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SEPT., 1917

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CONSTRUCTION

A · JOURNAL · FOR · THE · ARCHITECTURAL
ENGINEERING · AND · CONTRACTING
INTERESTS · OF · CANADA

The reader's attention is drawn
to the fact that this special is-
sue is devoted to a discussion
of the structural work of the
Military Hospitals Commission

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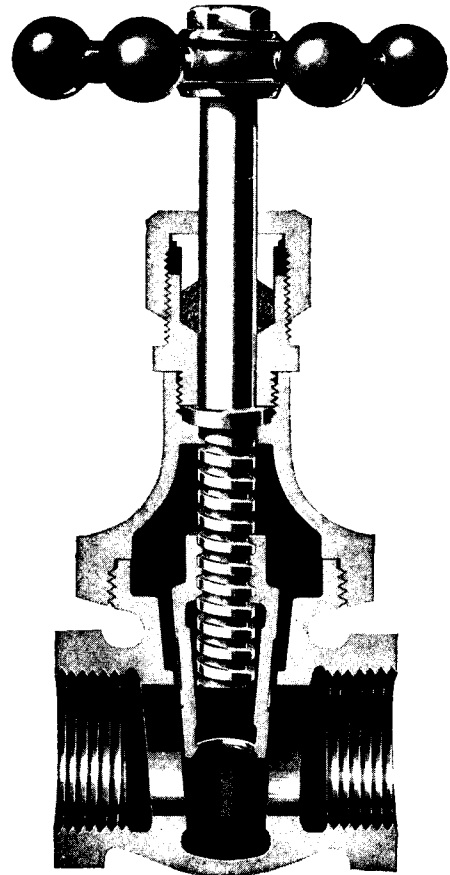
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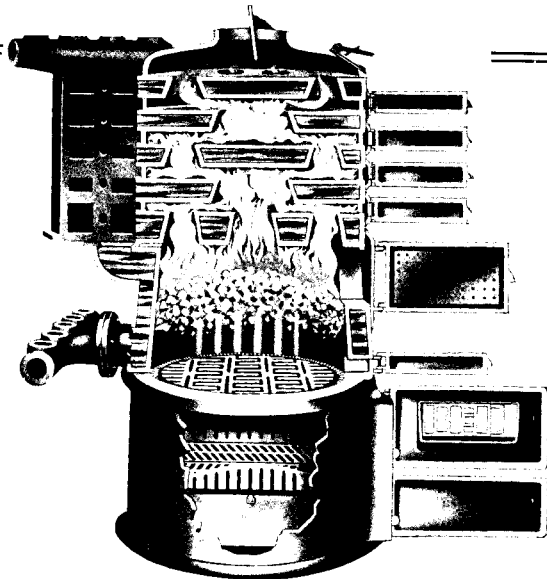
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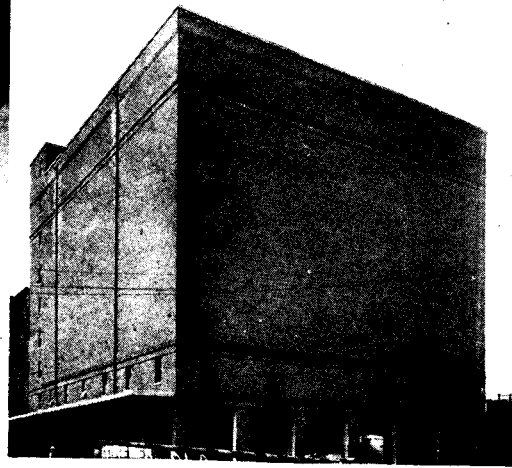
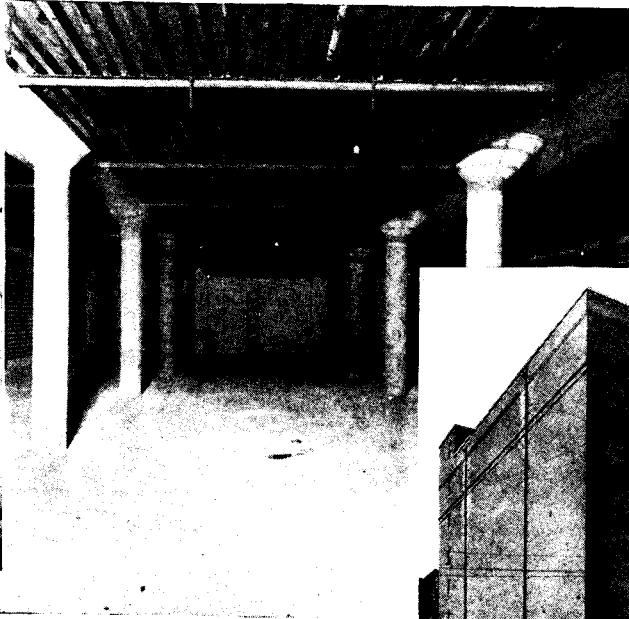
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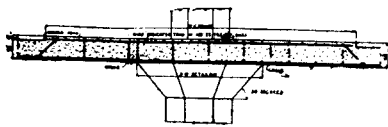


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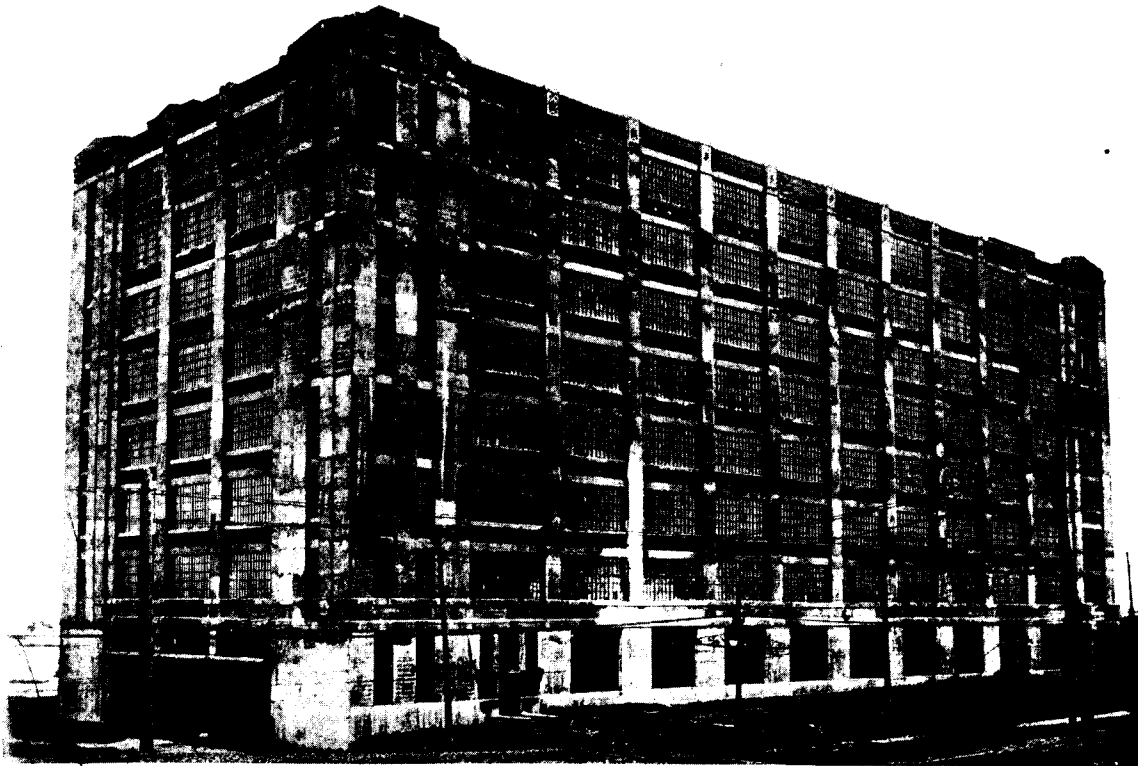
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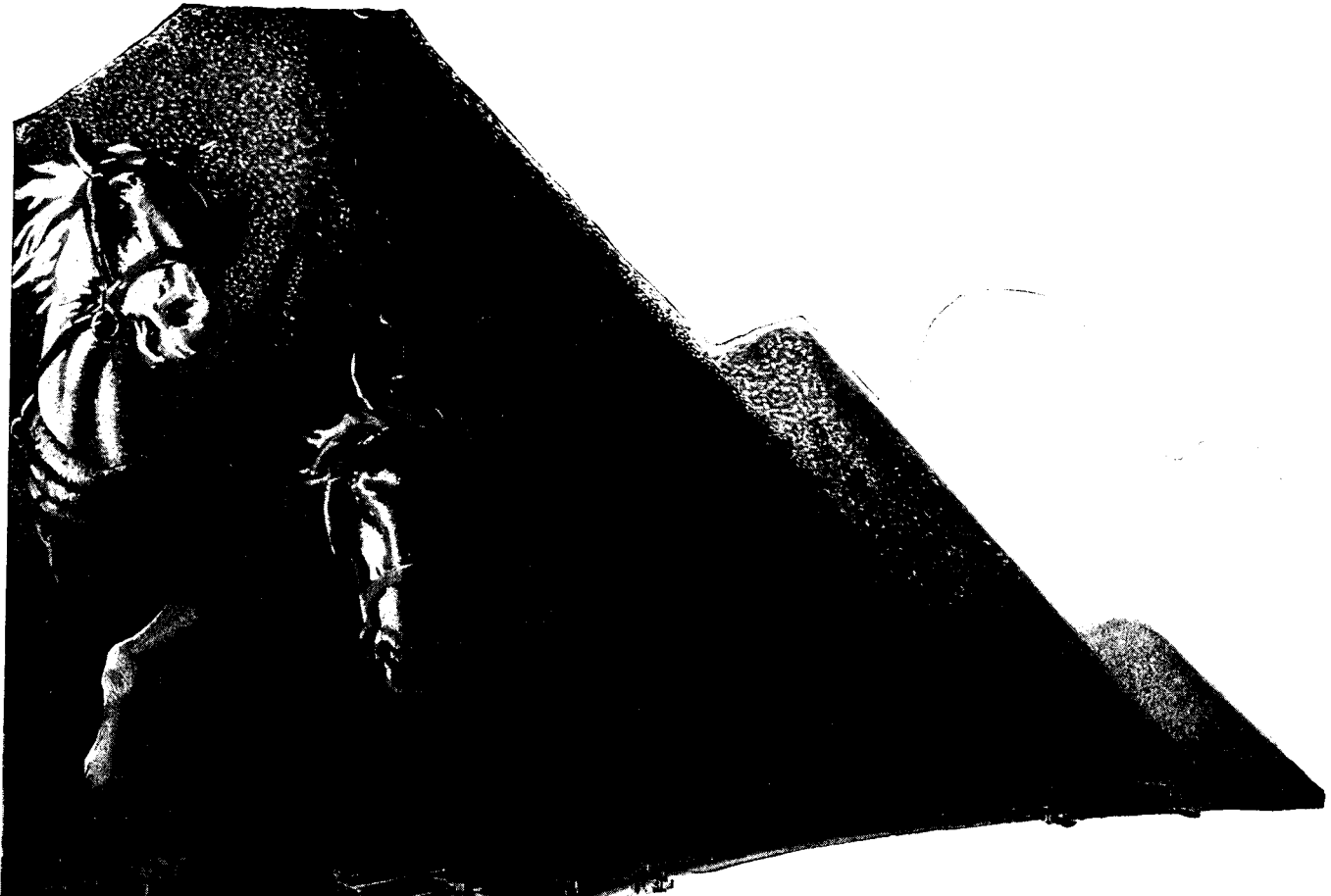
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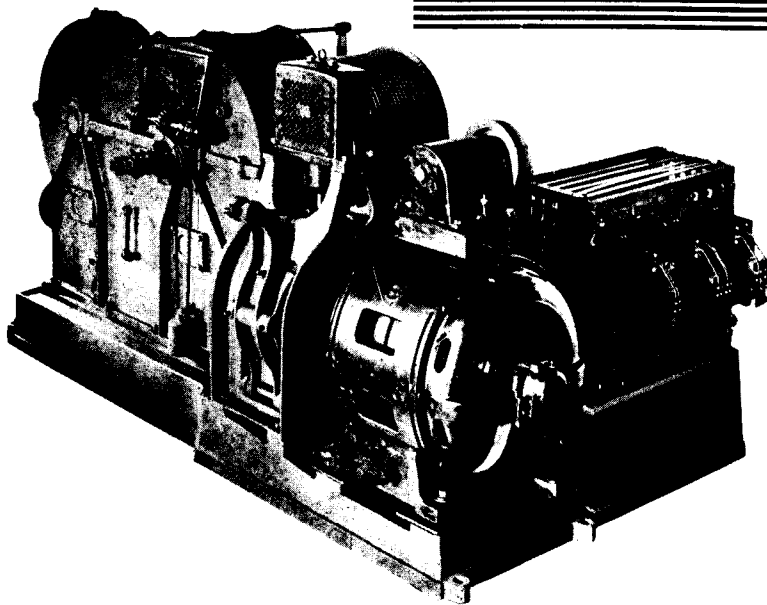
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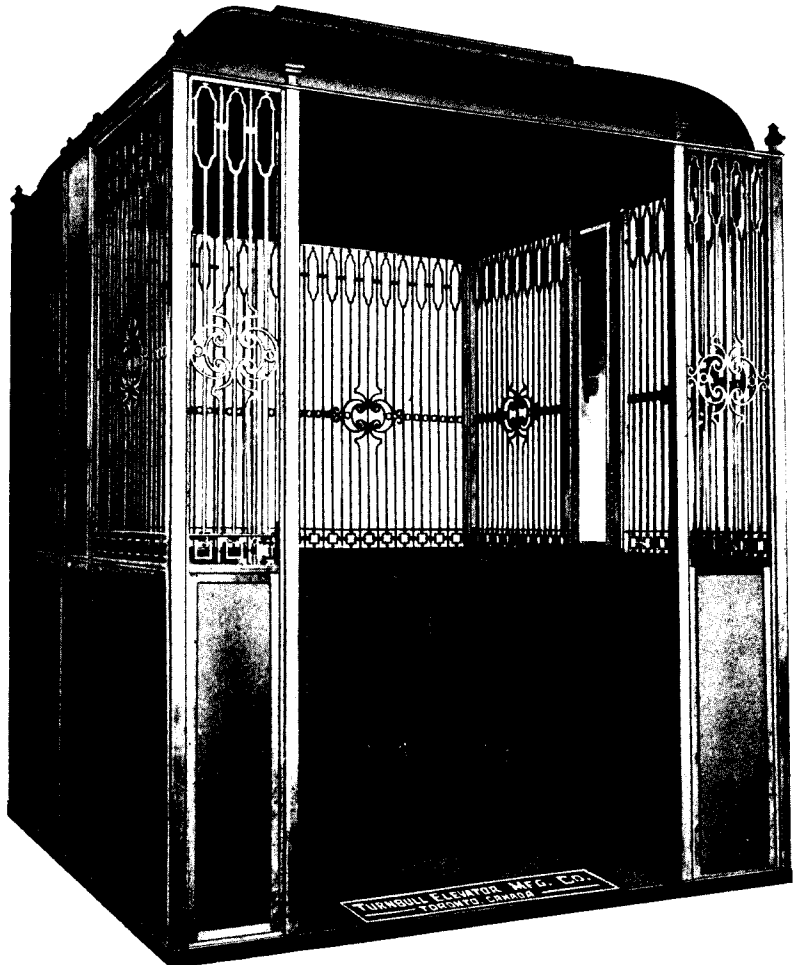
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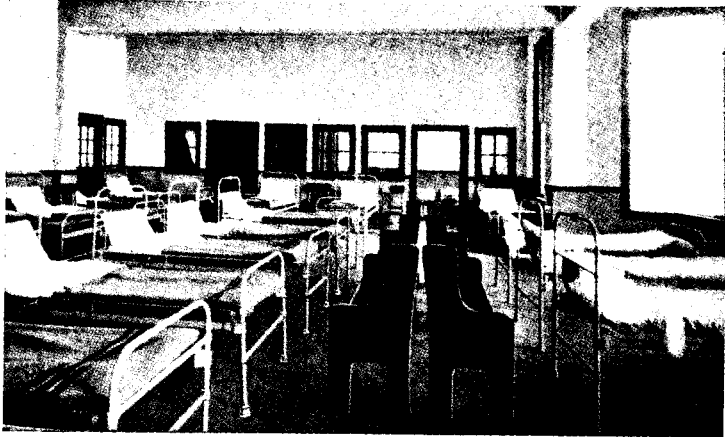
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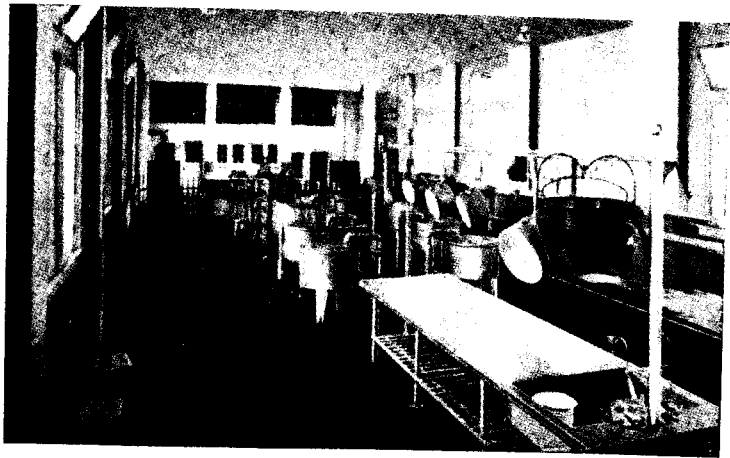


The photos reproduced on this page show two interior views of the big Military Hospital at Guelph, Ont., where Concre-Tone was used extensively. Concre-Tone has been used also in large quantities for work on Military Hospitals at Whitby, Winnipeg, Toronto, Cobourg, Quebec City, Regina, Moose Jaw and St. John, N.B.

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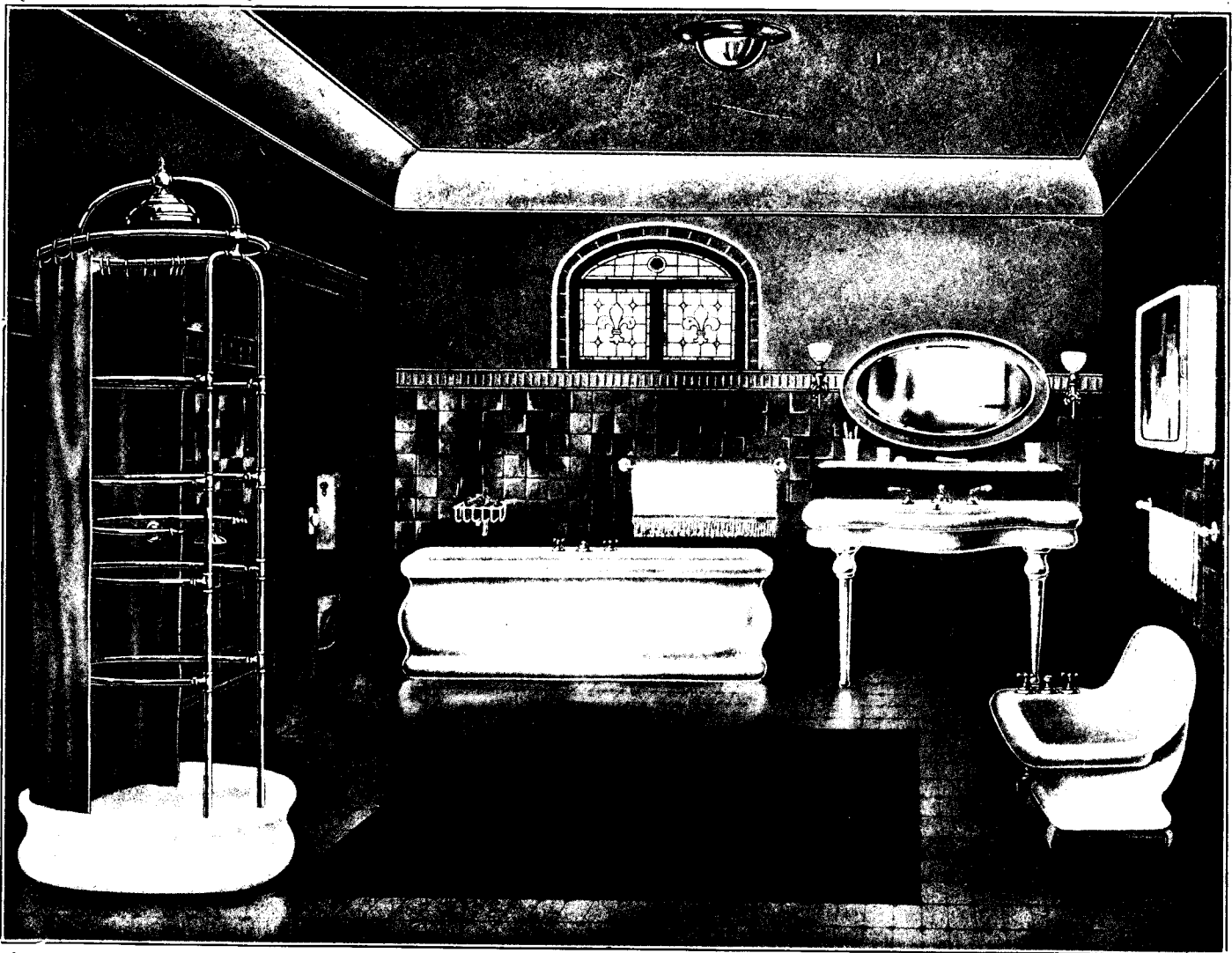
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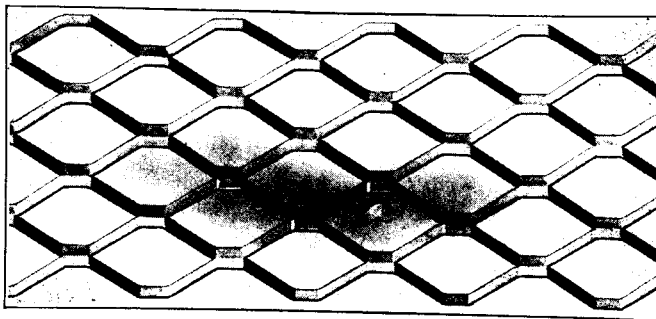
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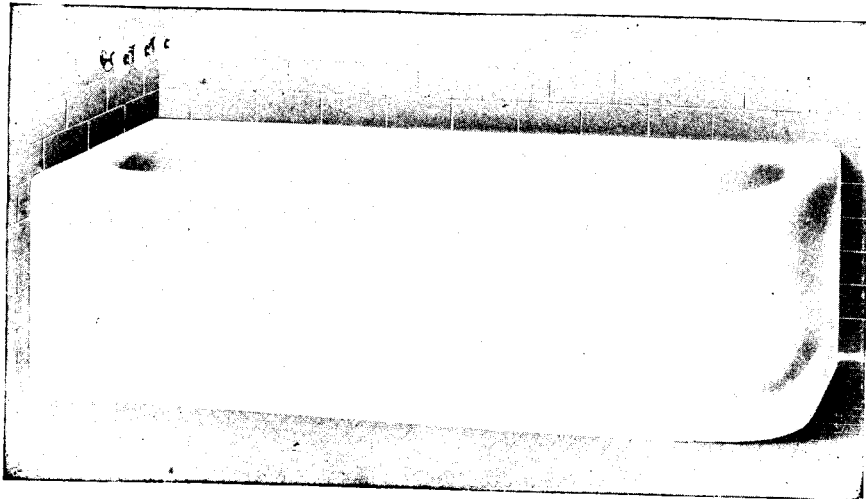
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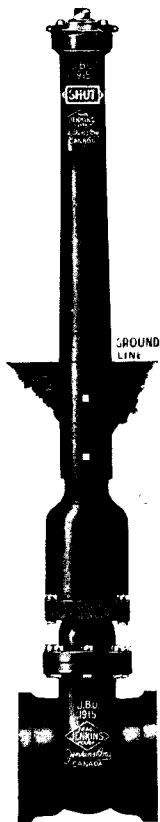


Fig. 345.

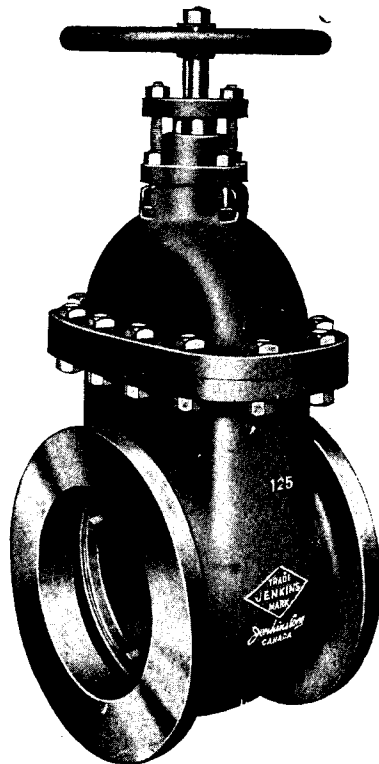


Fig. 402.

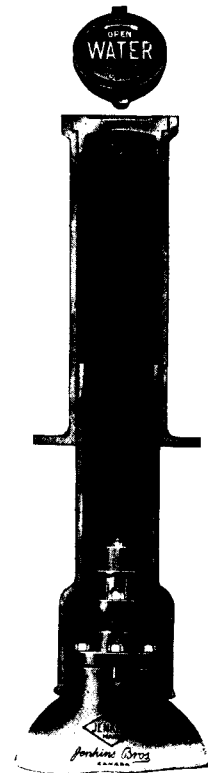


Fig. 414.

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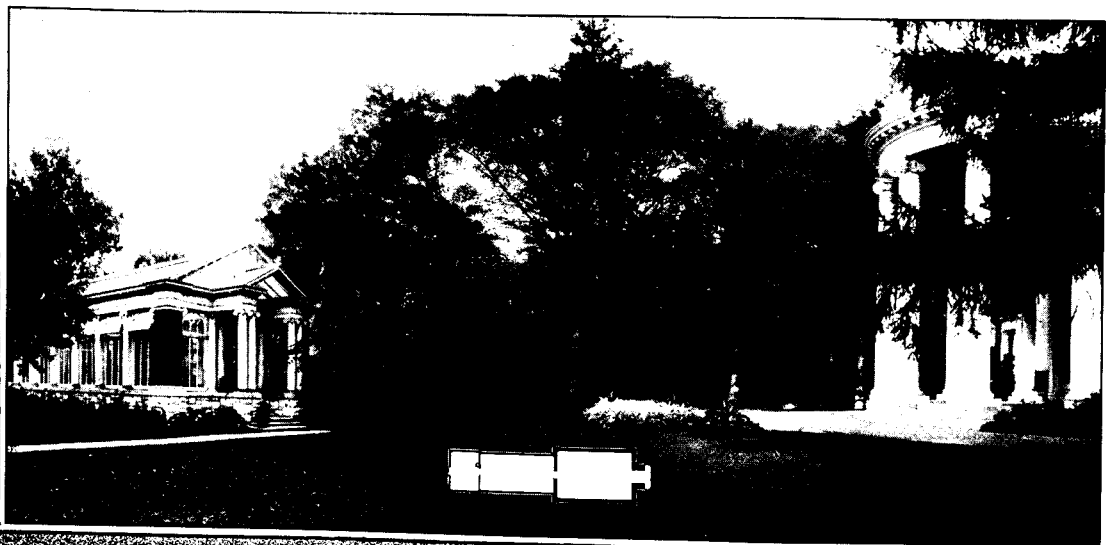
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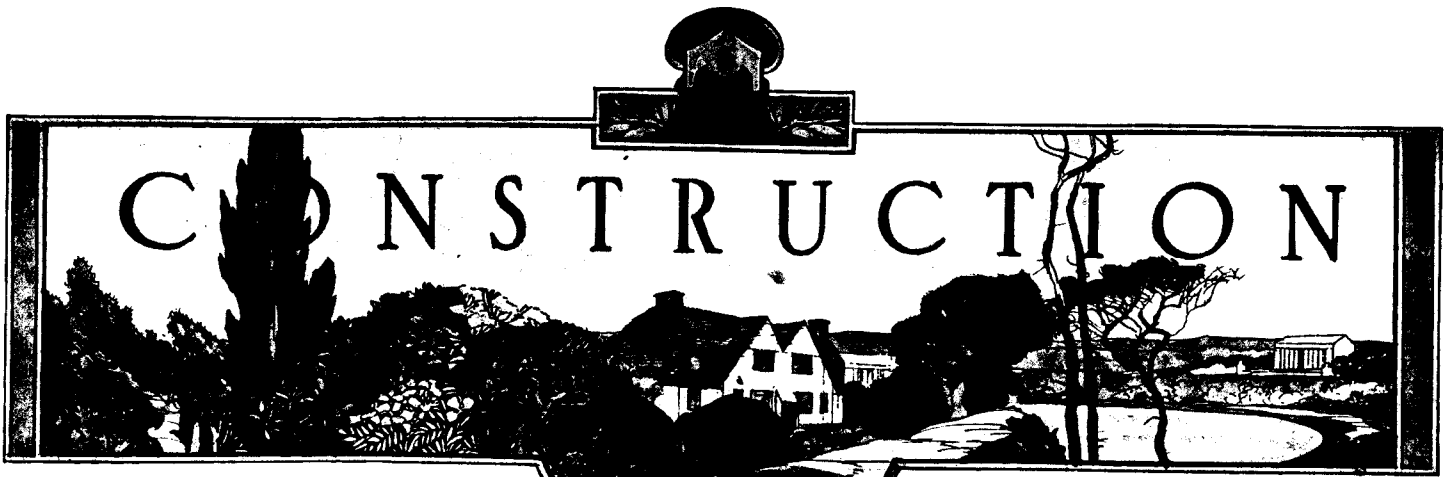
TORONTO
Royal Bank Building

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LORD & BURNHAM CO. LTD.
OF CANADA



September, 1917

Vol. 10, No. 9

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H. GAGNIER, Limited, Publishers,

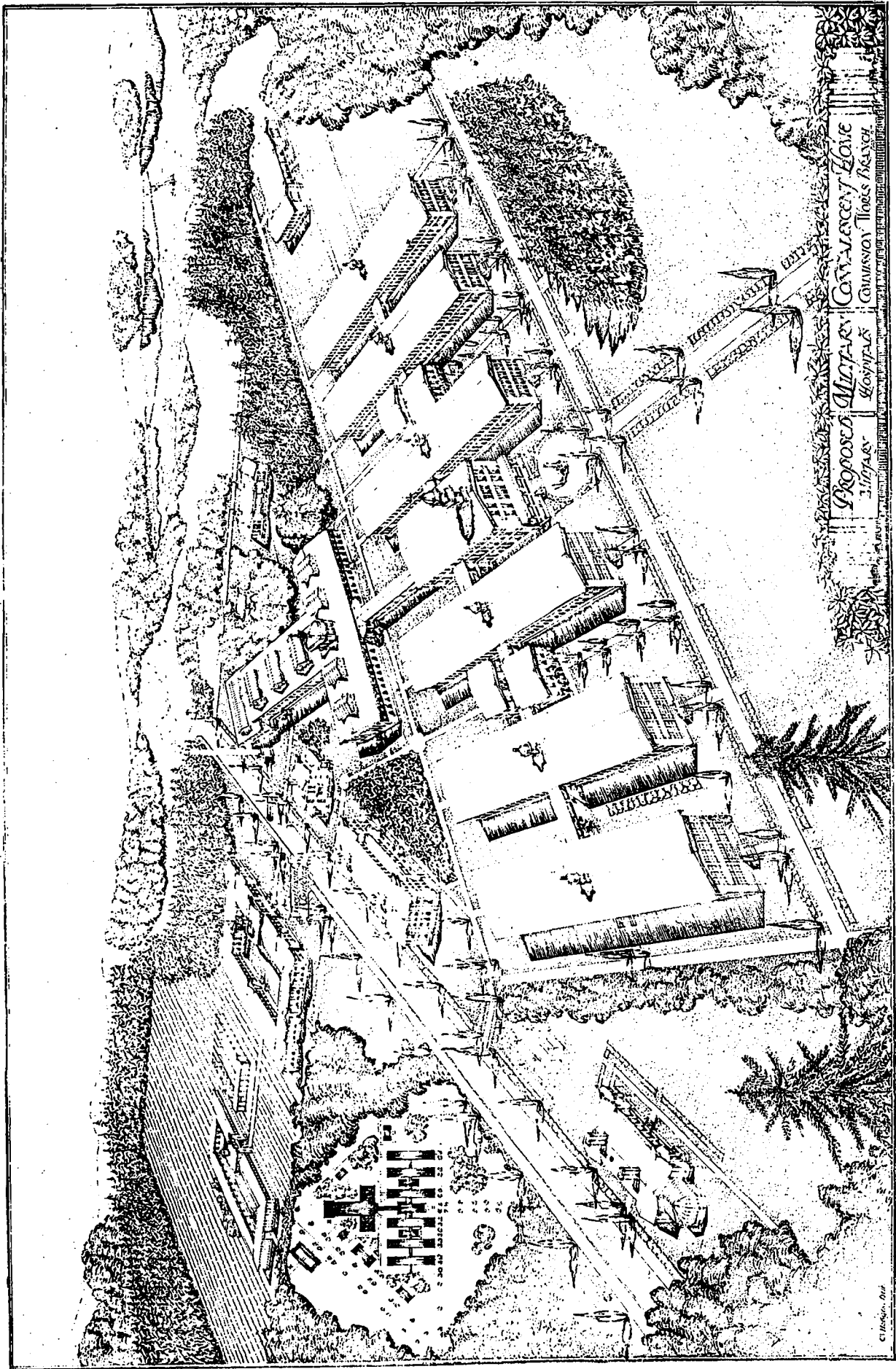
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Canada's Military Convalescent Hospitals

Accommodation for Wounded and Disabled Soldiers Increased Nearly Four Times Since January—New Type of Hospital Buildings of Temporary Permanent Construction Taking the Place of Reconstructed Old Buildings

ON the first of January, this year, 2,400 returned wounded soldiers were being cared for by the Military Hospitals Commission in its chain of institutions across Canada. On August first the number had increased to over 8,500.

Last January it was just as difficult to accommodate that 2,400 men as it is to-day to find beds for the 8,500. If anything the Commission is better abreast of the situation now than then. There is not in the length and breadth of Canada an out-patient who would be better off in a ward, and there have been few occasions in the past when this could be said.

It is on the Works Branch of the Commission that the burden of meeting this extraordinary expansion has fallen. Before there was any Military Hospitals Commission, Capt. W. L. Symons of the Canadian Engineers (formerly of Symons & Rea, architects, Toronto) was assigned to make the necessary structural alterations in buildings intended for use as military hospitals. From using sapper labor and fatigue parties in erecting temporary rough board partitions in buildings often little better than woodsheds, and pleading for the price of a blind to hang on a nurse's window, Capt. Symons has seen his Department grow in two short years to one spending hundreds of thousands of dollars. In a recent term of two months the accounts requiring his approval increased ten-fold.

In spite of the terrifying problem of expansion set before the Commission's officials, sit back and think for a moment and it will be realized that the errors of commission and omission which have received public criticism, have been surprisingly few in number and trivial in character. With so supremely imperative an undertaking as the war on its hands, the Government has been forced to treat all other problems, even at times the care of the returning wounded, as secondary in importance. Recognizing this as just and necessary, the Commission has faced its handicap, and instead of struggling a long way in arrears, has stood on its own feet and steadily pushed its way ahead. To-day it has evolved an organization believed to be capable of meeting almost any emergency with which it is likely to be faced. Tremendous as has been the mere building problem, other branches of the organization have not suffered. They have expanded, developed and improved more than commensurately. The department chiefs have seized upon numerous up-to-date scientific methods for the rehabilitation of the

wounded, and sub-departments are constantly being formed to undertake new systems of repairing the human debris of the battle field.

