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PRESIDENT - - - - - CHARLES DAVID (F)

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R. A. I. C.
JOURNAL
SEPTEMBER 1946

HOUSING is Canada's primary post-war building problem. It will only be solved through the co-operation of learning, labour and industry, and through the effective welding of these components into practicality by the judicious actions of the State.

MEMBERS of the Institute have naturally shown, in this *Journal* and in many other ways, a keen and continuing interest in the solution of this problem. We have at times sought fuller opportunities both to express our convictions about this matter, and to apply those convictions in practice.

WE are now offered the opportunity to express our ideas in purely architectural terms, through the CANADIAN SMALL HOUSE COMPETITION announced elsewhere in this issue, and sponsored by the Central Mortgage and Housing Corporation. En passant, it has been gratifying for your President to note that this branch of the Federal Administration has leaned quite substantially on the Institute, both in the promotion of this competition and in the formation of a Community Planning Association. The subject of the competition is a house of modest cost for a typical Canadian family, located in various regions of the country. This is the kind of house with a lively prospect of being built in Canada in the immediate future.

THE assessment of the designs submitted will be as fair as it can be made, being governed by the code for the conduct of architectural competitions established by the R.A.I.C. The Judges have been selected by the sponsors in consultation with your Executive. The awards are probably the most generous that have ever been offered to Canadian Architects in this kind of competition, totalling some \$15,000.00. In addition, there is the added inducement of the knowledge that meritorious designs will be widely published and will almost certainly be executed.

IT is the duty of this Crown Corporation to marshal the skill of Canadian architects for the improvement of Canadian housing. In my view, it is equally the responsibility of Canadian architects to demonstrate to the public any solution of this problem which is practicable and possible.

I THEREFORE appeal to all members of the Institute to exercise their talents in support of this competition. Design is one part of the problem, but it is our part, and we must not hesitate to do our share in the elimination of what is at present a blot on the fair face of this country.

Charles David, President.

HOUSING AND PREFABRICATION

By E. H. NOAKES

General

To-day our industrial potential appears to be without limit. Achieving this mechanical proficiency, science and technology have been given free rein with little or no consideration of the human factor. As the bright new world slowly comes into view, we can perceive the increasingly inhuman implications of the society we are forming. Like St. Peters in Rome, the scale is that of something bigger than a man, something of the nature of a master rather than a servant, demanding more than it gives.

We possess the power and production facilities to provide a man with all his primary needs and with those luxuries and amenities which transform mere existence into genuine living. But on examination we find that a third of the people are ill-fed, inadequately housed and poorly clothed. This contrast between impressive technological advances and miserable living standards, between what is possible and what is provided, leads us to seriously question the path we are following, our political and economic systems.

The first step towards reducing this contrast is the acceptance of the principle of planning. The fear of planning has led us to condone and even encourage planlessness at a price in human misery and plain dollars and cents that is staggering. For example, the time, fuel and police costs wasted every day because of hopelessly inadequate city street lay-outs; the slums with their fire, police and health costs, and above all their degrading living conditions, are results of haphazard growth familiar to anyone.

It would almost appear that we are incapable of reasoning, so little clear thinking has been applied to what constitutes the biggest single factor in our existence, our physical environment. With child-like faith, we have expected some immutable law to see that things are arranged properly, a law that forbids interference. We forget that it is ourselves, not a law, that arranges the streets and buildings, that our own volition can make them pleasant or unpleasant. Human intelligence can create an environment that suits every human need admirably, though many won't believe it. If we want the best for ourselves we must plan it. Decide in advance what has to be done, then do it. Planning requires no police force, only a normal amount of co-operation. If our intelligence is all that separates us from animals, let us use it fully, or go back to the trees.

Housing stands out to-day for a number of reasons. The most pressing, of course, is that there is an insufficient amount of it. This will pass in a few years. But the increasingly high cost of housing is not a temporary thing.

Fifty years ago, from ten to fifteen per cent. of the family income provided shelter, twenty years ago twenty per cent. was required, and now the average family spends more than a quarter of its budget to provide a roof over its head. The result has been that more and more families are forced to accept the lowest type of accommodation. Statistics prove that environment of this sort breeds warped, ill-adjusted unhealthy citizens, who start out on life with a severe handicap both on themselves and on the society of which they form such a large percentage. The vital problem of providing good housing for the low income group, who constitute about a third of the population, while only one aspect of the more general problem, is the most important.

Following is a brief analysis of the factors involved in the housing problem, which will give us a perspective for evaluating the contribution that prefabrication can make to its solution:

1. High Cost of Land:

An analysis of the cost of land in slum areas of large American cities showed that its cost was much higher than land in more desirable residential districts. The Bruce Report on "Housing Conditions in Toronto" called attention to the fact that in bad housing districts, such as Moss Park, land was assessed at \$43,534.44 per gross acre, while in good residential areas, such as Rosedale, the land assessment was only \$12,882.54 per gross acre.

This high cost of slum land can be attributed to the holding of such land for speculative purposes, since most urban slum areas are contiguous to expanding business and industrial districts. The buying of slum area land for low-cost housing is thus rendered so costly that governmental assistance in its acquisition becomes necessary.

The National Housing Act of 1944 makes provisions for a Dominion slum clearance grant to municipalities under the following conditions. First, the land acquired and cleared must be developed under a master plan approved by the municipality. Second, the land must be sold by the municipality to a limited dividend housing corporation, or life insurance company, or other approved lending institution, which has agreed to build a low-cost rental housing project on it. This second condition renders the Act quite useless as an effective slum clearance measure. Experience with low-cost housing, abroad and on this continent, has emphasized that this type of housing cannot be supplied by profit-making organizations because it is designed for that portion of our population unable to pay an economic rent. Low-cost housing must be public housing, subsidized by the state as part of its

responsibility toward the health and welfare of its citizens.

Subdivision of Land:

The present system of land subdivision into small lots in metropolitan areas lends itself to abuse by the land speculator and the speculative builder. The speculative builder buys a number of lots, builds houses on them, and sells the completed dwellings later at a price bearing no relation to his costs, depending on the demand for houses at the time. His interest is solely that of a quick profit. We cannot expect satisfactory dwellings and well planned neighbourhoods under such building practices.

The solution of this problem seems to lie in the practice, followed by several cities in Sweden, of municipal purchase of land contiguous to the city, ten, twenty and thirty years before anticipated development. Land is then available for public and private housing at a reasonable price.

Lack of Town Planning:

One of the factors contributing to the high cost of houses is their depreciation in value, not because of deterioration or a decrease in their ability to perform their function, but because of the deterioration of the neighbourhood due to uncontrolled development. A poorly planned neighbourhood may degenerate into a slum area within a generation despite zoning restrictions. Examples can be found in any large city. The reason for this degeneration is the absence of planning of the neighbourhood as a living community: a community which must exist in time as well as in space. Accommodation in a neighbourhood must be provided for all age groups, otherwise it lacks the ability to adopt itself to the constantly changing requirements of its population with respect to age. Unless account is taken of the age composition of the population, a neighbourhood becomes merely a brief stopping off place in life rather than a self-renewing community.

High Property Taxes:

High taxes on property, along with the high cost of land, is a factor encouraging the overcrowding of both dwellings and land, and the consequent development of slums. High taxes also accelerate the deterioration of property by discouraging expenditure on improvements, which might raise its assessed value. Taxes are also levied against the house for services not connected with the house. The need is for a more equitable distribution of the cost of municipal government and a set rate of land taxation based on the value of the land exclusive of any or subsequent buildings or improvements. Such taxation policies would encourage property improvement and reduce the economic necessity for overcrowding. Partial tax exemption may also be required to promote the development of low-cost housing.

Home Ownership:

Another factor aggravating the housing problem is the innate desire of families, greatly encouraged by mortgage companies, home builders and even governments, to own their own home. Home ownership endangers the financial position of the low income class. They should not be encouraged, under present wage standards, uncertainty of employment, and lack of adequate social insurance, to invest their savings in a home. Mobility is also essential to the working man.

Legislation:

Modern housing and much of the framework of contemporary society, are mutually antipathetic. The premises underlying low-cost housing developments are not the premises of capitalism and inviolate private property. Further, it is true that social needs, which private enterprise cannot satisfy, eventually become public responsibilities. Low-cost housing is such a need which private enterprise cannot undertake profitably, even in prosperous times. It is also true that publicly sponsored production stimulates the profitable expansion of private enterprise. Until the time that private and public enterprise each operates in the fields it can serve best, we cannot expect ideal legislation. Rather it will be legislation that attempts to reconcile two contradictory points of view.

Archaic Building Practices:

Many people have pointed to a residential building site with its scaffolding, bricks and thousands of component parts, and said, "There is an anachronism", or, more simply, "Good God". Many have dwelt upon the causes and effects. The causes are many, and no simple statement can cover them. The results, however, are measurable in dollars and cents.

The rise in the capital cost of dwellings is quite understandable and compares directly with the increasing efficiency of production and distribution of the other components of the family budget. Some have pointed out that heightened living standards require more and more housing equipment, like hot and cold running water, central heating, electric stoves, and so on, and lay the blame on the "luxury" doorstep. This is partly true, but when placed beside the fact that a modern refrigerator, while meeting much higher standards than its twenty year old prototype, has a substantially lower purchase price, we see that some other factor is involved. Dwelling costs must rise when standards rise, if no increased building efficiency offsets their additional cost.

The amount of labour in conventional construction has remained more or less constant, but the cost of labour has gone up, and its efficiency gone down. When coupled with an almost irresponsible mobility (largely a post-war problem) and depleted ranks amongst the skills, we see a substantial contribution to the high cost of building.

It is clear that the method of lowering costs without sacrificing high wages or high standards, is to indus-

trialize building practices. Set our technology to work and fit house construction into the industrial economy it has too long and at too great a cost avoided.

Methods of Prefabrication

Leonardo da Vinci invented a standardized and mass-produced house. Four hundred and fifty years ago his systematic and critical mind was impressed by the tedious, wasteful and disorderly building techniques of his time — building techniques that have changed but little during the following centuries. If Leonardo were alive to-day, he would still find houses built stick by stick and stone by stone. He would wonder at the contrast between the imposing edifices of science and the hovels of man.

There are different meanings to the word "Prefabrication", ranging from pre-cut lumber to complete factory-made houses. It can be said to be a means of construction aimed primarily at the efficient use of materials and manpower. Since efficiency in an industrial sense means economy, time and labour costs per dwelling unit are reduced.

A number of different systems have been developed but the industry is still in its formative period. The war has provided manufacturers with a good deal of much needed experience, and while no one system has proven outstandingly superior, the basic methods employed can now be seen. Not until the hurly-burly of peace-time competition has done its inevitable weeding out will we have our most practical yardstick of evaluation.

Following is a list of practices, one or more of which is employed by the prefabricator:

1. Transfer to factory as much as possible of the work of building a house to reduce first costs and overhead, to eliminate delays caused by weather, and to reduce the time needed for erection at the site.
2. The use of power and machinery to facilitate mass production.
3. The division and specialization of labour possible under large standardized production.
4. Centralizing of planning and purchasing.
5. Reduction in waste through integration of planning and production.
6. Dimensional and quality standardization of building materials and service units.
7. Modular design to reduce the number of structural elements required.
8. Integration of the structural and functional elements of a house to reduce the amount of material required. As an example, wall panels with stressed coverings combine the structural, i.e. load-bearing, and the functional, i.e. protective requirements of a wall.

Materials of Fabrication:

The selection of the materials of construction is of primary importance to the prefabricator. They must con-

form to the requisites of mass production and economical transportation if he is to successfully compete with the conventional builder.

These post-war years are experiencing an extensive development and application of new building materials, particularly sheet wall coverings and structural members of light metal alloys and of laminated wood. Glass and other amorphous plastic materials have structural and insulation applications that are being investigated. There are reports of a universal adhesive that will band virtually any two materials together, which, if true, will revolutionize the building material industry. It will be possible to combine the basic materials in a structural unit to utilize the desirable qualities of each and to obviate their deficiencies.

The development of water resistant and waterproof glues has made plywood an important structural material with countless applications. Fibre board made from compressed waste plant fibres has most of plywoods advantages, and, in addition, is isotropic. Compreg, an impregnated, compressed material made from low-grade lumber, has strength properties the equivalent of structural steel.

Sandwich construction has been employed to dispense with the buckling of metals when used in plates subjected to compression. Two sheets of plywood have been placed on each side of an insulating material to provide a sandwich wall combining all the basic requirements of an ideal building material: structural strength, insulation, interior and exterior finish and weather protection.

The suspension principle of construction, by removing all loads from the walls, will enable many materials to be economically used for wall coverings, which have good insulation and protection qualities but low structural strength.

If costs can be reduced sufficiently to enable plastics to compete in the building field, translucent plastic panels with vacuum insulation combined with vacuum insulated double window panes will provide a house with the insulation properties of a thermos bottle.

