

THE CANADIAN BUILDER

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For Roads Buildings and Bridges

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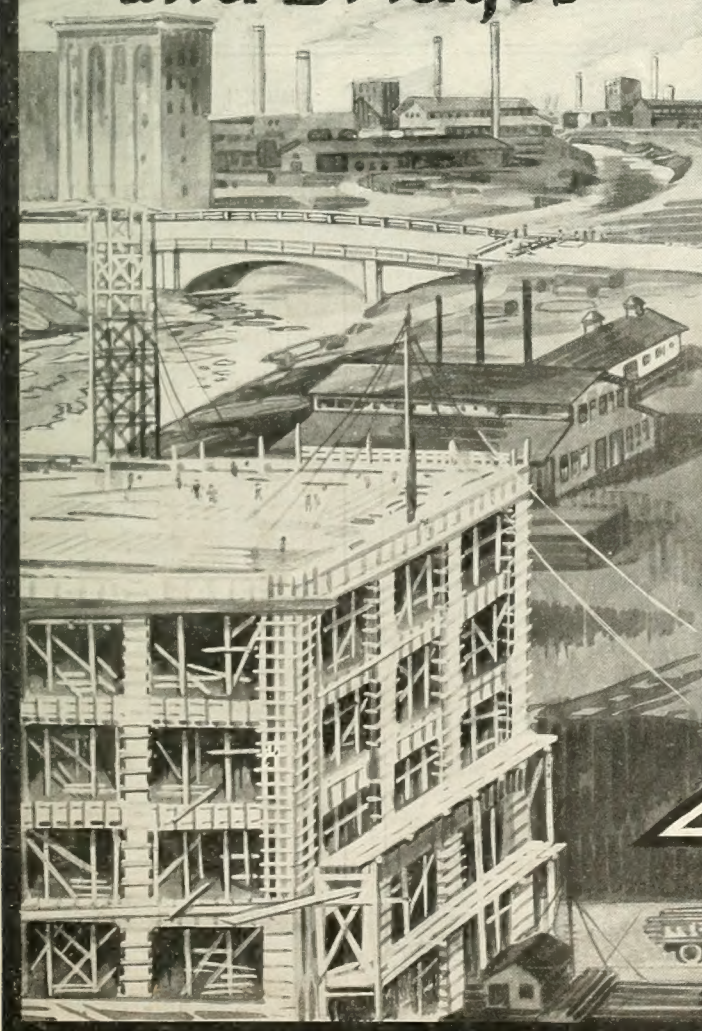
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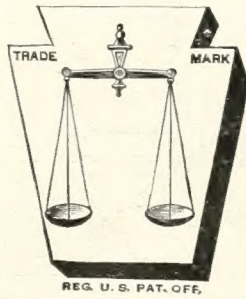
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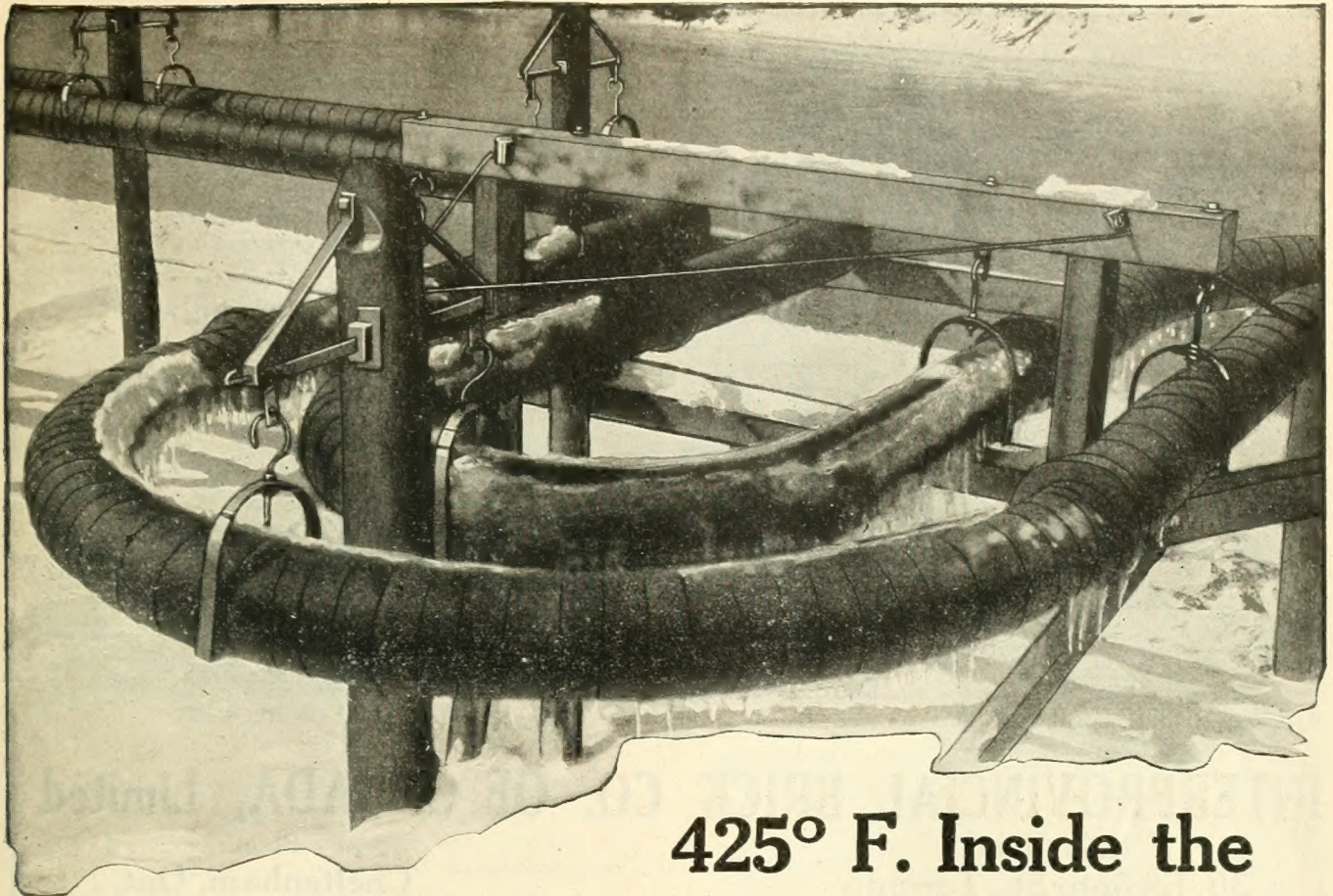
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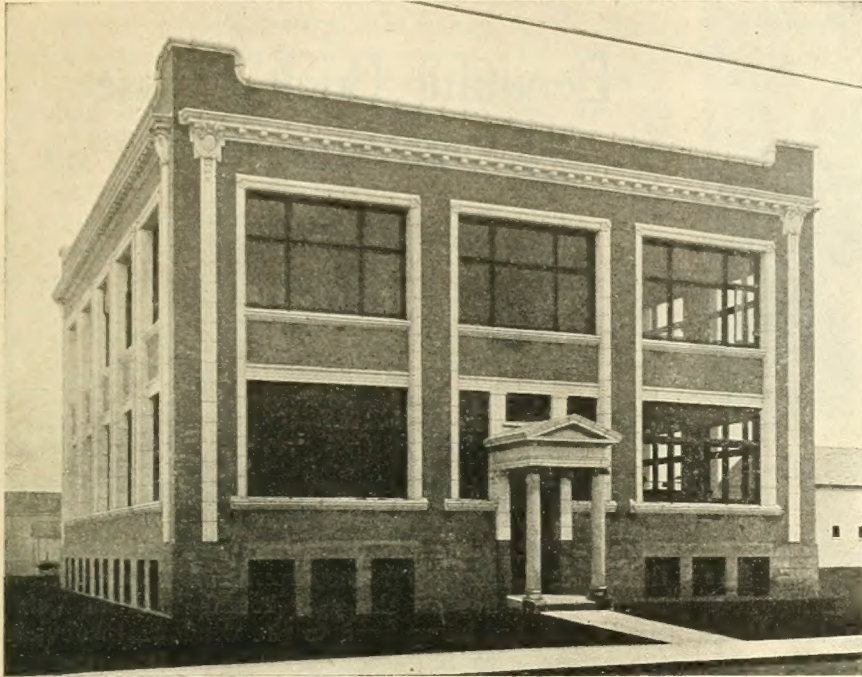
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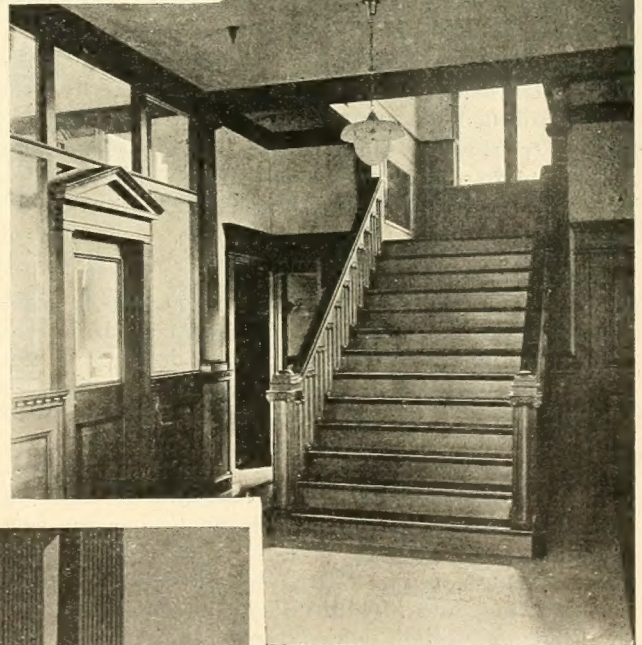
Modern Office
Building
of
Brown's Copper and
Brass Rolling Mills

New office building of Brown's Copper & Brass Rolling Mills Limited, New Toronto.