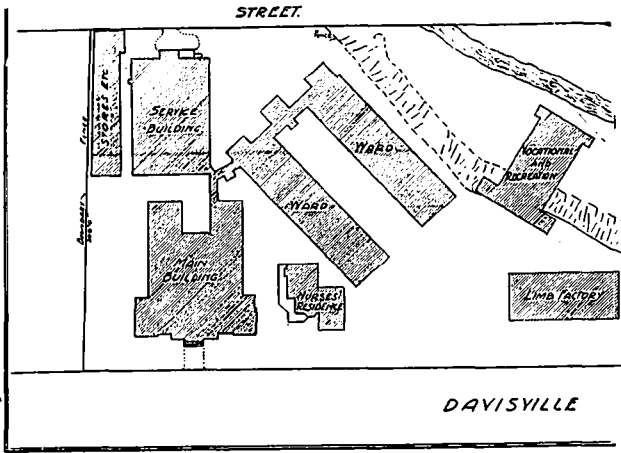
Every new method of dealing with the returned soldier question has imposed another problem upon the works branch. The mere provision of beds has been no small task in itself, but with the many technical requirements of the numerous sciences practised in the Commission's institutions, complex phases calculated to baffle the most astute architect have been added. Nevertheless, medical men have commented upon the remarkably convenient facilities afforded them.

From a building man's standpoint the notable fact about the Commission has been its creation of a new type of building—the military convalescent hospital. In this term all three words express distinct features of the institution which have been considered in designing the structure. To grasp the significance of the supreme type evolved one must trace the history of the Commission from early days.

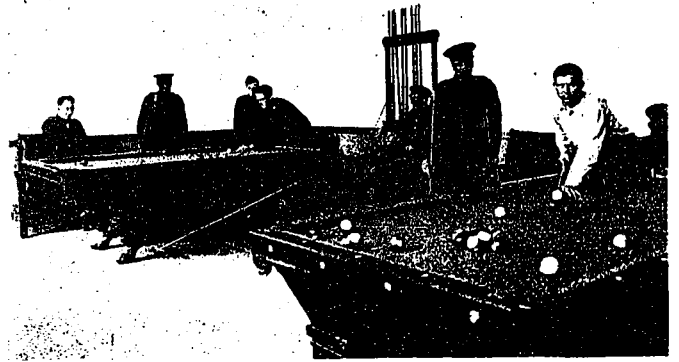
FROM THIRTY TO NINE HUNDRED BEDS.

The first convalescent homes were private residences generously loaned by their owners. Among the first were the Clayton residence in Halifax, the Ross home at Sydney, the Merritt home of St. Catharines, the Parks dwelling at St. John, the William Dobell place at Quebec, and others in cities throughout Ontario and the West. These dwellings, designed as living quarters for seven or eight people at the most, were made to accommodate from twenty to thirty-five soldier patients. The Sir Sandford Fleming home at Ottawa indicates what can be done. There are over seventy soldiers living in this place intended for the use of one family.

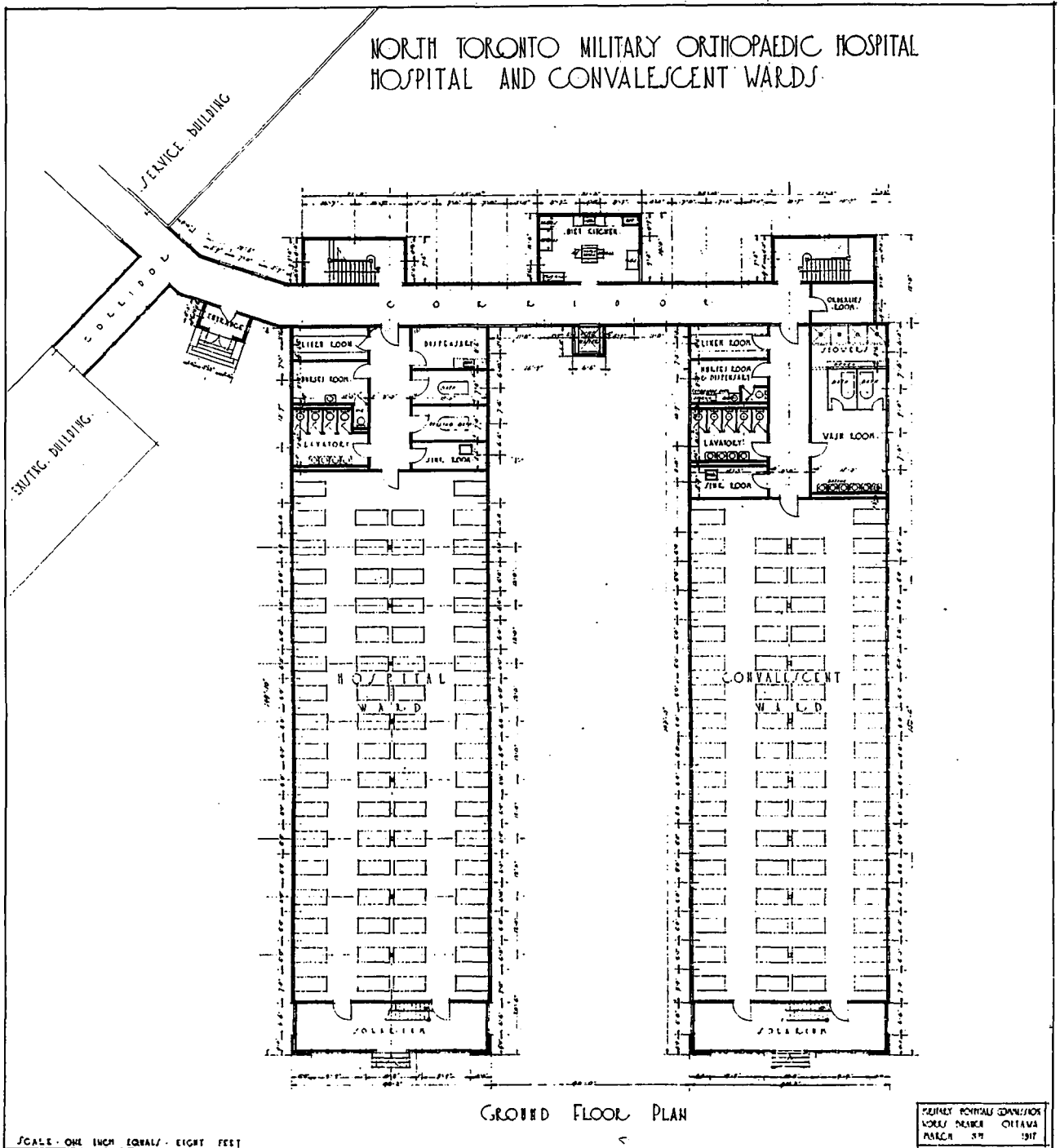
Few structural alterations were necessary to accomplish these results, excepting increases in the kitchen and dining room accommodation and additional bathrooms and plumbing to provide for thirty instead of eight or ten people. The great advantage of these small residences over other buildings offered in the early days was that they were usually surrounded by grounds. The unsuitability of existing general hospitals was that the soldiers were convalescents—up-patients—and had to be able to go out. It was found, however, in a short time that the cost of putting these small buildings in shape was out of proportion to the results obtained. In addition to the enlarged kitchen and plumbing



BLOCK PLAN, NORTH TORONTO ORTHOPEDIC HOSPITAL.



BILLIARD ROOM AT NORTH TORONTO HOSPITAL.



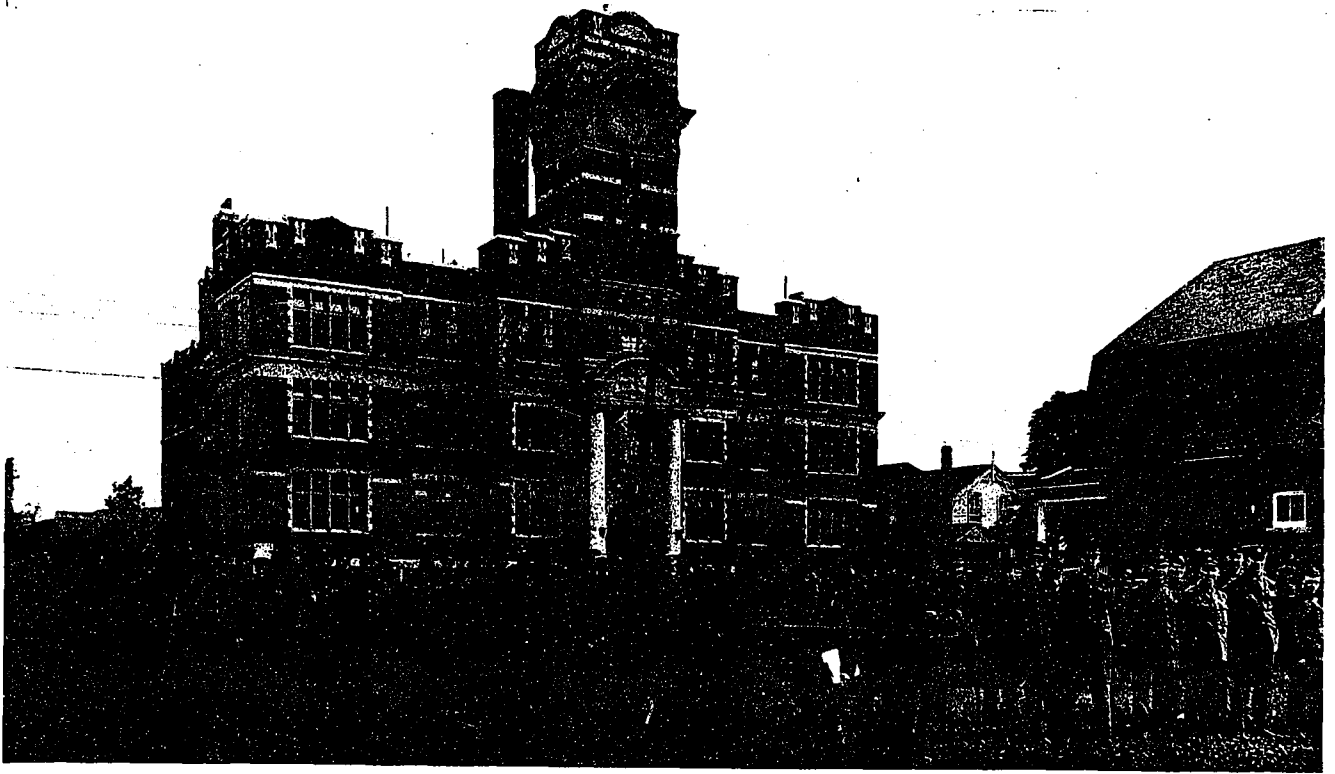
GROUND FLOOR PLAN

SCALE - ONE INCH EQUALS EIGHT FEET

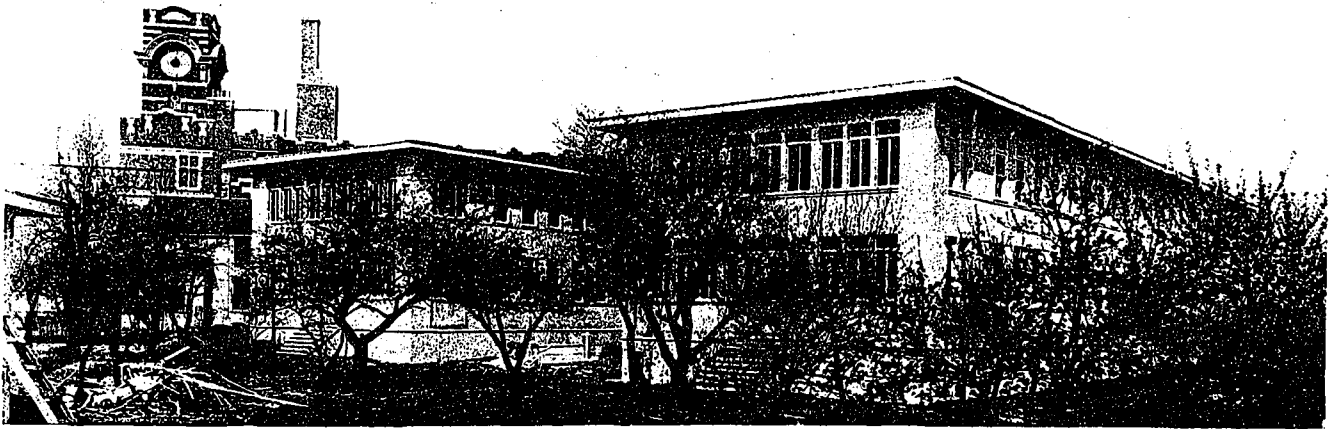
DESIGNED BY PORTLAND CONSTRUCTION
 WORKS, 250 RIVER ST., OTTAWA
 ARCHT. 27 1917

facilities the Commission often wound up by erecting a separate storage building, and usually the out-buildings had to be remodelled as

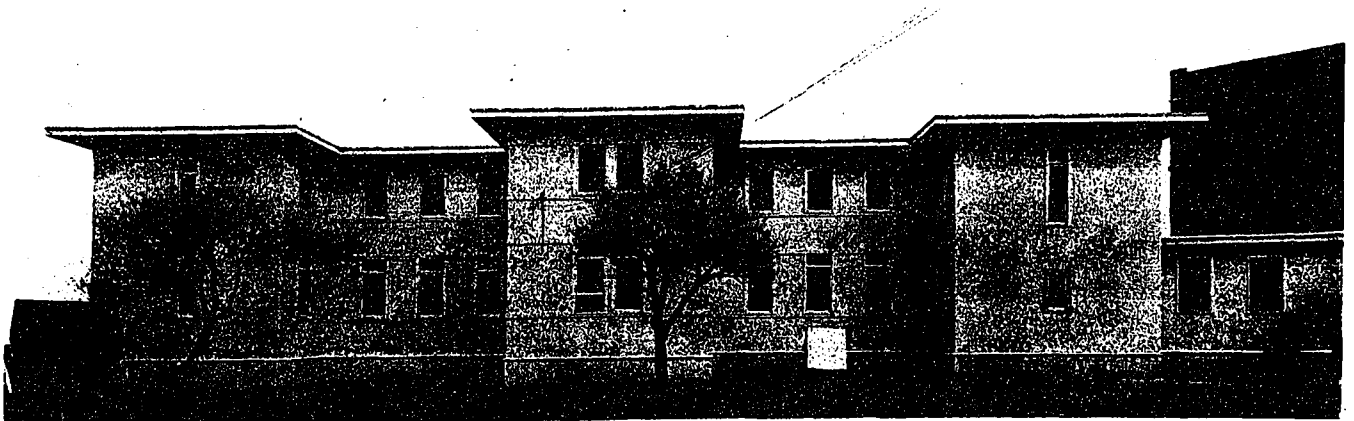
residences for male help on the hospital staff. Need for accommodation rapidly outgrew these small buildings. The number of men re-



MORNING PARADE AT MILITARY ORTHOPEDIC HOSPITAL, NORTH TORONTO, ERECTED BY THE SALVATION ARMY AS BOOTH MEMORIAL HOME.

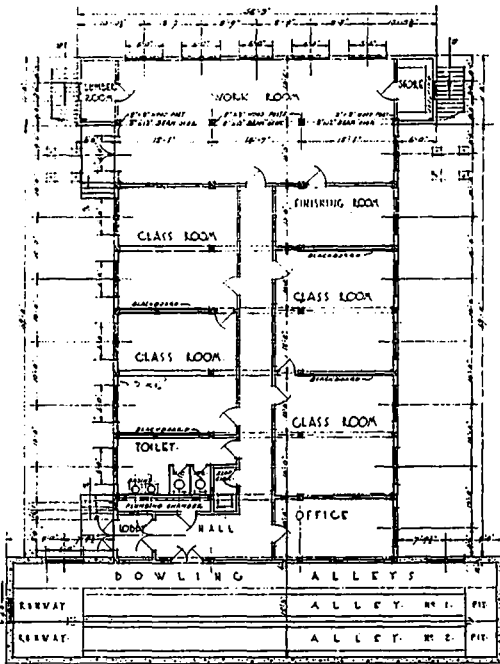


TWO WARD WINGS OF MILITARY ORTHOPEDIC HOSPITAL CONNECTED WITH BOOTH MEMORIAL BUILDING.



REAR VIEW OF NEW BUILDING ERECTED OF STUCCO BOARD AT NORTH TORONTO ORTHOPEDIC HOSPITAL.

RECREATION HALL FOR NORTH TORONTO MILITARY ORTHOPAEDIC HOSPITAL

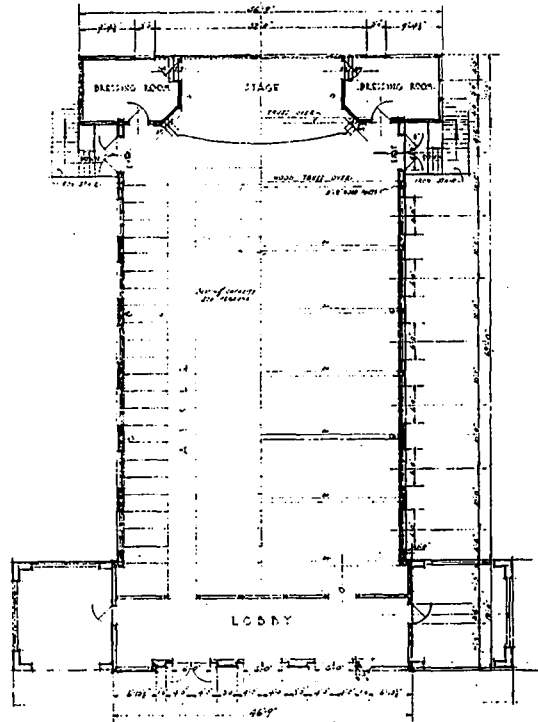


GROUND FLOOR PLAN

SCALE - ONE INCH EQUALS EIGHT FEET

M. H. C. VOLK'S DESIGN OTTAWA, CAN. 1917

RECREATION HALL FOR NORTH TORONTO MILITARY ORTHOPAEDIC HOSPITAL



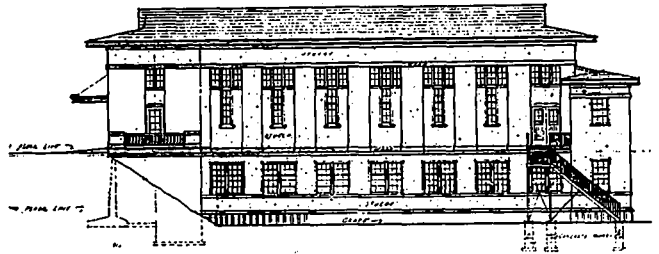
FIRST FLOOR PLAN

SCALE - ONE INCH EQUALS EIGHT FEET

M. H. C. VOLK'S DESIGN OTTAWA, CAN. 1917

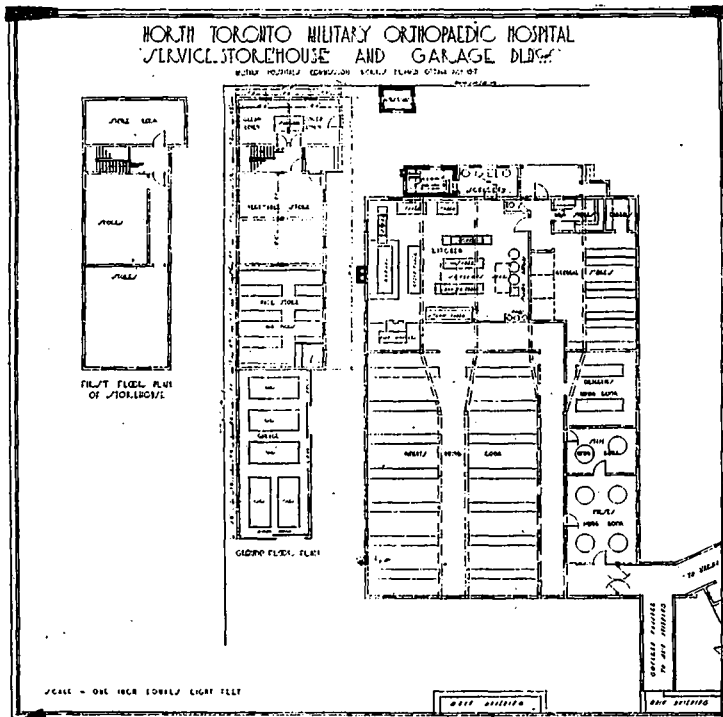
turning was so great that it became uneconomical to establish separate staffs and equipment for institutions so small as these, when the patients could be grouped in larger hospitals requiring no greater, or little greater, staff.

Larger buildings were accordingly taken over. Among the first were the Grey Nunnery, Montreal; Deer Lodge, Winnipeg; Knox College and Bishop Strachan School, Toronto, and the Immigration Hospital, Savard Park, Quebec. The last three named are now known as Spadina, Central and Savard Park Military Con-



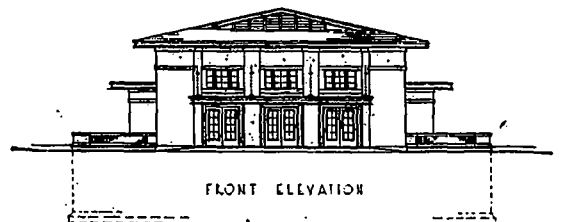
SIDE ELEVATION

valescent Hospitals. Another fine college building taken over recently was Loyola College, Drummond street, Montreal, and there have been many others. Colleges possess a rather peculiar suitability for the needs. They usually have large kitchens

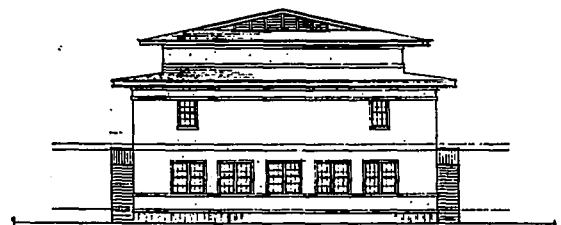


SCALE - ONE INCH EQUALS EIGHT FEET

M. H. C. VOLK'S DESIGN OTTAWA, CAN. 1917



FRONT ELEVATION



REAR ELEVATION

SCALE ONE INCH EQUALS EIGHT FEET M. H. C. VOLK'S DESIGN OTTAWA, CAN. 1917

and dining rooms, class rooms suitable for dormitories and, in some cases, open dormitories capable of holding twenty or thirty beds each. Hotels have been offered to the Commission on some occasions, but a very good hotel is entirely unsuitable, the cost of removing its substantial partitions being too great.

THE NEED DEFINED.

The Commission's need is for buildings with large open ward spaces, and there should be grounds if at all possible. The institutions must be convenient to large centres for several reasons—convenience in obtaining all kinds of supplies, and accessibility to first-class medical practitioners. On the other hand, experience has shown that the patients are better off outside of the city where the air is better. Some buildings have had to be rejected because special apparatus and equipment could not be conveniently installed in them. Before any building could be accepted, it was necessary for a representative of the Works Branch to make a survey of the premises with a view to ascertaining the possibilities of adaptation to the Commission's needs. Public opinion being less well-informed as to the requirements has sometimes disagreed with rejections made by the Commission's officers, but it is safe to say that the selection in most cases has been wise under the then existing conditions.

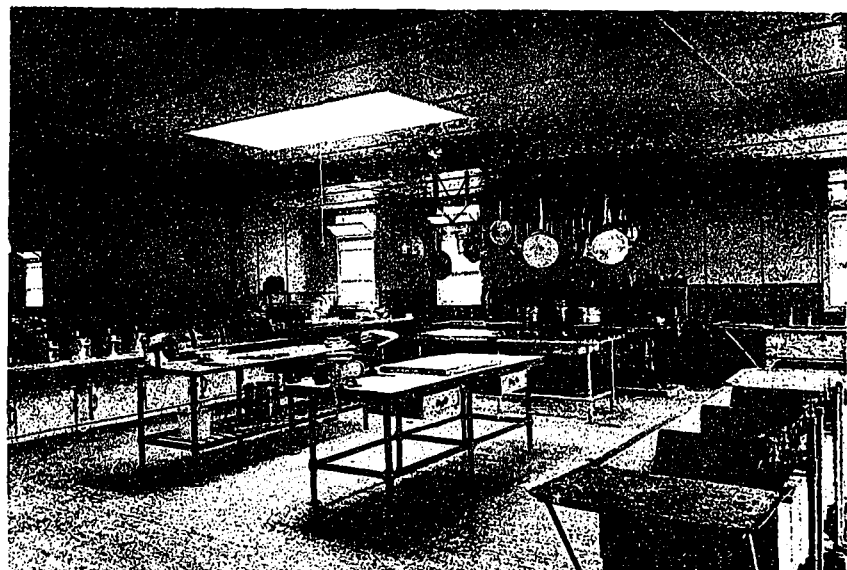
Adapting a building the size of Knox College or Loyola College to another use than that for which it was designed naturally proved a large and an expensive undertaking. Recognizing that while proper economy should always be observed in the public service, the Commission decided from almost the outset that its institutions must be absolutely suitable for the administration of the treatment desired.

"We aim at results," is the way Captain Symons puts it. "We are not doing this thing for a joke, going about it in the easiest way. We are following the very best laid down world-

wide rules for hospital erection. We are studying our plans with a view to producing the very best results."



STAND-TO IN ONE OF THE SEVENTY-FIVE BED WARDS IN THE ORTHOPEDIC HOSPITAL.



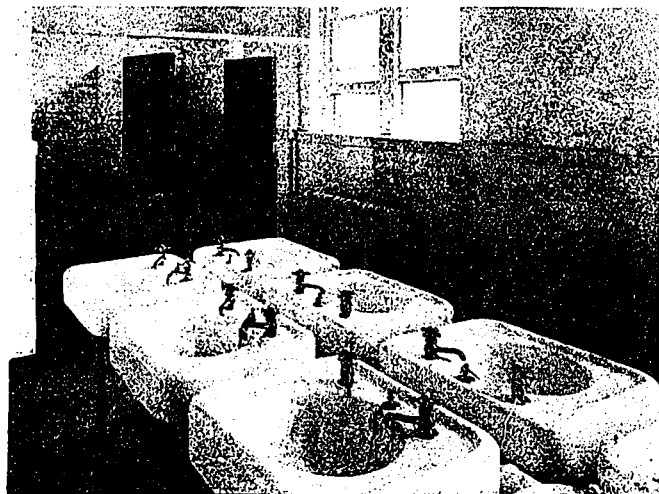
KITCHEN AT NORTH TORONTO, SHOWING ENTRY TO DINING ROOM ON LEFT.



WELL-LIGHTED DINING ROOM AT NORTH TORONTO HOSPITAL.

COST OF REMODELLING TOO GREAT.

Each of these college buildings had a possible accommodation of about two hundred men, but the cost of renovation was equal to if not more than that of erecting a two hundred bed hospital of the type which the Commission has since



TYPICAL WASH ROOM AT NORTH TORONTO.

then evolved. Take Loyola College, for instance. The Commission spent about \$75,000 on renovation, although the building already had assembly halls, dormitories, class rooms and dining halls, and was about as suitable as any building ever taken over. Even with all this, the conversion of the class rooms into dormitories meant an increase of plumbing, etc., and in substantial buildings one cannot make alterations without heavy expense. It means well done work being re-done. A feature not

often regarded by the public is that the agreements in regard to most of these buildings oblige the Commission to return the buildings as they were found, thus doubling the cost.

An illustration is shown on another page of a large dormitory in the Drummond Home. This space was formerly occupied by fourteen separate rooms and connecting corridor. The Commission took all the interior partitions down and made a room a hundred feet long. A great deal of support was thus removed from the upper story and care had to be taken to protect the strains. The floors were strengthened with additional steel beams and columns, and every precaution was taken to make the building safe. Similar alterations had to be made in a number of places thus converted, although no two buildings presented the same problem.

DISTINCTIVE FEATURES AT N. TORONTO.

The next development was a decision to use certain existing buildings for what they were worth without very great alteration, and to add specially constructed wards as temporary wings. At the Orthopedic Hospital, North Toronto, where a half completed training school of the Salvation Army was taken over, is a splendid example of this class of work. In fact, in this institution are found almost all the distinctive features of the Commission's construction. A careful study of what was done here will tell more of the present story than could be hung around any other place.

The Booth Memorial Home was the name given the institution by the Salvation Army. It



DRUMMOND MILITARY CONVALESCENT HOSPITAL, MONTREAL, FORMERLY LOYOLA COLLEGE. THE SOLARIUM WAS ADDED BY THE M. H. C.

was a substantial brick building, fortunately having several acres of vacant land adjoining. A survey disclosed that by making a very few alterations in the plans the structure could be completed to provide accommodation for about one hundred and fifty hospital beds. It was decided that additions should be erected on the adjacent land, but a very serious problem in orientation arose. The main building faced south, yet the only place where a wing could successfully be attached was at the rear. It has been the architect's constant aim to arrange his plans to give proper sunlight in the wards. At North Toronto the purpose was achieved by erecting a large service building containing kitchen and dining room for four hundred men directly behind the original building. By running a connecting corridor north-west, it was made possible to put up two long ward wings facing south-east, an angle considerably at variance from the main building and not commended for its beauty. Orientation was the object aimed at, however, not beauty. Three hundred beds are located in these two wings in four wards of seventy-five beds each, the wings having two stories.

These new wards are for convalescents. The main building is kept largely for infirmary and administration purposes. Portions of it have been adapted for operating suites, hydrotherapeutic equipment, massage and dental service. The entire administration of the hospital is in the main building, suitable rooms having been allocated to the medical officers, officer commanding, matron, dietitian and clerical staff.

SPECIAL EQUIPMENT ROOMS.

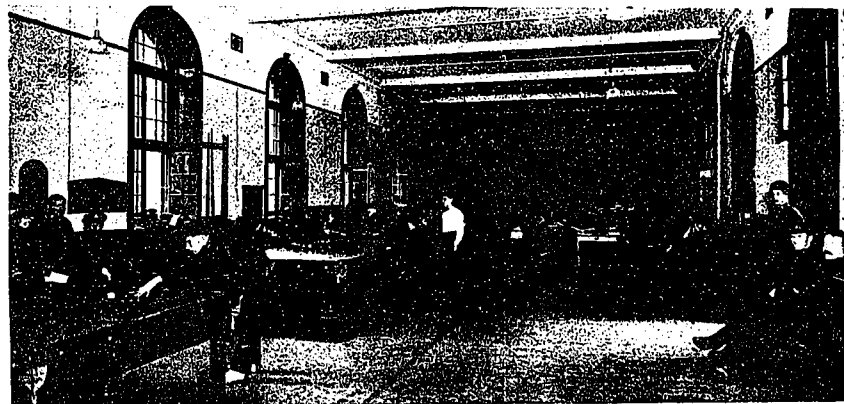
The operating suite was selected because of its splendid corner light. A wooden floor was taken up and granolithic substituted. A cement wainscoting four or five feet deep was installed. To put in the necessary plumbing, control basins, etc., fundamental work had to be begun in the base-



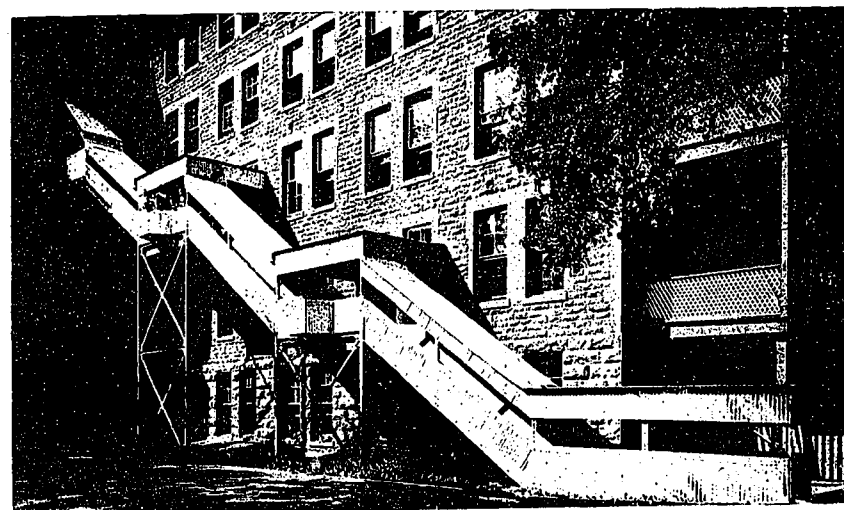
CAFETERIA AT DRUMMOND CONVALESCENT HOSPITAL, MONTREAL.



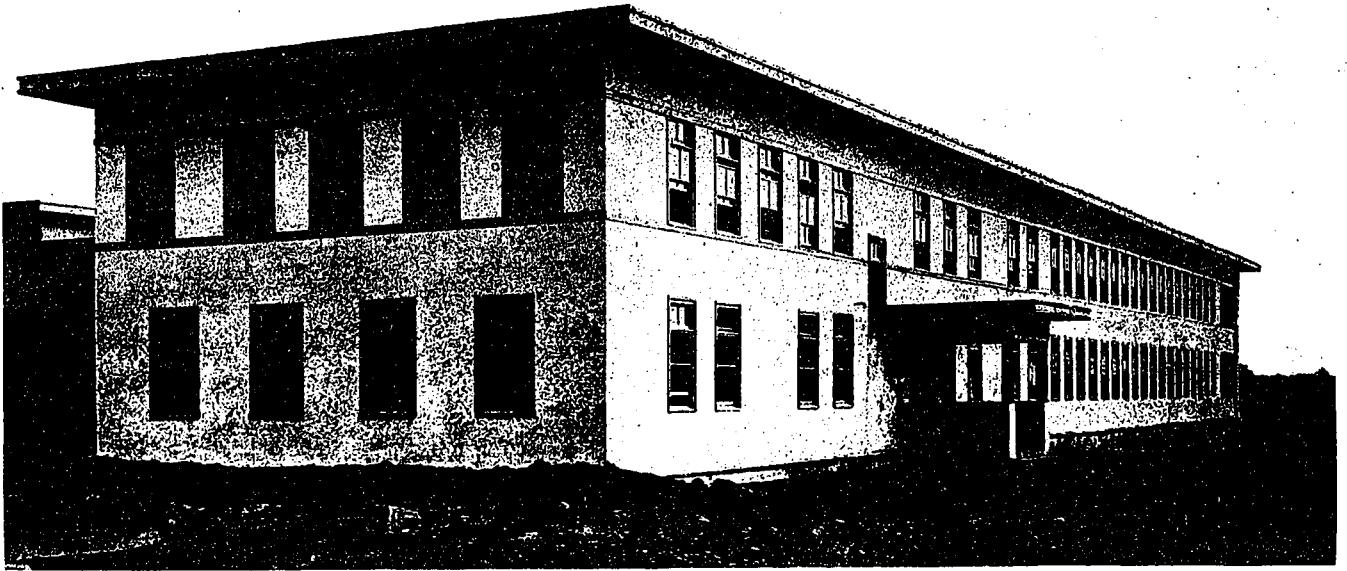
TYPICAL WARD AT DRUMMOND CONVALESCENT HOSPITAL.



BILLIARD AND RECREATION ROOM AT DRUMMOND HOSPITAL.



FIRE ESCAPE CHUTE AT GREY NUNS' MILITARY CONVALESCENT HOSPITAL, MONTREAL.



FIRST WING OF MILITARY CONVALESCENT HOSPITAL AT CAMP HILL, HALIFAX, NEARING COMPLETION.

