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R. A. I. C.
JUNE 1948

VARIOUS, and sometimes conflicting, stories have come out of Great Britain regarding the state of the architectural profession in those islands. We have heard that draftsmen are unwilling to come to Canada for a salary which, though high here, is less than they are accustomed to there; and we have heard that all architects are busy in England even though they may be engaged on projects for which there is no immediate hope of realization. Other stories are rife of deplorable conditions which we imagine were invented by some recent immigrants who wished to give colour to their reasons for leaving Great Britain. The Editorial in *Architectural Design*, May, 1948, gives a clear picture of the situation and it is a disquieting one. The architect is usually a person of independent mind whose greatest ambition is to run his own show. It was for that reason that he embarked on a course of training which would fit him for the profession of architecture. In that, he differs completely from the engineer whose ambition is a salaried job with a reputable company.

THE economic state of Great Britain plus socialism are responsible for the position in which the architect finds himself. Had socialism arrived in a prewar Britain, a "crisis" would not have occurred, or if it did, it would have come slowly. Houses for the well-to-do as well as subsidized houses for the poor would have been built, and churches, theatres, and commercial houses would still have demanded the services of the private practitioner. Tragically, the war changed all that, and socialism arrived with the legacy of a bankrupt economy. The result has been that the private architect, except in a few cases, has no clients and is left with the choice of working for the government, emigrating or changing his profession. Many hundreds are quite happy in government employ in planning departments, housing or in the design of schools and hospitals, which always were to some extent the work of official architects in England, and as they are to-day in New Zealand and parts of Canada.

IT is our own opinion that, by and large, official architecture has tended to be uninspired and that the private architect is more alive to new methods, new materials and progress generally, but one cannot generalize on these matters especially when one thinks of Forshawe in England and Dudok in Holland. No one could accuse Mr. C. G. Stillman of being unaware of progress in school design. On the contrary one looks to him as one of the great leaders in that field in the world to-day. The crisis is for those who cannot adjust themselves, and worse, if it be true, for those for whom there is no work either in industry or government departments. Apparently, there are many of the former and *Architectural Design* quotes Sir Lancelot Keay as suggesting that they go abroad "where great difficulty is being experienced in filling vacant posts". We know that to be untrue of Canada and the United States, and may be untrue of the British Dominions. *Architectural Design* regrets that the R.I.B.A. has not explored the foreign field, and, still more, that employment is not on the programme of the R.I.B.A. British Architects Conference in Liverpool. It would obviously be an impertinence, and would be misunderstood, if the R.A.I.C. were to write explaining the situation in Canada. On the other hand, we may soon be asked, and a statement might be prepared taking into account the slackening off in demand in this country coupled with the facts put forward on the future employment possibilities described in the May issue of the *Journal*. Everything should be done to avert even a minor migration of architects if the result is to be misunderstanding and unhappiness, or worse.

Editor

THE SCHOOL BUILDING PROBLEM

By J. A. G. EASTON, *Technical Adviser to the Department of Education, Ontario*

An Address at the Forty-First Annual Assembly of the Royal Architectural Institute of Canada, February 24th, 1948

1. General

Education is being called upon to embrace all traditional subjects, Vocational and Professional Training, Industrial Training, Adult Education, Nursery Schools, Special Schools for the Deaf, Dumb, Blind, Uneducables, Arts and Crafts, Leisure Time Activities and Social Services for everyone at public expense. This demand is not confined to our own country. In the United States, the President's Commission on Higher Education proposes to extend free education to all at the College level. Ethiopia is presently establishing a Vocational education system.

2. Great Britain

During the war Great Britain found time to enact legislation of a most comprehensive character which would assure equal educational opportunities to all. The Education Act of 1944 provides the means whereby Elementary, Secondary and College education becomes available to any person, ability to benefit being the only limiting factor. Transportation, Nutriment, Medical Service, Residence, Bodily Comfort in the way of Clothing and Shoes are provided where such needs are indicated. The estimated cost of the building programme to implement the Act was reported by the Educational Supplement of the London Times, November 23, 1946 at £1,000,000,000 spread over a fifteen-year period. A further report, December 28, 1946, stated that it was clearly impossible to achieve school building at the proposed rate of £70,000,000 per annum, since the estimated cost of the work completed in 1946 amounted to £7,000,000. Nevertheless, work to the value of £24,000,000 was planned for 1947, subject, however, to an adequate supply of labour and materials. Latest reports indicate that the entire programme must be severely curtailed in order to divert all possible labour and materials into whatever field will prove to be most useful for the export market to hard currency areas. In the meantime, every effort is being made with existing facilities and temporary quarters to implement as much of the educational programme as possible. There is every evidence of a firm determination to carry on as planned as soon as economic circumstances will permit. It is interesting to note that a Committee on "Standard Construction for Schools" was appointed and that the Royal Institute of British Architects was well represented. The report of the Committee would indicate that serious consideration was given to simplification, standardization and semi-prefabrication. A copy of the report may be secured from H.M. Stationery Office, York House, Kingsway, London, W.C. 2.

3. Germany

The conditions in Germany were described to me by Ray L. Hamon, Chief, School Housing, School Administration Division, United States Office of Education, Washington, D.C., U.S.A. Mr. Hamon visited Germany last year to make a survey of the physical requirements necessary for the re-establishment of the educational system. A copy of his report is in the publication "School Life," October, 1947, which may be obtained from the U.S. Office of Education. Mr. Hamon stated that teachers must be found and trained, new text books published, courses of study designed which will inculcate a desirable philosophy, buildings and equipment provided and food and clothing for the pupils. In Berlin the population has decreased by 1,000,000 but the numbers of children requiring elementary education have increased by 50,000. This may be due in part to an influx of orphans or to interrupted schooling. I am informed, however, that the principal reason was the effectiveness of the birth programme of the Third Reich. A substantial number of the Berlin schools was totally destroyed, many were seriously damaged, still others are used by occupation personnel. The schools in many cases are patched up, little or no heat is available, teacher and pupils are obliged to wear overcoats, windows are boarded or covered since glass is unobtainable. In Mr. Hamon's opinion it is urgently necessary that an adequate school system be established regardless of cost. He maintains that this may be the one and only means which will lead to satisfactory international relationships.

4. Canada

By comparison our problems would seem to be relatively simple. We have an ample supply of food, unlimited natural resources, ample room for expansion, and a pioneering background which developed this country in one short century to the point where its industrial and productive capacity enjoys a high place among the nations of the world. We did not suffer from bomb fire, our people are not dispossessed, we know little of want, we managed to superimpose a war

economy on a peace economy with little inconvenience; in fact, it appears that the experience gained during the war will serve to accelerate our development. One of the reasons for Canada's development may be that the immigrant was assured of elementary schooling for his children. In many cases the educational facilities were better than that offered in the country from which the immigrant came. Free schooling now includes Secondary education with the result that the compulsory school-leaving age is higher in Canada than in most European countries. During the depression, schools suffered in common with other things. Schools became badly overcrowded, new schools were not built, existing schools were neglected, repairs were not adequate, every effort was made to cut operating costs even to the point where teachers, whose heart lies in the school, were driven to seek some other means of livelihood.

The war placed further demands on the school but little or nothing was done in the way of extension to school plant. Many schools were forced to adopt staggered systems or double shifts. It might be noted here that the demands of the armed services and war industry for training obliged many of our Vocational schools to operate on a three-shift, 24-hour basis. Still further demands for Rehabilitation purposes were made to take care of interrupted educational and Vocational training for discharged members of the armed forces. At this point the capacity of existing school plants proved to be inadequate and temporary quarters had to be set up. It is gratifying to learn that the Vocational Training Programme is almost complete and that universities will be over the peak next year. An adequate educational system is recognized as a necessity and in the national interest it must be kept up-to-date. It may not be a question of can we afford it, but rather, can we afford to do without it. While I have some acquaintance with the other provinces, I am not sufficiently conversant with their problems to make any comments. I should like to confine my further remarks to Ontario but I feel sure that the building problem in the sister provinces will have much in common with that of Ontario.

5. Ontario Building Programme

Ontario's population as of 1945 was 4,107,000. Natural growth is approximately 1% per annum. Therefore, an increase of 400,000 may be expected as of 1955. It is predicted that immigration during the same period may be 600,000. Thus by 1955 the population of Ontario is likely to be 5,200,000. Apart from the necessary additions and new schools required to relieve overcrowding conditions and sub-standard accommodation, additional accommodation will be required for additional pupils at the rate of 20,000 per annum. Since January 1945 tentative and final approvals for new schools, additions and alterations for both Elementary and Secondary schools amount to $50,000,000.00. This may be expected to rectify overcrowding conditions.

An analysis of the approvals would indicate the following breakdown.

Completed January 1945 to December 1947	$9,000,000.00
Partly completed under construction	$6,000,000.00

This would indicate that the schools' share of the capacity of the construction industry is at the rate of $5,000,000.00 per annum against an approved backlog of $17,000,000.00 per annum.

If an estimate of $1,000.00 per pupil is taken as the capital cost of providing school plant and equipment, then the unsatisfied backlog together with predicted requirements would indicate a capital expense of $235,000,000.00 over a ten-year period. The capacity of the building construction industry may not provide for school construction at the rate of $23,000,000.00 per annum. Capital cost is a substantial part of the total cost of education. The indications are that capital costs are likely to increase to a greater degree than operating costs. It is essential that capital costs be held as low as possible since they constitute fixed charges. Economies which may have to be effected at some later date can only be made at the expense of teachers' salaries, supplies, maintenance, repairs and other operating expenses. Optimism during the design stage may lead to heavy fixed charges which in times of depression will force a general educational decline. The aim should be to build schools which offer adequate and economical accommodation for efficient learning and teaching situations required for the normal use of the pupil body. Space and appointments in excess of these requirements cannot be justified at the expense of education.

6. Grants

In 1945 the Ontario Provincial Government introduced a liberal scale of grants for education, which in effect, undertook to pay 50% of the total cost of education. The promise was implemented in 1945 and 1946. In 1947 the amount was limited to the amount paid in 1946 in order to leave the Royal Commission on Education a free hand in dealing with the question of school support. Contrary to popular belief, the 50% grant did not apply to all Boards. Wealthy municipalities may have received less while others with little other revenue received more. The net effect was that the 50% grant assistance was paid on a Province-wide basis. The wisdom of this procedure is now becoming apparent as better educational facilities begin to appear in rural areas.

In 1945 when the new grant system was introduced, ceilings were set establishing the approved annual cost per pupil in attendance upon which grants would be paid. There can be little doubt that the ceilings were liberal since comparatively few Boards are presently over the ceiling. Boards who find themselves over the ceiling are obliged to exercise caution with respect to capital commitments since further expenditures are not eligible for grant. The approved cost of education

includes building, equipment, professional fees, teachers' salaries, maintenance, repair, light, heat, power, supplies, transportation, etc. Needless to say, the new grants gave a great impetus to building programmes. This coupled with the removal of war restrictions impelled many Boards to take immediate action on building programmes to relieve overcrowding conditions and to rectify sub-standard facilities.

In 1946 the Department of Education felt obliged to set up a centralized office to give advice and guidance to Boards, Inspectors, Officials, Architects and other interested parties regarding the space and facilities which might be approved for legislative grants.

7. Costs and Distribution of Space

Prior to the war the last Collegiate Institute built in Toronto cost 30 cents per cubic foot. To-day a building of the same class and kind is being estimated at 80 cents per cubic foot. Quite recently I was informed that schools in Michigan are costing from 80 cents to $1.30 a cubic foot. The cube foot cost is trade language used by architects and contractors and serves as an indication as to the relative cost of types of buildings. The consumer, however, is more interested in the cost per square foot and the number of square feet. He is not interested in depth of footings, height of parapets and other building technicalities. During 1947 school costs have been from $8.50 to $12.00 per square foot. For preliminary estimating purposes we have been using $10.00 per square foot for every floor in the building including wall thickness and excavated basement. I regret to report that the indications point to an upward revision of this estimating figure. This figure does not include site, architect's fee, furniture or equipment. While the cost per square foot varies owing to the class and kind of building and the extent and quality of appointments, the number of square feet required per pupil for different instructional activities varies to a much greater extent. Instructional areas may be defined as those areas which carry a class load for instructional purposes. The minimum area presently required for some instructional areas is as follows: –

Instructional Area		*Normal Class Load*	*Minimum Area*	*Area per pupil*
Classrooms,	Elementary	35	750 sq. ft.	22 sq. ft.
Classrooms,	Secondary	30	700 sq. ft.	23 sq. ft.
Science Rooms,	Secondary	30	900 sq. ft.	30 sq. ft.
Library Classrooms,	Secondary	30	900 sq. ft.	30 sq. ft.
Commercial Rooms,	Secondary	30	900 sq. ft.	30 sq. ft.
Agriculture Rooms,	Secondary	30	1,000 sq. ft.	33 sq. ft.
Art Rooms	Secondary	30	1,000 sq. ft.	33 sq. ft.
Kindergartens, Single,	Elementary	20	700 sq. ft.	35 sq. ft.
Drafting Rooms,	Vocational	20	800 sq. ft.	40 sq. ft.
Sewing Rooms,	Secondary	20	900 sq. ft.	45 sq. ft.
General Homemaking Rooms,	Elementary	20	1,000 sq. ft.	50 sq. ft.
Industrial Arts and Crafts,	Elementary	20	1,000 sq. ft.	50 sq. ft.
General Homemaking Rooms,	Secondary	20	1,200 sq. ft.	60 sq. ft.
Sheet Metal Shop,	Vocational	20	1,200 sq. ft.	60 sq. ft.
General Shops,	Secondary	20	1,400 sq. ft.	70 sq. ft.
Machine Shops,	Vocational	20	1,400 sq. ft.	70 sq. ft.
Motor Mechanics,	Vocational	20	1,600 sq. ft.	80 sq. ft.