The building material industry has many interesting changes in prospect.

Conditions for Prefabrication

The danger of pursuing the technical side of house construction to the neglect of human side has been pointed out earlier in this article. Prefabrication merely for its own sake as a new building technique will contribute nothing to our housing problem. It can provide better houses at a lower cost only under conditions of (1) Mass production. (2) Mass markets. Public assistance will still be required to house those in the lowest income brackets unless greater economies can be achieved by prefabrication than one has reason to expect. But with lower costs, fewer people should require that assistance and further, those at present forced into a marginal existence, could increase their living standards generally.

Conditions favouring mass production and mass markets in the housing field are not likely to be created by private builders. Ignorance, inertia and public apathy are all on the side of conventional building. Nathan Straus, housing expert and the first director of the United States Housing Authority, in answer to a query as to the reasons why successful housing legislation was passed in the United States, replied: "I can answer that question in two words—organized labour".

Successful housing legislation will not be provided in Canada without effective public demand. Public demand to be effective must have political expression. This can only be achieved by the organization and co-operation of those persons and associations interested in better housing. The Citizens Housing Association, of Toronto, is an example of that type of organization.

The problems that organizations interested in better housing should investigate may be broadly classified as follows:—(1) Housing Research and Community Planning. (2) Public Housing. (3) Standardization of Materials and Equipment. (4) Survey of Production Facilities, Sources of Materials and Markets. (5) Labour and Employment. (6) Organization. (7) Public Education, and (8) Legislation.

Housing Research and Community Planning:

Section 5 of the National Housing Act, of 1944, places special responsibility on the Minister to have investigations made into housing conditions and the adequacy of existing housing and to promote the distribution of information leading to better accommodation, and to the understanding and adoption of community plans.

He is given authority to investigate conditions here and abroad, to study more economic and efficient methods of building, to prepare plans for low-cost houses, and to distribute community planning information and co-operate with local authorities in investigating local problems of land utilization and community planning.

Furthermore, the Minister, with the approval of government, is authorized to prepare and undertake directly or in co-operation with other departments or agencies of the Dominion Government, or the Government of any province, or with any municipality, university, or person, programmes of technical research, and investigation into the improvement and development of method of construction, standards, materials, equipment, fabrication, planning, designing and other factors involved in the construction of improved housing accommodation, to enter into contracts for the production or development of materials, equipment, or component parts for houses through the pilot plant stage of production or development, and for the testing of such materials, equipment or component parts; to publish and distribute the results of such technical research and investigations; conduct competitions to secure plans, designs and specifications for low-cost housing; and to make provisions . . . for promoting training in the construction or designing of houses,

in land planning or community planning or in the operation of housing projects.

The implementation of these provisions of the Act, however, are not automatic but require additional legislation and provision of the necessary funds. Further, enabling legislation must be passed by each province to make the Act operative within the province. This additional legislation and money must be assured.

Public Housing:

Experience abroad emphasizes that adequate low-rental housing cannot be supplied by profit-making organizations without government assistance. For many years this has been accepted in France, Sweden, England, Holland, Germany, Russia, U.S.A., and numerous other countries.

Any attempt, however, to provide publicly sponsored housing in Canada provokes an effective storm of protests from landlords, real estate agents, and others financially interested in the status quo. This spirit of irresponsible selfish interest reveals the social immaturity of Canada. Public education provides the only effective solution.

Standardization:

The design and mass production of prefabricated houses can be greatly facilitated by a reduction in the large number of different types of building materials, and house equipment, many serving the same purposes in the same manner and differing only in insignificant details such as dimensions, shape and trade name. To this end, a special committee, composed of architects, engineers, and representatives from government, labour and manufacturers, should be appointed to investigate the problems involved in the standardization of building materials and equipment. The recommendations of this committee should then be incorporated in the National Building Code.

Survey of Production Facilities, Materials and Markets:

The mass production of any commodity, including houses, must be preceded by a careful survey of the production facilities, labour and materials and of the potential market for the finished product. With this information, the most economical location of the manufacturing plant may be determined. Production costs, sales volumes, size of plant, number of employees, and the capital required may also be estimated.

It is suggested that these surveys be conducted by the Government to stimulate investment in, and to facilitate the formation of, companies to manufacture low-cost houses. Many war plants lend themselves to this sort of use.

Labour and Employment:

The post-war years are involving the re-habilitation of ex-servicemen, and the transfer to civilian production of

many thousands of war-workers. The James Committee Report on Housing states: "It is not difficult to envisage a housing programme of a scale, which would require all building craftsmen available and still need the economics and speed of mass production techniques to attain its objectives. The implication is that not only building trades employment, but training schemes and labour-transfer programmes must be considered on a comprehensive approach to a national re-housing enterprise. To ensure the carrying out of a substantial construction programme, including not only residential but other kinds of construction, it is estimated that a short-term training programme involving 40,000 men will have to be undertaken in the first two or three years after the war."

Prefabrication, through the integration of many building processes at present considered separate trades, will likely create disputes with trade unions over the classification of workers. Such disputes can be anticipated and settled before and not after the start of production.

Organization:

Based upon a careful investigation of the housing situation and preceded by an educational campaign, specific proposals should be presented to the appropriate authorities. An organization chart, for the co-ordination of planning, production and distribution of prefabricated houses, drawn up by Dr. E. G. Faludi, appeared in the *Journal* some time ago. This plan is based on a high degree of co-operation between industry and the Dominion Government. Production and erection are the responsibilities of private enterprise. Distribution, large-scale planning, provision of land and long term financing, are Government responsibilities. Research and design are undertaken jointly. The Government purchase and distribution of these houses will provide an assured market based on housing requirements determined by Government surveys. This plan would appear to be admirably suited to Canadian conditions with our widely distributed population. Industry and Government are then each performing the functions for which they are best suited.

Public Education:

An informed public is a requisite to any successful housing programme. Their enthusiasm or apathy will determine its eventual success or failure. In the case of prefabrication, the suspicion and resistance that all new ideas engender among the uninformed must be counteracted. People will accept what they understand, and education is essential to that understanding.

The most effective educational programme will be conducted by those organizations having no financial

interest in housing, such as Housing Associations, labour unions or Government research departments.

Prefabrication, once established, will provide a concrete example of savings effected through planning and organized effort that should greatly simplify the educational problem involved in winning public support for community planning and public housing.

Legislation:

Effective legislation is required to meet our housing requirements. To be effective, legislation must perform in reality the functions it is purported to perform in theory. It is all too simple to emasculate legislation through amendments, wording and phrasing, or lack of organization to carry it into effect.

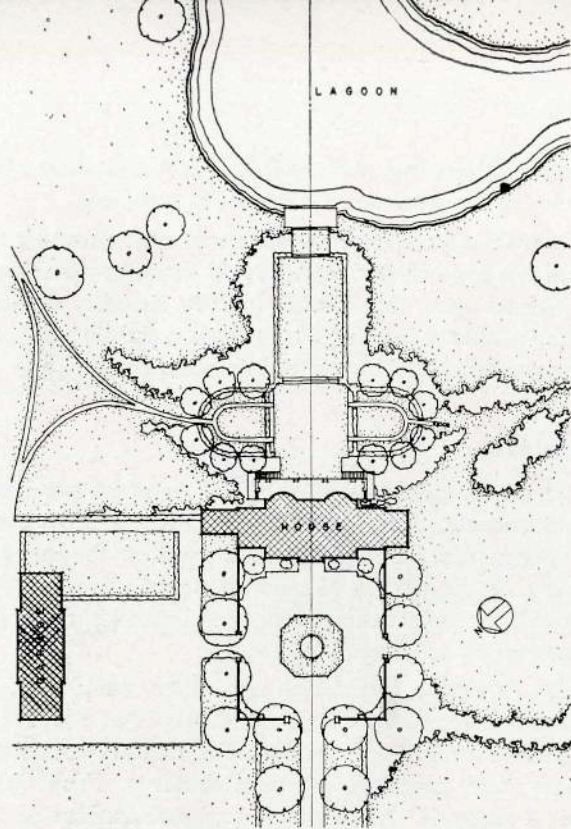
The housing legislation of other countries, more socially advanced than Canada, provides a worthwhile source of study to determine the contrast between its theory and physical accomplishments. From such a critical analysis, the mistakes and deficiencies of others can be avoided. But the most effective guarantee for workable legislation is an informed public, organized to exert political pressure.

Conclusion:

There are many obstacles in the path of the prefabrication industry of Canada. Not the least of these, is the unwillingness on the part of municipal authorities to liberalize their building codes to allow for new methods and materials, however factually convincing the proof of their sturdiness. There is also a stigma attached to the name, partly caused by a few unhappy instances, and partly the result of a well-meaning but ill-informed opposition. And further, at least one prefabricated house made in Montreal, when erected in Toronto, costs almost as much as does equivalent accommodation of conventional construction.

These difficulties can be attributed, to a large degree, to our inexperience. Unlike the United States, we did not encourage prefabrication during the war. We are, in development, where they were ten years ago, with the saving exception that it has now been proved beyond a doubt, that in an economy in all important respects, the same as ours, prefabrication can provide superior accommodation at less cost.

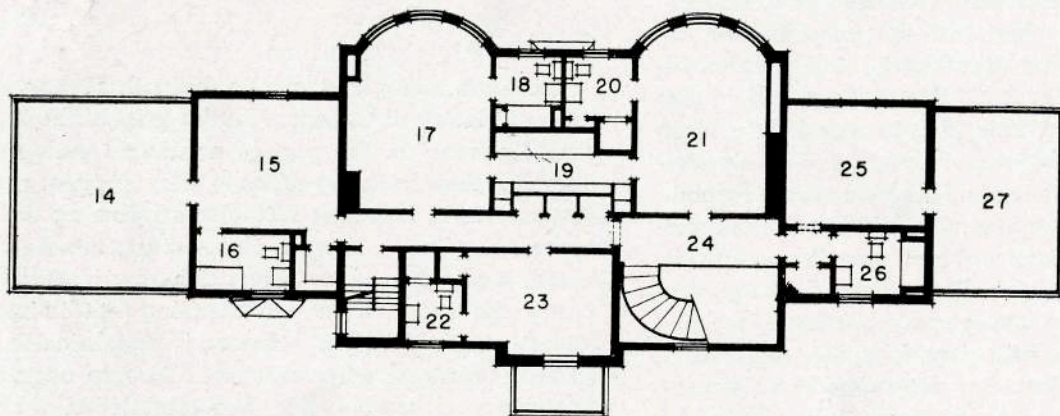
It is very fortunate that a large and growing group of manufacturers see, in the mass production of low-cost houses, a remunerative occupation. With the knowledge that their interests coincide with the interests of those demanding better housing, it is safe to predict an expanding and increasingly efficient prefabrication industry.



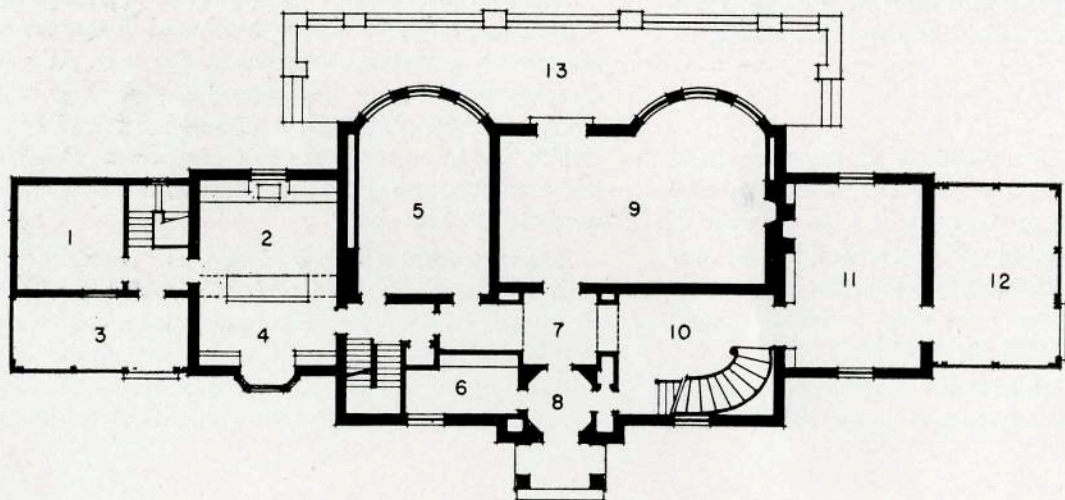
P L O T P L A N

10 0 20 40 60
SCALE IN FEET

1. SERVANTS' SITTING ROOM.
2. KITCHEN.
- 3, 12. VERANDAHS.
4. PANTRY.
5. DINING ROOM.
6. COAT ROOM.
7. HALL.
8. VESTIBULE.
9. DRAWING ROOM.
10. STAIR HALL.
11. LIBRARY.
13. TERRACE.
- 14, 27. ROOF DECKS.
- 15, 17, 21, 23, 25. BED ROOMS.
- 16, 18, 20, 22, 26. BATH ROOMS.
19. DRESSING ROOM.
24. HALL.



