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NO. 10

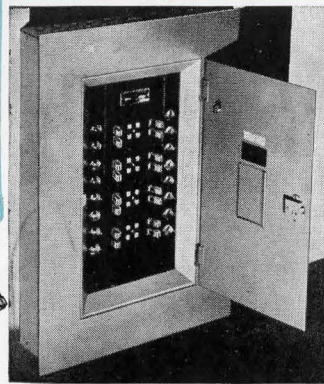
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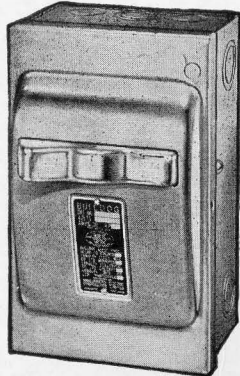
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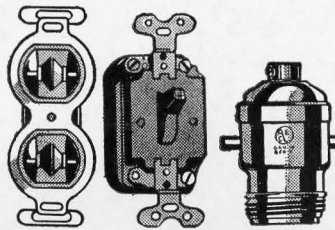
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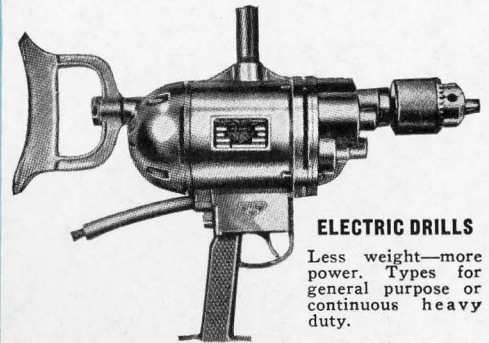
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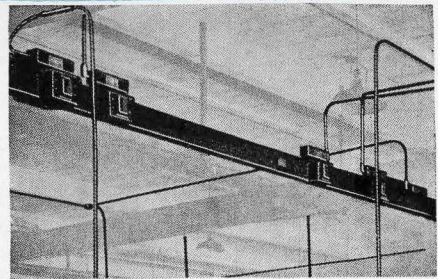
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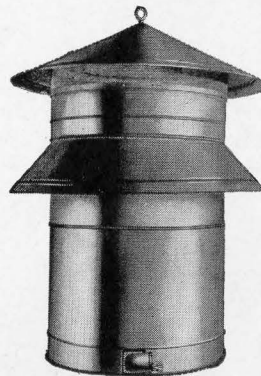
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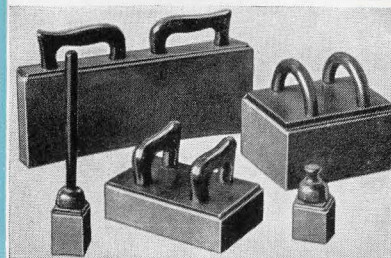
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JOURNAL

ROYAL ARCHITECTURAL INSTITUTE OF CANADA

Serial No. 206

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CONTENTS

Editorial	200
Modern Timber Connections, by C. D. Carruthers	201
The Periodicals Shelf, by Anthony Adamson	208
Extracts from the Minutes of the Executive Committee	208
Third Report of R.A.I.C. Committee on Housing, by Harold Lawson	209
A. R. P.	210
Book Review—"Industrial Camouflage Manual", by Martin Baldwin	210
Listing of Equipment and Materials Under Fire Hazard Testing Procedure	211
Obituary	211
Provincial Page	212

PLATES

Deacon Brothers' Factory, Belleville, Ontario	204
Truck Garage, Canada Packers Limited, Toronto, Ontario	205
Research Enterprises Limited	206
Lincoln Electric Company of Canada Limited	206
Small Electric Motors (Canada) Limited	206
Coca-Cola Plant, London, Ontario	207
Central Aircraft Limited	207
Central Ontario Transports Limited, Toronto, Ontario	207

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ABOUT 500 additional copies of the *Journal* for September were distributed to a carefully selected list of interested people. We have heard from a few of them already, and they all ask about Town Planning. What has the Committee on Reconstruction done about it, what have the architects done about it? They remind us that industrial building, housing, transportation—indeed every aspect of reconstruction touched in the September *Journal* is affected by Town Planning. Is it not here that we as architects can assist the Government by preparing Town Planning data in every provincial city? This information should be sent to the R.A.I.C. office, 74 King Street East, and will there be assembled and sent to Ottawa. Regardless of the size of your town or city, send in your information. You have data that will prove the need for Town Planning and will strengthen the Government's hands when the statement will be made "that funds will not be available for Reconstruction in areas where the preparatory work of Town Planning has not been undertaken". We have no information that such a statement will be made, but on no other evidence than Dr. James' foreword in the September issue, we can be sure that every provision will be made to make the plans of Reconstruction work in the best interests of the country. The obligation on the part of the municipalities to plan can therefore be assumed to be fundamental and definite.

We submit below a series of questions that we would like you to copy and answer as soon as possible.

- a. Have you in the town or city of _____ a Planning Board?
- b. Who is its chairman and who are its members?
- c. For what period is the appointment of each member?
- d. How is the Board appointed?
- e. How long has it been in operation?
- f. What are its powers?
- g. What funds for planning has the Board at its disposal?
- h. Has the Board access to expert advice in Town Planning matters?
- i. What has the Board accomplished?
If anything has been published, forward it with your replies.
- j. Has subsidized housing been considered in its deliberations, and has an area been planned for it?
- k. Has your local chapter, or its individual members, been active in the preparation of a town plan or assisted the work of the Board?
- l. Is planning done adequately or inadequately in any department of your municipal offices? Who is in charge?
- m. Have you provincial legislation permitting Town Planning? Forward copies.
- n. Any information in addition to the above.

It may be of interest to architects in other municipalities to know that last April Toronto appointed a City Planning Board. It consists of five laymen, an alderman, who is also a layman, and an architect. The Deputy Ministers of Highways and Municipal Affairs in the Province of Ontario are also members of the Board. The Board is advised by a Committee of seven experts, two of whom are architects, one a landscape architect with Town Planning experience, and four engineers. The Executive Secretary, who is Secretary to both groups and a liaison officer between the two, is an architect. On the Board two members are members for three years, two for two years, and three for one year. This year the Board has \$4,700 for expenses, part of which goes as an honorarium to the Secretary and technical experts. The sum is not a large one when one views the magnitude of a plan that will embrace a city of the size of Toronto twenty-five years from now, but with an enthusiastic Committee much can be done. As work advances, and the problem becomes greater and more complex, it is expected that sufficient work will have been done and a broad enough plan of future work presented, to persuade civic authorities to advance more money. The Board is an advisory one and has no authority to spend more than the sum allotted by the Council for its current year's work. On the other hand, City Hall departments are all co-operating splendidly, and much statistical work is being done by them that would, if done by private agencies, cost considerable sums of money.

The information required in the questionnaire above should be answered by the Secretary of a Chapter where such exists in the larger cities, and by individuals or groups of individuals in smaller centres where they do not. We know, for instance, that Kingston has a Planning Board but no Chapter. Oshawa and Sarnia have both recently been active in planning and we earnestly request all the information available to be assembled by individual members of the R.A.I.C. If Provincial Secretaries would interest themselves in this important matter, there is no doubt that a mass of valuable data would be collected and put to use. We expect many negative replies to many questions, but that merely strengthens the case. A demand for Town Planning from the whole of Canada might well influence the Government to provide Federal assistance for such purposes. That is already being done in Great Britain.

MODERN TIMBER CONNECTIONS

By C. D. CARRUTHERS,

Associate of Gordon L. Wallace, Consulting Engineer

Many of the most important effects of war never make the headlines of our newspapers. One of these is the origin and speedy development of the use of wood in construction of long span buildings for our war activities, both military and industrial. The origin of our modern connections was an effect of the last war (1914-1918) the speedy development of long span buildings an effect of the present war.

Wood is not a new construction material. In fact, it is probably the oldest, but its mode of use has had many variations. The most recent development is the use of the various types of ring connectors for joining wood members.

These ingenious little devices have completely changed the methods of framing timber in long span wood structures and to a lesser extent shorter span structures.