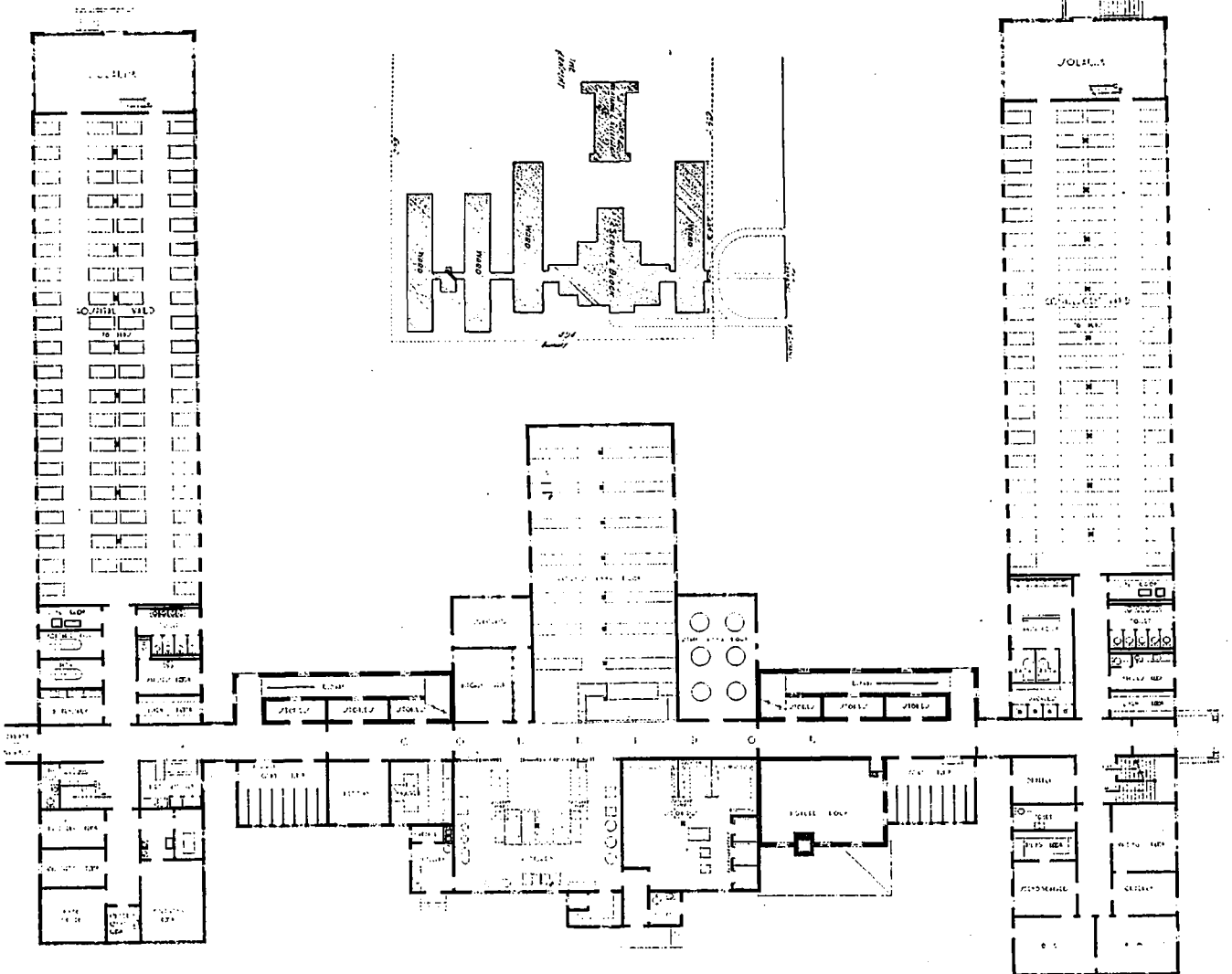
ment and proper piping laid. A sterilizing room, anaesthetic room, doctors' room, and other features had all to be arranged for en suite.

Indicative of the class of equipment used by the M.H.C. is the Frink operating light supplied.

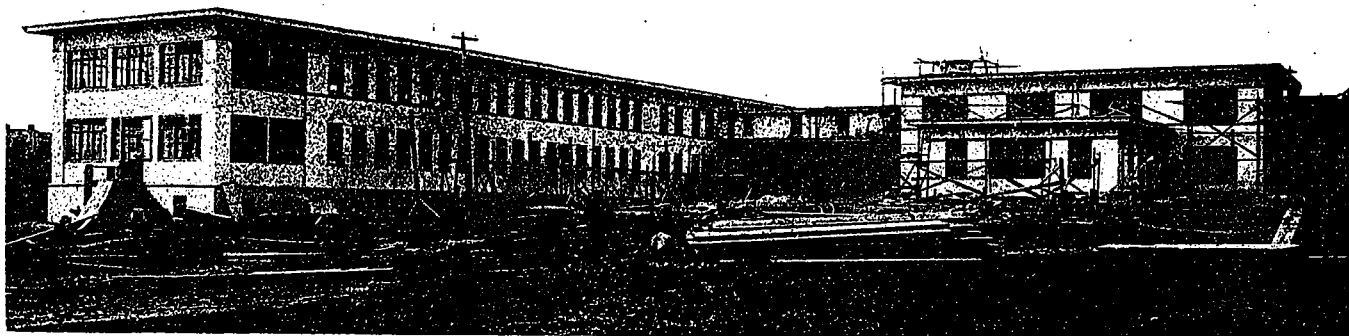
This arrangement is con-

sidered to be the very last word in lighting for surgical work. The fixture consists of a group of powerful lamps so placed that there can be no shadow no matter how the surgeon goes to work.

In the hydrotherapeutic



PLAN OF CAMP HILL MILITARY CONVALESCENT HOSPITAL WITH BLOCK PLAN INSET, SHOWING HOW TWO ADDITIONAL WINGS WILL BE ADDED TO MAKE IT A SIX HUNDRED BED INSTITUTION.



REAR VIEW OF MILITARY HOSPITAL AT CAMP HILL, HALIFAX, SHOWING FIRST WING, RUNWAY, DINING ROOMS, ETC., WITH EXCAVATION FOR VOCATIONAL BUILDING IN THE FOREGROUND.

room in the basement similar preparations had to be made. Tile floors were necessary because of the heavy wash of water from the electric baths. Continuous baths, where a patient is kept in a constantly changing tub of water of fixed temperature for possibly one, two, three, or even six or eight hours at a time were supplied. Electrically treated water affords another kind of bath for which provision had to be made. In the installation of all



WARD ON UPPER FLOOR OF FIRST WING OF CAMP HILL HOSPITAL.

this special equipment the advice of the best informed experts available was called in, and many compliments have been made by the medical profession upon the excellent facilities provided for special treatments.

Making provision for the massage treatment was an important feature of adapting the Sal-

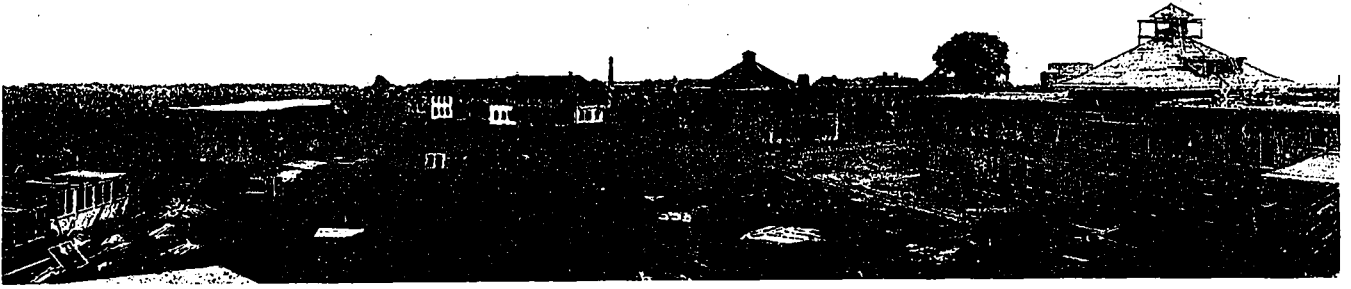


UPPER SECTION OF RUNWAY AT CAMP HILL HOSPITAL.

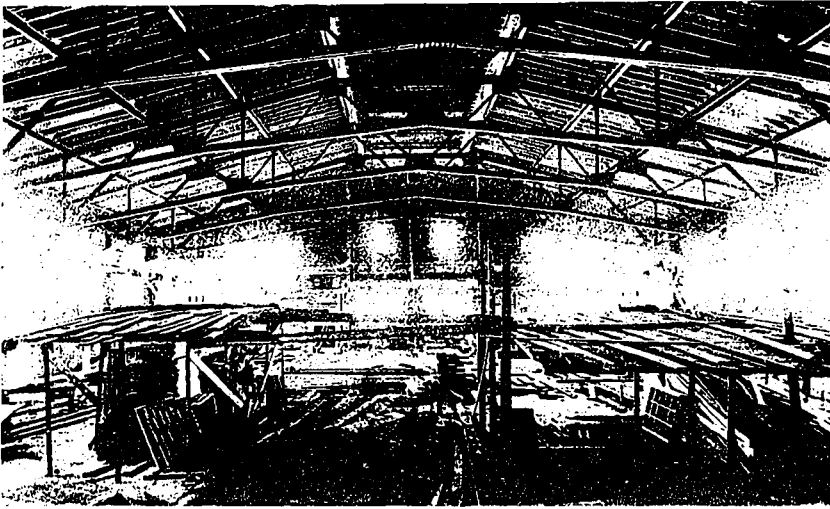


ONE OF THE TOILET ROOMS IN CAMP HILL HOSPITAL BEFORE CLOSET PARTITIONS WERE ERECTED.

vation Army training school as an orthopedic hospital. Four special rooms were provided with suitable plumbing. All patients are treated separately, and individual cubicles had to be arranged. In allocating the various portions of the buildings to the numerous uses, it will be observed that the architect had a big problem



PANORAMA OF WHITEBY MILITARY CONVALESCENT HOSPITAL. TWO PAVILIONS BEING ERECTED ARE SHOWN IN LEFT FOREGROUND WHILE THE NEW RECREATION HALL IS BEHIND THE INFIRMARIES ON THE RIGHT.



INTERIOR OF THEATRE IN RECREATION HALL AT WHITEBY. THE SEATING CAPACITY WILL BE TWELVE HUNDRED.



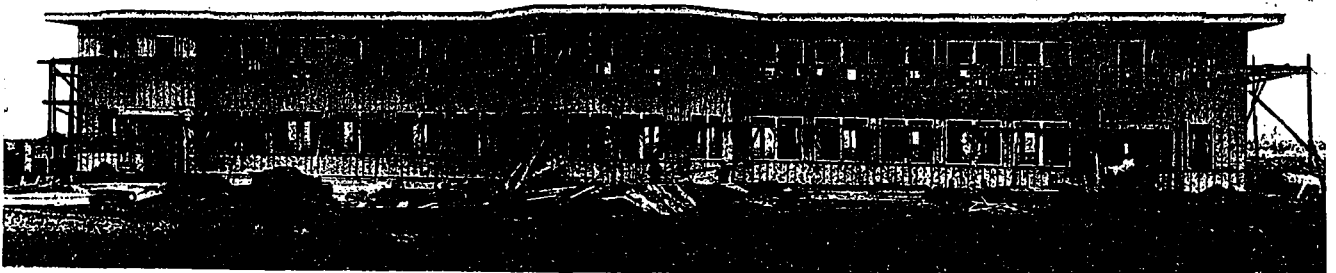
RECREATION HALL BEING ERECTED BY MILITARY HOSPITAL COMMISSION AT WHITEBY. BOWLING ALLEYS, ETC., WILL BE LOCATED IN THE BASEMENT.

on his hands, as the individual requirements of all these branches were often hard to meet.

RECREATION PROVIDED FOR.

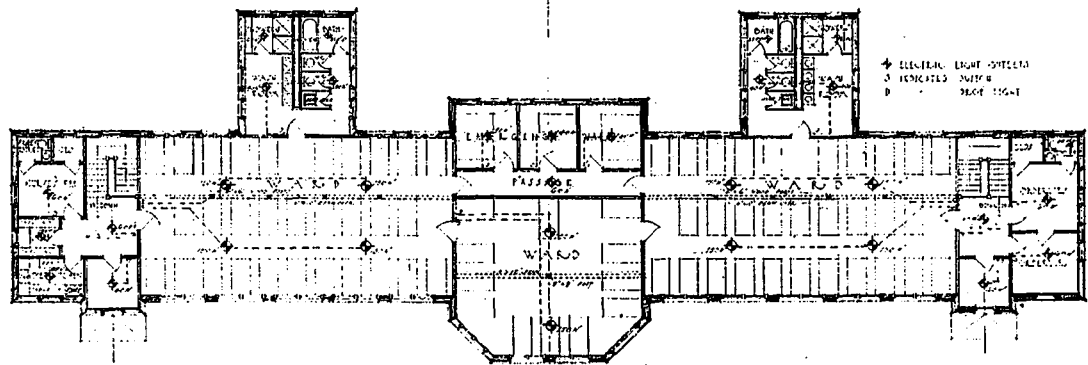
There is a billiard room at the North Toronto institution, and a large class room was temporarily set aside for general recreation purposes for the patients. It was not suitable, however, and a special building in which to centre the social life of the patients was erected. In it is a large recreation hall capable of seating five hundred people. There are four bowling alleys in the basement, and the stage of the main auditorium is equipped with dressing rooms and facilities for setting up scenery. Moving picture shows can be given there also; in fact, provision is made in nearly all the Commission's institutions for this form of entertainment of the patients. Valuable instruction is often given through this medium. On one story of this structure are the vocational training class rooms, including workshops and a garage for instruction in motor mechanics.

As will be observed from the plans and photographs printed on another page, the service building



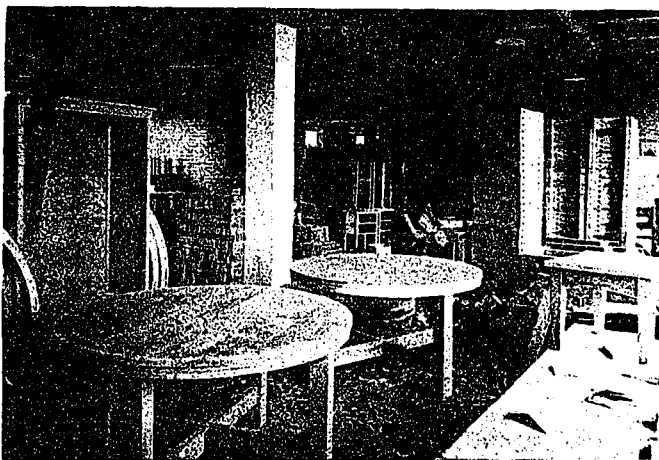
ONE OF THE NEW ONE HUNDRED AND FIFTY BED PAVILIONS BEING ERECTED AT WHITEBY. IT IS OF THE TEMPORARY PERMANENT TYPE OF CONSTRUCTION ADOPTED BY THE MILITARY HOSPITAL COMMISSION.

WHITBY MILITARY CONVALESCENT HOME ONT.
 MILITARY HOSPITALS COMMISSION WORKS BRANCH OTTAWA ONT.
 DRAWING NO 3.



FIRST FLOOR PLAN

SCALE: ONE EIGHTH INCH EQUALS ONE FOOT



FURNITURE MAKING AT GUELPH MILITARY HOSPITAL AS PART OF RE-EDUCATION OF RETURNED SOLDIERS.

at the rear is a model of its kind. The plan was arranged by Captain Symons in consultation with Miss Violet M. Ryley, the general organizing dietitian of the M.H.C. The dining room seats four hundred patients, and smaller dining rooms are arranged along one side for officers, nurses, sergeants, and other classifications of

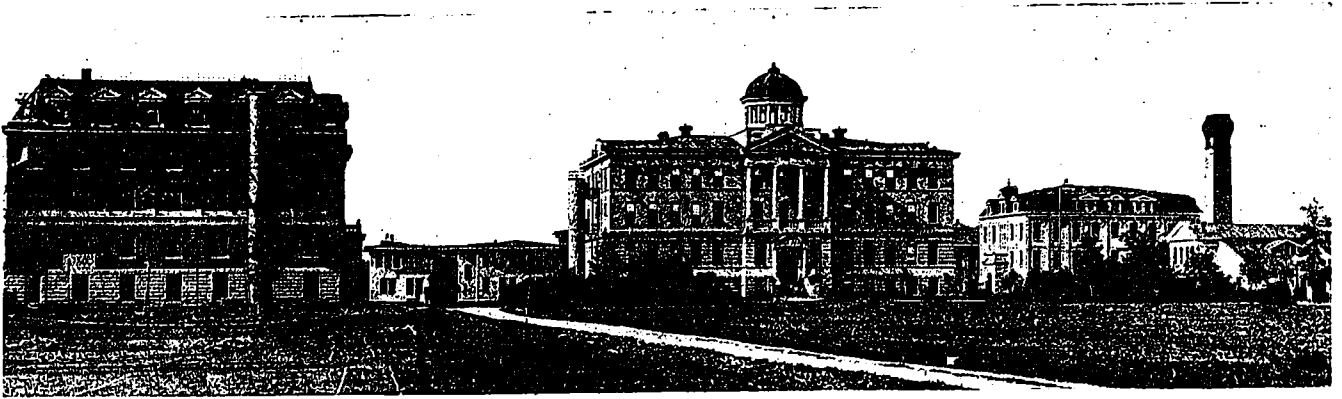
the staff. The kitchen is under the same roof and connects with the dining room through a double width doorway, directly facing the steam serving tables. The arrangement of ranges, dishwashers, stock-pots, steam tables, refrigerators, etc., is most economical of that scarcest



OXY-ACETYLENE WELDING PROCESS USED IN REMOVING BARS FROM WINDOWS, ETC., IN ONTARIO REFORMATORY AT GUELPH.



GUELPH MILITARY CONVALESCENT HOSPITAL. FORMERLY ONTARIO REFORMATORY. NEW WINGS ADDED ON EAST AND WEST ACCOMMODATE ONE HUNDRED AND FIFTY BEDS EACH.



GENERAL VIEW OF MANITOBA MILITARY CONVALESCENT HOSPITAL AT WINNIPEG. FROM LEFT TO RIGHT ARE ROBLIN HALL, NEW HOSPITAL, ADMINISTRATION BUILDING AND DAIRY SCIENCE BUILDING.

of commodities, labor. On another page Miss Ryley tells of the considerations borne in mind while devising the lay-out of her dietary department space, not only in this, but in other of the Commission's institutions.

THE CONVALESCENT WARD.

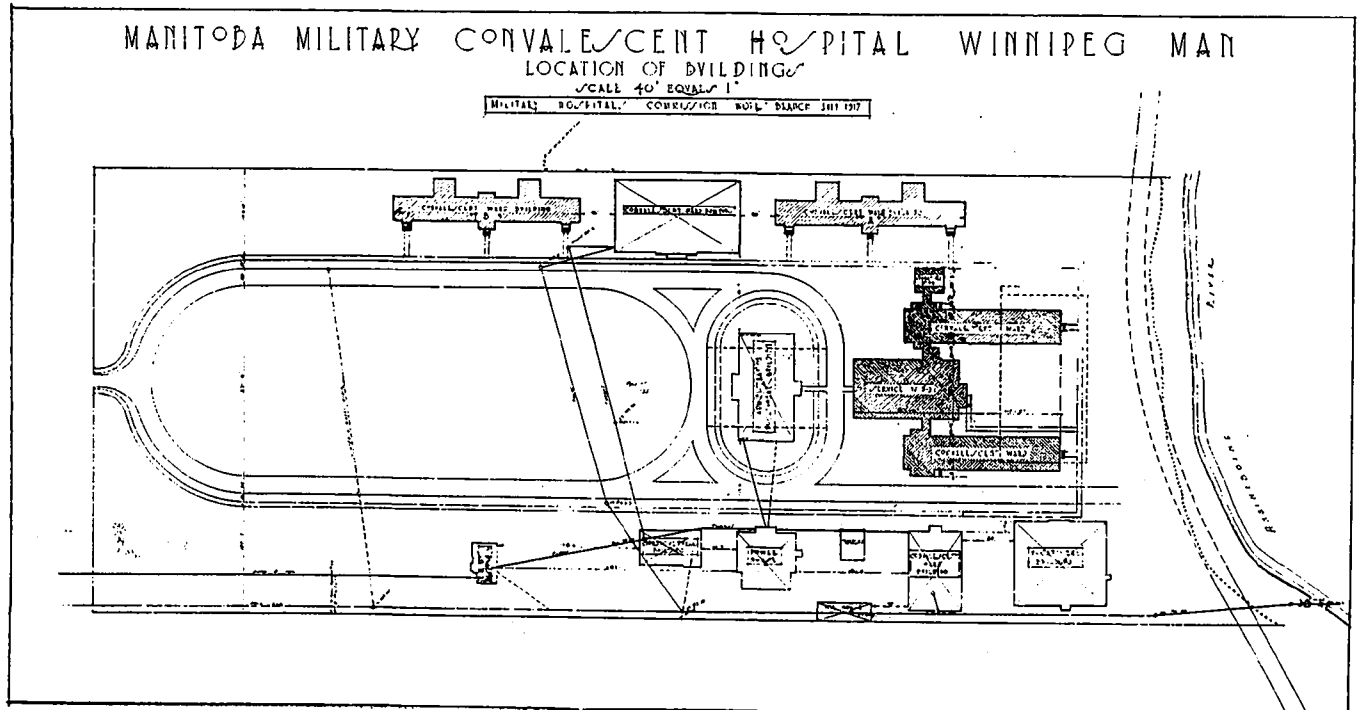
At North Toronto another representative feature is developed—the convalescent ward. There are two wings of two stories containing two wards of seventy-five beds each, a total of three hundred beds. The wards run longitudinally south-east from a connecting corridor at the north-west. Immediately off the corridor is the service block, so-called, containing toilets for the patients, linen rooms, sinks, baths, showers, diet kitchens, doctors' consultation room, nurses' room, and in some cases a small observation ward of perhaps two beds for unusual cases. At the end of the ward remote from the corridor is invariably a solarium furnished with easy chairs, card tables, etc., used as a recreation and smoking room by the patients. This is entirely glassed in, but is pro-

vided with generous exits. The wide stairway leading from the upper to the lower solarium might serve as a fire-escape in the remotely possible contingency of an outbreak.

These seventy-five bed wards have been erected at several institutions and have become a typical feature of M.H.C. construction. Seventy-five beds was regarded as a convenient unit to administer, but later experience, especially with a view to the future when the military use of these buildings will no longer be necessary has evolved a slight variation of the ward arrangement. At Cobourg, for instance, the connecting corridor meets the middle instead of the end of the wing, which is thus divided into two wards of thirty-five or forty beds each. Service conveniences are provided separately for each half in a later development than the Cobourg institution, but at that place only one service block for the seventy-five beds is provided.

NEW BUILDINGS THE NEXT STEP.

As the work of the Hospital Board developed and expanded, it became necessary at times to

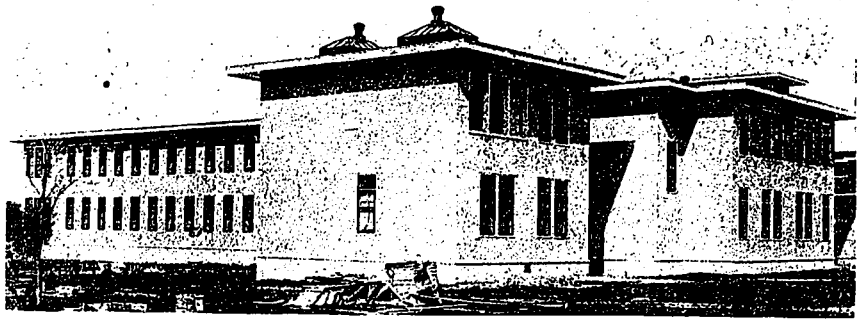


have large hospitals in places where there was no existing building to which such enlargements could be made. Accordingly the Commission decided to build for itself. Through the evolution of the ward wing and service wing, a type of construction had been worked out which was considered to be suitable. Experience has shown that a whole new hospital can be erected along these lines at less cost than old buildings can be adapted. The three hundred bed hospital at Camp Hill, Halifax, is the first absolutely separate hospital building started by the M.H.C., and it has proved to be so far ahead of anything else the Commission is using that it is doubtful if old buildings will ever be taken over again except in rare cases. The accommodation in this building is now being doubled by adding two new wings.

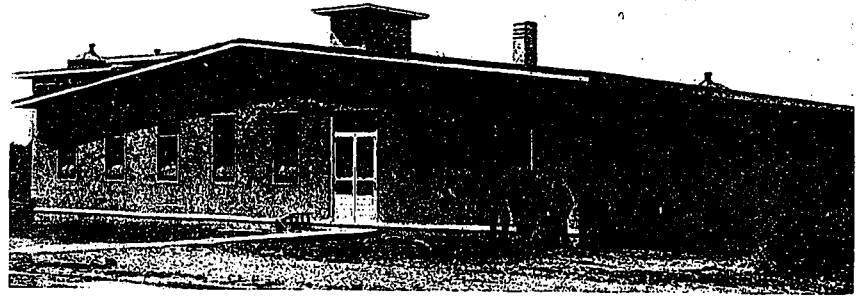
The well defined policy of the Commission for future developments in its convalescent home accommodation is shown in the illustration on the frontispiece page of a six hundred bed institution on its own grounds with separate buildings for officers', doctors', nurses', maids', and orderlies' quarters, for vocational training and for recreation.

A similar development in policy has occurred in connection with the tuberculosis sanatoria, but that subject is dealt with in another article in this issue.

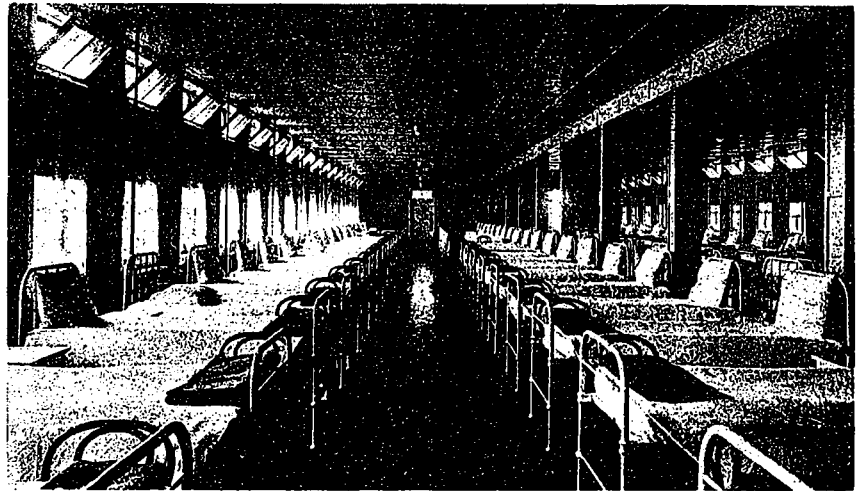
Reasons for the development of such a policy will appeal to readers of CONSTRUCTION at once. The M.H.C. is carrying on several classes of work in behalf of the same patients. The medical treatment of convalescing wounded is different from that of ordinary general hospital cases. There must be several classes of expensive equipment for surgical purposes. There must be massage equipment and competent masseurs. There must be high-class medical attendance. There are the requirements of the vocational training department to be considered. The Commission's aim is to keep its patients from being hospitalized and enervated from long convalescence, and it has



OPERATING ROOMS OF NEW HOSPITAL BUILDING AT WINNIPEG.



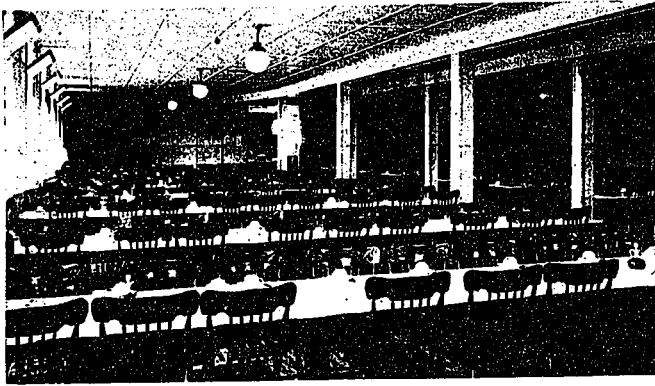
NEW DINING ROOM BUILDING AT MANITOBA HOSPITAL.



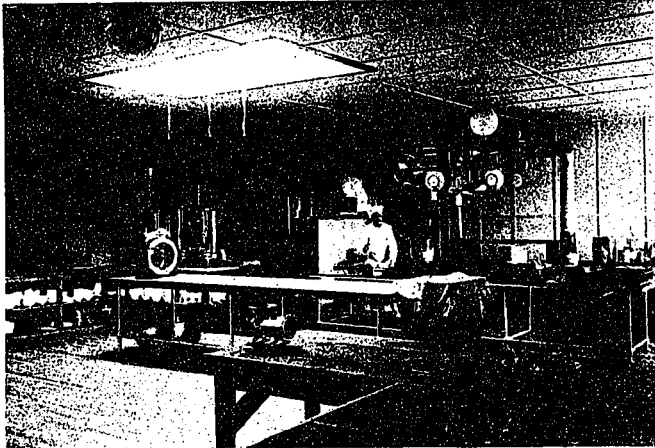
EIGHTY-FOUR BED WARD AT MANITOBA MILITARY HOSPITAL.



SUN ROOM OPENING OF EIGHTY-FOUR BED WARD.



INTERIOR OF NEW DINING ROOM AT WINNIPEG.



KITCHEN AT MANITOBA MILITARY HOSPITAL.



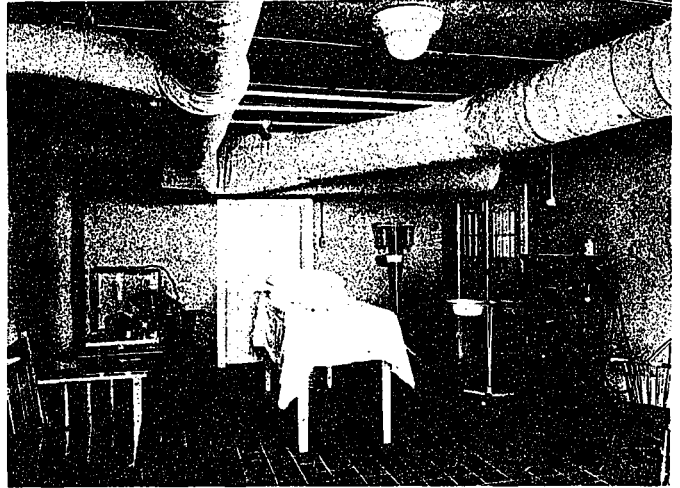
WASH ROOM AT MANITOBA MILITARY HOSPITAL.



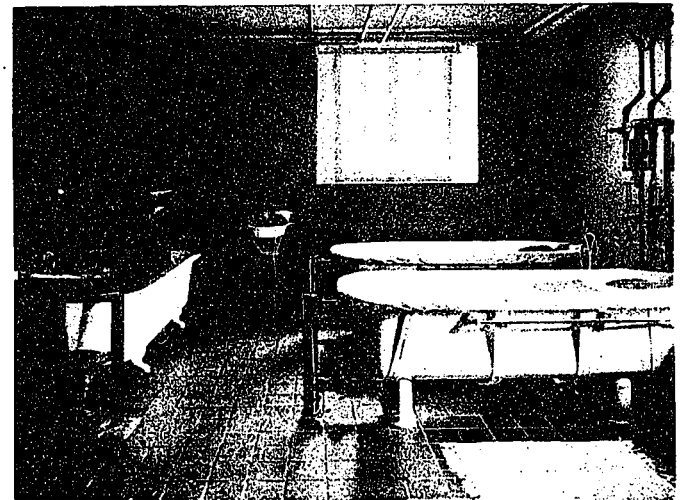
TREATMENT ROOM AT COBOURG, SHOWING NOZZLE, NEEDLE AND CABINET BATHS.

encouraged recreation of all sorts, at times appointing special officers to take charge and spending large sums of money to provide buildings and equipment for this essential feature of institutional life.

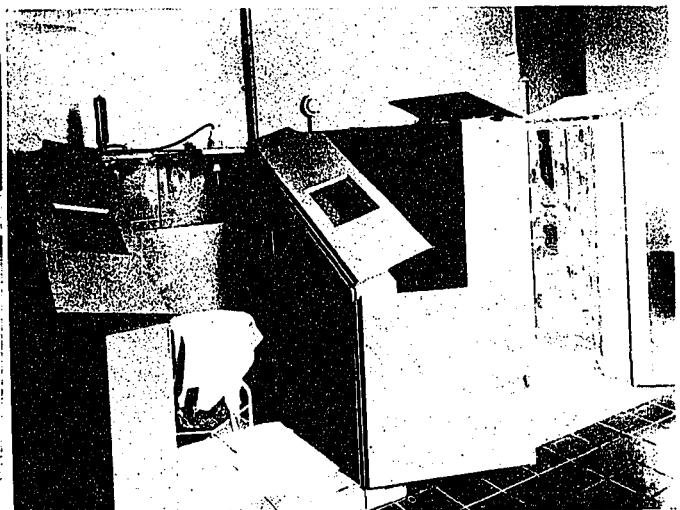
All these services can be better and more economically supplied in a large institution than in a series of small ones. A better class of



MASSAGE TABLE WITH ELECTRO-THERAPEUTIC OUTFIT AT COBOURG.



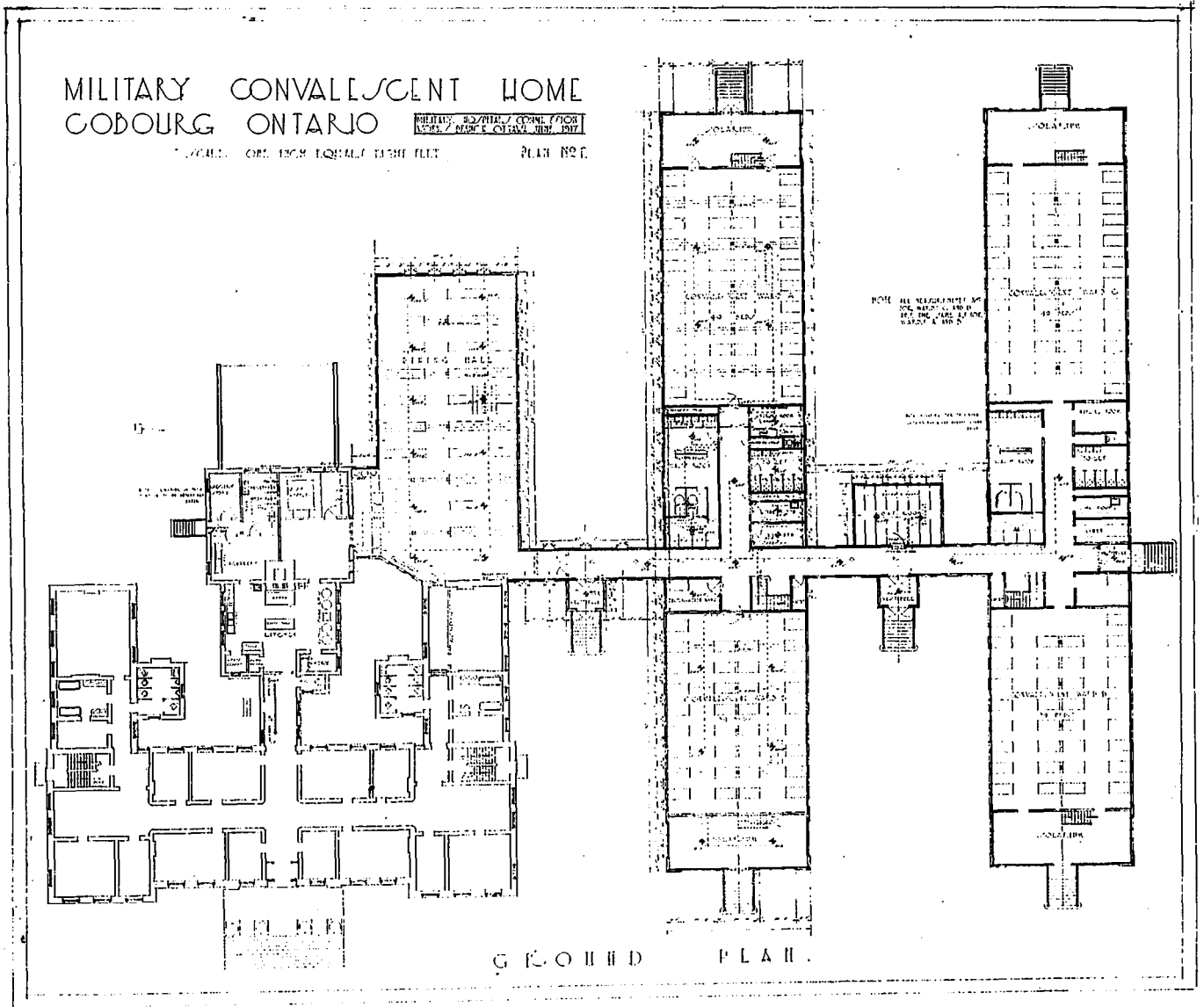
TREATMENT ROOM AT COBOURG, SHOWING CONTINUOUS BATH.