S E C O N D F L O O R P L A N



10 0 10 20 30
SCALE IN FEET

F I R S T F L O O R P L A N



View on main axis from Drawing Room overlooking Lagoon and Lake Ontario

Photographs by R. E. Heise

HOUSE OF MR. J. A. GAIRDNER, OAKVILLE, ONTARIO

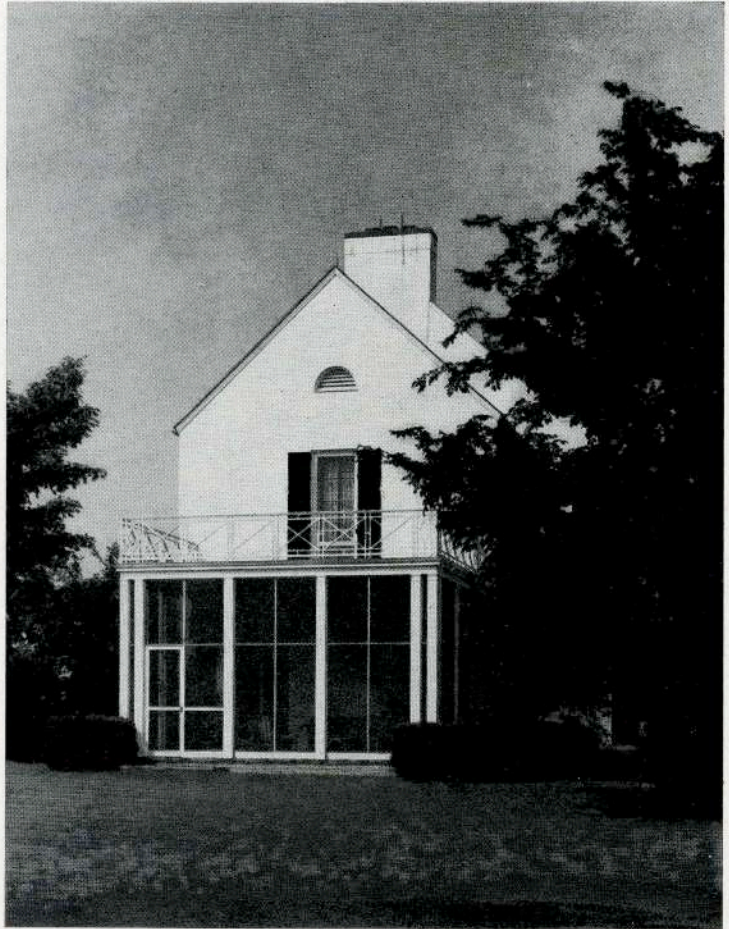
MARANI, LAWSON AND MORRIS, ARCHITECTS



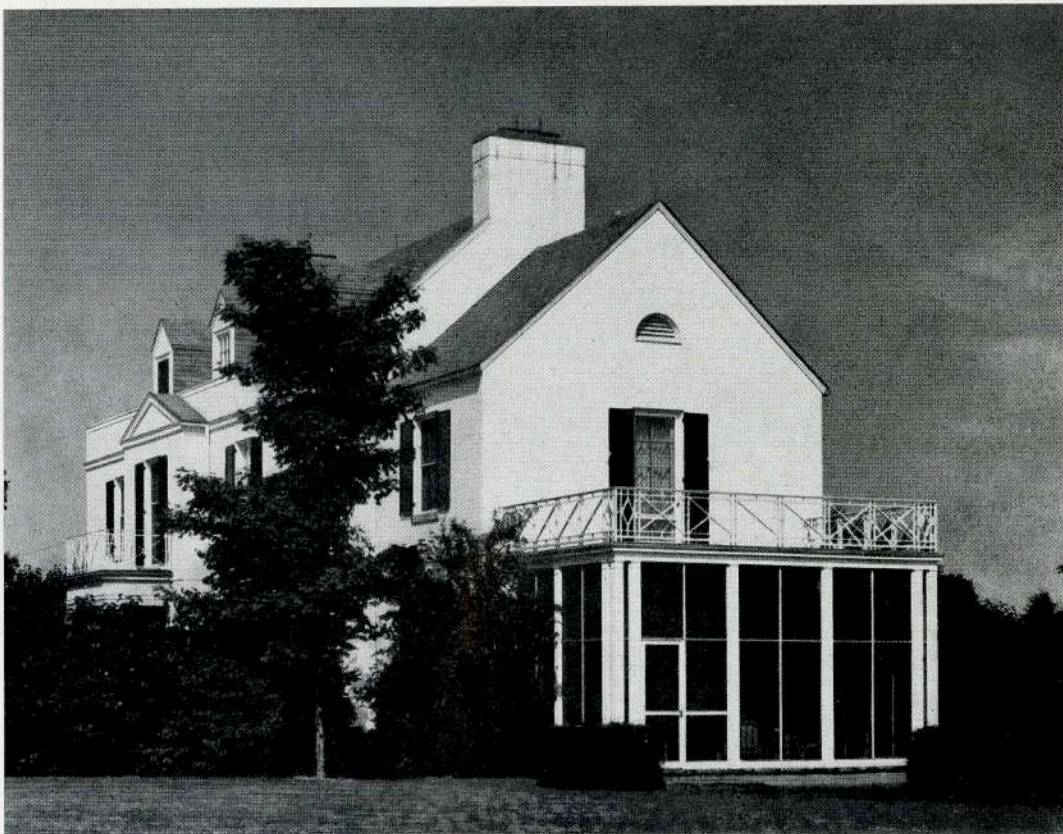
FRONT ELEVATION



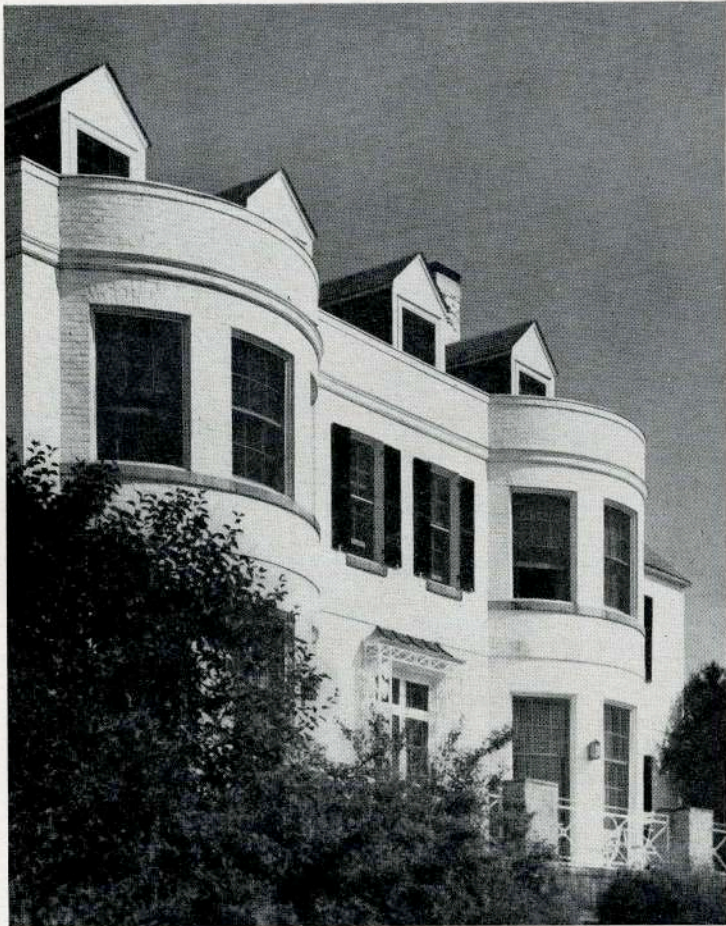
ENTRANCE GATES



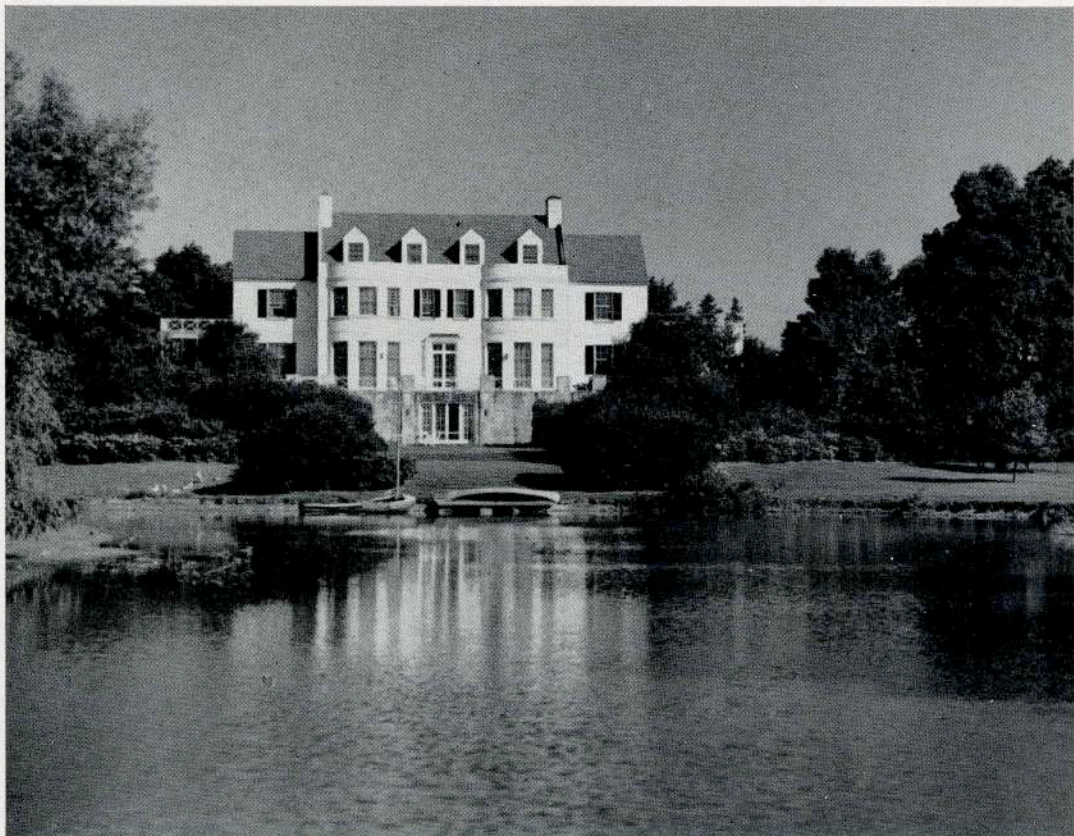
WEST ELEVATION



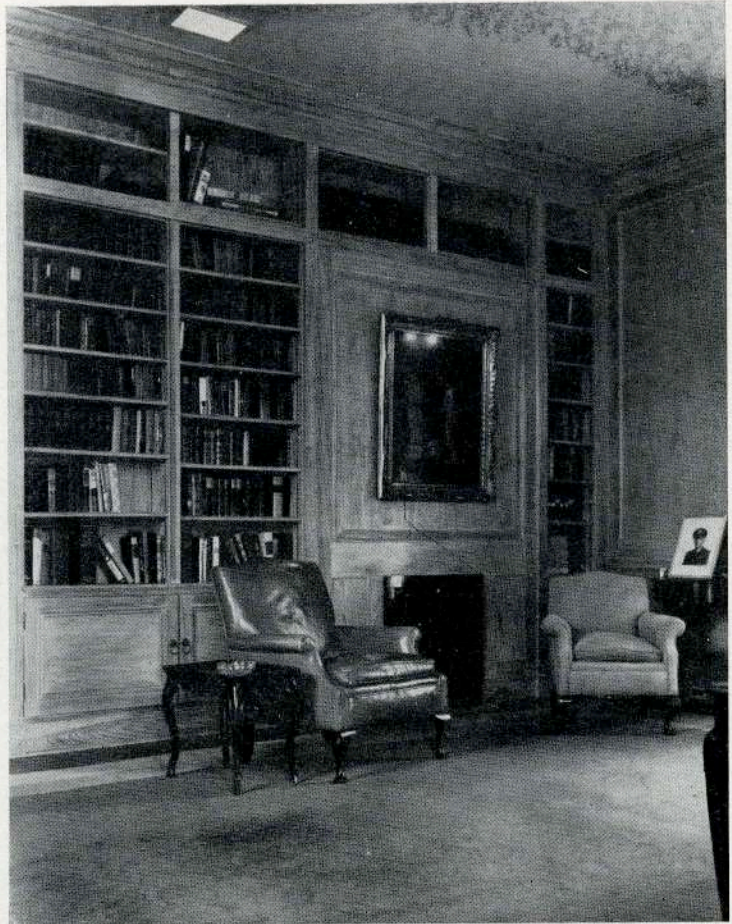
VIEW FROM NORTH-WEST



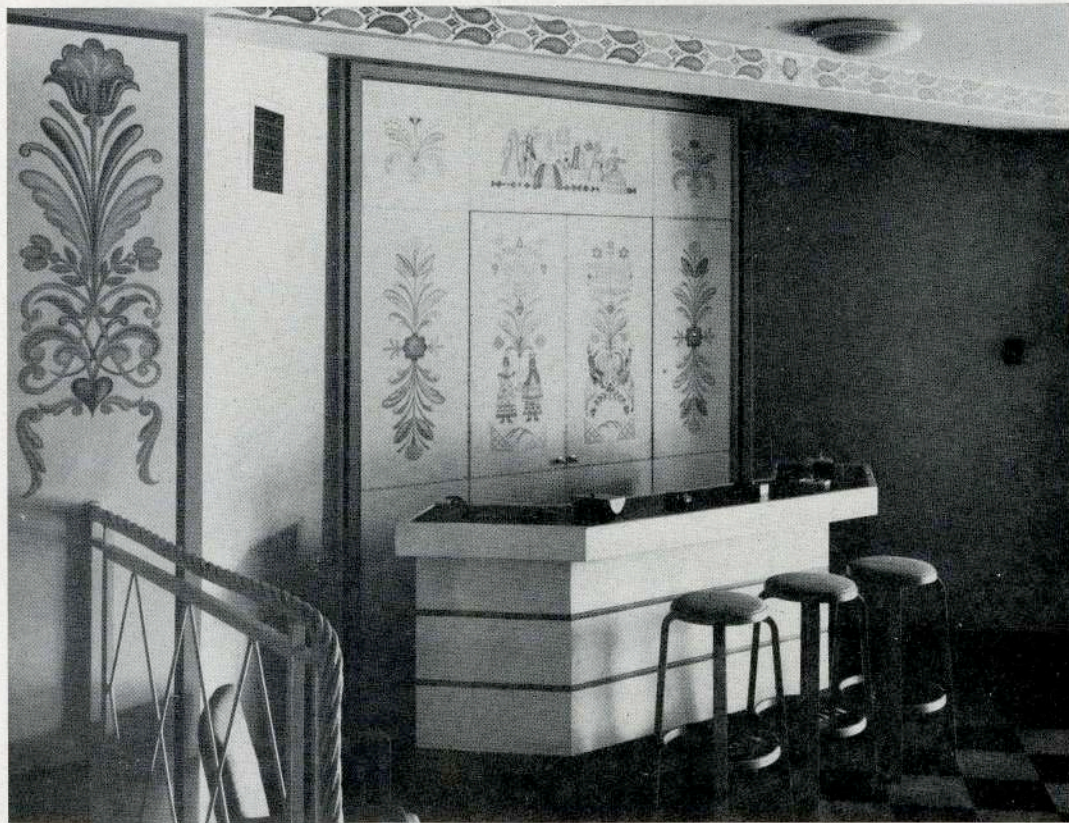
DETAIL OF SOUTH ELEVATION



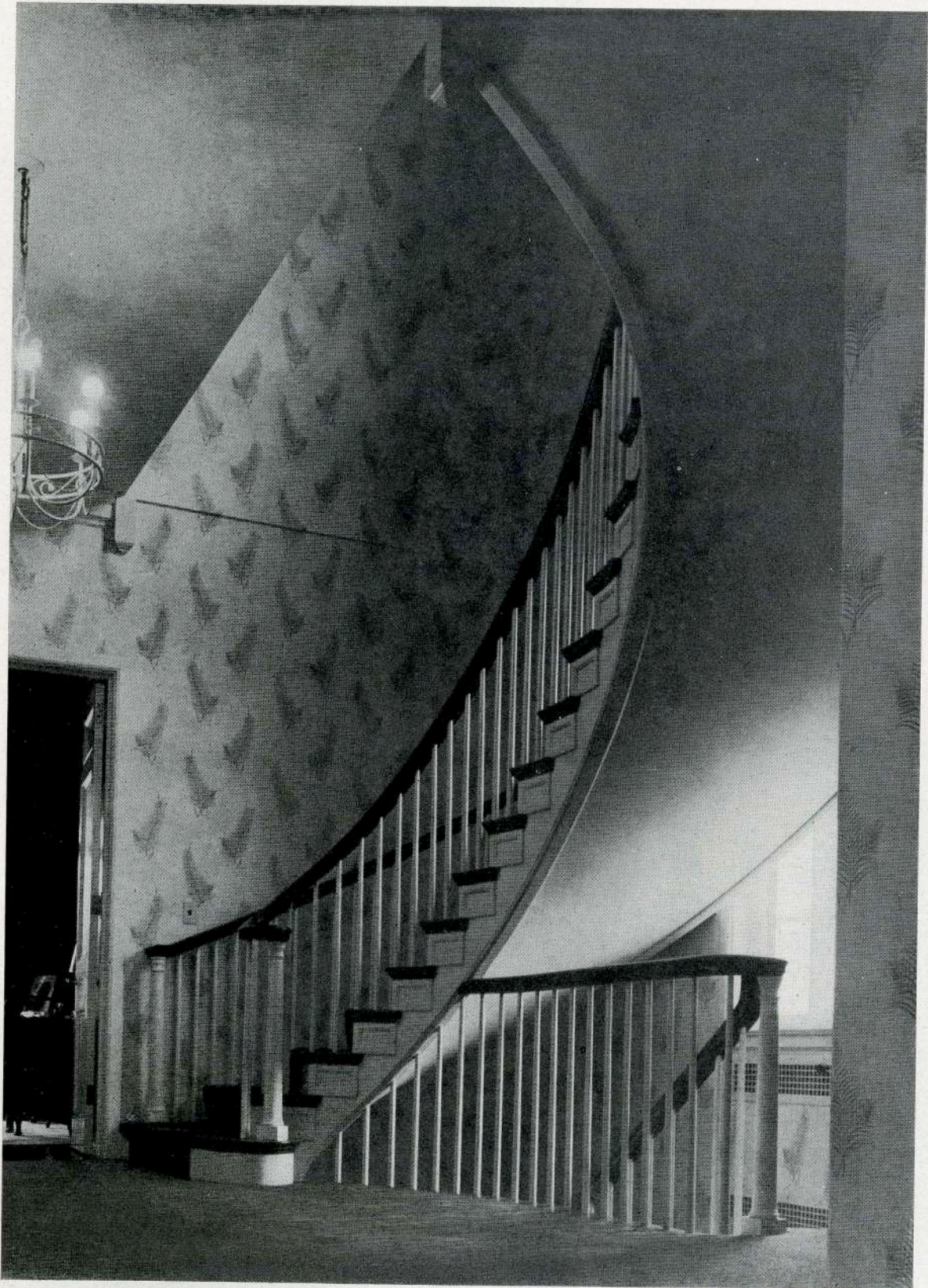
VIEW FROM ACROSS LAGOON



FIREPLACE IN LIBRARY



BAR IN GAMES ROOM



MAIN STAIRS

IN SEARCH OF MODERN ARCHITECTURE THE NORTH-EAST STATES

By JAMES A. MURRAY

FOR the past several years the Schools of Architecture, with few exceptions, have concerned themselves almost exclusively on the designing boards with modern architecture. The work at the University of Toronto has been no exception. The study of traditional styles has been confined to historical lecture courses and to aesthetic analysis of principles of composition, massing, scale, proportion and treatment of detail, which these matured styles illustrate. In other words, students have been guided to appreciate the sociological, technical and regional derivation of the great architectural periods of the past and, in conjunction, to consider carefully basic principles of design valid for the Royal Crescent at Bath, equally valid for a great auditorium in twentieth century America. Now this concentration on contemporary work is not a matter of School policy but derives from an earnest conviction in the minds of the students that modern technique and the pattern of to-day's working, playing and dwelling naturally result in a different approach and solution to architectural problems.

In these matters, the students have two sources of inspiration and instruction to draw upon—firsthand study of local contemporary work, which incidentally is increasing in volume, and secondhand, study of good contemporary architecture from all over the world through plans and photographs appearing in architectural periodicals and publications.

