness and depth of the shelf, etc., the minutest care is taken so that the proportion and dimensions of each member are carefully related to each other. Here, in this unique space, architecture, painting, minor arts such as pottery, and nature represented by flowers play a peaceful, very peaceful concerto. Using humble materials, the realization of a small but perfect universe of beauty in this space is a daily matter of concern to every Japanese house-wife.

Inasmuch as all wood in the interior is used in its natural state, wood dressing is performed so minutely and delicately from planing to jointing, that it may be compared with the marble cutting of classical Greek architecture. The atmosphere of the interior as a whole may feel somewhat dimmer than that of a modern Western interior, but it impresses one with a strange serenity. The yellowish pale brown of the wood, the pale yellowish green of the mat surfaces fringed with black ribbon, the delicate cream yellow of the sliding screens—these are all neutral colours. Moreover, the translucent paper panes of sliding sash, together with the deeply hanging eave, diffuse a delicate indirect light all over the interior. The paper for this purpose is superior to any kind of glass in its quality of light diffusion. One takes his seat upon a cushion which is placed directly on the floor mat. Chairs are not to be found, and other furniture is held to a minimum.

All forms are composed of straight lines and right angles. Curves are also used but rarely; they are often considered non-tasteful. In this, the composition of straight lines and right angles dominates the subtly calculated proportions which do not admit any alteration even though in the slightest degree. All should be obedient to order. But symmetry is deliberately avoided. At any rate, these rigorously geometrical forms lose their sharpness in a dimly suffused light. It all combines into a strangely oriental co-existence of classicism and romanticism!

In the façade of a Japanese dwelling house, comparing it to its interior, the artificial is not so conspicuous but re-

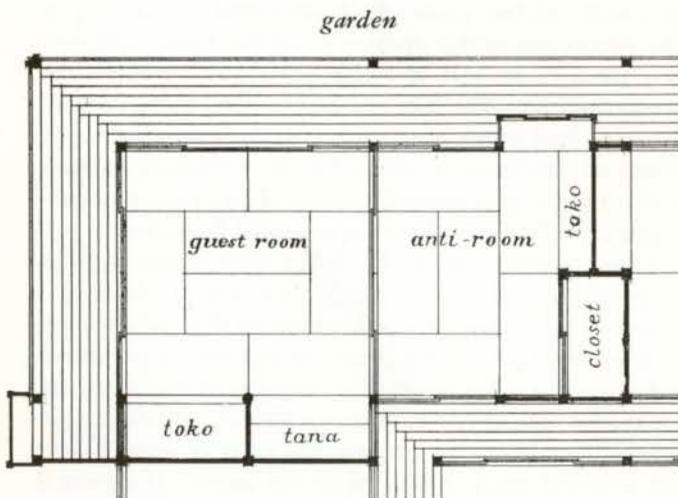


12) A Suburban Dwelling, Tokyo, 1954. Kiyoshi Seike, Architect.
Over the small modernized concrete house reigns the well measured order of Japanese modulus to every detail.

strained. Namely, façade is quite obedient to interior with regard to composition. It tells of a modestly symbolical relation between the interior and the garden. The relation between a building and the surrounding landscape in the European mansion, for example, a French mansion, is often in the contrast of artificial and natural. But, in Japan, the artificial is not accentuated but is dissolved into nature. Plain woods, mud walls and roof tiles of dull grey colour contain nothing which opposes nature. Anyone who enters the gate of a Japanese dwelling will see, in the tiny fore-garden enclosed by the fence in which may be planted a pine tree or other greenery, and in which may sometimes be set a stone lantern, and in the façade of the house, how the natural and artificial are combined in happy union. (Fig. 9)

Such aesthetic taste, inherent in the Japanese common dwelling house which several contemporary Japanese architects are endeavouring to realize in steel and concrete (Fig. 12), had been developing from the eleventh century. It was confirmed in the sixteenth century. It owes its fixed form to the palace of the past aristocrats or feudal lords perhaps, but primarily it owes its emotional content to the tea-pavilion (*chashitsu*), a genre of architecture peculiar to Japan. Fig. 6 shows an example of the former, an audience hall of the Nijō castle in Kyōto built in the latter half of the sixteenth century.

The tea house may be of interest to European architects, but it demands more space than is available to explain it. (Fig 8) It is fortunate that English readers are able to know it thoroughly from Kakuzō Okakura's "The Book of Tea" published in America some fifty years ago.



11) Typical Plan of a Room of the Japanese House.

In short, the tea-house is a mere element of a synthetic art called *chadô*, i.e. tea ceremony — synthetic art viz. synthesis of painting, pottery or other minor arts, flower arrangement, poetry, art of incense, etiquette, conversation . . . and architecture — so it does not belong to grand art. The taste pertaining to it is an extreme, wholly oriental refinement which seeks perfection in the imperfect. This taste, being translated in more intimate form, has been transferred to the dwelling house.

We mentioned previously some aspects of the Japanese architectural genius, and we have seen, at the same time, a lack of the sentiment of monumentality which belongs to a grand art called architecture as known to Westerners. The aesthetic sentiment shown in Japanese domestic architecture is completely opposed to monumentality. Does Japanese architecture ever achieve monumentality? Yes! *Ise-jingû* (Fig. 5), a shrine of an indigenous religion *Shintô*, has held and continues to hold its monumental character during more than one thousand years without change. Its classical style, well measured according to Japanese modulus, is sober, stately and dignified. Another example: feudal castles of the sixteenth century may be compared in their monumentality with Windsor castle or French châteaux on the Loire without loss of pride. (Fig. 10)

Above all, it was China of the sixth or seventh century—

China of the most civilized Tang dynasty—which kindled a flame of architectural monumentality in the sentiment of Japanese. Japan has learned the technique of building Buddhist Temples, together with its religious dogma, and has been able to maintain the orthodox method of classical composition. It has been realized in temple architecture. (Fig. 7) This stimulation from China has died since the fifteenth century. Today we Japanese architects are endeavouring once more to kindle a monumental flame in the new form which will come forth from our own tradition stimulated, this time, by Europe.

Most of the tourists from foreign countries who now land at Tôkyô airport or disembark on any sea port in Japan will be disappointed looking at the work of civic reconstruction in the Western style which is now in progress on the terrain swept by heavy bombardments. Rationalization and internationalization in architecture is a worldwide tendency today. The present situation of Japan urgently necessitates that she put her architecture in tune with that of Western countries. But the efforts of certain Japanese architects in the future will show a new manner of building which will combine the traditional heritage of Japanese architectural expression with these new influences — a blend which they will hand down to their descendants not only in domestic architecture but in every field of architecture.

Extension to the Hotel Tsuruya (1953), Hyogo

Architect, Isoya Yoshida

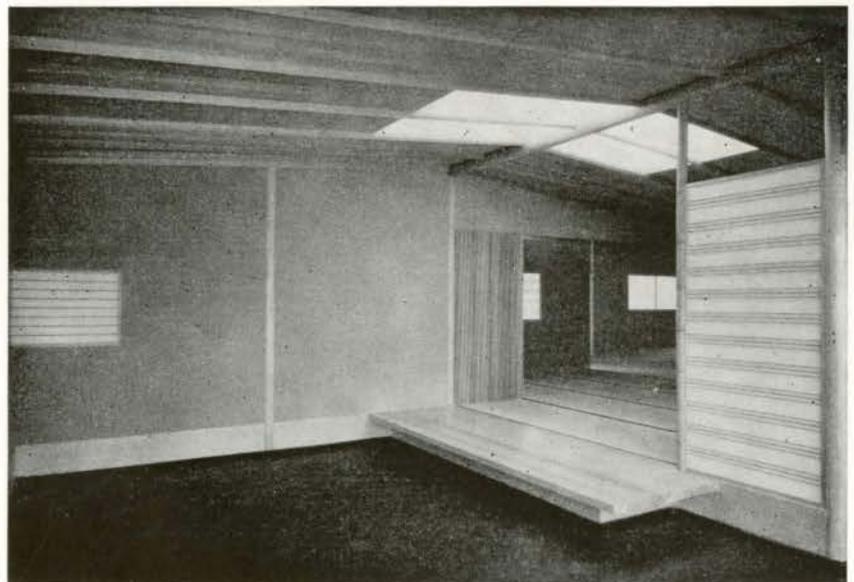
View of Entrance

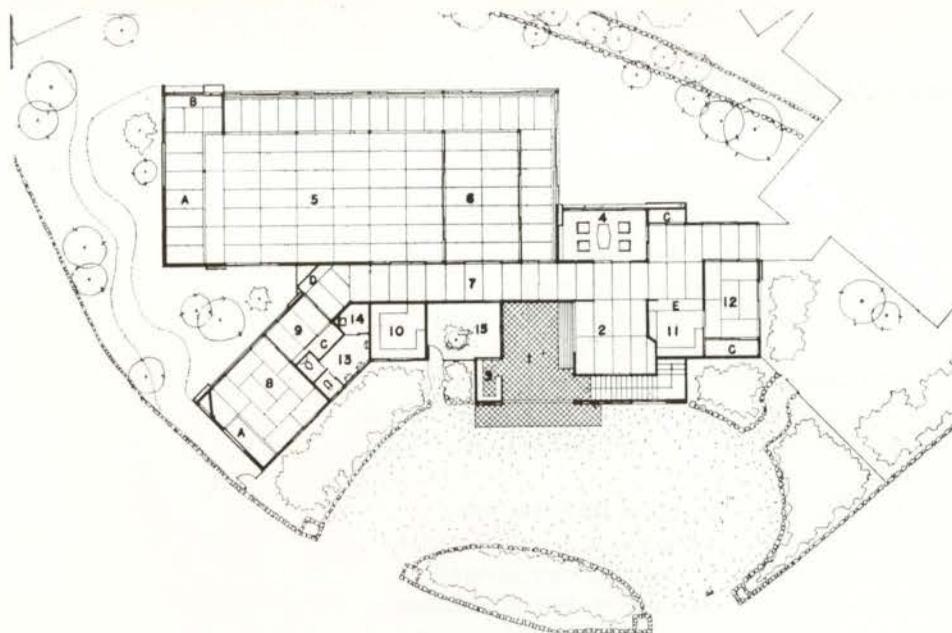
Roofing: Japanese roof tiles. Wall: Coloured plaster wall. Wainscoting: Masonry facing.



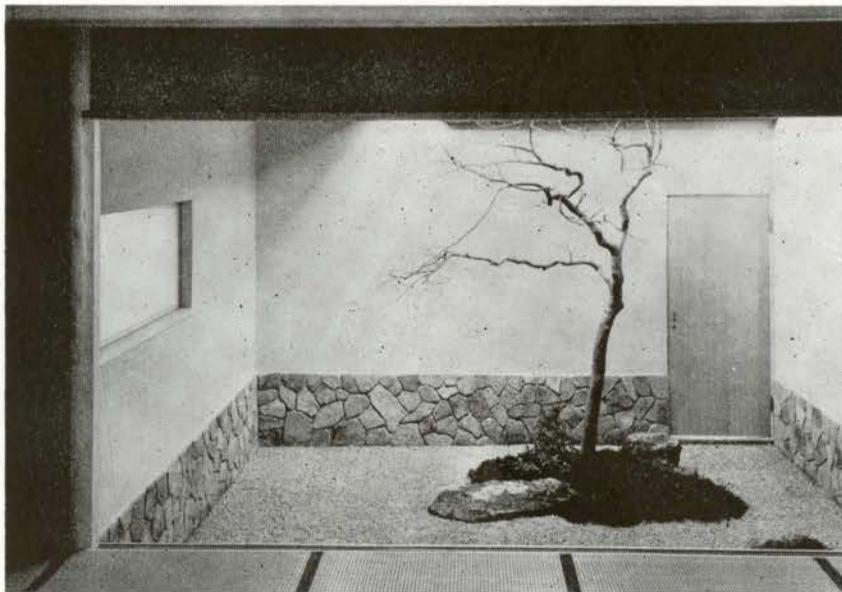
Vestibule

Posts: Wood logs. Ceiling Board: Straight-grained Japanese red cedar. Wall: Earth plaster. Stoop: Red pine boards, Sash Muntins: Japanese red cedar. Floor: Black ceramic tiles.



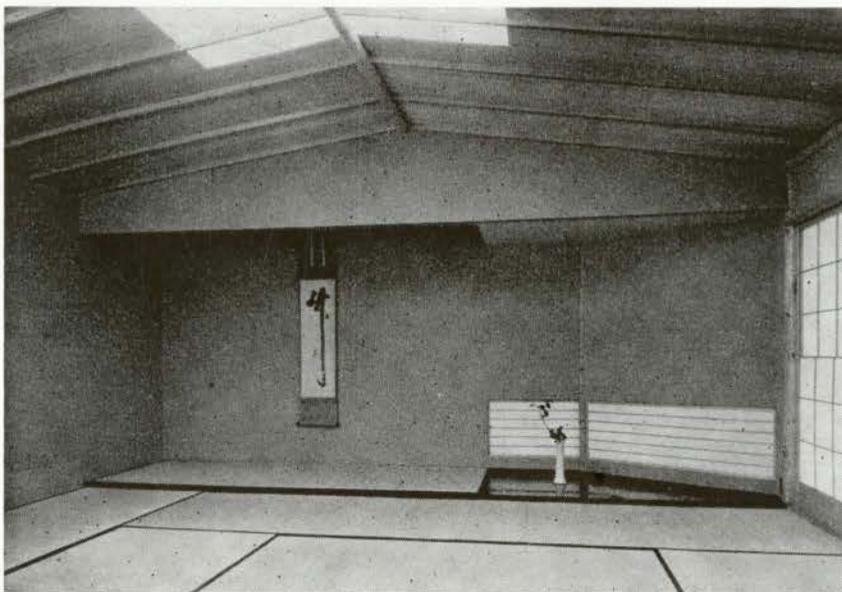


- 1 Vestibule
 - 2 Entrance lobby
 - 3 Clog room
 - 4 Reception room
 - 5 Entertainment hall
 - 6 Ante-room
 - 7 Corridor
 - 8 Guest room
 - 9 Ante-room
 - 10 Pantry
 - 11 Cloak room
 - 12 Maids' room
 - 13 Toilet
 - 14 Lavatory
 - 15 Patio
- A Tokonoma
 - B Shelf
 - C Closet
 - D Service counter
 - E Counter



Patio

Patio is covered with white stone chips and provided with a maple tree, an ornamental stone and moss, all arranged in a fascinating pattern.