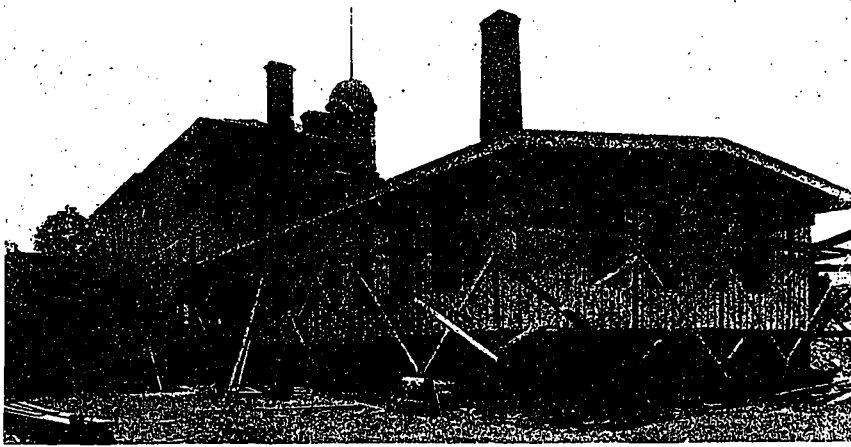


ELECTRIC BATH CABINET WITH BATTERY OF INCANDESCENT LAMPS.

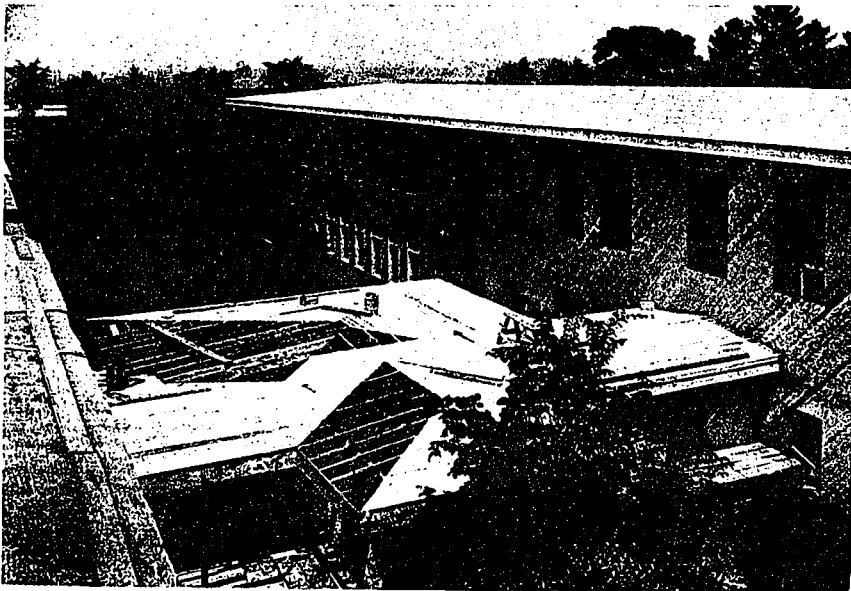


OLD VICTORIA COLLEGE, COBOURG, NOW ONTARIO MILITARY CONVALESCENT HOSPITAL FOR TREATMENT OF SHELL SHOCK CASES.





NEW DINING ROOM ERECTED AT ONTARIO HOSPITAL, COBURG.



REAR VIEW, SHOWING NEW BUILDING BEING ERECTED AT COBURG.

institution of such substantial character that its completion could not be awaited by the Military Hospitals Commission. All haste is being made, and one entire cottage group of approximately five hundred and twenty beds has already been occupied. The infirmary building is just about ready, and one or two cottages in the second group are also nearly finished. In order to accommodate the growing population of the Toronto unit, however, the M.H.C. arranged with the Ontario Government for permission to erect two special quick construction pavilions which will later be used for the accommodation of tuberculous insane. These structures are situated at the north side of the institution, and contain room for one hundred and fifty beds each. They are constructed along the lines similar to those employed in the Commission's sanatorium pavilions, but they are much larger.

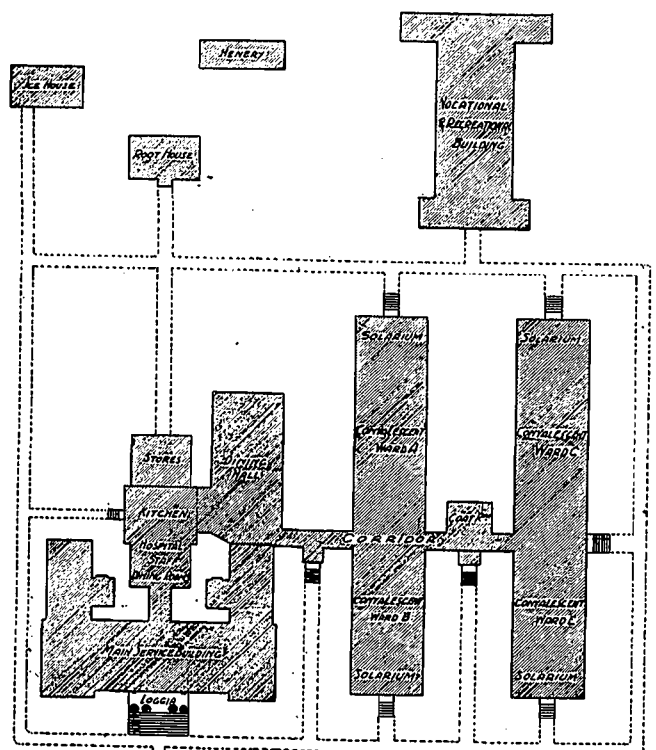
The plan of the Ontario Government was to complete its cottages first and the administration and recreation buildings later. The Commission, however, had different requirements, and as a result the Provincial Secretary's department under Mr. James Govan, its architect, has rushed

officials, medical men, *et al.*, is attracted to the large centre with its wider scope. It is a well recognized business principle that under the direction of one five-thousand-dollar a year man three one-thousand-dollar men will get infinitely better results than four men of the two-thousand-dollar class. This is the principle being applied. The reduction in proportionate overhead administration cost is enormous in these large centres as has been proved at Whitby and Winnipeg.

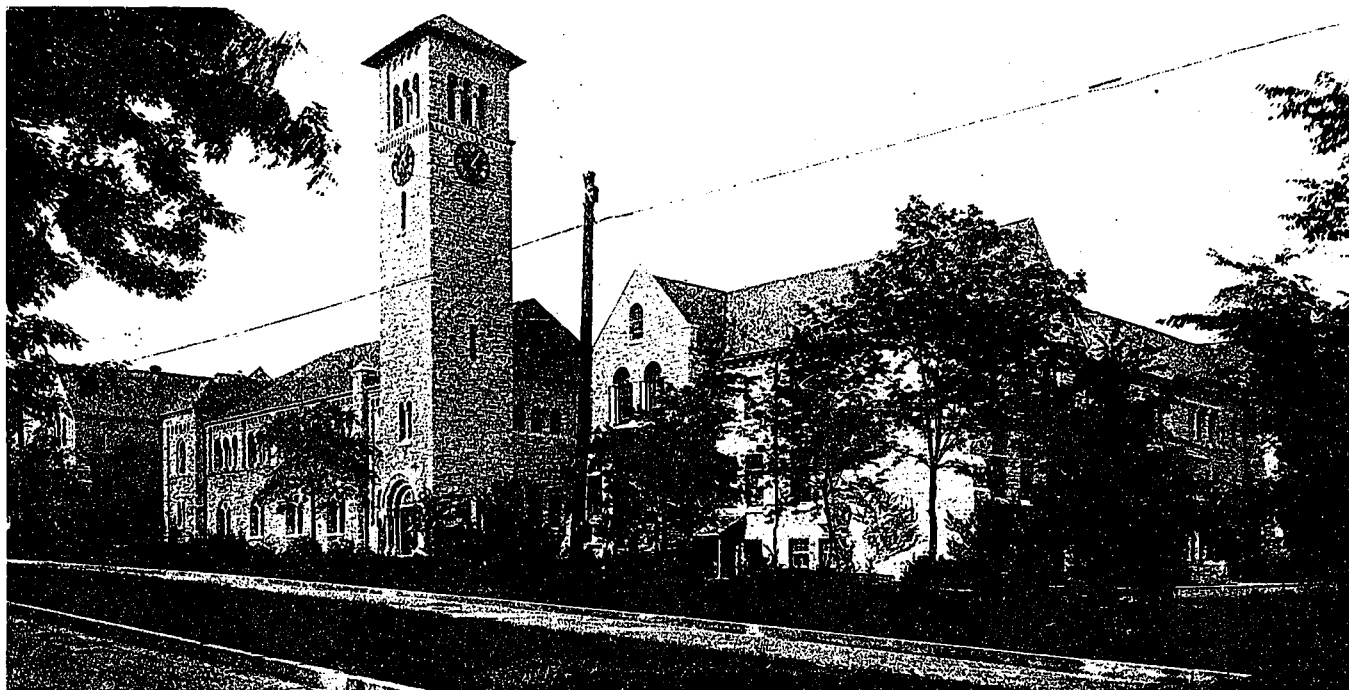
CHANGES AT WHITBY.

At Whitby there is already provision for six hundred patients with nine hundred more under way, and at the Manitoba M.C.H. the number of beds is seven hundred and fifty. The Whitby institution was formerly the Ontario Government's latest institution for the insane, and as described in CONSTRUCTION of October, 1916, is considered to be the most advanced development of institutional construction in the Dominion.

This Hospital was planned by the Ontario Government as a one thousand two hundred bed



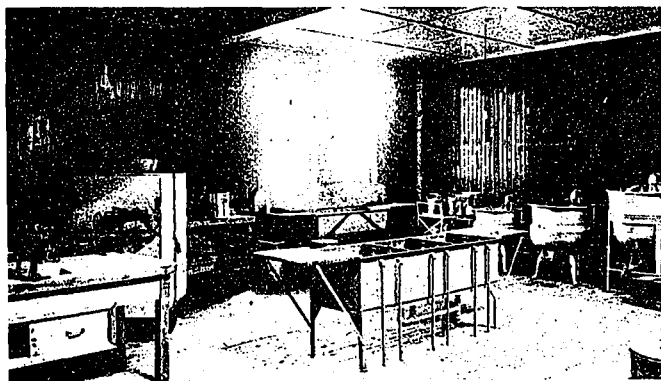
BLOCK PLAN ONTARIO MILITARY CONVALESCENT HOSPITAL, COBURG.



GRANT HALL, QUEEN'S UNIVERSITY, KINGSTON, NOW USED AS A MILITARY CONVALESCENT HOSPITAL. THE ARCHITECT WHO ERRECTED THIS BUILDING SEVERAL YEARS AGO WAS CAPTAIN SYMONS, NOW CHIEF OF THE M. H. C. WORKS BRANCH.

to completion the recreation hall with several alterations necessary for military patients. Bowling alleys are being put in the basement, for instance.

At Winnipeg the old Agricultural College, later the Institute for the Deaf, was converted through the erection of one or two special ward wings and a central dining building into one of



INTERIOR OF KITCHEN AT QUEEN'S M. C. HOSPITAL.

the most satisfactory institutions under the M.H.C.

At Guelph, the former Ontario Reformatory with its sixteen industries in full swing, will be another seven hundred and fifty bed institution for the re-education of men so disabled as to be unable to resume their former occupations.

NEED FOR VOCATIONAL TRAINING.

Ordinary vocational training in the convalescent homes, it should be understood, is really occupational treatment to give the patient something with which to occupy his hands and mind and to re-awaken his interest in civil pursuits. Always it should be so far as possible something

useful that the patient is taught, but no attempt can be made during the ordinary period of convalescence to teach a man an entirely new trade. Most convalescents don't need it anyway. The proportion in need of re-education is small, but the length of time required for them to complete their courses will extend far beyond the ordinary period of convalescence. It may in some cases take fully two years.

The class of equipment required for this sort of work manifestly could not in justice to the country's taxpayers be duplicated in small centres all across the country. The arguments in favor of large centralization are numerous and unanswerable at this stage of the work's development, when at the present rate of progress



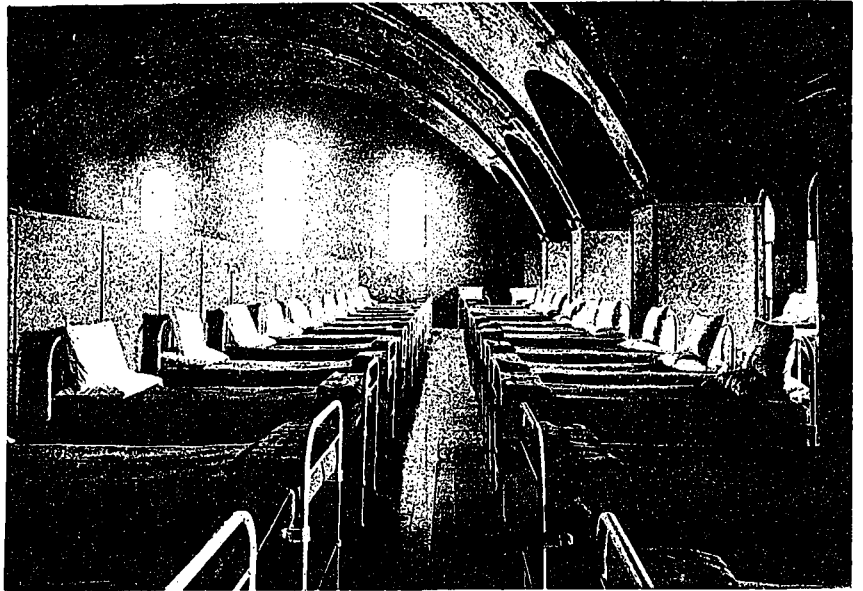
NEW KITCHEN BUILDING, QUEEN'S MILITARY CONVALESCENT HOSPITAL, KINGSTON.

a population of twelve thousand or fifteen thousand convalescents in the Commission's institutions is far from being an impossibility within a year's time.

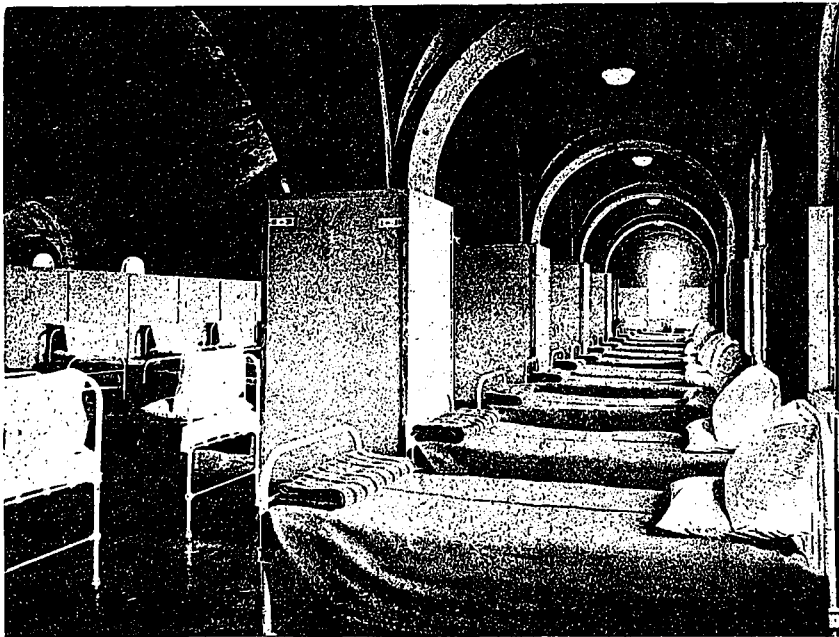
PRISON BECOMES A HOSPITAL.

In spite of its unique industrial equipment, the Guelph institution was not taken over with-

out some careful thought because of its association with the idea of prisoners. As a prison, however, it was one of the most attractive institutions in America, and after some investigation it was discovered that the prison features could be entirely removed. For instance, two classes of dormitory accommodation existed—individual cells and common dormitories. The iron doors on the cells were removed, and by use of the oxy-acetylene process all bars and screens on the entire premises were cut off flush with the wall. It would have been impossible to draw them out, but the oxy torch is so efficacious that the bars can be replaced just as securely as before. The use of this



WARD IN GALLERY OF CONVALESCENT HALL, QUEEN'S UNIVERSITY.



ANOTHER VIEW IN BALCONY, SHOWING HOW PARTITIONS WERE ERECTED TO PROTECT DECORATIVE WORK ON WALLS AND PILLARS.

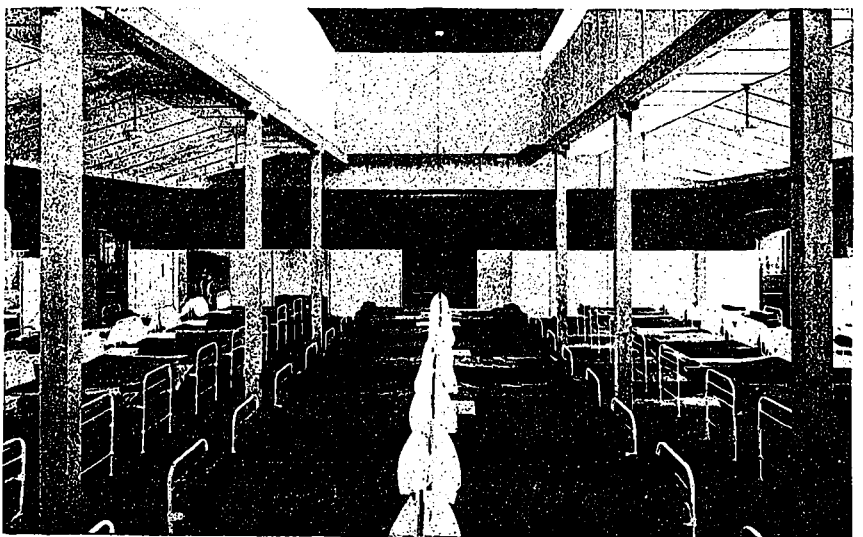
apparatus is one of the industrial features of the institution. The cells, cell corridors and dormitories have been redecorated. Better class lavatory and bathing facilities have been installed in connection with them, and the whole appearance of the sleeping quarters has been so altered that it is an open prediction that the patients will prefer the private wards (formerly cells) to the large dormitories. Lace curtains and chintz drapings have effected wonders.

The next institution to be erected by the M.H.C. will be the nine hundred bed scheme already referred to. No site has yet been

selected, but this development may occur at any date.

NINE HUNDRED BED UNIT DESCRIBED.

It will be noted that expansion is easily possible with the building as planned by the architect. It is the intention that at first only a six hundred bed structure shall be erected, the two outside wings being added later as required, other additions being possible in the same way. The central block is for administration offices. Lateral corridors extend each way feeding thirty-eight bed wards on each side, each ward having its own service suite with toilets, nurses' office, linen room, etc., adjoining the corridor, and solarium at the end remote therefrom. Unlike the Cobourg plan illustrated, there will be service suites for each thirty-



CONVOCATION HALL, QUEEN'S UNIVERSITY, NOW USED AS A HOSPITAL WARD. ADDITIONAL ACCOMMODATION WAS OBTAINED BY ERECTING THE BALCONY SHOWN.

eight bed ward, not one group for each wing. The small structures between wings contain operating rooms, special treatment rooms, such as hydrotherapeutic, etc., cloak rooms, and so on. One of the wings is intended as an infirmary for sick cases, and its service suite is planned accordingly with diet kitchen, observation ward, etc.

Running back from the administration block is another corridor leading to the dining room, beyond which again is the kitchen and storerooms. The vocational training building, as at North Toronto, contains class rooms for commercial and general subjects, wood-working shop, garage for motor mechanics, and will usually be adjacent to grounds suitable for poultry culture and gardening.

A separate power plant at the rear is provided for, and the whole thing must be located adjacent to a railway on account of the enormous quantities of supplies which will be required daily. The transportation of patients from the train by motor is too costly an undertaking to be overlooked also.

The equipment of the hospitals has been a tremendous problem, as manufacturing has naturally suffered from the shortage of labor. The scurrying around and buying everything in sight which was necessary at first has been largely overcome by standardization now that the needs are definitely known, and large blanket orders for kitchen equipment, building materials, beds, etc., are placed well in advance of requirements.

Hospital Kitchen and Dining Room Problems

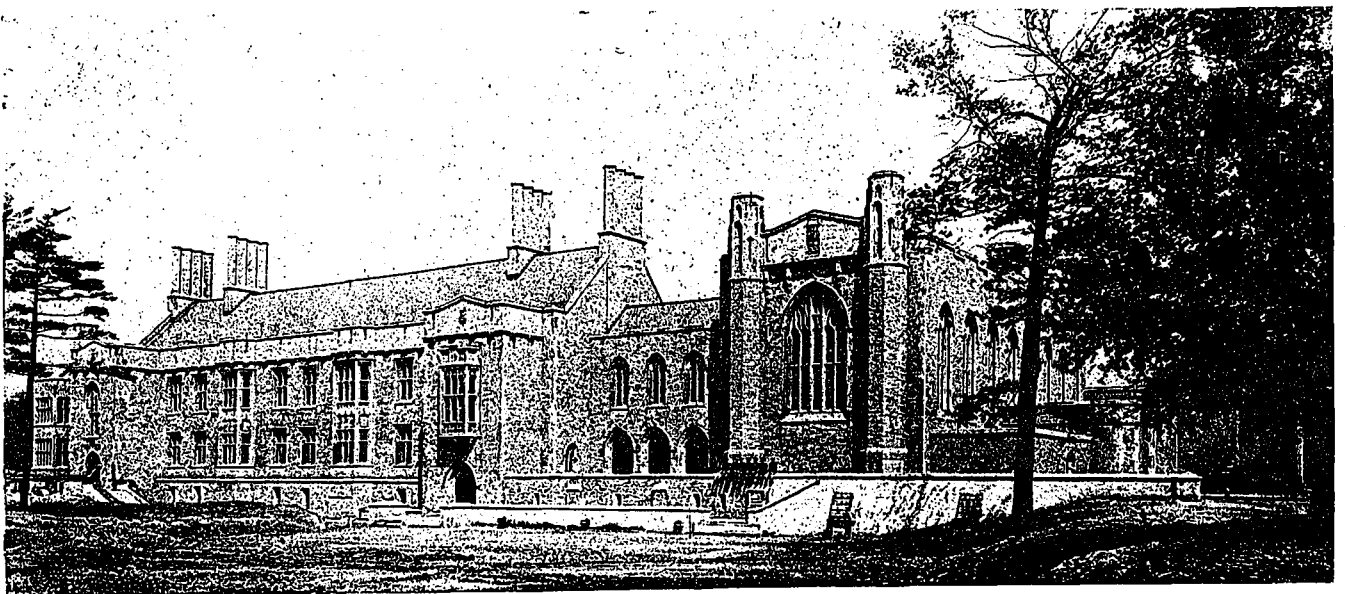
Discussion of Conditions Considered in Planning this Feature of a Convalescent Hospital, by Violet M. Ryley, General Organizing Dietitian, M.H.C.

THE dietary department has six distinct parts: 1, the dining room; 2, kitchen and serving rooms; 3, special ward serving pantries; 4, storerooms; 5, dish-washing and scullery rooms; 6, office.

The storage department is perhaps as interesting as any. In it we have a large general grocery storeroom containing the dry groceries for a month or two, with the cereals carefully protected from mice or insects in a separate, metal lined room specially constructed for this purpose. In the general storeroom certain space is assigned to the storing of case goods. Around the walls and on shelves arranged library fashion are stored canned goods (in less than case amounts) and preserved fruits. Be-

low these shelves stand ordinary garbage cans, containing cereals in less than bag amounts, these receptacles having proved superior to bins in several ways. The bread cupboards are quite a sight to those unfamiliar with the amount required to feed hundreds of men.

The cold storage plant contains from three to five small rooms, one for fresh meats and a second for dairy products, such as milk, cream, butter and eggs, another for cold meats and left-over desserts, etc., and a fourth for fruits and vegetables. These compartments may be cooled by ice, but in some cases a small ammonia mechanical refrigerating machine has been installed. The mechanical refrigeration is particularly satisfactory because it gives a lower



HART HOUSE, QUEEN'S PARK, TORONTO, ONTARIO.

The million dollar gift of the Massey Estate to the University of Toronto, is being employed by the M.H.C. as a centre for the functional training of paralyzed and semi-paralyzed portions of the body. The work is known as "Re-education," and in some respects resembles a kindergarten for adults.



MAIN PAVILION AT TRANQUILLE MILITARY SANATORIUM, NEAR KAMLOOPS, B.C.

temperature and eliminates the labor of handling ice, a considerable item when you consider that it requires several tons a week.

The dining room is fitted up either as a regular dining room or as a cafeteria, depending upon the kind of hospital. In the orthopedic home with its many amputation cases waiters are employed. In a regular convalescent home, where the men are just resting and being built up, the cafeteria system is used. This insures faster service, as the food is always hot (or cold, if it should be cold) and the men do not have to sit and wait for anything, but carry the entire meal to a table on a little tray, thus saving time and labor. In the very large dining rooms, where several hundred can be seated at once, two cafeteria serving counters are placed so that two streams of men can be served simultaneously.

The kitchens are fitted with the latest steam



EUCLID HALL, M. C. H., TORONTO, ONTARIO.

The only permanent soldiers' home so far required in Canada. It has forty beds, and was the residence of the late Mrs. Massey-Treble, whose estate loaned it to the Commission. It contains a pipe organ, on which recitals for the patients are given semi-weekly.

and electrical equipment, such as three-compartment vegetable steamers, steam-jacketed stock pots and soup kettles, electrical vegetable parers, electrical meat choppers, even ice cream freezers and ice crushers. Men who have been denied every comfort for so long are given as attractive a diet as possible. The range and pastry oven containing four shelves, used in making desserts, would particularly interest the average person.

Often it is quite a distance from the main kitchen that the wards for the men who are too ill to leave their beds are situated. Their food is served from a special serving pantry, equipped for this purpose. It con-

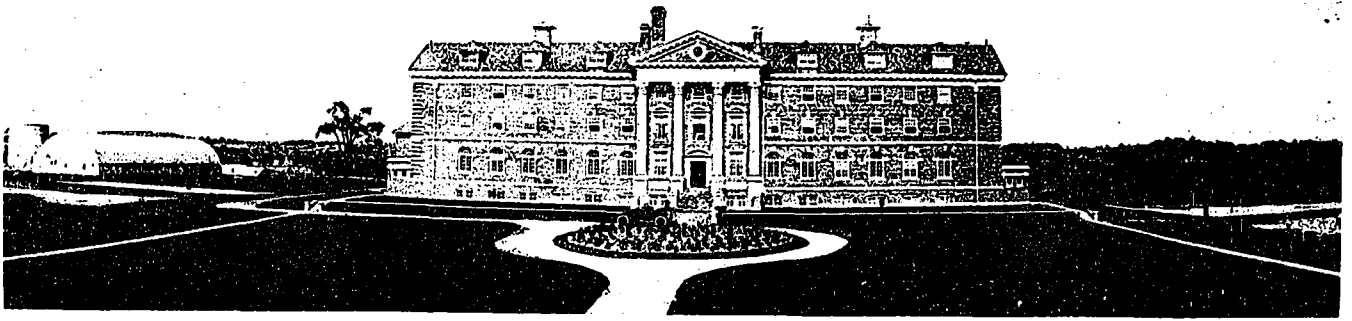


HUNDRED YEAR OLD GOVERNMENT HOUSE, FREDERICTON, N.B., BEING RECONSTRUCTED AND ADDED TO AS A CONVALESCENT HOSPITAL.

tains a small steam table to keep food hot, a gas or electrical plate where an egg can be poached, a hot water and coffee urn, a small refrigerator, a sink, a cupboard, for utensils and supplies, and a tray rack, where the trays can be set carefully before the meal begins, to save time and insure quicker service.

In clearing up after a meal, the dishes are washed in an electrical dish washer and all pots and pans in large double sinks where they are cleaned in hot soapy water and rinsed in boiling hot clear water. Even the garbage tins are cleaned in a separate sink, and sterilized with live steam, to prevent odors and keep them in perfect condition.

In the office the dietitian has her desk and filing cabinet, containing a copy of all the menus served to the patients, cost records and plans of work for the



PICKERING COLLEGE, NEWMARKET, ONT., NOW USED AS A MILITARY CONVALESCENT HOSPITAL.

employees, so that there is no waste of labor.

Altogether every part is so arranged and equipped that a meal can be served in record time, and in the best of condition, with a minimum of labor and exertion on the part of the workers.

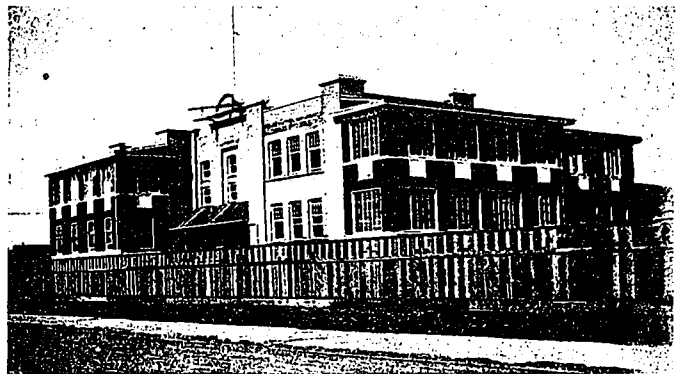
Seventy-five million dollars worth of construction will be required for the cantonments for the new United States army of one million men. This sum includes about \$40,000 for the

erection of temporary buildings of metal, wood, and concrete, \$2,000,000 for temporary hospitals, \$2,500,000 for water and sewer systems, and \$5,000,000 for roads.



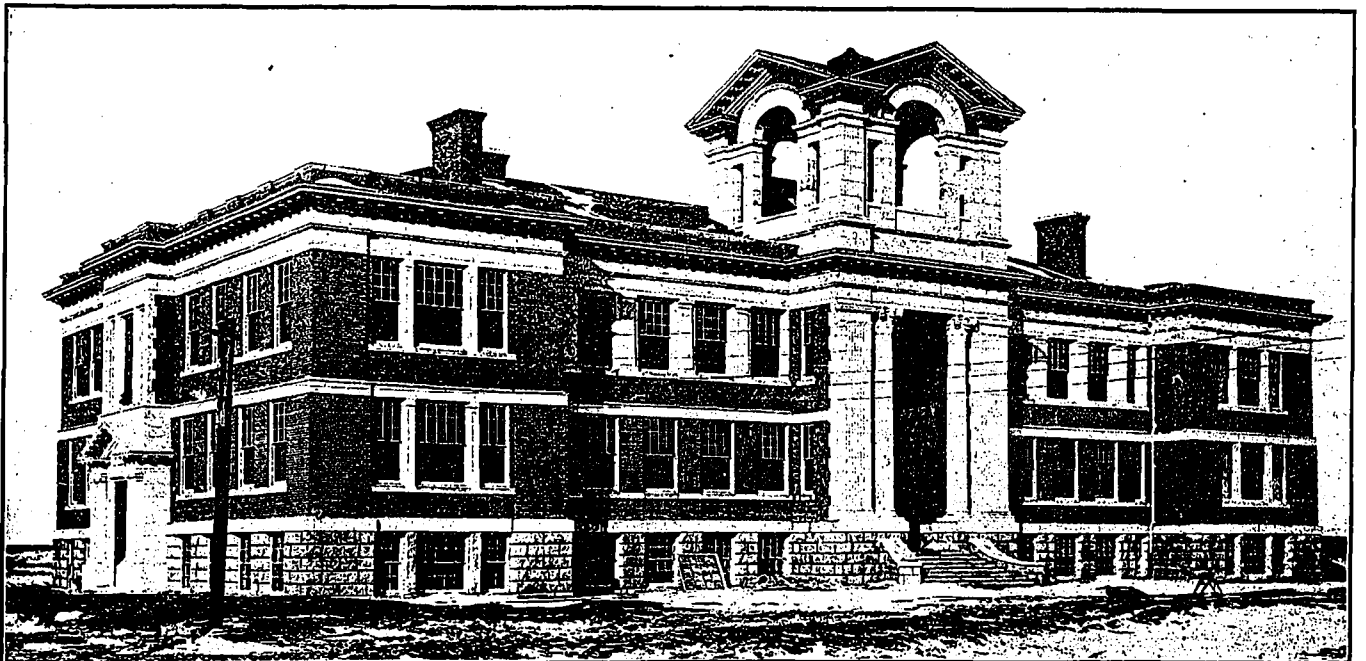
LEEK ISLAND CONVALESCENT HOSPITAL, ST. LAWRENCE RIVER.

An American woman, Mrs. Ira A. Kip, entertains sixty wounded soldiers at her lovely Thousand Island home, which has been equipped as a hospital. An operating room with all conveniences was installed in the building shown. The boat-house is of similar construction, and accommodates about twenty of the soldiers.



EARL GREY SCHOOL AT REGINA, WITH ADDITION OF SUN ROOMS ADDED BY MILITARY HOSPITALS COMMISSION.

The Illinois Society of Architects passed a resolution which relieves enlisted members from the payment of dues, appoints a standing committee to keep a roll of those members who enlist and engages that the society individually and collectively shall guard the professional interests of enlisted members during their service to their country.

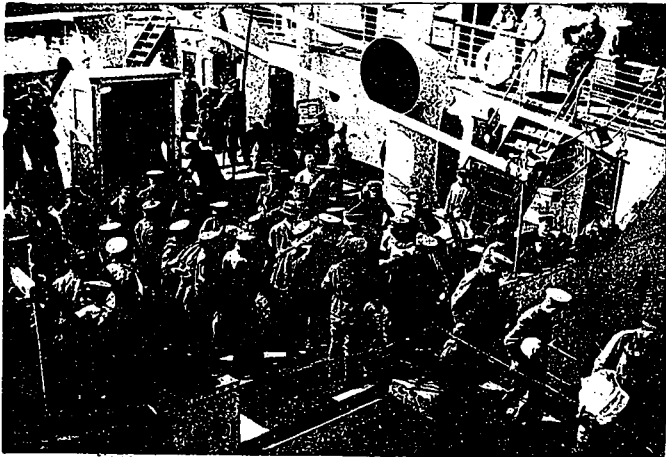


ROSS PARK SCHOOL. MOOSE JAW, NOW USED AS A MILITARY CONVALESCENT HOSPITAL.