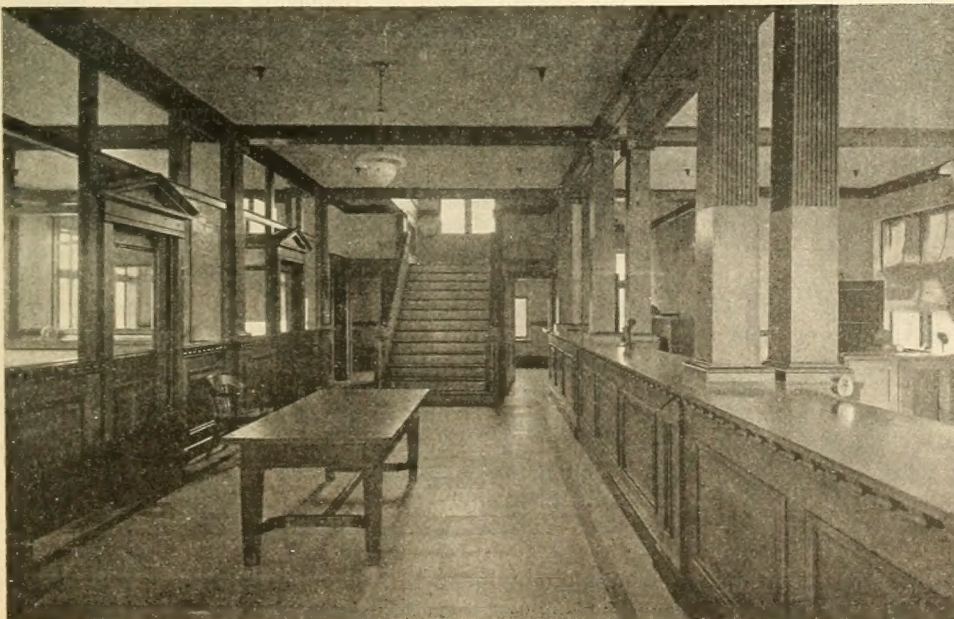
THE growth of Brown's Copper and Brass Rolling Mills Limited, New Toronto, made necessary the erection of a new office building for the executive and business staff.

The new building stands directly facing Toronto-Hamilton Highway, and is of Milton brick and hollow tile construction, with oak trim throughout. In addition to the modernly equipped plant completed about a year ago for the manufacture of their products, the company has also been actively engaged in the development of a neighborhood housing scheme to provide dwelling accommodation for its employees.

The office building is connected to the various working departments by an inter-



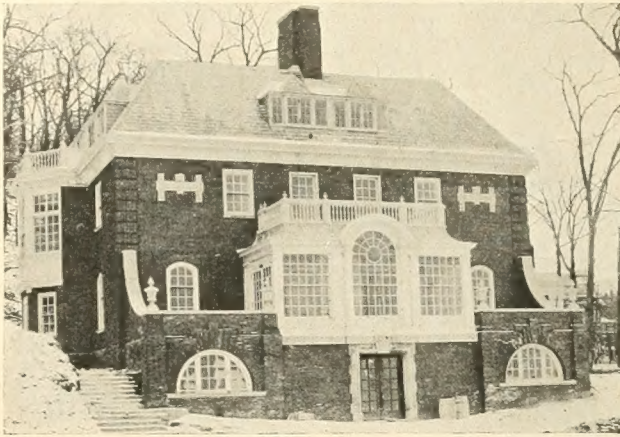
Staircase.



General view of office of Brown's Copper & Brass Rolling Mills, New Toronto.

phone system, which permits of the entire plant being brought directly under executive control.

While the present plant is quite an extensive one, the company's business is constantly increasing, and it is understood that further additions are being planned with a view to their erection at a near future date.



Residence of Lorne C. Webster, Montreal

Beautiful Brick House Overlooking the St. Lawrence River

Architect: *Septimus Warwick*

THE beautiful brick house illustrated herewith was built for Mr. L. C. Webster, Montreal. The grounds are laid out with terrace effect.

The ground floor of the house contains a large staircase hall with two vestibules between it and the entrance door. There is a parlor entered to the right of the vestibule, with the living room on the opposite side. This latter room is connected to the main dining room by a winter garden, which forms the principal architectural feature of the south front with two terraces leading from same.

There are three dining rooms provided—the one just referred to—and two others for the children and servants—all three are grouped conveniently near the kitchen.

Bedrooms

The principal bedroom floor has four bedrooms, each with a separate bathroom and fixed wardrobe accommodation, an upstairs sitting room leading to the front balcony, and a large linen store well lighted, which will act as a sewing room, and is fitted with an ironing board and electric iron. Balconies are provided to all the rooms, three of them being so arranged that they can be used as sleeping porches; a housemaid's sink is placed on this floor near the service stairs.

The top floor contains day and night nurseries and three bedrooms, with a children's bathroom, large cupboard accommodation, and a cedar closet for furs about ten feet square. The servants' quarters, with bathroom and linen store, are provided in the north-west corner of the house.

Basement Arrangement

In the basement separate entrances are planned both for the furnace room and the laundry, and a linen chute from each floor discharging into the latter room; vegetable stores, potting shed, and a boys' workshop are provided, with a billiard room and a large "ingle nook" designed around a tapestry brick fireplace. A children's entrance is provided on this floor with three stores near the entrance for sleighs, snowshoes, etc. The cloak room is placed upstairs so that it serves this entrance as well as the main entrance on the floor over.

In order to overcome the discomforts of a winter sash, extra radiation is being provided and weather

stripping installed on all the windows which are single throughout, and so that the exterior shall present the same appearance all the year round, internal Venetian blinds are being fixed to the windows to obviate the necessity of fixing and unfixing the summer shutters each spring and fall.

Brick Walls

Externally the walls are faced with specially made dark red Roman bricks twelve inches by one-and-a-half inches, with one-half inch white mortar joints raked out three-eighths inch, a line of headers is introduced every sixth course, carrying the line of the rustication of the angle quoins round the building; the stone dressings are of grey canyon stone, the roofs are covered with rough green slates laid in graduating courses.

The two bays on the north front are formed by the projecting bathrooms, and the bay window on the west front by the sleeping porch entered from the side bedroom.

The pergola is to be carried out with wood columns painted white, with a stone slab pavement; the garden walls will be built in rough limestone, mostly from material quarried on the site, the treads of the steps and the coping being of Rochester stone slabs, which will also be used for the stone paths of the formal garden next the garage.

The garage will accommodate two cars, and the old basement of the stables is being transformed into sleeping quarters for the chauffeur, with a circular stair from the garage.

In order to adapt the architectural features of the house to the site and to spread the apparent weight of the building on the ground, four wing circular ramped walls are introduced at the corners, these forming flanking walls to the two terraces on the south front and retaining walls for the laundry and furnace room staircase on the north, the spaces between the walls making larger accommodation in the basement, enabling the potting shed and the coal stores to be placed in this position, giving also extra space to the billiard room, which is twenty-seven feet by twenty-five feet extreme dimensions.

Finish of Rooms

The principal rooms internally are panelled in Keene's cement and painted, instead of wood. The

appearance as finished is practically the same, and there is no risk of the joints cracking, as is invariably the case after a few years when a room is finished in a painted wood. The fireplace surroundings are also in Keene's cement, and the interiors of openings are faced with buff and orange colored briquettes and hearths, with a lining to the dining room and parlor of Pavonazzo marble. The hall fireplace and columns and the entrance lobby are carried out in Caen stone. This work and the panelling before referred to, were executed by the general contractor, and form a good example of superior workmanship in plaster. The lobby steps and dado are in Botticini marble, and the main rooms are covered with oak flooring in narrow widths laid herring-bone fashion.

The winter garden is paved with red quarry tiles and Missisquoi marble, and the walls and ceiling cove are covered with a trelliage pattern painted green; a wall fountain is provided on the back wall, and the radia-

all climates, especial precautions must be taken to protect the concrete against freezing temperatures. There are various ways of doing this. The most effective and also the most usual and easily accomplished is to build a sort of covering over the concrete either of boards or canvas and place under this covering small stoves or heaters which are kept burning continuously until the concrete has hardened. The heat given off by these stoves will be sufficient to prevent the concrete from freezing, even though the canvas or board covering should not be entirely air tight.

In seasons of extreme heat it is also necessary to protect the concrete against direct rays of the sun and direct exposure to the heat. Such exposure will cause the water in the concrete mixture to evaporate or dry out before the concrete has had an opportunity to harden, and thus an inferior concrete will be produced, particularly at the surface. The best way to protect the concrete against such injury is to keep it covered with water until it has hardened. In the case of pavements or floors, this is easily accomplished by building little dams of clay or other suitable material across the surface of the concrete and keeping the enclosed spaces filled with water for several days, or until complete hardening has been accomplished. In other cases where this method is not practicable

the concrete may be protected by keeping the air in the room in which the concrete is located saturated with moisture either by means of escaping steam or fine spray of water.

The presence of water or moisture in the atmosphere will not in any way injure the concrete either before it has hardened or after. Before hardening has set in the presence of moisture in the air is exceedingly beneficial to the complete and thorough hardening of the concrete. After the hardening has been accomplished the presence of moisture in the air will not affect it.

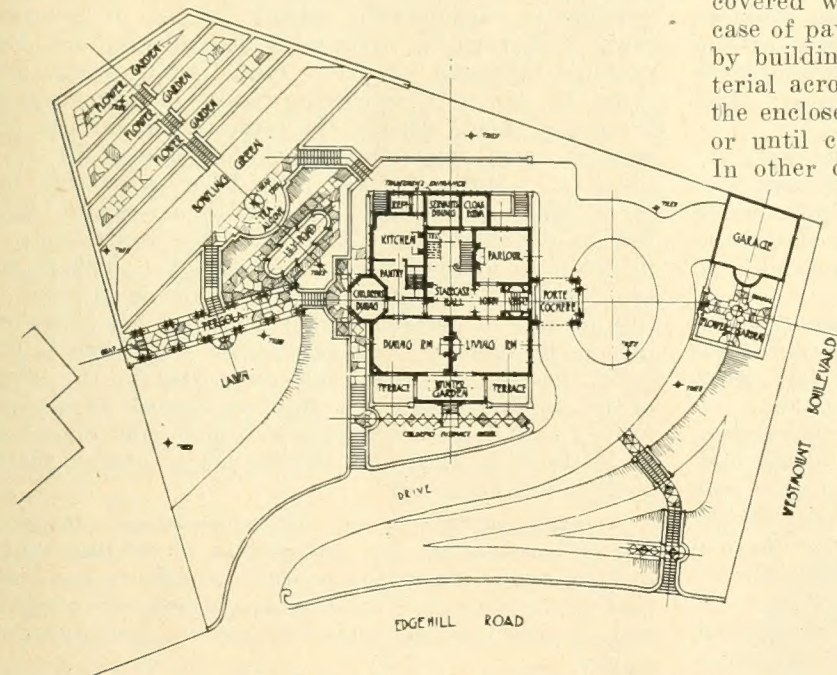
The application of paint or other protective coatings to concrete work before it has hardened will cause it serious injury. This injury arises from the fact that the hardening process will be materially retarded by the admixture of any substance not properly a part of the concrete mixture. The concrete at the surface will also be materially weakened by this application and in all probability will peel off after the concrete below the surface has hardened. After the hardening process has been completed no protective coatings of paint or other material are necessary.



Making Stair Treads Slipproof

A very common cause of accidents about a factory lies in slippery stair treads. This is recognized by many builders who recommend the use of treads having an insert of lead, carborundum, or other abrasive material.

Some plants, however, are using a homemade stair tread. This consists of a channel iron with the flanges pointed upward, and the space between the flanges filled with concrete. Cinder concrete makes an especially good filling for these treads.