Guest Room

Posts: Japanese white cedar. Ceiling Board: Straight-grained Japanese red cedar. Edge and Floor of Alcove: High quality lumber with japanned finish. Wall: Earth plaster.

House of Prof. K. Saito (1952), Tokyo

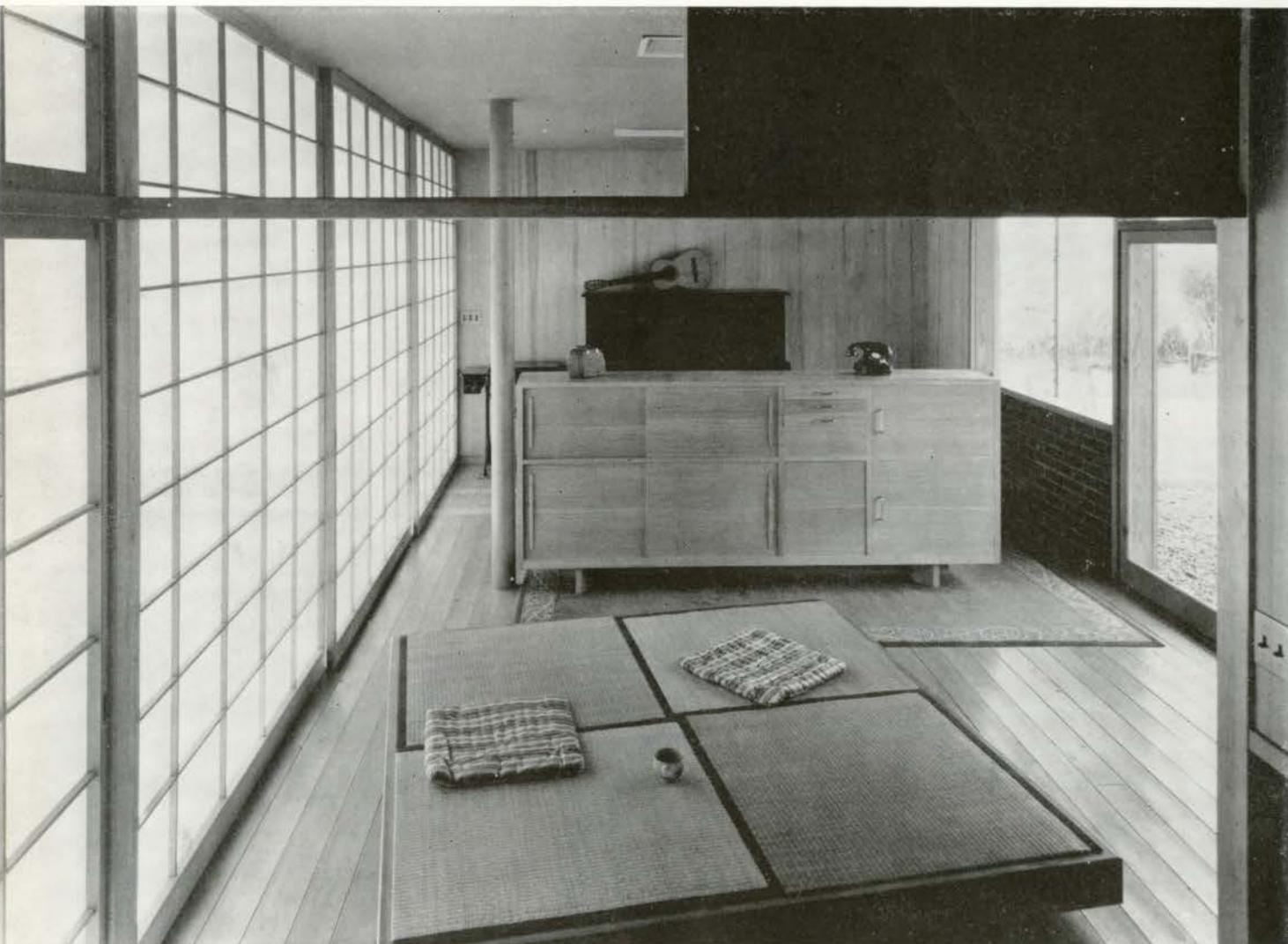
Architect, Kiyoshi Seike

Framing: A simple framing resulting from a simple floor plan is an outstanding feature of this dwelling house. The roof truss, however, required certain complex arrangement because of the small number of posts. The wall is divided into as long bays as practicable so as to reduce the angle of bracings and thus decrease the load distribution. All framing members are joined by means of mortised and tenoned joints strengthened with clamps. The western end of the house, framing of which consists of two cantilever beams and two side-walls, overhangs beyond the foundation wall.

As clamps are used, the specific vibration frequency of this structure is rather short. The building is wholly of dry construction.

The western end of the house, which is a bed room, was cantilevered because this part of the site consists of fill. Otherwise, very deep foundation would have been required adding to the foundation cost. The bed room is provided with a big window facing west, and has a good command of view over the Tanzawa mountains and Mt. Fuji when weather is fine. In addition to the big glassed sash, the window is provided with storm sash and *shoji* (sliding paper screens). The *tatami* mats in this room are surrounded by wood borders so as

1



HIRAYAMA



2

1) *View of interior. Extensive use of glass and the raised platform for sitting on should be noted.*

2) *Elevation showing the bedroom window, referred to in the text. Note also the verandah.*

3) *Elevation from the garden.*



3

to provide more usable area. The side walls of the room are diagonally boarded to increase the structural rigidity, and these walls carry the floor load in combination with the compound beams under the floor. The cantilever beams are made of wood planks combined with wood connectors and clamps. All wood connectors and clamps used in this construction are the product of Orimoto Special Framing Research Corporation.

Public Hall, Ehime Prefecture (1953), Matsuyama

Architect, Kenzo Tange

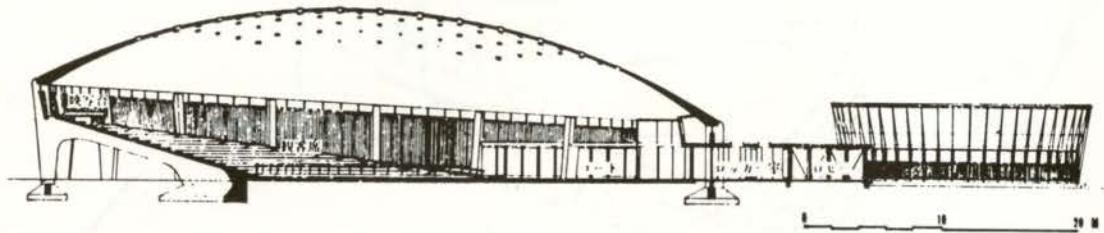


HIRAYAMA

Ceiling: Porous vermiculite plaster. Wall: 6cm thick rock wool over Copenhagen ribs. High Windows: Oak-wood framing, clear lacquered, fitted with transparent window glass. Baseboard: Vitrified ceramic tiles manufactured by Ina Seito Co., Ltd., 20cm wide.

Single storey reinforced concrete building with a roof of shell construction.

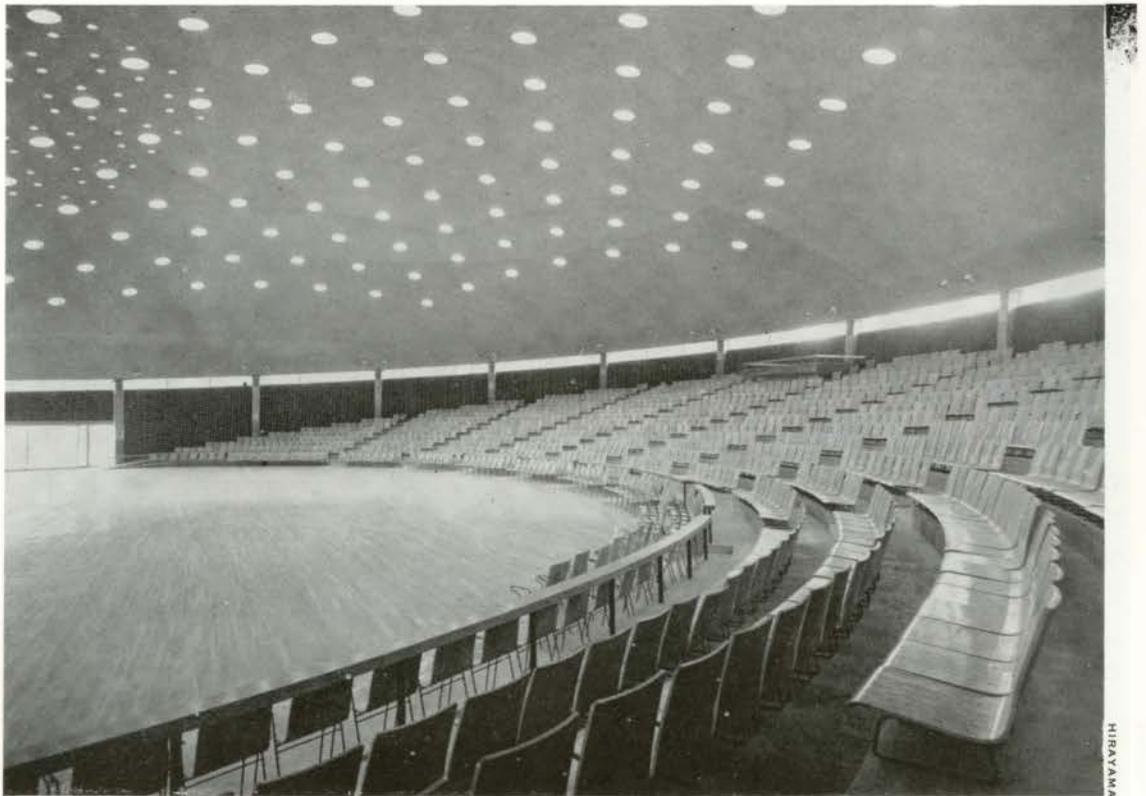
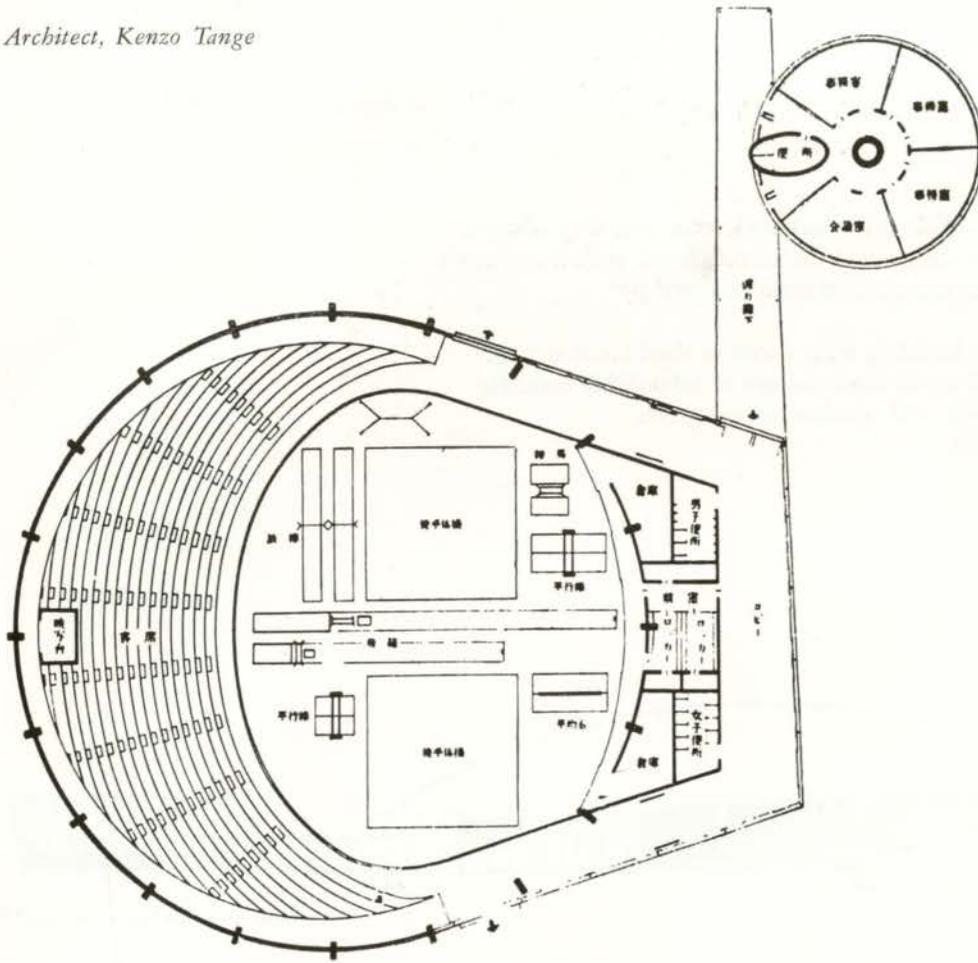
Total floor area is about 27,976.3 sq. ft. Columns are of monolithic concrete and exterior walls, of terrazzo. Doors and window openings are provided with steel sash, oil painted.