Auxiliary areas are required to provide services and facilities to knit the instructional areas together and to make the school function as a whole. They may be outlined as follows: –

Corridors and Stairwells
General Storerooms
Administrative Offices
Teachers' Rooms
Guidance and Health Offices
Dressing, Locker and Shower Rooms
Caretakers' Quarters
Washrooms and Toilets
Cafeteria and Kitchen
Auditorium
Spectators' Galleries in Gym.
Boiler Room and Coal Storage
Wall thicknesses
Other Structural Requirements

The total area is the sum of the instructional and auxiliary areas. Extensive analysis would indicate that the following relationship of areas will prove adequate for all normal activities within the building: –

Elementary Schools–50% instructional–50% auxiliary
Secondary Schools–40% instructional–60% auxiliary

Any improvement in design which will serve to raise the percentage of instructional area is welcomed. Cases arise where the peculiarities of the site adversely affect the distribution. Additions present many problems which may result favourably or unfavourably.

The practice of referring to schools on a cost per classroom is not valid. On this basis, costs can range from $15,000.00 to $50,000.00 per room. Rooms may be large or small and the auxiliary space deficient or excessive. A proper appraisal of the building cannot be made in such a casual off-hand fashion. Probably the most informative figure is the cost per pupil for the entire project including site, building, fees, furniture and equipment.

8. Community Use of School Buildings

There is a growing demand for community centres. Many schools, Vocational schools in particular, have made full use of buildings in the evening for education including vocational training, arts, crafts, social studies, art, music, athletics and other activities. Every encouragement should be given to the full use of school plant for these purposes. It must be remembered, however, that the educational budget, either at the municipal or provincial level, cannot be expected to provide extra plant and equipment together with operating costs over and above that required for the normal accommodation for pupil use. Additional expense incurred for community centre activities should be financed in its entirety by municipal funds apart from education.

It may be necessary to make special provision for community centre activities including some of the following items: –

Separate Entrances
Lobbies or Foyers
Adult Washrooms and Toilets
Check Rooms
Ticket Office
Telephone Booth
Oversize Auditoriums
Swimming Pool and Associated Areas
Oversize Gymnasiums
Oversize Cafeterias
Special Dressing and Locker Rooms
Oversize Boiler Room and Mechanical Plant

The desirability of community centres is not questioned. There is no reason why they cannot be attached to schools if costs can be distributed equitably and if the operation of the centre does not interfere with the efficient operation of the school.

9. Financing

A successive building project must be properly financed. The practice in Ontario is for the municipality concerned to issue 20-year debentures. The debentures should allow for the complete project including site, building contract, architect's fee, furniture and equipment. The Board is not a tax collecting body and must secure the consent of the Council and in some cases that of the ratepayers before commitments are made. The Ontario Municipal Board in its turn must approve the issuance of debentures, since it is charged with the responsibility of keeping municipalities in a sound financial position. The Department of Education must also approve before educational grants are available. If all parties are in agreement then the municipality may issue debentures which must be acceptable in the bond market. Unfortunate situations may arise where enthusiastic Boards or enthusiastic architects start projects without any assurance that the project can be either approved or financed. It is strongly recommended that architects assure themselves that the Board has tentative approval from the Department and preliminary assurances that the necessary financing can be arranged before any fees for professional services are incurred. If this is done then the architect may rest assured that Boards will receive any grants to which they may be entitled to help pay for fees even if the job should be abandoned in either sketch or final planning stage.

Abandoned projects amounting to $5,000,000.00 have reached planning stage over the last two years. In some cases the precautions mentioned were not observed. While adjustments of one kind and another have been effected for the payment of fees, the result has been many disappointments, and some bitter recriminations.

10. Research

By Order-in-Council a "Committee on Planning, Construction and Equipment of Schools in Ontario" was appointed on November 28, 1944. The Committee consisted of eminent architects and engineers; contractors and labour were represented. The Committee, after most exhaustive study and investigation submitted an Interim Report, May, 1945, which was published in the *Journal*, September, 1945. Reprints were placed in the hands of Department officials, inspectors, and school administrators. It is gratifying to know that the report found ready acceptance which is evidenced by the number of schools built in accordance with the recommendations contained in the Interim Report.

The Committee tabled a final report January, 1947. This report expanded and revised the Interim Report and the recommendations were accepted by the Department. After further consultation between the Committee and Department officials, some rearrangement of subject matter, minor additions, deletions and modifications have been made. The Report was finally made available July, 1947, in mimeograph form under the title "Suggestions for the Layout and Construction of Schools in Ontario." This report is presently in the hands of all architects in Ontario currently engaged in school work. It has also been distributed to Department officials, inspectors, school administrators and other interested parties.

The "Suggestions" are of an unofficial nature. Criticisms are requested so that revisions may be made which will make the "Suggestions" more comprehensive and reliable.

A model rural Elementary school was built at Utterson in northern Ontario under the direction of one of the architects on the Committee with the full collaboration of the entire Committee. Various methods of construction, daylighting, ventilation, acoustic treatment and different kinds of appointments and facilities are embodied in this school so that observations may be made as to their relative merits. The school is completed and has been the subject of much favourable comment. Visitors from all over Canada and the States have visited the school and placed their names in the Visitors' Book.

On behalf of the Department I would like to take this opportunity of thanking the Committee so that their associates may know of the signal service rendered to the school children, teachers, boards, school administrators, to your own associations and to the Institute.

In the United States, the "National Council on Schoolhouse Construction" is a most active research organization. Their membership consists of architects, engineers, specialists in school planning, school administrators and others specially interested in school design. Every member must take some active part in continual research work concerning some phase of school planning and equipment. A "Guide for Planning School Plants" as

prepared by the Council may be purchased for $1.00 from W. D. McClurkin, Secretary-Treasurer, National Council on Schoolhouse Construction, George Peabody College, Nashville, Tennessee, U.S.A.

11. The Royal Commission on Education

A Royal Commission on Education in Ontario was appointed by Order-in-Council, March 21, 1945. The Commission is still in session. It is charged with the task of making complete recommendations on all aspects of the educational needs of the Province. Some impatience has been expressed regarding the length of its deliberations, but the magnitude of the task and the results of the findings should not be jeopardized by undue haste. Since capital costs, particularly those concerned with buildings are a heavy charge, we may expect that the Commission will make some definite recommendations regarding the class and kind of school buildings and facilities required for whatever kind of school system it may recommend.

12. Outline of Departmental Procedure

Negotiations for the initiations and approval of building projects are made between the Board concerned and the Department of Education. In the case of Elementary schools, the Elementary school inspector is the representative of the Department. The Deputy Minister represents the Department for secondary school projects. Proposals and plans for schools concerned should be submitted by Boards to the designated representative for official approval.

The Department is prepared to examine proposals submitted by Boards for the establishment of school accommodation and to issue a tentative approval specifying the approved accommodation together with a rough estimate of the cost.

When tentative approval is given, the Board is authorized to retain architectural service to prepare sketch plans. The authority is contingent upon the Board securing preliminary assurances that finances can be arranged.

When sketch plans are completed to the satisfaction of the Board they should be submitted to the Department accompanied by the architect's estimate. The plans will be examined for conformity with the accommodation as specified in the approved proposal and with the "Suggestions for the Layout of Schools." If the estimate as submitted is reasonably within the cost as previously approved then approval to proceed with final plans and specifications, subject to listed modifications, will be issued. If the estimate as submitted is substantially in excess of the amount approved in the initial proposal, then further assurances regarding finances may be required before final drawings are made.

When final plans and specifications are completed to the satisfaction of the Board they should be submitted to the Department. They will be examined for conformity with the sketch plans as approved and with the "Suggestions for the Layout of Schools." The plans are then approved subject to any listed modifications and the Board is authorized to call tenders.

Upon receipt of tenders the Board should advise the Department as to the tender selected. If the tender selected is not the lowest, reasons for the selection should be given. The terms of the contract and the amount should be stated. The Department will then issue approval to let the contract contingent upon the Board completing the necessary financial arrangements.

The Department will then assure the Ontario Municipal Board that the school, as planned, is necessary for adequate school accommodation and that the project has been approved for grant purposes.

13. Co-Operation Between Architect and Department

It is proposed to keep the "Suggestions for the Layout and Construction of Schools in Ontario" in unofficial form. This will permit revision as required. Revisions will be made in sympathy with those criticisms received from architects, Department officials, inspectors, school administrators in keeping with new educational requirements and methods of construction.

The Committee on "Planning, Construction and Equipment of Schools in Ontario" set up a most comprehensive specification regarding the information which should be submitted on the sketch plans. The suggestions as issued modified the specification considerably.

It may be noted that we have yet to see a sketch plan which gives the complete information as suggested. It is felt that any extra effort invested in the sketch plans will be well repaid during the preparation of the final drawings.

While most final plans and specifications are complete, there are occasions where the information submitted is insufficient to form the basis of a clear understanding as to the extent of the proposed contract. In such cases the Department is obliged to request complete information.

It would be appreciated if architects would advise me personally regarding the date upon which building operations actually start, the date of completion and possibly the progress of construction at two or three intermediate stages. This will enable the Department to keep a record of work in progress which is most desirable.

There is a continual demand to see pictures of schools. It is proposed to set up reference albums showing both exterior and interior views of typical school plants. Architects who wish to avail themselves of this opportunity may send in pictures addressed to me personally. The pictures might be accompanied by a brief description of salient points. In each case the authorship of the work would be acknowledged.

The practice of the Department is to advise Boards to retain architectural service. Boards are expected to choose their own architect. The Department does not make recommendations, neither does the Department discuss plans of a proposed school with an architect until he has been regularly retained by the Board concerned.

The Department does not assume responsibility for the design, safety or mechanical features of the structure. Plans are examined from a layout and administration point of view together with due regard for economy of unit cost and use of space.

Finally, given a level market with firm bids, it is hoped that cumulative records may be evolved whereby the cost per pupil for different kinds of schools may be ascertained. This information when secured may be made available to Boards and architects. It is not proposed, however, to couple the information with the name of the architect concerned.

14. Possible Economies

Owing to high costs and lack of adequate labour and materials it is essential that every economy be exercised by school administrators in their demands and every economy be observed by architects in the design of school plants.

Some suggestions are made which may be of assistance. In some cases they may be of a temporary character.

(a) Schools should be built for the normal accommodation of the pupils. Excess space for other purposes is not essential for school use.

(b) Instructional areas as recommended in the "Suggestions" should be interpreted as the minimum rather than the maximum.

(c) Auxiliary areas should be held to the limits as indicated in the "Suggestions" and an effort made to make further reductions.

(d) Instructional areas for special subjects should not be established as such unless class utilization is assured for at least 50% of school time. A small extension to a classroom or a small alcove with a limited amount of equipment will serve where a few pupils are involved. Dual use of space may be a solution. In any event, it is no longer feasible to set up instructional areas which may be idle much of the time.

(e) Classrooms, shops and other instructional areas should not be cut up by partitions, glass partitions included, to form special areas, stores, tool cribs, etc. The area under the command of one teacher should be free of obstructions and should permit ready supervision.

(f) Storage should generally be carried in the instructional area concerned. This serves to promote tidiness and good housekeeping. Basement store rooms are useless. Some general storage space is required for general supplies and maintenance. Many storage problems would disappear if we store only that which is useful.

(g) Built-in equipment and furniture is desirable but it should not be included unless it can almost be guaranteed that its size, shape and location will be satisfactory for the life of the building. Free-standing furniture is more flexible and lends itself to rearrangement to suit constantly changing ideas.

(h) School buildings should be designed so that future additions and internal rearrangements can be made readily and economically.

(i) Auditoriums with fixed seats should not be included unless the pupil body exceeds 1,000 and then to seat only 50% of the pupil body. The stage and appointments should be designed for amateur rather than professional use. There should be access from the stage to the school corridor so that classrooms may be used in lieu of stage dressing rooms.

(j) Gymnasiums complete with instructor's room, apparatus storage, shower and dressing room accommodation are required for secondary schools. It is doubtful if any school can afford more than 2 gymnasiums or one double gymnasium. Beyond this point, physical training rooms relatively smaller in size and height and without dressing rooms and showers should suffice.

(k) Playrooms are required for elementary schools. Such rooms do not need ceiling heights as for gymnasiums. Floor equipment, dressing rooms and showers are not required.

(l) Where gymnasiums or playrooms are required to serve as Assembly Halls the design and appointments should be designed primarily from a gymnasium or playroom point of view.

(m) If cafeterias are necessary they should be designed to accommodate the number of pupils likely to patronize the cafeteria on a 3-relay basis.