Plan of house and gardens of Mr. Lorne C. Webster, Montreal.

tors are to be covered with a cast iron grill painted green with flower boxes designed to match the trellis work of the walls.

The kitchen is tiled up to the height of seven feet with white tiling, and all the cupboards are painted and enamelled in the same color. The stove is placed on a platform of red quarry tiling, with an ash dump to the basement. The doors and the cupboards to the service pantry are finished in chestnut.

The other doors throughout are in birch, and will be finished to match the prevailing treatment of the rooms.

Protection of Newly Placed Concrete

All newly placed concrete work must be protected against the elements and against injury from other outside causes until the concrete has thoroughly hardened. In most cases this protection need be no other than a covering of some sort which will prevent rain from falling directly on the exposed concrete surface.

In certain climates, and in certain seasons of most

CONSTRUCTION OF CONCRETE TANKS AND BINS

Concrete tanks or bins have been used as receptacles for so many different materials that it is almost impossible to enumerate them. Usually one thinks first of a tank as a receptacle for water, but many manufacturing industries require storage tanks for holding various solutions used in their manufacturing processes and with but few exceptions, concrete in late years has been the construction material used for many such tanks. Manufacturers and refiners of oil have used concrete storage tanks extensively. Such receptacles are also used for wine, milk, molasses, various solutions used in paper manufacture, for salt grainers, pickling vats, etc. In addition, concrete tanks or bins have long been used to store grain, coal, various kinds of ores, sand, crushed stone, cement and many other materials.

Until the modern commercial silo forms were developed it was more usual perhaps for tanks and bins to be built of square or rectangular form, but now the majority of such structures built are of circular shape, and largely because of the wonderful adaptability of silo forms.

When concrete construction was first proposed for grain storage bins, for instance, there was doubt in the minds of contractors as well as grain dealers, as to whether grain stored in such tanks could be kept free from dampness. The very fact, however, that cement manufacturers use concrete bins when storing their product before marketing, is proof that well made concrete tanks or bins are damp-proof. If this were not so, cement would not be stored in them for there is probably no other material of its kind so easily affected or injured by dampness.

Selection of any particular shape for a storage bin or tank depends in a large measure upon the locality or site where it must be constructed, and the suitability of a particular type for the use to which it is to be put. In nearly every case it is safe to say that cylindrical bins or tanks are considerably cheaper than rectangular ones. This is due largely to the fact that more concrete and more reinforcing steel are required in the construction of a rectangular bin than are necessary in a bin of cylindrical form of approximately the same capacity. In rectangular bins or tanks each side wall acts as a beam, requiring a double line of reinforcing in the concrete. Rectangular construction also calls for a thicker wall section than is necessary in a tank or bin of cylindrical form. All pressure in the cylindrical bin is taken care of by a single line of steel placed in the centre of the wall, the pressure causing tension at all places. The thickness of a cylindrical bin wall may be reduced to a minimum because of the manner in which pressures in such a form of tank act upon the walls.

Concrete Tanks for Industrial Purposes

Early experiments with concrete storage tanks used for various kinds of liquids were not so successful as have been present day experiences. This was due to the fact that the requirements of construction were

not so well understood then as now. The concrete was not properly proportioned, not mixed to correct consistency, not properly placed, nor was it protected after placing in such a manner as to produce a dense impervious surface. Much of the success of concrete as a construction material for tanks to hold various solutions depends entirely upon the observance of good concrete practice. Some solutions or materials which apparently affect the concrete if porous, and cause it to disintegrate, seemingly have no effect upon well-made, dense concrete. Proof of this fact has made it possible to considerably extend the use of concrete tanks as storage for various liquids and solutions. For example, concrete has been found an excellent material to use in constructing tanks in which sauer kraut is pickled. One of the largest companies in the country used some thirty concrete tanks for this purpose. Most of them have been in service for seven years. Twenty of the tanks are round, 12½ feet in diameter and 8 feet deep, the walls being 7 inches thick at the bottom and 4½ inches thick at the top. These tanks were treated on the inside with a thin coating of paraffin, which is applied hot by painting on the surface. This precaution was taken in the belief that the concrete would not withstand the effect of the pickling solutions. But experiments have since proved that if the concrete is well made and placed so as to result in maximum density, such interior treatment is not necessary.

A large number of salt refineries make extensive use of concrete in the construction of settling tanks and "grainers," and the general experience has been that where the concrete was mixed of properly selected and proportioned materials very heavy brine causes no injury.

Many paper manufacturers in all sections of the country use concrete tanks as paper pulp digesters. The liquids stored in such tanks are sulphite solutions but do not injure well-made concrete. If such liquids as sulphuric acid solutions are to be stored in concrete it is likely that injury will be caused to the surface, but concrete construction can still be used by treating the interior with one of the many protective coatings now sold for that purpose.

Silos and Cement Pockets

Progress that has been made in the past two or three years in developing a cement stave for silo construction has had a great deal to do with popularizing the cement stave silo. Now the stave silo as well as the monolithic silo has entered the coal-trade field. There are many coal pockets or bins in the country which have been erected during the past year or two which are nothing more nor less than batteries of cement stave silos. This extension of popularity for circular structures suggests the ripe field awaiting the contractor who is equipped and qualified to go after such work. The demand is already here. Fireproofness is of utmost importance in storage tanks that are

to hold coal and grain, while in grain storage an added requirement is rat-proofness, and these ends are attained with concrete.

Concrete Tanks for Glass Industry

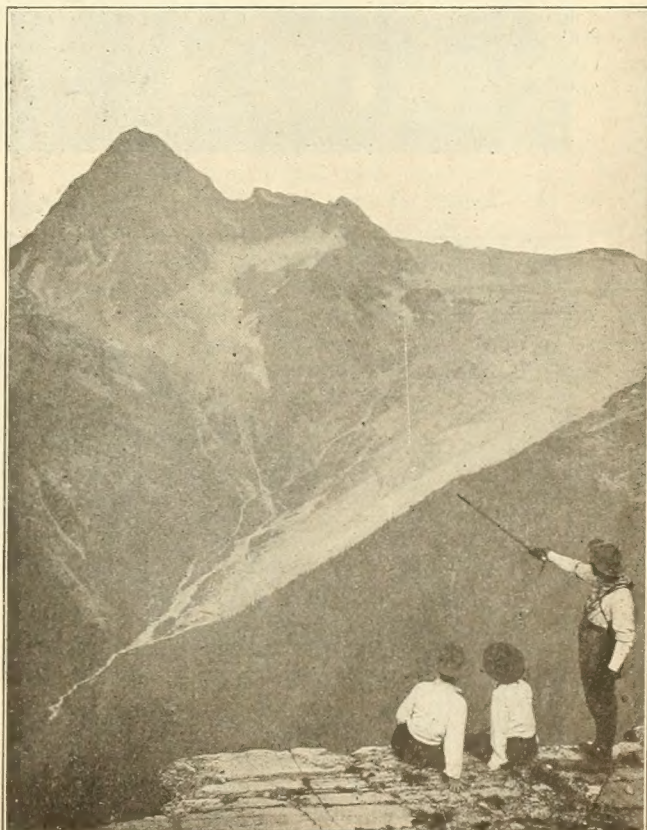
Another industry that has turned to concrete construction for its storage tanks is the glass industry. Experience has proved that certain of the raw materials used in glass manufacture cannot be advantageously stored in steel tanks owing to the resulting contamination of materials from iron or steel particles, due to rust and scale. To prevent this possibility one of the largest glass manufacturing companies in the country recently finished a battery of six reinforced concrete tanks, five of which are 26 feet inside diameter and 35 feet high. Three of these have nearly 20,000 cubic feet capacity and are used to store sand. One is used for lime and the other for soda ash. The sixth tank which is 14 feet inside diameter and 35 feet high has a capacity of 5,000 cubic feet and is used to store salt cake. Farmers are rapidly coming to a realization of the advantages of a stored water supply on the farm. Many silos built recently have been finished with water storage tank at the top. This gives water under pressure which is desirable in case of fire, not to mention for regular house and barn supply. The commercial silo forms are of course perfect equipment for constructing round water tanks. But the safety of such tanks, especially when of the size of an ordinary silo, and intended to be used exclusively for water storage demands different design as regards amount of reinforcing metal used. One of these tanks has been built lately on an Illinois farm. The contractor who did this work says that he has found it even more profitable in the community where he operates than silo construction, because the demand for such tanks is rapidly increasing. The one shown is 12 feet in diameter and 30 feet high and has a capacity of approximately 27,000 gallons. The floor of the tank is about even with the ground line, the tank being located at the highest point of ground adjoining the farm buildings. In the tank shown the floor was reinforced with two layers of half inch square twisted steel rods, laid at right angles to each other, spaced every six inches at the centre of the floor, being gradually increased to 12 inches toward the outer edge. Every other one of these reinforcing rods was bent up into the wall a distance of two feet. In order to secure watertight construction at the planes where each day's work ended and the following began, there were inserted in the concrete last placed for one day strips of tin several inches wide, one half of the width being placed in the concrete and the remaining portion allowed to extend above it so that it would be embedded in the concrete placed the following day. Also the surface of the concrete in the forms was left rough and when concreting was resumed this and the projecting tin were painted with a cement grout paint. Under the tank floor there is a service pit with concrete wall and floor, making a gallery for inlet and outlet pipes where the valves controlling flow of water may be housed against exposure to freezing. Such an arrangement also permits passing the service pipes directly into the tank from the bottom. In extremely cold weather such a pit permits placing a heater to warm the tank contents. In fact, such an arrangement should be provided in extremely cold climates.

this being connected with a coil that leads upward into the tank so as to form a hot-water, circulating system.

It is hardly necessary to enumerate the advantages which concrete tanks possess over those made of wood. No tank is always kept full of liquid no matter how it may be used. Wood tanks go to pieces rapidly if alternately wet and dry. Wood also rots and in time the iron hoops which must always be a part of such a tank rust and require replacing. The adaptability of concrete to any form required by the space to which a tank must be adapted makes the material unique in its advantages. Most solutions which are stored in tanks will either affect steel tanks or be affected themselves by action taking place between the solution and the steel. Such does not happen with concrete tanks. They are sanitary, and when necessary to clean them can very readily be washed out.

