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The Canadian Engineer

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ESTABLISHED 1893

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The Canadian Engineer

ESTABLISHED 1893

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CANADIAN ENGINEERING SOCIETY.

With the annual meeting of the Canadian Society, not a week distant, many engineers have made arrangements to attend; many more find it impossible to take the holiday and to profit by meeting men of their own profession from other districts.

For over twenty years the society has been in existence; growing in numbers and influence; always keeping in view its two chief objects, first to facilitate the acquirement and interchange of professional knowledge among its members and second to encourage original investigation.

Now and then its right to be the exclusive Canadian Engineering Society has been questioned, but after a feeble effort its would-be rivals have gone out of existence, leaving the old society stronger than before.

Some charge that the society has been too conservative, not anxious enough to widen its circle of influence or enlarge its field of operation. Be that as it may one thing is sure that yearly it is receiving additional support from Canadian

engineers and yearly it is, by the educational influence of its meetings, the publication of its transactions and careful scrutiny of the credentials of applicants for membership, doing much to improve the standing of its members and of the engineering profession.

A few years ago encouragement was given towards the organization of branch societies in various cities. As these branches are opened interest in the parent society will increase, the membership will be added to and the influence of the society will widen. It is through the local branches rather than through the parent society that engineers as an organization will exert influence on the community.

DOMINION RAILWAY BOARD.

Of the many Canadian courts or commissions the Dominion Railway Commission is one of the most popular, efficient and useful. The men who have been selected to sit upon this board were men in whom the country had confidence. The decisions and orders issued have increased that confidence. Its success has made it indispensable.

Its powers are very wide, its duties varied. All matters that effect railways directly or indirectly come under its purview. Whether it is one railway line crossing another; a telegraph line crossing a railway right of way or a sewer passing under the roadbed all are regulated by the Dominion board.

Of such general interest have these orders become that we have made arrangements to publish weekly a condensed report of the orders issued. The number of the order and the date of issue are given so that those who are more particularly interested may readily secure fuller information.

LEGAL NOTES.

Legal phraseology and the law courts have no charm for the engineer, yet it is necessary that he should know something of the law, as it relates to his particular branch of the engineering profession.

That the engineer may become familiar with judgments and decisions that have been given on particular points of law we purpose publishing in the third issue of every month a brief summary of legal decision in which engineers are interested. Stripped of much of their legal terminology these decisions will give a good idea of an engineer's powers and limitations; of a contractor's responsibility, both as to his work and his employees, and of the "legal" definition of many terms and phrases that we use loosely every day, but which when more carefully defined and interpreted according to law have another meaning. Forewarned is forearmed. The engineer who has a clear idea of what may be expected of him, of his work and done under his specifications will be a stronger man than he who has to continually consult his legal adviser. These legal notes will be prepared by a member of the legal profession and at the end of the year the different decisions will be carefully indexed for ready reference.

HISTORICAL STRUCTURES.

On another page Mr. Young calls attention to a matter long neglected by engineers, namely, the description of engineering works that have withstood for years the action of the elements and wear incident to continuous use.

We have been too interested in new work, descriptions of what we are doing and have neglected recording how successfully our predecessors built.

Our most valuable information is gained from knowing how the different materials of construction and methods of construction have served in the past. The mathematics and theory of engineering may be the same the world over, but the climatic conditions in Canada place our engineering problems in a class by themselves. Accurate descriptions of the condition of structures built twenty-five or more years ago would be a valuable contribution to current engineering literature.

CONCRETE FOR APARTMENT HOUSE.

W. L. McLaren.

That Canada is not behind the times in concrete construction is evidenced by the erection in Ottawa of a large apartment house in the centre of the city. The accompanying picture shows a portion as yet uncompleted. The construction is absolutely fireproof, as the plaster is applied directly to the concrete walls. The mixer is shown in the foreground attached to an electric motor which is housed on wheels. A little over half of the frontage of the building is visible in the picture. The floors are laid continuously from side to side of the building, being reinforced by heavy steel