Shortly after the last war there was developed in Europe various devices for connecting wood members. In 1933 these devices were introduced to America through the United States Forest Products Division of United States Department of Commerce and the National Timber Manufacturers Association of the United States. A subsidiary of this Association, the Timber Engineering Company, was organized to carry on the development of these connectors and the extent to which they are now used is the best indication of the efforts of this company to educate the Architectural and Engineering professions and the construction companies in the use of these connectors and also of the appreciation of the value of the connectors themselves.

The main types of connectors used are illustrated on page 7 of this issue.

The split ring, the most widely used, is for wood to wood connections. It is placed in grooves cut in the contacting members concentric with the bolt hole. The bolt pulls the members together with the ring between them and holds them together. The purpose of the tongue and slot is to permit simultaneous bearing of the ring on both inside and outside, the ring being slightly expanded when installed.

The toothed ring is similar to the split ring but is installed by forcing the teeth into the contacting members by pressure without the necessity of cutting the grooves. While they carry somewhat less loads than the split rings, they are easier installed when only manual labour is available. The pressure is applied by means of high strength bolts, with self-centering nuts and oversize washers. They are also highly satisfactory for lighter structures such as trussed rafters. They are not suitable for use in hard or dense grained woods.

The shear plate is generally used for wood to steel connections. It may be used for wood to wood connections and is advised where the wood to wood connections are taken apart many times (split ring connectors are satisfactory for such a purpose where the connection is taken apart only a few times). Shear plates are installed by grooving as for split rings, but in addition the wood must be dapped (the wood cut away over the whole area of the plate) in order that the plate may set flush with the face of the timber. When properly installed, they

will develop the full value of the bolt in crushing against the fibres of the wood. They are held in place by nails driven through the holes provided.

Claw plates are a combination of shear plates and toothed rings. The wood is dapped for the thickness of the plate and the claws forced into the wood under pressure as for toothed rings until flush with the face of the timber. They are used largely for connection of wood to steel as are shear plates.

The other varieties of connectors, the spike grid, which comes in types capable of joining two flat surfaces, a flat to a curved surface, or two curved surfaces, and the clamping plates are little used in building connections and are designed primarily for use in wood pile and trestle bents and railway bridge building. All of the types of connectors illustrated have been tested extensively by the Forest Products Laboratory of the United States Department of Agriculture and by various university laboratories. From these tests and other theoretical and practical considerations, the load carrying value of the various types of these "rivets for wood" have been determined for the various classes of wood, type of loading, angle with grain, and the standard and minimum spacings, end distances, edge distances, etc.

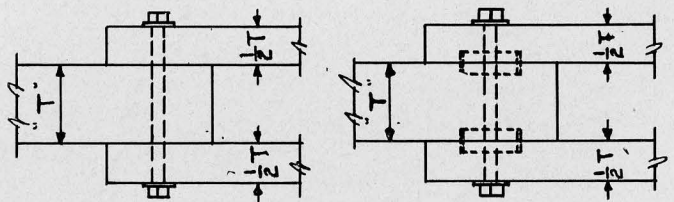


FIGURE 1

The table shown on next page gives a few of these values and a comparison of the strengths of bolts alone and bolts with rings for the type of connection indicated in FIGURE 1.

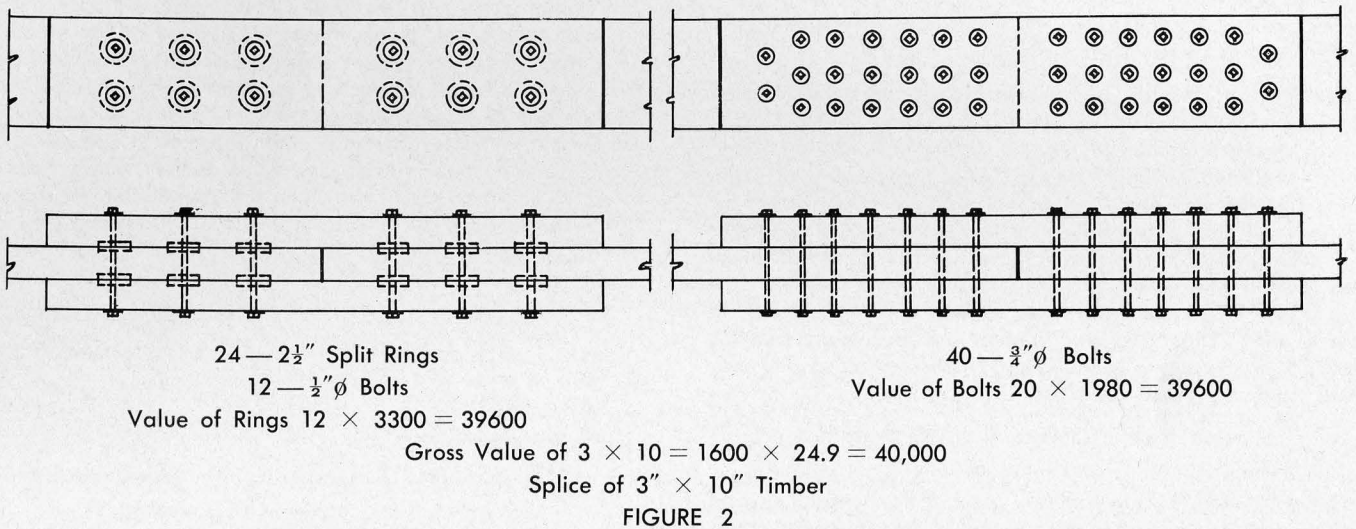
The figures in brackets below the value shown for the rings is the ratio of the load carrying capacity of the bolt and rings to the bolt alone.

All the values in the table are for rings having standard spacings. Normally, these standard spacings are reduced in order that connections may be made more compact. This reduces the allowable load per ring. An average figure for such reduction would probably be 80% of the figures given in the table.

In actual design, each connection must be investigated and this gives the designer many interesting problems in the development of the best combination for any particular joint. This is the only new skill that any engineer qualified to do structural design must of necessity acquire, other than a good knowledge of the various properties of wood if such are not already known.

Complete data re the strength of rings, spacings, etc., are given in the various publications of the Timber Engineering Company.

Species of Wood	Thickness of Material "T"	PARALLEL TO GRAIN						ACROSS GRAIN					
		Value of Bolt Only		Value of Bolt and 2 Toothed Rings		Value of Bolt and 2 Split Rings		Value of Bolt Only		Value of Bolt and 2 Toothed Rings		Value of Bolt and 2 Split Rings	
		Bolt Size	Value	Ring Size	Value	Ring Size	Value	Bolt Size	Value	Ring Size	Value	Ring Size	Value
Dense Douglas Fir and Short-Leaf and Long-Leaf Yellow Pine	1 3/4"	1/2" ϕ	830	2"	2530 (3.05)	2 1/2"	5500 (6.6)	1/2" ϕ	380	2"	1900 (5.0)	2 1/2"	3920 (10.3)
	2 3/4"	1/2" ϕ	1040	2"	2780 (2.67)	2 1/2"	6600 (6.35)	1/2" ϕ	600	2"	2080 (3.50)	2 1/2"	4720 (7.9)
	1 3/4"	3/4" ϕ	1280	4"	5940 (4.62)	4"	9000 (7.6)	3/4" ϕ	500	4"	4460 (9.0)	4"	6320 (12.7)
	4 3/4"	3/4" ϕ	2360	4"	7720 (3.3)	4"	12800 (5.5)	3/4" ϕ	1160	4"	5780 (5.0)	4"	8960 (7.7)
Cedar Hemlock White Pine Spruce	1 3/4"	1/2" ϕ	520	2"	2070 (4.0)	2 1/2"	4000 (7.7)	1/2" ϕ	200	2"	1550 (7.7)	2 1/2"	2750 (13.7)
	2 3/4"	1/2" ϕ	960	2"	2280 (2.4)	2 1/2"	4800 (5.0)	1/2" ϕ	320	2"	1700 (5.3)	2 1/2"	3300 (10.3)
	1 3/4"	3/4" ϕ	860	4"	4860 (5.6)	4"	6460 (7.5)	3/4" ϕ	290	4"	3640 (12.5)	4"	4480 (15.4)
	4 3/4"	3/4" ϕ	1850	4"	6320 (3.4)	4"	9160 (5.0)	3/4" ϕ	750	4"	4740 (6.3)	4"	6400 (8.5)



Since all members and connections may be designed in accordance with sound engineering methods based on extensive tests and supported by theoretical analysis, true economy is introduced to the use of timber particularly for long span construction. Efficiencies approaching very close to 100% of value of working loads of the wood members can be developed. The above simple example of a splice for a member illustrates the truth of these statements.