HIRAYAMA

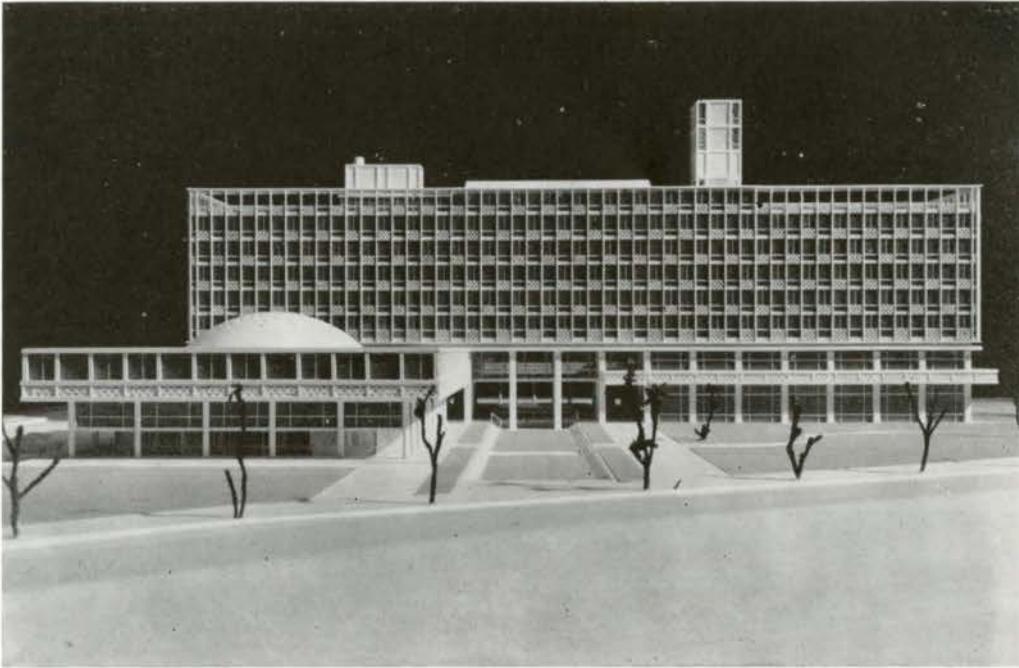
Public Hall, Ehime Prefecture (1953), Matsuyama (cont'd)

Architect, Kenzo Tange



Okayama Prefectural Office, Okayama

Architect, Kunio Mayekawa



Staff Housing for the U.S. Embassy (1952), Tokyo

Architect, Antonin Raymond



The Kanto Area Telecommunication Ministry Hospital, Tokyo

Architecture Department, Nippon Telegraph and Telephone Corporation

Reinforced concrete structure, one storey underground and from three to five storeys above ground, with total floor area of approximately 355.844 sq. ft.

Ivory coloured ceramic tiles for exterior walls. Exterior sashes are painted in medium pearl gray and light pearl gray on the south and the north sides respectively.

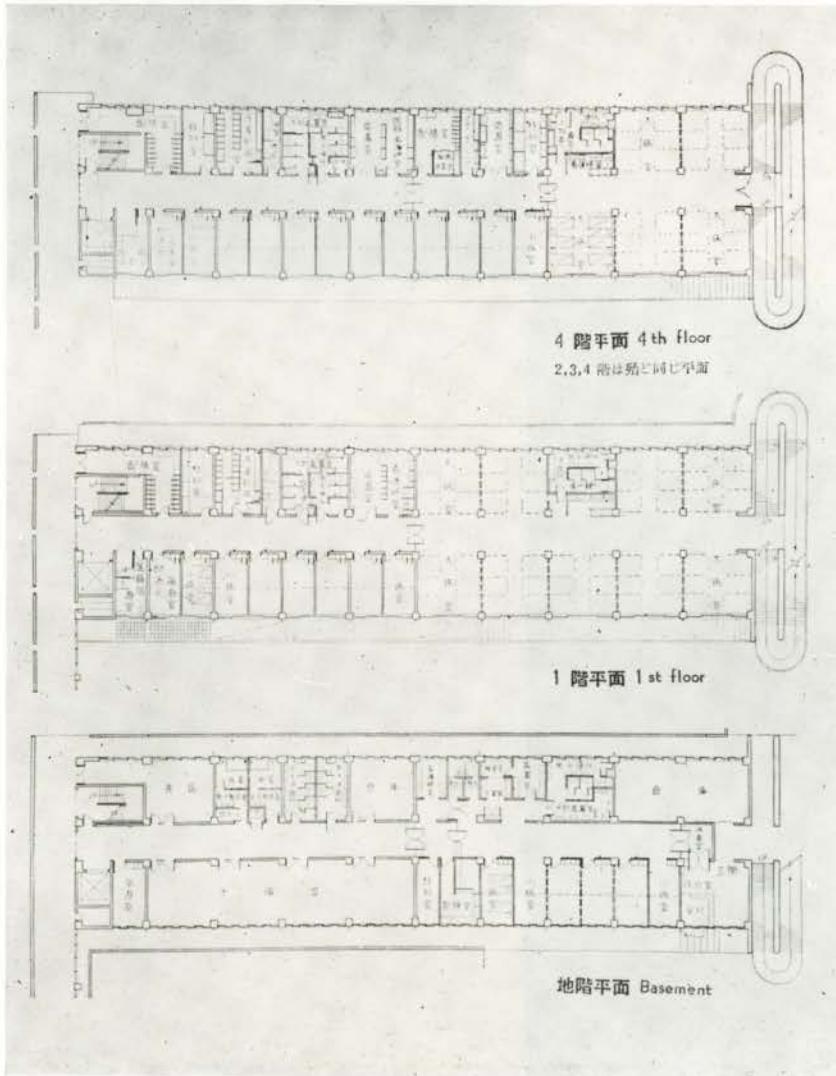
Olive-green rubberium for the floor of interior corridors; white ceramic tiles for interior walls; and plaster ceiling painted with vinyl-resin paint.

Number of beds — 268.



EASTERN

EASTERN



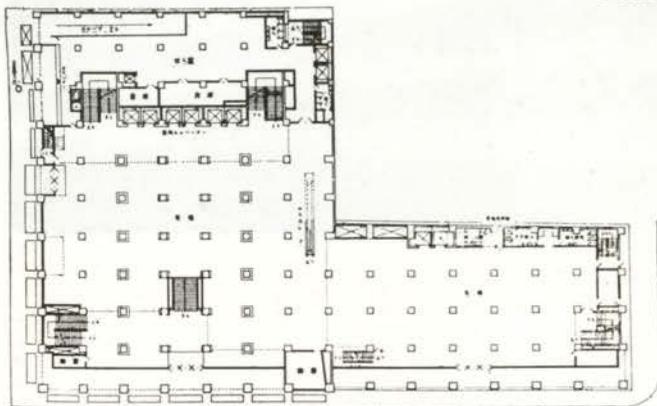
Maruei Department Store (1953) Nagoya

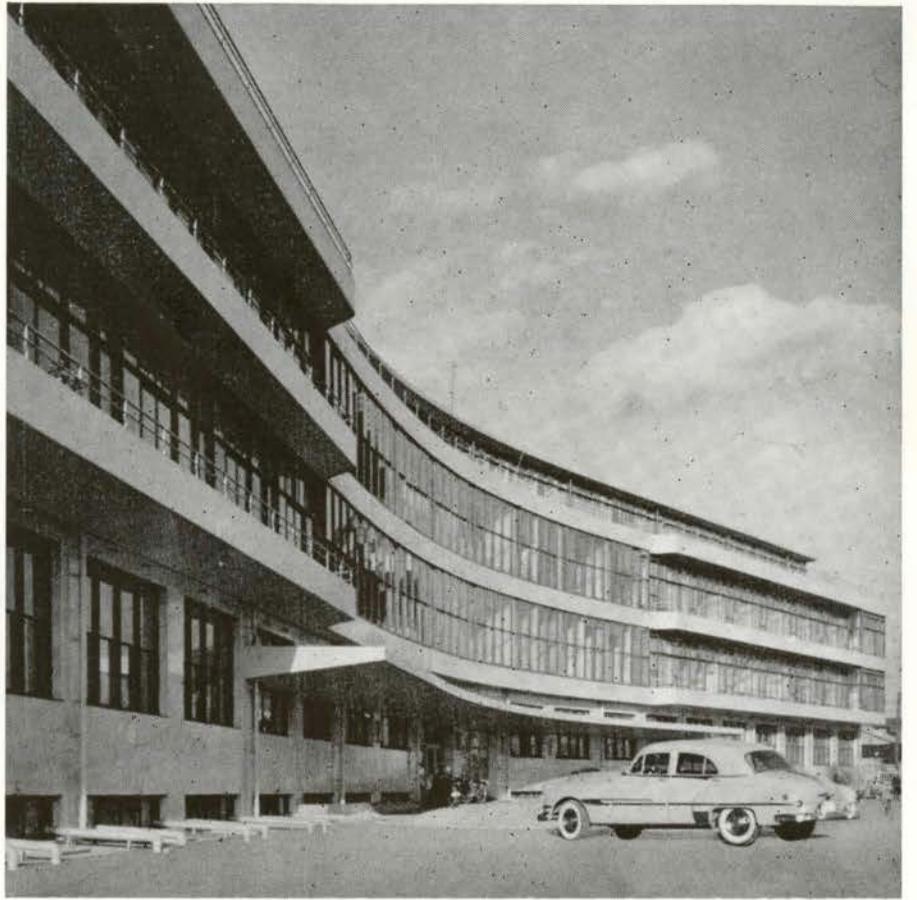
Architect, Togo Murano

Exterior Finish: The wall is composed of narrow strips faced with small ceramic tiles of bluish-purple colour. The colour intensity of these tiles varies with each storey, the lower storey having the darker colour. The shutters and sash, which are of rusty iron colour, are also colour-conditioned so as to conform with the wall. Mullions are made of white-yellow terrazzo blocks.

Smoky-coloured glass blocks and wire glass are used for windows and transoms respectively. These mullions, glass blocks, etc., are backed up with structural steel supports. The exterior columns on 1st floor are surfaced with yellow-mottled marble, and an arcade is provided along these columns. The 1st floor is designed to have an open type front, with Pilkington armored glass doors.

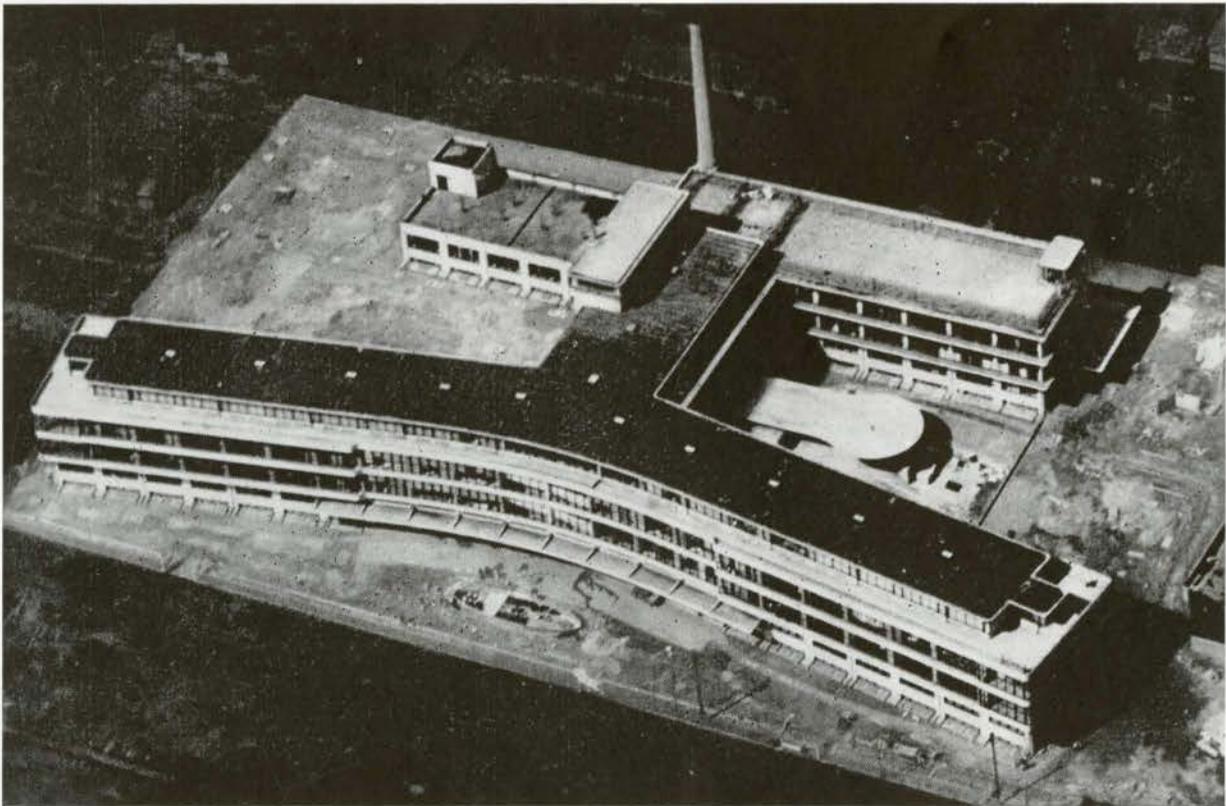
This is a reinforced concrete structure, 2 storeys underground and 8 storeys aboveground, with a total floor area of 284,675 sq. ft.





Osaka Welfare Pension Hospital (1953), Osaka

Architect, Mamoru Yamada



Bingo-machi, Building of the Sumitomo Bank (1952), Osaka

Architect, Shojiro Yamane

The initial design of this building was worked out by Hasebe & Takekoshi, Architects, the predecessor of Nikken Sekkei Komu Co., Ltd., in June 1937, and was soon carried into construction. However, due to the then tense domestic and international situation, the construction had to be discontinued in 1939, when concrete had been poured for the basement.

Until the post-war reopening of the project, the basement was partly filled with sand in order to prevent it from being lifted up by hydraulic buoyancy, and was used as a storage.