(n) Concerning school design, there can be little doubt as to the desirability of standards as set up by medical and health authorities. It may be that these standards have been adopted by designers as minimum requirements. Considerable research work is being done which might modify some of the presently accepted standards.

(o) It is technically possible to set up controlled conditions with respect to light, heat, ventilation, acoustics, etc. The cost, however, for the full inclusion of all these and other features is prohibitive. Apart from the cost, automatic complicated mechanical equipment seldom functions as expected owing to interference by school personnel. In more than one case it has been immobilized and in some cases removed.

Teachers have many duties and things to contend with. Caretakers are not engineers; normal children are profoundly curious and maybe a little too helpful. If

teachers and architects could change duties for 2 or 3 years, there would be a keener appreciation of one another's problems.

It would seem that mechanical equipment should be as simple as possible and selected so that servicing facilities are available on short notice.

(p) Should the observation of the possible economies mentioned fail to bring the school building programme within economic or practical limitations then we may have to turn as a last resort, distasteful as it may be, to the application of self-imposed priorities in terms of essential needs. Classrooms and those essential service areas would be built first; auditoriums, cafeterias and even gymnasiums and some of the larger instructional areas would have to be deferred until a later date. It might be noted that some Boards have already been obliged to adopt such a procedure.

15. Conclusion

Our needs are relatively simple, our wants manifold. Man needs food, shelter, and a place to work. We can and will have these things. If we hope to develop socially and industrially, beyond bare need, then an educational system is essential. The keynote of the educational system is the qualified teacher. In order to do their best work, teachers must be provided with the proper kind of plant and equipment. The plant in addition must offer those facilities and surroundings which will promote and safe-guard the physical and mental health of the pupils.

Everyone associated with schools must be an enthusiast. Enthusiasm, however, must be tempered with sound judgment. We must keep in mind practical limitations and not overreach ourselves. The solution of the school building programme must proceed from our immediate needs to our ultimate wants. Unfortunately, a few elaborate schools which may be monuments to municipal pride fall far short of an adequate answer.

A recently projected school would have cost in excess of $2,000.00 per pupil. This means a capital investment per pupil in excess of that per person in the homes from which most of the pupils come. Pupils during their school life spend about 15% of their time in school. Educational facilities can be set up to meet public demands provided the public is ready and willing to bear the cost and also upon the availability of labour and materials.

Architects are in a key position with respect to the establishment of well designed school plants. The kind and class of schools and the rate at which they are built depends in a large measure on the purposeful planning with definite objectives in view which may be expected of the architect. One might almost say that the success of the whole building programme lies in his hands. Children, parents, boards, and teachers expect that the architects will accept the challenge, solve the problem, and earn the gratitude of all concerned

NOTE: The ideas presented are personal opinions and should not be construed as official rulings of the Department of Education.

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THE CASE FOR MODERN FURNITURE

By JOHN CRESSWELL PARKIN

A BARRAGE of high prices greets young home-makers to-day when they begin to furnish their hard-won home or apartment. Agreed, this is not an exceptional condition, for high prices are typical of every item for sale to-day, whether a house or an automobile. But what is the furniture manufacturer doing about it? Are the accusations levelled by George Nelson in a recent issue of "Fortune" magazine true of the furniture industry to-day?

Mr. Nelson, who is the co-author of "Tomorrow's House," consulting editor of the "Architectural Forum," and inventor of the "Storagewall," in short, someone who ought to know about such things, has accused the furniture industry of "confusion, contradictions, and more than a trace of catalepsy." As Nelson points out, the furniture industry is completely built around one material—wood—using techniques originated centuries ago. Because the vast majority of furniture factories are equipped to work only in wood, the public is subjected to the output of a sales organization, whose whole effort is directed to selling wood furniture

The furniture industry is one dominated by small producers, due to the relatively small amount of capital required to set up a plant. In 1941 in the United States, there were 3,200 manufacturers who shipped less than $100,000 worth of wood furniture, while only six firms had a production of more than $5,000,000.

This is yet another reason for the backwardness of the industry and the anachronistic character of its products, particularly when viewed in the light of the achievements of, say, the automobile industry. There is no General Motors, no Ford, nor a Chrysler in the furniture industry to pass the reduced manufacturing costs resulting from complete mass production on to the consumer; to sponsor national advertising campaigns to establish his product or to emphasize and sell the idea of progress in design; or to develop new materials. That no leadership has emerged in the furniture industry is not surprising when one remembers the diffuse nature of the industry.

One of the most important buyers of furniture in the United States remarked (and we in Canada may well be included in his criticism), "You could blow up 2,900 out of 3,000 furniture plants and not damage the industry as far as constructive thinking and activity are concerned." The one encouraging note is the indication that

The moulded plywood and sponge rubber surfaced chairs shown above were designed by Charles Eames and Eero Saarinen. They show how new forms develop from a synthesis of function, materials, and technique. In the background are the sectional stacking cases which won for Eames the 1941 Organic Design Competition.

Modern interior contains unique steel and canvas chair designed by Hardoy, Argentinian designer, and lamp by Von Nessen, New York designer. Note the built-in units running the length of the windows. Coffee table, by Hans Knoll, is in the free form, sometimes used for this purpose.

at least one hundred companies are sincerely attempting to obviate the criticism.

Some other manufacturers realize the shortcomings of the furniture industry, but attempt to blame the public for its position, with the explanation "When they want something better, we'll be only too glad to make it for them." As Nelson succinctly put it—"the manufacturer tends to explode with self-righteous indignation if you question his conviction that good design is anything that sells."

A switch-over from "seventeenth century" to Madagascar Rococo would be quickly and happily made if it was believed (it could only be a guess, since the manufacturer would have no research to positively verify it)—that the Rococo would sell.

Historic Background

Even the most idealistic must recognize, however, that the manufacturer must sell what he makes to stay in business. But there can be, and are, two different selling methods. One is to "give the public what it wants." The other is to create a product in whose quality the manufacturer has complete faith, and endeavour to persuade the public to accept it. For several years now, a still, small, group of manufacturers have been attempting this very ideal. How they approached the problem of modern furniture design and production, and how we may develop a set of standards for the judging, and, (we hope) purchase of good modern furniture, is the purpose of this article. But first let us examine briefly the historic background of furniture design in

Interior features handsome furniture designed by Paul Laszlo, American architect and designer. Note particularly the simple lamps and the luxurious lounge chairs, one of which has plywood sides.

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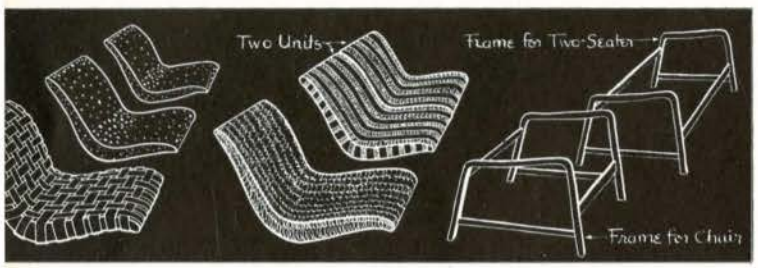
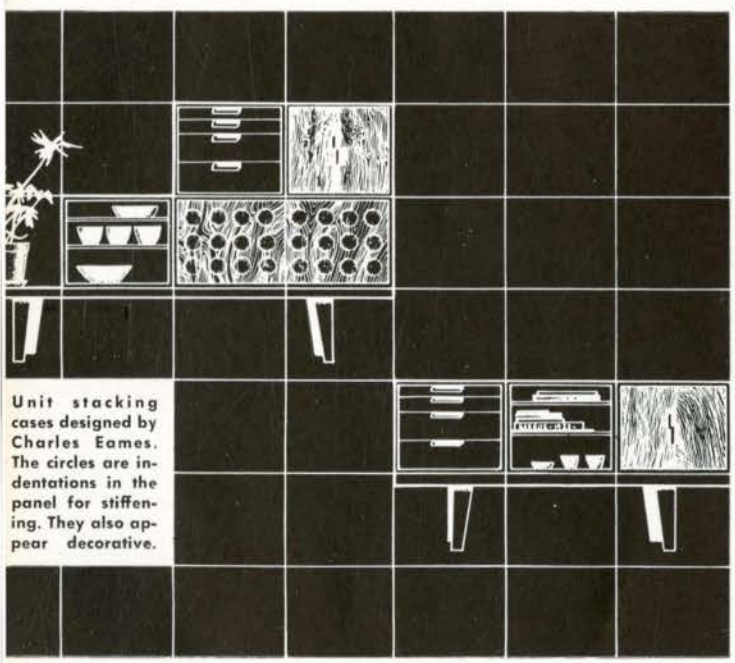
Designed of bent birch plywood, in freely curved forms adapted from the human form, these chairs by Alvar Aalto, display the fundamentally honest design approach of this modern master.



Designed for mass production, the chair above, utilizes a unit base, and a unit back, which may be expanded to sofa size by combining the units. This was designed by Jens Risom, and adaptations of the chair are available in this country.

— *Courtesy of the Architectural Forum.*



Unit stacking cases designed by Charles Eames. The circles are indentations in the panel for stiffening. They also appear decorative.

order that we may be more aware of the reason for the design anachronisms in present-day furniture as well as of its technical shortcomings.

America's severance from Britain in the political field in the 18th century was never extended to include furniture. Had a break between the British and American designers been effected, we in Canada would doubtless have been influenced by the American position, for while in things political, Britain's influence on Canada has always been secure, in the matter of things physical: buildings, autos, ships, airplanes and dress, our alliance has been unquestionably with the Americans. Since we lack any true furniture tradition of our own, any examination of the furniture picture in Canada must always begin with mention of the work of the great English designers of the 18th century and of those in the United States under English influence.

The 18th century saw England develop from a small maritime nation into a globe-encircling Empire, under the leadership of men like Clive, Pitt, Wolfe and Hastings. New wealth poured back into the coffers of the old aristocratic families who controlled the social and governmental life of England. These great families spent their newly acquired wealth to build fine country houses in great parks, filled with all the luxuries of the age, and adorned with the work of the greatest architects, decorators and designers of the time. New materials such as mahogany from the West Indies became extremely popular. The aristocracy had enough discernment to demand the finest in design and materials and were wealthy enough to pay for the best.

Influence of Masters

The greatest designer-decorator of the period was the architect, Robert Adam, who, with his three architect brothers was to influence profoundly all who were to come after him for more than a century. Although Adam made no furniture, he sponsored the work of Thomas Chippendale. This latter designer with Hepplewhite and Sheraton are now regarded as the "Big Three" furniture designers of the 18th century. All three described their work in books which received wide circulation in America. Sheraton greatly influenced the most widely known American designer, Duncan Phyfe. The work of the masters was entirely handmade, of course, and was of the most precise and delicate nature, certainly too expensive for all but the aristocracy.

Victorian

The Industrial Revolution of the early 1800's created another wave of new wealth throughout England. This new-rich class was composed largely of successful industrialists who did not have the necessary discernment in matters of design or taste to enable them to create distinguished homes. The vast pent-up demand for new furniture came at a time when hardly any research had been carried out into the design of furniture for production by the newly invented machine.

On this page are two basic models of the Eames moulded plywood chair manufactured by the Evans Products Company, Venice, California. The chair at the top is all plywood construction, while the model at the bottom is made of plywood and steel. The jointing of one part to another is accomplished by means of sponge rubber pads, electronically glued, eliminating hardware.

Because no research was made into the potentialities of machine-made furniture, the world was flooded with a torrent of heavy, pompous and over-ornamented furniture, available at relatively low prices. This was the origin of the gloomy style distinguished by the name of the then reigning monarch, Victoria.

Artist's Revolt

About 1890, in England, a group of artists spearheaded by the English writer William Morris remonstrated against the gradual supremacy of sham in design. They pointed to the solid hand-made furniture of the past as the most adequate alternative. This group sincerely believed that they could do away with the machine and return to hand-labour once more. Some very fine, but inevitably very expensive pieces of furniture were made as a result of this conception. The great demand of the general public for furniture could never be met by hand-producing the article. Nevertheless the Arts and Crafts movements, lasting as it did, from 1890 to 1914, was the first and most decisive stimulant for all the ensuing endeavours towards reform.

The Arts and Crafts movement respected the materials with which they worked and the properties of those materials in a way that was to become the hallmark of the best in our own industrial age. However, to the impartial observer, it soon became obvious that the large mass demand for furniture (and other household articles) could only be successfully tackled with the help of the machine, and that the same attention to design, the same serious use of material and the same careful construction that accompanied the hand-made furniture of Chippendale, Sheraton and Hepplewhite were to be expected from machine-made furniture in no less degree, if it was to be worthy of its tradition.

This would require our modern manufacturers to employ the best available designers, to provide funds for furniture research, and to exploit fully the possibilities inherent in mass production and in the many new materials available. But this is certainly not the case of the typical manufacturer of today. At best, he is today producing mere caricatures of the beautiful designs made long ago for other uses, of other materials, and, by totally different methods.