In general, the saving of connector joined types of wood structures over ordinary bolted types of structures amount to 20% to 40% and since a smaller amount of material is used, gives a less cumbersome appearance to the structure.

The accompanying photographs of several buildings constructed or under construction illustrate better than any words, the pleasing appearance achieved by ring connected trusses. No doubt, improvements in appearance can be made and we are sure the readers of this publication will immediately sit down to their drafting tables in an effort to show the way.

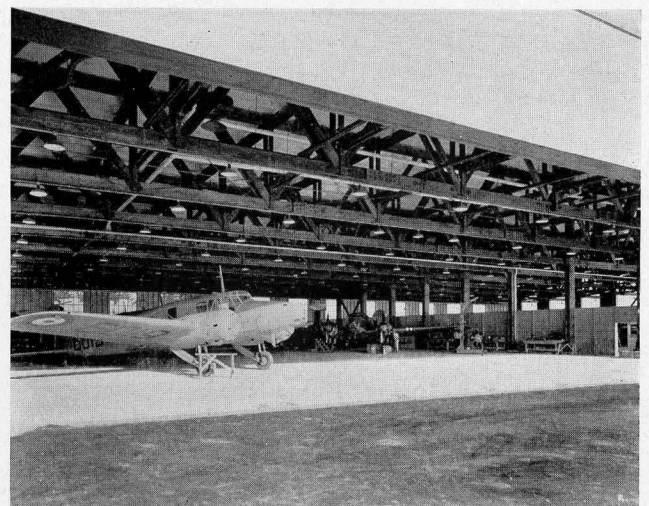
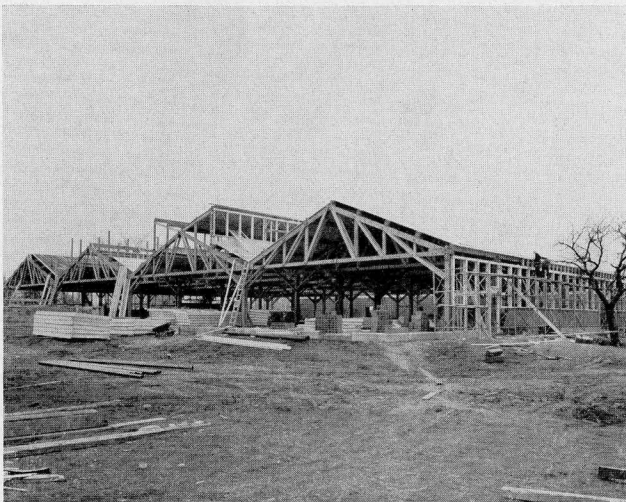


FIGURE 3 is of a standard R.C.A.F. aircraft hangar, many of which have been built in Canada. It is a Warren type truss with a span of 112 feet.



FIGURE 4 is a very good example of a mill type building. It has a triangular Pratt truss with a span of 51 feet. Note how the diagonal has been carried down to form a neat looking knee-brace. This structure was designed by T. Pringle & Son, Industrial Engineers, Montreal.



Another type of mill building is illustrated in FIGURE 5. Similar to that of FIGURE 4 but with vertical monitor sash on interior trusses and with multiple trusses. This structure was designed by Hutton & Souter, Industrial Engineers, Hamilton.



FIGURE 6 illustrates a flat Howe truss over a span of 50 feet. These trusses, it may be noted, rest on brick piers. Note truss lying on ground fully fabricated and ready for erection as a unit. This truss was designed by Gordon L. Wallace, Consulting Structural Engineer, Toronto.

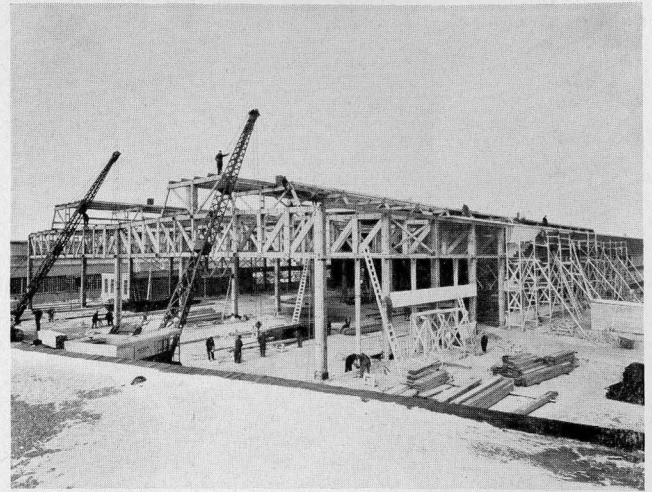


FIGURE 7 shows two 80 foot span flat Pratt trusses having a monitor with sloping sash down the centre of each span. For speed, three cranes were used for erection. The two trusses and three columns were assembled on the ground and then erected as a unit, one unit per day.

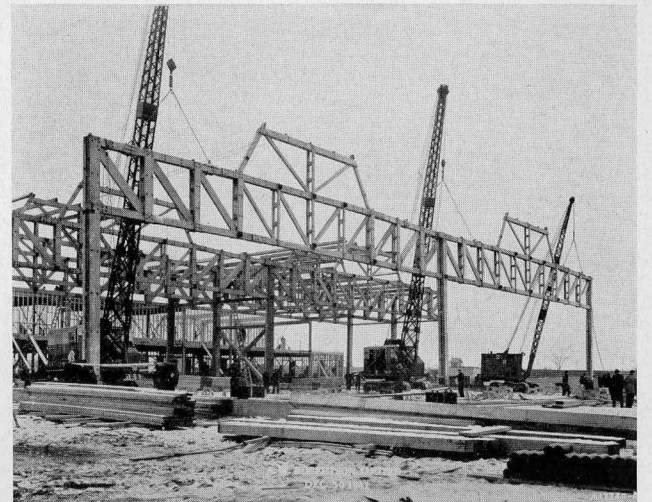


FIGURE 8 is another picture of the same trusses showing very clearly the method of erection of this type of structure. This structure was designed by the writer.

Because wood burns, there is a tendency on the part of many, to consider that structures of the type illustrated are less fireproof than structures having steel trusses, but actual experience in fires disproves this. Wood in members having large flat surfaces does not burn easily and it takes fires of intensity such as would cause steel structures to buckle and fall to effect serious damage to wood structures. Steel may have other advantages but in respect to fire, the timber truss is as good, if not better.

In summing up the effects of the use of timber connectors, one may say that it has simplified timber construction; increased the possible spans; provided more efficient and economical use of timber; reduced the amount of hardware required; and last but not least, has allowed timber to graduate from the class of rule of thumb structures to that of structures fully capable of analysis by sound and proven engineering methods.

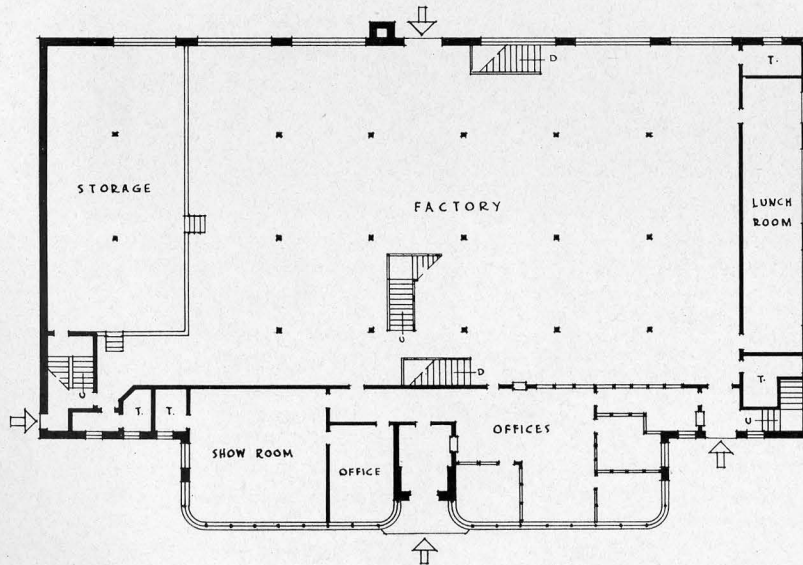
The writer is very grateful to Mr. V. H. McIntyre of V. H. McIntyre Limited, who are the Canadian Agents of the Timber Engineering Company, for the loan of the photographs incorporated in this article and for the many suggestions he has given the writer.