So after some four years of examining Corbusier, Gropius, Saarinen, Wright, et al, and after four years of assiduously and critically burying their respective noses in the *Forum*, *Record*, *Pencil Points*, *Review*, *Architecture Aujourd'hui*, etc., not to mention the *Journal*, senior students last year raised their heads to complain, quite naturally, that honest appraisal of contemporary work required first-hand investigation. Most of them design in a style that few of them have ever seen well carried out, and it is essential that they see good modern buildings in three dimensions and stop poring over magazines. It seems that if the camera is tilted at an exciting angle, and pressed tight to the floor, the interesting contemporary solution results and it is a bit difficult to know where architecture leaves off and photography begins. It seems also that if two issues of *Fortune* and one *New Yorker* lie precisely parallel to the edge of the coffee table, the smart simplicity of to-day's interior is expressed.

But we wanted to see modern architecture from eye-level, with the head erect, with ashes in the ashtrays and the Sunday paper on the floor of the space for indoor living. In this the staff heartily agreed, and a trip was arranged, ably guided in all details both architecturally

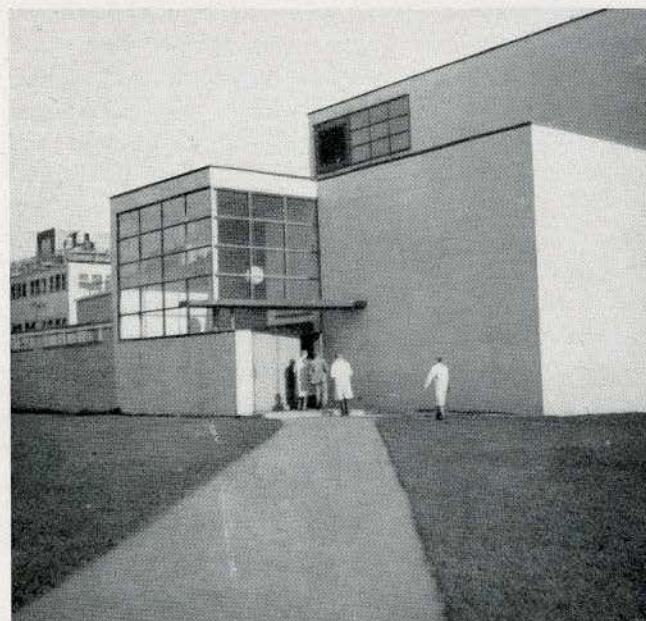
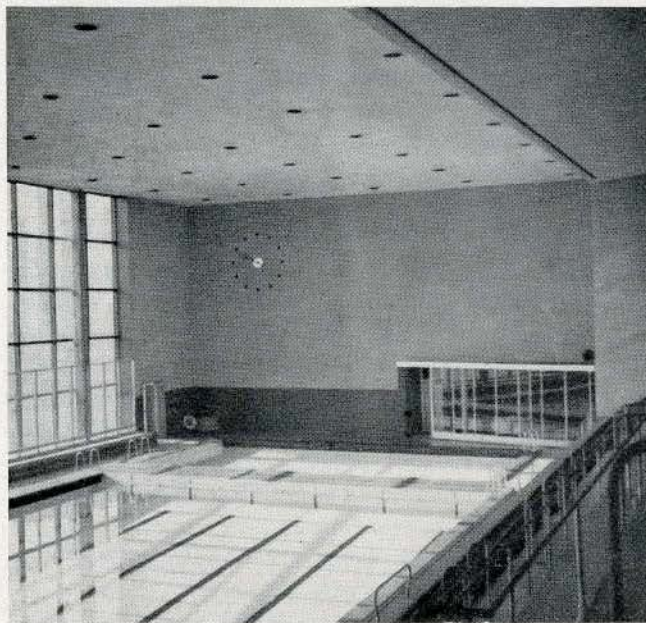
and recreationally by Anthony Adamson, a name familiar to these pages.

There was something eminently fairminded, perhaps even counter-biased, in heading a search for modern architecture by one intimately familiar with the slope of an Egyptian mastaba, the necking of a Doric column, the temperature of a Roman bath, the statics of a Gothic buttress, the bullnozes of Bullfinch. I don't suppose it was equally fairminded to bring such Tory tendencies to the base of Bunker Hill Monument—for the expedition headed for the New England States and Boston.

Vigorous searching through the periodicals and a liberal use of the Museum of Modern Art's Guide to Modern Architecture in the North-East States indicated a wealth of material in the Boston region, perhaps second only to California in this respect. In fact the general impression given by the literature seemed to indicate a great number of modern things quickly apparent—this proved to be not strictly so.