Case for Modern

In the hands of a truly skilful contemporary designer, for example, a chair is scientifically designed to assure the maximum comfort for whatever activity one is engaged in—reading, dining, relaxing, working or dressing. He would consider himself as failing his task were he to cause our living rounded forms to be flattened against the rigid straight lines of a chair whose shape had been determined in accord with some classic principles of beauty. Were comfort alone the chief selling point of modern furniture—obviously we would still sell no furniture to a world whose clothing is "high-styled" but most uncomfortable, or whose houses are Georgian but dark and dreary. Before we would be able to sell a single piece we would have to point out that good modern furniture is light and easily handled; it utilizes to the fullest extent the natural beauty or qualities of other materials themselves; it is closer to the scale of the smaller houses of our times; and its upholstered fabrics are durable, attractive, and either washable or removable for cleaning.

The three pieces of furniture on this page were designed by William McBain, Toronto architect, for his own use. They indicate a fine sense of form, and they prove that we have in Canada men as capable of designing furniture as the best of the Americans. Left, coffee table of solid mahogany. The top has been finished with one of the impervious surfaces.

Right — Dining table designed in solid mahogany. The top is removable for convenience during moving.

Below — Sideboard of limed ash. The section behind the doors contains two adjustable shelves for storage of china, glassware, and silver.

— Photos by R. E. Heise.

Modernistic and Borax

At this point, it would be well to indicate the difference between "modern" and "modernistic" design. Just as the clean, graceful lines of the original Chippendale pieces degenerated into florid, over-ornamented pieces in the imitations of inferior designers, a large percentage of modern furniture (and architecture too), is gaudy, all too reminiscent of the juke-box, and lacking the restraint characteristic of good design throughout history. For lack of a more appropriate name, this style of furniture is labelled "modernistic," i.e., an imitation of the true modern.

The modernistic furniture may be distinguished from the modern by its impertinent combination of straight lines, rectilinear forms, unwieldy masses and eccentric handles. This "styling" merely superimposes new curves on old forms, the old form perhaps straight-backed to accomodate the hoopskirt or bustle of an earlier period, and the new curves simple "streamlines" stolen from aerodynamic forms. The design dictum "form follows function" is an over-worked one, yet nowhere is this so much the criterion of good design as in the field of furniture.

There is yet another term, which is directed at poorly designed furniture—and that is the term "borax." Unlike "modernistic," which means pseudo-modern, the term "borax," properly applied, belongs only to the pseudo-traditional furniture and the cheapest grades at that. "Borax" is recognizable by its extravagant styling to create a superficial effect of high price, but actually is poorest of all types of furniture in taste and quality.

Light vs. Dark Wood

Whereas period furniture has, almost without exception, used the darker woods, the woods most favored in contemporary design are invariably the blonde woods, or bleached versions of the darker woods, since their use creates an impression of finer scale and spaciousness not possible with the darker. Bleached birch, the so-called limed oak finish, bleached mahogany, blonde primavera and silver walnut are all popular. Many of the best lines now feature these woods alone or in combination with a lacquered finish, usually white, or of a color to contrast or harmonize with the main color theme of the room. New finishes and surfaces impervious to cigarette burns and glass rings, now offset the criticism often levelled at modern furniture that its large plain, unbroken surfaces make every mark too obvious.

Metal in Furniture

Metal is now reinstated to its rightful position as a texture contrast to wood in furniture design, after several years of disfavor. Metal had become, unfortunately, an overworked material in contemporary furniture design due to its overuse in the decade following Marcel Breuer's sensational invention of tubular steel furniture

— Photo by R. E. Heise

Screen above designed and built by William McBain, serves to separate a dining alcove from the living room. In limed white oak, the panels are made of plastic-impregnated wire screen. Lamp, with adjustable goose neck, is in excellent contemporary taste — functional and decorative.

in 1923. His technique of producing low-cost furniture by means of bending chrome plated tubular steel to form legs and arms, then applying a seat and back of canvas or leather, proved so inexpensive that it was taken up by a host of beverage rooms, barber shops and beauty parlors on three continents, with the result that it lost the residential dignity rightfully belonging to this furniture. As if this basically sound furniture had not lost enough respectability, dozens of small companies whose only qualification as manufacturers of furniture was the possession of a pipe bending machine and a stock-pile of red leatherette, caused its further humbling with their unsympathetic handling of form and materials.

It was not until the conclusion of this war that tubular steel was used in a manner palatable to the public—and then its use was sugar-coated by its combination with remarkably handsome and sculpturesque forms of pressed plywood. Charles Eames, a young American architect, invented a molded plywood chair, molded by

processes borrowed from the aircraft industry. A seat and back of plywood, whose forms are shaped to follow body contours, are "shock mounted" to metal frames by means of rubber discs, which are in turn electronically glued to the plywood. These rubber mounts yield with the movement of the sitter, creating resiliency and comfort. Using these three materials honestly, Eames has exploited to a greater extent than any other person, the possibilities of mass production methods for the manufacture of furniture. New York's authoritative Museum of Modern Art billed the Eames chair as "the greatest innovation in chair design since Marcel Breuer startled the furniture world with his metal chair, and Alvar Aalto introduced the technique of laminated wood furniture."

The furniture is most comfortable, as five minutes in an Eames chair will prove; it is aesthetically good as the applause of critics and laymen alike indicate, and it is economic, since it fully utilizes mass production techniques. Yet nowhere in Canada is it possible to buy an Eames chair. Are the cries of conservatism and inertia hurled by Nelson at the American furniture makers applicable to the Canadian picture too?

Hope for lower prices in both chair and cabinet designs lies in the use of standardized interchangeable parts giving a wide range of design possibilities. Danish designer Jens Risom has successfully applied this unit idea to various types of chairs. He standardized all seats and frames, then produced numerous combinations by varying the basic seat unit in upholstery, and the cradles in width, to produce one, two, or three seaters, some suitable for relaxation, others as armchairs and still others as settees. We shall see later how popular the "unit" idea is in the design of wall cases or chests.

It is a paradox that the two basic approaches to furniture design in this century have been completely opposite in spirit. On the one hand we have the noted American architect Frank Lloyd Wright, who has long advocated the complete integration of furniture with its immediate surroundings, in other words, built-in furniture, while on the other hand, to meet the very real and everpresent need for easy portability and flexibility in rearrangement, we have developed our sectional or unit furniture.

We must necessarily be brief in touching upon the use of built-in furniture. While theoretically, it is desirable that all new homes have as much built-in furniture as possible, obviously with our present high costs it is impracticable for all but the most fortunate. Again, the most efficient substitute is sectional furniture. Under the label of "sectional" we find chests or cases which are related in height, depth, and width, and which can be placed side by side, on top of each other, or used individually. This type of related storage piece has been popular ever since the first modern furniture appeared on the market more than twenty years ago.

A much more radical departure from conventional furniture design are those units which in themselves are not complete, but which may be assembled in many different ways into pieces of almost any desired size. The earliest example of this type is an item that has become standard office equipment the Globe-Wernicke bookcase, the common office bookcase, first developed in the 1880's. Bases, tops, fronts, shelves and other parts are sold separately and combine into bookcases. The retailer too, has the advantage of being able to satisfy many different customers from a stock of only a few basic sections.

Traditional furniture whether a chest or dresser must always be composed very carefully in relation to the wall area behind, for it looks very badly when placed too closely together. This is an obvious disadvantage in the characteristically smaller rooms of to-day. When sectional furniture is used, all the storage needs can be concentrated on one, or at most, two walls. The result is that the room looks larger, and appears less cluttered. Finally, the group arrangements made possible by sectional furniture create an orderly and restful appearance.

The versatile American architect, Charles Eames, has also produced a series of small unit cases, some drawer units, some cabinet units, some open shelf units, while still others have sliding tambour fronts. These unit cases are simply placed on low benches which lift them off the floor. The benches themselves are made in several lengths, as well as heights, permitting them to double as seats when not used to support one of the number of different combinations possible. In the interests of economy, Eames has used the common dovetail joint throughout all the cases. It does, incidentally, look extremely well.

Other modern variations on this theme by Eames, besides the Storagewall, include the Modular furniture designed by Morris Sanders and made by the Mengel Company, a line retailed by the Hans Knoll organization of New York, and an English version by J. P. Hully, which is, it is interesting to note, typically more delicate in its detailing than its more robust American counter-part. Another new line of storage cases designed by Edward Wormley and manufactured by the Dunbar Company of Berne, Indiana, has attempted to get more richness into modern pieces through the use of woven wood and corrugated plywood doors as a substitute for plain surfaces.

Canadian Contribution

Fortunately, many of the department stores of Canada have been most cooperative in the advancement and advertising of modern furniture, notably the handling of Storagewall by the Simpson chain, and the Aalto furniture by the Eaton Company. Elsewhere in Canada, Snyders Limited have produced sectional upholstered furniture of a high standard, while Metal Fabricators Ltd., of Tillsonburg, Ontario, have produced handsome

(Continued on Page 216)

TWENTY YEARS OF ARCHITECTURAL GROWTH

C. I. A. M. 1928 — 1948

By H. PETER OBERLANDER

"Les Congrés Internationaux d'Architecture Moderne" (C.I.A.M.) was reconvened last fall in England for its sixth international meeting, the first since the end of the war. Before 1939 C.I.A.M. was an active organization promoting collective research into architectural problems through constant exchange of information between architects of different countries. The first Congress was organized twenty years ago in La Sarraz, Switzerland, at the Chateau of Mme. de Mandrot by a handful of young European architects. They had come together to proclaim their staunch belief in the increasing responsibility of the architect towards society and search for its appropriate expression in a new architecture. It was not a conscious formulation of a new style—like "Art nuveau" some thirty years earlier—it represented an attempt to create a forum for discussion and experiment, to crystallize an honest expression of new materials and techniques, enlisting the machine in solving social and technical problems; above all economy of means in the attainment of architectural ends was emphasized.

Siegfried Giedion, C.I.A.M.'s secretary, points out that[1] "the word 'congress' was used in its original sense of a 'marching together.' It is a congress based on collaboration, not a congress in which everyone merely contributes circumscribed knowledge from his own special field, as in the nineteenth century."

The aims of C.I.A.M. were clearly stated:[2]

(a) to formulate the architectural problem of today

(b) to exhibit the idea of modern architecture

(c) to instil this idea into technical, economic and social thought

(d) to seek solutions of the problem of architecture.

The Congress at La Sarraz has since become a landmark in the evolution of contemporary architecture and today, after twenty years (years which have witnessed the tidal waves of modern society devour a civilization and bring up the seeds to a new one), the original statement of La Sarraz can be re-affirmed:[2]

"We emphasize that to build is a primal activity in man, intimately associated with the evolution and development of human life. . . ."

"Our intention . . . is to re-establish the place of architecture in its proper social and economic sphere. . . ."

"We affirm today the necessity for a new conception of architecture satisfying the spiritual, intellectual and material needs of present day life. Conscious of the effects on social structure brought about by industrialization, we recognise the necessity of a transformation of architecture itself. . . ."

These principles have transcended their eloquent formulation since then, they have been animated by the vitality of an idea epitomized in C.I.A.M. as an organization; they have become reality by the force of personalities which have carried the aims of C.I.A.M. into the realm of achievement. Gropius has founded and built his Bauhaus and successfully transplanted his teachings to Harvard; he has, with Maholy-Nagy in Chicago or Albers at Black Mountain College, begotten a new era in architectural thinking. Le Corbusier has built his Villa Savoie and his Pavilion Suisse, disseminating provocative architectural thought through his writing, and has found sensitive interpretation in his students all over the world. Giedion "rediscovered" anonymous' history in his "Space, Time and Architecture" and in his latest "Mechanization takes Command." The motivating spirits of C.I.A.M. have begun to realize their original declaration and thus profoundly affect the course of architecture since La Sarraz.

Another milestone in the evolution of C.I.A.M. was the Congress at Athens in 1933. The "Charte d'Athéne" resulted, and prophetically highlighted the pressing problem confronting us today, the wider aspect of architecture, our cities. C.I.A.M.'s attention to townplanning was the inevitable sequence to a logical process of evolving thought. Many parts of the Charter proposed fifteen years ago strike an exceedingly topical note:[2]

"Planning is the organization of the functional conditions of community life: it applies equally to town and country, and operates within the divisions: (a) dwellings; (b) places of work and (c) of recreation; (d) circulation, connecting these three. . . ."

"The urban unit should be able to develop organically in all its different parts. . . . It should assure, on both the spiritual and material planes, individual liberty and the benefits of collective action."

"To the architect engaged in townplanning, human needs and the human scale of values are the key to all architectural compositions to be made.

"The point of departure for all townplanning should be the cell represented by a single dwelling, taken together

(1) S. Giedion in the Introduction to "Can our Cities survive?" by J. Sert.

(2) For full text see pp. 246-249, "Can our Cities Survive?" by J. Sert, Humphrey Milford: Oxford University Press, 1942.

Giedion presses a point. In the front row (left to right): Le Corbusier, Papadaki, Sert, Townsend, Roth and Wiener.

with similar cells to form a neighbourhood unit of efficacious size. . . ."

"To solve this tremendous problem, it is necessary to utilize the resources put at our disposal by modern technics and to procure the collaboration of specialists."

"Every townplanning problem must be based upon accurate researches made by specialists. It must foresee the different stages of urban development in time and space. It must coordinate the natural, sociological, economic, and cultural factors that exist in each case."

This approach to our cities occupied Congress deliberations throughout the thirties up to the fifth Congress at Paris, where a comparative analysis of great cities of the world and their underlying forces was considered. Sert's book "Can our Cities Survive?" is largely the record of this study and became the formative link between pre- and post-war C.I.A.M. and often also the concrete inspiration to C.I.A.M. activities carried on underground in the occupied countries of Europe.