Converting Immigration Sheds Into Hospitals

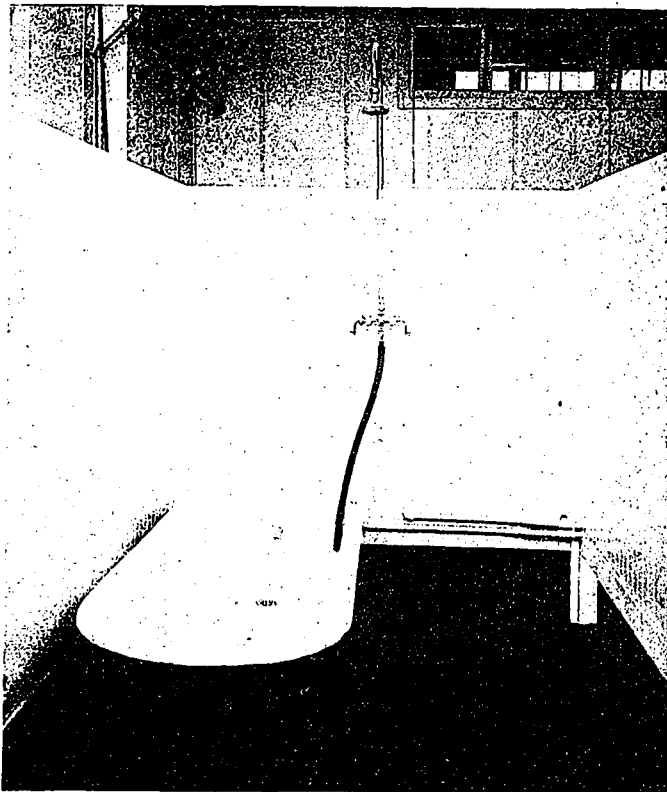
Ships Bring Wounded Soldiers Alongside Clearing Hospitals Located on Piers at Halifax and Quebec—Hospital Cars on Railways

ONE of the most difficult things ever done by the Works Branch was the conversion of two huge immigration sheds into first-class hospitals. Anybody who has seen the Military Hospitals Commission's discharge depots at Halifax and Quebec will understand what a remarkable transformation was effected. It can-

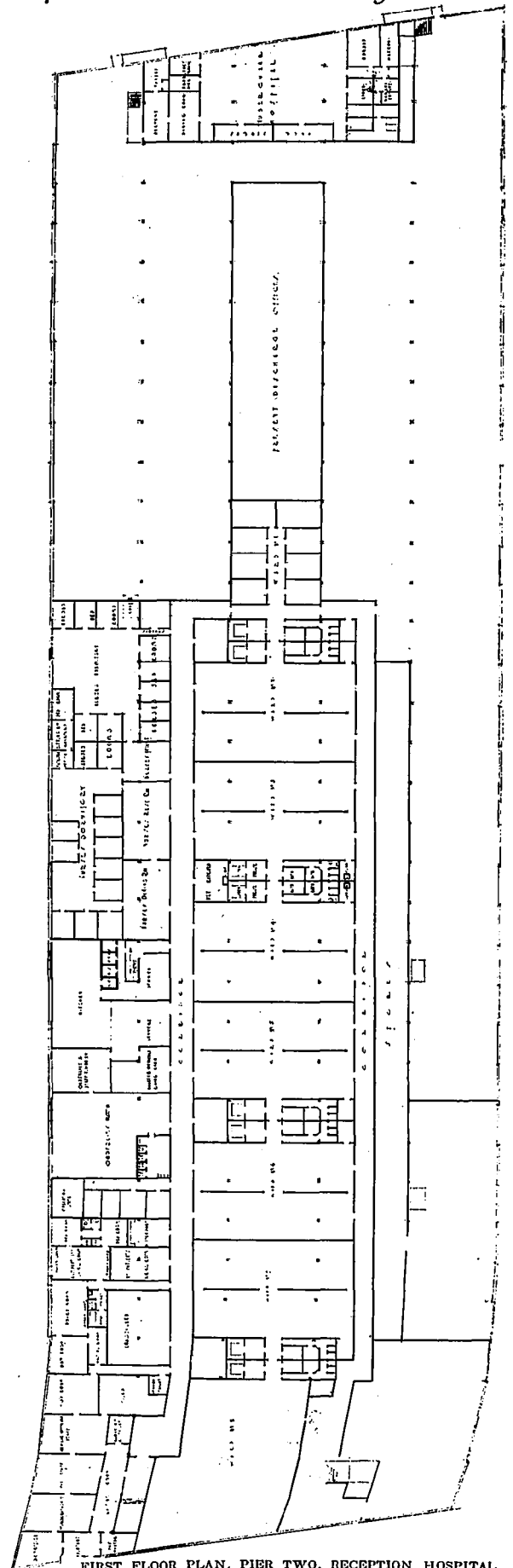


SOLDIERS DISEMBARKING FROM HOSPITAL SHIP AT PIER TWO, HALIFAX.

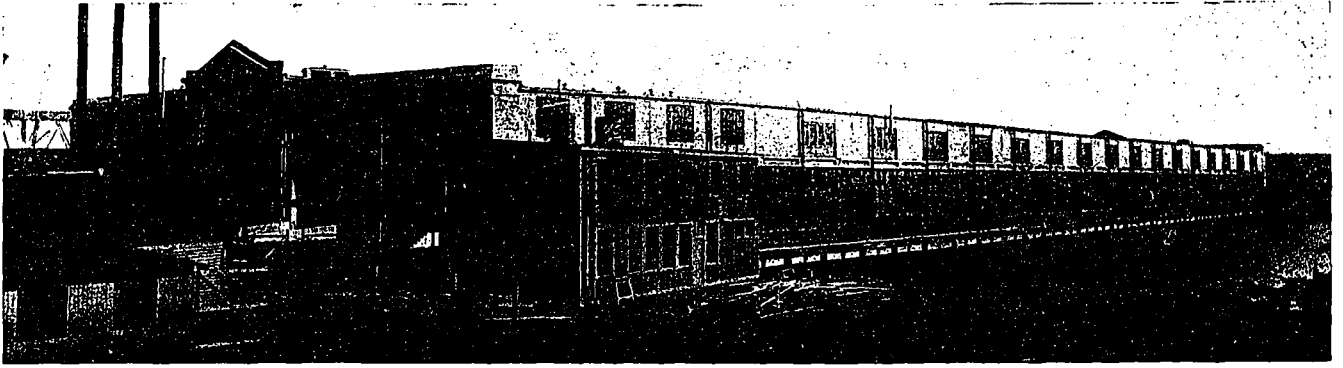
not be claimed in behalf of the Dominion that every effort was made to welcome the strangers at our gates in gilded palaces. The gaunt grey cement structures used as immigration buildings were about as bare of anything that would rest the eye or cheer the soul as any edifice of



BATHTUB ON CASTERS FOR REMOVING PATIENTS FROM BED TO SHOWER BATH AT PIER TWO, HALIFAX.



FIRST FLOOR PLAN, PIER TWO, RECEPTION HOSPITAL.



PIER TWO, MILITARY RECEPTION HOSPITAL AT HALIFAX. HOSPITAL SHIPS DISCHARGE AT WHARF IN FOREGROUND, UPPER FLOOR BEING USED AS TEMPORARY HOSPITAL. HOSPITAL TRAINS LOAD ON LOWER FLOOR.

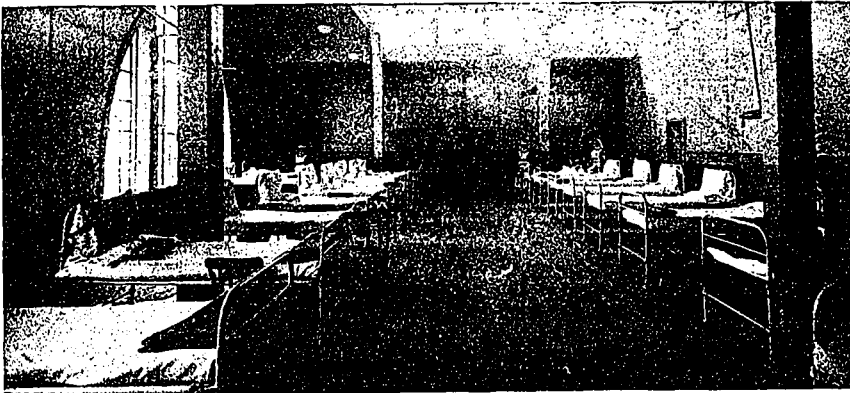
human hands. They served their purpose, however, which was not that of a hospital.

Canada's only immigrants today are her own maimed sons returning from the field of sacrifice, and it was but natural that these Government-owned structures, designed and placed to facilitate disembarkation of ship-loads of public wards, should have been surrendered by the Immigration Department to the Military Hospitals Commission. Both buildings were new and fireproof. They were built right out on the docks, so that ships and trains could come directly alongside.

of the pier has been installed. The cement wall has been opened up to make way for a glass



TYPICAL WARD AT PIER TWO, RECEPTION HOSPITAL, HALIFAX.



TUBERCULOSIS WARD AT PIER TWO, RECEPTION HOSPITAL, HALIFAX.

The chief handicap to be overcome was that of poor lighting, due to their tremendous width and gloomy aspect, due to absence of paint.

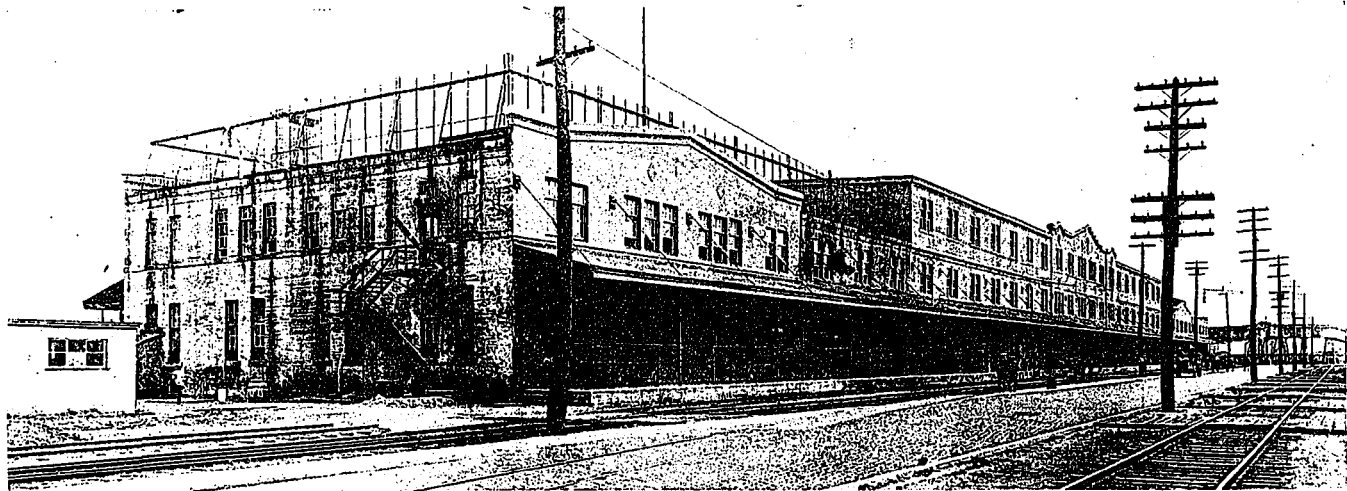
The planning has been entirely changed to meet the needs of the Commission. Both buildings are now used as reception and clearing hospitals for all classes of returning soldiers—from the mental and lung cases down to the lads whose only unfitness was the absence of a couple of years of age. In each depot a tuberculosis hospital at the sunny end

front, and every convenience and comfort of a first-class sanatorium has been provided. At Quebec there is a roof garden, to which the beds can be wheeled through special wide doors built in by the Works Branch. Separate diet kitchens and dining-rooms have been supplied.

For ordinary patients the whole floor was divided into forty-bed ward units, each having its own lavatories, and service conveniences for nurses and patients. A large central kitchen



KITCHEN AT PIER TWO, RECEPTION HOSPITAL, HALIFAX.



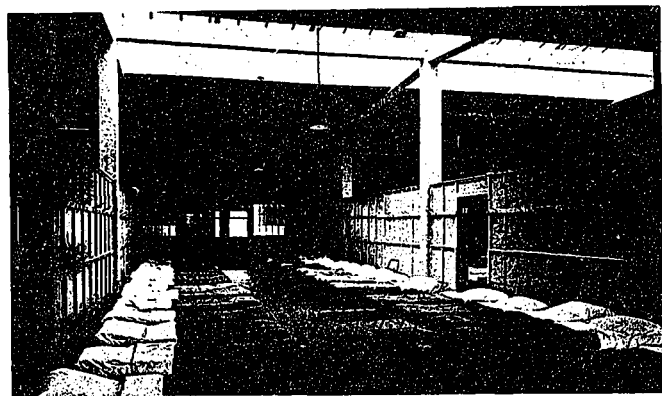
DISCHARGE DEPOT HOSPITAL AT QUEBEC. TROOPS DISEMBARK AT WHARF IN DISTANCE AND ENTRAIN ON TRACKS IN FOREGROUND. UPPER TWO FLOORS ARE USED AS TEMPORARY HOSPITALS FOR ONE THOUSAND BEDS.

and dining-room, with the necessary store-rooms, was arranged in each depot. Provision for administration offices, and sleeping quarters



CORRIDOR IN DISCHARGE DEPOT, QUEBEC.

for the entire staff, from officers down, is included on the pier. As discharge depots it is the function of these institutions to examine every man, physically and otherwise, and

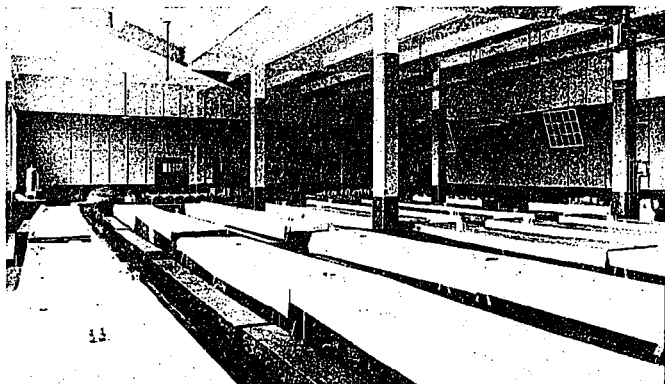


TYPICAL WARD FOR TEMPORARY USE AT DISCHARGE DEPOT.

classify him as to his future needs at the hands of the country, which he has been serving overseas. A ship-load of 500 or 600 men can be cleared through one of these places in two or three days,

The lighting difficulty in the wards was over-

come at Halifax, the larger of the two sheds, by substituting glass for all the big ten by sixteen-foot roller doors with which the sides were lined for disembarkation purposes. A row of skylight wards was installed underneath the monitor, extending from end to end of the



DINING ROOM AT DISCHARGE DEPOT, QUEBEC.

building. Two wide corridors flanked these central wards, and the outer wards are lighted from the ingeniously contrived window-doors just described. At Quebec the building was



KITCHEN AT DISCHARGE DEPOT, QUEBEC.



RECREATION ROOM AT DISCHARGE DEPOT, QUEBEC.

narrower, and the only aisles are at the outside. Sufficient light is thus available for ward needs. Two floors were taken over here, however, and accommodation for almost one thousand beds is available. Recreation rooms and canteens are provided at both places, but it is not intended that the men shall stay at these institutions for more than a few days at the outside, so that certain services always found in the convalescent hospitals are not available here.

HOSPITAL CARS PROVIDED.

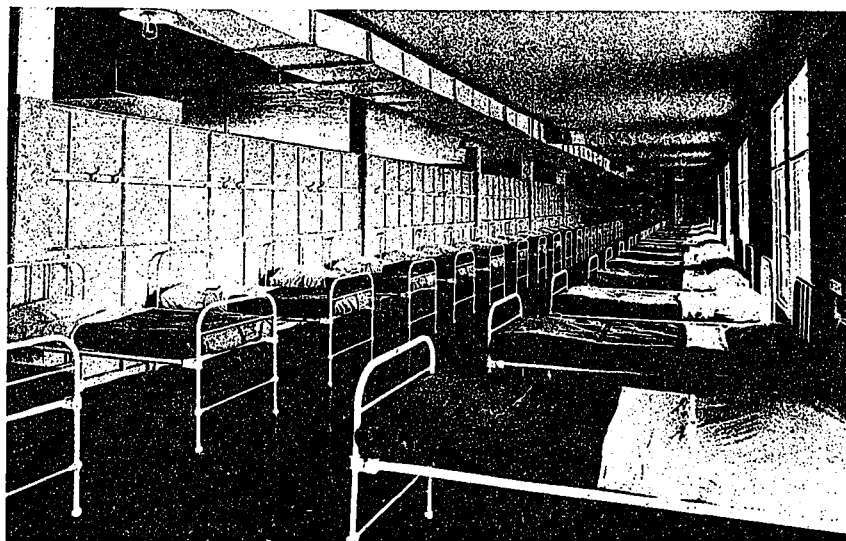
There have been for some time two hospital ships bringing Canadians back from the Old Country; one of these was wrecked early in August, it will be remembered, on the Nova Scotia rocks, but the patients were all removed to safety without a casualty. Owing to the awful agony entailed upon the first ship-load of returned wounded in passing them on stretchers through the windows of the ordinary sleeping cars, Captain Symons, who happened to see the first instance of that kind, obtained from the railways rough plans of their sleepers and designed a special hospital car.

Both C.P.R. and Intercolonial lines have sup-

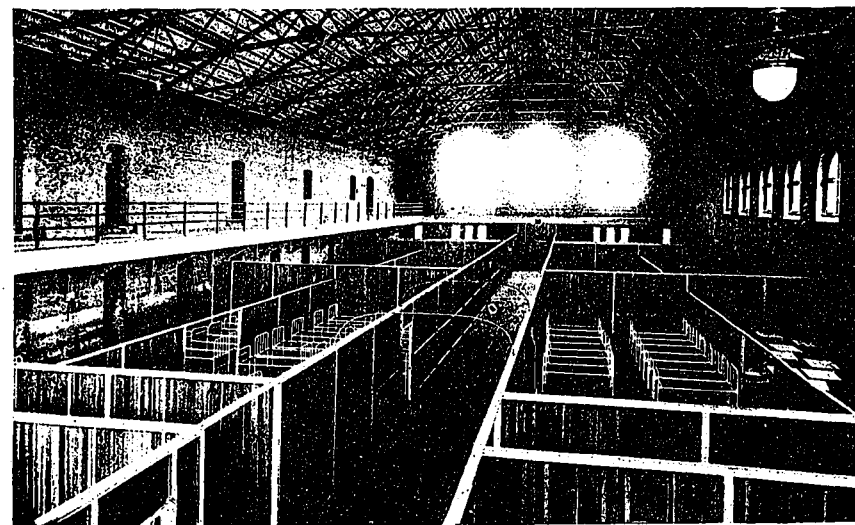
plied cars made from these plans, and the increase in comfort to the stretcher cases has been tremendous. Hospital trains now travel from Halifax to Vancouver without giving their passengers any greater inconvenience than they would have in a modern hospital. The cars are described as palaces on wheels. Wide double doors in the centre permit stretchers to pass in, while heavy curtains keep the

cold wind out of the wards when the doors are open.

The doctor and the nurse each have accommodation, the equivalent of a drawing-room on a standard sleeper. Regulation enamelled hospital beds have been blocked into position for



WARD ON UPPER FLOOR AT DISCHARGE DEPOT, QUEBEC.



RECEPTION HOSPITAL ERECTED IN ARMORIES AT ST. JOHN, N.R., FOR EMERGENCY USE.

the patients. Diet kitchens and dispensaries are provided. Usually the cars travel in pairs, one car having all these service features, and the other having nothing but beds. The upper berths have been left in for a double purpose—to store the linen and to meet any emergency in shortage of accommodation.

A Georgia supreme court decision shows the limitations upon the authority of the architect as "agent of the owner." It declares that whether an architect as agent of the owner is to be also regarded as the owner's agent for the purpose of binding him for materials, depends entirely upon the contract between owner and architect. Also that whether originally so authorized or not, if the architect assumes to act as agent, and buys materials on the credit of the owner with the latter's subsequent assent, tacitly given, the owner is liable.

Care of Soldiers Suffering From Tuberculosis

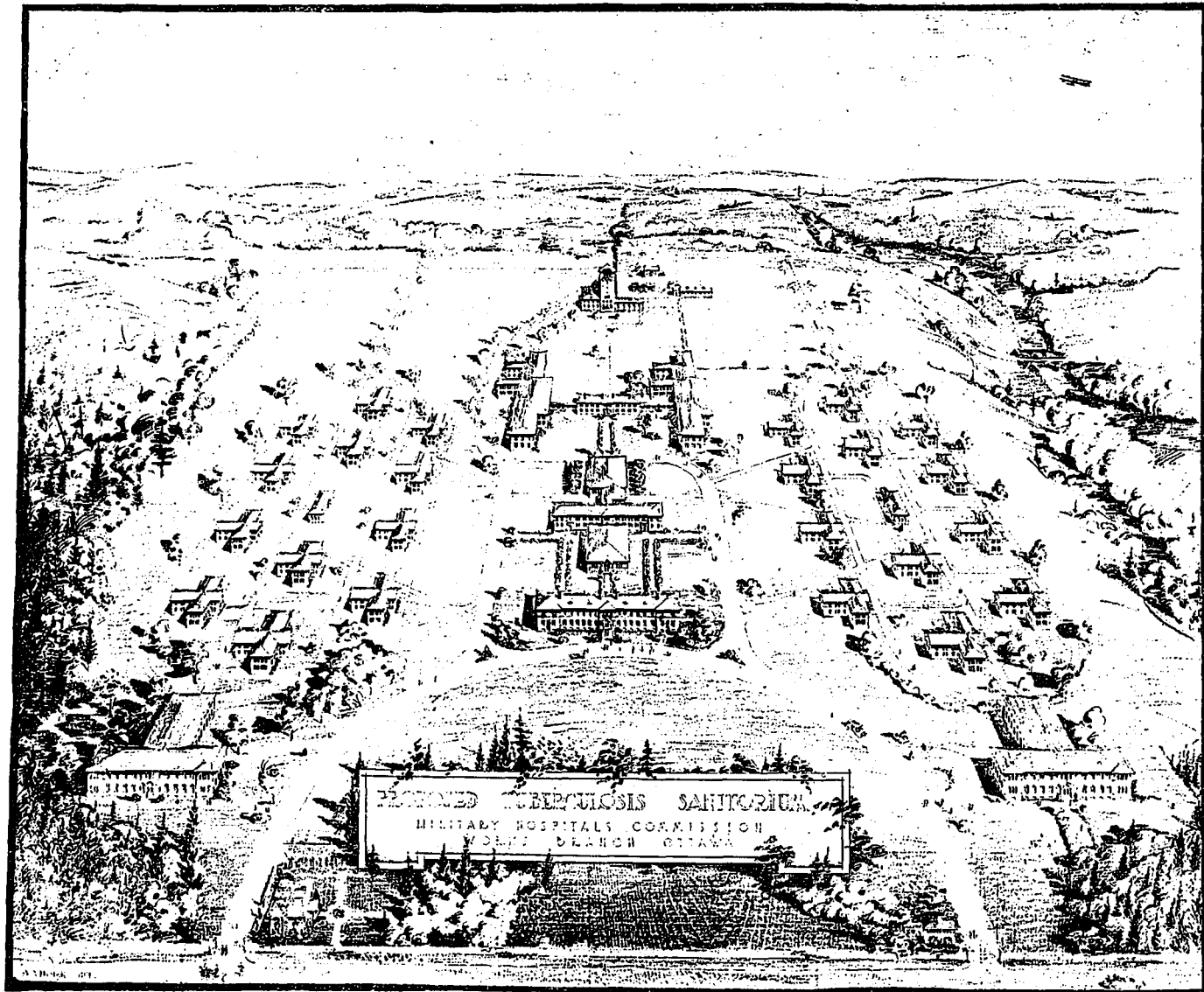
Military Hospitals Commission is Making Big Additions to Dominion's Sanatoria for Fighting White Plague

IN the course of its development the Military Hospitals Commission found that quite a number of the sick and disabled soldiers for whom it had to care were suffering from tuberculosis. Obviously it was unfair to mix these men with ordinary patients, and after a few had been sent to existing sanatoria the Commission decided to take over and develop the Sir Oliver Mowat Sanatorium as its own. This well-known institution, with its two hundred and twenty odd beds, is now probably the largest hospital combating the white plague in the Dominion.

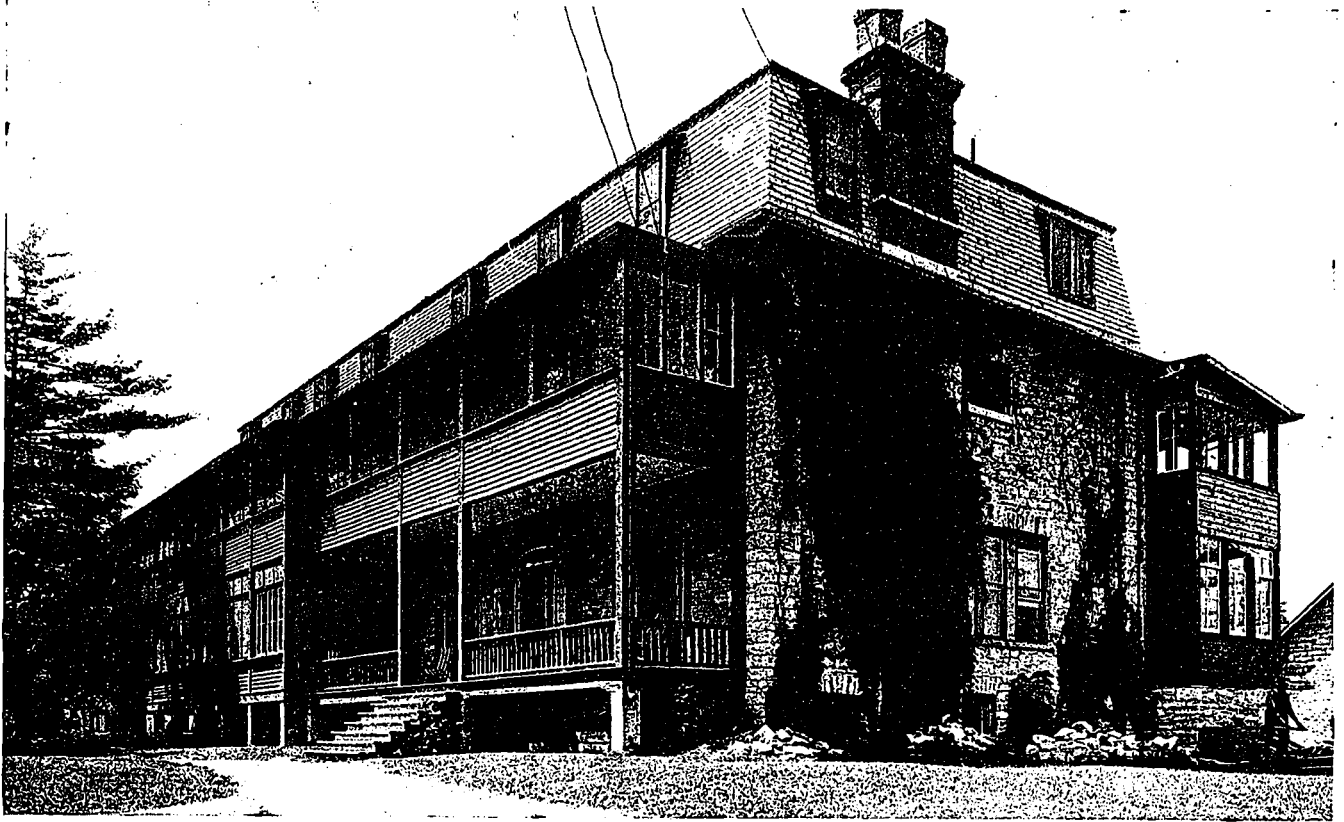
The nucleus of the plant was a historic old limestone residence in Portsmouth, adjacent to Kingston, Ontario. Alterations were made in the main building to enlarge the kitchen and dining-room facilities, commensurately with the

pavilion accommodation, which was to be supplied at once. An enclosed sun balcony was built to adapt the former residence as an infirmary for what are known as fever patients; that is, those too ill to take the ordinary sanatorium treatment. Beds are wheeled out on the balcony, as it is not contemplated that the patients get up.

In the meantime the Commission was studying the most up-to-date and widely approved plans for sanatorium pavilions. Putting the best ideas together Captain Symons finally designed a thirty-two-bed pavilion in two storeys, with two wards of eight beds on each. South-east light is an essential, and the whole front of the building is really glass, with movable sashes. For summer use the sash is thrown up, or taken off altogether and put on screens.



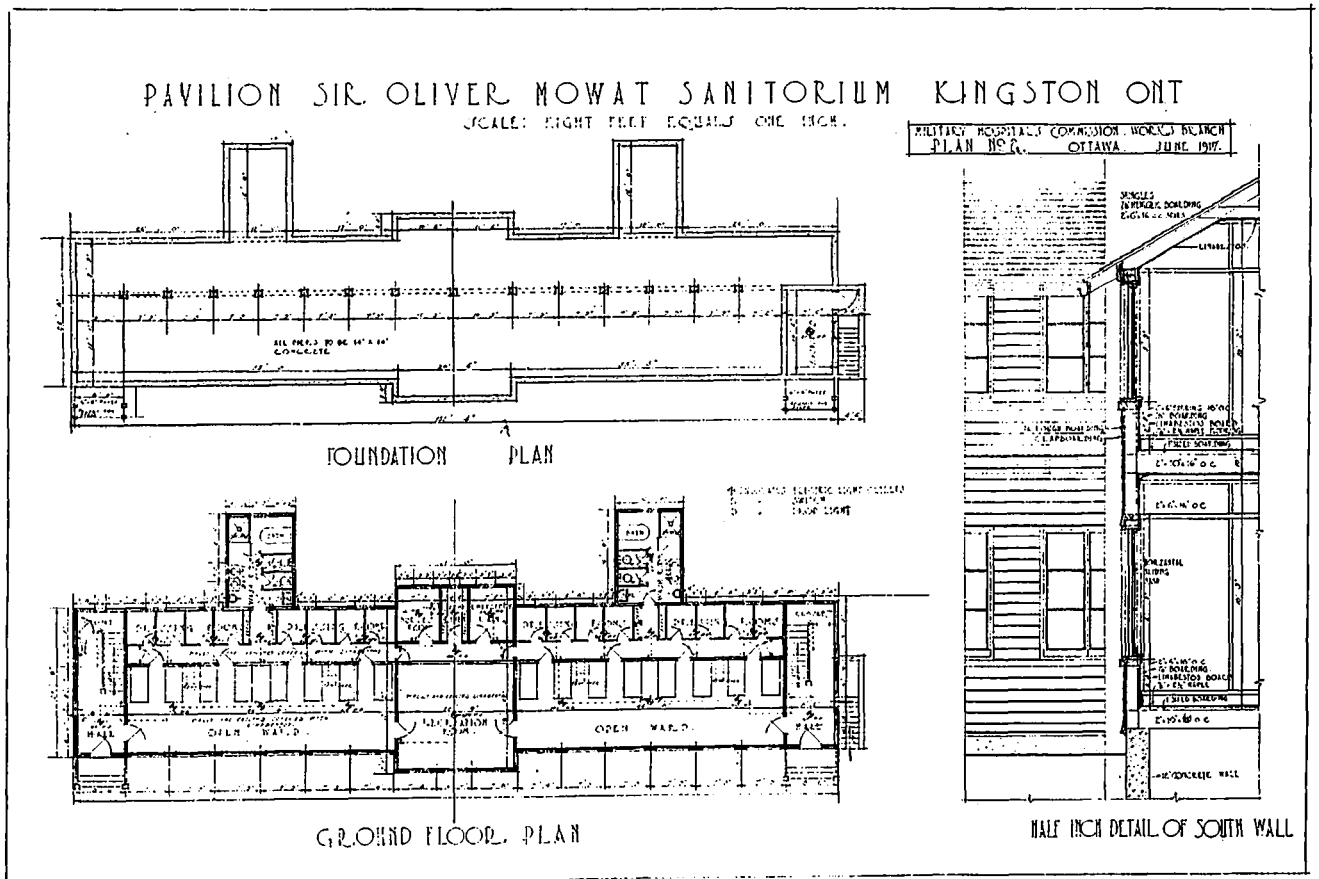
IN THIS CENTRE THE M. H. C. PLANS TO CARE FOR ONE THOUSAND PAVILION AND INFIRMARY CASES. EACH PAVILION CONTAINS FORTY BEDS, AND AS SHOWN IN THE PICTURE THEY ARE ARRANGED IN GROUPS SO THAT A FIVE HUNDRED BED SCHEME CAN BE ERECTED AT FIRST AND THEN DOUBLED.



MOWAT SANATORIUM FOR TUBERCULOUS RETURNED SOLDIERS, A HISTORIC OLD RESIDENCE WITH SUNROOMS ADDED FOR INFIRMARY USE, NEAR KINGSTON, ONTARIO.

From front to back the building is in three sections, the balcony with its reclining chairs for the use of up-patients during the day time, the bedroom with its row of beds and bedside tables, and at the rear the individual dressing rooms, which alone are heated, even in the dead

of winter. Suitable clothing is, of course, supplied to the patients during the zero weather, but the air they breathe must be absolutely fresh. The eight-bed wards are separated from each other by a large recreation room, which in some cases has been built to project to the



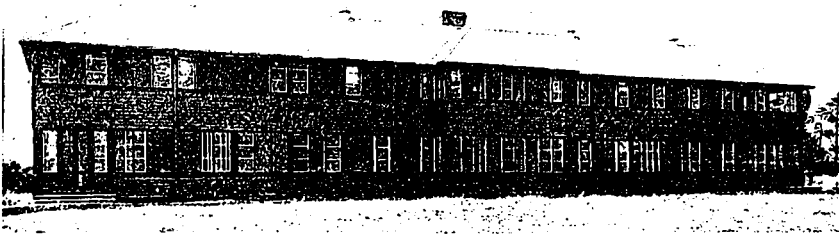
north some distance beyond the rear of the wards, giving the building a squat "T" shape. Lavatories are located in the dressing room strip, accommodation for each eight-bed ward being provided in one central compartment. In each building there is a diet kitchen and a nurses' room to assist in the service of any odd



VOCATIONAL TRAINING ROOM, MOWAT SANATORIUM.

sick patients. Dining-rooms are not put in the pavilions. Sick patients are fed by trays at the bedside, and up-patients walk to a central dining-room.

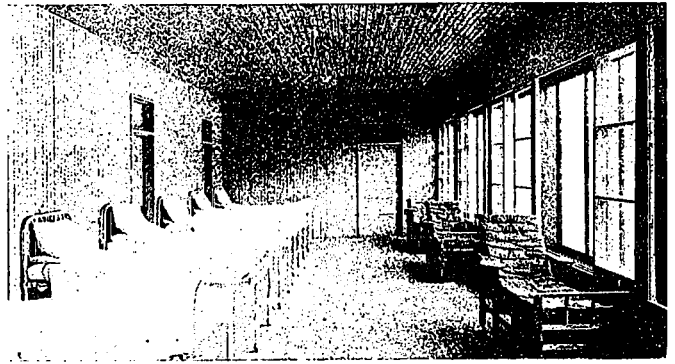
At times it has been impossible to erect thirty-two-bed pavilions as fast as they were needed, and what have been called "junior" pavilions



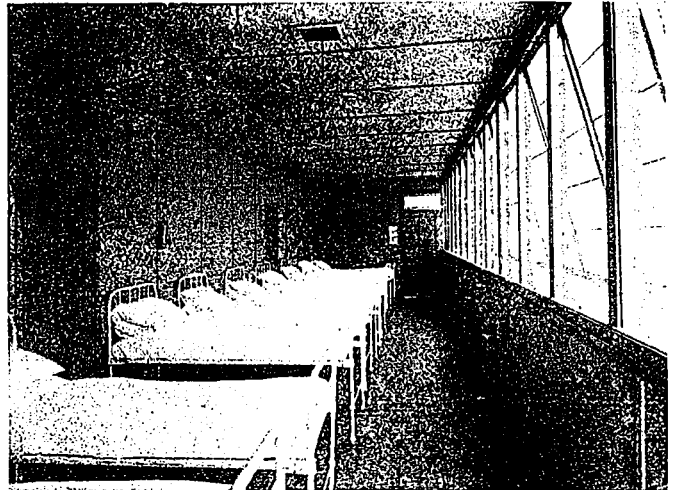
THIRTY-TWO-BED PAVILION AT MOWAT SANATORIUM ERECTED BY M. H. C.

were substituted. These small one-storey structures were simply eight, ten or, as in one case, fifteen-bed wards, planned exactly the same as the wards in a large pavilion. At Byron three of these fifteen-bed pavilions have a separate building, in which all of the lavatory accommodation is placed. Individual hot water heating systems for the pavilion dressing rooms have been used in emergencies, but a central heating plant is being planned at each place.

Structurally all these pavilions, large and small, have employed similar materials to those used in the convalescent homes described



WARD IN ONE OF THE LARGE PAVILIONS AT MOWAT SANATORIUM.