In Buffalo we visited several early Wright houses including the Madigan House. The spaciousness derived from long, low horizontals in the interiors, the massive stone fireplace of tremendous breadth, the use of built-in light troughs in this house dating from the early part of the century, the development of geometric patterns in leaded glass work and, on the outside, wide overhanging eaves, plant boxes, unbroken masses of brick piers and walls, are all very characteristic of Wright's work of that time. The present occupants had lightened all the dark wood in the house and placed a well-proportioned window in the large but otherwise rather dark living room, neither of which moves pleased the Master when he visited the house in recent years. Both moves seemed to us improvements. These early Wright houses in Buffalo are themselves definitely worthy of a trip. Their locations are listed in the Museum Guide. All agreed that it must be wonderful to deal with clients who had so much money for their housing needs—or at least who had it before building commenced.

The party also explored Kleinhans Music Hall, in Buffalo, designed by Eliel Saarinen. Mrs. Corey, the Director, with admirable thoroughness conducted us through the building from sump pits to roof girders, high above the great suspended plaster ceiling, exhibiting an amazing knowledge ranging from shut off valves to acoustical correction. It seems the reflecting pool about the small auditorium attracted small unclothed children, fleets of toy boats and broken light bulbs for the first year of its existence, but of later years the local citizenry have dutifully left its surface to an upside-down image of Mr. Saarinen's genius and its bottom to a mellow collection



of autumn leaves. (Queen's Park, Toronto, please note.)

Between Albany and Boston, we journeyed to examine the buildings of the Berkshire Music Festival Group. I believe that of these only the Concert Shed has been published in the *Architectural Forum*. The other buildings by Mr. Saarinen include an Opera Shed and a Chamber Music Shed. These buildings are disposed in an incomparable setting in the Berkshire Hills, and, during the festivals, house the performances of the world's greatest music and musicians. Perhaps house is an incorrect word, for the buildings all are of a casual nature with great sliding doors, throwing them wide open to summer breeze and view. The Opera Shed and Chamber Music Shed are of wood construction, and most economical in cost.

The Opera Shed is particularly interesting. Its floor was graded directly on a sloping site. Great bowstring trusses, their upper chords of wood, rise exposed over the whole roof, which lies in the planes of their bottom chords. This roof, in longitudinal section, consists of a number of sloping planes designed to produce perfect acoustical qualities. Behind rises the wooden structure of the large and completely equipped stage loft. As the tension chord members of the bowstrings are thin steel rods, viewed from the outside, the structure presents an amazing composition of receding arches rising above the irregular long flat roof slung below them. The whole is a most imaginative structural solution to specific requirements and presents an interesting and somewhat rural contrast to the urbane solution of a similar problem by the same architect as exhibited in Kleinhaus Music Hall.

An extremely outspoken Yankee conducted us about the vacant Festival grounds, expressing in no uncertain terms his likes and dislikes of great music, great conductors, great musicians, great architects, great contractors, great scenery.

In Cambridge we were quartered in an old house on Brattle Street, framed "Tory Row", in close proximity to Harvard University, and not too far removed from M I T. From this charming seat we sallied forth in various sorties, to houses, churches and libraries, very old and very new, and to the occasional bar, very revolving or very stationary. By the time these various species of sorties were complete, we were neither rabid modernist nor sentimental traditionalists but keen admirers of excellent design to-day and yesterday. The impact of Richardson's great Romanesque Trinity Church, McKim, Mead and White's classical Public Library, Bullfinches State house, Louisberg Square, Harvard University Yard seen during the same days as the works of Wright, Gropius, Breuer, Bogner, Carl Koch was tremendously stimulating. I am quite sure we moved about almost as rapidly as George Washington must have done in order to have slept in all the houses where story would have it so and to have worshipped in all the pews marked off in his remembrance.

The first modern house visited was one in the centre of Cambridge done by Edward Stone and Karl Koch in

1938 for Mr. and Mrs. Albert C. Koch. This house has received much publicity in the *Forum*, *The Modern House of America*, *Tomorrow's House*, etc. The house (illustrations 8 and 9) is situated on a 50' x 90' corner lot, on the north side of an east-west street. A beautiful garden wall 6' high of rough slate gives privacy from the street to the garden with living-room windows overlooking it on the south side of the house. This garden, by Christopher Tunnard, author of *"Gardens in the Modern Landscape"*, succeeds in creating a sense of spaciousness on a small plot of ground by the scale of the planting, the use of abstract geometric metal screens and by employing various materials and textures in plan. The house proved that open planning and integration with the outdoors so characteristic of contemporary residential work is valid and eminently successful even on cramped urban properties. We were much impressed by the built-in-furniture, most of which was in Philippine mahogany. Exterior construction was of waterproof cinder concrete block walls strapped and plastered. The blocks were laid in alternate 4" and 8" courses and the whole painted. Glass surfaces in the strip windows in the concrete block walls were kept within $\frac{3}{4}$ " of the block face, and though there were no sills or drips, no staining was visible on the blockwork, which, due to wartime conditions, had not been painted for several years.

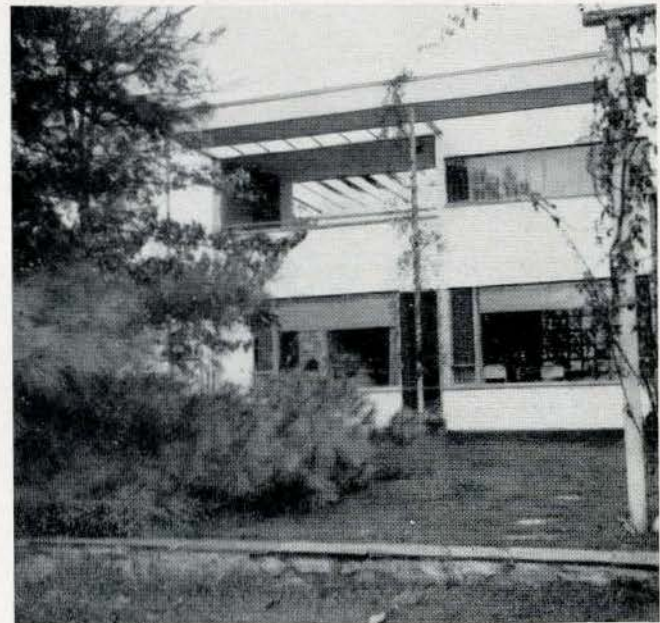
Not far from Mr. Koch's house was the residence built by Philip Johnson for his own use. This house appeared in the *Museum of Modern Arts Publication*. Built in U.S.A. 1932-1944. Its site presented a problem similar to that of the Koch house, being likewise on the north side of an east-west street. The house, one storey high, stretches across the entire width of the lot at the north end and the garden is enclosed by a 9' plywood wall right to the street line. Between house and garden is a clear glass comprising the entire south wall of the dwelling so that house and garden are one space. This may be all very well, but struck us as being exceedingly impolite to the open-lawned New England street on which the house sits. In the garden wall is a wall-height door, which reaches almost to grade. As the house had been sold to new owners, we were unable to see through it in an orthodox manner, so Cambridge was treated to the amazing site of a learned professor and several students kneeling on the sidewalk or flat on their stomachs peering under the crack in the door at the brave new world within.

In Belmont, a Boston suburb, is Snake Hill, an abrupt rocky slope, which was purchased jointly by a group of people. Some eight houses have been built on this site by Karl Koch, among them his own house. The houses are built on the steep slope limiting the property, leaving the flatter land at the centre for mutual garden and play areas. Books on contemporary architecture call these houses "the liveliest and most livable group of inexpensive houses in the East."

Several of the houses are of native stone and wood frame construction covered with narrow boards of un-



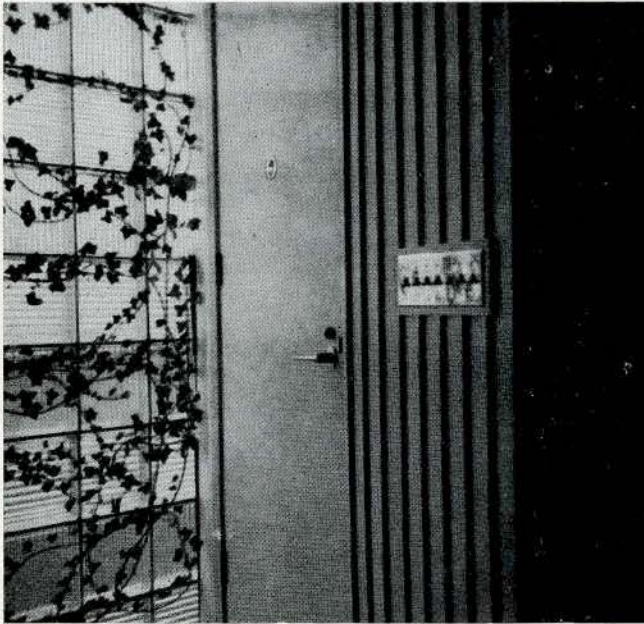
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painted fir. We rather felt that here and there more durable and finished materials could have been used but presumably economy was the deciding factor. We were surprised to find single glazing in very large plate windows resulting in some condensation troubles. The later houses in the group are of exposed framing filled in with insulated panels of asbestos cement. The Koch house descends the slope in three levels. At one point, the rocky shoulder of the hillside runs right through a glass wall into the living room, forming an interior rock garden. Entrance to the room is by steps through this garden. Elsewhere the rock formation comes up through a living room floor. Plants are growing in it, including I believe, the biggest aspidistria in the world. This room is shown in illustration 11. Note the hat on the table and things on the floor, in line with our initial policy as mentioned at the beginning. Illustrations 10 and 12 are also from the Snake Hill Houses. Each time we visited a building ten cameras were brought into play in one room by members of the party and the unfortunate owner was pushed ruthlessly here and there but, without exception, took such treatment with good grace.

In Cambridge, we spent a good deal of time in Harvard seeing the work of the architectural students under Professor Gropius, and admiring the beautiful college grounds and buildings. We visited M I T and were shown the workings of their Department of Architecture by Dean William Wurster. We were mildly disturbed to find a very large German V-1 bomb lying on the grounds of the Institute, addressed on its crate to a professor of the Department of Architecture, but presumably this is a purely local custom. At M I T we saw the Swimming Pool by Beckwith and Anderson. This pool, emerging from its traditional place in the basement, faces south through tremendous glass windows onto a sun-bathed enclosed court, used for all but a few months by swimmers. The building is heated by radiant coils in the pool decks and the ceiling. The interior is light and gay, the detail throughout is crisp and fresh. Illustration 2 shows the entrance to the building and 3 is an interior view of the pool itself. I expect the study of site lines into the pool and garden was an important consideration.

In Lincoln, not far outside Boston, is a group of modern houses famous throughout the continent. These are the houses built for Walter Gropius, Marcel Breuer, Mr. and Mrs. James Ford, and Professor Bogner. Gropius' own house is extremely accurate and precise in its design. A strict geometric shape has been hollowed out resulting in interpenetrating volumes and planes. The whole house sits clean and white and independent of nature, an elegantly proportioned machine-made thing of smooth clear cut surfaces. The materials of construction and the white-painted exterior sheathing deliberately associate the house with the regional traditional work of New England.

Illustration 4 shows the house from the north-east with the entrance canopy; illustration 5 shows the south side with its sun canopy to protect the lower windows. The

6th illustration is of an interior detail at a hall door, shows the use of normal clapboard running vertically on the hall walls. Illustration 7 pictures the stairway of the house.

We were unable to get into the Bogner house or Marcel Breuer's house at the time so contented ourselves with skulking around the grounds and peering in the windows. The generous use of glass makes this technique of visiting the modern house quite profitable.

While in Boston, we examined McKim and White's Boston Library, holding somewhat involved discussions on the placing of murals in architectural settings inspired by Sargent's magnificent work there. Some visited Richardson's Trinity Church, on Coply Square, unfortunately arriving, due to traffic difficulties, just after the collection. We were fortunate in gaining access to many of the great old houses of Louisburg Square, Beacon Street, and Chestnut Street as the Boston League of Women Voters had arranged to have them open to the public on the Saturday we were in Boston. Noticed one staff member sliding down a beautifully curved Bullfinch stair. So we saw the best of the old and the best of the new.

On our way back, near Lake Placid, in the mountains, we unexpectedly came across a school for boys by Henry S. Churchill and Harwell Hamilton Harris, and also a new house for the head of the School by the latter designer. This house is his first, I believe, in the east, as Mr. Harris has worked on the west coast to date.

We ploughed through two feet of snow to reach these buildings from the highway below, but found it well worth while. The house is illustrated in illustration 1. The exterior is in natural cedar, of a beautiful colour. The large windows, which can be seen in the illustration, are of fixed plate glass and the window frame is structural. A solar canopy overhead controls the sun and ventilation takes place through louvres at top and bottom of the windows. The room was most pleasant, and although it was a cold day outside, no heat was on in the room, which was perfectly comfortable. The imaginative lighting of this house, inside and out, aroused favourable comment. Under the canopy were spot lights, and on some occasions the lighting of the living room, at night, is accomplished by reflected light from the landscaping outside.