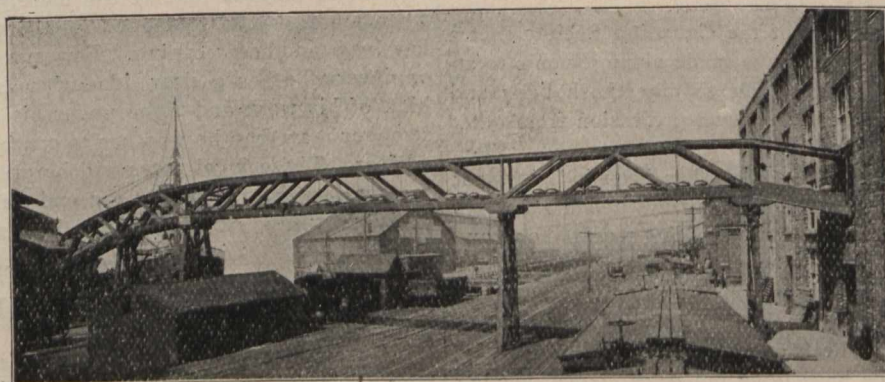


Apartment Block Under Construction at Ottawa.

wires joined together by lighter wires at short intervals, the joint being formed by an electric weld. The ends of the heavy wires are wedged into the spaces in the hollow blocks of one exterior wall, and the whole stretched with block and tackle, and the other end similarly treated, thus with concrete laid four to six inches thick, forming a continuous floor, which for strength can hardly be equalled.

CONVENIENT FREIGHT HANDLING.

All steambot cargo discharged or awaiting shipment at the Virginia Street Dock in Seattle, Washington, is stored in a warehouse of the company located on the opposite side of



Dock. Railway Avenue. Warehouse

Railway Avenue, distant about 250 feet from the dock.

To transfer the large volume of miscellaneous freight handled daily between the dock and warehouse, economically

and at the necessary speed without obstructing traffic in the street, the company has recently installed an over-head carrier which performs the work at a cost which is hardly appreciable, and which is capable of handling the freight more rapidly than it is possible to load or dispose of it at the terminal points.

As the equipment is very simple and can be modified to suit practically any industrial condition which involves the movement of packages, or miscellaneous articles, in large numbers between fixed points, a brief description will be of general interest.

As shown by the accompanying illustrations, the dock and warehouse are connected by a light elevated structure



Carrier at Dock End.

which supports a continuously moving carrier of the endless chain type, with terminals on the dock level at one end and on the second floor of the warehouse at the other.

The carrier consists of a series of wooden flights, 9 inches wide by 4 inches thick and 30 inches long, made of Puget Sound fir. These are secured every 12 inches to two strands of No. 180 Jeffrey steel thimble roller chain, forming a practically continuous apron on which the freight is carried. Wedge shaped blocks attached to every third flight serve to push or retard such freight as might otherwise roll down the incline at the dock end.

The machinery is driven at the upper, or warehouse, end by a 10 horse-power electric motor, and being reversible it carries the freight to equal advantage in either direction. It

is designed to handle packages not exceeding 3 feet wide and 4 feet high, which normally consist of salmon in cases, sacks (Continued on Page 61.)

LEGAL NOTES.

[This department will appear in the third issue of every month. Should there be any particular case you wish reported we would be pleased to give it special attention, providing it is a case that will be of special interest to engineers or contractors.—Ed.]

AN ENGINEER'S LIABILITY.

Some features of peculiar interest to surveyors, architects and engineers, are presented by a case recently decided in the city of Calgary. It appears to be the first time the matter has been tried out in the Canadian courts in this form and lays down the general principle that persons holding themselves out as able to do certain work impliedly warrant that they are possessed of such skill as is reasonably competent for its performance, and that, if they have not this skill and damage is sustained by reason of their error or lack of care, they are liable for any damages that result.

Woodward & Co., Contractors, vs. Municipal Engineering Co.

In this case Woodward & Company, contractors, agreed with W. B. Sterling & Company to build a warehouse on lots 9 and 10, as per plan registered. Woodward, in order to exercise due diligence and care in erecting the warehouse, engaged the Municipal Engineering Company to survey and stake out the lots. It transpired later that the members of this company were not qualified surveyors, but they proffered their services as such, did the work and indicated the two lots.