It is seldom realized how many controversial architectural or planning problems were first crystallized by C.I.A.M. groups and how far C.I.A.M. ideals have stimulated local and national efforts: the famed London Plan by the MARS group in 1938 is a well known example, the current five year plan of national reconstruction in Czecho-Slovakia could be another. Ever since La Sarraz, member countries contributed studies on specific problems and today many widely accepted concepts or methods of planning stem from this period of collaborative research and international comparative investigation of urban problems.

Inquiry into minimum dwelling standards in space, orientation, ventilation and equipment at the second Congress at Frankfort in 1928 led to the publication of "Dwellings for the lowest Incomes." "Minimum" city block considerations inevitably followed and produced "Rationelle Bebauungsweisen" (Rational Lot-Division) after the third Congress in Brussels, 1930. After C.I.A.M. 4 and its Charte d'Athéne, collaborative research produced by the fifth Congress in 1937 "Logis et Loisirs" (Housing and Leisure). Minimum city requirements in turn seem to point to research on a minimum regional or national plan and its social and economic ramifications; such an ultimate inquiry was repeatedly advanced during C.I.A.M. 6 as the possible keynote of a future meeting.

The Sixth Congress itself had a three-fold purpose:

1. to re-establish contact between the different groups and their activities;
2. to consider a reorganization of C.I.A.M. and re-evaluate its aims to meet changed conditions;
3. to develop and prepare the program for the seventh Congress.

Each national group reported to the plenary session on its activities since 1937 and the pressing problems confronting them today. Despite the lack of apparent contact between the groups during the war, a strong element of purpose and continuity seemed to pervade most reports and underline the similarity of problems inherent in the different national situations. Architecture and Planning are becoming international in the original sense of C.I.A.M.—not as an abstract style—but as an approach to human problems common to all people. If increased mobility of man, material and thought threatens to annihilate space, the problems facing architects today everywhere also seem to derive from a common cause, and a possible solution will evolve from a common approach.

C.I.A.M. as an idea and organization not only survived the war but has grown and matured.

From as far as Argentine, Cuba and the U.S.A., Finland and Ceylon architects came, and this fact alone is testimony to the vitality of C.I.A.M. and the extent to which its principles have permeated the entire field of progressive architecture. Nearly eighty delegates assembled in Bridgwater, in the south of England, to re-examine

Gropius presents his report, Siegfried Giedion beside him.

the structure and achievements of C.I.A.M. and chart its future. One of the main functions of this congress was to re-form threads of personal friendships which had woven C.I.A.M. into a human fabric of erstwhile radicals since La Sarraz. It was felt during a previous CIRPAC (executive committee) meeting that the profound changes in the world around us should be reflected in an adjustment of C.I.A.M.'s framework. The Congress was founded by a group of vigorous personalities at a time when the course of modern architecture was an uncertain one, they had guided C.I.A.M. through the 'thirties and nourished almost entirely the contemporary expression in building. They had achieved resounding success and now hoped to broaden C.I.A.M. by placing the emphasis on group development in the various member countries and drawing the younger professional generation into active participation. This seemed the organic growth of a revolutionary movement.

C.I.A.M. 6 still stood under the impact of the purposeful guidance of the great personalities: Gropius, Le Corbusier, Giedion, van Easteren, Sert, Richards, Fry, Roth, Krejcar, Fischer and many more provided a polarity of discussion which made Bridgwater the transitory center of the architectural world. At first there seemed some doubt about convening C.I.A.M. there, its provincial atmosphere would not provide an adequate background for projected discussion; the choice, however, was triumphantly vindicated, in fact, the calm and placid character of Somerset seemed to crystallize the purpose of the Conference admirably and minimized distractions. The flamboyant qualities of personalities could blazen forth against an uncomplicated backdrop of sunny autumn days and crisp, refreshing nights.

The week was crowded not only with personalities but also with a considerable amount of formal work: four working commissions were formed:

Commission I. under José Sert was charged with the revision of C.I.A.M. aims and defined them as:

1. The establishment of a new standard of human values and technical performance in community planning (of whatever scale, from the neighbourhood to the region; from the single dwelling to the whole community). Standards that will take advantage of the social, economic and technical possibilities of our times.
2. The examination of the implications of industrial production now being applied to building and planning, and ensuring that these necessary developments are based on human values.
3. Expansion of the aesthetic of architecture, and the planning, and the creation of new forms and qualities of expression appropriate to the individual and to the community, within the material conditions of today.

It is the aim of the C.I.A.M. to facilitate and to extend practical work in these fields.

It is the task of C.I.A.M. to promote the building of better homes and communities, and in its constant search for the principles of architecture in an industrialized world, to create new and lasting values, human and aesthetic.

The new constitution, as ratified by C.I.A.M. 6, was the work of Commission II. under the chairmanship of Samuel and Emery (the English and Algerian delegates) and envisages a General Assembly of groups and individuals to meet as required, a Working Congress of delegates from each group to meet periodically and a Council derived from the latter to meet frequently for the executive direction of C.I.A.M.

Commission III. was preparing the ground for C.I.A.M. 7 in two sub-committees: (a) "Urbanism," with Le Corbusier as chairman; a program was worked out to carry C.I.A.M. townplanning studies into the field of neighbourhood planning on the one hand and regional planning on the other; (b) "Architectural Expression," under the sensitive guidance of Giedion and Richards, tried to ventilate the often evaded problem of contemporary aesthetics in architecture.

The Commission on "Architectural Education," number IV., under Gropius, formulated a set of general guiding principles which were forwarded to UNESCO, who had shown a considerable interest in the subject and had sent an observer to C.I.A.M. 6. The possibility of setting up an international post-graduate school of architecture and planning under the auspices of C.I.A.M. —with possible UNESCO help—was also discussed.

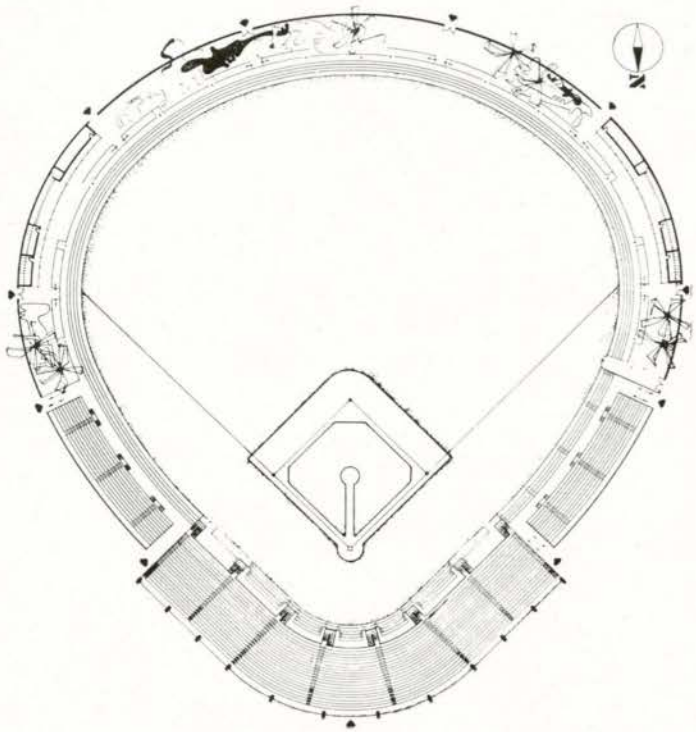
Not all could be settled at the Congress, therefore standing committees were constituted to frame all C.I.A.M. 6 reports and resolutions in concise language, French and English, for early publication this year. The French journal "l'Architecture d'Aujourd'hui" is expected to devote a special issue to C.I.A.M.'s twenty years activities this spring.

C.I.A.M. 6—in its breathtaking rate of meeting—left an exhilarating sense of accomplishment with all delegates and a keen sense of anticipation of C.I.A.M.'s leading role in the continuous growth of an emerging contemporary tradition in architecture.

C.I.A.M. ideas and principles came to Canada just before the recent war through young Canadian architects who had spent the thirties in England, some as active members of MARS (the English C.I.A.M. group); one of them had attended the fourth Congress at Athens and a subsequent meeting in London in 1934. It was through the efforts of these architects that local groups were formed, usually as independent Modern Architectural Research Groups, in Montreal, Toronto, Ottawa and Vancouver. These represent the nuclei of nascent Canadian C.I.A.M.

Through the influx of young architects into Ottawa during the war, the Architectural Research Group there (ARGO) has been the most active group so far and has become the central agency in Canada through which C.I.A.M. contact was established and formal representation at C.I.A.M. 6 arranged.

BASEBALL STADIUM — CARTAGENA, COLOMBIA



Architects:

Gabriel Solano, B.Arch., Bogotá; M.Arch., Harvard.
Jorge Gaitán, B.Arch., Bogotá; M.Arch., Harvard.
Alvaro Ortega, B.Arch., McGill; M.Arch., Harvard.
Edgar Burbano, B.Arch., Bogotá.

Structural Engineer:

Guillermo González, Bogotá.

Constructing Engineers:

Alfonso Mejía, Bogotá.
Mario Barahona, Bogotá.
Julio Noel Montenegro, Bogotá.

Co-ordinator:

Carlos Santacruz, B.Arch., Chile, Director of National Buildings, Colombia.

CARTAGENA, COLOMBIA, was the city chosen for the IX Amateur Baseball World Series; the series was to be played off during December, 1947.

In 1946 the Colombian Government acquired a site near the shore of the Caribbean Sea, but in February, 1947, the plans had not yet been started. Then the Department of National Buildings, of the Ministry of Public Works, took over and the plans and calculations were made by a group of young architects and engineers who entered the Department of Buildings at that time.

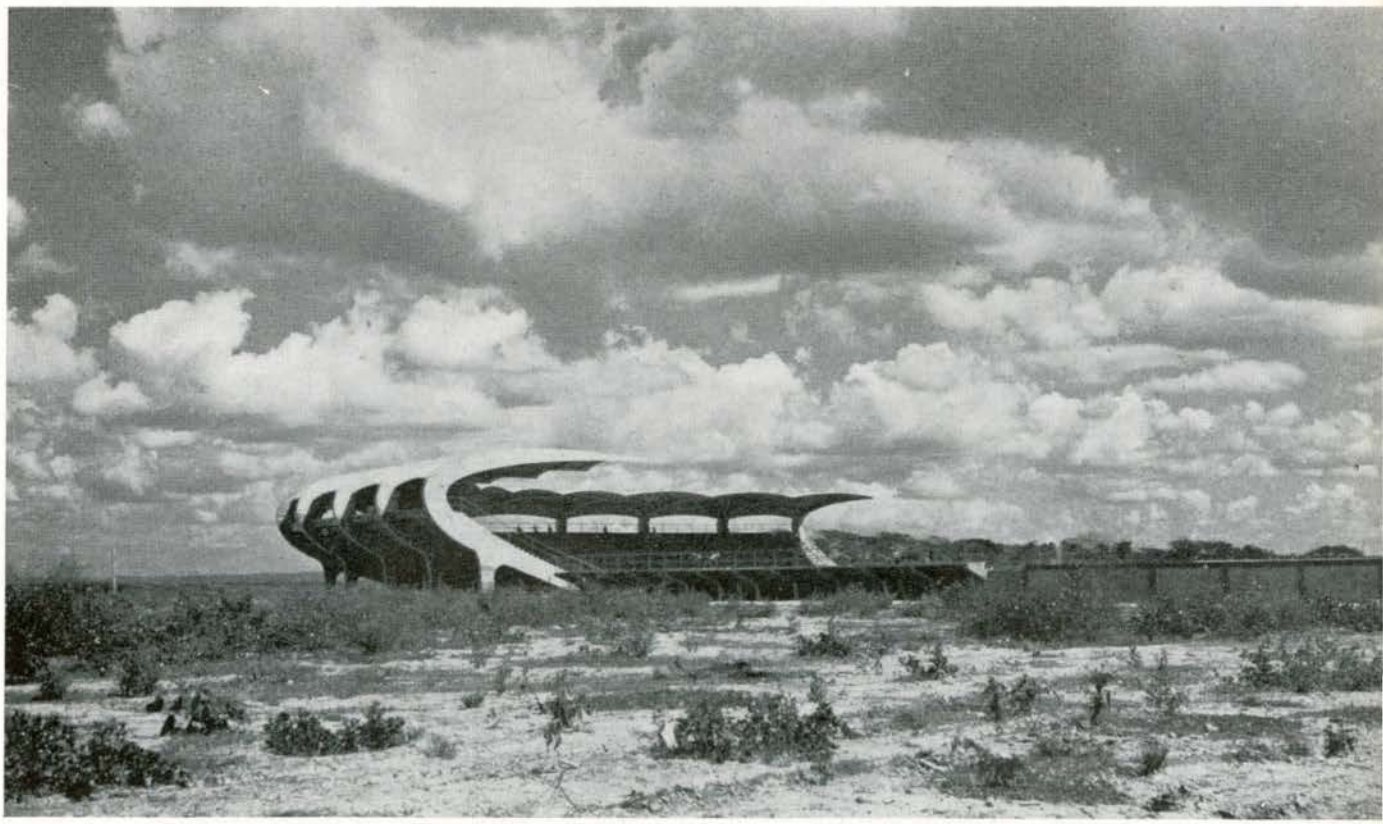
The constuction began on May 10, 1947. In it more than 2,500 cubic metres of reinforced concrete were used. The structure consisted of parabolic frames set 10.75 metres (33 feet) apart, with an overhang (cantilever) of 18.50 metres (56 feet).