Our round trip of some fifteen hundred miles brought us back into Canada across the new bridge over the St. Lawrence below Gananoque. Transportation costs, incidentally, at about five people per car, came to some six dollars and sixty cents each.

All agreed that modern architecture, perhaps even more so than traditional work, needs to be seen to be really understood and assessed. Definitely a more tolerant attitude resulted from the trip—a sincere appreciation of the charm of fine traditional work, but a wholehearted conviction of the merits of contemporary design coupled with an awareness of its strong points and its weak points.

Photographs by R. H. Crawford a fifth year student accompanying the party.

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A Reprint from
THE ARCHITECTS' JOURNAL
August 1, 1946

The Architecture and Planning Groups of the Society for Cultural Relations with the USSR in London, which was formed in 1945, recently sent a series of questions to the Architects' Section of VOKS – the Soviet Society for Cultural Relations with Foreign Countries in Moscow. These questions dealt with the organization of architectural practice, the building industry, housing, town-planning and architectural education. Detailed answers have been received and are published here for the first time. They should be of some interest in showing how building is organized in a country which no longer has any competitor among nations in the field of state planning. Further answers on the vexed question of architectural style are expected.

HOW BUILDING AND PLANNING ARE ORGANIZED IN THE USSR

I. HOW IS ARCHITECTURAL PRACTICE ORGANIZED?

State Organization

The State direction of architectural activities in the USSR is vested in the Committee for Architectural Affairs under the Council of Ministers of the USSR. This Committee exercises direction and public control over the activities of all the planning and constructional organizations working in the province of architecture, and similarly over the planning and production of artistic manufacture.

The Committee acts in consultation with the local authorities in each republic and province, and with the chief architects of the principal cities and towns.

The Committee supervises the general plans of towns and villages, approves these plans and directs their fulfilment, and in particular sets out the requirements of new architectural projects, approving them and making decisions on their execution.

In consultation with the relevant authorities, the Committee supervises the working out of typical projects and decides on standards for mass production in building work.

Academy of Architecture

The most important scientific authority in the country in relation to the practice of architecture is the Academy of Architecture of the USSR, which was established in 1934. The Academy has for its main purposes the improvement of the standards of architecture in the Union, the further study of its theoretical and historical foundations, the advancement of the art of planning and construction, and the training of fully qualified architects and scientific workers.

The Academy of Architecture in the USSR is composed of 20 active members and 50 corresponding members, chosen from among the outstanding architects, architec-

tural historians, and structural engineers. At the present moment the Academy consists of 6 scientific-research Institutes: (1) Town-planning; (2) Housing; (3) Public Buildings; (4) Art Manufactures; (5) Building Technique; and (6) The Theory and History of Architecture. The Institutes are divided into special sections and are provided with experimental and planning studios. The Institute for Building Construction, for example, has sections devoted to the study of building physics and constructional technique, with the necessary laboratories and apparatus.

The Academy also has a similar Institute of Students which holds an annual competition for the most talented young architects; so that over a period of three years they are enabled by improving the mastery and knowledge of their art to obtain higher qualifications and present a thesis for the title of candidate in architecture. The Academy has its own publishing house, scientific library, museum of architecture, and sculptor's studios.

The membership of the Academy is about 450.

The development of the scientific research work of the Institutes and the preparation of enormous quantities of new building and reconstruction work has necessitated the further growth of the Academy and the broadening of its establishment. As a result, the Ukrainian Affiliated Academy was organized in 1943, and in 1945 this was developed into the Ukrainian Academy of Architecture. In 1943, under the aegis of the Academy, the active members of the Academy were organized into planning groups, and are now engaged on the reconstruction of the larger towns which were damaged in the war, such as Stalingrad, Voronezh, Rostov, Novorossisk, Kalinin, and others.

Union of Soviet Architects

The general activities of Soviet architects are organized and directed by the Union of Soviet Architects.

This voluntary public organization has for its object the collaboration of architects in active participation in public construction, the all-round development of the architecture of the Republic, the advancement of professional culture, the study of various problems of Soviet architecture and building work, the practical co-operation of the members in their daily work, the improvement of their qualifications, and the betterment of the conditions of their life and work.

The work of the Union is directed by an Executive, elected at an All-Union conference of architects. In the republics and large towns the work of the branches is directed by republican and city executive committees, elected at conferences and provincial meetings.

The Union of Soviet Architects has about 50 branches with nearly 5,000 members, including full members and associated members (candidates). The membership also includes many outstanding craftsmen of other allied professions.

The members of the Union participate in the work of various sections devoted to the study of many sides of architectural work, both in theory and practice. Besides this routine work, the Union plays its part in the solution of more complex problems and refers them to the decision of conferences, which are held periodically. The results of these conferences constitute a programme of action for members of the Union, and are published or sent as recommendations to the appropriate State departments.

The Union co-operates in furthering the professional welfare and social intercourse of its members, publishes a monthly journal, arranges exhibitions, debates, reports on the work of leading individual architects, and organizes competitions, tours and visits. The funds of the Union are derived from the subscriptions of the members, contributions by public authorities, and various sums arising from rent of property and the activities of the Union. The Union has an Architectural Fund which is devoted to the welfare of the members in various ways. This Architectural Fund disposes of considerable sums from its annual income, which is derived from the legal allotment of about 10 per cent. of the salary which is paid to the architects by the various planning organizations which employ them. These sums are paid to the Architectural Fund over and above the salaries paid to the architects.

The Architectural Fund has enabled the Union to provide and maintain holiday homes and hostels for architects near Moscow and Leningrad, on the shores of the Baltic and the Black Sea, and in other parts of the country; organize various types of assistance towards the completion and improvement of qualifications in the form of courses, seminars, individual and group instruction in preparation of theses; provide the various branches with books and periodical literature; and promote the general welfare and material necessities of the Union members.

Architectural and Planning Practice

Architectural practice in planning and construction

is concentrated in State planning and constructional organizations.

The most important planning organization for industrial purposes comes under the Ministry of Building, while town-planning and reconstruction is dealt with by the Committee for Architectural Affairs.

The Central Institute for Industrial Planning – Promstroi-Proyekt – consisting of about 1,500 workers, of whom about 200 are architects, is found in Moscow. This Institute prepares the plans for the largest and most important industrial and engineering enterprises in the country, and designs, in consultation with the Central Scientific Research Institute for Industrial Construction, the layout of typical structures, standardizes components, and systematizes the plans and designs for future work.

Branches of the Promstroi-Proyekt are found in all the main industrial centres and hundreds of architects are employed in them.

Industrial housing and the design of cultural buildings has a similar Central Planning Institute in Moscow known as the Gosstroi-Proyekt, with branches in the provinces. The Gosstroi-Proyekt works out the plans for the general layout and erection of new and reconstructed industrial towns and village communities, and in general lays down the standards for industrial housing.

Under the direct control of the Committee for Architectural Affairs some of the most eminent architects of the Soviet Union have been working in their studios in Moscow on the general design, building, and reconstruction of many towns which have been badly damaged in the war, such as Novgorod, Pskov, Bryansk, and others.

In these studios and by a system of competitions the plans are prepared for mass construction, for the approval of the Government.

The Republican Governments have their own Architectural Institutes – Giprogori – for the planning and layout of towns, which lay down the general lines of reconstruction.

The regional and urban departments of architecture, and the chief architects of the various towns have their own planning organizations, which take the general plans and work them out in detail, undertaking all the necessary allotment of land and deciding on the various problems connected with the actual construction.

Many other important organizations and authorities have their own planning Institutes and offices, which deal with all the building work undertaken by that authority. These studios and planning groups and the architects whom they employ have special qualifications according to the type of building work demanded by their authority. For instance, the architects employed by the Narkomzdrav – the Ministry of Health – in hospital buildings and sanatoria; the Narkomtorg – the Ministry of Trade – in business premises and warehouses; and the Committee for Art Affairs has its own specialists in theatre and cinema design.

The planning departments of these authorities have

their central offices, and republican, urban, and provincial branch offices, and there are also separate planning departments in many of the large industrial enterprises.

The larger planning organizations are arranged in separate studios and drawing offices under the direction of fully qualified architects, and in separate brigades which devote themselves to the planning of particular projects under the direction of a chief architect or chief engineer. These brigades include all the necessary specialists both for the planning itself and the supervision of the given project when under construction.

This method of arrangement in separate drawing offices and studios in groups and brigades gives considerable flexibility to the work of design and planning. At the same time each architectural department has its own administration, its own board of management, its own finance, plant, and records, and this simplifies and facilitates the work of design.

In addition to this many architects take part individually or in groups in open competitions, or are invited to take part in restricted competitions, according to their qualifications. These competitions are usually set by government or other public organizations.

Architects have no need to concern themselves about the preparation of a register, or the distribution of the work, since as far as architectural work is concerned the demand far exceeds the supply, and this matter is dealt with by the proper authorities according to general public policy. The Committee for Architectural Affairs, however, keeps a check on all the available architectural man-power, and uses its influence to ensure the most useful distribution of qualified men over the country and their continuous employment. Naturally most of the central planning organizations are found in the large towns, which they serve together with the provinces. There are, for instance, 110 planning offices in Moscow, with 1,900 architects, in Leningrad 56 offices with 570 architects, in Kiev 28 with a staff of 270, and in Tbilisi 12 with 150.

Working Conditions

Working conditions in the architectural profession are regulated by the general labour laws, dealing with the length of the working day, a guaranteed minimum salary, an annual month's holiday with pay according to the average monthly salary, etc. In addition architects, as members of a professional association, enjoy all the benefits of the State social service, which covers them during illness and incapacity.

Pensions on retirement or incapacity are allotted according to the average salary received immediately previous to retirement, and depend on actual personal service and merit.

The remuneration of architects in the planning organizations is based on the Government scale for each particular type of job. The overall cost of preparing a project varies from 1.5 per cent to 10 per cent. of the estimated cost of construction. The lower limit applies to

large and architecturally simple buildings, higher percentages being allowed for more complicated jobs, for those with higher artistic requirements and for small jobs. In all circumstances the architect himself receives a guaranteed minimum remuneration in the form of salary, paid according to the existing scale, depending on experience and qualifications.

II. HOW IS THE BUILDING INDUSTRY ORGANIZED?

Government and co-operative building, and similarly the building work of public organizations is carried out almost exclusively by specially organized building contracting enterprises.

In addition to the Ministry of Building of the USSR, the majority of the Ministries for industry and other branches of national production, such as transport, communications, collective farms, etc., have their own contracting organizations for building work.

The construction of housing schemes, public and other types of civic building is carried out mainly by the contracting trusts or the republican commissariats or housing and public building, and the trusts of district and urban councils.

The production of building materials is carried out in enterprises of a national importance belonging to the Ministry of Building Materials Industry of the USSR and in the corresponding factories of the commissariats of the building materials industry of the Union Republics, the republican commissariats of local industry, and the Soviet Republics co-operatives, district, provincial and urban councils. Other enterprises belonging to the Ministries of various branches of national economy also produce a good deal of building material, which is utilized by their own contracting organizations. These various sources of supply, from which proceed an enormous quantity of building materials and components, show the tremendous scale of new building and reconstruction in the USSR, and the desire to utilize to the greatest possible extent the resources of the country, by decentralising as far as possible the direction of the local producers of building material, in order to achieve maximum flexibility.

The planning of capital construction and the production of building materials is carried out by the Planning Commission of the Council of Ministers of the USSR—Gosplan—and by similar planning commissions in the republics, districts, and provinces, depending on the importance of the structure concerned.

Provincial Organization

Decentralisation, together with specialisation, is one of the leading principles of national economy in the Soviet Union.

As a result the special Ministries, such as the Ministry of Building in the USSR, the republican Ministries for housing and public works, and similar central organizations, have provincial building trusts in all parts of the wide territory of the Soviet Union.

The management of the building trusts controlled by these various Ministries is also decentralised as far as possible; and they usually have chief offices for the South, the Centre, the East, and so on.

Other authorities which engage in building work, such as industrial co-operatives, district councils, and the councils of the larger towns, also have district building trusts and offices.

Building Plant

There is no central pool of building plant, because the tremendous scale and variety of building in the USSR would make such a pool unwieldy and impracticable. The commissariats engaged in building work have separate departments for plant and implements, and administer their own stocks and reserves. These stocks of plant and machinery are kept complete and up to date by the allocation by the Gosplan of new equipment from the factories specializing in machine tools, and also by the production of a good deal of equipment from their own workshops. There are, in addition, special shops for the repair and renewal of building plant and machinery.

Site Organization

The responsibility for the proper organization of building work with reference to the accepted technical conditions and rules, and the regulations dealing with risks and accidents, etc., is borne by the Building Manager, the chief engineer, and the authorities for technical control of the job.

The workmen are provided with tools by the authorities by whom they are employed. If a tradesman uses his own tools, he draws a special payment to cover their use. When the tools are provided, the workmen are obliged to take the utmost care of them, and in the event of loss they must be replaced. On transferring to another job the workmen must return their tools to the management.