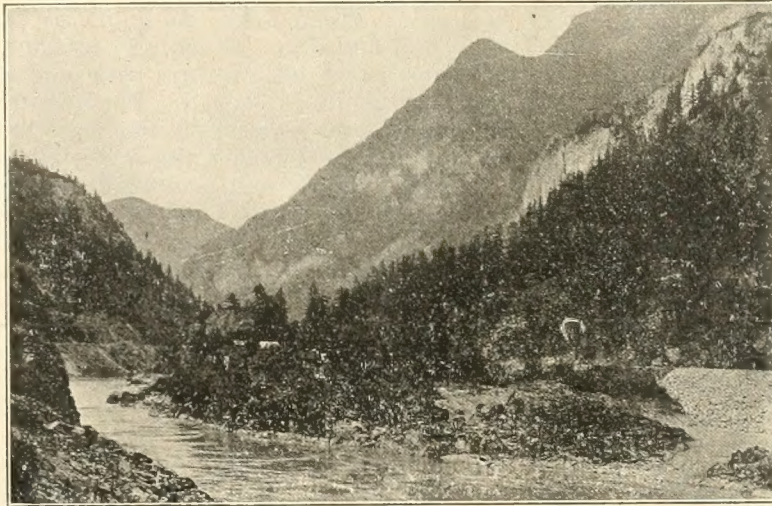
There was a time not long ago when tanks of small capacity could perhaps be built more cheaply of steel plate than of concrete, but changes which have taken place in the steel market within the past year or two have so altered these conditions that steel can no longer successfully compete with concrete construction even in first cost and the larger the capacity of the tank, the more noticeable is the lower cost of concrete construction.

Lately the Portland Cement Association has been conducting a very extensive investigation as to the many uses to which concrete tanks have been put. If you know of any person who is about to build a storage tank for some fluid or material, we suggest that you have them write the Portland Cement Association, 111 West Washington St., Chicago, and learn whether concrete would not be best adapted to the purpose.



Mount Sir Donald on the C.P.R., named after Lord Strathcona (Sir Donald Smith) altitude is 10,808 ft., or nearly two miles. This is one of the peaks in the Selkirks near the new C. P. R. Connaught tunnel which runs under Mount Macdonald.

CANADIAN NORTHERN RAILWAY VIEWS IN BRITISH COLUMBIA

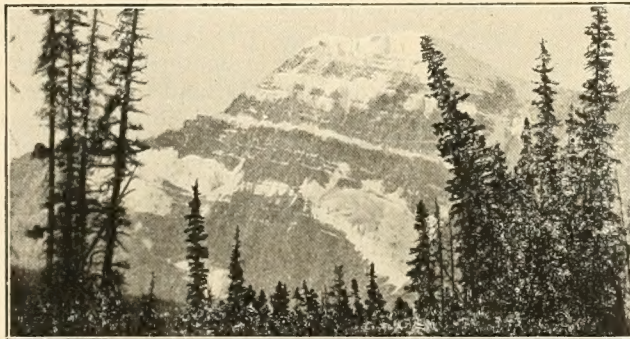


On the Fraser River near Yale, B. C., 105 miles East of Vancouver. Here was the head of navigation on the Fraser River and the starting point for the limitless Caribou country in the early days of mining. It was named after a former factor of the Hudson's Bay Company, who established a fort at this point.

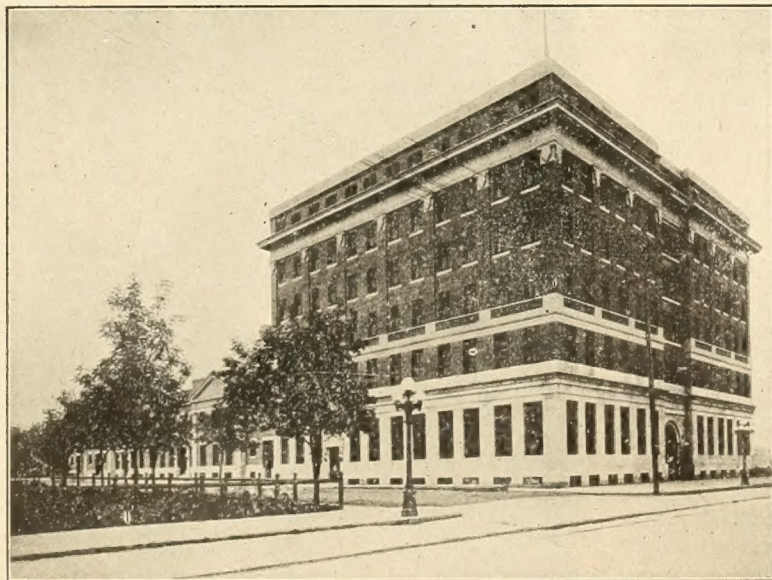
A most scenic route through the Rockies



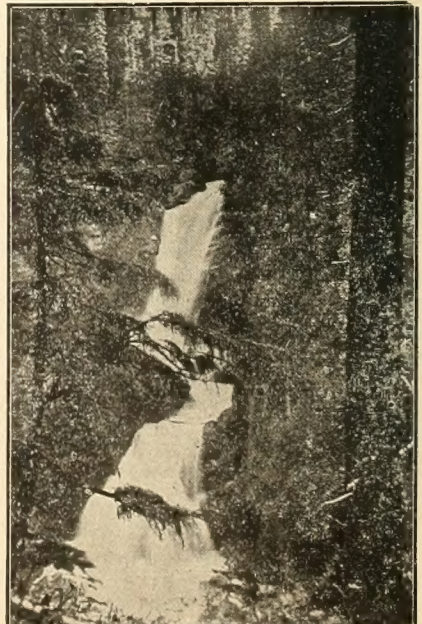
Mount Robson (altitude 13,068 feet). The highest known peak in Canada.



Mount Edith Cavell, from the Canadian Northern Ry. (Altitude 11,033 feet). Named after the famous British nurse martyred by the Germans in Belgium.



The Prince Edward Hotel, Brandon, Man., adjacent to the Canadian Northern station and in the centre of the business district. This hotel for appointment, service and furnishings is equal to the high-class hotels found in any cosmopolitan city, and is the principal prairie city hostelry west of Winnipeg.



Moonbeam Falls, Mount Robson, B.C.

WORKINGS of WORKMEN'S COMPENSATION ACT in ONTARIO

*How assessments are determined
for the different classes.*

*By Samuel Price**

EACH province makes its own workmen's compensation laws. The present Ontario Act went into force January 1, 1915. Very similar laws have since gone into effect in Nova Scotia and British Columbia. It is a radical change from the old law.

The right of the workman or his dependants to compensation for accident is no longer confined to cases where the employer was guilty of negligence, but, with slight exceptions, covers all accidents arising out of and in the course of the employment.

The employer is no longer liable individually for payment of damages, but contributes to an accident fund, out of which the compensation is paid.

Questions of the right to and amount of compensation are not now the subject of technical court procedure, but are determined informally by The Workmen's Compensation Board. The Board also apportions or assesses the share of contribution which each employer is to make to the accident fund.

Under the present law the workman or his dependants are compensated in a vastly larger number of cases than under the former law, the underlying principle being that the industry should bear a portion of the loss caused by injury to its workmen just as it must bear the expense of replacing broken machinery.

Among the other advantages of the new law are the speedy and inexpensive mode of payment to the workman; immunity of the employer from litigation and from what might be ruinous liability for damages; and the removal of a prolific cause of friction.

The questions to be determined in the allowance of compensation are usually few and simple, and the amount in the great majority of cases is fixed by the Act or is merely a matter of computation.

The workman is required to notify the accident promptly to his employer, and the employer to notify the Board. Reports giving the necessary information for determining the right to and fixing the amount of compensation are required from the workman, from the employer, and from the attending doctor, further inquiry or investigation being made where it seems necessary. In ordinary cases the award is made within a few days after the receipt of the last report, and payments go forward promptly, cheques for temporary disability being sent by-weekly, and pension payments monthly.

The employer is notified of every award made to any of his workmen and of every payment made for medical aid, and the Board is always glad to receive from him any useful suggestion or information.

The industries covered by the new law (omitting railways and other industries under Schedule 2) are enumerated in what is called Schedule 1 of the Act. They are divided now into 34 classes or groups.

For assessment and compensation purposes each class stands upon its own footing. Each carries its own burden, except only that a small general fund, one per cent. per year, known as the Disaster Reserve, is set aside to assist in meeting any extraordinary call that may arise in any class.

Separate accounts are kept of all assessments received and all compensation awarded for each of these classes. Any balance at the end of the year, after all credits and charges have been made, is carried forward to the credit or debit of the class. Each of the 34 classes of industry is thus in effect a mutual insurance association of the employers in that class.

The rates for each class are fixed and the assessments made in the same way as a municipality levies its taxes. They are governed by the requirements. The assessment is in the form of a rate or percentage on every \$100 of pay roll. The rates fixed for the year are intended to cover the burden of that year. At the beginning of the year an estimate of his probable pay roll is obtained from each employer and he is assessed provisionally upon that estimate. At the end of the year the actual amount of pay roll is obtained and the assessment is adjusted accordingly.

In fixing the rate the experience for previous years is used as a guide. The amount of compensation and the amount of assessments in the class for the preceding year are ascertained, an estimate being made of the amount still remaining to be paid for accidents which by reason of continuing disability or for lack of reports have not been finally disposed of before the end of the year, and an estimate being also made of the extent to which the actual pay roll statements received from employers at the end of the year will exceed the estimates given by them at the beginning of the year. In this way the total expenditure and the total income of the class for the year are arrived at as nearly as possible, and the sufficiency or insufficiency of the rate charged determined.

If it is seen that the rate charged has produced sufficient money, or if the surplus or deficit is small, the same rate will be continued for the current year. If there is any considerable difference, the rate will be increased or decreased accordingly; and if the difference is large, the rate will also be altered retroactively for the prior year.

It is to be remembered always that any surplus to the credit of the class remains in the class funds, and

*Chairman of the Workmen's Compensation Board of Ontario. Read before the C.N.C.P.A.

this is also taken into consideration in fixing the rate. Any additional matters, such for instance as medical aid which went into effect the middle of last year, must be provided for by making an estimate of the probable amount of expenditure therefor, and this must be considered in fixing the rate.

Where there are different lines of industry in the same class, each bearing a separate rate, the experience in each separate line of industry is also considered, and if the situation calls for it, the proportionate ratings as between the different lines of industry in the class are altered. As, however, each class in the schedule is an insurance group, all lines of industry in the class must share to some extent the good or ill fortune of the class as a whole, and the rating for each separate line of industry cannot be made to depend upon the experience in that line of industry alone. The experience of the class as a whole must be considered. This is especially the case where the amount of pay roll in any line of industry is small. To charge that line of industry with its own cost might leave a very excessive burden on its employers for one year while perhaps relieving them almost wholly from assessment another year. This would destroy the underlying insurance principle which is the basis of the system.

The first table of rates fixed for the different classes of industry upon the coming into force of the Act in 1915, and before there was any actual experience to go upon, was merely the best estimate that could be made of the requirements with such assistance as could be obtained from other rating schedules. At the end of the first year it was found that a general reduction could be made. This was done in a number of cases retroactively; and the rates for 1916 were made upon the whole considerably lower than the original 1915 rates. The 1917 rates, while making adjustments in a number of cases, were, even with the allowance estimated to be necessary for the new medical aid provisions, only slightly higher upon the whole than the 1916 rates. It is hoped that in general, little increase will be required for 1918, even with the full year's medical aid to be provided for as against the half year's medical aid in 1917.