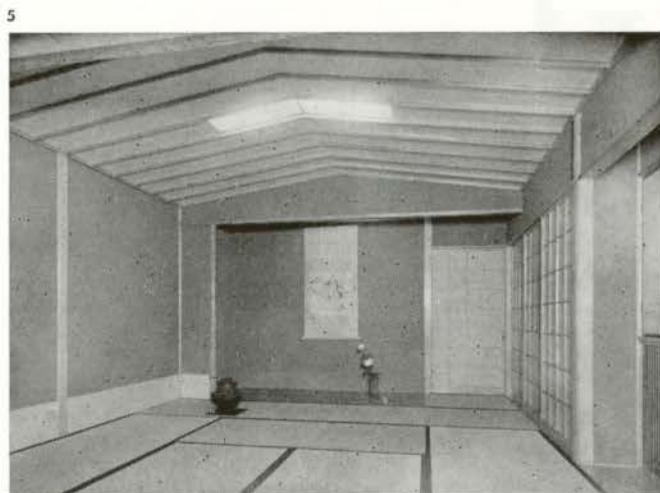
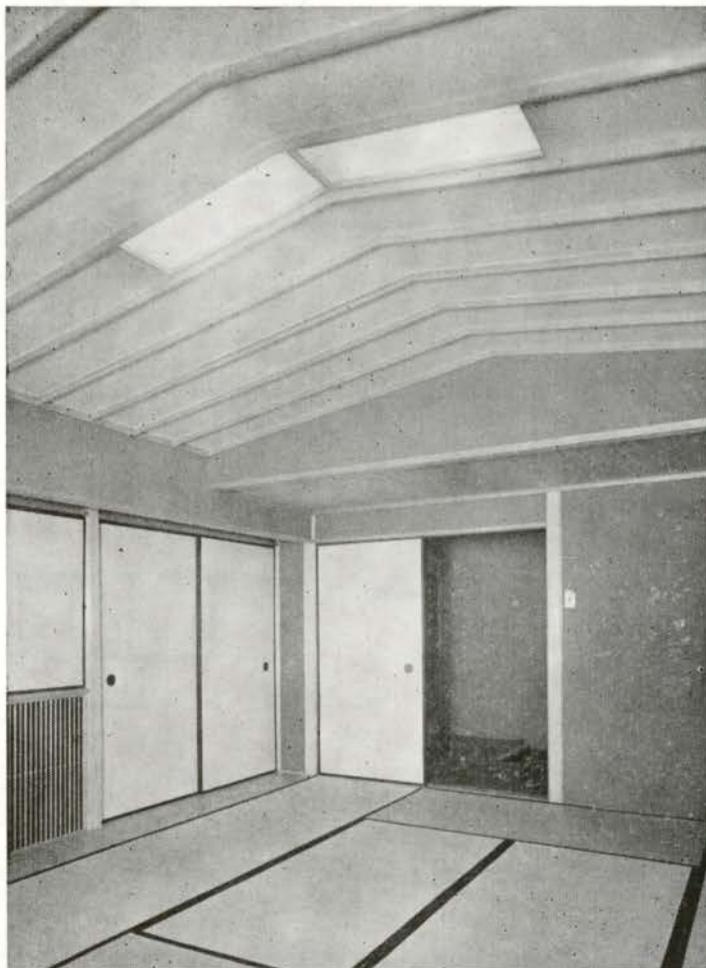
During the World War II, the storage was bombed, resulting in a fire which lasted for full two days and nights and caused considerable damage to the structure.



In the initial design, the bank's office occupied smaller floor area, and the building's entrance porch was located at the center of the building. Since the new requirements were that the bank's office should be made as large as possible, the building was redesigned by Nikken accordingly. As the original column layout had to be followed, the column arrangement is not natural in some respects, but is inevitable in this particular case.

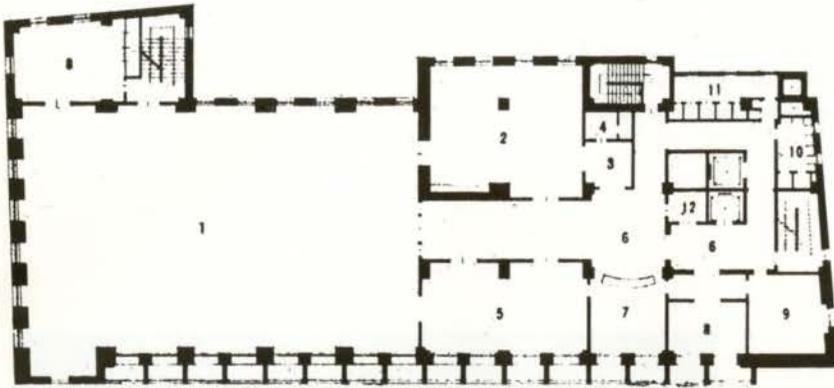
The area of the building is 13,010 sq. ft. for the main building, and 1,214 sq. ft. for the annex, with total floor area of 107,934 sq. ft. The main building consists of eight floors above ground, a basement and a sub-basement.

- 1) *View of bank from the street*
- 2) *Detail of front façade*
- 3) *Bank's business room on first floor*
- 4) *Safety deposit vault in basement*
- 5) 6) *View of Japanese room on second floor*



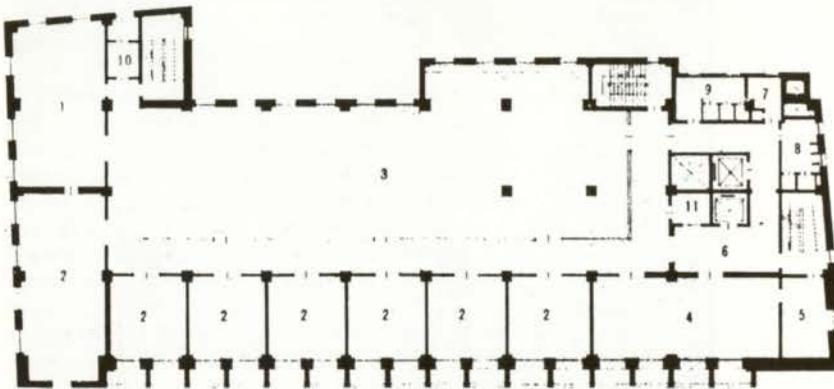
Bingo-machi, Building of the Sumitomo Bank (1952), Osaka (cont'd)

Architect, Shojiro Yamane



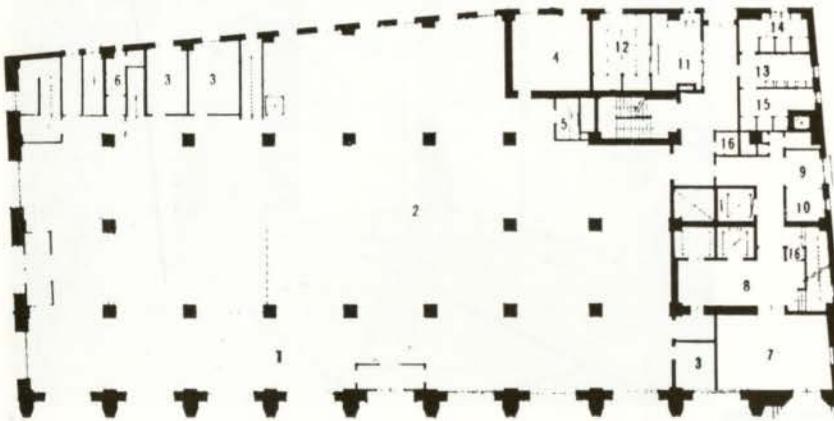
EIGHTH FLOOR

- 1 Congress room
- 2 Special guest room
- 3 Ante-room
- 4 Guests' toilet
- 5 Small congress room
- 6 Hallway
- 7 Information counter
- 8 Reserve room
- 9 Pantry
- 10 Men's toilet
- 11 Women's toilet
- 12 Storage



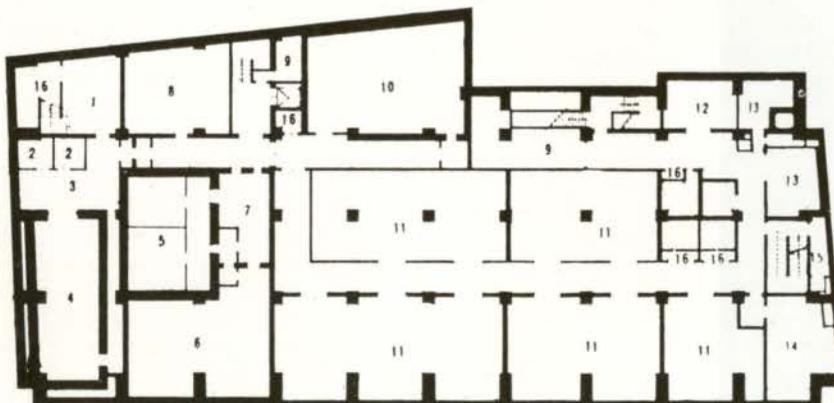
FIFTH FLOOR

- 1 Congress room
- 2 Individual office room
- 3 Office room
- 4 Dining room
- 5 Kitchen
- 6 Hallway
- 7 Hot water heater room
- 8 Men's toilet
- 9 Women's toilet
- 10 Guests' toilet
- 11 Storage



FIRST FLOOR

- 1 Customers' lounge
- 2 Business room
- 3 Reception room
- 4 Manager's office
- 5 Hot water heater room
- 6 Customers' toilet
- 7 Vestibule
- 8 Hallway
- 9 Rear porch
- 10 Guards' room
- 11 Janitor's room
- 12 CQ's room
- 13 Lavatory
- 14 Men's toilet
- 15 Women's toilet
- 16 Storage



BASEMENT

- 1 Office room
- 2 Coupon booth
- 3 Hallway
- 4 Deposit safe
- 5 Safe vault
- 6 Storage
- 7 Ante-room
- 8 Storage
- 9 Machine room
- 10 Stack room
- 11 Storage
- 12 Employees' room
- 13 Janitor's room
- 14 CQ's room
- 15 Toilet
- 16 Storage

Osamu Mori

THE ENGLISH TERM "GARDEN", though it is translated into Japanese as "Teien" or "Niwa", primarily signifies a place reserved for the cultivation of flowers, fruit, vegetables, and shrubs of any kind, as well as lawns, tall trees and various other scenic features. But in Japan, "Niwa" or "Teien" is different. From ancient times, Japanese people aimed to reproduce nature in the "Niwa" or "Teien" by artificial means, in symbolized types, and this was developed from their deep love of beauty in nature. Thus, the Japanese garden is a branch of art, while gardens of foreign countries may be said to belong to the realm of horticulture. There are gardens in other countries in which nature is reproduced for the sake of its beauty, creatively by digging ponds, conducting streams, building up artificial hills, planting trees, and the placing of rocks. Such a garden is called "naturalistic" style in Europe, and it belongs to a quite different category from the Japanese "Niwa" or "Teien" described above.

The Relationship between Garden and Architecture

The Japanese garden is intimately associated with architecture, especially in the case of the dwelling-house. The gardens and houses are inseparably connected at the place of contact, in that Japanese houses are nearly always surrounded by a corridor, verandah, or terrace used as an outdoor room, from any part of which the garden is directly enjoyable in any season. Such a feature is not to be found anywhere in the world.

In the climate of our country, as the years pass, the house, a wooden building, and the garden grow older together, under proper maintenance, they turn into a paradise, with the beautiful patina of age all over. Especially in the garden, the foliage grown thicker and the rocks covered with moss, create a charming scene. The sightseer will find in Kyoto and Nara, various masterpieces of Japanese gardens of different styles, connected with famous old examples of architecture.

Outline History of the Japanese Garden

We may note that the general type of the Japanese garden was already established by the fifth century. But they must have been primitive, and we cannot be sure of their form because of insufficient evidence. These developed into the garden of nobleman's mansions, called "Shinden-zukuri" style, (refer to Fig. 1) in the Heian Period (794 - 1185).

In the Heian Period, the gardens were laid out in front of the main building or Shinden. They contained a pond with many islands, artificial hills with water-falls and a level plot with meandering streams. Pavilions attached to the Shinden, named "Tsuru-dono" (hanging pavilion or angling pavilion) and "Izumi-ya" (seats for enjoying the cool air in summer time) were placed along a stream, a pond or a spring. The people enjoyed outdoor life during the day and night, especially in snow, moon, blossoms, and maple season. These scenes are pictured in old scrolls and described in literature more or less clearly, though

only fragmentary evidence actually remain on the sites (refer to Fig. 1) Accordingly, the art of garden-making which had already reached great height of development in this period, may be judged from the magnificent work on the subject, the "Sakuteiki" (Old Record of Gardenmaking) published in that period.

From the end of Kamakura Period to Muromachi Period, about the fourteenth century, the taste and the way of life changed and the style of the dwelling house also gradually changed from Shinden-zukuri to Shoin-zukuri. The style and form of the garden also changed somewhat. The garden of Heian Period, in short, was picturesque, while on the other the characteristic features of the garden of the Muromachi Period were plastic or sculptural through the skilful technique of handling of rocks and treatment of trees. In the Muromachi Period, when the influence of the Ming Dynasty of China was felt even upon our garden-making, this effect was only temporary and transitory, and the art of the garden soon reverted to the old Japanese type. Most of the old gardens now in existence date from the Muromachi Period and the subsequent periods, as the Shoin-zukuri style (refer to Figs. 2, 3, 4, 5, 6, 7), or Dry Landscape type which simulate a water scene. (refer to Figs. 3, 4, 5, 6, 7)

The gardenmaking of pure Japanese spirit made its conspicuous appearance in the Momoyama Period (1574-1603), when "Cha-no-yu" (Tea ceremony) flourished among the people in general. For this occasion, small but elegant gardens were developed according to the creative taste of the designer, and, at the same time, another type, much larger in size, known as the "Kaiyu-shiki", promenading style, which harmoniously combined and thoroughly mastered the essential features of these small gardens, came to be widely favoured. (Figs. 8 and 11) This type of garden on large scale was created for a number of Imperial palaces, and villas for noblemen or feudal lords in the Edo Period (1603-1868). (refer to Figs. 9, 10, 12, 13, 14) Both the famous gardens of Katsura Imperial Villa and that of Shugakuin are the masterpieces of Edo Period gardens and are typical examples of this type. Take the case of the Katsura garden, which has long been regarded as the outstanding example of our landscape art.

Recent works of gardenmaking in Japan, after the Meiji Restoration (1868), may well be regarded as only the imitation and application of European garden styles. Thus, we cannot discover in them the pure Japanese traditional spirit, or even a modern sense of originality.