Working Conditions

The workmen are provided with living quarters, either in hostels or furnished apartments, with bedding and various kinds of communal service. They are also provided with dining-rooms and various cultural services. Each worker enjoys an annual holiday. They are also provided with special clothing for use on the building by the authority.

The Use of Local Materials

The production of local building material is planned by the local authorities (town-planning commissions). Particular attention is paid to the development of a local industry of building materials.

In the case of the Soviet Union, with its enormous area and the wide variety of its local resources, the production of building material from local sources of supply is of great economic importance. The building materials industry includes a large number of local enterprises for this purpose. Among these, besides the usual materials,

such as bricks, sand, rubble, timber, and so on, there are many quarries where various types of natural stone suitable for walls are obtained; for instance, the fossiliferous limestone in the Crimea, near Kerch, in the N. Caucasus, near Odessa and other places; the use of volcanic tufa in the S. Caucasus; the factories for the production of building blocks from compressed grasses and reeds; gypsum works and the manufacture of building components from gypsum; and artificial stone on a basis of local asphalts.

There are many widely distributed factories which produce building blocks from blast-furnace by-products.

The Government of the Soviet Union has encouraged the development of local building materials. At the end of the war it issued special directives referring to this development, which have had the effect of stimulating the local organizations.

The material produced by these local enterprises is allocated exclusively to the building demands of the localities in which these factories work, and comes outside the jurisdiction of the central authorities.

The utilization of the local building material produced by these enterprises is managed by the Republican Ministries for Building Materials, and the various organizations of industrial co-operatives, district, town, and provincial Soviets. In addition to these, the National Ministries, which include building organizations, also produce local building material for their own needs.

New Materials

In the USSR there is a large network of scientific-research organizations working on the problems of new natural and artificial building materials. Among these may be mentioned the Institute of Mineral Resources of the Soviet Academy of Science, the Institute of Building Technique and its laboratories under the control of the Soviet Academy of Architecture, the Institute of Building of the Ministry of Building, and also the corresponding Institutes and laboratories of the republican and regional organizations. Research of this kind is carried out not only in the large central organizations of the Union, but also in some of the autonomous republics, for example, that of the Bashkir autonomous republic, which has an Institute for building material, etc.

Prices of Building Materials

The prices of the basic building materials are determined by the Councils of Ministers of the USSR and of the Republics on the basis of calculations made by the Building Materials Ministries and the planning commissions in consultation. The local authorities base their district prices on the decision of the Council of Ministers.

The calculation of the cost of materials is worked out on the basis of labour costs, cost of the raw material, power, transport, sinking fund charges on buildings and plant; the stipulated percentage of profit allotted to the enterprise, and a similarly defined allowance for admin-

(Continued on page 233)

DESIGN IN INDUSTRY

By D. W. BUCHANAN

GOOD design in manufactured articles, as we understand it to-day, means a combination of simplicity, fine proportions and functional utility. It is not a question of ornamentation, but of the design of ordinary objects for everyday living. Such objects include furniture, radios, electrical fixtures, kitchen utensils, textiles, pottery, glassware. Sweden early led the way in this field but other countries, particularly Great Britain, have also tried to improve standards of industrial design by the joint action of manufacturers, government agencies, and schools of applied art. A Council of Industrial Design now exists in Great Britain; it not only serves as an information centre, but also does pioneer work in putting industries in touch with competent designers. This Council has now organized a comprehensive exhibition of the work of British industrial designers, opened by His Majesty the King at the Victoria and Albert Museum, London, on September 24.

Great advances are now being made in consequence of new application of materials developed during the war. Countries in the competitive export field will put forth every effort to work out the designs which give most use and best looks for the least money.

To help arouse Canadian interest, the National Research Council of Canada, the National Gallery of Canada, the National Film Board of Canada and the Dominion Department of Reconstruction are sponsoring an exhibition on "Design in Industry" to circulate throughout the Dominion. It opens on October 1st, 1946, in the National Gallery, Ottawa, and will be shown later in Montreal, Toronto and other Canadian cities.

It not only includes representative samples of well-designed goods produced in Canada, but, also indicates, by photographs, comparative designs from other countries. The exhibition squarely poses the question of the place of the designer in Canadian industry. Do the manufacturers always know where to look for competent Canadian talent? Is it because of lack of knowledge of where Canadian talent lies that so many of our manufacturers commission new designs directly from New York or Chicago? One of our most enterprising kitchen equipment firms recently employed an eminent designer from Detroit to work out new functional forms for its Canadian ranges and portable cookers. The resulting products are excellent. Yet is there not a place here for native talent also to be employed?

A few possibilities are already apparent. Recently one architectural firm in Toronto opened a division in its

office devoted to industrial design, and has received instructions from a large electrical plant to draw plans for a new series of wooden and plastic radio cabinets. An architect in Winnipeg is employed as a consultant on the design of electrical fixtures; one in Montreal is now specializing in the field of plastics and a member of another firm there has designed hospital furniture.

Another solution suggested is that Canadian research in industrial design should be encouraged and financed jointly by government and industry in much the same way as research in certain technical problems of industry is already paid for. A number of scientific experiments, for example, are now financed by joint grants in this fashion through the National Research Council of Canada.

All interested Canadian architects and industrial designers should urge, as a preliminary step, the formation of Canadian Design in Industry Committee.

The Government Departments to be represented on such a committee might be besides the National Research Council, the Department of Reconstruction and the National Gallery of Canada. There would be a permanent secretary. Designers might be employed on a permanent or commission basis depending on the amount of funds which manufacturing industries themselves would be willing to grant to the Committee. The Canadian Manufacturers' Association should have a member on the committee and there should also be members from industrial associations in fields such as furniture, plastics and textiles.

The Canadian Manufacturers' Association discussed this subject at its June, 1946, convention, and passed a recommendation in favour of encouraging Canadian initiative in this field.

Points For Discussion

1. What is the best method of finding out where competent designing talent can be located in Canada?
2. Can some of this talent not be best found among Canadian Architects? In the past in England much of the modern designing of radio cabinets, kitchen utensils, furniture was done for manufacturers by architects, such as Welles, Coates and Chermayeff. Should not Canadian architects themselves take the initiative by devoting some space to these questions in their official magazine?

Chair in moulded plywood with arms in laminated wood designed by W. Czerwinski, Stratford, Ontario. (Canada Wooden Aircraft Company).

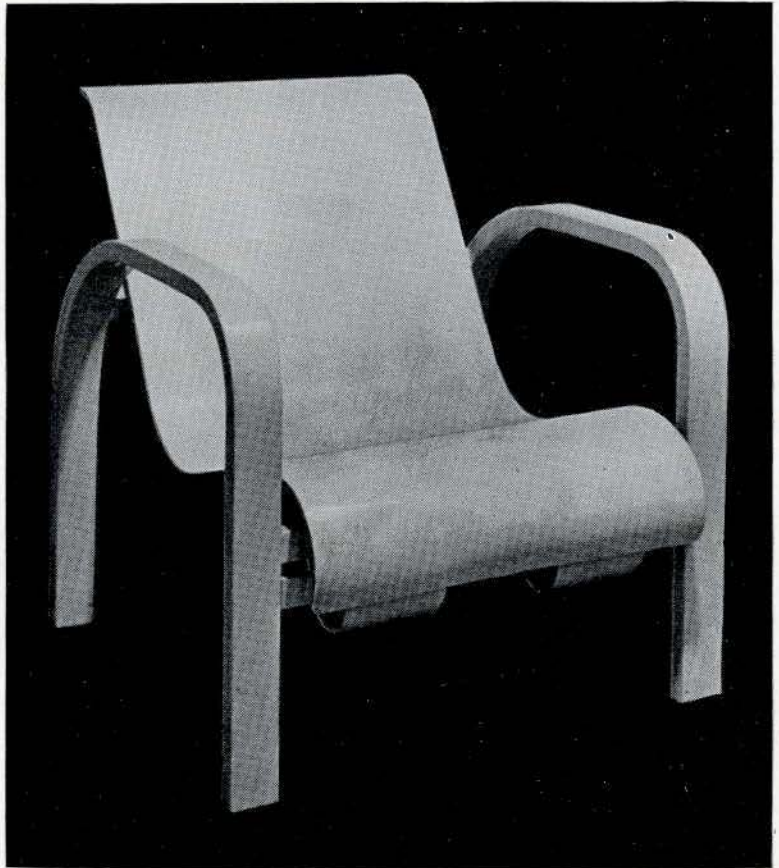


Exhibit in moulded and laminated plywoods at the Design in Industry Exhibition, Ottawa.

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ALBERTA

From an architectural point of view the vast proportion of the business streets in our cities is just a mess. Here and there a large building may command some respect but the generality of business premises present a struggling mass of petty and conflicting interests and ideas. Many of the elements in this confusion are originally well intended and good, but these get overlaid with misplaced and unhappy attempts at embellishment. The cure for this is not in the hands of architects, but rather in those of property owners. Architects may, however, exercise beneficial effect by using their influence on those property owners who have the power to employ quite considerable control over their tenants by the terms of their leases. The tenants would in many cases welcome such control. The leases could require that respect be paid to the design of the buildings and even when this has no high claim to architectural merit respect should still be paid to structural features. For even the mere structural members have a fundamental value that should take precedence over and give guidance to minor attempts at decoration and display. One commonly sees vertical or horizontal features, of value to the general appearance, cut across by advertising signs to the total destruction of that appearance. Even more common is

the destruction of good horizontal proportions by signs that completely upset them.

It is frequently claimed that stores must have every possible inch of window space and that this requirement justifies cutting away all appearance of good support for the superstructure. A glance at the results proves the folly of the claim. The better sort of stores generally recognize, consciously or unconsciously, the value of a neutral coloured and rather dark framework as a foil for the display within the windows, the exceptions to this are those places of business such as restaurants and some others which do not rely upon window displays.

Business signs are most commonly placed over store windows. This is not the most readable position, for these are more easily read from the opposite side of the street or from passing cars than from the adjoining sidewalk. By far the most easily read, and therefore the most generally serviceable, signs are those in gold or other letters upon the glass of the windows themselves and these have the great recommendation that they offer no disturbance to the architectural or structural design of the building.

The over-window signs, however, present the greatest opportunity for enlivening the appearance of the street with brilliant colour. Much more real advantage might



be obtained from these than is customarily done by some attention to genuine colour effects and to some regard to harmony. It should be recognized that black and white have in themselves no colour value though of excellent service as foils for colour and that harmony means essentially having something in common. Quite often adjoining stores forming part of an identical series may be seen one painted red, the next blue, the next white and so on, with apparently the idea that there is some positive virtue in having nothing in common with one's neighbour. Variety is the spice of life, but even a medley of colour may be harmonized by having a continuity of background especially if this be fairly neutral in colour. Such a groundwork is most naturally supplied by the structural framework of the building being given continuity thus forming the needful common element. Surface materials, such as vitriolite are often adopted on account of their smartness of appearance. It should be realized, however, that such smart appearances are superficial and that even good simple brickwork has more substantial value and can in many cases serve better in supplying continuity of background and establishing harmony.

Stores that are designed as groups should use such colours as express the unity of the group and even a single individually designed store should show some regard to its neighbours. A pair of stores should look like a pair in their colour schemes. In a set of three stores, which is quite a common occurrence, the centre one may differ considerably and yet not upset the unity of the three. Preserving the general framework of colour the detailed decoration may counterchange,—what is light ground with dark lettering in one may become dark ground with light lettering in the other. Various devices may be used to preserve the general unity.

Projecting signs overhanging the sidewalk are more readable from the near sidewalk and make a gay appearance at night when illuminated. Yet we suffer from a perfect plague of these signs, one obstructing the other. A great alleviation would result from having no more than one of these every twenty-five feet and these of not more than eight square feet of surface with some control over the heights at which they may be placed. Large properties might have larger signs and more choice of location.

Cecil S. Burgess.

ONTARIO

Advertising has been and probably always will be, the woe of all professional organizations.

To keep this method of public information of the professional's work, place of business, etc., within the bounds of what each professional association considers dignified, conservative, and dull enough to escape the eyes of all (except the familiar building corner leaner, who, feeling the delicately embossed metal letters digging into his back, shifts the six inches required to clear the width of the obstruction, twists his head, reads the

uninteresting information thereon, mutters the usual unprofessional phrases, settles himself into the pillow curves of the architectural order at hand, and rudely contemplates the next three who pass) requires the constant vigilance of the complaint receiving secretaries.

The eternal question is (a) whether the accused has exceeded the "this by this by this" size recommended by the organizational body, or (b) that he has splashed colour in there of a shade not considered in accord with the definition of dignified professionalism. Judgment is usually dependent on (a) the size of the accuser's hands—the accepted method of measurement for a complainant, as it is not considered in good taste to be seen by the public, applying a rule to the advertising area belonging to another member of the same profession; (b) the colour blindness, the addiction to certain schools of painting, the habitat, and the relationship to the accused of those members judging the merits of the charge.