For the manufacture of clay products the original rate in 1915 was fixed at 90 cents per \$100 of pay roll. In 1916 this was reduced to 60 cents. At the end of 1916 it was found that the experience for the class was not as good as had been expected and the rate was raised retroactively to 90 cents; and a 90 cent rate was also fixed for 1917. It is hoped that this rate may still be sufficient for 1918, but this cannot be definitely settled until the experience for the past year has been fully tabulated.

Comparing this 90 cent. rate with the rates elsewhere, we find that Ohio charges \$1.45; Michigan \$2.06; New York, \$2.91; Pennsylvania, \$1.31; Illinois, \$2.37; Wisconsin, \$2.32; Indiana, \$2.25; Kentucky, \$1.97; Colorado, \$1.53; Washington, \$1.50; California, \$2.39.

The way to keep the rate low is to avoid accidents. This will now be a matter of special individual concern to each employer, inasmuch as under the system of merit rating which is to be adopted the employer having a bad accident experience will pay a higher rate of assessment than the employer whose accident experience is good. The adjustment will be made after the accident experience of each employer has been finally ascertained.

It is a gratifying feature of the administration of

the Ontario Act that, apart from the contribution for the expenses of the employers' accident prevention associations, practically all the money contributed by employers goes to the workmen or their dependants as compensation or is paid for medical aid. For the year 1917 the total amount contributed by employers toward the expenses of administration will be less than one and one-sixth per cent. of the amount of compensation awarded. During the year awards of compensation amounting approximately to \$2,900,000 involved an administration expense to employers of only \$33,000, the remainder of the expense being borne by the Province.

The system of state insurance for compensation to workmen, to which the Ontario Act belongs, is one of recent growth. In 1911 it existed in only one State upon the continent. Now it prevails in fifteen of the United States and three of the Provinces of Canada. Employers and workmen alike are interested in making it a success. Properly carried out it should be cheaper, more beneficial, and more equitable than any other system. Profits and unnecessary expenses are eliminated. The administrative body in such a system has no personal motive to give the workman or his dependants less than they are entitled to, and no motive to charge the employer more than he should pay.

The Board appreciates the co-operation received in the past and is always desirous of any suggestions that may be of assistance in carrying out the administration of the Act.

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Dead at the Post

Jimmy owns a \$1 watch which he bought six years ago. Recently it refused to run, so Jimmy took it to a jeweler. He made a post-mortem examination, and when Jimmy called for the verdict next day his watch was handed him with a piece of crepe tied to its stem. "No hope!" was the mournful verdict of the jeweler. "Might as well send it to Davy Jones' locker." "What's the matter?" asked Jimmy, alarmed. "Found a cockroach inside." "That's what plugged up the works, eh?" "No," replied the jeweler. "The cockroach had been keeping the thing going, but he died at his post."—Buffalo Commercial.

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Putting War Cripples Back on the Payroll

Much has been heard regarding the plans of the Dominion Government to help war cripples to secure remunerative employment in spite of even the most serious wounds or other injuries. But, though Canada is conceded to be far in advance of all other Allied countries in the work of reinstating her maimed heroes, comparatively few people have seen actual evidence of the miracles being wrought for the men by specialized vocational training and physical reconstruction. This will be remedied at the Canadian National Exhibition where at least fifty men who have been restored to full usefulness, will demonstrate how the soldier beneficiaries of the Government's rehabilitation program have been made economically self-supporting. Included will be a number of blind men, who have been re-educated and are back on the civic payroll. The men will demonstrate at least 15 industrial processes, including typesetting, oxy-acetylene welding, jewelry manufacture, lens grinding, assaying, etc.

Suggestions for Cistern Construction

Underground cisterns may be built of any shape desired, but since round forms are more troublesome to frame, most cisterns are made square or rectangular. Consider the construction of a cistern 8 by 8 by 7 feet in the clear, with walls 6 inches thick and with a capacity of 70 barrels.

Before beginning the work, have all the materials on hand—slightly more than required.

Wall Forms

For wall forms use 1-inch boards on 2-inch by 4-inch uprights spaced 2 feet, and keep the inner and outer forms 6 inches apart by means of small wooden spacing blocks. Wire ties extending from inner to outer form and around the 2 by 4's should be used to keep the forms from spreading.

Wall Reinforcing

When the outside form has been set up and plumbed, the wall reinforcement consisting of $\frac{1}{4}$ -inch round rods should be placed in position. Space these rods 6 inches centre to centre both vertically and horizontally and place them 2 inches from the outside form, tying them together at a sufficient number of intersections to hold all steel in proper position. The vertical rods should be cut 9 feet long and bent at right angles 2 feet 4 inches from one end. Set these rods in the forms with the short leg at the top 4 inches above the top of the forms and projecting toward the interior of the cistern, supporting them by means of 1 by 4-inch strips resting on edge on the inside wall form. The 24 horizontal rods should be 16 feet 4 inches long, bent 4 feet 4 inches from each end in the form of a "U." The middle sections should be placed at opposite sides of the cistern so that the legs of the "U's" will lap in the centres of the other side.

Concrete

Mix the concrete 1 sack portland cement to 2 cubic feet of sand to 3 cubic feet of pebbles or crushed stone. If you have nothing but pit gravel separate it into sand and pebbles over a $\frac{1}{4}$ -inch screen and then remix in correct proportions. The sand and the stone should be clean, durable and well graded—the sand from the finer particles to those passing a $\frac{1}{4}$ -inch screen, and the stone graded from $\frac{1}{4}$ -inch to about $1\frac{1}{2}$ inches. Fill the forms with concrete mixed to a "quaky" consistency and placed in 8-inch to 10-inch layers around the entire cistern. Do not stop until the forms are filled, spading the concrete well to prevent the formation of stone pockets.

Form for Cover Slab

This cistern should be covered with a concrete platform reinforced with steel rods. After the concrete walls have been brought to proper height set a wooden frame of 2 by 8's on edge around the top of the walls, so as to hold the concrete for the 6-inch platform. Level with the top of the finished side walls construct a strong wooden platform of 1-inch boards for flooring. Build this on 2-inch by 4-inch joists nailed to the uprights of the side forms.

Manhole Form

To provide for a manhole opening, take 1-inch boards and build a bottomless box 2 feet deep and 2 feet square (outside measurements). Set this in the middle of the cover-slab form and build a similar form 1

foot 5 inches deep and 2 feet 8 inches square (inside dimensions), for the outside form.

Concrete Coverslab

Over the entire platform spread 1 inch of concrete. For re-inforcing, quickly place on this concrete $\frac{1}{4}$ -inch steel rods, 7 feet 8 inches long, running in both directions and spaced 6 inches apart. Strengthen the platform around the manhole opening by placing an extra rod on each side. Bring the cover to its full thickness by immediately placing the remaining 5 inches of concrete. Finish the surface with a wooden float (a trowel) the same as for sidewalks.

Removal of Forms

When the cistern platform is two weeks old, remove the manhole forms and saw an opening in the wooden floor. Descend, knock out the 1-inch wedges under the side wall forms, take the forms apart and pass them through the manhole opening.

After the forms have been removed the cistern floor can be constructed. Thin strips of lumber, like lap siding should first be placed along the walls, keeping them from actual contact by means of smooth slightly wedging pieces of wood about 12 inches apart. The 6-inch floor should then be placed, using the same proportions as for the walls, but having a somewhat stiffer consistency. This will enable the workman to finish the floor on knee-boards. As soon as possible without injuring the concrete, remove the wedges and the thin boards, and in the course of a week or so fill the joint between the floor and walls with hot tar.

Quantities of Materials

To construct a cistern of the above dimensions, the following materials will be required:

- 10 barrels of portland cement.
- 3 cubic yards of sand.
- 4 $\frac{1}{2}$ cubic yards of gravel.
- 26 $\frac{1}{4}$ -inch round rods 7 feet 8 inches long.
- 32 $\frac{1}{4}$ -inch round rods 9 feet long.
- 24 $\frac{1}{4}$ -inch round rods 16 feet 4 inches long.
- 4 $\frac{1}{4}$ -inch round rods 4 feet 8 inches long.
- 6 $\frac{1}{4}$ -inch round rods 2 feet 10 inches long.

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Short Items of News

The Taylor Engineering Company, of Vancouver, have started work on thirty houses for the Imperial Oil Company.

The Winnipeg Builders' Exchange second annual picnic was held at Grand Beach recently, the attendance being over 1,200.

Mr. P. J. Loughrin, of West Toronto, applied to the Town Council of Weston, recently, for permission to build 70 houses in or near Weston.

A new housing company in Toronto proposes to construct houses costing from \$2,000 to \$2,500, with slightly alterable fronts, to be sold to the workman on the basis of ten per cent. down and the balance in monthly payments running over an extended period.

Perth Improvement Limited, Perth, Ont., has been formed with the following officers: President, J. A. Stewart; vice-president, W. E. Danner; general manager, Geo. F. Fraser; treasurer, F. A. Hutchinson; secretary, M. G. Hicks. The company has awarded a contract to the Frid Construction Co., of Hamilton, for the erection of nine semi-detached dwelling houses.

THE CANADIAN BUILDER

D. O. MCKINNON
GENERAL MANAGER

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G. C. KEITH, M.Sc.,
EDITOR

VOLUME 8

TORONTO, AUGUST, 1918

NUMBER 8

Housing the Workers

ship of the federal, provincial and municipal authorities," said Thomas Adams, town planning advisor of the commission, at a joint session of the Union and the Dominion Civic Improvement League, in Victoria.

"The Federal Government should provide the funds and set up a skilled advisory and supervisory board; it should not build houses directly under its own control except for employees in Government factories, arsenals, naval establishments or railways. In all other operations housing operations connected with the country's industries and returned soldiers should be carried out by the municipalities with the aid of funds, and, expert advice provided by the Federal Government. Departments of provincial governments should take responsibility for the proper administration of the municipal housing schemes under the regulations of the provincial governments, and subject to its supreme control in matters of finance. For the present no housing scheme should be carried out unless for some purpose directly connected with production necessary for the prosecution of the war."

Also, Mr. Adams might have added that municipalities should not levy such a tax on medium houses that it takes more than a month's income for taxes alone. Certainly people in many places require housing accommodation and probably the best way under the present abnormal conditions is under government direction. However, it should be kept in mind that individual ownership is a thing that should be encouraged and builders should unite to see that this spirit of ownership is included in any promulgated housing scheme.

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Real Nerve

"You chaps talk about nerve and keeping cool under fire, but I've seen a finer bit of presence of mind right here in my home town than I saw when I was in the thick of things 'over there.' I was motoring with a friend and as he was driving through the village he lost control of the car. It dashed into the postoffice, smashed through the plate glass window and finished up by turning on its side and burying the postmaster.