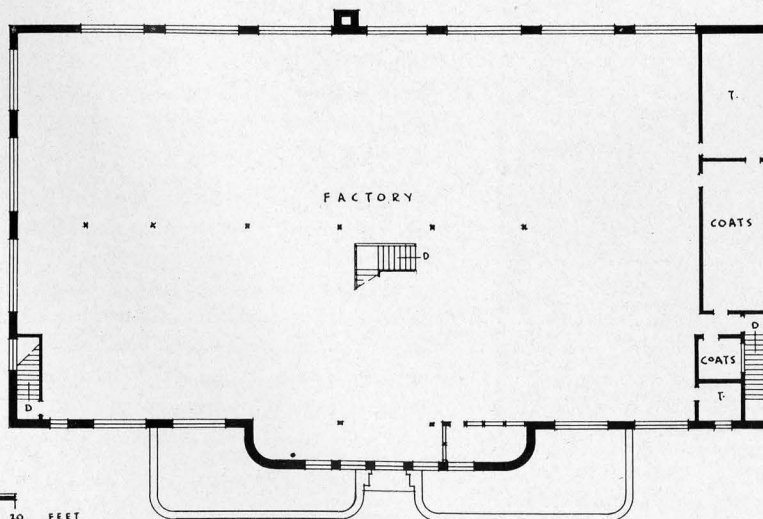
DEACON BROTHERS' FACTORY, BELLEVILLE, ONTARIO

W. A. WATSON, ARCHITECT

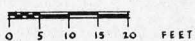
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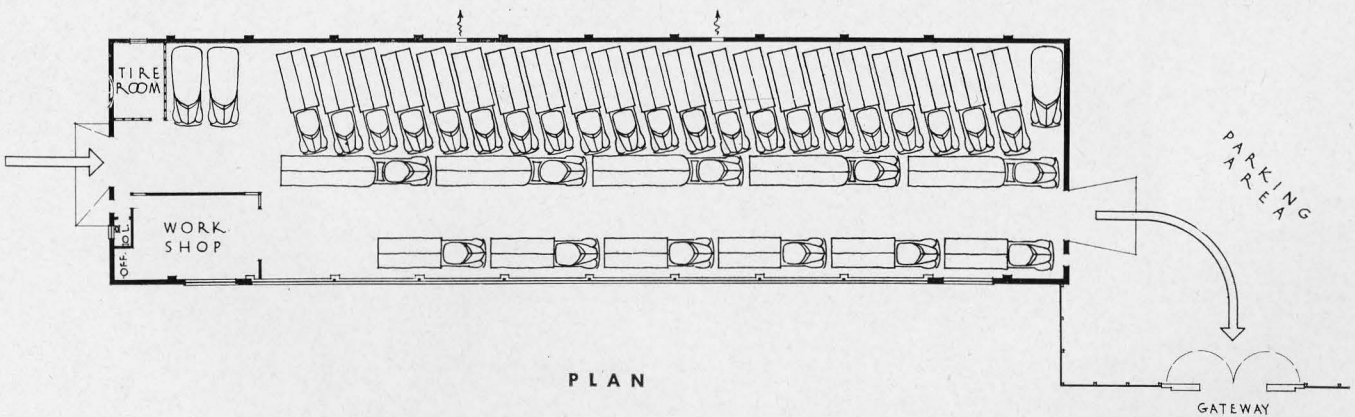


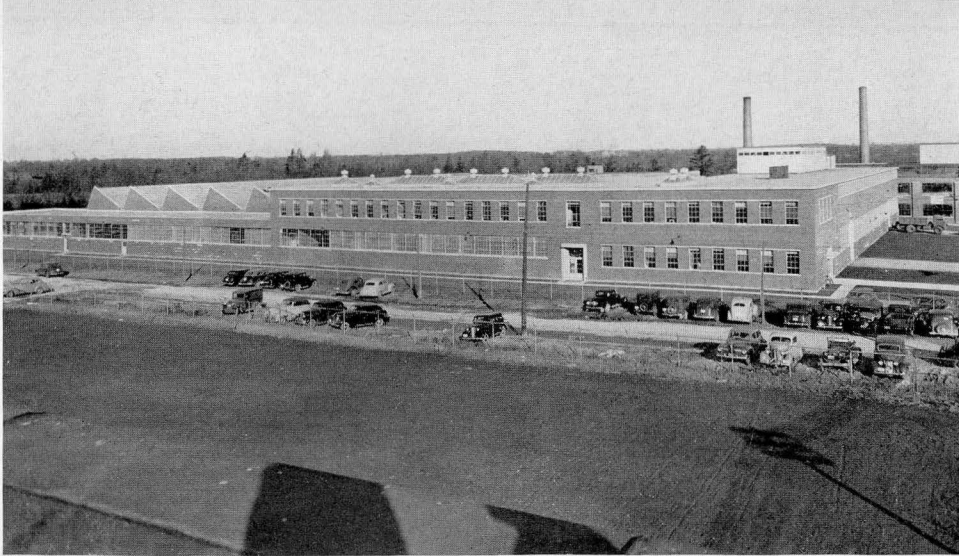


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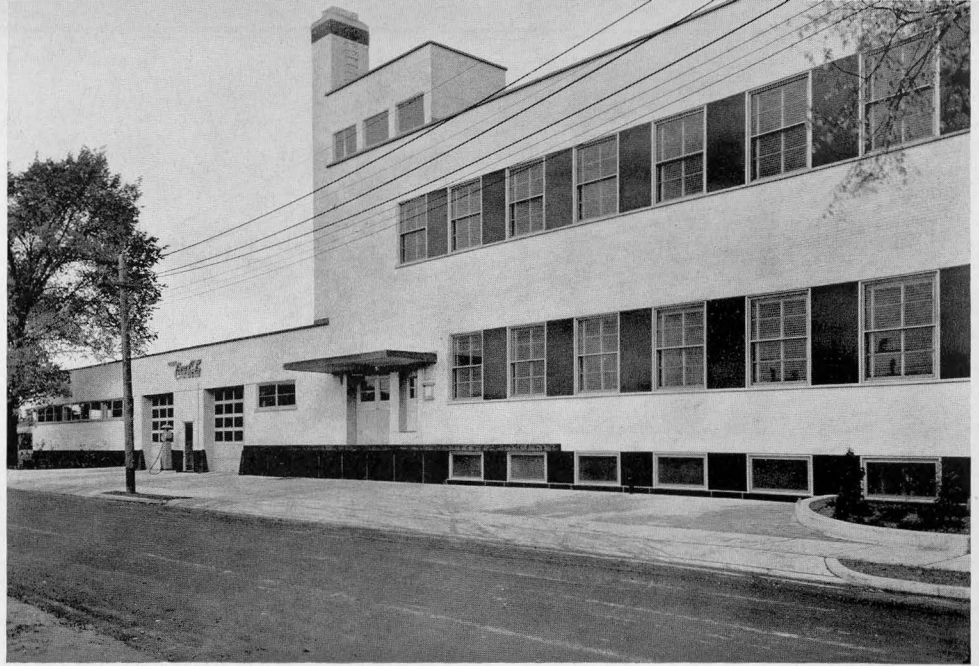