The rows of seats were constructed with "Z" beams of 10.75 metres (33 feet) of span; the covering consists of a concrete membrane just 4 centimetres thick. Each frame is supported by two columns.

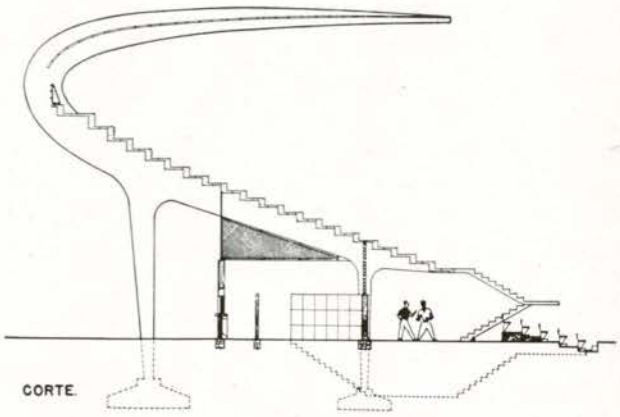
This solution was chosen beause of the great diffiulty of maintainng a steel covering against the deterioration caused by the salt sea air. The whole solution is based on a very light structure although in reinforced concrete.

Due to the poor soil condition, and because of the large overhang, 3,000 lbs. per square inch strength concrete was used in the covering membrane and 2,000 lbs. per square inch strength concrete in the footings. To offer less wind resistance, and also to afford better cross-ventilation in the hot climate of Cartagena, the covering membrane and the rows of seats were separated by large openings.

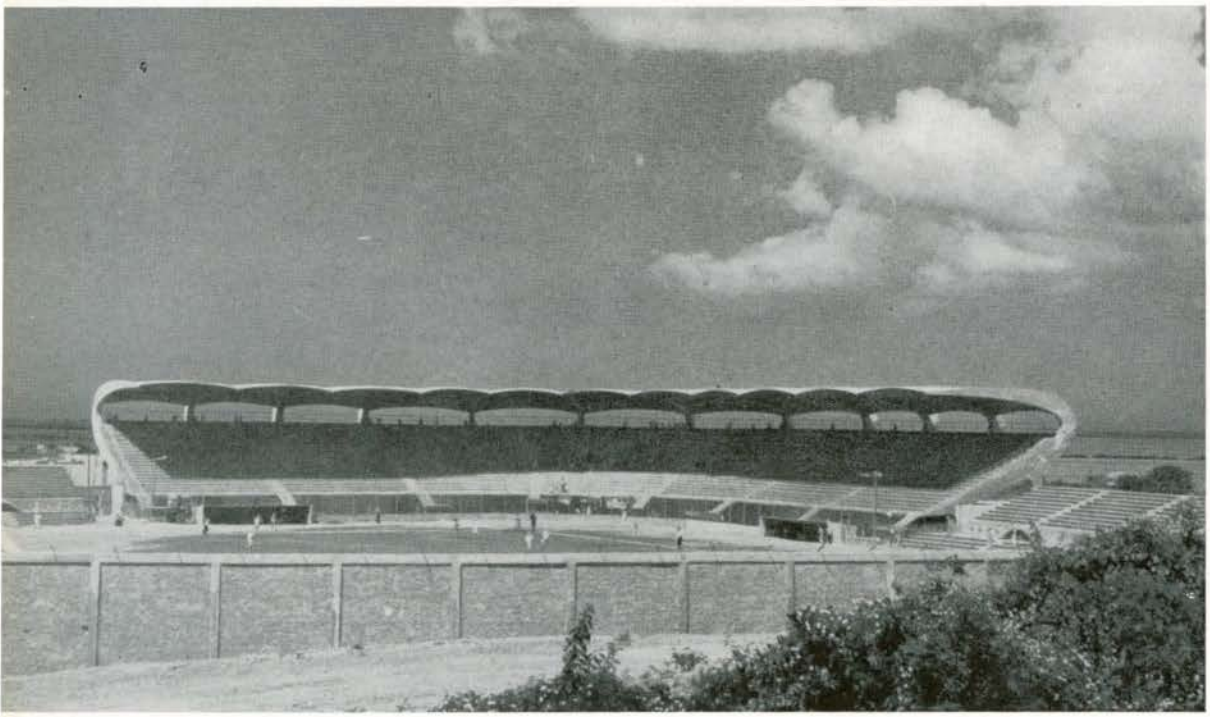
Just 160 days after the construction was begun, the baseball games started; Cartagena had its stadium. There was accommodation for 18,000 people; in the course of construction 50,000 square metres of earth had been moved, 4,000 square metres of access roads had been paved, together with 5,000 square metres of parking area, and 2,000 linear metres of drainage had been laid.

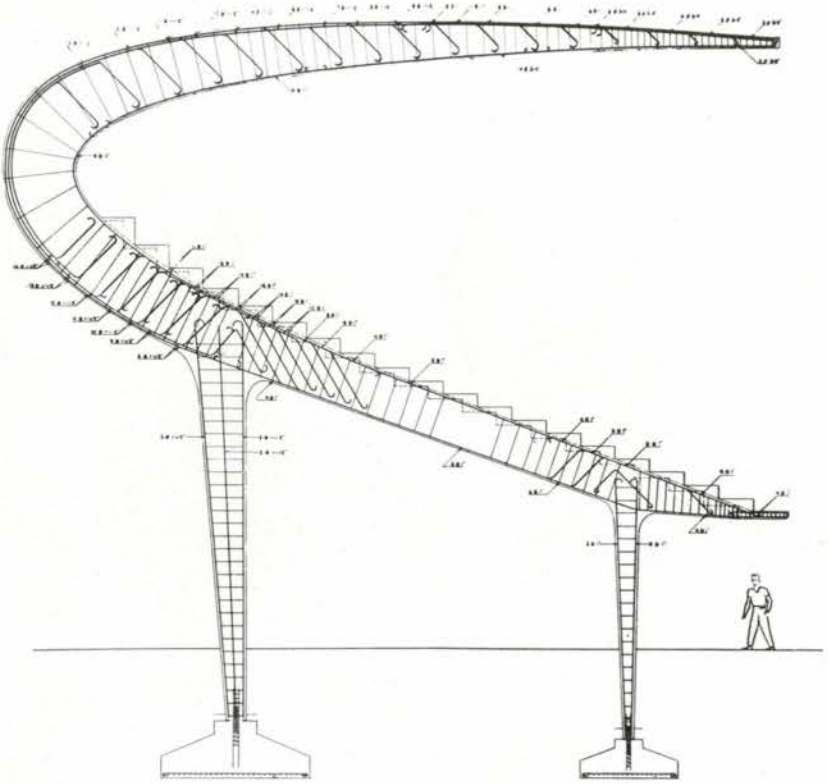


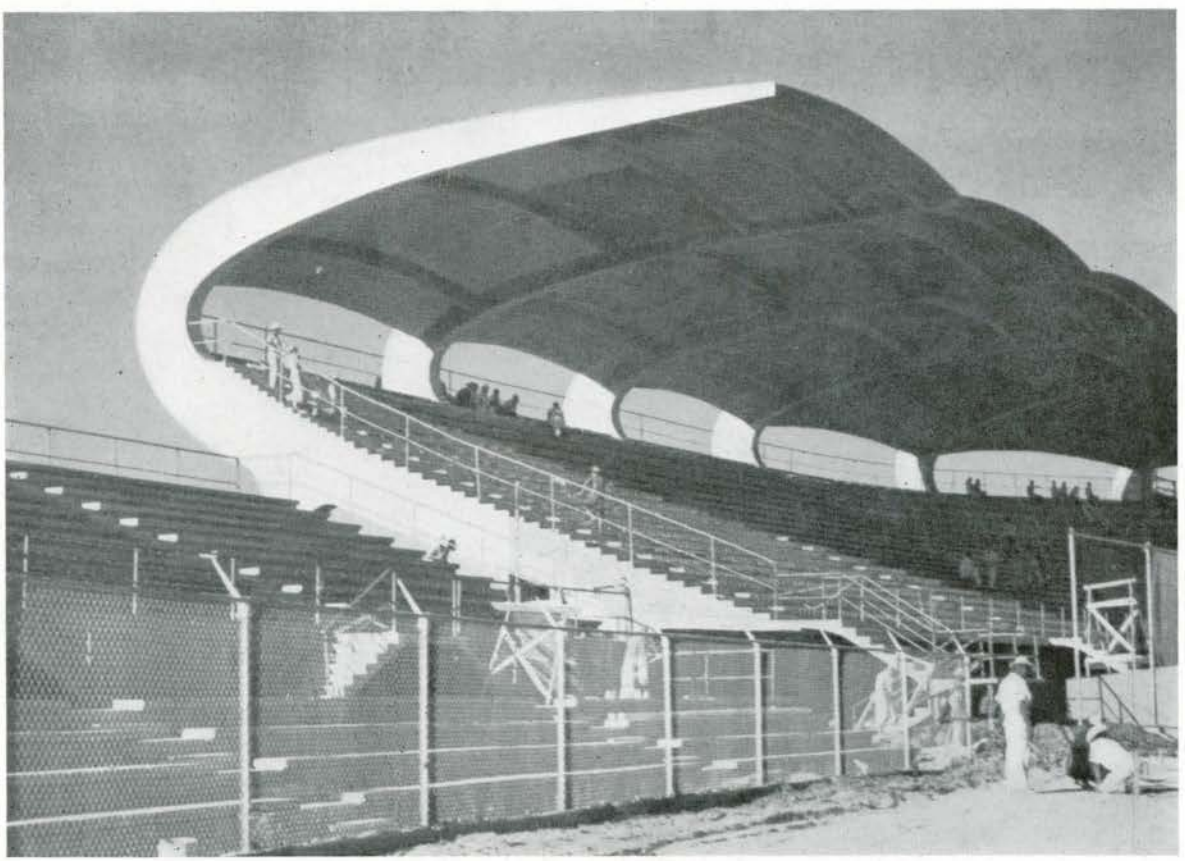
BOVEDA DE LA CUBIERTA



CORTE.



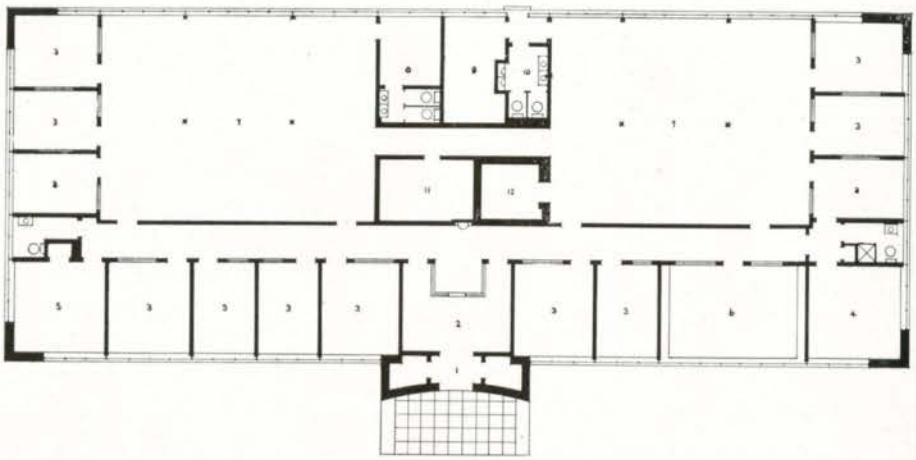




STANDARD CHEMICAL COMPANY LIMITED, TORONTO, ONTARIO

EARLE C. MORGAN, ARCHITECT

1. Entry
2. Reception
3. Private Offices
4. President's Office
5. Vice-President's Office
6. Board Room and Library
7. General Offices
8. Women's Rooms
9. Mechanical Room
10. Men's Room
11. Stationery Room
12. Vault