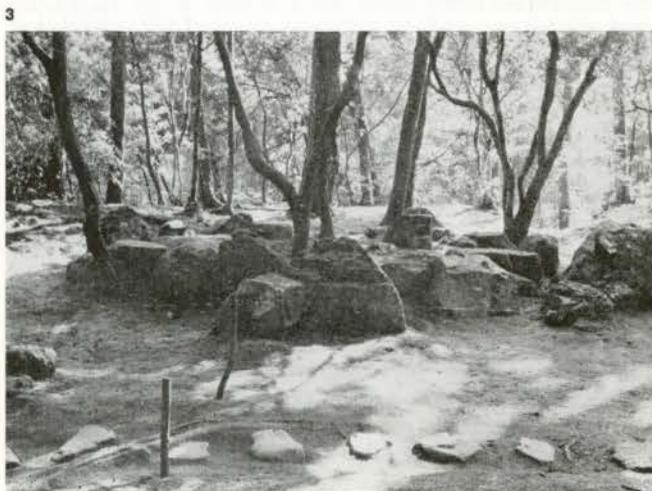
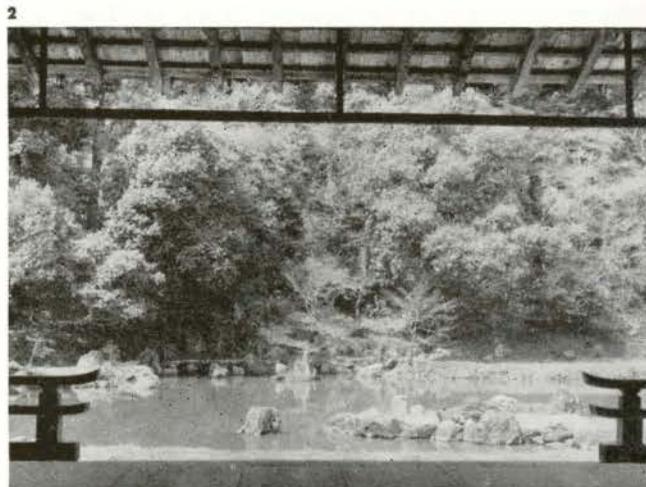
On the other hand, it may be mentioned that Japanese gardens are being imitated in growing numbers in Europe and the U.S.A. But often the real truth concerning Japanese gardens has not been thoroughly understood, and the result of mere imitation has left much to be desired. We hope that the day may soon come when the true worth of the Japanese garden will win complete recognition throughout the civilized world.

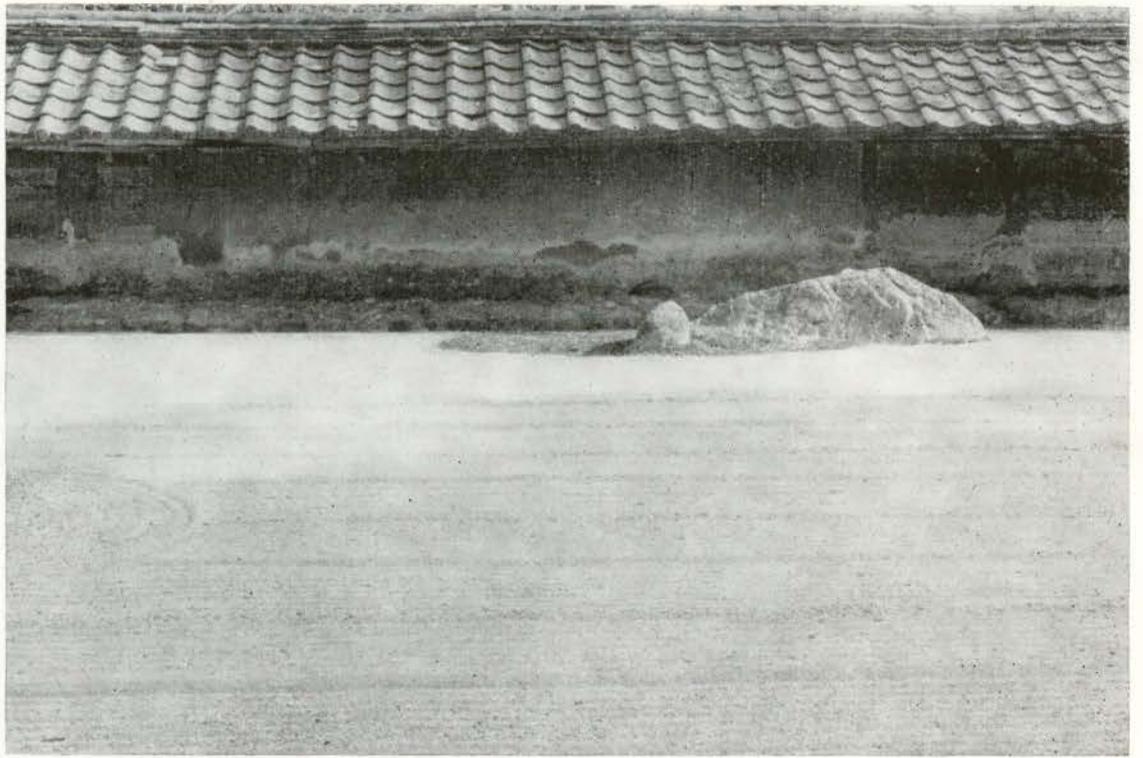
1) *Scenery of Osawa Pond of Daikakuji Temple, Kyoto*
The site of the Former-Detached Palace of Empress Saga (876). There is a large pond and a waterfall site, "Nakosono-taki", about which many Japanese poems have been written.

2) *The Garden of Tenryu-ji Temple*
On the site of Kameyama Detached Palace, during the Kamakura Period, a temple named Tenryu-ji was established in 1341. The garden was laid out on the western side of the "Hojo", superior's quarters, a dwelling room of the Kitadono of the Palace. Thus the garden of this temple is a living example of the Shinde-zukuri tradition. A large pond stretched along the foot of the hill, forming a waterfall, (now dry) with a splendid grouping of rocks.

3) *The Dry Landscape of Saiboji Temple*
The garden of Saiboji temple was made by Muso-Kokusbi at the end of Kamakura Period (1339). The famous Zen Priest himself supervised the construction of the temple buildings and directed the lay out of the garden. The natural topography is well utilized, "Karesansui", a so called Dry Landscape being created by an artful grouping of rocks.

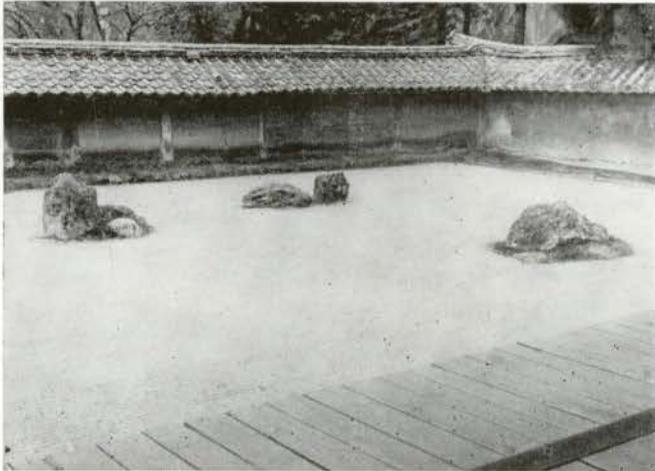
4) *The Rock Garden of Daisen-in (Daitoku-ji)*
Having no artificial hills nor even a flow of water, this garden is constructed of rocks and trees, an effect to create the atmosphere of a high mountain and a rapid, in a narrow, very limited area. The most important characteristic of this garden is the successful application of the rules of perspective in its construction. Two large rocks, and trimmed trees behind them, at the northeastern corner of the garden, suggest a waterfall. Below this waterfall, the imaginary stream being represented by white sand covered with thick moss, is made to gush down and tumble over rocks, finally dashing against the rocks alongside the corridor of the Shoin.





6

5



5) 6) *The Rock Garden of Ryuan-ji*

A remarkable rock garden of the middle of Muromachi Period (1499). No trees or grass can be seen, only fifteen rocks arranged in five groups of two, three and five on level white sand. It apparently shows the garden in its original condition undisturbed by the growth of living plants. Having applied the principle of the golden section, the plan of the garden shows perfect balance in its design.

7

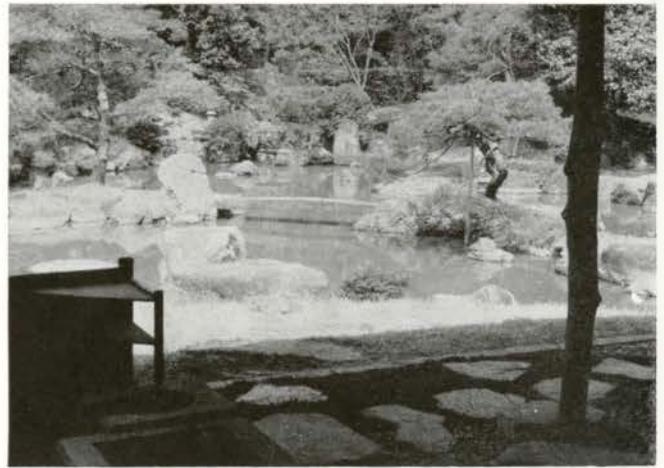




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9) 10) Katsura Imperial Villa

In the beginning of "Edo" Period, Prince Toshimoto of Hachijo-no-miya had a villa constructed at the western suburbs of Kyoto, of which he himself designed the pavilion and garden.

In the main garden of the Katsura Villa, is a large pond — a site related in literature to the Tales of Genji, and the following four tasteful pavilions, designed for tea ceremony, and situated in appropriate places in the garden so as to be suitable for enjoyment at different seasons; Shokatei for use during spring, Shoi-ken for summer, Geppa-ro for autumn, and Shokintei for winter. Along the shore are stepping stones exquisitely placed, rocks of interesting form elegantly grouped, and monolithic bridges of various shapes excellently distributed. This part of the garden is a consummate masterpiece.

The illustration shows the whole view of Shokin-tei (Fig. 10) and the space under its deep eaves. (Fig. 11) The verandah is quite narrow, leaving the greater part of the space for an earthen floor where stepping

stones are laid and pebbles strewn. This forms a connecting link between the garden and the building, the spatial harmony between the two being exquisitely graded. In its construction are used natural logs with the bark left on, for pillars and beams — the natural surface is left exposed. Clay cooking stoves, built into a small platform attached to the verandah, are simply designed as befits a mountain retreat.

8) 11) *Daigo-ji Sambo-in*

It is recorded that Hideyoshi Toyotomi, conquerer during the Momoyama Period, himself visited this place in the spring of 1598, and directed the layout of the garden. But unfortunately Hideyoshi died a few months later, and Giyen Jugo, the Monk of the temple, fulfilled Hideyoshi's wishes and completed the work fifteen years later. During that time he succeeded in gathering famous rocks and beautiful trees from various gardens in and around Kyoto, such as the celebrated rock "Fujitoshii" and weeping cherry blossoms. This is a good example of the Momoyama Period.

12)-14) *Shugakuin Imperial Villa*

The Garden of the Shugakuin Imperial Villa was constructed in the Meireki era (1654-1658) under the Ex-Emperor Gominoo. It has splendid surroundings, located on a slope with Mt. Hiei serving as its background. It consists of three separate gardens: Upper garden (Fig. 12), Middle garden (Fig. 13), and Lower garden (Fig. 14.). The Upper garden was planned on a much greater scale with a large pond, called Dragon Bathing Pond, and created from the damming up of many hillside streams. It covers the greater portion of the Upper garden. Compared to it, the Lower and Middle gardens are much smaller in scale. These gardens are regarded as models for landscape gardening.

15) *Kobo-an of Daitokuji*

The Kobo-an was originally built as a place of retirement for Kobori Enshu, a famous architect of Momoyama — Edo Period, but after its destruction by fire in 1790, it was reconstructed by Matsudaira Fumai, a feudal lord. At that time, the original plan of the Bosen — the room of tea ceremony — and the layout of the roji (step stone) on the west side of Bosen, was faithfully reconstructed by successor Lord Fumai. The illustration shows the relationship of the garden with architecture. When the paper screen is opened, the beautiful sight of Roji presents itself like a screen with a beautiful painting on it. It seems like a terrace because the stepping stones are half-buried in the paved floor; and along the corridor and under the eaves the level ground is covered with pebbles, no earth being exposed.

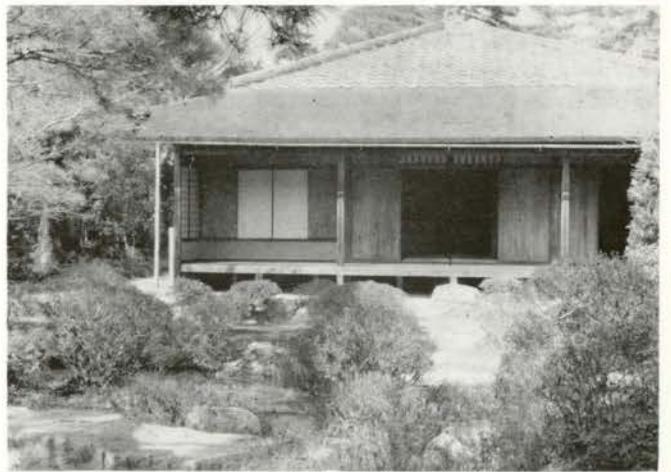
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14



15



IT IS SOMEWHAT UNFORTUNATE that the word 'art' has, in popular use, become specially associated with picture painting, for this, although it is an art capable of great range and power, is only one and a highly specialized form of art which is not, at the present day, closely inwoven in the affairs of daily life. It held a higher relative importance before literature became the possession of all and when pictures were a more necessary means of public instruction and edification. Pictorial art in becoming more widespread and varied in matter and form has lost the intensity of interest that it once had. Works of architecture and of craftsmanship enter more generally and more intimately into social life. They are necessary to all and may be said to be produced by the community itself. They derive their forms from the use and acceptance by the general public expressing these closely. This is especially true of the minor tools and utensils. Pottery, a very humble adjunct of our lives, is the most widespread and most eloquent of the arts. As in other arts, the most important thing about it is not the efficiency with which it serves its uses, but the pleasure of seeing that it gives. When we feel strongly this delight in our little possessions, they become dear to us and criticisms of their functional defects are impertinent. They are part of ourselves and cheer our eyes in our daily occupations. This is the basis and root of our appreciation of beauty. H. Read well says of the art of pottery: *We surrender ourselves to this art with that immediate joy in perception which is the first and final sanction of aesthetic experience.* Andrew Lang acknowledges the spell of beautiful pottery:

*There's a joy without canker or cark,
There's a pleasure eternally new,
'Tis to gaze on the seal and the mark
Of China that's ancient and blue.*

Architects' offices are subject to periodic invasions of samples of colour in flat paints, enamels, tiles, plastic surfacing and sometimes in textiles. We may experiment in placing these side by side, by two and two, considering that these two go charmingly together, whereas another pair just quarrel. This is the pure judgment of the eye and, so far, you cannot do any more about it. But, supposing that you want to employ these things in a particular place, other considerations arise. They must express the mood or feeling of the place. This also the eye judges. They must be of a quality that will last under use. Here we use our intelligence. The good or evil purpose of the place is a

matter of morality.