"My friend picked himself up and, advancing to the counter, or what was left of it, he said to the girl there as he took three pennies out of his pocket: 'A stamp, please!'"

Toronto Building Permits Growing

For the period ending July 31 of this year the building permits represented a value of \$4,835,293, as compared with \$4,087,782 for the first seven months of last year. The value of the permits this year is \$745,511 in excess of the same period last year.

Permits for dwellings this year show an increase of \$282,200 in value over those issued in 1917 during the same period.

The comparative figures are as follows:

	July, '18	July, '17
Permits	475	425
Erections	566	504
Value	\$1,094,278	\$762,004

Following are the figures in regard to the erection of dwelling houses:

	Number	Value
July, 1918	111	\$272,200
July, 1917	87	209,800
Increase	24	\$ 62,400
First seven months, 1918	641	\$1,611,075
First seven months, 1917	530	1,328,875
Increase	111	\$ 282,200

Following are the figures in regard to the erection of factories:

July, 1918	\$466,000
July, 1917	151,200
Increase	\$314,800
First seven months, 1918	\$1,702,950
First seven months, 1917	1,305,050
Increase	\$ 397,900

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It is proposed to appoint Gilfroy Fortin to the position of chief building inspector of Montreal. Mr. Fortin is an engineer, who has been for many years in Mexico, and of recent years has been connected with the Federal Government in Ottawa. He is a civil engineer, and if he should be appointed to the head of the building inspection department at the City Hall, he would also have the superintendence of work connected with tunnels and bridges and other construction work, probably being appointed a deputy director with charge of two or three departments.

Book Reviews

The Kiln-Drying of Lumber—Is a new authorized work covering the entire subject. By Harry Doland Tiemann, M.E., M.F. In charge, Section of Timber Physics and Kiln Drying Experiments of the U. S. Forest Service. Special Lecturer in Wood Technology and Forestry, University of Wisconsin, Forest Products Laboratory, Madison, Wisconsin. 16 tables. 55 illustrations. Octavo. Net \$4.00.

The value of technical knowledge of kiln drying is self evident, this book, as does no other upon the market, gives the reader the most recent and most clearly expressed information. The United States is taking a lead in the adoption of the kiln drying method and this volume will increase our lead. It is a practical as well as a theoretical treatise. The text and illustrations guide the way to the most efficient methods of work.

Kiln drying improves the condition of the wood for the purpose for which it is used; it reduces losses from warping, checking, case-hardening, and honey-combing that occur in air drying; it reduces the interest charge, the fire risk, the weather attacks, by reducing the period necessary to carry wood from the time it is cut to that when it is fit for use; it reduces the weight and thus facilitates handling and shipping.

The present losses in preliminary air drying can be reduced by kiln drying from 12 per cent. for hard woods and 5 per cent. for soft woods, to 2 per cent. There is a possible annual saving of \$17,178,000.

Concrete House and its Construction. By Maurice M. Sloan. 224 pp., 6 x 9 in., 145 illustrations and many valuable tables. Cloth bound. Published by Portland Cement Association, 111 West Washington St., Chicago, Ill. Price, \$1.00.

The contents are as follows:

Chapter I—The Advantages of Concrete for House Construction.

Chapter II—Architectural Design and Treatment of Concrete Houses.

Chapter III—Details of Construction.

Chapter IV—Operations in the Field.

Chapter V—Calculations for Determining the Strength and Design of Reinforced Concrete in House Construction.

Chapter VI—Calculating the Bending Moments for Reinforced Concrete Beams and Slabs and the Determination of Size and Reinforcement.

Chapter VII—Tables for Designing Reinforced Concrete and Their Use.

Chapter VIII—Concrete Block Houses.

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Contracts were awarded recently by the Canadian Copper Company for the construction of forty-five workmen's houses, twenty-three of which will be built at Creighton Mine and twenty-two at Copper Cliff. The new houses will be of six rooms, with cellar under entire house at Copper Cliff only. They will have sewer and water and a bathroom, and plastered throughout. There is also a front verandah. The estimated cost of each house is about \$5,000, or about 60 per cent. more than in normal times. Contractors state that the same house could be built five years ago for \$2,800 to \$3,000.

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Building returns show that the trade is fairly active in Galt this summer. The total of permits issued for the first seven months of this year is \$109,933, an increase over the same period of last year of \$37,000. The total for last month is \$39,900.

Printing

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The Commercial Press, Limited
32 Colborne St., TORONTO

Canadian National Exhibition

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TORONTO

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The militant spirit of Empire translated into flesh and blood. All the colorful paraphernalia of romance and history in the making. Simple, inspiring, dramatic. Made supremely worth while by superb musical treatment.

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Creator's band; Allies' exhibit of Fine Arts; gigantic Live Stock and Agricultural Display; acres of "Made-in-Canada" manufactures; Government Food Conservation Show occupying one entire building; crippled soldiers demonstration of vocational training.

YOUR LOCAL AGENT HAS INTERESTING INFORMATION
REGARDING RAILROAD FARES

Price List of Building Materials—Revised to Date

EDITOR'S NOTE—Great care is exercised in obtaining prices for this department. They are as accurate as it is possible for us to make them. We know, however, that because of varying conditions, different dealers' prices are bound to vary somewhat; and our purpose in publishing this department is to give readers an idea of prices, rather than absolutely definite information.

PRICES AT MONTREAL

Hemlock lumber—	
2x4 in. to 2x12 in., 8 to 14 ft.	\$42.00
2x4 in. to 2x12 in., 16 ft.	43.00
2x4 in. to 2x12 in., 18 ft.	46.00 to 47.00
No. 1 hemlock decking	42.00 to 43.00
No. 2 hemlock dimensions and 1 in.	35.00 to 38.00
Pine—	
1 in. common and better pine 8 to 12 in. wide, rough	55.00 to 75.00
2 in. white pine, mill stock	52.00 to 65.00
7/8 x 8 and 10 in. pine shelving	74.00 to 79.00
7/8 x 12 in. pine shelving	84.00
No. 1 white pine flooring	57.00 to 64.00
No. 1 spruce flooring	47.00 to 54.00
No. 1 pine decking, D2S	47.00 to 62.00
No. 1 pine V or beaded sheeting	68.00
No. 2 pine V or beaded sheeting	58.00
Pine trim for paint finish—	
4 in. casing, per 100 ft.	3.50
5 in. casing, per 100 ft.	4.00
8 in. pine base, per 100 ft.	6.50
10 in. pine base, per 100 ft.	8.50
4 in. pine window stool, per 100 ft.	5.00
Shingles, lath, roofing, etc.—	
No. 1 pine lath	7.00
No. 2 pine lath	6.50
No. 1 spruce lath	6.00
XXX B.C. shingles	5.50
Cedar posts—fence—	
5 in. at small end, per ft.	.40
7 in. at small end, per ft.	.60
Hardware—	
Nails, wire, common, base	5.50
Nails, cut, common, base	5.70
Sash weights, cast iron, per 100 lbs. (solid)	8.10
Tarred felt paper, per roll	.75 to 1.25
Building paper, per roll	1.20
Brick, tile, terra cotta, sewer pipe—	
No. 1 dry pressed red bricks	18.00
No. 1 dry pressed buff bricks	21.00
Red stock bricks	15.00 to 18.00
Cement brick, grey	22.00
Fire brick	60.00
Sewer pipe, 4 inch, per ft.	.15
Sewer pipe, 6 inch, per ft.	.22½
Cement, plaster, stone, etc.—	
Cement (bags extra) car lots, bbl.	3.10
Sand, for cement or brick work, ton	1.40
Lime, per ton	15.00
Hydrated lime	20.00
Mortar color, bbl.	6.50
Plaster of paris, bbl.	3.15
Crushed stone, 2 in.	1.75
Crushed stone, 1 in.	2.00
Crushed stone, 3/8 in.	2.25
Hardwall plaster, per ton	17.00
Gravel, per ton	1.20
Hair (plaster) per lb.	.15

PRICES AT TORONTO

Hemlock lumber (sized)—	
2x4 in., to 2x12 in., 12 to 14 ft.	\$42.00 to \$43.00
2x4 in., to 2x12 in., 16 ft. and 10 ft.	43.00 to 44.00
2x4 in., to 2x12 in., 18 ft.	46.00 to 47.00
1 in. hemlock, No. 1, 6 in. wide	43.00
1x8 in. and 1x10 in., 10 ft. to 16 ft.	44.00
No. 1 hemlock decking	44.00 to 45.00
No. 2 hemlock dimensions and 1 in.	35.00 to 38.00
Pine—	
1 in. common and better pine 8 to 12 in. wide, rough	55.00 to 75.00
2x4 to 2x12, pine common	52.00 to 65.00
7/8x8 and 10 in., pine shelving	74.00 to 79.00
7/8x12 pine shelving	84.00
White pine flooring	57.00 to 64.00
Spruce flooring	47.00 to 54.00
Pine decking D2S	47.00 to 62.00
Spruce decking	47.00 to 56.00
No. 1 pine V or beaded sheeting	66.00 to 68.00
No. 2 pine V or beaded sheeting	56.00 to 58.00
No. 1 Common long leaf yellow pine—	
2x4 in. to 2x12 in., 10 to 16 ft.	42.00 to 65.00
2x4 in. to 2x12 in., 18 to 20 ft.	46.00 to 70.00
2x4 in. to 2x12 in., 22 to 24 ft.	56.00 to 75.00
Yellow pine finish—	
4/4 x 6, 8, 10 and 12 B. & B. smoke dried	70.00 to 80.00