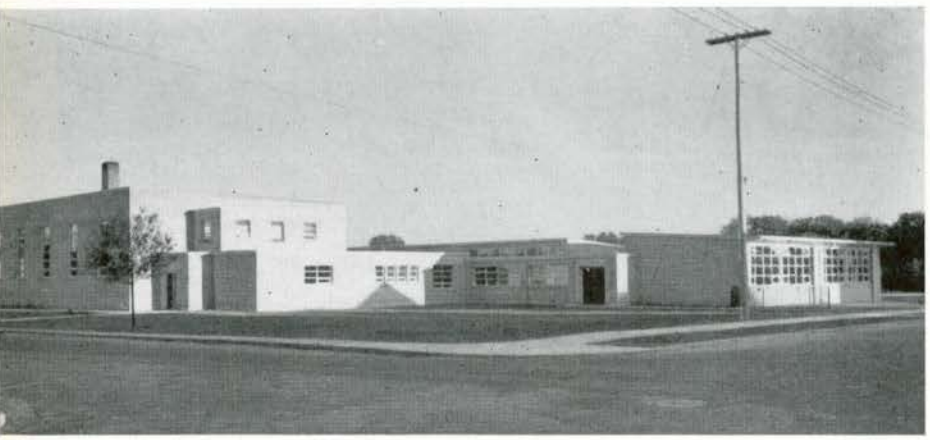


Photographs by Panda Photography

DIRECTORS' ROOM AND LIBRARY

SOUTH ELEVATION WITH LOUVRED CANOPY

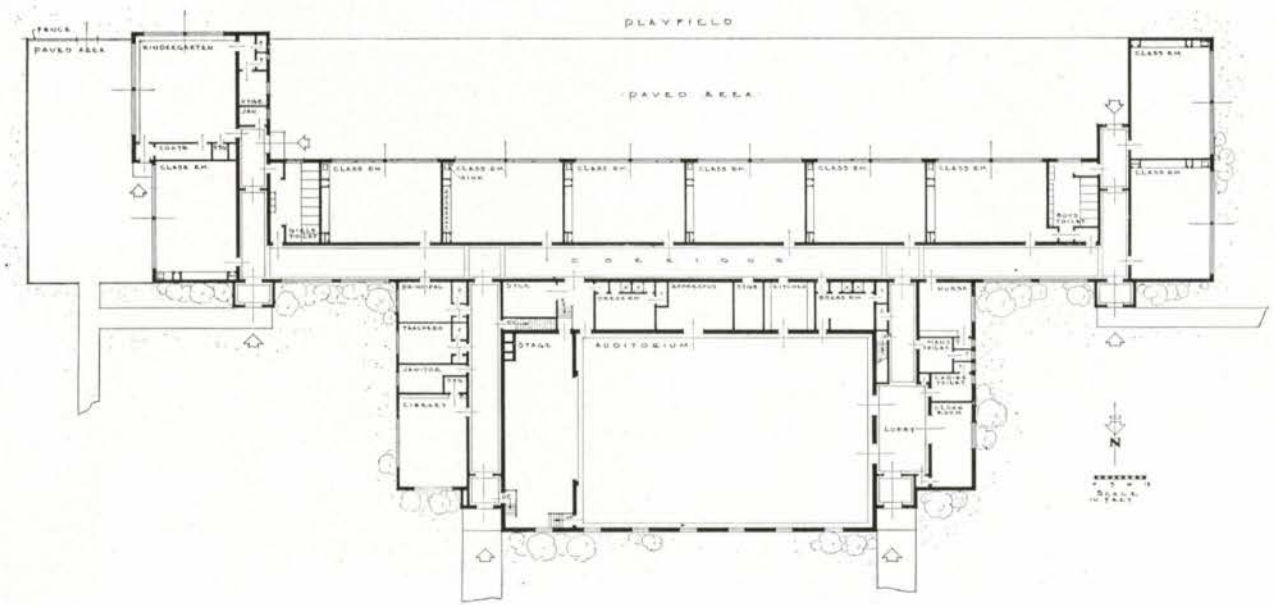
VIEW FROM SOUTHWEST



VIEW FROM NORTHWEST

WINSTON CHURCHILL PUBLIC SCHOOL, KINGSTON, ONTARIO

DREVER AND SMITH, ARCHITECTS



CONSTRUCTION OUTLINE

This school is of fire-resistive construction. The foundations are of concrete, walls buff brick backed with hollow tile. Floors are of concrete slab on rock fill with linoleum finish to class rooms, offices, etc., and terrazzo finish to corridors and toilets. The floor finish to auditorium and stage are of hardwood over concrete slab. The roof system to class rooms and auditorium is of steel joist construction with insulation, concrete slab and felt and gravel roof. Roof to corridors is of precast aerocrete slab with insulation, concrete fill and felt and gravel roof. The inside wall finish throughout of putty coat plaster with acoustic plaster ceilings to all class rooms and auditorium. The ceiling in the corridors is of exposed aerocrete slab. Dado to corridors and toilets is cement enamel finish.

All windows are of rigid wood frames with steel ventilating inserts. All windows are fitted with double glazing.

Two steam boilers supply steam for converting to forced hot water heating system which is piped under slab to radiators which are controlled by thermostats in each room. These boilers also supply steam to coils for tempering fresh air which is delivered by underground concrete ducts into each room. Exhaust air is taken from each room and each wardrobe by underground ducts to fan room below stage and exhausted outside.

All inside painting is of light shades varying from green to coral depending on the room exposures.

Cost per square foot: $8.83, including architects' fees.

KINDERGARTEN

CORRIDOR

CLASS ROOM SHOWING BILATERAL LIGHTING

Photographs by Associated Screen News Ltd.

T.T.C. RAPID TRANSIT STATION MODEL

The Toronto Transportation Commission, through its Rapid Transit Department, is preparing plans for the construction of four and one-half miles of subway to replace an existing surface street car line. There will be twelve stations of which five will have below-ground control areas. (See R.A.I.C. *Journal*, November, 1947).

The Commission decided to build a full scale model of one of the stations to examine the operating features of the control area and to study various finishes and details. As the control area is symmetrical, only half the station was constructed and a mirror was installed on the centre line.

CONSTRUCTION OUTLINE

Floor and Base	Terrazzo
Corridor Wall	Vitrolite
Locker Wall	Pre-Cast Terrazzo
Side and End Walls	Cast-in-Place Terrazzo
Ceiling	Acoustical Transite, Vinylite Finish
Escalator	Stainless Steel Casing, Annodized Aluminum Side Panels
Hand Rail	Stainless Steel
General Lighting	Fluorescent
Emergency Lighting	Incandescent

ENTRANCE CORRIDOR

Photographs by Panda Photography

MEZZANINE AS SEEN FROM THE "PAID" AREA

ESCALATOR AND
EXIT TURNSTILES

STATION CASHIER'S BOOTH
AND ENTRANCE TURNSTILES

MEZZANINE AS SEEN
FROM THE "UNPAID" AREA

CONCESSION

PUBLIC LOCKERS

PUBLIC TELEPHONE BOOTH

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INCORPORATED BY THE DOMINION PARLIAMENT 16th JUNE, 1908, 1st APRIL, 1912, AND 14th JUNE, 1929

PRESENTATION OF HONORARY FELLOWSHIP
to the
RT. HON. W. L. MACKENZIE KING, P.C., M.P.
Prime Minister of Canada

It was the happy thought of last year's Executive Council to offer an Honorary Fellowship of the Institute to Rt. Hon. W. L. Mackenzie King, P.C., M.P.

The conferring of the honour was originally arranged to take place in Ottawa, last February, during the Annual Dinner of the Institute, but the ceremony was unfortunately postponed owing to Mr. King's indisposition.

However, a meeting of the Executive Committee in Ottawa on May 15th provided a convenient opportunity to wait on Mr. King. The President, Mr. A. J. Hazelgrove, and his Executive were received in Mr. King's private offices, and were accorded a most gracious and cordial reception.

After introducing the attending members to Mr. King, the President called upon the immediate Past President to make the presentation, as the granting of the Honorary Fellowship had its inception during Dr. Chas. David's term of office. Dr. David expressed his appreciation of the honour of acting on behalf of the Institute, and addressed Mr. King as follows:

"Mr. Prime Minister,

It has been the custom of the Royal Architectural Institute of Canada to recognize outstanding contributions to the advancement and the good of Architecture, made either by research, scholarship, public service or professional standing.

Some time ago, by unanimous resolution of the Executive Committee of the Council, it was decided to pay such tribute to yourself, by asking you to accept an Honorary Fellowship in the Institute.

In particular, it was felt that in this way the Institute would publicly recognize the energy and vision, which, through your inspiration, have resulted in some definite action leading to intelligent and coherent development of the National Capital Area, as a Memorial to those who sacrificed.

Circumstances did not permit earlier performance of this ceremony, but in the name of the Institute I have now the honour to present to you Sir, this Certificate of Honorary Fellowship of the R.A.I.C., and also the collar and medallion of an Honorary Fellow.

We hope, Sir, that you will long be spared, that you may see the fruition of the seed you have planted and so diligently nourished."

Mr. King, in a most kindly reply, expressed his appreciation in accepting the honour, and was particularly pleased with the reference to his interest in the development of the National Capital area. He spoke of the urgent necessity for preventing the natural beauties of the location from being marred by undesirable development. The Prime Minister emphasized that the completion of the whole plan would not be the work of a day, but that the steps which have been and will be taken are safeguards to ensure progressive and unhampered opportunity for the creation of a Capital worthy of those who gave their all in two wars, and expressive of the greater Canada which was born of their sacrifice.

In conclusion, Mr. King said that he was deeply honoured at having been made an Honorary Fellow of the Royal Architectural Institute of Canada, and that he would regard this Fellowship as among the highest of the honours of his public life.

The President thanked Mr. King on behalf of the Institute.

ALBERTA

Since town planning must ultimately form the framework of Civic Architecture, the subject is one to which architects should give considerable attention. It is well to consider its implications. The whole effort of town planning — and the subject is an immense one — has developed rapidly in recent years, both in Europe and in the United States. In Canada it has taken some hold, but the general public has not yet taken it to its heart, and it cannot be said to have acquired great momentum. There are considerations that retard its progress. Some of these carry weight with the public. It is well to identify these and to weigh them definitely against the ideals that town planners are aiming at.

In the lay-out of residential districts — to take just one small part of the subject — we find in such propaganda as "Lay-out for Living" something of what is being widely advocated. In these publications of the Community Planning Association of Canada, the suggested lay-outs for residential districts, are, of course, very various but they generally involve the selection of an area surrounded by main thoroughfares on which there may be commercial buildings but upon which residential lots do not face. The residences are arranged upon loop roads or similar devices of small width and light construction each serving a limited number of residences. These are further grouped to form a distinct neighbourhood within the main thoroughfares, each neighbourhood being self-contained as regards schools, recreation spaces, community centres for local interests of all kinds, and a sufficiency of small stores, all these being easily accessible on foot without crossing main thoroughfares and yet also provided with ready access to down-town by bus or car service.

This general idea is not difficult for the public to understand and to appreciate and, in itself, would seem so acceptable that little theoretical opposition need be expected. The crystallization of this ideal into practical being is not so simple as it might seem. A number of arguments and perhaps also some hard facts may have to be encountered. The first opposition is the very widely established idea that the simple gridiron plan relieves us of the amount of thought that needs to be expended upon anything more complex. The sheer simplicity of the gridiron plan is powerfully in its favour. Western cities, especially, generally started on the grid plan, giving names to their streets in an old established manner. Later, the idea of identifying streets by number was urged and, after much debate and some opposition was adopted and hailed as an immense advance. This system made it remarkably easy to make a mental map of the city and undoubtedly makes it very easy to find any given address. To tell a taxi driver to take you to 10101 – 99th Street is a perfectly definite instruction. He will set you down at that place without further question. Any deviation from the simple gridiron plan will more or less complicate the matter. Where the winding of a river or the occurrence of steep gradients intervene the system breaks down. The gridiron is opposed to natural or artificial scenic effects. Nature has compelling power compared with which the persuasion of a planner is weak indeed.

Civic services, sewers, supply of water, gas and electrical power introduce an element of opposition to the best laid plans of men. Sewers are the least tractable of these. To supply these over a gridiron pattern looks to be the simplest way. Yet if the grades provided by nature are neglected they have an awkward way of serving relatively little area before they approach too nearly the surface of the ground. Following a contour plan will in the end be the better economy.

The advantage to be set against the above disadvantages may be great, but even when they are overwhelmingly great the forces of inertia exerted by these are apt to block the acceptance of more ideal plans. What are the pleas for the town planners' ideal "Layout for Living?" Briefly, they introduce a stability of property value for the secluded residential areas, for they do not tempt intrusion by commercial elements. There is economy in the cost of fewer heavy traffic roads, safety from traffic accidents, convenience and safety of children on the way to school or play, convenience and ease in shopping and, by no means the least, the fostering of community spirit. Our chaotic towns are largely the result of chaotic residential environment which hampers the growth of community spirit.

Cecil S. Burgess

ONTARIO

Many Ontario Architects are enjoying the splendid assistance of English draughtsmen brought to Canada through the Ontario Government's Air Immigration Scheme and it is felt that some recognition should be given in appreciation of their services.

These young men are not finding life too difficult in Canadian architectural offices nor are they finding Canadian methods as far divorced from English practice as they might have expected. They had some difficulty with our nomenclature. Such terms as trim, nailer, hardware, cleanouts, sawtooth trusses produce a puzzled frown, but gently whisper architrave moulding, pole plate, door furniture, rodding eye and north light trusses and a wave of nostalgia creeps up on them. After a few months, such terms as cills, lintols, foul sewer, top water sewer, stanchion, fulway valve and block plan (which they always insisted on drawing to a scale of 41.66 feet to the inch) have largely disappeared much to the relief of their new employers.

The chief thing that caused surprise was the extent to which pencil linen had superseded its ink counterpart, any departure from the old method of drawing everything in ink being viewed with horror by the conservative British Architect.

They were glad to find that a young man starting to work for the first time in an Architect's office was not required to furnish a premium of anything from $200.00 to $1,000.00 for the privilege of working for three years without pay. In one case a premium of $200.00 had been paid and indentures signed which required the young man to work for four years for the sum of $1.00 a week. (Undergraduates, please note.)