When an architect has before him the problem of designing a building he probably begins, if the problem is large and complex, by covering a number of sheets of paper with arithmetical calculations. His essential problem, however, is to adjust many materials to human service. In order to create an intelligible order out of all the requirements it is natural that he should resort to mathematical and geometrical principles. The law of gravitation makes inexorable demands, disguise them how you may. The level and the plummet are its chief expounders. Vertical and horizontal lines are its visual representations. The first approaches to his work appear to be purely an exercise of reason. But he cannot divest himself of his humanity. He cannot make any success of his work unless, throughout all, his sympathy for the human purposes and operation of the building, his emotions and his sensitivity to beauty, are not also involved in his work. These constantly have their influence upon the direction of the lines of the work. Mathematical ideas form a controlling basis for all works of nature or of art. Vertical and horizontal lines are the bases of all mathematics and in early types of architecture they are predominant. But, just as in nature, these bases are not what appeal directly and with most satisfaction to the eye, because a complexity of forms creates another source of interest which submerges that of the underlying and controlling order. The stark triangles of the Egyptian pyramids poorly satisfy the eye as compared with the frequently employed pyramidal composition of more diversified buildings. In the paintings of the old masters a simple basic line of direction, unobserved by the entranced spectator, gives unity, power and eye-satisfaction to the whole picture. The eye appreciates it before the reason detects it. It is too much the fashion to point out the structure of a picture as if that was one of its chief merits. The highest art is to conceal art. The dissection of bodies is serviceable to the surgeon and that of paintings may be useful to the painter. The appreciation of health and of beauty are the concern of the public and of the spectator.

There is an old saying that "beauty consists in harmony with diversity." This gives an interesting clue to the process of creating what is beautiful. Harmony suggests a vital relationship permeating a group of things. Diversity suggests a complexity of varied elements upon which it is the business of harmony to impose law and order. For beauty is a fluid spiritual essence that can only become reality on

encountering the resistance of matter and can do so only when that matter has a certain "composition of colour and figure" which admits its flow. Creation of order is the first thing needed for harmony. The straight line, the circle and other simple directive geometrical forms bring order out of chaos and confusion. The material stuffs at the architect's disposal must be made to conform to such order as will fulfil human purposes and needs. In fulfilling these we find that due proportion must be observed. Proportion is a mathematical idea whose control must be observed. Proportion means one size in relation to another. This applies both to the sizes of material things and to the relation of these to human needs and uses. It would be reasonable that a doorway should be made of a size and proportion of width to height to serve the convenient passage of a man. It would do this if it were about three feet wide and six feet high. In that case the height would be two times the width and it would be something vertical rather than horizontal. For quite good reasons the majority of doorways in Canada today are actually two and two thirds feet wide and six and two thirds feet high—a proportion of about one in width to two and a half in height. If this gives satisfaction to the eye it is not because of its precise mathematical proportion, but because in many circumstances it looks well. If in some cases we think it does not look well we adjust it regardless of the exact figures of proportion. Both reason and emotion have their say. Practical use may require a much wider doorway or, in an important building, the air or feeling of a building may ask for a very large doorway. This is an emotional reaction. This simple example may illustrate the elements which enter into the consideration of proportion—use or function, mood or emotion, with the eye or satisfaction of the sight demanding beauty.

During the period of history when what we call renaissance architecture was in vogue the idea of proportion became very prominent in the minds of architects. Since some very beautiful buildings were produced by these men it is very much worth while to pay some attention to their ideas. It is true that they planned buildings that would be inconvenient for our uses. These were not inconvenient in those days when human servicing was in good supply. It is also true that they had a much smaller range of materials and methods of work than are available today. What is important to notice is that they produced buildings which, both externally and internally, are a joy forever. This ought to make us pause and consider whether we have even approached their level of achievement in that respect. In the light of their qualities and not of their defects let us consider the principles that they applied to their work. These principles are concisely expounded in many written works that they produced. When we look at their buildings, however, we find that they took considerable liberties with these principles, always using their eyes as the true and final judges. They considered that the ancient classical "orders" were examples of beautiful design, as indeed they are. It was their eyes that told them this. They produced in their published books various versions of these, none of which agree precisely with actual ancient examples. It was all a matter of satisfying the eye. Whatever might be the proportions and groupings that they adopted and however anxiously they stated these in geometrical terms, all were

referred to and adjusted by the eye as the final judge. One of the most frequently applied formal rules was that of symmetry about a central axis. This occurs in nature in the forms of all the higher animals. It serves a functional purpose in giving great flexibility of movement and general adaptability. It also succeeds in clothing a great variety of internal organs. The renaissance architects found no difficulty in adjusting the interiors of their very formal plans to serve successfully many diverse requirements. The formal arrangements of their exteriors also admitted many features of variety and interest. By the use of varying proportions they expressed the functions of each storey and gave the appearance of the whole an organized unity, a complete harmony, a thing of beauty. Their weakness and failure, if that it can be truly called, lay in the extremely small limits within which they worked. To observe limitations is an artistic and an economic virtue. Today we have wider bounds and more varied purposes and we do not so earnestly seek after beauty.

At the present day we have cast off the architectural garments of that past time. They were splendid in fit and colour, suited to the sentiment of their day, but had become soiled by much and long ignoble use. They no longer fit our younger limbs. So we stand stripped for a plunge into the rushing waters of today. Old manners are gone and we have yet to lend grace to the new. We have decided to enjoy more of fresh air and light, to stir around more freely, to be less imprisoned in boxes which limit all-round vision, to be clean. Yet neither open exposure nor entire nakedness is advisable. It is better to wear some clothing if only for the delightful contrasts offered between flesh and textile in colour and in flow of line. It is better too to provide ourselves with frameworks of rigid and well formed structure. The skeleton does not appeal to us as so beautiful when bared as it does when clothed with flesh. It is an excellent functional base. Architecture that is purely functional is the skeleton without flesh. We just cannot afford to let beauty go into the discard. It is necessary to the joy of life and to the will to live. The principles of beauty remain the same, fulfilling themselves in many ways as has been demonstrated many times in many countries.

The eighteenth century architects paid great respect to proportion, but always as it appealed to the eye. They did not lose themselves in mathematical mazes as some modern writers do. The geometrical basic proportion is equality—as one is to one—from which all others vary by degree. The basic geometric forms are the line, straight or curved, the sphere, the circle and the square. The sphere alone is of invariable proportions from all points of view. The circle is circular only in normal view. From all other points it is an eclipse varying in narrowness to a straight line. The square or the rectangle, except in normal view, are trapezoidal forms. To the vision a cylindrical object such as a column can appear as just so many diameters in length from one given distance only, for the eye can see only a certain amount of its diameter at each position. Upon a drawing on paper we see it as if from infinity. We do not see actual objects from that distance.

Even in the most primitive conditions men have felt the beauty of nature. As the mastery of nature increased, the accompanying intimate acquaintance brought still wider

appreciation of nature's wonder and beauty. The first human needs were secured through hard contest against nature's unknown and untamed forces. The Greeks made the first tremendous step by noting the reign of law in nature. Nature is subject to regular law, not to caprice, and, by understanding these laws, men could turn them to their own service. In creating works of art it was natural that they should first apply the simpler mathematical laws and geometrical forms — the force of gravitation, the straight line, circular and rectangular shapes, horizontal and vertical directions. The keen appetite of their eyes used these as the bases of refinements and of subtle adjustments that raised these simple forms to works of highest beauty. Broadly, however, the simplicity of the general lines of these works made them stand out in direct contrast to untamed nature. They also stood out in contrast to the turmoil of daily life around them. To look at a fine temple was a discipline to their lives. The medieval builders — less intellectually capable — struggled less successfully with nature, dimly recognizing her laws by experiment rather than by scientific methods. At the same time they took great delight in applying their small knowledge of geometry. They revelled in the many patterns they could make in their traceried windows and in the forms developed in their vaultings, culminating in the masterpieces of fan vaults with their astonishing inverted conoids. They also embodied in their works certain natural qualities and even principles of structure and of beauty which the Greeks avoided or ignored. Thus their work is more harmonized with surrounding nature. It has more variety and a picturesque if less disciplined quality. The more rationally controlled work we call classical, the less rationally controlled work we call romantic. The quality of beauty enters into both. The less mathematically determined features that delight the eye in natural scenery enter not only into medieval work but also into a number of our modern utilitarian structures and into most domestic building. As an architectural resource it was most consciously aimed at by the baroque architects whose fantastically contrived towers, turrets and gables frequently achieve charming effects. At the present day we hesitate in a dilemma between the classical and the romantic. How happy could we be with either.

Some writers, with high title to respect, tell us that if only we do our work with thought and care "beauty will look after itself." This would imply that science and precision alone produce beauty. These are, indeed, apt to produce something satisfying to reason but not necessarily what is a joy to the eye. Beauty does look after itself in the work of a man who carries within himself habitually the sense of the joy in seeing. It keeps breaking out in spite of himself. This particular delight is much more than the mere desire to enjoy passively what the senses find good. It is the

ambition to create the beautiful, the feeling of a duty incumbent upon humanity, the demand to create the joy that beauty brings. This appetite is an inherent quality of our nature capable of cultivation in the individual and in society. It thus becomes a sign of culture of a quality that science and morality alone cannot produce. More than anything else it sustains the will to live. Reason treads a toilsome path bound by the iron chains of law. Morality receives its best impulse from whatsoever things are lovely. Stern puritanic morality revolts the common humanity within us. Beauty brings joy to life by creating harmony within life. That it does not originate in reason is evidenced by the fact that some of the finest artists are not distinguished by high intellectual gifts or moral qualities and that their work is sometimes described as poetic inspiration or even frenzy. When the poet Shelley describes a skylark he begins by telling us that it is not a bird — hardly a scientific statement. He concludes:

*Teach me half the gladness
That thy brain must know;
Such harmonious madness
From my lips would flow
The world would listen then,
As I am listening now.*

The description may be madness but it arouses the joy that beauty brings in a way that a scientific account could not do, however careful and accurate it might be. It may be noted, however, that Shelley constructs his poem on mathematical principles of order, carefully measuring out his lines and alternating his rhyme words, bending intelligence to the sway of beauty and withal conveying the rapture of the skylark's song.

When an architect, or any other artist, has by hard thinking, reached a solution that succeeds in fulfilling the functional purposes of his work and which determines its general form, and when he has sketched this out he knows well that he has not yet finished with his problem. He has still to adjust its shapes, colours and textures to the importunate and insistent appetite of the eye. Something of this has all the time been working within him. To take the final hurdle he calls upon his imagination, that image making and creative fancy which enables us to see the shape of things to come. So far reason has aided him with its knowledge of laws, of mathematics and many wholesome rules and regulations. Yet at the demand of the eye he may feel justified in over-riding some of these. The eye must be stirred to delight. Beautiful work is most beautiful when it embodies intelligence and good purpose; but the laws of reason and ethics are not the laws of beauty; it has its own and these are of the senses.

All human work has as its end the making of this earth, our home, more beautiful, that "as (God) watched creation's birth, so we, in godlike mood, may of our love create our earth and see that it is good."



Aerial view of model from south-west showing Wellington Street front and the auditorium wing

The National Library and Archives Building Ottawa, Ontario

Architects, Mathers & Haldenby

The National Library and Archives Building will occupy the most westerly site on high land facing the river north of Wellington Street in Ottawa. In its design the architects have departed from the time honoured practice of designing government buildings in this area with steep pitched roofs and Loire valley detail.

While the Norman roof will be missing, nevertheless the building will have a distinctive silhouette and an individual character in keeping with its surroundings. Its scale is monumental and its architectural features are orderly and simple. The present intention is that the walls will be of Canadian grey granite similar to that used in the Supreme Court building.

The plan is based upon the principle that reading rooms and working areas should have direct access to the stacks, and it therefore provides a ring of reading and working areas surrounding a central core in which are not only the stacks but also all of the fixed utilities such as wash rooms, stairs, vent stacks etc. Storey heights in the central core are 9'0" and in the perimeter areas 18'0". Thus reading rooms and working areas are two stack tiers in height.

Structurally the building will be a reinforced concrete frame using flat slab construction in the core, and beam and girder for the perimeter areas, which have a clear span of 40 feet.

The building will be mechanically ventilated with controlled humidity. Summer cooling will not be provided.

An auditorium to seat 350 complete with projection room and acoustically treated is an important feature of the design. This auditorium will be used for lectures, meetings and small concerts. It will not be used nor equipped for dramatic productions.