INTERIOR OF WARD IN JUNIOR PAVILION AT MOWAT SANATORIUM.

on another page in this issue.

NEW PAVILIONS WILL LAST.

Something permanent for the country is being done in this tuberculosis treatment. At a conference of specialists on the disease the opinion seemed prevalent that there was no more "t.b." among the soldiers than among the ordinary population. The periodical



BEGINNING CONSTRUCTION OF LARGE NEW PAVILION AT MOWAT SANATORIUM, SHOWING SEVERAL JUNIOR PAVILIONS IN BACKGROUND.



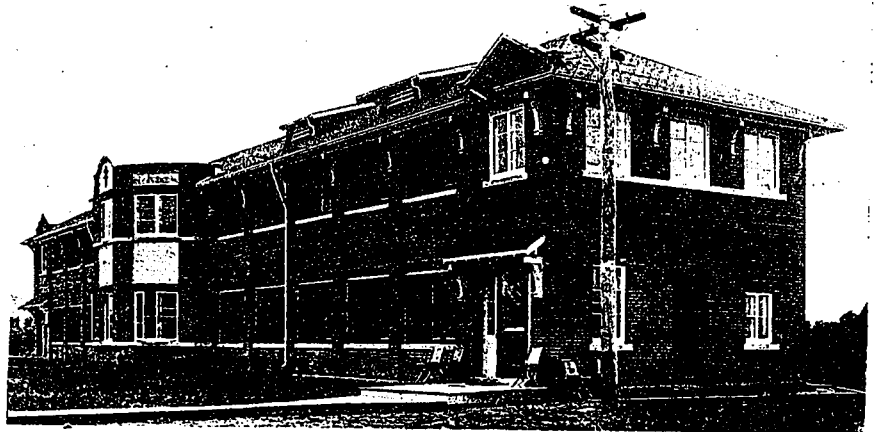
MAIN BUILDING OF MOUNTAIN SANATORIUM, HAMILTON, ERECTED BY HAMILTON HEALTH ASSOCIATION AND TAKEN OVER BY MILITARY HOSPITALS COMMISSION.

medical examinations which all soldiers have to undergo have merely disclosed the disease in greater proportions than can be detected among civilians.

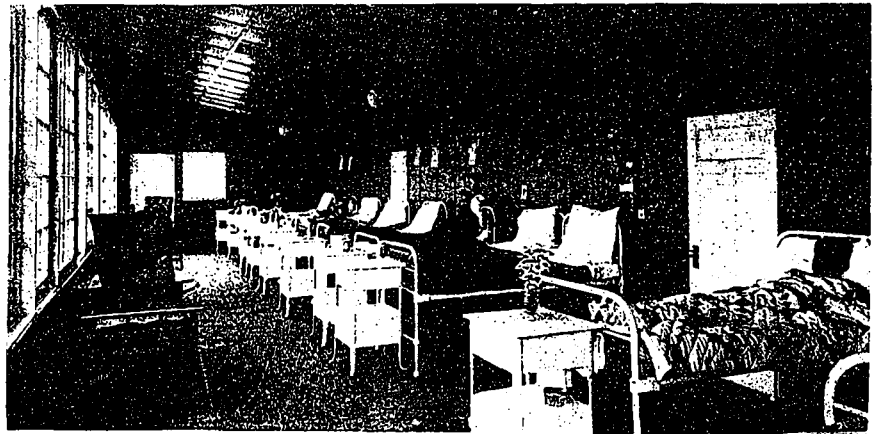
In the army, detection occurs while the disease is in its incipient and easily curable stage, consequently very few cases are not ultimately discharged with the disease arrested, which in ordinary parlance practically means cured.

By the arrangement under which several of the Commission's sanatoria have been constructed they will eventually become the property of the existing institutions, and will be available for the continuance of civilian effort to eliminate the dread disease from the country.

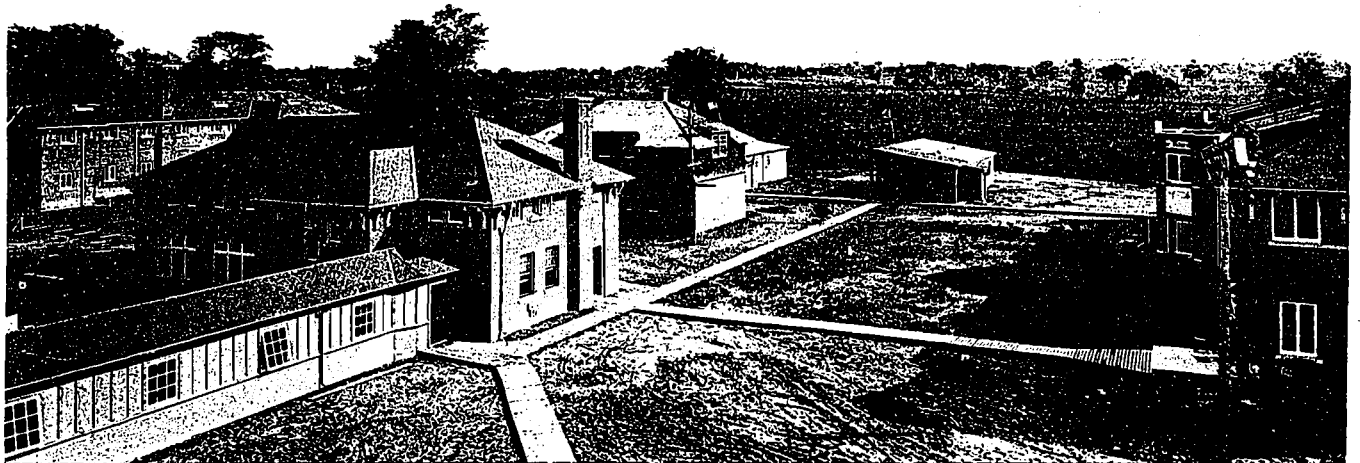
At the present time the Military Hospitals Commission is caring for considerably over a thousand tuberculous soldiers in ideal sanatorium pavilions which have been erected largely by the Commission, which did not exist before the war, and which are, therefore, a permanent addi-



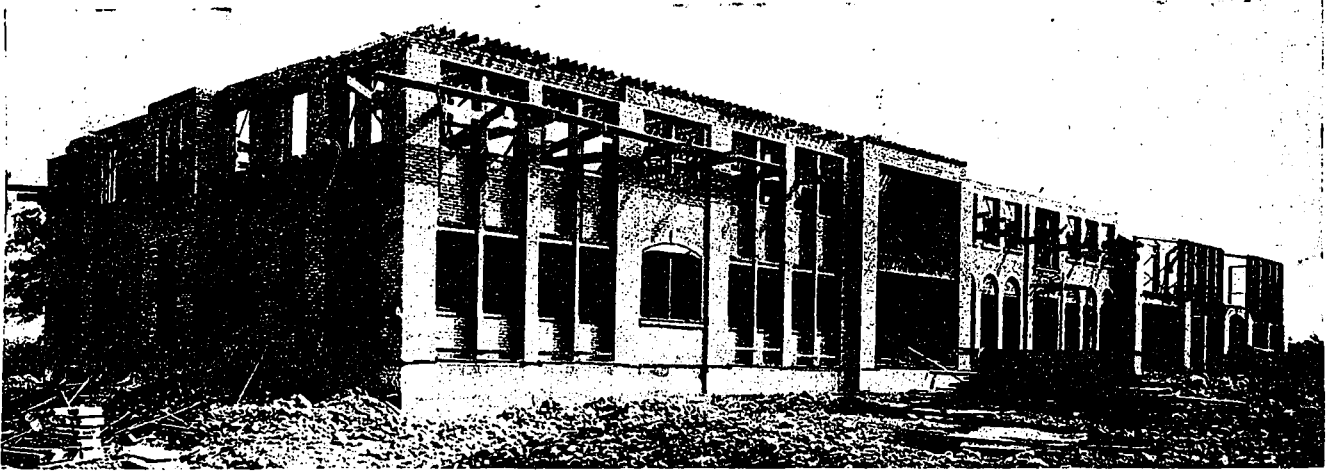
ONE OF THE NEW PAVILIONS ERECTED AT THE MOUNTAIN SANATORIUM, HAMILTON.



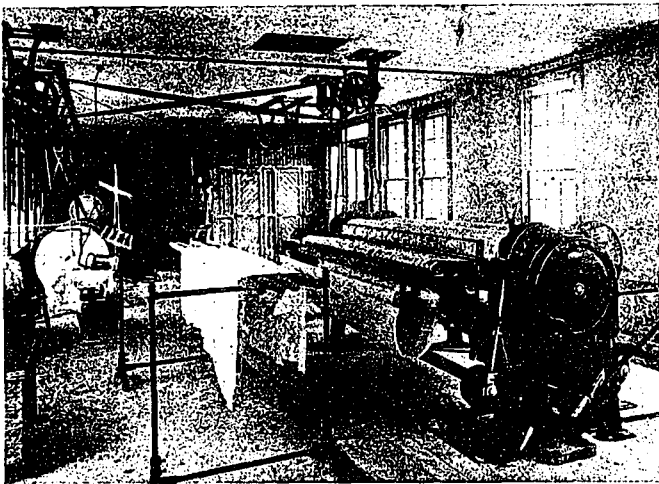
INTERIOR OF ONE OF THE WARDS AT THE MOUNTAIN SANATORIUM.



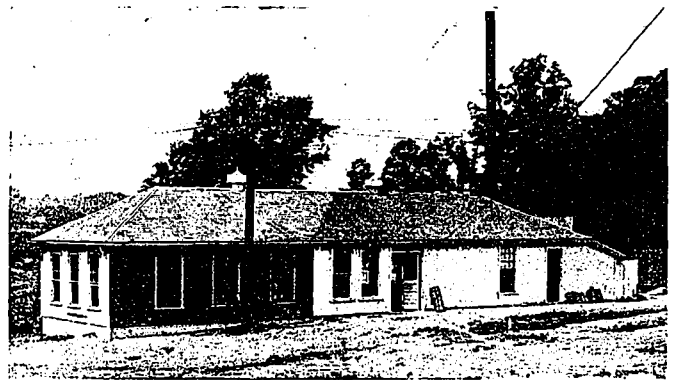
BIRD'S EYE VIEW OF NEW BUILDINGS ERECTED AT MOUNTAIN SANATORIUM. DINING HALL AND SERVICE BUILDINGS IN CENTRE, AND NEW PAVILION ON EACH SIDE.



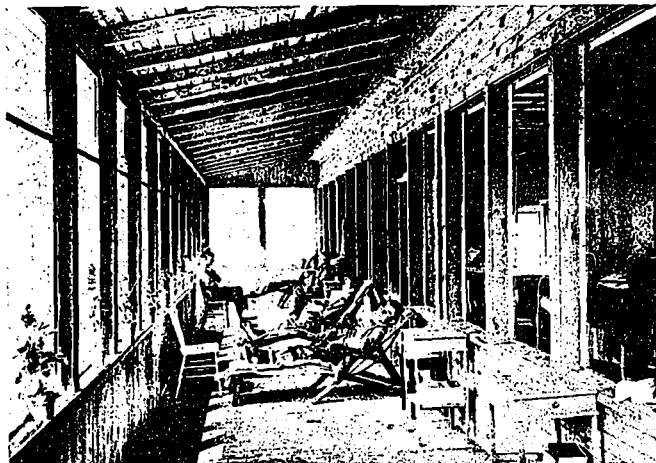
NEW BRICK INFIRMARY BEING ERECTED AT BYRON, NEAR LONDON, BY MILITARY HOSPITALS COMMISSION AND LONDON HEALTH ASSOCIATION.



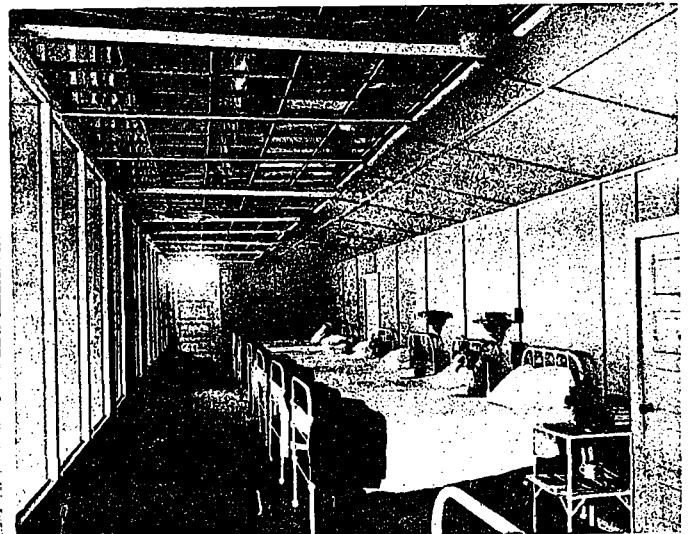
INTERIOR OF LAUNDRY AT BYRON SANATORIUM.



LAUNDRY BUILDING (SHOWING NEW ADDITION) AT BYRON.



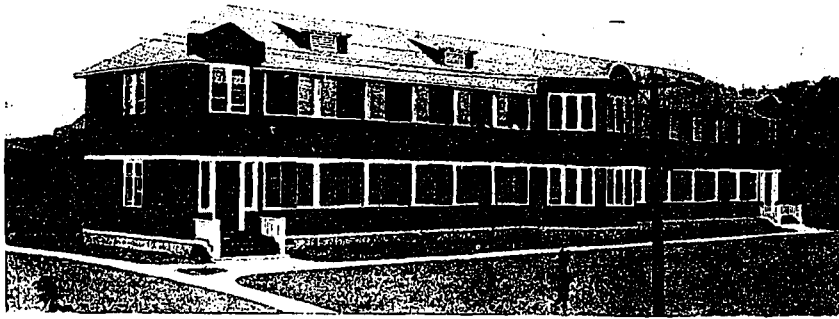
PORCH IN SMALL PAVILION, BUILT BY M. H. C. AT BYRON.



WARD IN JUNIOR PAVILION AT BYRON SANATORIUM.



JUNIOR PAVILION ERECTED AT BYRON SANATORIUM BY MILITARY HOSPITALS COMMISSION.



THIRTY-TWO-BED PAVILION AT KENTVILLE SANATORIUM.

tion to the nation's anti-tuberculosis munitions.

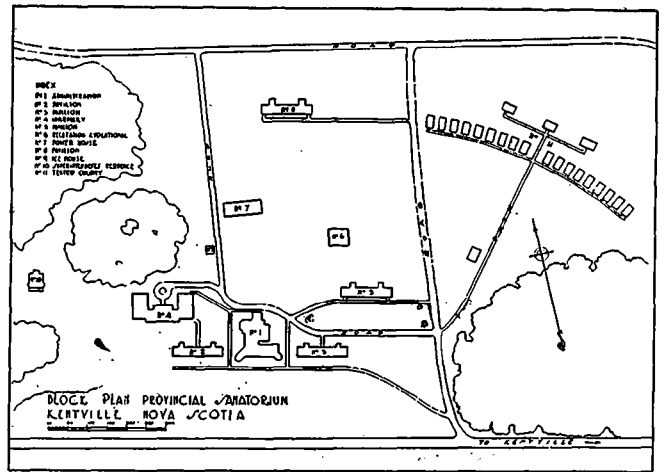
In one or two cases, as at the Queen Alexandra Sanatorium, Byron, near London, Ontario, the local board has not been content to add to its plant so temporary a structure as is sufficient for the needs of the Commission. Accordingly funds have been raised in other ways to make up the difference between frame and brick construction, the Commission putting in an amount which experience elsewhere has shown would meet its requirements. By this it should not be understood that the Commission's pavilions will last for only four or five years. In most sanatoria, Military Hospitals Commission construction is just as substantial as the previously existing buildings.

LARGE CENTRE IS PLANNED.

On another page is published a representation of a one thousand-bed sanatorium, such as the Commission contemplates building in the near future. No site has been selected, but considerations of economy in administration have led to a decision to centralize this work. Two

five hundred-bed groups of pavilions, almost exactly the same as existing pavilions erected by the Military Hospitals Commission, are contemplated, the chief variation being that the wards will contain ten instead of eight beds, giving the pavilion accommodation for forty instead of thirty-two patients. Centrally located, so as to be convenient to each group, is a small service building, containing dispensary and other requisites of the medical and nursing staff.

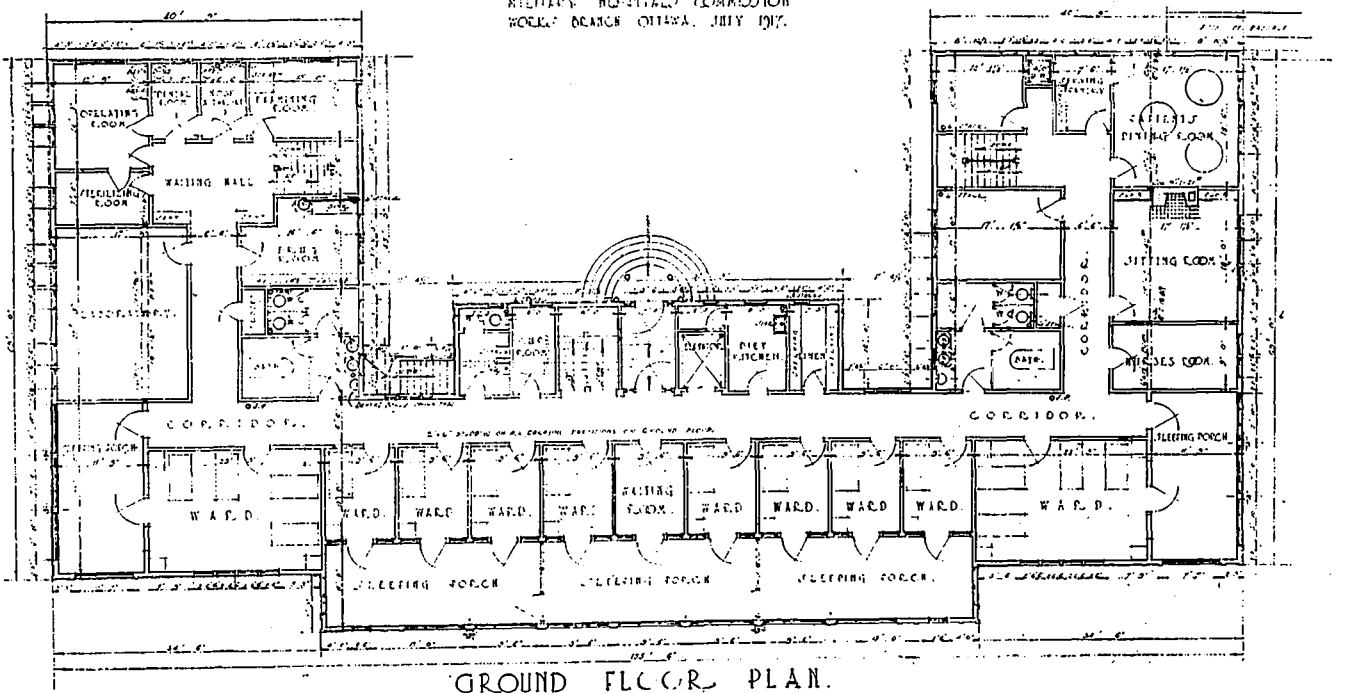
The administration building is located between the two groups, and north of it will be the dining and kitchen building. A large infirmary



building for each group, with accommodation for perhaps one hundred beds, is shown at the rear of the dining-room. It will provide for

INFIRMARY BUILDING PROVINCIAL SANATORIUM KENTVILLE, N.S.

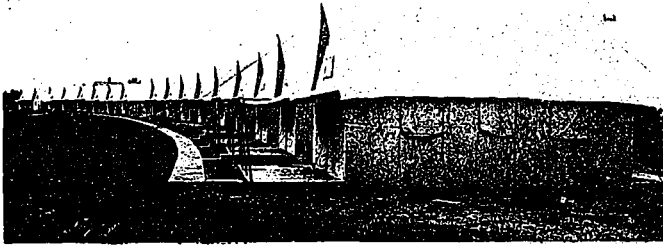
MILITARY HOSPITALS COMMISSION
WORKS DEPARTMENT OTTAWA, JULY 1917.



the treatment of the more serious cases. Recreation buildings, vocational training shops, power plant, officers' and nurses' residences, orderlies' quarters, etc., are provided, arranged in separate buildings. Owing to the nature of the institution there is a lodge at the gate.

Only one group of five hundred beds will be built at first, it is anticipated, but the intention is ultimately to have a centre of twice that size.

A peculiarity of this group is its orientation. As at Whitby, symmetry is abandoned to a certain extent in order that all wards may face southeast. The infirmary, it will be noticed, contains a central administration block connected by corridors, one running east and the other west, to two well-lighted ward buildings, each facing in the same direction.



TENT COLONY AT KENTVILLE SANATORIUM, TENTS HAVE WINDOWS, LAVATORIES AND RUNNING WATER.

THE KENTVILLE TENT COLONY.

Emergencies arise even in well ordered communities. A nation at war can hardly be called a well ordered community, so that it is only natural that emergencies should occur more often than usual in Canada just now. Recently the Military Hospitals Commission was faced with a "real live" one, and one that had to be met in an exceedingly limited time. Sudden warning was received that within a few numbered days a hospital ship would discharge at Halifax many more tuberculous patients than the Commission was expecting, and than it could under existing circumstances accommodate in suitable sanatoria. The steps taken to meet this situation form one of the most



TUBERCULOSIS WARD AT DISCHARGE DEPOT, QUEBEC.

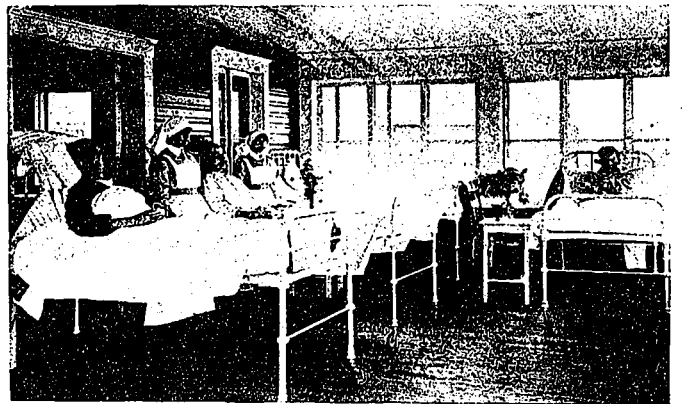


TAKING THE CURE AT KENTVILLE SANATORIUM.

interesting chapters of the Commission's experiences.

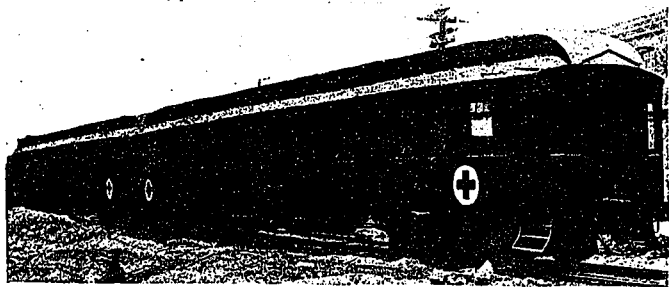
Complete housing for one hundred and sixty tuberculosis patients was provided in eighteen days at Kentville Sanatorium. The use of canvas was necessary, but full toilet, ablution and recreation services, together with housing for nurses, doctors and orderlies, was provided. Eating accommodation was available at the central dining-room of the sanatoria.

The place selected for the colony was peculiarly suited to the proper arrangement of the tents from the standpoint of orientation, ap-



SUN BALCONY, LAURENTIAN SANATOIRIUM, FOR TUBERCULOUS RETURNED SOLDIERS, STE. AGATHE, QUE.

pearance; drainage and supervision. At the rear of the sanatorium grounds there is a flat plateau like a piece of sod. About fifty feet above the general elevation a portion of this at the northeast corner curves around in a perfect crescent, while in front, but at the lower elevation, so as not to obstruct the view, is a clump of pines. The tents were laid out on a thirty-foot centre and on a six degree curve, which exactly suited the crescent shape of the brow of the hill. A radial line was struck in the middle of the arc. On this line at the rear was located the ablution tent. On the low level, and on either side of this same axis, were placed the nurses' and orderlies' tents. The patients' tents were sixteen by twenty-four feet in size, with seven-foot walls. The tents were erected

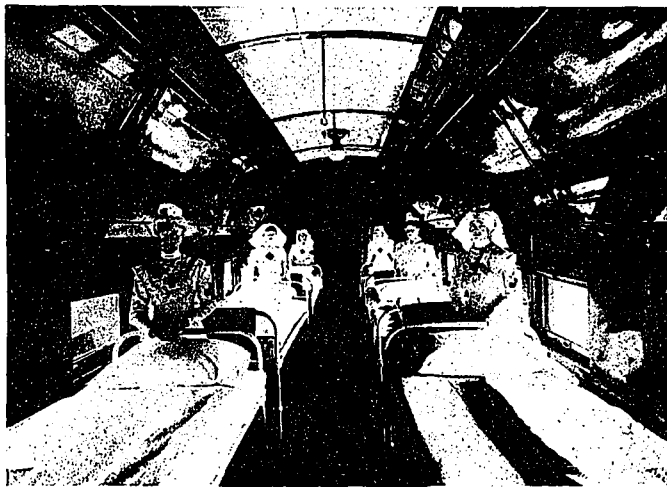


CANADIAN HOSPITAL TRAIN OF TWO CARS.

on two by four framing, and stretched rigidly over it. Each tent was provided with a ply, and had two ventilators in the top, with weather flaps. There were also two weather flaps at the ends, and eight windows, four in each side, each provided with weather flaps and draw blinds. The walls were lined with ten-ounce duck. It was contemplated to use windows in the openings, but this was decided as unnecessary. Each tent has a seven-foot flap at each end, which is raised on poles to form a sunshade. The tents were floored with rough boards on joist, tar paper, etc. No. 2 maple was used. The floors extended seven feet at each end to form verandahs under the flaps.

The ablution tent was constructed similarly, and was provided with lavatories, water closets,

showers and tooth basins to accommodate one hundred and sixty men. The sewer was connected four hundred and fifty feet away to the sanatorium sewer. The recreation tent had no structural peculiarities different from the others. The nurses' tent had separate toilet and ablution conveniences, including six separate cubicles, and a sitting room. Accommodation for two doctors was provided in one tent



INTERIOR OF C. P. R. HOSPITAL CAR.

similar to the nurses'. The orderlies' tent was also similar to the nurses', except that it had no separate cubicles.

This complete little sanatorium ideally suited for the treatment of the disease, was completely ready for occupation by one hundred and sixty men in eighteen days.

NEW LICENSING LAW OF IDAHO

In an opinion rendered by the Attorney-General's office of Idaho it is held that under the law regulating the practice of architecture which was passed by the last Legislature no distinction can be made between architects whose offices are in another State and those whose offices are in Idaho, so long as they practise their profession in this State.

It is further held that any architect who was engaged in the practice of his calling at the time of the passage of the act is entitled to a license without examination, irrespective of where his offices may be maintained.

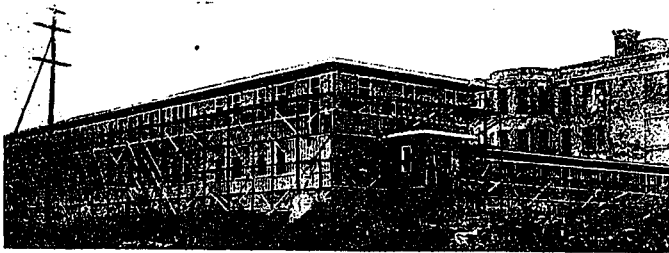
The construction of the law is said to be contrary to the intentions of the Idaho Association of Architects, which was instrumental in having it enacted.



CONFERENCE OF EASTERN CANADIAN TUBERCULOSIS SPECIALISTS TREATING MILITARY HOSPITALS COMMISSION PATIENTS, HELD AT OTTAWA ON JUNE 18TH AND 19TH.

Front Row—Major J. T. Todd, Pensions Board; Senator J. S. McLennan, member M.H.C.; Dr. F. J. Shephard, ex-Dean of Medicine, McGill, member M.H.C., who presided at Conference; Senator Sir James Loughheed, P.C., K.C.M.G., President M.H.C.; Lt.-Colonel A. Thompson, M.P., Medical Superintendent M.H.C.; Sir James Grant, M.D.
 Second Row—Captain Ed. Ryan, M.O. "D" Unit, M.H.C.C.; Dr. J. H. Holbrook, Medical Superintendent Mountain Sanatorium, Hamilton; Dr. L. H. Farris, Medical Superintendent St. John's County Hospital for Tuberculosis; Dr. C. D. Parfitt, Medical Superintendent Calydor Sanatorium, Gravenhurst; Lt. A. F. Miller, M.O., Kentville Sanatorium; Dr. P. H. Bryce, Chief M.O. Department of Interior; Captain J. D. Byers, M.O., Laurentide Inn M.H.C., Laurentian Sanatorium, Ste. Agathe, P.Q.; Captain D. A. Craig, M.O., Byron Sanatorium, London.
 Half Row Beginning in Centre—Lt.-Colonel J. J. Sharples, C.O., M.H.C.C.; Lt. J. A. Couillard, M.O., Lake Edward Sanatorium, P.Q.; Dr. W. M. Garrison, Dalton Sanatorium, P.E.I.; Captain S. E. Thompson, M.O., Mowat Sanatorium, Kingston.
 Next Row—T. B. Kidner, Vocational Secretary, M.H.C.; E. H. Scammell, Secretary, M.H.C.; Captain G. D. Porter, Secretary, Canadian Association for the Prevention of Tuberculosis; Dr. A. D. Proctor, Medical Superintendent, Freeport Sanatorium, Kitchener; Dr. J. H. Elliott, Toronto; Dr. D. Townsend, Medical Superintendent, Jordan Sanatorium, River Glade, N.B.; Captain W. Ogden, Medical Officer, Spadina M.H.C., Toronto.
 Back Row—Dr. W. W. Chipman, Assistant Medical Superintendent, M.H.C.; Dr. W. B. Kendall, Medical Superintendent, Muskoka Sanatorium, Gravenhurst; Dr. J. K. M. Gordon, Medical Superintendent, Royal Ottawa Sanatorium; W. A. Charlton, Toronto; W. F. Moore, Staff, M.H.C.

The finished walls of the interior of the building usually consist of a patent boarding, the merits of which are the ease and rapidity of application together with the desirable decorative possibilities and sanitary finish. Those which have been mostly used are gypsofiber board, linabestos board, and in some instances, beaver board. To the exterior sheeting of the building is applied one ply of heavy builders' paper which is, in turn, strapped with one-half by two inch furring, to which is then directly

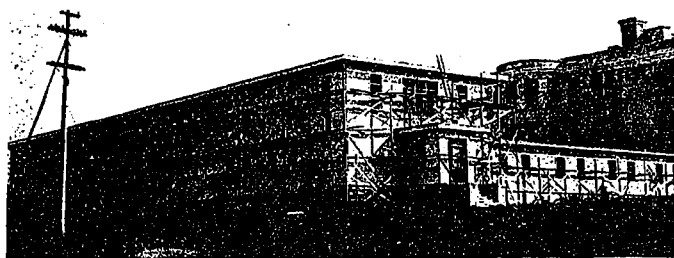


JULY 4—EAST WING WITH ROOF COMPLETED.

applied wire laths. The whole is then plastered with two coats of cement stucco. In some of our more temporary buildings, Bishopric lath board and gypsofiber board, have been substituted for the wire lathing. In such cases, where the above materials have been substituted for wire lathing, the skirting below the water table has been composed of vertical sheeting.

The flooring of the building is composed of, as heretofore stated, one ply of rough boarding. To this is then applied one ply of No. 1 maple, placed upon one ply of heavy builders' paper.

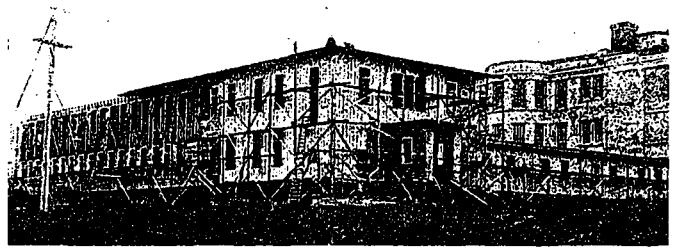
The tops of ceiling joists are always rough



JULY 18—STUCCO WORK ALMOST COMPLETED.

boarded in order to better insulate the air space between joists and roof against heat and cold. The whole of the roof rafters are covered with one ply of seven-eighths inch T. & G. boarding. To this is then applied a good three ply ready roofing.

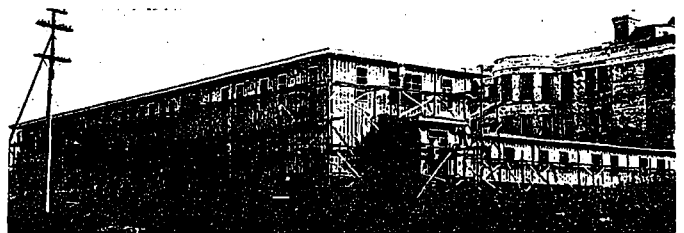
Only one convalescent home has been erected with a view to permanency. This was Camp Hill Convalescent Hospital, Halifax. In this instance the foundation consisted of a sixteen inch concrete wall in the entire building, and concrete foundation piers were substituted for



JUNE 28—EAST WING OF GUELPH M. C. HOSPITAL.

wooden posts. From this up, the sill and post construction was still used. The interior of this building was boarded with T. & G. boarding, counter lathed and plastered on the inside with paper underneath counter laths, and the exterior was wire lathed and plastered. With a view to the semi-permanency of these buildings the foundations were left one brick wide outside of the main walls in order that the buildings could at any time be veneered with brick.

Some buildings which we now contemplate to be permanent will be constructed of concrete foundations, steel beams, wooden floor joists, steel columns, hollow tile walls with either



JULY 11—EXTERIOR CARPENTRY WORK NEARLY DONE.

stucco or brick veneer finish and plastered with two coat work on the inside. All buildings proposed to be permanent or semi-permanent are roofed with at least a three ply Barrett specification tar and gravel roof.

The foregoing will give a general idea of the M.H.C. constructional methods, all confusing details having been omitted.

A text book on warm air heating has been issued by the National Warm Air Heating and Ventilating Association, Columbia Building, Columbus, Ohio. It describes rules for installations, covering the questions of pipe diameters, register sizes, risers, wall pipe and fittings,



JULY 25—EXTERIOR COMPLETED AND SCAFFOLDING DOWN.

SPEED OF CONSTRUCTION ILLUSTRATED.—On this page are five views showing the result of four weeks' work on the east wing of the Guelph Military Convalescent Hospital, demonstrating the speed with which the contractors, Peter Lyall & Sons, were able to carry out this work as planned by the architect for the Military Hospitals Commission. It is all the more creditable when it is realized that coincident with this work, a west wing, similar in size and design, was being erected with equal speed.

CONSTRUCTION

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ENGINEERING AND CONTRACTING
INTERESTS OF CANADA



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CONTRIBUTIONS.—The Editor will be glad to consider contributions dealing with matters of general interest to the readers of this Journal. When payment is desired, this fact should be stated. We are always glad to receive the loan of photographs and plans of interesting Canadian work. The originals will be carefully preserved and returned.

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WESTON WRIGLEY - Editorial and Business Manager

Vol. X Toronto, September, 1917 No. 9

Royal Architectural Institute Convention

Every Canadian architect who can arrange to do so should attend the tenth annual convention of the Royal Architectural Institute of Canada, to be held at Ottawa on October 1 and 2 next.

The programme for the convention will include matters of interest to all architects, and the invitation to attend is given to every one in the Canadian profession by Mr. Alcide Chausse, honorary secretary, Montreal.

Ottawa is always an interesting city to visit, and in view of the reconstruction of the Parliament Buildings has particular interest at this time.

Sudden Death of Ottawa Architect

Mr. J. W. H. Watts, R.C.A. and F.R.A.I.S., one of Ottawa's well known architects, passed away very suddenly on Sunday, August 26, in the sixty-fifth year of his age. About three months ago he had an attack of heart trouble, but rallied and was in fairly good health till half an hour before his death.