Subsequently the owner of lot 8, adjoining, gave notice that the warehouse was encroaching on his property to the depth of 13 inches, and Sterling notified the plaintiffs, where upon Dominion land surveyors were engaged to survey the property and find out whether the warehouse encroached upon lot 8 as claimed. The result proved that not only did the warehouse encroach upon the property, but also several inches on Eighth Avenue.

Woodward & Company thereupon had to move the building both from off lot 8 and off the avenue, and accordingly took action against the Municipal Engineering Company for damages sustained by them in having to remove the said warehouse. It was pleaded by the defendants that they were not Dominion land surveyors and consequently not properly qualified to do the work and that Woodward & Company in engaging a firm who were not thus properly qualified were guilty of contributory negligence and consequently should not succeed in the action against them.

The plaintiffs having proved that the survey was incorrect, and that in consequence they had been compelled at great cost to move the building and suffered damage therefrom, judgment was entered against the defendants for the full amount of the damages, \$425, and costs.

This decision points to the necessity that as professional men we should be conversant with the general principles of law applicable to our profession, and with all the methods of most ordinary occurrence, even though knowledge outside our own profession is involved. Not indeed that we should supply a minute and accurate knowledge of the law, but the broad principles applicable under the circumstances.

And as to the degree of skill required of us in our own line—this is not an absolute quantity nor the highest degree possible. There may be persons who have higher education and greater advantages than we, but the professional man who brings to his task a fair, reasonable and competent degree of skill, such as may be expected in the circumstances of time and place from an average person in the same profession, incurs no liability for errors in judgment in applying his knowledge. The question is not as to whether he did or did not make an error, but whether such error was or was

not due to lack of proper care and skill. And it should be noted that the law is much more ready to presume such negligence against one who is not a graduate or properly qualified than against one holding the ordinary proofs of efficiency.

It may further be noted that those who possess unusual and special skill stand in a different category to the rank and file of the profession. In these cases an extraordinary fee is paid in return for special skill and experience, and the man who demands such unusually high pay is required by law to exert a greater degree of diligence than the ordinary expert. He must acquit himself in accordance with the reputation and fame he bears or he becomes liable to his employers.

TENDER.

What constitutes a tender? The question is sure to recur from time to time and it is interesting to notice an incident where a city council, composed of men who must be supposed to have some experience in such matters nevertheless appear to have erred. The City of Montreal advertised for tenders for the supply of electricity for public street lighting. In response the Montreal Light, Heat and Power Company sent in a communication which apparently did not give details and specifications, but nevertheless was an offer to supply the required power. The City Council did not consider this an effectual tender capable of valid acceptance, but the company on consultation were advised "inasmuch as the advertisement calling for such tenders distinctly states that the advertisers will not supply any specifications or forms of tender, your communication is certainly a tender for the public lighting and if accepted by the city would constitute a contract binding upon your company for the fulfilment of which your deposit could be held by the city. Your communication in question, however, does not contain any tender for private lighting."

In this case the ordinary principles of contract apply. There is no particular manner specified in which tenders must be framed, consequently, any offer for due consideration to supply the commodity required is capable of acceptance and when accepted by the city becomes a contract binding upon the company. It is not, however, capable of being accepted as a tender for private lighting as such was not in the contemplation of the offerers in replying to the advertisement.

MUNICIPAL AND COMPANY WORK—POWER TO ENFORCE PAYMENT.

Civil engineers and architects are constantly employed by municipalities and other corporations and when so engaged additional precautions are necessary to render them certain of their fees. It is a general rule of law that corporations are bound only by contracts made under their corporate seal. It is well that professional men should have this clearly before them, as in many cases engineers and architects have failed in collecting their fees after spending a good deal of time and money in the service of a corporation. Instructions from the mayor, town clerk, or works committee, or even a resolution duly passed by the municipal council, will not enable a professional man to recover payment for his services: the corporation may nevertheless choose to resist his claim and plead that the agreement was not under seal. In fact we frequently find amongst municipal councillors and directors of companies, illiterate men who, not understanding the value of professional services, are quite ready to dispute the engineer's bill, and the only safe way is to have your retainer in a form legally binding.

There are some exceptions. Such bodies can legally bind themselves without seal in trifling matters of constant occurrence, such as, the employment of workmen or inferior ser-

(Continued on Page 61.)