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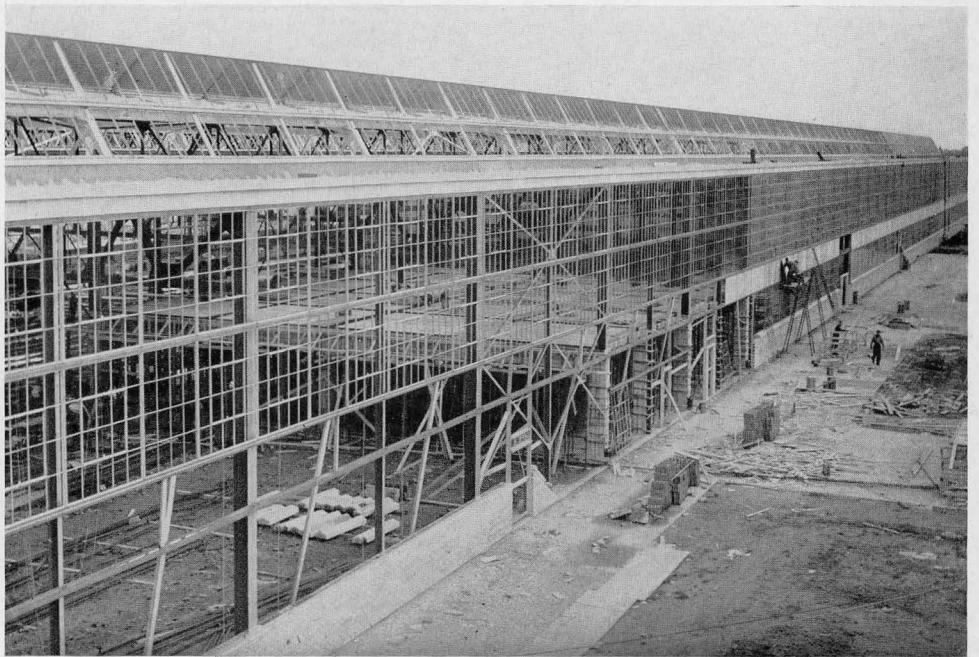


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THE PERIODICALS SHELF

By ANTHONY ADAMSON

These days naturally all the periodicals devote themselves to wartime buildings and essays on post-war reconstruction. "Pencil Points", now since June "The New Pencil Points", is very strong on reconstruction. Its June issue began with an article "Reveille or Taps" urging all architects "to wake up and read". In the September issue is a similar prod, probably very necessary, entitled "Who'd serve must search", the gist of which may be summed up in one quoted sentence, "The public needs competent advice much more than it needs perfect drawings". Taking the current essays and Reports on Reconstruction first: the issue of the "R. I. B. A. Journal" for August has "The First General Statement of Conclusions" from that Institute's Reconstruction Committee, and "The Architects' Journal" for August 20 has a summary of the Report of the Scott Committee which sat to consider what would happen to English agriculture, countryside and rural life if industry were decentralized as recommended in the previous Barlow Report. Both statements are worth reading and both being summaries can scarcely be summarized here. Going from the general to the particular, in "The Architects' Journal" for August 27 is a report by the "Association for Planning and Regional Construction" entitled the "Hub of the House" and is a detailed and fully diagrammed description of kitchen types. The usage is, of course, English but the article is remarkably comprehensive, although it ignores the possibility of communal services such as creches and public laundries.

For examination of wartime construction the periodical shelf is particularly devoted currently to the problems of industrial illumination. In the September issue of "The Architectural Record" "The Lighting of Industrial Plants" is very thoroughly considered and with technical recommendations. If to this reading is added "For Better Sight: White Factory Floors" in the July "New Pencils Points", and "Colour for Production" in the July "Architectural Forum", and "The Admission and Exclusion of Sunlight" in the July "R. I. B. A. Journal", an architect will have comprehensively covered the subject. "Colour for Production" is an analysis of the part played by colour in a better industrial seeing environment. The September "Forum" has not come in, but in its July issue is an article by Robert Moses on Baron Haussmann. It is chiefly historical but conclusions by so great a planner as Moses should be read. The article is accompanied by comparative illustrations of Moses' New York and Haussmann's Paris. One conclusion, trenchant to us in Canada, is that "no great programme of municipal reconstruction can rest upon any other basis than that of informed majority public opinion and the majority has to be substantial". In the September issue of "New Pencil Points" is "Plywood Satisfactory for Heavy-Duty Girders", an article by C. W. Muhlenbruch of Carnegie Institute of Technology, which seems to embody sound study. For anyone taking up a fuller examination of the innumerable schemes for United States Wartime housing, a short summary in the English "Architectural Design and Construction" for September is recommended.

EXTRACTS FROM THE MINUTES OF THE EXECUTIVE COMMITTEE

Minutes of a Meeting of the Executive Committee of the Council, Royal Architectural Institute of Canada, held in the offices of the Institute, Room 761, 620 Cathcart Street, Montreal, Quebec, on Saturday, September 26th, 1942, at 10.00 a.m.

Present: Messrs. Gordon McL. Pitts (F), President; Forsey Page (F), Honorary Treasurer; Charles David (F), Honorary Secretary; Oscar Beaulé, Henri Labelle (F), Harold Lawson (F); Miss Mary Elmslie, Secretary.

In the matter of the Order-in-Council P.C. 638, the President advised that this Order has to be carried out by all technical men listed, including architects, but in the case of an architect having a standing commission with a firm or individual, a blanket permit will be issued.

A study is being made of the structural engineering courses in the four Schools of Architecture by Professor R. F. Legget, University of Toronto, who will submit his report to the Chairman of the Committee on Architectural Training, who will in turn present it for consideration by the Committee on Architectural Training and the Heads of the Schools of Architecture at the meeting to be held at the time of the Annual Meeting in February.

It was decided to break down the Reconstruction Committee of the Institute into local committees, beginning with the appointment of sub-committees in Toronto and Montreal with the purpose in view of setting up similar sub-committees in important centres throughout Canada.

Reports of the Chairmen of the Housing Committee, Mr. Harold Lawson, and the Art, Science and Research Committee, Mr. Charles David, appear elsewhere in this issue. There are indications that the Dominion Government is putting into effect an organization to administer post-war reconstruction very similar to that suggested in Mr. Lawson's Report.

Tentative approval was given the holding of the 1943 Annual Meeting in Montreal on Friday and Saturday, February 19th and 20th, with an all-day conference of the Committee on Architectural Training and the Heads of the Schools of Architecture to be called for Thursday, February 18th.

The President, Mr. Gordon McL. Pitts, was congratulated on his recent appointment as a Governor of McGill University and on the honour of Fellowship of the Royal Institute of British Architects bestowed upon him by the R.I.B.A. Council.

The committee was advised of the publication of the National Building Code by the National Research Council at a cost of \$1.00 per copy. The Executive Committee strongly recommended that every architect secure a copy of the Code for his library.

The special September issue of the *Journal* on Reconstruction was brought before the members at this meeting and the Editorial Board was complimented on the highly successful presentation of this number. It was reported that many complimentary remarks had been made on the special May issue of the *Journal* having to do with A.R.P. work.

Instructions were given to arrange for an amendment to the By-laws, Section 16(a), to provide for the inclusion of the immediate Past President in the membership of the Executive Committee of the Council.

THIRD REPORT OF R.A.I.C. COMMITTEE ON HOUSING

By HAROLD LAWSON, *Chairman*, R.A.I.C. Committee on Housing

In the report of June 13th, it was suggested—in effect—that a practical means of expediting post-war planning and construction would be for the government to set up as quickly as possible a legally constituted permanent Building Authority, be it called a Commission, Committee or any other name. This report, in the nature of a recommendation, is an amplification of that of June 13th.

On the premise that building will be an important factor in post-war reconstruction and that of necessity, much of it must be government sponsored and supported, therefore, control and responsibility should centre in a government appointed authority.

The nation wide shortage of permanent housing and the deplorable physical and financial condition of the larger municipalities offer opportunities for large scale building projects. Soundly conceived, they would be of great social and economic value and would immediately benefit all branches of the construction industry by providing employment for thousands as they become demobilized, or unemployed through cessation of work in war industries. By government control and prompt action during the transition from a war to a peace economy, much suffering can be avoided provided organization, policies, and plans are prepared in advance and made ready against the day that hostilities cease.

This proposed Building Authority may be a component body within a greater post-war Reconstruction Council or it may have separate entity directly responsible to the Cabinet or one of the Ministers.