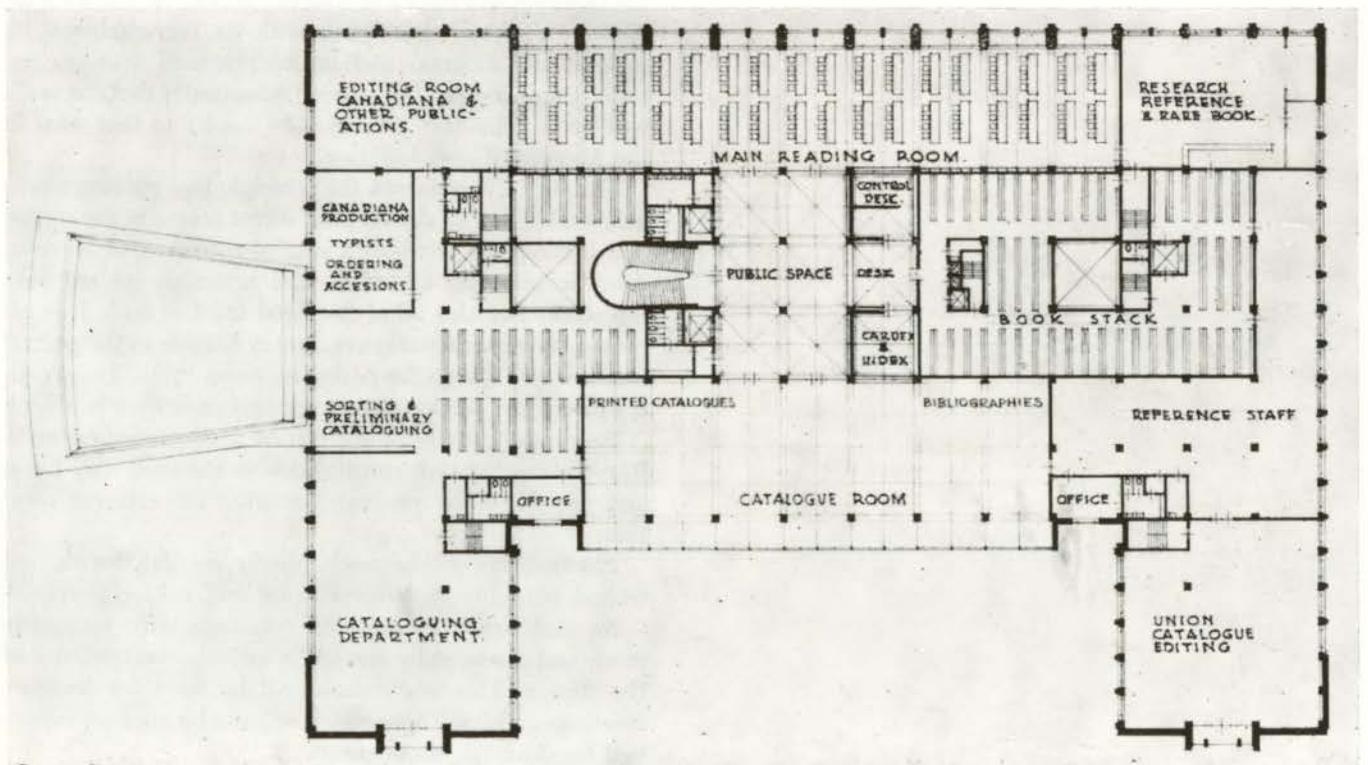


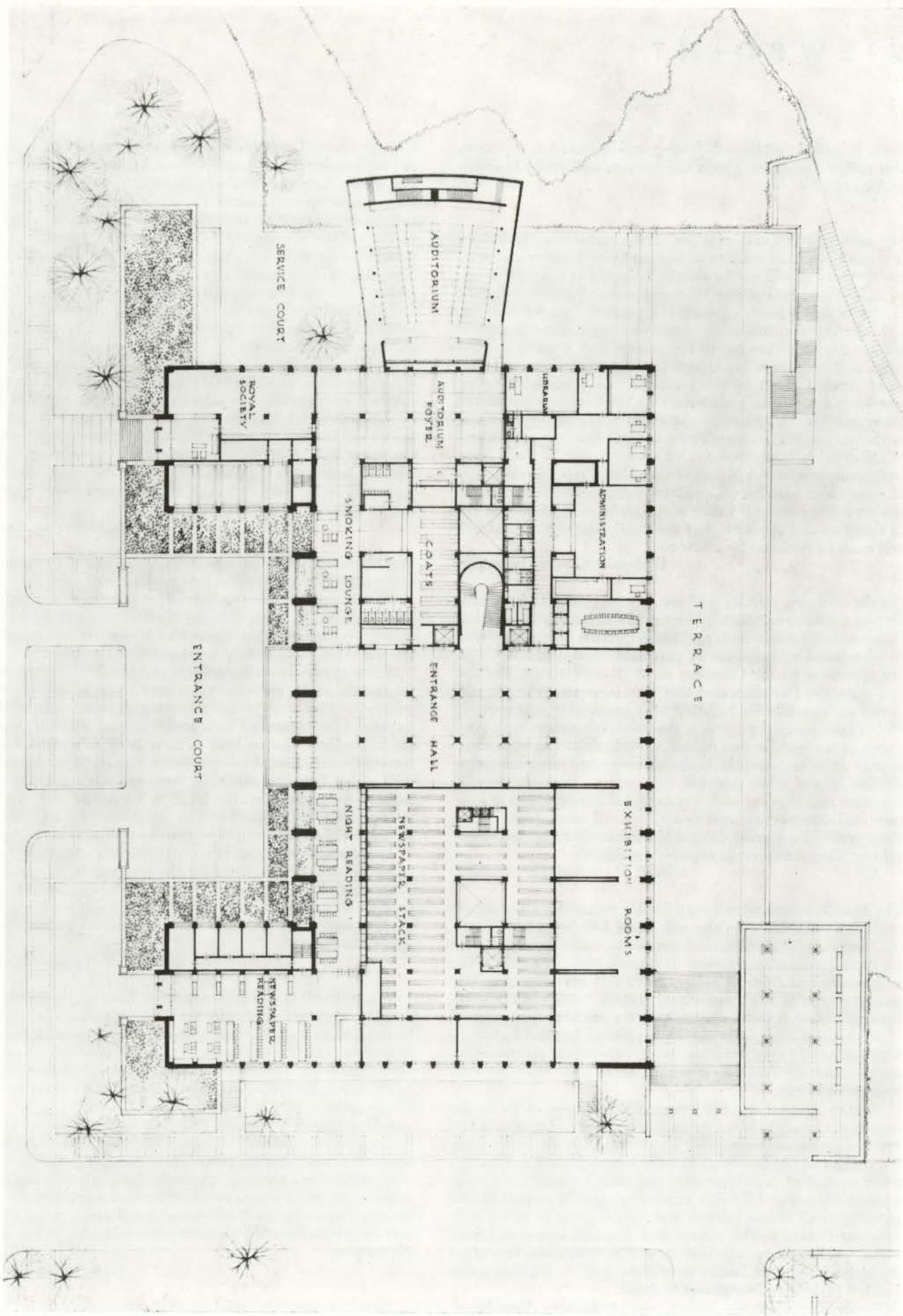
View of model from north-west showing auditorium wing and the terrace terminating the wall

The National Library and Archives Building, Ottawa (cont'd)

Architects, Mathers & Haldenby

Second floor





VIEWPOINT

Is the so-called curtain wall forcing architecture into a pattern that will, if continued, give a monotonous uniformity to urban architecture?

My answer to the question is "no". If the curtain wall technique is a good practical modern technique there is no reason why the designer should not be able to make the best aesthetic use of it. The variation of possibilities is certainly unlimited. As a matter of fact I have, up until the present, found confusion, lack of unity and too much of too obvious pattern the much greater danger of the use of the curtain wall. I often find the large and sometimes crude and unstudied checkerboard patterns brought about by the joining of sheet materials rather worrying. I am equally disturbed by the confused use of too many materials. A little more uniformity might be very soothing in the pattern of our cities. The unity and simplicity of pattern of either brick, stone, or wood, or a combination of these three basic materials, which is part of the relaxed quiet background of some older cities, is disappearing from our modern city. At the present we are in the state of the nouveau riche, who is apt to overplay and show off, but eventually the older unity will and must be replaced by a new one.

Wolfgang Gerson, Winnipeg

On the contrary, curtain wall construction should give architecture a greater variation in the use of shape and colour rather than condemn it to a drab uniformity. This is particularly true in connection with the use of porcelain enamel panels which are appearing on the Canadian scene of architecture. For the first time, the Canadian architect may incorporate bright and varied colours into his building with reasonable assurance of their permanence. In essence, the so-called curtain wall construction is a modular design, and, as such, should have no more impact upon architecture in the above regard than the introduction of any other modular unit such as brick. It is quite apparent that if every architect designed his buildings in curtain wall construction and abandoned all other forms, then there would be a great danger of monotonous uniformity resulting. This, however, is extremely unlikely.

Allan R. Haywood, Fort William

The so-called curtain wall, very loosely named for a variety of continuous claddings on the outside of buildings, is perhaps the terminal glib architectural answer to man's general desire for more light and more view. It started with the corner window, continued through strip windows to the present Lever Building type of two dimensional surface totality. This same Lever Building, if seen at night, will give the lie to the integrity of this type of design, for then it becomes a banded building. A full street of Lever Buildings is a grimly brittle nightmare to contemplate, as would be a waterfront of only Mies' type of apartment blocks.

Neither Alban Berg nor Stravinsky has gone as far as to reduce his music to three notes played in an ad nauseam repetitive contra-puntal manner as we are presently doing with the surface of our buildings. On the contrary, their treatment, while controlled, is richly varied and complex within a simple musical statement. Likewise architecture should respect its responsibility to create interest and give dignity in street and urban architecture. The outside wall deserves logical and sensitive consideration to this end, as well as to its many functions throughout the year, before a "curtain wall" is decided upon and left to the glass companies to detail.

F. Lasserre, Vancouver

Gay, or subdued, panels of clear colour, increased transparency or translucence of the envelope wall, lightness and elegance of line, clear articulation of the wall as a skin, interplay of interior and exterior space volumes, these are the dominant aesthetic potentialities of curtain wall construction technique. Adherence to the precise dimensions horizontally and vertically of the panel module is its limitation. However, it is debatable if the discipline of dimensional coordination is detrimental to architectural design. It may be the essence of urbanism. Ictinus, Palladio and Corbusier have found in mathematical systems inspiration rather than limitation. Their results were neither monotonous nor uniform.

Architectural monotony comes not from a structural or even a design system. In individual buildings it is the product of untalented designers; in the urban scene it is the result of inept city planning and development. If sky, clouds, trees and open spaces are mirrored in the curtain walls of the new urban areas the result will be far from monotonous. If more curtain walls sixty-six feet across the traffic alley make the image, the result may well be a monotony only slightly more lively than the monotony of other ways of building.

James A. Murray, Toronto

Yes. I think that if the present trend is continued, a monotonous uniformity of urban architecture is inevitable.

Curtain wall provides an interesting solution to a design problem and, by its nature, achieves effect through pattern and colour. Its failing is that it provides almost no opportunity for interest through modelling, by depth and shadow.

A row of curtain wall buildings, one beside the other, would be certain to be monotonous — and there is, of course, no guarantee that designs for adjoining curtain wall buildings might not be conceived independently and simultaneously. I think, however, that as long as there is opportunity for architects to do something fresh and interesting, such as with curtain wall, either between adjoining masonry buildings or on a site isolated geographically, the trend will continue, but it is also my opinion that the trend will die out reasonably soon through having reached what might be called a design saturation point.

An interesting warning concerning use of curtain wall is that, in my opinion, it is essential for the architect to obtain control of the material and colour of the window drapes which, in this type of construction, gain an importance not found in other types of construction, and, in fact, become an inherent element in the design.

Blake H. M. Tedman, Toronto

I think it would be a welcome relief to have a monotonous uniformity to urban architecture but I hope it will not be achieved by the curtain wall. Like most design developments it has finally reached Toronto and has been adopted wholesale as a decorative feature rather than a structural system. It is most popular as a covering for the service stair of the present crop of low cost luxury apartments.

I do not think it will last very long as new design elements will become the fad and the many cheap installations are bound to result in maintenance problems to discourage the landlords.

I believe that a prospect approaching monotonous uniformity is necessary to achieve a successful urban scene but it will be achieved again by a refinement of detail and a sense of scale and neighbourliness which is at present lacking in our design philosophy.

G. E. Wilson, Toronto

NEWS FROM THE INSTITUTE

RE-APPOINTMENT OF RAIC COMMITTEES

Council of the RAIC confirms the re-appointment of the Chairmen and members of all Standing Committees, Special Committees, the Editorial Board, the *Journal* Committee and the representatives of the RIBA Council, the Canadian Arts Council and the Canadian Standards Association, for 1955-56.

ONTARIO

Several years ago I left Toronto to establish a practice in a smaller Ontario city. Since then it has been fascinating to watch the growth and development of the larger city, and its surrounding communities.

Of the many planning problems that must have arisen, in the tremendous postwar growth of the city and its suburbs, the most noticeable to an occasional visitor are those directly attributable to the large increase in motor transportation. The dense downtown traffic, the handling of rush hour traffic, inadequate parking space, the integration of highways into an already overloaded system of city streets, the difficulties of everyday shopping, and many other problems have been and are a challenge to the wisdom and ingenuity of the authorities in finding solutions to them. Much has been done, and I am proud to note that members of our own profession have spent much time and effort through Chapter Committees, in assisting the authorities. The completion of the subway, the accent on town planning with the adoption of parking by-laws, and the many new provisions for traffic and parking have all been steps in the right direction and excellent in themselves, and to some extent have solved the immediate problems. Much remains to be done, and it is to be hoped that more of the members of our profession in the city will be actively interested.

One unsolved problem, particularly annoying to the occasional visitor who must visit the downtown business sections, is the inadequate parking facilities in the downtown area. From my own experience I am convinced that at any time after ten o'clock in the morning it is impossible to park a car anywhere south of Wellesley Street, in the centre of the city. I know that parking facilities in that area would be expensive, but surely city authorities could make it possible by gift of land, subsidy of cost, or consideration in taxes. I hope that someone comes up with the solution to that problem soon. I point to Edmonton where a step has recently been made in that direction. Unless I am misinformed, Edmonton authorities have cooperated with private corporations to provide parking space in the downtown area. If this is possible in Edmonton, why not in Toronto?

Charles H. Brooks, Brantford

LA SOCIÉTÉ DES ARCHITECTES DU DISTRICT DE QUÉBEC

A leur dernière réunion mensuelle, tenue au Cercle Universitaire, les membres de la Société des Architectes du District de Québec avaient l'honneur d'avoir parmi leurs convives le président de l'AAPQ, Monsieur Edward J. Turcotte (F). C'est maintenant une tradition établie à Québec de recevoir le président provincial au dernier dîner de la saison. M. Turcotte qui fut présenté par M. Edouard Fiset, fut remercié par M. Oscar Beaulé, ancien président de l'AAPQ.

M. Turcotte, qui nous avait parlé du futur immeuble de l'Association, demanda aux architectes de Québec de donner leur opinion sur ce projet. Une chaude et intéressante discussion s'ensuivit et plusieurs suggestions furent proposées.

On passa ensuite aux questions d'intérêt local et enfin le tournoi de golf provincial fut mis en branle. MM. André Tessier et Gérard Venne furent nommés responsables de l'organisation générale de cette initiative qui aura lieu à Québec à la fin de l'été. D'autres membres leur seront adjoints. On y reviendra . . .

Noel Mainguy, secrétaire

OBITUARY

John R. Boyde died at his residence in Windsor on June 19th after a short illness.

Born in Buffalo, New York, Mr Boyde came to Hamilton, Ontario in his youth where he began his architectural career in the Robert Clohésy firm. In 1906, he assumed charge of the drafting room of the Albert Kahn firm in Detroit, Michigan, where he had a large part to play in the construction of the General Motors office building and the many other automotive buildings that sprung up rapidly in those years. It was while in this position during World War I, that he travelled throughout the United States designing and supervising the construction of military installations.