CORRESPONDENCE

[This department is a meeting-place for ideas. If you have any suggestions as to new methods or successful methods, let us hear from you. You may not be accustomed to write for publication, but do not hesitate. It is ideas we want. Your suggestion will help another.—Ed.]

CONCRETE HEATER.

In describing a simple concrete heater last week a printer's error made the article read "cast-iron gas pipe 8 inches to 12 inches long." Those familiar with concrete work will know it should have read "8 feet to 12 feet" long.

ENGINEERS AND SOCIAL LIFE.

Sir,—Your editorial on an Engineer's Club suggests to me a few thoughts on engineers in general.

The engineer who forever hides his social light under a bushel is not the wisest man of his profession. Him who counts social intercourse as a waste of business time, does not recognize the full joy and use of living. To be surrounded by an admirable library of text books, to be engrossed in the intricacies of formulæ, to lose one's personality in the depths of apparently insoluble problems, to be lost in a selfish and perhaps self-interested investigation of some engineering puzzle while the world may go to, well, anywhere—all these things are not in keeping with twentieth century methods of learning.

To centre one's powers of thought on an interesting technical subject is good. The earnest student, the up-to-date engineer, the enterprising scientist must do this. Otherwise he will not enter spheres into which genius and research have not entered. But to do this and forget your fellow man is an unhealthy accomplishment. The day of the long-haired and eccentric professor is gone. He is succeeded by the progressive student, who thinks not only of the business to which he is allied, but of his colleagues and their doings. In times past, engineering science was studied almost for the sake of science alone. The man of research made some great discovery; the newspapers lavished praise. And some gentleman, with an eye to business, purchased the invention for a little praise and less money.

We have men now who are not only interested in research and progress, but who are also blessed with the right proportion of the spirit of commercialism. Edison, whose name is a world-wide household word, has spent days at a time in unravelling mysteries of science and engineering; but he has not neglected his brother inventor, his engineering colleague. Commercialism is rightly a part of his personality. To work for glory and honor, and at the same time to carry around an empty stomach and a few illuminated certificates, looks a pretty record in print; in practice it is different and unpractical. Progress in science and in engineering realms, and the business of commerce must be as three sisters walking hand in hand. These thoughts lead to considerations of the vital utility of engineering societies.

Frequently the man of business has a decided aversion to social life of any description. Often the more learned is he the less he experiences a desire to converse with his confreres. Not being a man of the world he is apt to judge his fellow by appearance; and yet when two such beings meet, when the ice of a natural reserve of modesty is broken, there flows a stream of thoughts, of ideas, and opinions interesting to both, and more so to any other and fortunate listeners. The benefits of such an interchange of mental food are obvious.

An engineers' society, or club can be as useless or as useful as it chooses. It can become a second-rate sort of institu-

tion, to which second-rate men flock when in need of second-rate conversation. It can be, and should be, an institution to which the highest and lowliest engineering authorities in the land are welcome and feel welcome. Its officers must be men imbued with the thought that the club is indispensable to the welfare and progress of engineering in the Dominion. The programme for its various sessions should be attractive alike to the deep thinker and to the man who stands upon the threshold of the engineering world. It must neither be too heavy, nor too light. In its preparation may be found scope for the genius of him who recognizes the important part in life an engineering society should play.

First in importance, is the discussion of current engineering topics. Men who imagine they know all concerning a certain subject—though the wise man never thinks thus—learn much that is new if that subject be discussed intelligently by many. Some speaker may advance what, to an ultra-conservative engineer, is an argument of the wildest description. Shorn of a little imagination, this apparently impossible idea may open up new vistas of thought. In discussing subjects appertaining to engineering, and they are legion, there is room for new ideas. There is room for the man who is not afraid to tread other than the same old beaten tracks of technical detail and discussion. The eccentric speaker, the eccentric writer are often our geniuses. So the discussions of an engineering society should be wide in scope. Their topics should be varied. The young engineer should feel no backwardness in participating. The "recognized" authority should experience a joy in educating.