It should have wide powers somewhat similar to those of the corporations set up by the government for the purpose of financing, erecting, managing and otherwise maintaining plants for the war effort and, in addition, be empowered to negotiate with provincial and municipal authorities in matters of rationalization of legal questions, joint financing, surveys, assessment of local needs and, in fact, all functions necessary for smooth action in the development of projects. The importance of the problem and the complexities of the tasks involved make it necessary that no time be lost in the appointment and constitution of this special Building Authority.

Its membership should consist of leaders in the architectural, engineering, legal and notarial professions, construction, industry, finance, real estate and social service work. These should be full time positions, adequately remunerated, for the duration of the war and, at least, five years thereafter. Only through carefully selected personnel having collectively plenary powers, permanence and responsibility can the problems of post-war construction and reconstruction be adequately attacked.

If it be argued that a central Building Authority cannot be conversant with the varying conditions of so extensive a country as ours, the obvious answer is that regional boards would be set up in several of the most populous sections. The regional boards would function as agents for the central authority in fact-finding, surveying, and analysing local needs; in appointing architects, engineers, consultants or specialists as may be required; in buying, selling and transferring, in building and managing when necessary. For the duration of the war and for some time thereafter, as a matter of public interest, there must be co-ordination of large scale building developments to correspond with the release of men from war activities. It should not be left to local authorities or private enterprise alone. Results would be too uncertain and it would be merely a return

to the pre-war scramble, profiteering, and unbalanced development. The war to date has shown us the disastrous effects of divided authority. *What is required is a considerable bulk of centrally controlled building development distributed throughout the Dominion for a period of time as a stabilizing medium for the construction industry and to prevent the recurring crises that have been our experience in the past.* There will still be room for private enterprise.

It is of the utmost importance that the personnel of central and regional bodies be appointed on merit and not for political reasons. The very nature of their duties would indicate that they must be men of experience and not eligible for military service.

The real work, if plans mature in time, will begin only upon the termination of the war, when men and materials are available. Until then, no great sums need be diverted from the war effort. The cost of setting up the organization and preliminary work is properly the responsibility of the Government and justified as a part of post-war planning. The amount and kind of financing that will be required after the war will depend upon number, size, and location of projects and the share therein of provinces, municipalities and private enterprise.

Another function of the central Building Authority would be to act as an initiating force in stimulating activity when and where most needed, in advising and assisting local planning boards, and generally aiding local municipalities where planning knowledge and facilities are non-existent. It would be expected that all local authorities requiring the assistance of public money would send their plans and programmes to the Central Authority for review and approval and that no project would be considered which does not follow best town planning principles and practice, and fulfils recognized social needs.

In so trying a time as this, when we are in the grip of total war and every energy must be devoted to a victorious end for our allies and ourselves, it is of course difficult to permit ourselves time to plan for Peace. There is, however, a fermenting of thought, rarely expressed, that the social and economic order before the war was very unsatisfactory and that the end of the war must find us all on the road to a better way of life. We cannot expect to change human nature over night but we can at least, try to provide through every means at our disposal a better basis for the re-establishment of society as a whole, and the time for such planning is *NOW* and not when the war is over. The Government has recognized this in the appointment of the James Advisory Committee on Post-War Reconstruction, as well as other committees on rehabilitation. These being advisory and of limited tenure might very well be converted to a Reconstruction Council or Ministry, but that is a matter beyond the scope of this report, the purpose of which is to recommend the establishment, as soon as possible, of a government-constituted Building Authority for the reasons briefly outlined above.

I suggest, in all seriousness, that the R.A.I.C. make strong representations to the powers in Ottawa to give this early consideration, to the effect that a bill may be prepared and legislation passed to create an organization along the lines proposed, this to have no connection with Wartime Housing nor with the department operating the National Housing Act, nor should it be an offshoot of any other governmental department. Envisaging as it does the greatest construction venture in Canadian history and ignoring other important social and economic benefits that would accrue, it is essential this be a new and entirely separate federal organization.

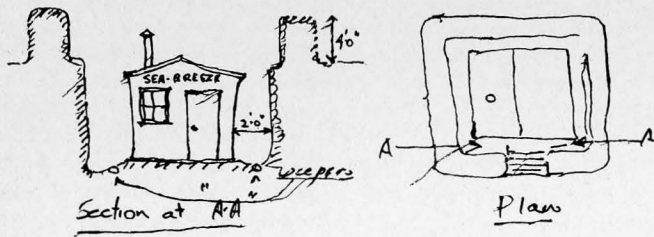
August 16, 1942.

No. 2 C.A.R.U., Canadian Army, England.

Dear Professor Arthur:—Congratulations on your very successful A.R.P. issue; I read it thoroughly riding from Hereford to London. I note remarks on page 141 of Volume 19, discussing errata; hence this letter. It seems to me that the greatest errata is in the over-elaboration of the domestic shelter. A case in hand: where we were stationed this winter, an R.A. outfit that had been there before us had done most of our digging for us. One of their structures was the battery command post, which consisted of a wooden beach shack, labelled "Sea-Breeze", about 18'-0" by 14'-0", dug in to roof level, with a 2'-0" gap between the hard clay walls and the shack. Set above this was a four foot double wall of sandbags, with a blast-wall at the entrance. This, you must admit, gives perfect protection against anything but a direct hit, is warm and comfortable, and was even equipped with tile weepers and a drain. The snow problem, I must admit, would be difficult, but a canvas shelter thrown over the entrance would surely solve this.

No kinetic energy, no blast waves, no nuttin' to worry about—and no cost. Or maybe I've forgotten something?

It looked something like the below:



I was very interested to see a surface shelter under construction opposite my hotel in Brompton W 11, when I was on leave. Interior, a concrete block, tied to a four inch brick veneer. Between the two, an iron grid, also tied in. Looked very solid, for the cheapness of the material.

Enough for now, sir. I have just come out of hospital after breaking my left leg on an exercise in April. Hence the address, which stands for Reinforcement Unit. I hope to be back with my unit soon.

My very best wishes to you, sir.

Sincerely,

Blake H. M. Tedman, Lieut., R.C.A.

COMMENT BY THE CHAIRMAN OF THE A.R.P. COMMITTEE

Tedman's letter is interesting and amusing and should be enjoyed by architects, but his recommendation for shelter construction cannot be taken seriously by the committee. It is vulnerable on a number of counts and in particular to ground shock. Perhaps if I knew him better, I would say he was "pulling our leg".

—A. S. Mathers.

BOOK REVIEW

INDUSTRIAL CAMOUFLAGE MANUAL

Pratt Institute Brooklyn, New York.

ILL.-128 pages.

Reinhold Publishing Corporation, New York.

Price, \$4.00.

This book has been compiled by assembling on each page a number of photographs or diagrams together with a typewritten text, which is then, (I suppose) photographed and reproduced for publication. It is clip bound in card covers.

The book is in three main parts. The first deals with the various general aspects of the subject: the methods of location by reconnaissance and photography, the problem of the bomber in aiming at the target, an analysis of the component parts of an industrial area, some conclusions and suggestions for future construction.

The second discusses the principles which should influence the design of camouflage, the methods of applying these principles and a general exploration of materials and of the various ways they may be used.

The third part shows examples of camouflage over various types of industrial structures, all in model form; it analyses, too, the famous example of the Binner Alster camouflage job done by the Germans in Hamburg, and promptly discovered by the R. A. F., (I wonder how it looks now) and finally sets out the process of the design and erection of camouflage on a given industrial plant, 72,000 square feet, with an estimate of initial cost, 13 cents per square foot, this also in model form. No estimate of maintenance cost is given, though this appears to be considerable.

Camouflaging a landscape—for that is what seems to be necessary—is a problem just as complicated as is the landscape itself, with its variety of pattern of colour, of texture, of shape and shadow; as a natural result it has been impossible to keep the three parts of the book clearly separate and distinct, and items which appear at length in one part, pop up, with more or less frequency and repetition, in the other two. The book does not make the mistake of treating camouflage as a local job; it takes into consideration not only the target, but its reference points and its relation to the geography of the surrounding area, and it stresses the difference between the problem of camouflaging a target which the enemy presumably knows all about—(like the Renault factory near Paris)—and a new construction built in a new area where the enemy's knowledge can, at best, be fragmentary, (I hope there are plenty of them). In both cases, inevitably, it takes structural defence into consideration: in old plants, as added structures for minimizing and localizing damage,—which, by taking thought, may also help as camouflage; but in new ones, it advocates, as well, the dispersal of units, not only to localize damage, but in such a way as to make the plants less conspicuous in the landscape. This dispersal inevitably uses more ground and the book touches on the similarity of aims with the town planner in this aspect. More and more plants are being erected in new industrial areas, bringing with them the problem of housing workers, and parking their cars. This is the first instance I have seen where camouflage lines up with town or regional planning, for it brings into relation the siting of buildings and the planting of trees for cover as well as for the amenities.