5/4 x 6, 8, 10 and 12 B. & B. smoke dried	75.00 to 85.00
6/4 x 6, 8, 10 and 12 B. & B. smoke dried	75.00 to 85.00
8/4 x 6, 8, 10 and 12 B. & B. smoke dried	75.00 to 85.00
4/4 x 6, 8, 10 and 12 B. & B. steam dried	70.00 to 80.00
5/4 x 6, 8, 10 and 12 B. & B. steam dried	75.00 to 85.00
6/4 x 6, 8, 10 and 12 B. & B. steam dried	75.00 to 85.00
8/4 x 6, 8, 10 and 12 B. & B. steam dried	75.00 to 85.00
Pine trim for paint finish—	
4 in. casing, per 100 ft.	3.00 to 3.50
5 in. casing, per 100 ft.	3.50 to 4.00
8 in. pine base, per 100 ft.	5.25 to 6.50
10 in. pine base, per 100 ft.	7.00 to 8.50
4 in. pine window stool, per 100 ft.	4.50 to 5.00
Hardwood trim, flooring, etc.—	
Quotations will be given on request. See editor's note above.	
Shingles, lath, roofing, etc.—	
XXX B. C. cedar shingles, per M.	5.50
No. B. extras	5.50
No. 1 pine lath, per M.	7.00
No. 2 pine lath	6.50
No. 1 spruce lath	6.00
Roofing:	
1 ply, per sq.	1.25 to 1.90
2 ply, per sq.	1.50 to 2.50
3 ply, per sq.	1.75 to 3.00
Cedar posts—fence—(8 ft.)	
5 in. at small end, each	.40
6 in. at small end, each	.40
7 in. at small end, each	.60
Hardware—	
Nails, wire, common, cwt.	5.45
Nails, cut, common	5.80
Sash weights, cast iron (solid)	3.00
Sash cord, No. 8 and up, lb.	.70
Tarred paper, roll	.75 to 1.25
Building paper, plain	1.20
Glass—(Ontario and Quebec prices.)	
United inches	
Up 25 (per 100 ft. box)	Star D.D. \$16.80 \$22.90
26-34	17.60 24.85
35-40	18.35 26.40
41-50	23.50 30.00
51-60	24.60 30.80
61-70	26.50 32.70
71-80	29.70 35.40
81-84	45.45
85-90	48.85
91-94	49.80
95-100	58.55
101-105	65.35
106-110	73.10
Wired glass, per sq. ft.	
Brick, tile, terra cotta, sewer pipe—	
No. 1 dry pressed red bricks, per M.	\$18.00 to \$20.00
No. 1 dry pressed buff bricks	18.00 to 20.00
Red stock bricks	14.00 to 16.00
Sand lime bricks	9.00 to 10.50
Grey stock bricks	18.00 to 15.00
Sewer bricks	12.50
Wire cut brick for foundation work	12.50 to 14.00
Porous terra cotta bricks	12.00 to 15.00
No. 1 enamelled bricks, all colors, standard, from	80.00 to 115.00
Enamelled bricks (shapes)	100.00 to 200.00
Brick salt glazed, carload lots floor and wall, standard, per M.	30.00 to 50.00
Shapes	50.00 to 150.00
Fire brick	55.00 to 85.00
Fire clay, per ton	16.00
Rough texture brick	20.00 to 35.00
Sewer pipe, 4 inch, per ft.	.15
Sewer pipe, 6 inch, per ft.	.22½
Verandah post caps, 18 in., each	1.45
Verandah post caps, 20 in., each	1.75
Chimney caps, 1 flue in 1 piece, each	2.00
Chimney caps, 2 flues in 2 pieces, each	3.50
Chimney caps, 3 flues in 3 pieces, each (Excelsior)	6.00
Cement, plaster, stone, etc.—	
Cement (bags extra) (5 bbl. lots)	3.35
Sand, for cement or brick work, per ton	.95 to 1.00
Lime, ton, gray	12.00
Lime (ton) white	14.00
Hydrated lime (Canadian), per ton	16.75
Mortar color:	
Black, cwt.	6.50

Red, cwt.	2.50
Plaster of paris	3.25
Crushed stone, 2 in.	1.55
Crushed stone, 1 in.	1.75
Crushed stone, 3/8 in.	1.75
Hardwall plaster, per ton	14.00
Sanded	8.00
Gravel, per ton	1.10 to 1.50
Hair (plaster), per lb.	.15

WINNIPEG PRICES

Corrected to July 19th, 1918, by the Building Material Dealers Association, of Greater Winnipeg, 305 Scott Block, Winnipeg.

Terms—All goods are payable on delivery of same. Without waiving or modifying this term, accounts may be rendered monthly on the first of each month.

Discount—Unless otherwise specified, the prices noted herein are subject to a discount of 5 per cent. in respect of all goods paid for, on or before the 15th day of the month following the month in which same are delivered, and time is the essence of this provision.

Interest—Interest at 8 per cent. per annum will be charged on the price of all goods from the last day of the month following the month in which same are delivered.

Delivery—All quotations are based on curb delivery only. If carried over 20 feet, there will be a minimum charge of 50c per ton.

Sand, gravel and torpedo sand— Per yard Delivered \$2.75

F.O.B. yard 1.75

Carload 1.50

Crushed stone, crushed and screened gravel, 1½ in. to 2 in.—

Delivered 3.30

F.O.B. cars, city 2.55

F.O.B. quarry 1.30

Crushed stone, crushed and screened gravel, ¾ in. to 1 in.—

Delivered 3.60

F.O.B. yard and F.O.B. cars, city 2.90

F.O.B. quarry 1.50

Stone dust—

Delivered 3.50

F.O.B. yard and F.O.B. cars, city 2.30

F.O.B. quarry 1.10

Roofing gravel—

Delivered in city or F.O.B. cars 4.00

Note—All material quoted above is delivered in 2 yd. loads; for delivery of less than 2 yd. loads add 50c net extra per load.

Delivered Per cord \$14.00

F.O.B. yard and F.O.B. cars, city 8.00

Lime in bulk—White lime, grey lime, Moosehorn and Bowman lime—

Lime in bags 2c per bush, over bulk price.

Delivered Per bush \$.50

F.O.B. yard .47

F.O.B. cars at kiln .35

*Note—All above delivered prices are for loads containing 40 bushels or more; for less than 40 bushels delivered add 50c net per load.

Lime is sold by measure only.

Lime in barrels (including barrels)—

Diamond and Star Brands. Per bbl.

Delivered 2.90

F.O.B. yard 2.80

F.O.B. cars city in car lots 2.45

Moosehorn and Bowman Brands—

Delivered 2.90

F.O.B. yard 2.80

F.O.B. cars, city in car lots 2.45

Kelly Island Brand—

Delivered 2.35

F.O.B. yard 2.25

Above delivered prices are based on load lots.

Note—A barrel of lime weighs 200 lbs. gross, or about 180 lbs. of lime.

Hydrated lime in paper bags (50 lbs.)—

Bags included in price, but not returnable.

Delivered Per ton \$20.50

F.O.B. yard 19.50

F.O.B. cars, city 18.35

Hydrated lime in cotton bags—(100 lbs.), bags, 30c allowed when returned. Per ton

Delivered \$24.00

F.O.B. yard 26.50

F.O.B. cars, city 25.00

Sacks returnable 30c each.

Portland cement in bags— Per bbl.

Delivered \$4.60

F.O.B. yard 4.50

F.O.B. cars, city 4.40

Carloads on track direct on job, \$4.00 bbl.

Note—Four sacks make a barrel, 350 lbs.

Mortar cement in bags— Per bag

Delivered \$.70

F.O.B. yard .68

F.O.B. cars, city .60

Note—1 sack mortar cement weighs 70 lbs. Delivered in ton lots; less than ton lots 50c extra.

Best Bros. Acme and No. 1 Keenes cement in bags—	Per bag
Delivered	\$2.50
F.O.B. yard or cars, city	2.25
Empire Keenes cement in 100 lb. bags—	
Delivered	\$2.25
F.O.B. yard or cars, city	2.10
Note—a sack contains 100 lbs. gross.	
Fine Keenes cement in bags—	
(3 sacks per bbl.)	Per bbl.
Delivered	\$13.10
F.O.B. yard or cars, city	12.25
Superfine Keenes cement in bags—	
(3 sacks per bbl.)	Per bbl.
Delivered	15.50
F.O.B. yard or cars, city	14.70
Gypcement—	Per ton
Delivered	\$17.00
F.O.B. yard	16.00
F.O.B. cars, city	15.00
Hardwall plaster Nos. 1 and 2, wood fibre plaster, ivory finish, gold dust finish—	Per ton
Delivered in paper bags	\$19.00
F.O.B. yard	18.00
F.O.B. cars, city	17.00
Empire finish plaster, Peerless prepared finish, Sinite finish plaster (in bags)—	
Delivered in paper bags	25.00
F.O.B. yard	24.00
F.O.B. cars, city	23.00
Plaster of paris and Stucco (in bags)—	
Delivered in paper bags	\$22.00
F.O.B. yard	21.00
F.O.B. cars, city	20.00
After August 1, deliveries will be in paper bags, except for contracts existing previous to July 19.	
Note—20 sacks make 1 ton gross.	
Delivered in ton lots; less than ton lots 50c extra.	
Plaster of paris in barrels—	Per bbl.
(Price includes barrels.)	
Hammer Brand, 320 lbs. gross	\$4.40
Empire and Peerless, 250 lbs. gross	3.70
Plasterers' hair—	
Per bale	\$3.30
Per bush	.90
Mortar color—	Per 100 lbs.
Red	\$6.00
Black	7.50
Buff	7.00
Chocolate	8.00
Drain tile—	
3 in. delivered or at yard, each	\$.06
4 in. delivered or at yard, each	.08
Each tile is one foot long.	

Wood lath—	
No. 1, delivered, per M.	\$6.50
No. 2, delivered, per M.	5.50
Gypso fibre—	Per M. ft.
5/16 in. x 32 x 36 x 48 and 60—	
Delivered	33.00
F.O.B. yard	28.60
F.O.B. cars, city	27.25
3/8 in. x 32 x 36 and 48 and 60—	
Delivered	36.30
F.O.B. yard	32.70
F.O.B. cars, city	30.80
1/2 in. x 32 x 36 and 48 and 60—	
Delivered	41.50
F.O.B. yard	37.00
F.O.B. cars, city	35.00
Note—If delivered in more than 2,000 feet lots, \$2.00 per M. less.	
Plaster blocks—	Per 100 sq. ft.
3 in. hollow tile—	
Delivered or F.O.B. yard	\$10.50
F.O.B. cars, city	8.50
4 in. hollow tile—	
Delivered or F.O.B. yard	11.50
F.O.B. cars, city	9.50
6 in. hollow tile—	
Prices on application—	
2 in. furring tile—	
Delivered or F.O.B. yard	8.50
F.O.B. cars, city	6.50
2 in. solid tile—	
Delivered, or F.O.B. yard	10.50
F.O.B. cars, city	8.50
Terra Cotta tile prices on application.	
Fire clay—	
Delivered or F.O.B. yard, per 100 lbs.	1.25
Per ton	25.00
Firebrick (Canada)—	Per M.
Delivered	\$70.00
F. O. B. yard	67.50
F. O. B. cars	65.00
In quantities less than 1M, 7 1/2c each.	
Fire brick—(American)	Per M.
Delivered	\$90.00
F.O.B. yard	87.50
F.O.B. cars, city	82.50
Less than M. delivered, per 100	9.50
Special prices on fire blocks and specials on application.	Per M.
Common clay brick	15.00
Chimney and select brick	15.00
Veneer brick	18.00
Sandlime brick	14.50

WINNIPEG GLASS DEALERS' ASSOCIATION
Prices of window glass sheet boxes.
Effective April 24th, 1918.