Mr. Watts was born in England, where he studied his profession, removing to Ottawa about forty years ago. At one time he was head architect under Chief Architect Thomas Fuller, of the Public Works Department.

Mr. Watts was honorary treasurer of the Royal Architectural Institute of Canada since its foundation ten years ago.

Legitimate Claim For Extras

War conditions have been responsible for a heavy increase in the cost of construction work, an example of this being the recently completed Bloor street viaduct at Toronto, the cost of erection being about \$2,500,000.

The contract was signed on December 24, 1914, at a time when thousands of workmen were out of employment, and relief works were being undertaken to provide employment. Wages and material were at a low standard, and the tenders were based on these conditions.

The work was to be completed in three years, but the contractors finished the work several months in advance of the contract time.

Owing to the higher cost of labor and material, the imposition of war taxes, etc., the contractors have lost large sums on their contracts, and the question has been raised of the claim they have on the city for an extra allowance covering this sum.

The same subject has arisen in connection with the work undertaken by the contractors for the new subway in New York City, and legislation is now being considered by the New York State Legislature enabling the payment of supplementary amounts covering losses incurred owing to unforeseen causes, such as the in-



THE LATE MR. J. W. H. WATTS, OTTAWA, HON. TREASURER, ROYAL ARCHITECTURAL INSTITUTE OF CANADA FOR THE PAST TEN YEARS.

creased cost of labor and material, due to war conditions.

The causes for the higher construction cost of the Bloor street viaduct are easily understood, and the allowance by the city of Toronto of the claim for a supplementary payment, covering the advances in labor and material, would be justified by all who realize the changed conditions existing to-day from those prevailing in Canada during the months immediately following the entry of Canada into the world war.

Canada's Military Hospital Problem

CONSTRUCTION devotes the whole of this issue to a description of the work accomplished by the works branch of the Military Hospitals Commission of Canada, this being of particular interest to readers of this paper, because of the architectural and structural problems met and solved, and also because the construction of hospitals is one of the most active branches of building work in Canada to-day.

When the call came for Canada to supply accommodation for her wounded soldiers from overseas the problem was met by the appointment of a number of public-spirited citizens to act as a commission to supervise this work, and they were fortunate in being able to secure as director the services of Mr. S. A. Armstrong, who had been in charge of the construction of the Ontario Hospital for the Insane at Whitby and the Ontario Reformatory at Guelph. Equal-



MR. S. A. ARMSTRONG, DIRECTOR MILITARY HOSPITALS COMMISSION. Formerly Assistant Provincial Secretary of Ontario, in which capacity the organization and construction of the large institutions at Whitby and Guelph came under his direction.

ly fortunate was the selection of Capt. W. L. Symons, formerly of Symons & Rae, Toronto, as architect for the commission.

The immediate need for hospital accommodation made it necessary to secure a number of colleges, and similar buildings, and remodel them to provide quick accommodation, but as soon as these had been provided for, the architect and his staff devoted every energy to preparing plans for properly designed hospitals on suitable sites scattered throughout the Dominion. How well this has been done, and in such a brief period of time, will be appreciated by those who review the progress of the commission's building activities since last New Year's, as outlined in the reading pages, and study the plans shown for the proposed six hundred-bed Military Convalescent Home, and the equally large Tuberculosis Sanatorium, the construction of which, it is expected, will begin during the coming month.

The problems confronting the staff of the Military Hospitals Commission have been complex, but they have been met one by one, and accommodation has been provided for all of the wounded forwarded to Canada for convalescence. The erection of large hospital units, and the completion of plans for vocational and reconstructive work, are the matters engaging immediate attention, and in future issues the execution of these plans will be reviewed in these pages.



CAPT. W. L. SYMONS, C.E., OFFICER IN CHARGE OF WORKS, MILITARY HOSPITALS COMMISSION. Formerly of Symons & Rae, Architects, Toronto.

Canadian Building and Construction News

New Structures to be Erected—Contracts Awarded for Large Works—Trade Literature Issued—Other Items of Interest

BUSINESS BUILDINGS.

London, Ont.—The Utilities Board of the Hydro Electric Company are erecting an office building to cost \$100,000, and their architect, L. A. Carruthers, Bank of Toronto Building, has awarded the following contracts: General, S. Wills, 765 Talbot street; mason and concrete, John Putherbough, 1007 Wellington street; plumbing, Noble & Rich, 237 Queen's avenue; pressed brick, Inter-provincial Brick Company, Limited, Toronto.

Ottawa, Ont.—Architects Millson & Burgess, Union Bank Building, are preparing plans for an office building to be built on Sparks street, to cost \$60,000.

Penetang, Ont.—J. B. Jennings, Penetang, Ont., contemplates the erection of an office building. Chas. P. Band, 95 Woodlawn avenue, Toronto, is the architect.

Welland, Ont.—The Electro Metals Company, Limited, are erecting an office building, to cost \$13,000, and their architect, T. L. Nichols, Main street, has awarded the general contract to W. J. Hickey, 91 Main street east, and the plumbing contract to Chas. R. Hagan, 125 Dorothy street.

CLUBS, HOSPITALS, THEATRES AND HOTELS.

Galt, Ont.—The Iroquois Hotel Company contemplates the erection of an addition to their hotel, to cost \$40,000.

Hamilton, Ont.—The Military Hospitals Commission are making alterations to the Brant House, and their architect, Captain Symons, 22 Victoria street, Ottawa, has awarded the following contracts: General contractor, Geo. Frid Co., Bank of Hamilton Building; electric wiring, Electric Supply Co., 85 James street south; plumbing, A. Rodgers, 752 King street east.

London, Ont.—The London Health Association, London, are erecting a women's pavilion to the Byron Sanitarium, to cost \$10,000, and their architects, Watt & Blackwell, Bank of Toronto Building, have awarded the general contract to R. G. Wilson, 193 College street.

Petrolia, Ont.—The erection of the maternity hospital for the Charlotte Eleanor Englehart Hospital has been postponed until next spring. J. M. Moore, 418 Richmond street, London, is their architect.

Renfrew, Ont.—The Renfrew Hotel Company are excavating for an addition to their hotel to cost \$30,000, and their architect, W. E. Noffke, Central Chambers, Ottawa, has awarded the general contract to M. J. O'Brien, Renfrew, Ont.

Toronto, Ont.—The Military Hospitals Commission contemplates the erection of a tubercular hospital near Toronto.

SCHOOLS, ETC.

Brampton, Ont.—The Brampton High School Board are erecting a High School to cost \$50,000, and their architects, Wickson & Gregg, Kent Building, Toronto, have awarded the general contract to M. C. Sackrider, Brampton.

Ottawa, Ont.—The Blessed Sacrament Church is erecting a presbytery to cost \$10,000, and their architects, Millson & Burgess, Union Bank Building, have awarded the following contracts: mason, Jas. Moore, Springfield avenue; carpenter, J. Meagher, 87 Hinton avenue; heating and plumbing, W. G. Edge, Booth Building; sheet metal and roofing, McFarlane-Douglas Co., Ltd., 250 Slater street; painting and glazing, Geo. Higman & Sons, 176 Rideau street; plastering, McLaughlin & Co., 649 Gilmour street.

Kingston, Ont.—The Royal Military College contemplates the erection of an addition to their dormitory building.

Toronto, Ont.—The Central Presbyterian Church, Grosvenor and St. Vincent streets, contemplates the erection of a church in the Moore Park district to cost \$75,000. The Beech Avenue Methodist Church are making additions and alterations to their church at the cost of \$6,000, and their architect, H. J. Chown, 220 Scarboro road, has awarded the general contract to George Gayton, 56 Lyall avenue.

Windsor, Ont.—Architect A. H. McPhail, Board of Trade Building, is preparing plans for a Sunday school building for the St. Andrew's Presbyterian Church, to cost \$15,000. The Board of Education of the city of Windsor contemplates the erection of a school.

CONTRACTORS and SUB-CONTRACTORS

As Supplied by The Architects of Buildings
Featured in This Issue

Pier Two, Military Hospital, Halifax.

Fire Extinguishers, Northern Electric Company, Limited.
Flooring, Seaman, Kent & Co.
Hardware, Lawrence Hardware Co. and Stairs Son & Morrow.
Kitchen Equipment, Wrought Iron Range Co., Gurney Foundry Co., and G. F. Blakeslee & Co.
Kitchen Ranges, Hamilton Stove and Heater Company.
Paints and Varnishes, R. C. Jamieson & Co.
Plumbing Fixtures, Standard Sanitary Mfg. Co., Ltd.
Wallboard, Beaver Board Company.
General Contractor, Brookfields, Limited.

Camp Hill Military Hospital, Halifax.

Boilers, Jenckes Machine Co., Ltd., and E. Leonard & Son.
Floor Hardener, Master Builders' Company, Ltd.
Flooring, Rhodes Curry Co. and Seaman, Kent & Co.
Heaters, Sims Tank Heater Co.

Metal Lath, Pedlar People, Ltd.
Plumbing Fixtures, Point Hope Sanitary Mfg. Co., Ltd., and James Robertson Co., Ltd.
Radiators, Gurney Foundry Co.
Roofing, Paterson Manufacturing Co. and Farquhar Bros.
Traps, C. A. Dunham Co., Ltd.
Wallboard, Sackett's and King's Plaster Board.
General Contractor, S. M. Brookfields, Ltd.

Kentville Sanitarium Military Hospital, Nova Scotia.

Doors, A. W. Allen & Son, Middleton.
Electric Fixtures, Northern Electric Co.
Fire Extinguishers, LaFrance Fire Extinguisher Co.
Flooring, Rhodes, Curry & Co.
Furniture, Nova Scotia Furnishing Co.
Hardware, W. W. Rockwell.
Kitchen Ranges, McChary Mfg. Co., and Geo. R. Prowse.
Laundry Machinery, American Laundry Machinery Co.
Mattresses, Parkhill Mfg. Co.
Paints and Varnishes, Berry Bros.
Wallboard, Beaver Board Company.
General Contractor, C. H. Wright.

St. John Armouries Military Hospital, St. John, N.B.

Elevators, Otis-Fensom Elevator Co.
Heaters, Sims Tank Heater Company.
Plumbing Fixtures, Standard Sanitary Mfg. Co.
General Contractors, Drury & Sons.

Discharge Depot Military Hospital, Quebec.

Brick, Chadel Brick Co.
Electric Lighting, Quebec Electric Co.
Elevators, Otis-Fensom Elevator Co., Ltd.
Kitchen Equipment, Wrought Iron Range Co., Ltd., and Geo. R. Prowse Co., Ltd.
Paints, Martin Senour Co., Ltd.
Painting, Leonard & Sons.
Plumbing Fixtures, James Robertson Co., Ltd.
Plumbers, John Walker, Quebec.
Refrigeration Equipment, John Hillock Co.
Sterilizers, American Sterilizer Co., Ltd.
Telephone Equipment, Bell Telephone Co., Ltd.
Wallboard, Fibre Board Co., and Bishopric Wallboard Co., Ltd.
General Contractors, L. H. Peters, Ltd., Quebec.

Drummond Military Convalescent Hospital, Montreal.

Brick, Laprairie Brick Co.
Boilers, Warden King Co. and H. E. Plant Co.
Doors, R. MacFarlane & Co., Ltd.
Electric Fixtures, Northern Electric Co., Ltd.
Fire Escapes, Fred MacKay Co.
Flooring, Seaman, Kent Co., Ltd.
Glass, Pilkington Bros., Ltd.
Hardware, Jas. Walker Hardware Co., Ltd.
Inter-phones, Northern Electric Co., Ltd.
Kitchen Equipment, Gurney-Massey Co., Ltd.
Linoleum, Goodwins, Ltd.
Paints, McArthur-Irwin, Ltd.
Plumbing Fixtures, The J. L. Mott Co., Ltd., and Jas. Robertson Co., Ltd.
Plumbing and Heating Contractor, Thos. O'Connell.
Radiators, Taylor-Forbes Co., Ltd.
Screens, Major Manufacturing Co., Ltd.
Stone, John Quinlan & Co., Ltd.
Wire Lath, Pedlar People, Ltd.
General Contractors, W. M. Irving Co.

Grant Hall Military Convalescent Hospital.

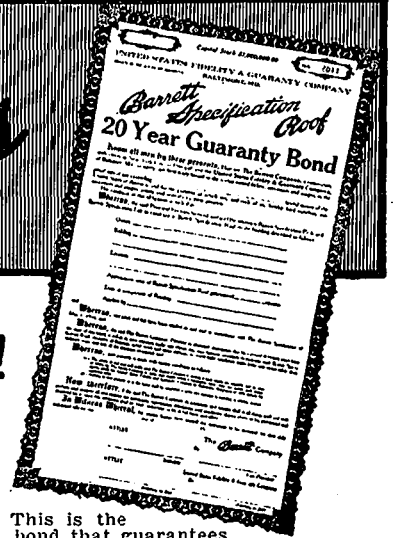
Beds, Parkhill Mfg. Co.
Doors, Anglin & Co.
Electric Fixtures, Newman Electric Co.
Elevators, Otis-Fensom Elevator Co., Ltd.
Fire Extinguishers, R. S. Bickle.
Flooring, Anglin & Co.
Furniture, Knetchel Furniture Co., Ltd.
Kitchen Equipment, Gurney-Massey Co.
Kitchen Ranges, Hamilton Stove and Heater Co., Ltd.
Mattresses, Parkhill Mfg. Co.
Office Furniture, Knetchel Mfg. Co., Ltd.
Plumbing Fixtures, J. Robertson Co., Ltd.
Refrigeration Equipment, Eureka Refrigerator Co., Ltd.
Sterilizers, Ingram & Bell.
Screens, Anglin & Co.
Wallboard, Beaver Board Co., Ltd.

Mowat Sanatorium Military Hospital.

Beds, Parkhill Mfg. Co., Ltd.
Casements, Anglin & Co., Ltd.
Flooring, Anglin & Co., Ltd.
Furniture, Knetchel Furniture Co., Ltd.
Kitchen Equipment, Gurney-Massey Co.
Mattresses, Parkhill Mfg. Co.
Office Furniture, Knetchel Furniture Co., Ltd.
Radiators, Steel and Radiation, Ltd.
Refrigeration Equipment, Eureka Refrigerator Co.
Surgical Apparatus, Ingram & Bell.
Sterilizers, American Sterilizer Co.
X-ray Machines, Victor Electric Corporation.
General Contractors, J. M. Litton.

Whitby Amusement Hall, Military Hospital.

Brick, Provincial Government.
Flooring, Mickle, Dymont & Son.
Heaters, Ontario Reformatory, Guelph.
Structural Iron, McGregor & McIntyre.
Tile (structural), Provincial Government.
Roofing, Brantford Roofing Co.



This is the bond that guarantees your roof for twenty years.

Twenty Years' Service Guaranteed!

It is not an unusual occurrence to go into an enterprising Canadian city and find that most of the important buildings are covered with Barrett Specification Roofs.

And the popularity of Barrett Specification Roofs is not to be wondered at when you consider the following features:

First: Lowest unit cost per year of service.

Second: Freedom from maintenance expense.

Third: Take the base rate of fire insurance.

Fourth: And most important, we now guarantee these roofs for twenty years under the following conditions:

How to Secure the 20-Year Guaranty Bond

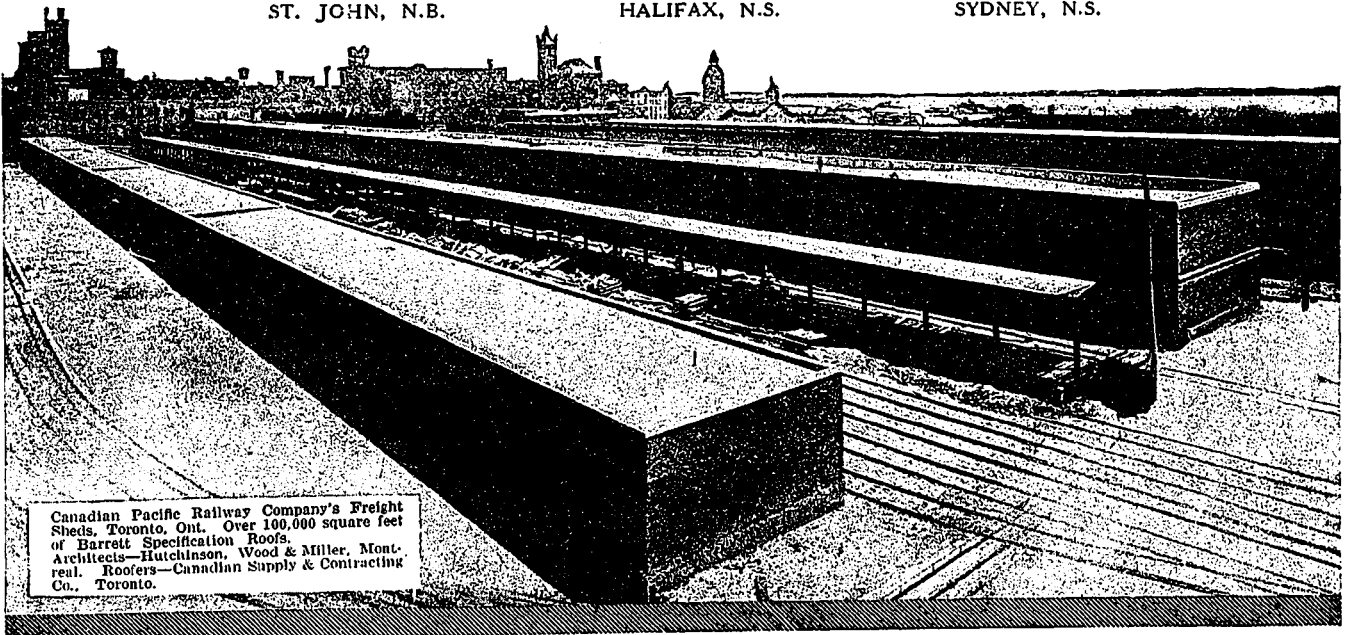
We are now prepared to give a 20-Year Surety Bond on every Barrett Specification Roof of fifty squares and over in all towns of 25,000 population and more, and in smaller places where our Inspection Service is available.

This Surety Bond will be issued by one of the foremost surety companies in America and will be furnished by us without charge.

Our only requirements are that the roofing contractor shall be approved by us and that The Barrett Specification, dated May 1, 1916, shall be strictly followed.

Further information and copies of The Barrett 20-Year Specification, with diagrams, free on request.

THE PATERSON MANUFACTURING COMPANY, LIMITED
 MONTREAL TORONTO WINNIPEG VANCOUVER
 THE CARRITTE-PATERSON MANUFACTURING CO., LIMITED
 ST. JOHN, N.B. HALIFAX, N.S. SYDNEY, N.S.



Canadian Pacific Railway Company's Freight Sheds, Toronto, Ont. Over 100,000 square feet of Barrett Specification Roofs. Architects—Hutchinson, Wood & Miller, Montreal. Roofers—Canadian Supply & Contracting Co., Toronto.

North Toronto Orthopedic Military Hospital, North Toronto.
 Brick, National Brick Co.
 Boilers, John Inglis Co., Ltd.
 Casements, Henry Hope & Son.
 Electric Fixtures, Fred Armstrong Co. and Northern Electric Co., Ltd.
 Elevators, Otis-Fensom Elevator Co., Ltd.
 Fire Extinguishers, Canadian H. W. Johns Manville Co., Ltd., Canadian LaFrance Fire Extinguisher Co., Ltd., Wilson & Cousens.
 Flooring, Mickle, Dymont & Sons.
 Hardware, Aikenhead Hardware Co.
 Heaters, General Fire Extinguisher Co., Ltd.
 Kitchen Equipment, Gurney Foundry, George Sparrow & Co., McClary Mfg. Co., Wrought Iron Range Co., Hamilton Stove and Heater Co.
 Lockers, Henry Hope & Son.
 Paints and Varnishes, Martin Senour Co., Ltd.
 Plumbing Fixtures, Standard Sanitary Mfg. Co. and James Robertson Mfg. Co., Ltd.
 Radiators, Dominion Radiator Co., Ltd.
 Refrigerators, John Hillock & Co., Ltd.
 Roofing, Bishopric Wallboard Co., Ltd.
 Screens, Henry Hope & Son.
 Sterilizers, Brandell Deane Co.
 Sheet Metal, A. Matthews Co., Ltd.
 Stone, Britnell & Son, Ltd.
 Structural Iron, Baines & Peckover, Ltd.
 Tile, John Lucas & Co.
 Terra Cotta, National Fire Proofing Co., Ltd.
 Ventilators, A. Matthews, Ltd., and A. B. Ormsby Co., Ltd.
 Wallboard, Asbestos Mfg. Co.
 General Contractors, P. Lyall & Sons Construction Co., Ltd.

Spadina Military Hospital, Toronto, Ontario.

Boiler, Dominion Radiator Co., Ltd.
 Doors, I. B. Smith & Son.
 Flooring, Laidlaw Lumber Co., Ltd.
 Electric Wiring, E. A. Drury & Co.
 Hardware, Aikenhead Hardware Co.
 Heating, H. O. Waterman & Co.
 Iron Work, Dominion Bridge Co., Ltd.
 Iron Fence and Gates, Geo. B. Meadows Co., Ltd.
 Metal Skylight, A. B. Ormsby Co., Ltd.
 Plumbing, Bennett & Wright.
 General Contractor, W. B. Charlton.

Mount Hamilton Military Hospital.

Brick, W. G. Cooper Co.
 Boilers, Warden-King, Ltd.
 Doors, Paterson-Tilley Co.
 Electric Wiring, Canadian Electric Co.
 Flooring, Seaman, Kent Co.
 Hardware, Kent, Garvin Co.
 Heating, H. G. Waterman & Co.
 Hollow Tile, Sun Brick Co., Ltd.
 Paints, Kent, Garvin & Co.
 Plumbing, R. Ross & Son.
 Radiators, Dominion Radiator Co., Ltd.
 Roofing, Bird & Son, Ltd.
 Stone Sills, Dundas Artificial Stone Co.
 Structural Steel, Hamilton Bridge Co., Ltd.
 Tiling, National Fire Proofing Co., Ltd.
 General Contractors, W. B. Charlton.

Guelph Military Hospital, Guelph, Ontario.

Carpets and Rugs, Robert Simpson Co., Ltd.
 Casements, Ontario Reformatory, Industrial Division.
 Doors, Ontario Reformatory, Industrial Division.
 Fire Extinguishers, Wilson & Cousins.
 Flooring, Mickle, Dymont & Sons.
 Hardware, Aikenhead Hardware Co.
 Paints and Varnishes, Martin-Senour Co., Ltd.
 Plumbing Fixtures, Port Hope Sanitary Mfg. Co.
 Radiators, Taylor-Forbes Co., Ltd.
 Roofing, Bishopric Wallboard Co.
 Wallboard, Asbestos Mfg. Co.
 General Contractors, P. Lyall & Sons Construction, Ltd.

Byron Military Reception Hospital, London, Ontario.

Brick, J. W. Cawrse.
 Boilers, Spencer Heater Co., Ltd.
 Doors, W. Terry & Sons.
 Elevators, Otis-Fensom Elevator Co., Ltd.
 Flooring, Seaman-Kent, Ltd.
 Hardware, Hobbs Hardware Co.
 Inter-phones, Canadian General Electric Co., Ltd.
 Kitchen Equipment, Geo. Sparrow Co., Canadian General Electric Co., Ltd.
 Laundry Machinery, Canadian Laundry Machinery Co., Ltd.
 Lockers, Dennis Wire and Iron Works Co., Ltd.
 Ornamental Iron, Dennis Wire & Iron Works Co., Ltd.
 Paints and Varnishes, Pratt & Lambert, Glidden Varnish Co., Ltd., International Varnish Co., Ltd.
 Plumbing Fixtures, Imperial Products, Ltd.
 Radiators, Warden-King, Ltd.
 Refrigeration Equipment, Canadian Ice Machinery Co., Ltd.
 Structural Iron, C. & E. Nohs.
 Surgical Apparatus, Scanlon-Norris Co.
 Tile, Italian Marble & Tile Co., Ltd.
 Ventilators, Fleming & Houghtley Co., Ltd.
 X-ray Machines, Ingram & Bell.
 General Contractors, Hyatt Bros.

Manitoba Military Hospital.

Beds, Alaska Bedding Co.
 Brick, D. D. Woods & Sons and Winnipeg Supply Co.
 Casements, G. W. Murray & Co., Turnbull & McManus.
 Carpets and Rugs, T. Eaton Co.
 Electric Fixtures, Winnipeg Engineering Co.
 Elevators, Otis-Fensom Elevator Co., Ltd.
 Flooring, Rat Portage Lumber Co.
 Kitchen Equipment, Gurney Mfg. Co.
 Mattresses, Alaska Bedding Co.
 Paints and Varnishes, Martin-Senour Co., Ltd.
 Plumbing Fixtures, Jas. Robertson Co., Ltd.
 Roofing, Brantford Roofing Co.
 Screens, Winnipeg Woodworking Co.
 Structural Iron, Manitoba Bridge and Iron Co.

Surgical Apparatus, Chandler & Fisher.
 Ventilators, MacDonald Bros.
 Wallboard, Manitoba Gypsum Co.
 General Contractor, Thomas Sharpe.

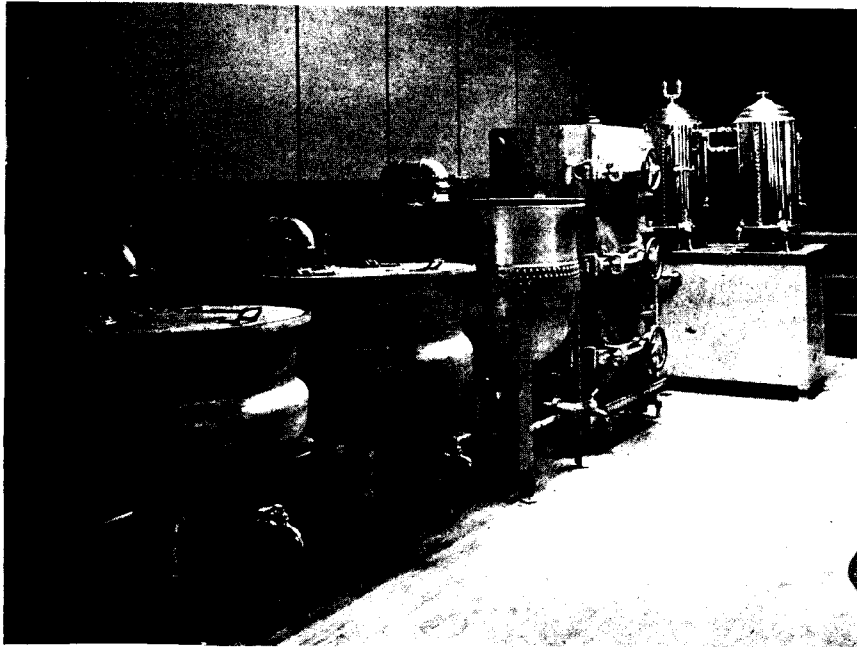
Moose Jaw Military Convalescent Hospital.

Brick, Whitlock-Marlatt, Ltd.
 Boilers, Vulcan Iron Works.
 Casements, Moose Jaw Sash and Door Mfg. Co.
 Cement, Canada Cement Co., Ltd., Whitlock-Marlatt Co.
 Doors, Moose Jaw Sash and Door Mfg. Co.
 Electric Fixtures, Northern Electric Co., Ltd.
 Elevators, Otis-Fensom Elevator Co., Ltd.
 Flooring, Security Lumber Co.
 Hardware, Moose Jaw Hardware Co.
 Kitchen Equipment, Gurney Northwest Foundry Co.
 Linoleum, Dominion Oilcloth Co.
 Paints, Martin-Senour Co., Ltd.
 Plumbing Fixtures, Port Hope Sanitary Mfg. Co.
 Radiators, Gurney Foundry Co., Ltd.
 Roofing Paint, Paterson Mfg. Co., Ltd.
 Refrigeration Equipment, H. E. Forbes.
 Roofing, Bird & Son, Ltd.
 Varnish, Pratt & Lambert, Ltd.
 Ventilators, Alexander & Baird.
 Wallboard, Manitoba Gypsum Co., Ltd.
 X-ray Machines, Victor Electric Co., Ltd.
 General Contractor, H. E. Forbes.

MILITARY HOSPITAL ACCOMMODATION COMPLETED AND UNDER CONSTRUCTION.

Name and Place of Institution.	Accommodation.
NOVA SCOTIA.	
Ross M.C.H. Sydney	35
Moxham M.C.H. Sydney	110
Clayton M.C.H. Halifax	25
Pine Hill M.C.H. Halifax	125
Camp Hill Hospital Halifax	600
Pier No. 2 Halifax	550
Sanatorium Kentville	275
NEW BRUNSWICK.	
Parks M.C.H. St. John	35
Government House Fredericton	200
Sanatorium River Glade	40
Sanatorium St. John	30
Armouries St. John	450
Discharge Depot St. John	100
PRINCE EDWARD ISLAND.	
Sanatorium Dalton	50
QUEBEC.	
Savard Park M.C.H. Quebec	150
Discharge Depot Quebec	800
Sanatorium Lake Edward	60
Drummond St. M.C.H. Montreal	200
Grey Nuns M.C.H. Montreal	300
Khaki League M.C.H. Montreal	50
Khaki Home Montreal	60
Laurentian Sanatorium Ste. Agathe	50
Laurentide Inn Sanatorium Ste. Agathe	70
ONTARIO.	
Elmhurst M.C.H. Kingston	42
Richardson M.C.H. Kingston	60
Queen's University Kingston	450
Sir Sanford Fleming M.C.H. Ottawa	90
Ontario M.C.H. Cobourg	450
Mowat Memorial M.C.H. Kingston	210
Spadina M.C.H. Toronto	275
College St. M.C.H. Toronto	170
North Toronto O.M.H. Toronto	450
Euclid Hall M.C.H. Toronto	40
Whitby M.C.H. Whitby	1,500
Guelph N.C.H. Guelph	800
Newmarket M.C.H. Newmarket	200
Victoria M.C.H. Hamilton	30
Dunedin M.C.H. Hamilton	30
Mountain Sanatorium Hamilton	170
Freepoint Sanatorium Kitchener	40
Oakhill M.C.H. St. Catharines	25
Brant House Hamilton	300
Central M.C.H. London	150
Queen Alexandra Sanatorium Byron	110
Keefer M.C.H. Port Arthur	25
MANITOBA.	
Deer Lodge M.C.H. Winnipeg	48
I.O.D.E. M.C.H. Winnipeg	75
Clearing Depot Winnipeg	100
Manitoba M.C.H. Winnipeg	750
Ninette Sanatorium Winnipeg	100
SASKATCHEWAN.	
St. Chad's M.C.H. Regina	55
Saskatoon M.C.H. Regina	150
Moose Jaw M.C.H. Moose Jaw	350
Earl Grey Sanatorium Regina	60
ALBERTA.	
Red Cross M.C.H. Ogden	200
Strathcona M.H. Edmonton	190
Clearing Depot Calgary	50
Alberta College Edmonton	350
Frank Sanatorium Frank	70
BRITISH COLUMBIA.	
Esquimalt M.C.H. Victoria	110
Resthaven M.C.H. Sidney	160
Qualicum M.C.H. Qualicum	120
Braemar and Langara Vancouver	350
Sanatorium Balfour	170
Tranquille Sanatorium Kamloops	50
General Hospital Vancouver	300

GURNEY-OXFORD KITCHEN EQUIPMENT



IN CANADIAN MILITARY HOSPITALS

Gurney-Oxford Kitchen Specialties and John Bull Ranges are standard equipment and will be found installed in practically every modern hotel, hospital building, college and public building equipped with kitchens in Canada.

Therefore, it is not surprising that in all the Military Convalescent Hospitals and Sanatoriums equipped by the Military Hospitals Commission you will find Gurney-Oxford Kitchen Equipment.

To maintain the reputation of our product, we employ a staff of kitchen experts, whose services are at the disposal of Canadian Architects in designing and supervising the installation of kitchen equipment and ensure the utmost service to customers.

The Gurney Foundry Co., Limited

TORONTO
MONTREAL



WINNIPEG
VANCOUVER



Ward in Drummond Military Hospital, Montreal.

Specify
Guaranteed
ALASKA
Beds and
Bedding
for Hospital Use

☐ Hospitals and kindred institutions from coast to coast have found that it is a guarantee of *permanent satisfaction* to specify "Alaska Guaranteed" on all estimates for hospital beds, bedding, bedside tables and other auxiliary equipment.

☐ Ostermoor Mattresses and Ostermoor Sanitary Sheeting are widely used in Canadian and American Hospitals, and have given the utmost satisfaction under conditions of strenuous and exacting service.

☐ Alaska Beds and Springs are in use in dozens of hospitals throughout the Dominion to-day, because they excel in comfort and in durability.

ASK US TO QUOTE YOU

**The Parkhill
Manufacturing
Co., Limited**

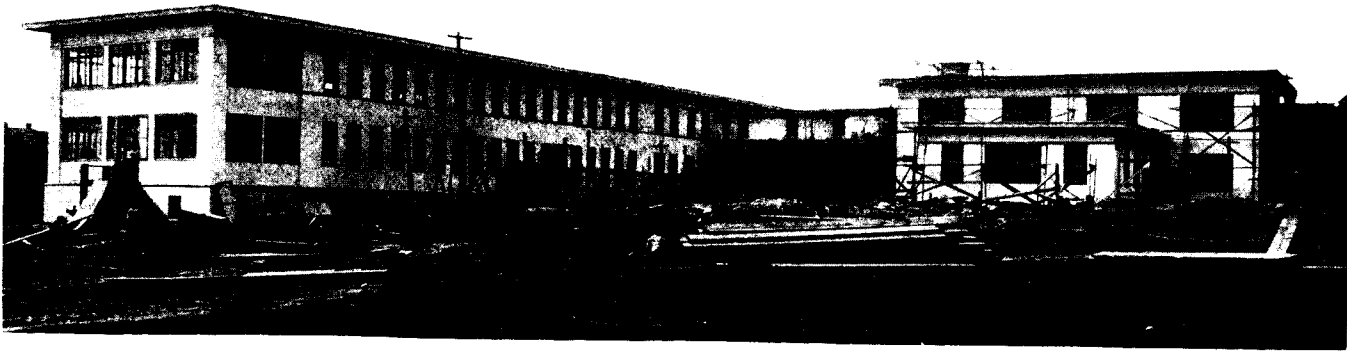
(Successors to The
Alaska Feather and
Down Company,
Limited)

MONTREAL

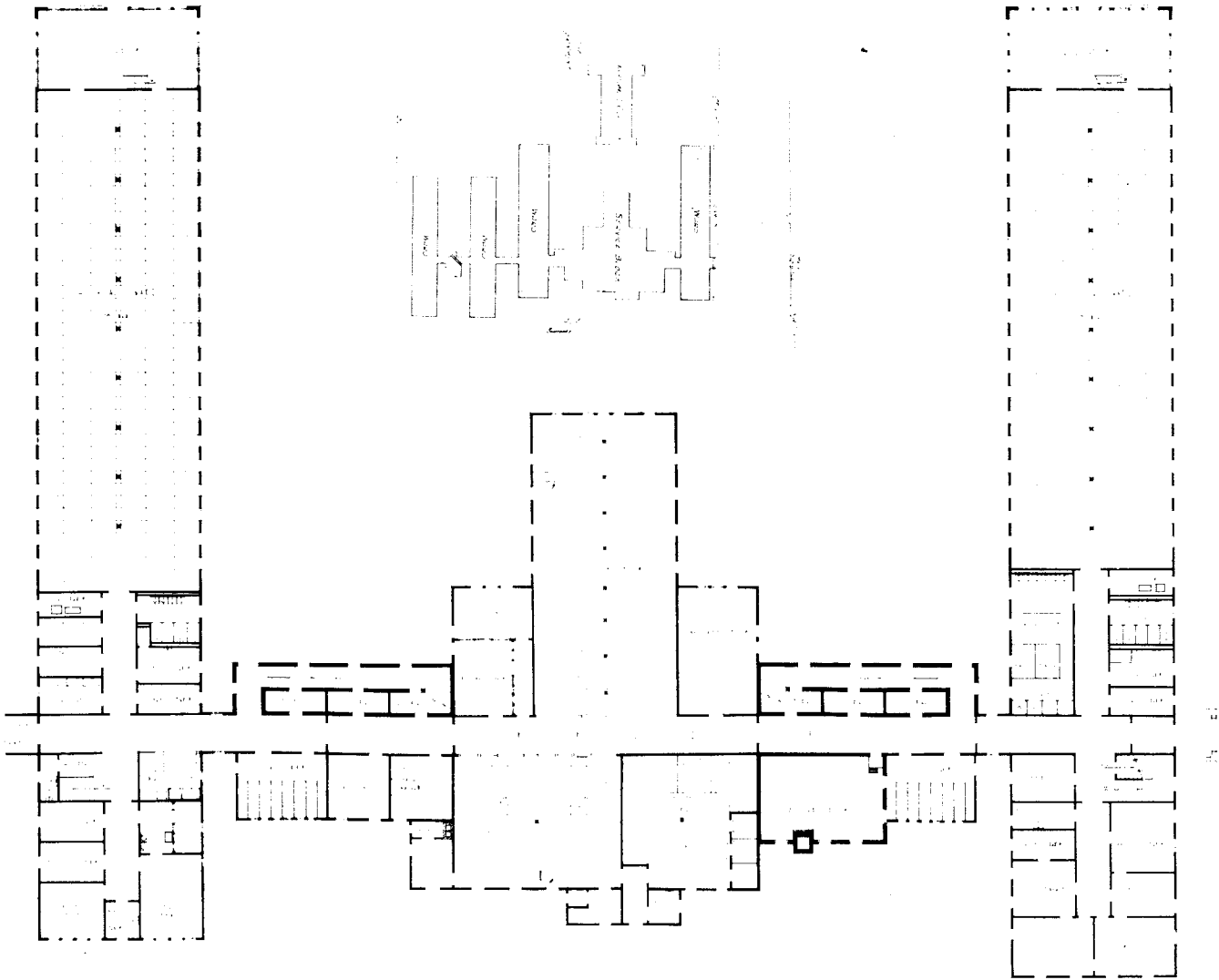
"Alaska on an article
means high-grade
every particle"



Ward in Discharge Depot Hospital, Quebec.