A weakness, unavoidable at this time, is the absence of photographs of actual camouflage at full scale which is successful; no matter how perfectly a model may be hidden, it is after all, a model. If there is any successful industrial camouflage, obviously it must be shown before and after; this, of course, cannot be done. All the photographs of actual industrial areas illustrate only the need for camouflage and not a successful job. The Hamburg job, of course, was unsuccessful.

There is no discussion of the use of smoke as a screen for the target, but a number of useful warnings about the high visibility of certain buildings and structures, of individual smoke and steam escapes, together with reflections from glass and other highly polished surfaces.

In its essence this is the publication of a number of analyses, tests, experiments and tentative conclusions, arrived at by Konrad F. Wittman, A.I.A., with the faculty of the Pratt Institute. Its editors regard it as an interim report on the progress of their studies on the subject of camouflage in the industrial field. As such, it is most valuable.

In the light of the announced success of mass night raids on the large industrial centres of Germany, hundreds of acres in extent, it should be borne in mind that the use of material camouflage can perhaps only be justified in cost, in working hours and in materials used—all of which are being subtracted from other forms of war effort, when the target is isolated, is large enough to hit accurately, and is so vital that the enemy will risk making low level, daylight attacks on it. In this case we must expect that it will also be guarded both by anti-aircraft guns and fighter planes, and will be structurally prepared for defence, for after all, no camouflage is perfect and, given time, can be detected.

—Martin Baldwin.

LISTING OF EQUIPMENT AND MATERIALS UNDER FIRE HAZARD TESTING PROCEDURE

August 15th, 1942.

On and after September 1st, 1942, by mutual agreement between the National Research Council and the Canadian Engineering Standards Association, the listing of equipment and materials found, after examination and testing, to comply with the requirements of appropriate specifications respecting fire hazard, will be undertaken by the Canadian Engineering Standards Association, instead of by the National Research Council as formerly.

Such equipment and materials will be tested in laboratories named by the Canadian Engineering Standards Association, under a procedure similar to that now followed by the National Research Council. Listing will be based upon the laboratory reports of the tests.

The following equipment and materials will be accepted for testing and listing by the Canadian Engineering Standards Association on and after the above-mentioned date. Acceptance of other similar items will be considered on receipt of application.

Domestic Oil-Burning Equipment—

- Automatic Furnace Burners (Gun Type),
- Manual Range and Heater Burners (Shell Type and Pot Type),
- Cooking Stoves (Shell Type and Pot Type),
- Space Heaters (Shell Type and Pot Type),
- Water Heaters, Storage and Side-Arm (Shell Type and Pot Type),
- Radiant-Flame Heaters (Thermal Vaporizing Type).

Domestic Gasoline-Burning Equipment—

- Cooking Stoves (Thermal Vaporizing Type),
- Space Heaters (Thermal Vaporizing Type),
- Radiant-Flame Heaters (Thermal Vaporizing Type).

Gasoline Safety Cans.

Degreasing Solvents.

As from the above-mentioned date, all listings granted by the National Research Council will be cancelled. Equipment and materials previously listed by the National Research Council will be granted temporary listing by the Canadian Engineering Standards Association, on application, on a basis of the former National Research Council listing.

Adjustments will be made, where necessary, respecting such National Research Council Factory Inspection and Labelling Service Agreements as are in force at the time of the above-mentioned transfer of authority.

Manufacturers desiring to have equipment or materials listed under Canadian Engineering Standards Association fire hazard testing procedure, should apply to the Canadian Engineering Standards Association for application forms and information relative to test procedure, annual listing, fees, etc.

Address all inquiries to: The Secretary, Approvals Division, Canadian Engineering Standards Association, 3010 National Research Building, Ottawa.

This notice is issued jointly by the Canadian Engineering Standards Association and the National Research Council.

W. R. McCaffrey, Secretary, Canadian Engineering Standards Association.

W. H. Courtice, Assistant Secretary-Treasurer, National Research Council.

OBITUARY

RALPH CARL HAM

It is strange how one and another is called so unexpectedly, and his life and possible work is ended in a moment. When such a fine man of such promise and ability, who combined those rare qualities of good fellowship, great heartedness, bubbling enthusiasm, and sound business judgment, passes to the Grand Lodge on High at the call of the Great Architect of the Universe, it leaves with us who remain a profound sense of loss, which time may heal but never erase. While he lived he loved life and life's associations. His optimism and merry laugh endeared him to all who knew him.

Born in Winnipeg, February 27, 1902, he attended Mulvey Public School, Kelvin Technical High School, and graduated with the degree of Bachelor of Architecture from the University of Manitoba in 1928. He began the practise of Architecture in 1932. A year later joined the firm of Green, Blankstein and Russell, Architects. He was registered as an architect in Manitoba and British Columbia. Between January and April, 1941, he was a technical adviser on Wartime Housing. Until his decease he was a member of the Housing and Town-Planning Division of the Committee on Post-War Reconstruction of the Dominion Government.

He was a Past Master of Beaver Lodge of the Masonic Order. He was President of the Optimist Club of Winnipeg.

Besides his widow, Kathleen Ham, he is survived by two sons, Robert, 6, and Donald, 3; his mother, Mrs. C. A. Ham, and four brothers, Ira E. Ham, of Winnipeg; A. Leslie Ham, of Montreal; Hugh P. Ham, of Winnipeg, and B.Q.M.S. Allan Ham, overseas with the 89th Anti-Aircraft Battery.

—Lawrence J. Green.

PROVINCIAL PAGE

ALBERTA

It seems at this time advisable to look at the housing question in a more comprehensive manner than that, naturally usual with architects, of working out individual schemes of building.

There are in Canada approximately 800,000 persons in manufacturing and industrial industries as wage earners and salary earners, in the proportion of 650,000 of the one and 150,000 of the other. The average income of the wage earners was, in 1941, \$1,350 and that of the salary earners \$1,550 per year or about \$113 and \$130 per month. If we take each of these to represent a family averaging four persons, then there are 3,200,000 persons to be provided with all the necessaries of life on these incomes. It is customary to reckon that housing should cost one-fifth of income. In the cases considered this would be \$22.60 and \$26.00, respectively.

If a family of four persons consists of father, mother, one boy and one girl, a three-bedroom house is required. One of the most compact three-bedroom houses amongst the prize winners in the 1938 Minimum Cost Housing Competition would cost \$3,550.00 at 25¢ per cube foot. To carry this cost takes \$461.50 per year, or \$38.46 per month. This cost is arrived at by taking 13% on the cost of the house; 3% for taxes, 5% for maintenance and insurance, 5% for interest. If a man does not borrow money for the purpose he must accumulate the money by savings. He does not avoid the item. He simply waits longer before he can build. It is better economy to borrow and to get occupation earlier.

From this it would seem that none of the people under consideration can hope ever to be able to afford housing of an accepted standard. It is, of course, the obvious fact that most of them are getting along fairly happily in what must be called sub-standard conditions.

Let us examine the circumstances of these people a little more intimately. The following is a budget for a family of four persons based on suggestions by household economists. It is modest and is intended to represent a manner of living just above mere wage slavery. It may be noted that the food bill is calculated at the rate of 25¢ per person per day; a figure probably only attainable by close domestic economy.

Fuel and Light	\$ 5.00
Housekeeping, furniture, utensils, etc.	10.00
Education, books, news, subscriptions, etc.	5.00
Savings, insurance	10.00
Clothing	12.00
Health	7.50
Recreation, entertainment, etc.	8.50
Transportation	12.00
Food	30.00
Total	\$100.00

It would thus appear that \$100 per month is a reasonable standard monthly outlay for a household of four persons, apart from the item of shelter. The items are open to all sorts of cavilling and, in present circumstances, most of them are being severely cut into in order to pay for shelter. For the moment let us consider this monthly budget to be an irreducible minimum. Looking at the question from this point of view, the family whose income is \$113.00 a month has \$13.00 and that which has \$130.00 a month has \$30.00 left for shelter. The average salary earner may make out with this, though not on the scale

above supposed. The average wage earner cannot do so. He must cut into his standard of living.