In 1920, Mr Boyde moved his office to Windsor to become architect for the diocese of London. While it would be impossible to enumerate the many ecclesiastical buildings designed by him, certainly among his outstanding Gothic works are St. Peter's Seminary and Brescia Hall in London, and Holy Name of Mary Church in Windsor. The soundness of these buildings today, a quarter of a century later, is testimony enough to Mr Boyde's skill in Gothic design.

While his first love was for the classical style, Mr Boyde was active in the last ten years of his life almost exclusively in designing modern, low-cost, functional schools for the suburban areas of Windsor.

PRIZES AND AWARDS

The School of Architecture, The University of Manitoba, announces the following awards made at the end of the session, 1955.

Fifth Year

University Gold Medal to Arthur J. Mudry
Royal Architectural Institute of Canada Medal to Claude de Forest
Bachelor of Architecture Thesis Prize of \$50 to G. Blum
Junior Chamber of Commerce Competition — \$40 to S. S. Schmidt, \$40 to C. J. Stovel, \$20 to J. R. Roberts

Fourth Year

Manitoba Association of Architects Scholarship of \$150 to H. J. Kinoshita
Canadian Pittsburgh Industries Scholarship — \$75 to G. Bargh, \$75 to H. J. Kinoshita, and Special Problem, Design III, Prize of \$100 to G. Bargh
W. Allan McKay Memorial Scholarship of \$100 to H. J. Kinoshita
Kool Vent Awning Prize, \$150 — \$50 to G. Bargh, \$50 to H. J. Kinoshita, \$50 to D. S. Stevens
J. G. Fraser Ltd. Summer Sketch Prizes — \$5 to Henry Kalen, \$5 to H. J. Kinoshita

Third Year

Atlas Asbestos Company Limited Competition, \$200 — \$100 to W. J. Neish, \$65 to V. Alers, \$35 to D. E. Lehrer
Manitoba Association of Architects Scholarship of \$150 to J. R. Cook
Ralph C. Ham Memorial Scholarship of \$200 to V. Alers
Sidney Alexander Adams Memorial Bursary of \$100 to R. Lane-Smith
J. G. Fraser Ltd. Summer Sketch Prizes — \$5 to V. Alers, \$5 to J. R. Cook

Second Year

Isbister Scholarships — \$80 to W. Toporek, \$60 to E. Gaboury
W. G. McMahon Limited Scholarship of \$100 to D. R. Wall
Victor Boyd Memorial Bursary of \$100 to E. Gaboury
David Lacey Cowan Memorial Bursary of \$100 to W. J. Toporek

First Year

T. Eaton Co. Ltd. Scholarship of \$285 to Monica Michalak
Donald Spurgeon MacLean Memorial Bursary of \$100 to J. J. Farrugia

OPENING OF OFFICE

Mr Norman Sherriff, B.Arch., MRAIC, Architect, has opened an office at 272 Somerset Street West, Ottawa, Ontario.

LETTER TO THE EDITOR

Sir,

Viewpoint of May was answered by three professors. Excluding the very "definitive statement" of Professor Adamson, whose masterpiece of understatement was a sheer delight, the views of Mr Barker and Mr Bland deserve, in my eyes, some further explanations.

Both Mr Barker and Mr Bland are uncompromisingly positive in their views. Unfortunately for Mr Barker he clouded his position by identifying aesthetic principles with religious creeds. What happens then if the architect changes his belief? We, who practise in the Toronto area, have become recipients of too many stories by graduating students of the local school, who recall with glee the vacillation of some of the professorial staff in the field of stylish clichés. However, Mr Barker says that "abandonment of architect's convictions would be moral defeat . . .". When does abandonment end and change begin? Should the change of aesthetic values in a *client* be defined as a mere "whim", but a similar change in the *architect* described as the logic "of progress and refinement" as Gordon Adamson implies? I cannot believe that the problem can be stated as simply as that. Mr Barker knows, I am sure, that all religions (excepting the Greek interpretation of the cosmic order) must be based on authoritarian dogmas valid for all times. Aesthetic creed, however, allows far too great a latitude to be subject to any universal regimentation, especially so in times of continuous experimentation and as yet uncrystallized forms and ideas.

As for Mr Bland, his own recent experience with the Vancouver competition could conceivably teach him a proper degree of humility. Surely, it becomes obvious that the architect, by mere gesture of entering a competition, automatically endows the jury (few members of which being laymen) with his full authority to pass judgment upon his sense and mastery of aesthetic values. Logic would have it then that there may be a very thin line dividing the rights of a client-jury from the rights of a client, pure and simple.

The new concept of Life and the re-evaluation of human beings who habitate our globe has been the mainspring of modern architecture for over two scores of years. Wright, Saarinen, Corbu and Neutra, all mentioned by Mr Barker, keep on returning to MAN on nearly every page of their writings. I would recommend to Mr Barker a reperusal of Neutra's address to B.C. students, published in the February number of the *Journal*. He would learn then about the difference separating the dead issue of mere Form and Space from the burning dynamics of Life and Man. And since MEN form the very cadre of living contact for the architect (not speaking about their usefulness as clients) it is regrettable to find our priests of design reverting back to the isolation and detachment of nineteenth century architects and embracing the barren concept of "s.o.g. who think they know it all" (the very excellent Tony Adamson again).

Yours truly,
G. K. Pokorny

BOOK REVIEWS

BUILDING CONSTRUCTION ILLUSTRATED by Denzil Nield, ARIBA. Published by E. & F. N. Spon, London; British Book Service (Canada) Ltd., Toronto. Price, \$4.25.

The author is understandably modest in his claims for this book, which is "an attempt to put in one volume very simply and without much detail the general picture of building construction as it is practised in good-class work." His public is intended to be "apprentices, trainees and students in technical schools and colleges and that large number of workers in the building industry who do not often see the job but are constantly handling drawings, specifications, memos, requisitions, tellers, etc."

For those who design buildings for North American consumption in this year of grace, a tome from Merrie England on elementary construction may seem to be a waste of time. And so this would be, if one expects to be informed by every page and diagram. But, occasionally, we are quickened to the realization that there is more in the Old Country than is dreamed of in our local codes. Herein one comes constantly upon the cavity wall, and again an intriguing note on a "reinforced brick lintel", or a "lead flat roof", or a "deal curb", which creates a feeling of seeing how the other half builds. A detail of a wood casement sash and frame poised delicately in a

masonry opening gives some cause for pause, and consideration of some of our involved detailing. What is it that these fellows have that we haven't — besides weather?

If you leaf through to the end you will find what must surely be the most remarkable page in a book intended to be serious. This is an advertisement by a well-known British institute of technology which offers free a 144 page "Handbook for Ambitious Builders". It promises to tell you "how to qualify for 10 years' progress in one year", "how to put some valuable letters after your name and become a 'key' man" and "how to leave the ranks of the poorly paid forever"!

Apparently this reviewer has read the wrong book!

W. G. Raymore

HOMES OF THE BRAVE by T. H. Robsjohn-Gibblings with drawings by Mary Petty. Published by Alfred A. Knopf, New York. Price, \$3.95.

"For over one hundred years Americans have been searching for an indigenous American house. This book tells the story of that search and of the houses and furniture left in its wake." Thus the author introduces a review which is delightfully illustrated and entertainingly written; by turns, serious, rollicking and cavalierly biased.

Mr Robsjohn-Gibblings believes in "houses in which architect and owner express their individuality in the fullest terms" — in homes, reflecting "an atmosphere that glows with the presence of humanity." It is not surprising, therefore, to find Frank Lloyd Wright as the most prominent figure in this story, his organic architecture embodying the beliefs of the author and his earthy poetry being quoted at some length with respect to the re-uniting of "people, land and building."

The author believes that the American home in the tradition of Sullivan and Wright belongs to the continuity of history. In this continuity he also classes certain types of furniture and design. The houses of Greene and Greene, "Mission" and "Shaker" furniture, "Swedish Modern", certain traditional folk design (as opposed to "name" design), Japanese art and architecture, are all dealt with as part of (or beneficial influences on) that current of American design which the author believes to be valid.

Also in the book we find van de Velde and Art Nouveau, the Paris Exposition of 1925, German "Modernismus", "Aboriginal Modern", Oriental influence, Back-to-Nature Modern, Ranch-House Modern, Le Corbusier and Machine-for-Living Modern, Movie Modern, Italian "Moderno", space-containers, and Interplanetary Modern.

Without much discrimination we romp through fashions and phases of the Modern Movement. From "Joe's Space Place" to Le Corbusier and Walter Gropius, all and sundry are airily disposed of.

Life in the "Machine-for-Living" is amusing to read about, but it seems a pity that in a rather sophisticated little book partisanship should rob us of what would surely have been an equally entertaining passage on life in an "organic" house. The very dead horse of functionalism in its narrowest sense comes in for one more flogging, and while the "machine for living" is condemned as sterile, it is strange to read in another chapter that in America's bathrooms and her "science of comfort" . . . "we find the universal expression of a great civilization."

So much stress indeed is laid on creature comfort and so carelessly are the Modern Movement's European pioneers treated that one is inclined to wonder whether organic architecture is being championed for more than an earthy comfort; and whether Le Corbusier's dismissal is due only to an attitude that regards all post-Sullivan European developments as irrelevant specifically to America or whether there is involved also

a dismissal of any freedom for architectural conception which speaks in terms other than those of nature.

As history or text, the book is in places somewhat beguiling, but generally for information, entertainment and stimulation it is to be recommended and we can all be unreservedly grateful for the illustrations.

Howard Chapman

HOUSING IN DENMARK SINCE 1930 by Esbjorn Hiort. Published by The Architectural Press, London, England. Price 21s.

Housing in Denmark is an informative one hundred and ten page report on Danish legislative, financial and technical housing problems, illustrated by numerous well chosen photographs and plans of Danish dwellings and communities.

The author, as one might expect from the Secretary General of the Federation of Danish Architects, is thoroughly familiar with the subject. Besides covering the various aspects of Danish housing, Mr Hiort tells us the reasons which have enabled the Danes to achieve their high standard of construction. The first of these reasons is the thorough training of building trade artisans: a four year apprenticeship is supplemented with training at a State subsidized technical school, after which the mechanic undergoes a practical and theoretical examination by a Committee of Masters and is thereafter allowed into the trade. Secondly and equally important is the key position held by the architect in his capacity as town planner, designer and financial advisor as well as general contractor.

Touching on town planning, Mr Hiort briefs us on such legislative measures as the Danish Housing Act, which dates back to 1938, and requires every town in excess of 1,000 inhabitants to adopt a town plan composed of a development scheme (zoning) and a detail plan.

In spite of its small size, the book contains much valuable information, not only on housing but on the building trade in general, which makes it most interesting reading to all concerned with planning, design and construction.

Michael Bach

FUTURE ISSUES

September	Montreal General Hospital
October	Ottawa
November	Projects on Paper

☉ CANADA



Regional characteristics

THE LIGHT TRANSMISSION OF A GLAZING

This value is the amount of light which passes through that glazing, expressed as a percentage of the amount of light that would pass through the same opening, if it were left unglazed, both measurements being subject to the same illumination conditions.

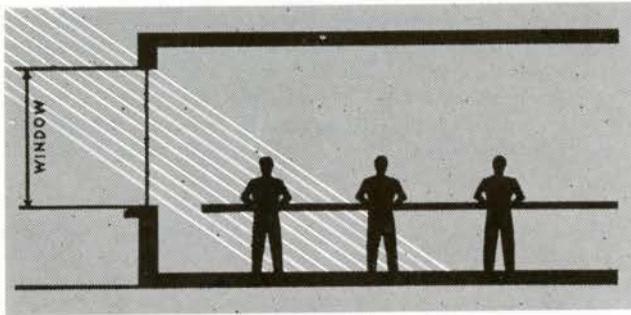


Diagram shows how light usually enters a room. High brightness near the fenestration — lesser distribution back in the room.

DIRECTED LIGHT

This figure represents the proportion of a parallel beam of light, which, striking the surface at right-angles, will emerge on the other side. The figure is expressed as a percentage. It is used mainly for comparative purposes.

DIFFUSE LIGHT

This figure represents the proportion of light from a diffused source, which, striking the surface from all angles, will emerge on the other side. The figure is expressed as a percentage. This is the value which is required to enable calculations to be made, in assessing lighting intensities and glazing requirements under ordinary daylight conditions.

LIGHT TRANSMISSION FACTORS:

	Light Transmission (Average)	
	Directed light	Diffuse light
(i) Transparent Single Glazing	%	%
Sheet	90	85
1/4" Polished Plate	90	85
1/2" Polished Plate	88	83
1/4" Polished Wired	83	80

(ii) Translucent Single Glazing

	Diffuse light %
Rolled	80/85
Prismatic	65
Wired	75
Cathedral	85
Figured	70/85

(iii) Double Glazing

In this case it is of course necessary to consider the effect on the light of having to pass through two pieces of glass. We thus have four surfaces from which there will inevitably be a loss due to reflection, and two thicknesses of glass to account for a further small loss by absorption. Let us take, for example, the case of Sheet Glass. Here the diffuse light transmission factor is 85, and therefore, under ideal conditions the transmission factor for a double glazing will be 85% of 85, that is 72 1/4%. In the same way in windows not glazed with Sheet Glass the resultant transmission factor can be calculated by using the appropriate transmission factor for the single glasses.

RECOMMENDATIONS FOR STRUCTURAL TREATMENTS TO IMPROVE LIGHT TRANSMISSION

1. Openings, into which glazings are to be fixed, should be cut away as much as possible, so as to minimise the effect of cut-off by having the openings well chamfered back.
2. The inclined surfaces of the opening should be coloured as near white as possible, so as to reflect the light striking them, and so deflect a proportion inside, thus reducing still further the losses due to cut-off. This treatment also has the effect of reducing the dazzling, due to contrast between the window and the adjacent walls and ceiling.
3. If the inside glass surface of the glazing is ribbed, as in Prismatic, the angle of the ribbed pattern should be chosen so as to refract the light along directions as nearly perpendicular to the glazing as possible. This, of course, applies to obstructed windows which cannot receive perpendicular light. This directional glazing can also be used for special cases to bend light in required directions (e.g., illumination of books on library shelves).
4. In double glazing a light coloured wall in the interspace will help reflection and so increase transmission.

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