Further terms which he was required to undertake were that on terminating his articles, he would leave that office and seek employment elsewhere, but not within ten miles radius of the local City Hall, so that he could not solicit work from his previous employer's clients. After three years, he was permitted to work where he pleased without restriction.

They find that the work over here has not quite the variety to which they were accustomed. For instance, one fellow had been called upon to design, in addition to his usual routine of domestic architecture, such varied items as plastic nasal inhalers, binoculars, telescopes, sun glasses, elevator cars, accident plans for Civil actions, endorsement of plans on Covenants and in one case a massive chart depicting the signs of the Zodiac, the purpose of which has remained obscure.

The English system of evening study has its merits as it is possible to win a National Building Certificate awarded annually by various national institutes under the auspices of the Royal Institute of British Architects.

Under this system, a student may enroll for study for a sum equal to about a dollar and attend evening classes three or four times weekly for a year. At the end of the year he is expected to sit for an examination prepared by the Technical Institute and, if he passes, he may attend the next year free and again after another examination attend for a third year at the end of which he sits for his National Building Certificate.

Thus, for a dollar, one can receive a good three years' instruction in Building Construction, Science and Geometry and the History of Architecture taught by master builders and practising architects. (Undergraduates, please note.)

The recent arrivals find that Canadian Architects are much more willing to try new materials and ideas and they co-operate more willingly with manufacturers.

All in all, they are quite happy in their new surroundings, but they do wish they could have that occasional lazy day colouring working drawings with brilliant vermillions, crimson lakes, Prussian blues and all the impedimenta beloved of the Old Country Architect.

Alvin R. Prack

THE CASE FOR MODERN FURNITURE

(Continued from Page 198)

but inexpensive stacking chairs of plywood and steel, for use where heavier wear is anticipated. The clean, expressive lines of the plywood furniture of Canadian Wooden Aircraft Company, Stratford, deserves mention in any survey of contemporary furniture in this country. There are others who are as progress-minded as these manufacturers, but unfortunately they are few.

Many of the finest of our Canadian-made modern designs are but copies of American models, or sometimes, copies of Finnish models. The Canadian inferiority-complex manifests itself in our business world in the attitude—"wait until it is proven in the United States, then we'll try it out here,"—and the attitude of many of our furniture manufacturers is no exception.

The number of Canadian architects and industrial designers with experience in the field of furniture design is ever-increasing. Many have had valuable design experience abroad or in the United States. This brainpower should be put to work immediately to create designs using Canadian materials and capable of being efficiently mass-produced in Canadian factories. If private capital cannot supply the funds necessary for such research, then this is a legitimate undertaking for our National Research Council at Ottawa. The results of this research could be turned over to private manufacturers who would in turn pass on its benefits to the general public. The creation of such a budget would be a fitting complement to the Council's present appropriation for low-cost housing research. With thousands of veterans finding the high cost of furniture as hard to meet as the high cost of housing itself, we have a problem whose solution properly lies with the Federal government's research arm. The necessity of securing low-cost furniture involves not only the new homemakers, but also dozens of factories across the nation, situated in small towns, whose existence is, in many instances, dependent on the continued prosperity of the furniture industry. The problem involves research into the furniture potentialities of such Canadian products as aluminum and plywood. To ensure the continued health of an important part of our Canadian economy, we must institute such a research program.

Summary

It is the contention of many who have studied the Canadian furniture scene, that Canadian furniture prices will remain high long after the prices of many comparable goods have dropped from their present peak, because many Canadian furniture manufacturers, like their American counterparts, are not gearing their production to mass production techniques and gaining its economies; are not creating a sales force, which like that of the automobile industry would have its design and technical progress each year as its main appeal to the public; and are not using the design ability of Canadian architects and industrial designers to create modern furniture able to stand comparison with designs produced in foreign countries.

Courtesy of MacLean Building Catalogue

CONTRIBUTORS TO THIS ISSUE

John Cresswell Parkin, M.Arch., M.R.A.I.C.

Graduate 1944, School of Architecture, University of Manitoba where he was awarded the Isbister Scholarship, the 1944 Thesis Prize, University Gold Medal in architecture and the University of Manitoba Travelling Fellowship.

Worked in various Winnipeg and Toronto offices.

Was awarded Harvard University Graduate Fellowship where, at the Graduate School of Design he took his Masters Degree in architecture under Walter Gropius and Marcel Breuer in January, 1947.

May, 1946 a designer with Walter Dorwin Teague and Lester Tichy, New York City.

February, 1947 partner, John B. Parkin Associates, Architects, Toronto and lecturer in Architectural Design, University of Toronto, School of Architecture.

J. A. G. Easton, M.R.A.I.C., P. Eng.

Mr. Easton is a Scot with experience in Canada going back to 1911. Until 1924 he occupied positions of responsibility as chief engineer and experimental engineer for aircraft manufacturing companies in Canada and the United States. Prior to the war he was director of shopwork and drafting at Danforth Technical School (1926-38) and Shop Director at the Ontario Training College for Technical Teachers at Hamilton, (1938-1940). His experience up to the war made him eminently fitted for the vast programme of vocational training that the defence needs of Canada brought into being. In that connexion, Mr. Easton served at various times in Ontario as Director of Training and Technical Director – Canadian Vocational Training. Since 1946, he has been Technical Adviser to the Ontario Department of Education, in which position the incumbent does a graceful and effective job pirouetting between an uncompromising realism as to costs, and an idealism which includes all that is best in design. His article gives emphasis to the former and so provides an incomplete picture of the author.

BOOK REVIEW

PLANNING, THE ARCHITECT'S HANDBOOK
Fifth Edition Published For The Architect and Building News, Dorset House, Stamford Street, London, S.E.1, England. Price 21 Shillings Net.

The fifth (and first post war) edition of Planning, The Architect's Handbook appears in considerably enlarged form from England.

"Planning" deals with the functional plan and equipment requirements of a range of some thirty types of buildings including Houses, schools, factories, offices, hospitals, sports pavilions and public houses. Much of the information presented is of English precedence and although the turning radius of a Vauxhall and the classification of Schools under the Education Act of 1914 may not be of immediate significance to the Canadian Profession, the thoroughness and general applicability of these planning studies makes the book a must in the architect's technical library, particularly when the scarcity of well compiled reference on planning requirements is borne in mind.

Your receiver was particularly impressed by the attention given to the problems of dwelling units. Five chapters—housing, the house (for Individual Clients), flats, small flats and hotels are required for this thorough coverage. Several basic plans are carefully analyzed, and furniture groupings and the activities of occupants are given the attention which they deserve and so often do not receive. The discussion covers the field from basic planning relationships to the detailed layout of kitchens. The special problems of housing old persons finds a place. In fact, the information is so complete that at times obscuring of major considerations may arise as for instance when nine standard mat sizes for house vestibules are listed. The diagrams liberally spaced throughout the text are clear and factual. Especially valuable are those setting out diagrammatic analyses of planning problems. We found the tables of room sizes very close to our own standards for houses and apartments. An English emphasis on the horrors of draughts gives a rather un-American background to the heating problem.

Those architects interested in school work will find the two chapters,—Schools and Technical Education, informative supplements to such Canadian works as the Interim Report on Elementary Schools of the Committee on Planning Construction, and Equipment of Schools in Ontario. Typical fittings, classroom layouts, orientation diagrams and special details, such as bicycle racks are presented. This is perhaps one of the best planning studies presented.

The chapter on Community Centres begins with an introduction discourse on the social significance of the Community Centre, and on the Legislation significant to the provision of such centres and then proceeds to the actual requirements of the building. This general approach based on the social implications of the problem, and on the human activity for which the building is constructed as a background to the technical discussion, is of special significance to our times, when surely more than ever before the people must shape the technique and the economics rather than the reverse. So much of English thinking exhibits this constructive trend.

In the chapter on Factory Buildings, the effect of process on section and of typical production analysis on plan are well presented.

Architectural problems posed by the motor vehicle are set out in text and diagrams in an informative chapter.

We felt that the book presented more than a mere recapitulation of information already available in American and Canadian professional magazines and publications, making a further contribution based on additional information, thoroughness, direct usability, and quite often a different design approach.

Perhaps our contention that E and OE base their book to an appropriate degree on humanistic studies may be amplified by a small quotation from their original and much needed chapter of Farm Buildings (a planning problem hitherto featured by an almost complete absence of reliable and up-to-date information) we quote "Many farmers believe that calves do better if they are placed in positions where they can be interested in nearby activity!"

J. A. Murray

C.I.A.M. POST-GRADUATE SUMMER SCHOOL

The MARS Group announces the inauguration of the first International Summer School for Architects of post-graduate status which, through the generosity of the Architectural Association, is to take place in the school premises from July 19th to September 6th, 1948.

The School is to be held under the aegis of C.I.A.M. (Les Congres Internationaux de Architecture Moderne) and will be directed by Maxwell Fry, assisted by Jacqueline Tyrwhitt and members of the MARS Group.

There will be forty students, 20 being selected by the MARS group from applications in the British Isles and Commonwealth, and 20 by the various local groups of C.I.A.M. in other countries.

The subjects of study will centre upon the architectural aspects of central urban replanning, with addresses and discussions by architects of international repute, who will visit the school at intervals throughout the course, supplementing and enriching the continuous studio instruction provided by the director and staff.

The services of the school staff and visiting architects will be voluntary, but all other necessary expenses must be met, and a fee of £25. will be charged for the course.

Applicants, who should be of post-graduate status, are invited to apply without delay to the Bursar, C.I.A.M. Summer School of Architecture, 34, Gordon Square, London, W.C.I., enclosing particulars of training and qualifications etc., and testimonies of study in as compact as possible a form.

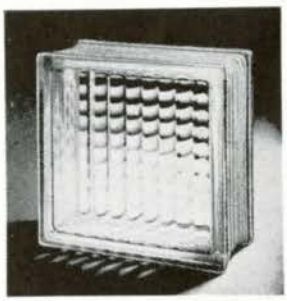
Facts by Pilkington about Glass
FOR ARCHITECTURAL STUDENTS

NO. **20** **INSULUX HOLLOW GLASS BLOCKS** *(CONTINUED)*

Insulux Glass Blocks are made in a variety of designs for functional, decorative and general-purpose use. The proper selection of face patterns for each job is important. Illustrated below are some typical designs.

DESIGN No. 7

An easily-cleaned, smooth-face block with parallel convex ribs on both interior faces. Gives high light transmission, limited privacy.

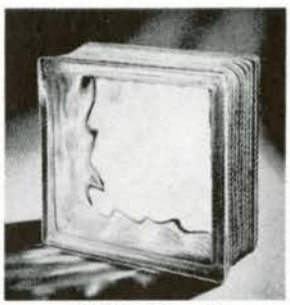


DESIGN No 16

A smooth-face block with convex interior ribs running vertically one face, horizontally on the other. For decorative and lighting effects. Gives a fair degree of privacy.

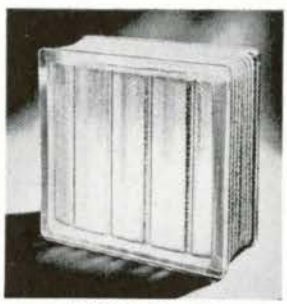
DESIGN No. 17

A highly decorative, smooth-face block with concave flutes running vertically one face, horizontally on the other. Gives high light-transmission with very limited privacy.



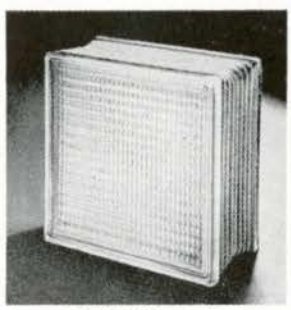
DESIGN No. 30

A smooth-face, highly decorative pattern with high light transmission but a low degree of privacy. Distinctive design permits laying without regard to pattern.



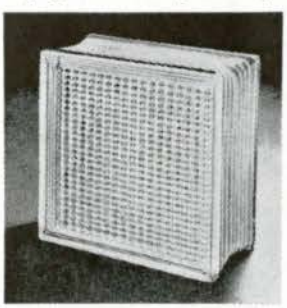
DESIGN No. 40

A ribbed-face block offering a very high degree of privacy. Face ribs are shallow for easy cleaning. All four faces have parallel ribs. Both interior faces have stippled surfaces.



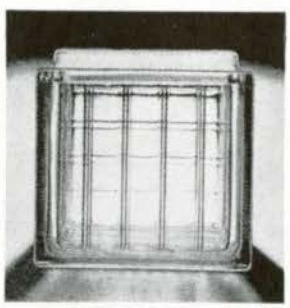
DESIGN No. 350

Ribbed-face — designed primarily for severe sun exposures. Complete privacy. Horizontal ribs exterior. One size: 7¾" x 7¾" x 3⅞".



DESIGN No. 351

A functional block designed to direct light above the horizontal, to the ceiling for reflection deep into room. Use above eye-level. Has vertical ribs on exterior faces.



RADIAL BLOCKS

For use with 7¾" standard blocks only. Minimum radius 2' 5". Ribs vertical on long face. May be combined with standard blocks on long radii to reduce cost.

CORNER BLOCKS

Made in 5¾" and 7¾" heights only. All ribs are vertical on exterior faces.

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