But families with only two children will not perpetuate a population and, in addition, many aged and disabled persons must be provided for. Apart from the question of shelter, it takes about \$20.00 to support each additional member of a household. Many persons, farther, are in casual but serviceable and necessary employment, earning much less than the regularly employed who, alone, are considered above. The rates of pay here given are those for 1941 which were \$8.50 per month higher in the case of salary earners and \$14.25 for wage earners than in 1940.

What is meant by "sub-standard" conditions of housing? This may mean that young children have inadequate play space immediately available to them; or that houses are without water, sewer and sanitary conveniences; or that sleeping accommodation is congested; or that meagre heating involves unhealthy closed-in atmosphere; or that premises are damp, dilapidated or verminous. In some cases, unfortunately, all of these conditions exist together.

It may be suggested that the cost of a three-bedroom house need not be \$3,550. In the more severe climate of most of our country, it is difficult to reduce this very much. Suppose that in the milder parts the cost may be \$2,500. Then the annual cost will be \$325.00, that is, \$27.00 per month. This helps to the extent of \$11.46 per month, but even this does not solve the problem.

— Cecil S. Burgess.

MANITOBA

Seemingly true to form, Manitoba again raises its voice after a month's silence! We trust this bimonthly habit will become a monthly one, for there is much to talk about in spite of the lack of very noticeable activity on the local architectural front. Several of the offices do report they are busy just marking time.

There is much to be done while we "mark time." The period of apathetic thinking is past. There is abundant opportunity for research and study in both the field of defensive conduct of the war and the field of reconstruction after the war. That excellent A.R.P. issue of The Journal sounded the clarion call in Canada. Similar discussions have appeared in other architectural publications, along with articles on camouflage, on bomb-proof construction, on emergency housing and factory construction. Conventions, like the one held last spring in Boston, Mass., have provided a wealth of material from leading authorities in these fields. Such material is provocative of earnest study and digestion. Every architect should avail himself of the opportunity to become thoroughly acquainted with such specialized information before an emergency arises requiring his immediate and unhesitating action.

Although not so much in the line of duty, but none the less urgent, is the matter of post-war reconstruction. Post-war reconstruction must mean the replanning and reconstruction of our communities and their communal life, as surely as it means the rebuilding of the world's bombed cities.

Right in line with both of these considerations, we are revising and reportioning the work in the Department of Architecture and Fine Arts at the University of Manitoba so that architects and interior decorators alike will be better trained for the jobs which they are being called upon to fill at the present time. The decorators will be trained more intensively in drafting to enable them to fit into structural engineering companies, aircraft companies and the like, which have already made a big demand upon their services. The architects will divide their design time mainly between wartime construction and post-war reconstruc-

tion to be better fitted for the requirements of civilian and military life.

Professor Milton S. Osborne is away on a year's leave of absence, visiting some ten or a dozen American Schools of Architecture for the purpose of observing their curricula and methods of instruction. We are looking forward to his return and to the wealth of information and new ideas which he will bring to the Schools of Architecture in Canada.

Meantime, we trust that some sound suggestions will be forthcoming from the Committee on Education of the R.A.I.C. which is reviewing architectural curricula in Canada with a view to recommending greater emphasis on construction. We believe that such emphasis on structural design as well as on the building materials themselves is essential to the adequate training of the architects of the future. The architect must become an engineer of architecture: not only must he plan for use and for materials, he must plan for and be able to superintend the construction of that plan.

— John A. Russell.

ONTARIO

The course of true love is not the only thing, apparently, that does not always run smoothly. Take the Toronto Zoning Bylaw, for example. It is now six years since the City Council started the enquiry which has produced the present draft bylaw, consolidating thousands of building restrictions into something approaching a national scheme. It is being opposed in some quarters, ostensibly on the grounds that it should be fitted in to a general planning scheme, though it is obviously poor policy to allow chaos to push conditions from bad to worse while planning is getting under way. At any rate, the draft bylaw has now been referred to the City Planning Board.

In the meantime we have the housing shortage, and Council instructs the Property Committee to suggest ways and means of doing something about it. The committee obliges — with a recommendation that existing restrictions be eased up here and there to permit rooming houses, duplexes, and apartments where none were allowed before. Their report has also been handed on to the planning body: which is now in the position of having to consider one proposal designed to prevent deterioration, and another which cannot fail to aggravate it. Into this confused picture steps a new Dominion Government official, the Controller of Housing, whose powers (according to the *Globe and Mail*) will enable him to order residences converted into flats or duplexes, bylaws or no bylaws. Any way one looks at it, the outlook doesn't seem too bright for the "rights" of property — (perhaps we have set too much store by them in the past) — or for that brave new world which some of us would like to see, in the sketch stage, at least.

The Toronto Chapter held its first luncheon of the season at the University Club. Professor Ernest Dale, of the University of Toronto, spoke very entertainingly of the architecture of Ancient Greece, illustrating his talk with lantern slides from his extensive collection of photographs. By some ludicrous error, the members were informed that his subject would be "Pre-War Conditions in Europe"; but while an apology is due to Professor Dale, those who heard him will scarcely require one.

— Gladstone Evans.

QUEBEC

This letter offers an opportunity to express our unbounded appreciation of the care and effort that the Editorial Board has put in the preparation of the September Number of the *Journal*. As stated by Dr. James in the Foreword it constitutes "the first comprehensive discussion of reconstruction problems that has

appeared in Canada since the war began." There is not a poorly conceived or loosely written article in the whole issue and if by chance you have skipped any of them, by all means, get your copy out and read them all. You will be well rewarded.

Arrangements have been made by our association for the distribution of additional copies to federal and provincial officials, municipal authorities, leaders of industry and other influential people outside of the profession. The list has been carefully prepared with a view to getting publicity value where it will count the most and one never knows, in due course, it may bring in dividends in the shape of additional credit and work to architects where there is now misunderstanding and apathy. We understand the Ontario Association has also taken the same course.

The ever increasing acuteness of the housing shortage in Montreal is causing a great deal of worry in many quarters as war industries are still expanding and another winter is coming. In answer to an appeal to the government, Wartime Housing Limited is considering the prosecution of a programme of fair size as a partial remedy. Representatives of this organization who went into detail in this matter spoke in complimentary terms of the completeness of the city's records and the ease of obtaining information, stating they were able to get in several days data that would require several weeks in many smaller communities.

Apart from the Montreal operations of small speculative builders in the housing field there are three developments under way on a fairly large scale. It has been recommended that the Council appoint a small committee to inspect them and return a report. We understand the same course is proposed for a housing development in Hamilton. If any of these have sufficient merit it may be worth while to write them up in the *Journal*.

At the last meeting of the R.A.I.C. Council held in Montreal it was decided that the Reconstruction Committee be divided into regional groups to facilitate discussion and that each group, one in Toronto and one in Montreal, start work at an early date. Inspired by the September Number of the *Journal* they should get off to a good start.

It is understood that Montreal will again be fortunate in having the Annual Meeting of the R.A.I.C. in February and this time it will be a three day affair so as to give more time for committee meetings. At this time the Committee on Architectural Training will meet with the heads of the four Architectural Schools and have ample time for discussion and exchange of opinion and experience.

As men in our profession of draft age get called up we suggest that they advise the officer to whom they report that they have been registered with the Wartime Bureau of Technical Personnel. Montreal men are asked to refer to the Montreal representative, Mr. George Burdette, Insurance Exchange Building, Telephone Pl. 3241, local 9. The government is interested in having the right man in the right place and this is one way to co-operate.

The National Research Council has issued a new national Building Code which is for sale by them for one dollar, much below the cost of production. It is in the nature of a very comprehensive manual and no architect should be without it.

By way of a personal note, it is a pleasure to record that our esteemed President, Gordon McLeod Pitts, has been elected a governor of McGill University. It is an honour and a tribute to him and the whole profession rejoices in it.

— Harold Lawson.

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