The inevitable reprimand forthcoming to the accused is not so much that he has jumped the bounds of the regulations, but that the intention was possibly in his mind to do something devilish and out of line as was portrayed by the usage of a small coloured persimmon at each corner of his shingle.

And so, over a long period of time, the professions have been "dead beats" as far as the advertising world was concerned. The ultra-conservative, carefully lettered, worded, 2 inch by 3 inch space, positioned exactly on the proper page, adjacent to other advertisers of equal rank, has cost the newspaperman more torn hair, more wasted time, more shaken fists at departing clients, than any other six groups of advertisers.

Then came the golden era of the Architect with thousands of jobs. So, he increases his organization into a veritable hay-making group. By personal contacts he manages to establish the basis of his working organization.

Not yet having enough assistance, and feeling the flush of wealth, he whirls to the newspaper offices of a well-known daily and astounds the advertising manager with his "sky's the limit" manner. He will advertise—and boldly—to get what he wants.

The be-numbered ad man timidly suggests two insertions.

"Three!" bubbles the Architect with an exultant manner and confidence that marks the powerful and the wealthy. And—the wording, lettering, size, etc., are left entirely in the hands of the advertising department of the well-known daily newspaper.

Three days go by—four—five—and to the Architect's amazement—no applicant. Having taken on three jobs by reason of the supposed power of the press, he finds himself that much deeper in the well-known hole.

Undaunted, he applies to the paper for the treatment to be repeated—which ends with the repeat of the first dismal results.

Original tactics are expanded — he advertises in two newspapers. As he reads his own advertisements in the days following, he nervously observes that other members of the profession are offering terrific salaries for still more terrific requirements. Uncontrolled rage shakes his frame as he shouts about the lack of association regulations in such matters.

Again he rights another mistake and reads with satisfaction that he has now topped the biggest firm in the city in salary offers. Then he waits — and keeps waiting.

Nothing in his mail even slightly resembles an application, and our confused architectural brother is about four feet from the rope's end. But give up — not with forty-seven jobs looking him individually in the eye.

The advertising man by this time, has come to know and love the drooping figure which drags itself over his threshold — regularly, once a week. He smiles, or is it something else, when he plots another of his suitably phrased, eye-catching masterpieces. Also, by this time, our victim realizes that he has been practically this man's salary for the past few months.

Then one day — results. He could smell them as they dropped through the mail slot. Excitedly, he rips open the first. His hopeful, eager face drops and bounces lazily on the floor. We catch the words — "seventy years old, mechanical draughtsman for forty-five years, willing to give the building business a try". With some difficulty, he regains his composure and in a quiet, business-like manner, carefully opens the next, and the last, incidentally, with a letter opener. He takes this one sitting straight up — no tears — no anger, "the boy is only seventeen but has a genuine flair for all kinds of art work. I think he would be a lot of help to you." This then was the answer to his over-endowed, triple for overtime, bonus for week-ends, house-sharing, car-sharing, servant-sharing advertisements, which have cost him — he doesn't know.

Recovery takes a few days. Then, strengthened and steady, he once again swings through the doors of the newspaper building, and goes directly to the advertising section where his old friend, complete with beaming and annoying countenance stands ready to assist to the limit of his ability.

Solicitously, or is it cynically this time, he pokes at our man an entirely new proposition; a six months' contract which would be a considerable saving in both time and money. The advertisements would follow three standard types and would be changed periodically through the six months' period. With a "Well, — what do you think," his grin awaits the answer.

Our thin, emaciated brother speaks no word. Reaching into his right coat pocket, he brings forth a small, shiny rod. He pulled one end and telescopes it with a click to form a tube about ten inches in length. From the left pocket, he produces a glistening lump of steel, not unlike the head of an axe. He carefully inserts the rod into the lump, then, dangling the instrument loosely in his right

hand, he rises lightly on his toes and with perfect bowling form, brings the instrument in a beautiful flashing arc down to meet the well-groomed hair mounted so tastefully on top of an annoying grin.

With the same businesslike manner, our living symbol detaches the shiny, telescopic rod from the now perfectly apparent head, returns it to its accustomed place, right coat pocket, and wheeling briskly makes his way out of the building which houses the organization which produces one of the well-known daily papers.

Never again will the newspapers and periodicals have grounds for regarding with scorn our once meager professional advertising with its meager financial returns. The staggering sum contributed to advertising by architects in the past five years, should keep us in good stead for at least two future periods of architecture or whatever they may be called when the time arrives. To-day we rank as the noblest profession — at least graded by the consumption of the ink and pulp of the newspaper industry. Now, we can proudly say that we have advertised — just like ordinary normal people.

And of the man with the bulge in the right coat pocket — I think I'll wait until the day after to-morrow.

Arthur B. Scott.

NOTICE

Matters arising out of a recent meeting of the Executive Committee of the Council of the R.A.I.C., held in Montreal.

The President reported that the Council's recommendation regarding the opening of courses in Town and Community Planning in the Schools of Architecture had been forwarded to Provincial Premiers, Ministers of Education and Provincial Secretaries of the Provinces of Quebec, Manitoba, Ontario and British Columbia, and further, that a copy of this letter had been sent to Schools of Architecture in the Universities. Very satisfactory answers have been received and most Provincial Departments of Education have under advisement, the organization of such courses in University curricula, or provision of scholarships to provide the necessary technicians.

In Quebec, Messrs. Bland and Pitts, were authorized to make representations to the Prime Minister of Quebec with reference to the establishment and subsidizing of courses in Town and Community Planning in the Architectural Schools of that Province.

It was pointed out by Mr. Pitts that a School of Architecture was being organized by Dean John Finlayson in British Columbia. The best wishes of the Institute will be extended to Dean Finlayson for the success of this new department.

A Community Planning Association has recently been formed by the Central Mortgage and Housing Corporation as a result of the joint efforts of the R.A.I.C., the Town Planning Institute of Canada and the Engineering Institute of Canada to revive the dormant Town Planning Institute of Canada. The object of this Association is to acquaint the public and to further the adoption of the

principles of Community Planning. Messrs. A. J. Hazelgrove, J. Roxburgh Smith and P. Alan Deacon have been appointed provisional directors of the Board.

A Committee was appointed to represent the Institute in considering the conditions of a competition being sponsored by the Central Mortgage and Housing Corporation for small houses.

Implementing the terms of a recent Order in Council, an invitation was received from the Chairman of the Federal District Commission of Ottawa for two nominees to act as representatives of the R.A.I.C. on the National Capital Planning Committee. A ballot of the members of the Executive Council resulted in Mr. Charles David and Mr. A. S. Mathers being appointed to act as R.A.I.C. representatives on this important Committee.

CONTRIBUTORS TO THIS ISSUE

Edward Henry Noakes, born in Toronto, 1916. Educated in Toronto Public and High Schools. Left the School of Architecture, University of Toronto at end of fourth year in 1940. With H. H. Angus, in Toronto, and Defence Industries, Montreal, on Heating and Plumbing. Commissioned in R. C. E. in 1941. On loan to Munitions and Supply in Ottawa and Montreal designing Self-Propelled Artillery. Joined Artillery in Shilo, 1943, and finally Infantry in 1944. Patented system of prefabrication while in England. Returned to finish fifth year in Architecture, fall 1945. At present working for Govan, Ferguson and Lindsay in Toronto, and in spare time organizing and planning a small community north of Toronto.

Donald W. Buchanan, for the past eight months has been supervising the preparation of an exhibition on Design in Industry which is being sponsored jointly by several government departments in Ottawa. He has been connected with the Graphics Section of the National Film Board of Canada for a number of years and is the author of several books, including the recently published "Canadian Painters". He was born in Alberta and is a graduate of the University of Toronto.

HOW BUILDING AND PLANNING ARE ORGANIZED IN THE USSR

(Continued from page 227)

istration charges. Some branches of the building materials industry, particularly those dealing with new types of material, are in receipt of government subsidies in order to bring the new materials into practical use.

Administration of Factories and Supply of Materials

Enterprises of a national importance are administered by the central organizations; for example, the large cement works at Novorossisk comes under the Ministry for Building Materials of the USSR. Similarly, enterprises of republican importance are managed by the corresponding republican Ministries, while enterprises of a local nature are managed by the relevant local authorities.

The supply of material for the national economy of the Soviet Union is dealt with by a special Chief Administra-

tion under the Council of Ministers. The particular industries are only concerned with the production side, e.g., the timber industry's job is to produce timber and its supply to other industries is dealt with by the Chief Administration.

Standardization

In the USSR a large number of basic constructional details, such as windows, doors, the proportions of stairs, partitions, details of flooring and roof coverings for public and industrial buildings of mass construction have definite All-Union compulsory standards. The same may also be said of baths, w.c.'s, washbasins, and similar internal fittings, including skirtings, dados and mouldings generally.

The degree of standardization depends on certain principles which may be summarized as follows. The number of types and sizes of various fittings are kept down as much as possible in order to facilitate their mass production and reduce costs. This simplification, however, is carried out with due regard to the possibility and the necessity of satisfying varying architectural demands and the specific peculiarities, climatic and so on, of building in the USSR. In laying down these standards we aim at combining the demands of mass production and erection and the demands of the consumer, not only with regard to the efficiency of the product, but with a serious attempt to study the architectural qualities of each detail of a building and each separate fitting. As an elementary example of this we may mention that the standards of concrete and reinforced concrete staircases in dwellings, public and industrial buildings give a narrow range of dimensions for treads, risers, and the width of the stairway, but the profile of the steps themselves is left to the designer's discretion, and this makes it possible to vary his mouldings according to the style of the rest of the interior.

The standards relating to doors and windows also give a limited range of basic dimensions, giving the designer a choice of possible arrangements to suit the rest of his design.

Standard iron baths have two basic sizes of length, width, and depth, while a special type of bath is designed for children, and in addition various geometrical features of the design of the bath (round or straight edges, etc.) have been taken into account.

Since the end of the war the Government of the USSR has raised the question of a significant improvement of the architectural and practical qualities of building. As a result, notwithstanding the already important achievements of the Soviet building industry in the matter of standardization (with regard to which we recommend the study of the article of our colleague in the Soviet Academy of Architecture, P. S. Belitz-Geiman, in the journal *Building for March, 1945*, entitled *Building Standards in the USSR*), at the present time the work of increasing the number of standard types of building details is going on at full speed.

Facts about Glass by Pilkington

FOR ARCHITECTURAL STUDENTS

1. THE MATERIAL

★ **DR. SAMUEL JOHNSON** "Who when he first saw the sand and ashes by a casual intenseness of heat melted into a metal-line form, rugged with excrescences and clouded with impurities, would have imagined that in this shapeless lump lay concealed so many conveniences of life as would, in time, constitute a great part of the happiness of the world. Yet by some such fortuitous liquefaction was mankind taught to procure a body at once in a high degree solid and transparent; which might admit the light of the sun, and exclude the violence of the wind; which might extend the sight of the philosopher to new ranges of existence, and charm him at one time with the unbounded extent of material creation, and at another with the endless subordination of animal life; and, what is of yet more importance, might supply the decays of nature, and succour old age with subsidiary sight. Thus was the first artificer in glass employed, though without his knowledge or expectation. He was facilitating and prolonging the enjoyment of light, enlarging the avenues of science, and conferring the highest and most lasting pleasures; he was enabling the student to contemplate nature, and the beauty to behold herself."

NATURE AND PROPERTIES—Glass is a transparent solid, analogous in structure to certain liquids in which the atoms assume a temporary arrangement, the only difference being that in glass the temporary structure has been frozen into place.

The process of manufacture is governed first by the articles which it is required to make and secondly by the physical pro-

erties of the materials employed. The principal constituents of structural glass are Silica, Soda and Lime. These materials are fused together at temperatures of 2600 to 2700 degrees F. Glass is one of the strongest of all building materials; it can be transparent, opaque or translucent.

HISTORICAL—Throughout its progress from a mystery to a science glass making has had an intimate bearing on architecture, for as Corbusier said "the history of architecture is the history of the struggle for the window". Modern replacement of all raw materials for building by synthetic materials has increased enormously the variety and style of present day architecture. It has widened the architectural application of glass, refined its properties and thus increased its usefulness and its range of indispensability. The chief application of glass in architecture will always be in the window, but so extensive are its other applications that there will always remain a vast field in which this most versatile of all building materials may be employed by the architect.

The glass industry always aiming at higher efficiency and ceaselessly experimenting to produce ever newer designs, applications, and uses, has in no way taken from the architect the responsibility that is his to know the extent and variety of the developments and innovations of this all important building material. We hope by this series on glass and its uses to simplify the task of the student in acquiring this necessary knowledge.

Re-prints of any of these articles, with binder in which to keep them, may be obtained free on application to any branch.



THE MARK OF DISTINCTION

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