Unites	16 oz.	21 oz. or
Inches	Single	Double
	or Star	Diamond
10 - 25	\$13.50	\$18.50
26 - 40	14.50	21.00
41 - 50	18.50	23.75
51 - 60	19.50	24.25
61 - 70	20.50	25.75
71 - 80		27.75
81 - 84		34.75
86 - 90		37.00
91 - 94		37.75
96 - 100		44.25
101 - 105		49.00
106 - 110		54.75
100 ft. Cases of one Size of Even Inch Glass		
26 oz.	32 oz.	
Up to 100 in.47	Up to 100 in.
Over 100 in.55	Over 100 in.
Saskatoon and Swift Current		
16oz. Winnipeg prices plus 80c freight per case.		
21oz. Winnipeg prices plus \$1.10 freight per case		
Calgary and Edmonton		
16oz. Winnipeg prices plus \$1.05 freight per case		
21oz. Winnipeg prices plus \$1.50 freight per case		

PRICES AT VANCOUVER

Shingles, lath, etc.—	
XXX B. C. cedar shingles, per M.	\$3.00
Lath, per M.	\$2.50 to 4.00
Brick, tile, terra cotta, sewer pipe—	
No. 1 dry pressed red bricks, per M.	\$33.00 to 45.00
No. 1 dry pressed buff bricks, per M.	40.00 to 45.00
Red stock bricks	14.50 to 16.00
Fire brick	45.00 to 50.00
Fireclay, per ton (car lots)	16.00
Sewer pipe, inch, per ft.	.15
6 in., per ft.	.25
8 in., per ft.	.35
10 in., per ft.	.45
12 in., per ft.	.55
Cement plaster, stone, etc.—	
Cement, Portland (bags extra), per bbl.	\$ 2.80
Keenes cement, per bbl. (sacks extra)	9.00
Hydrated lime, per ton	16.00
Lime, per bbl. 200 lbs.	1.90
Alca lime, per ton	16.00
Plaster of paris, per bbl.	4.50
Hardwall plaster, per ton (car lots, bags extra)	16.50

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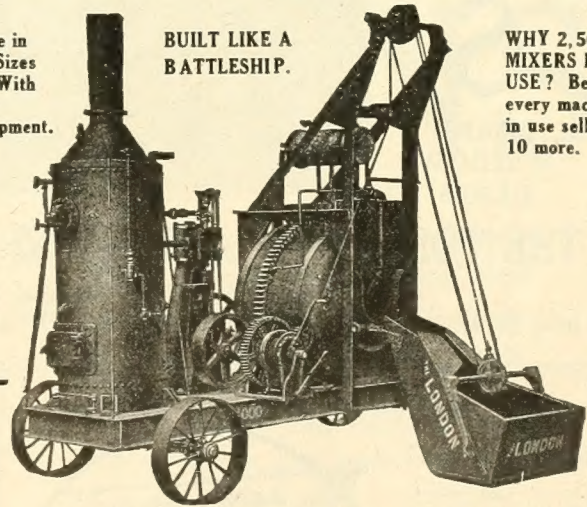
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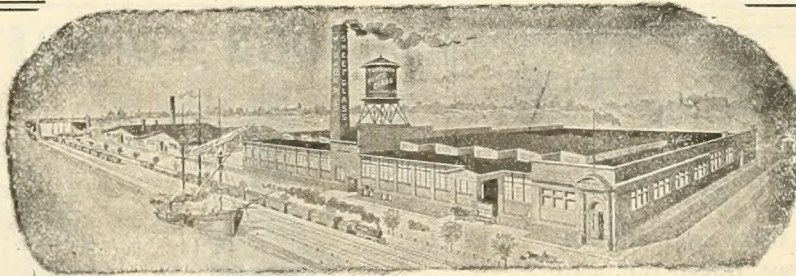
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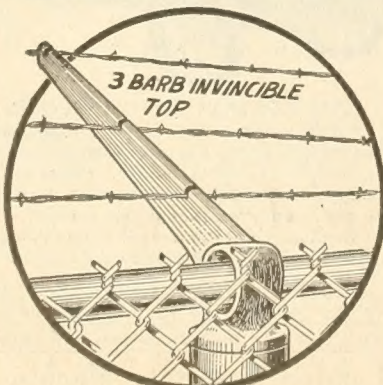
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is built to protect plants in war and peace. A new style of fence that forms a 7 feet high steel wall about your property. Cannot be passed, surmounted or broken. Saves its cost, too, by preventing thefts of material.

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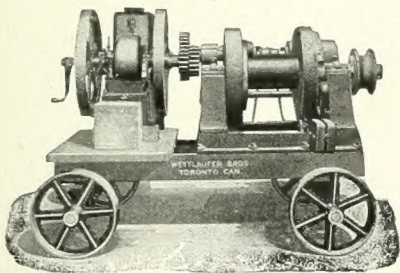


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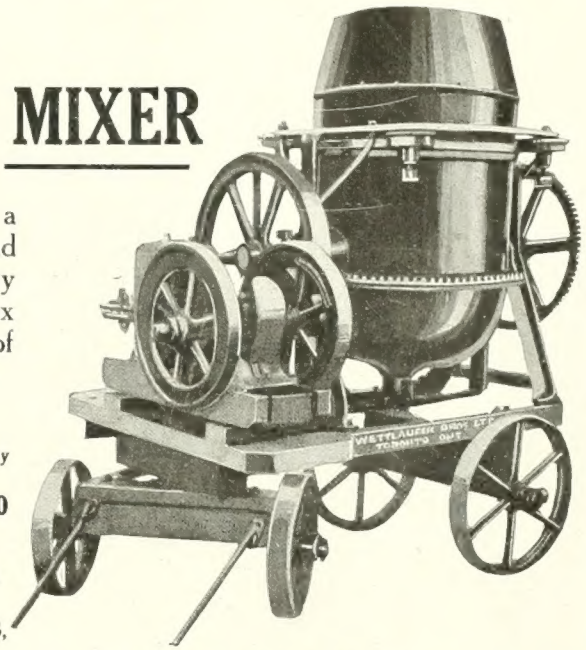
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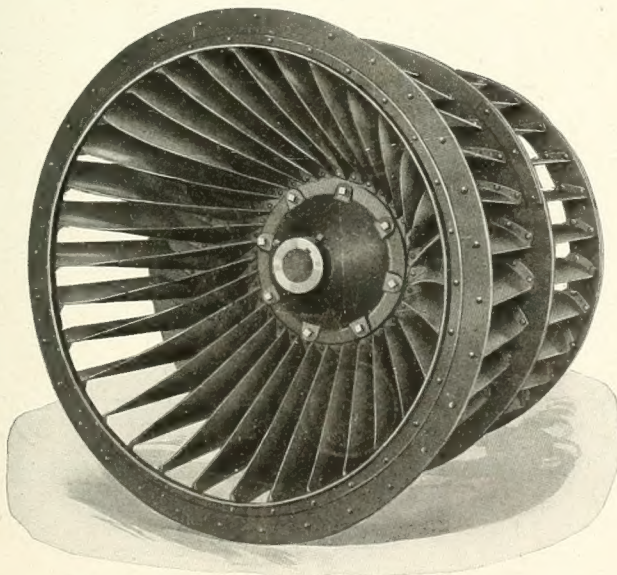


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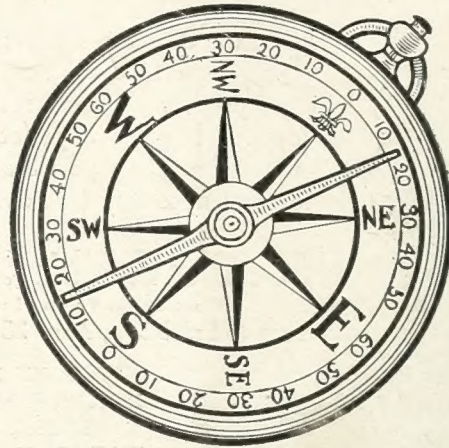
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—DURABILITY—ECONOMY

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Babcock Commercial Bodies

LIGHTNESS All makers of Commercial Bodies for Motors strive to attain **Lightness** of construction without sacrificing strength. The Babcock patents enable a saving of ONE-THIRD in WEIGHT.

STRENGTH "Strong as Steel!" The fundamental **strength** of Babcock Bodies is the steel construction—patented—which makes them far stronger than any other kind of framework could possibly make them.

DURABILITY Tested by years of hard service in carrying the heaviest merchandise. The **Durability** of Babcock Bodies is marvellous. The steel construction gives a rigidity which prevents the racking and weaving so injurious to other makes of bodies.

ECONOMY If a Babcock Body costs a little more than a cheap body and lasts twice or three times as long—it is economical, isn't it? Babcock Bodies save real money for the merchants who put them on their delivery cars.

STYLE NO. 1. The Open Express is the base unit for the other styles, which are created by the addition of parts, all of which are interchangeable. The Babcock Bodies give an unusual amount of space for carrying merchandise and this appeals greatly to the merchant who employs motor deliveries.

STYLE NO. 2. This style is made—presto, quick—by merely adding the canopy top with curtains. This is easily done, and the patented method of attaching prevents absolutely all racking and weaving, preserving full loading space intact.

STYLE NO. 3. This style is attained by simply adding side and rear screens to canopy top. All Babcock Bodies are on the unit plan and all styles are interchangeable.

STYLE NO. 4. The fully enclosed, panel side style, is very handsome. The panels are made of vehisote which takes a finer finish than wood and does not crack or warp. This style comes ready to assemble on the express unit, same as other style. Rigid, strong and extremely satisfactory.

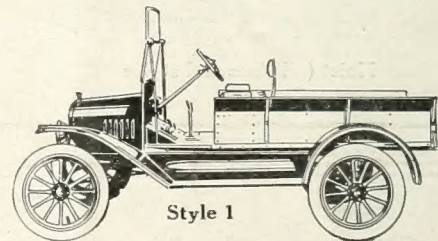
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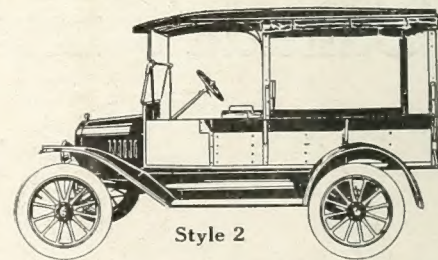
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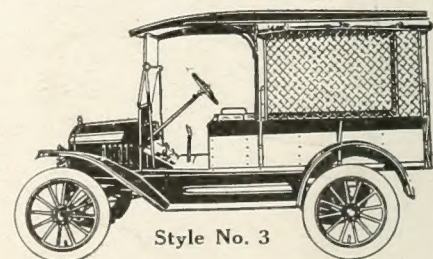
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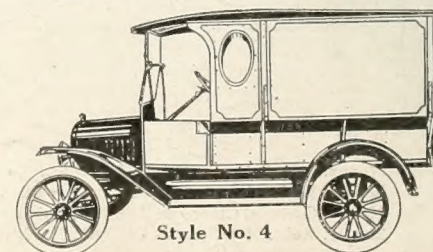
Style 1



Style 2



Style No. 3



Style No. 4