Elevation of one Wing and Service Building, Camp Hill Hospital, Halifax.



Ground Floor Plan of Camp Hill Hospital, Halifax.

S. M. BROOKFIELD

J. W. BROOKFIELD

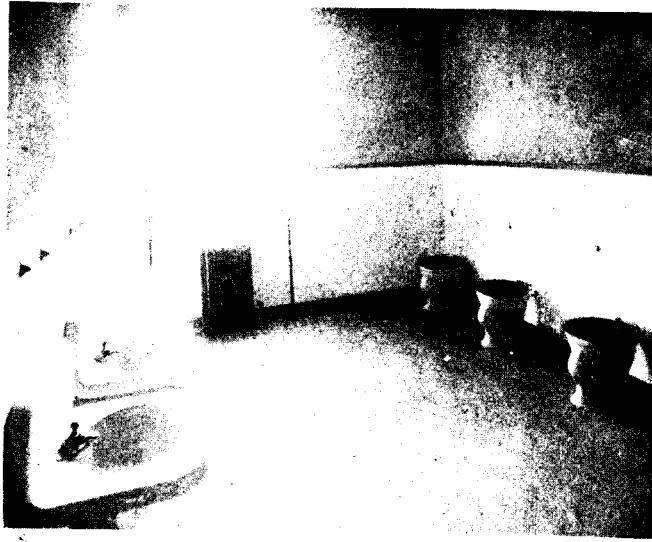
HENRY ROPER

S. M. BROOKFIELD, Limited

Contractors, Builders and Mill Owners

Halifax

Nova Scotia



A Toilet Room in Camp Hill Hospital.

THE PLUMBING WORK ON BOTH
PIER TWO RECEPTION HOSPITAL and CAMP
HILL MILITARY HOSPITAL was done by

GEORGE A. PERRIER,
HALIFAX, N. S.



View of Typical Ward in Camp Hill Military Hospital.

THE PAINTING CONTRACTS FOR
CAMP HILL MILITARY HOSPITAL and PIER TWO
RECEPTION HOSPITAL were undertaken by us

MARTIN & MOORE

653-657 Barrington Street

HALIFAX, N. S.

A Flying Squad of Plumbing---Heating---Lighting Roofing Experts

Enables us to mass our forces immediately on any contract in our line in any part of Canada. Our organization is always mobilized—always on the *qui vive* for its marching orders.

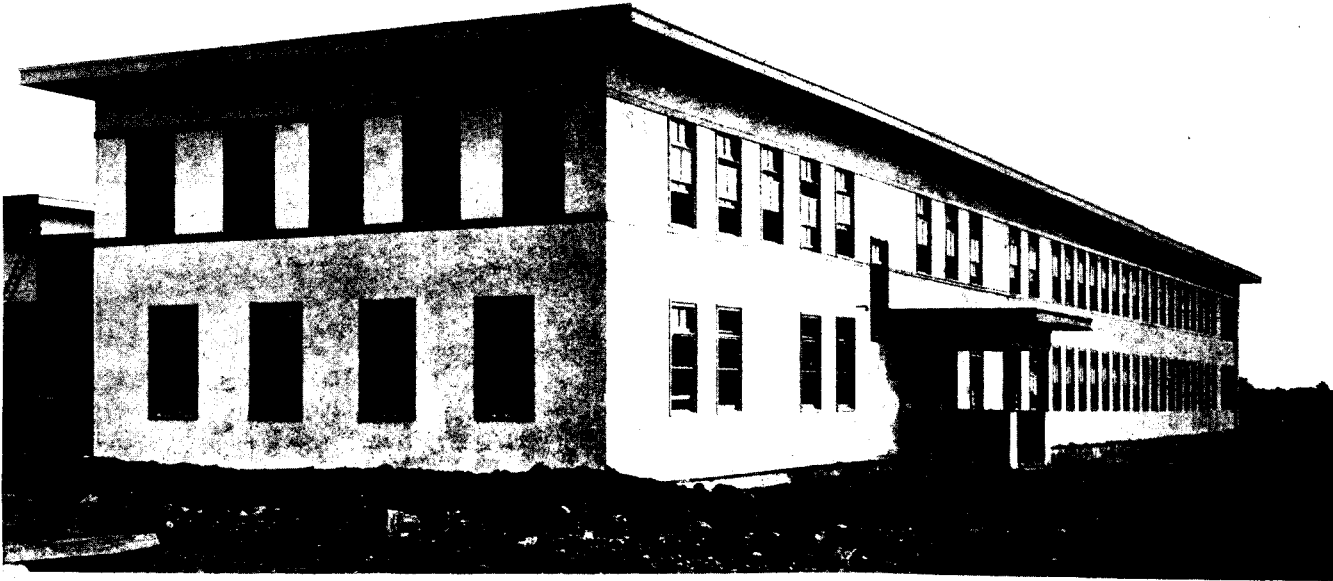
Various naval hospitals, military clearance hospitals, and permanent military hospitals were built better for less because we had a chance to tender.

The Acadia Sugar Refinery, the Nova Scotia Agricultural College at Truro, and various other big buildings were fitted by us on open tender.

Perhaps we can submit the lowest tender on your plans and specifications as well. We'll try—wherever the job's located—if you give us the chance.

Farquhar Bros. Limited

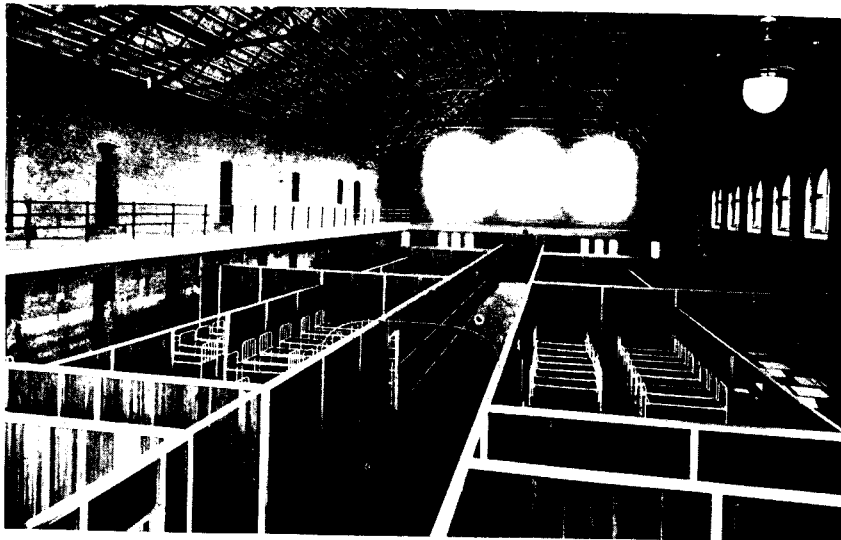
Halifax, Canada



The Skylights on Camp Hill Military Hospital are an Example of Our Work.

We manufacture Copper and Galvanized Iron Cornices, Roofing,
Skylights, Weathervanes, Corrugated Conductor Pipe, etc.

JAMES DONOHUE - HALIFAX, N.S.
ARCHITECTURAL SHEET METAL WORKS



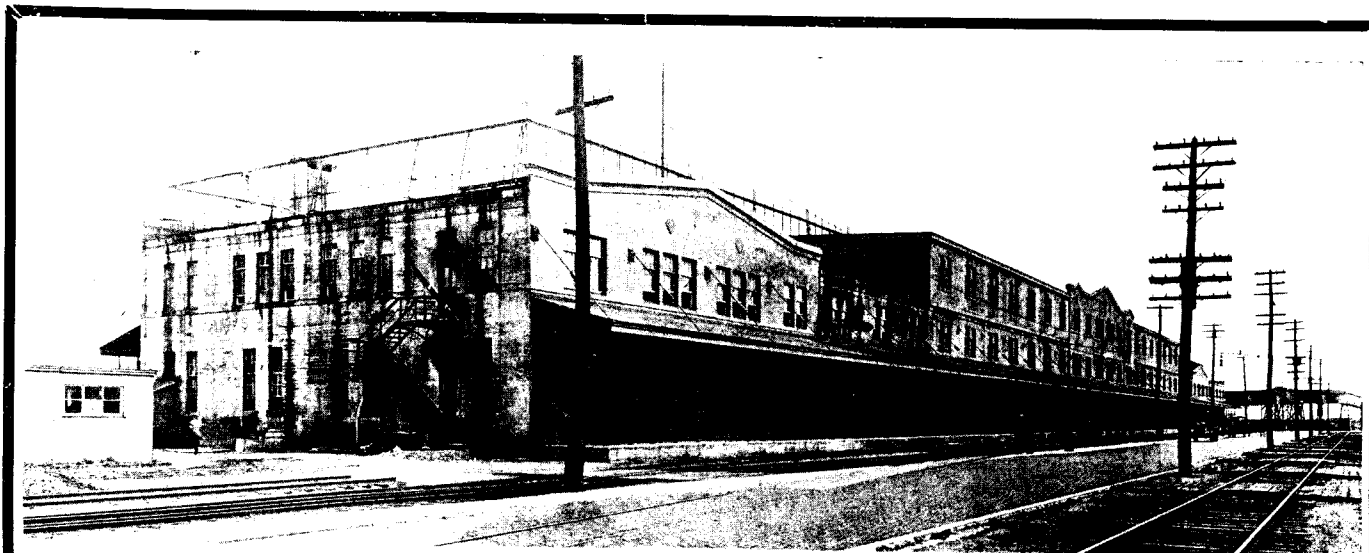
THE GENERAL CONTRACTORS FOR THE
ST. JOHNS ARMOURIES RECEPTION
HOSPITAL WERE

JAMES DRURY & SON

Contractors and Builders

41 Waterloo Street

ST. JOHN, N. B.



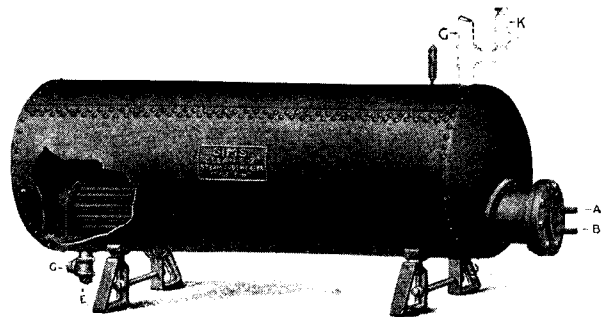
Discharge Depot, Military Reception Hospital, Quebec.

All alterations and additions required to convert the old Immigration building into a modern military hospital have been done by our firm.

The description of the above hospital, which is given in this issue of "Construction," will enable parties interested in the matter to judge the class of work we undertake.

L. H. PETERS, Limited - QUEBEC, QUE.

"WE KEEP OTHERS IN HOT WATER"



Sims "BH" Type Storage Heater for Domestic Service.

Under any condition, wherever water is heated by steam, we furnish heaters best suited to the requirements.

"Sims" B.H. Type Storage Heaters.

"Sims" Hot Water Generators.

"Sims" Convertors for heating buildings by gravity or forced hot water circulation.

Mason Pressure Regulating Valves for controlling steam, air and water

This material is Standard Equipment in Military Hospitals, Ontario Government Institutions, and in nearly every important Hospital and Institution in Canada.

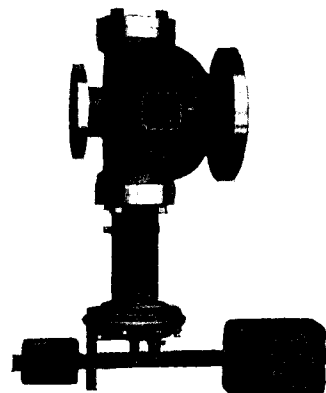
Catalogues and Bulletins gladly furnished on request.

The MASON REGULATOR & ENGINEERING CO. LIMITED

380 St. James St.
Montreal

WORKS:
960 St. Paul St. West
Montreal

311 Kent Building
Toronto



Mason Lever Style Pressure Regulating Valve.



Taking out every room in the hospital and spreading them far apart would not make them any less liable to damage from nearby fire than if each of the rooms were equipped with

Dahlstrom Hollow Metal Doors and Trim

THE DAHLSTROM PRODUCTS not only prevent the fire from spreading to other parts of the building, but confine the fiercest fire to the room in which it started.

DAHLSTROM DOORS AND TRIM are quality products, honestly made and sold at reasonable prices. The high efficiency of the DAHLSTROM organization enables us to render our customers valuable service in the matter of design and building construction.

if you are going to build a new hospital or desire to render an old one all that a hospital ought to be, make the "cut" some place else in the hospital and not in the doors—the patient's only guarding gate to fires.

Write for the DAHLSTROM literature.

DAHLSTROM METALLIC DOOR CO.
 Executive Offices and Plant
 49 Blackstone Avenue JAMESTOWN, N.Y.
 Branches in all principal cities.




EUREKA REFRIGERATORS

Selected for use, after thorough test by the architect for the

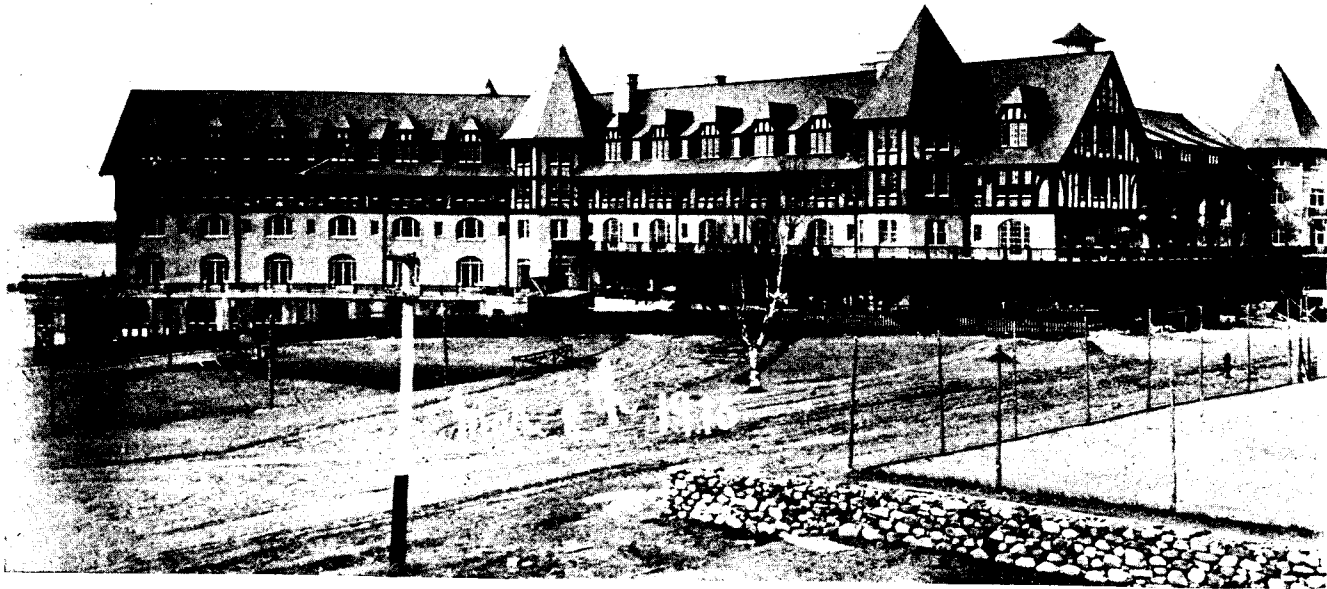
MILITARY HOSPITALS COMMISSION

Our installation in the Base Hospital, Gerrard Street East, Toronto, one of the first military hospitals in Canada, was so satisfactory that repeat orders were given us for Bishop Strachan Hospital, Toronto; Mountain Sanatorium, Hamilton; Queen's University Hospital, Kingston; Mowat Sanatorium, Kingston; Freeport Sanatorium, Kitchener; Byron Sanatorium, London.

The Refrigerators installed were similar to the one illustrated, which was one of a number installed in the C.P.R. Empress Hotel, Victoria, B.C.

Write us for information regarding your refrigeration problems.

EUREKA REFRIGERATOR CO., LIMITED
 BROCK AVENUE - TORONTO, CANADA



ALGONQUIN HOTEL, ST. ANDREWS BY THE SEA, N. B.

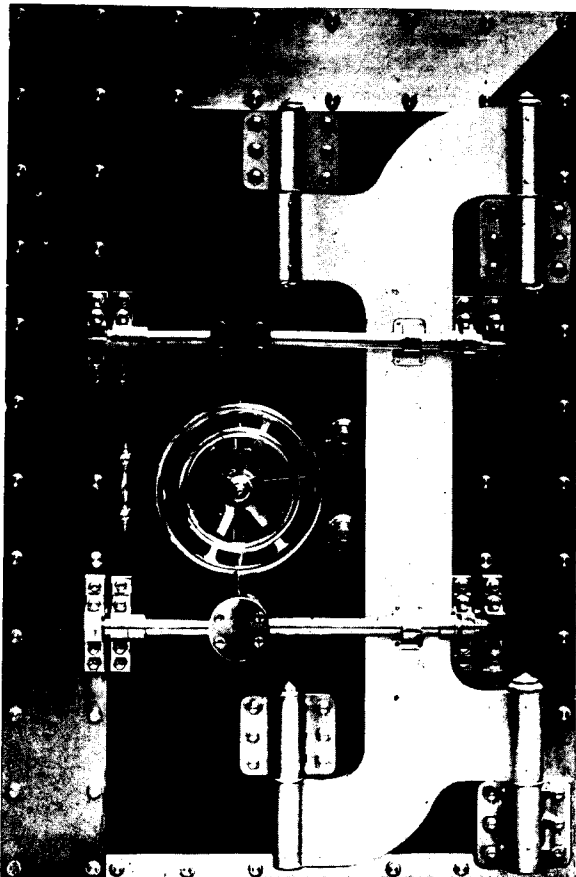
BUILT BY

P. Lyall & Sons Construction Co., Limited

MONTREAL

OTTAWA

TORONTO



Merchants Bank of Canada—Head Office, Montreal.

WE have recently supplied the Merchants Bank of Canada with 2 sets of these vault doors for their head office in Montreal.

We have made vault doors varying in thickness from $\frac{1}{2}$ inch to 18 inches and in weight from 1,000 pounds to 50 tons.

Full information and estimates gladly furnished.

Established over Sixty Years.

J. & J. Taylor, Limited
Toronto Safe Works
TORONTO

BRANCHES: Montreal, Winnipeg, Vancouver
MADE-IN-CANADA

Established



1858

*Fifty-eight years' experience
in making good*

ENAMEL

GLITROX

A new departure in white enamel. Specially designed for decorating large surfaces, it flows evenly without streaks and dries hard to a surface like fine porcelain.

GLITROX is an ideal finish for Hospitals, Public Buildings, or any place where a sanitary and lasting finish is desired.

VELVEX

The perfect flat enamel, has all the properties of GLITROX, *but dries with an eggshell gloss.*

VELVEX is unequalled where a soft, restful but sanitary finish is required. Both of the above finishes are easy working, durable and cover perfectly. If GLITROX or VELVEX are used on your buildings lasting satisfaction is assured.

R.C. Jamieson & Co.

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Montreal

Calgary

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Owning and Operating
P. D. Dods & Co., Limited



Metal Protection

In any kind of metal construction the element of rust is such a destructive factor that the best protection obtainable is unquestionably the cheapest.

CARTER'S Dry Red Lead

is the highest standard quality and affords a perfect sealing coat that absolutely protects all kinds of metal from rust and corrosion.

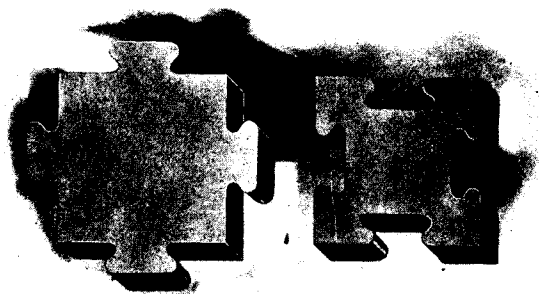
We make Orange Dry Lead and Litharge, also Special Dry Lead and Litharge for Color, Varnish and Rubber Makers. Oxides for Storage Batteries and Pottery.

*All products are wholly
Canadian made.*

Quotations sent upon request.

The Carter White Lead Co.
of Canada, Limited

91 Delorimier Avenue
Montreal



**"MALTESE CROSS"
INTERLOCKING
RUBBER TILING**

THE IDEAL FLOOR COVERING.

Needs no special foundation and is the most durable floor that can be laid. Made in a variety of soft, rich colors that will harmonize with any surroundings.

MADE IN CANADA SOLELY BY
**GUTTA PERCHA & RUBBER
LIMITED**

TORONTO MONTREAL WINNIPEG
CALGARY VANCOUVER

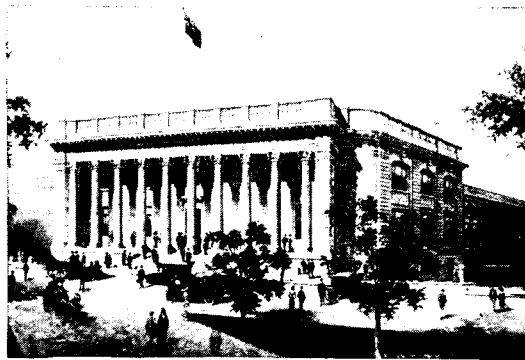
When Peace Comes

War conditions have given architects a breathing spell which may be made the opportunity to prepare themselves for the building activities which the restoration of peace will surely bring.

The advertising pages of "Construction" are especially helpful to architects in helping them to become more familiar with the offerings of responsible manufacturers and in bringing their information files up to date by the addition of the latest descriptive matter on products of architectural interest.

It's opportune now to begin an advertising campaign in

Construction



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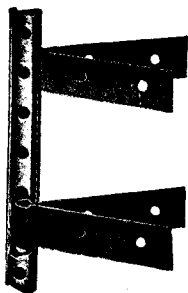
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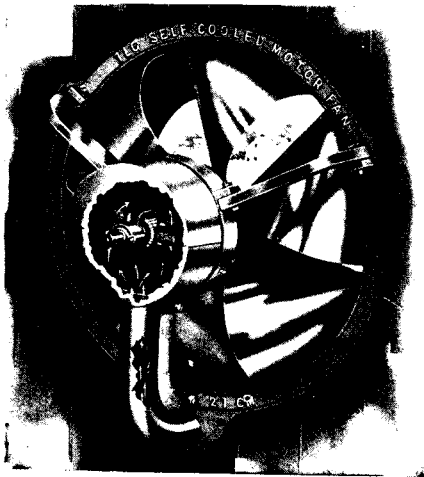
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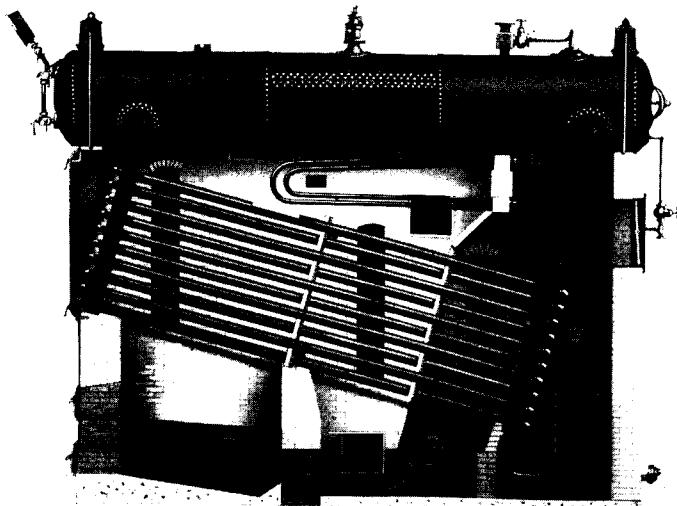
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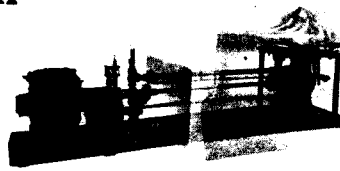
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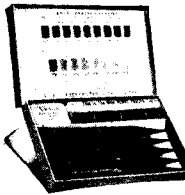
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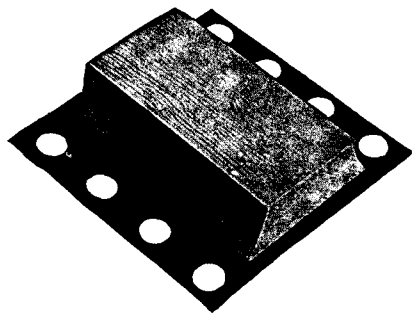
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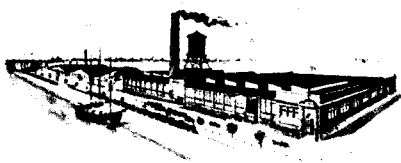
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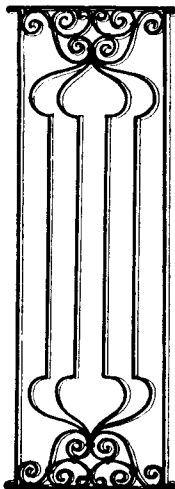
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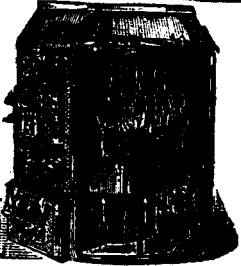


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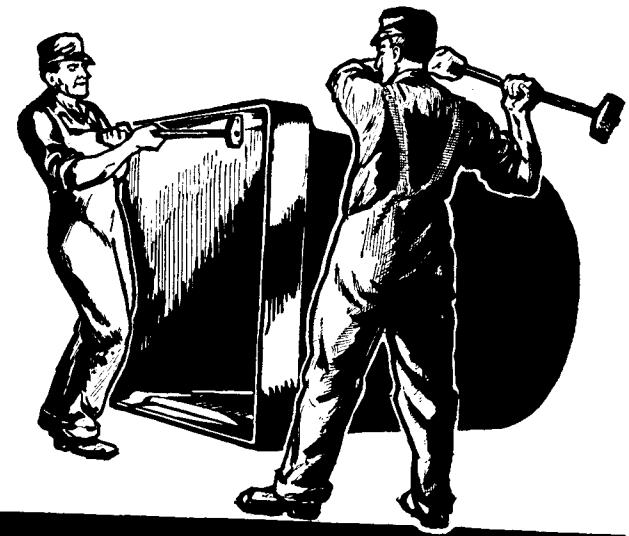


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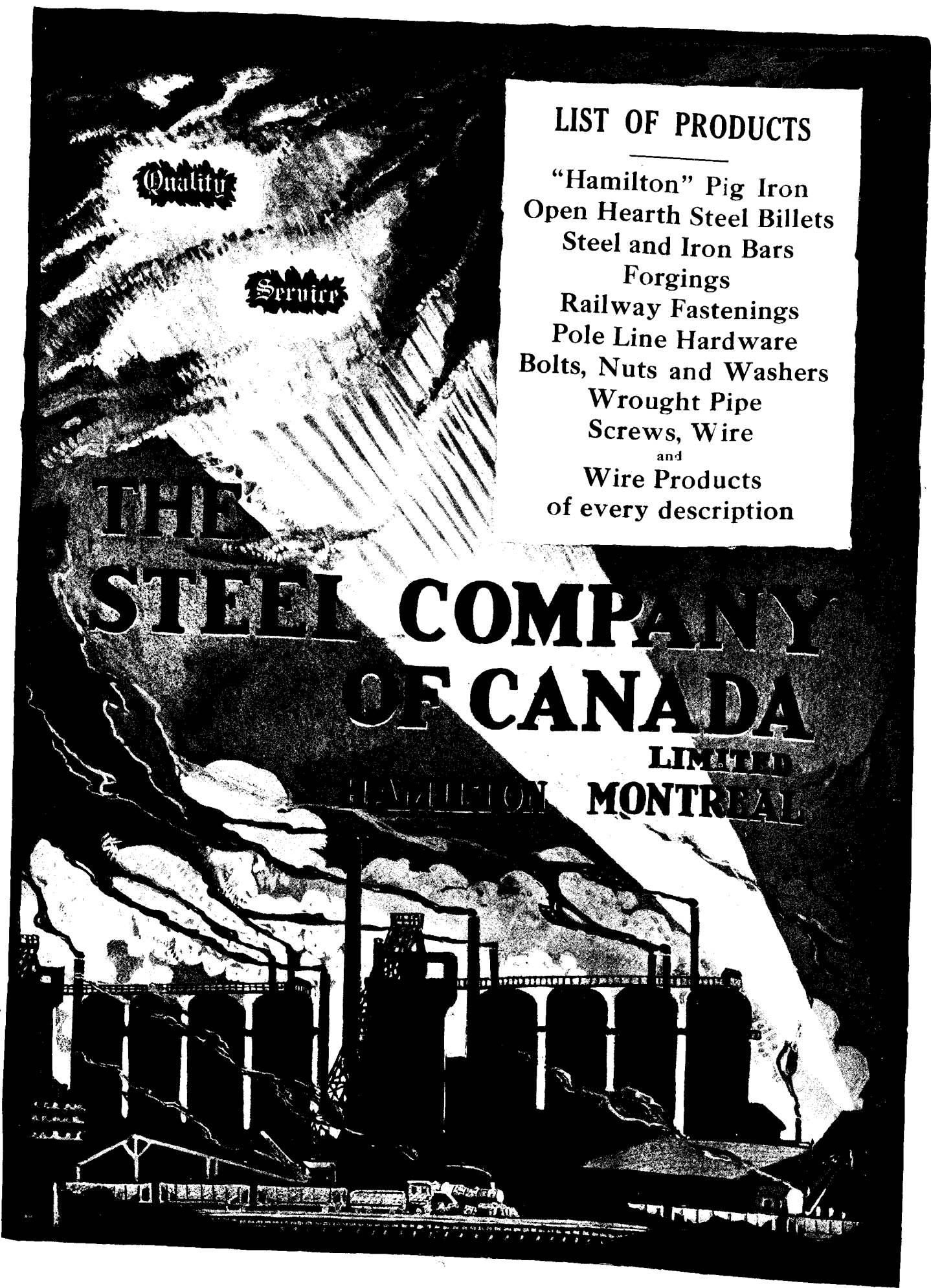
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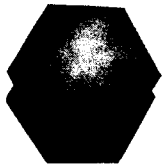
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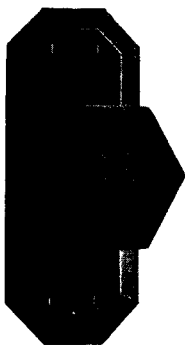
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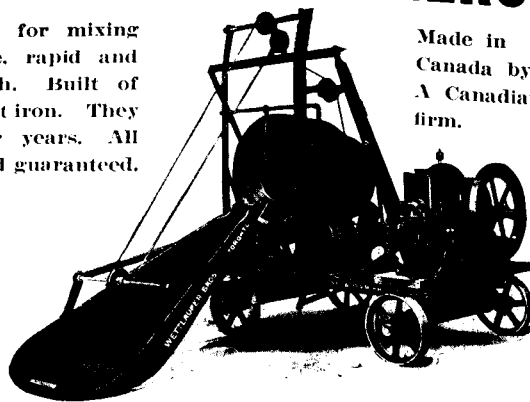
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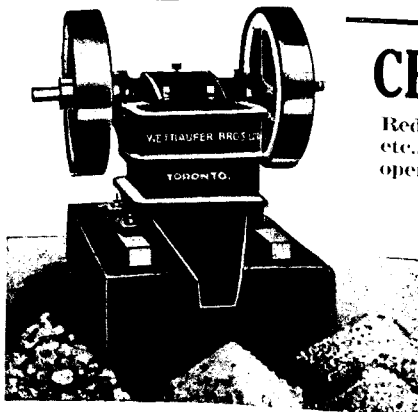


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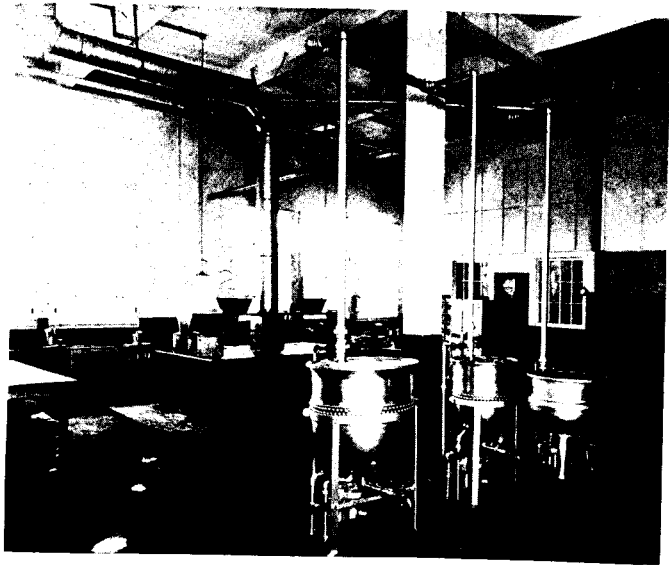
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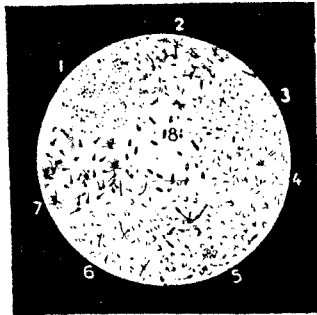
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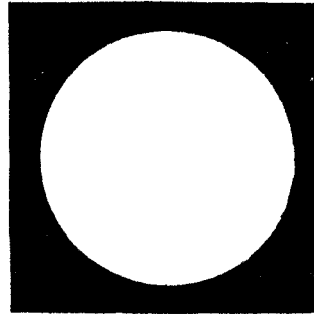
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