The functions of such a club, or society, should not be tied into position by hard and fast rules. Members of such organizations enjoy informal chats with old and new friends. It is impossible, however much freedom reigns, to obtain the same satisfaction in public discussion as in private conversation. This fact should not be overlooked. Again, elimination of the strictly social element should not be insisted upon. It does men good, however, big they be, whatever number of years they have counted, to forget the diameter of flywheels, the power pressure of high water systems, the problems of reinforced concrete, the A B C and the X Y Z of engineering authorities and text books. Mr. Euclid out of mind and Mr. Pastime in evidence need not be considered a sorry happening for an engineering society.

The cult of engineering societies is of primary and vital importance to the interests of engineering in Canada. A young nation, whose people are possessed of exceptional brawn and brain, whose lands are storehouses of natural treasures, and whose possibilities, engineering and otherwise, are limited only by the breadth of enterprise, must cultivate the social side of business life. Thus only is really substantial and rapid progress made.

Toronto, January 15th.

Yours,

JONES' HIGHWAY BRIDGE.

Sir,—It is to be hoped that the letter of Mr. W. M. Ryder in your issue of January 3rd, concerning the Jones' highway bridge at St. John's, Quebec, will prompt others having connection with the older engineering works in this country to place whatever personal knowledge they have concerning such within reach of engineers.

No doubt a great deal of unrecoverable information is being lost to the profession every year in the deaths of our older practitioners and others having close contact with construction many years ago. This is to be regretted, for no engineer who wishes a broad and deep training or a thorough understanding of current practice can afford to ignore the evolutionary steps which have given us rational methods. If the

history of engineering is yet unwritten, it is due, to some extent, to the inaccessible nature, and sometimes loss, of the material with which the historian works. Though none of us be historians, let us at least help the one who, it is to be hoped, will arise some day by placing authentic, unpublished information on record for his use.

The writer would like to see the Canadian technical press made the repository of facts concerning earlier structures used in this country, which from their personal nature might die with their possessor.

Yours truly,
C. R. Young.

University of Toronto,
Toronto, January 17th, 1908.

(Convenient Freight Handling—continued from Page 58.)

of salt and sugar, barrels of cement, and miscellaneous articles weighing as much as 1,000 pounds each.

It travels at a speed of 70 feet per minute and consumes about 6 horse-power when delivering 1,000 packages weighing 100 pounds each, per hour. This rate of delivery is based on the speed at which the packages can be loaded and cared for at the terminal points, and is much below the actual capacity of the machine.

The plant was designed and installed by the Pacific Engineering Company, of Seattle, Washington, the conveying machinery being furnished by the Jeffrey Manufacturing Company, of Columbus, Ohio.

A conveyor of this type will often pay for itself in a few months, and if properly built and operated it will last for many years practically without repairs or renewals.

The Jeffrey Manufacturing Company has installed several machines of this general character for delivering freight to, and receiving from, ships direct, the outer end being made adjustable to the rise and fall of tide and freeboard of vessels.

(Municipal and Company Works—continued from Page 59.)

vants, but this does not apply to the learned professions, the appointment of higher officials and employees of especial skill and learning must always be by deed.

In **Crampton vs. Varna Railway Company**, the plaintiff was the contractor for building a line of railway and required for the accommodation of his men to erect shacks along the line of railway and upon the company's land. He was approached by the duly authorized agent of the company and agreed to erect cottages of a more substantial nature than the shacks on the understanding that they would be taken over by the defendant company after the construction work was done. The agent promised him that the company would pay him \$20,000 for the cottages when thus taken over, and the agreement was afterwards confirmed by a resolution of the board of directors. The Railway Company eventually refused to take the cottages or pay the price agreed upon and repudiated the bargain which was not under seal, and the contractor on bringing an action for the \$20,000 was defeated.

The court in giving judgment expressed its reluctance to decide against the contractor, but the law being clear there was no help and the unfortunate contractor who had neglected to have his agreement made under seal not only lost his case but was forced to pay the costs of litigation. L. R. 7 ch. App. 562.

SOCIETY NOTES.

Ontario Association of Architects.

The twentieth annual meeting of the Ontario Architects Association was held in Toronto on January 14th and 15th, 1908.

Mr. A. H. Chapman, of Toronto, read a paper on the "Waterfront of Toronto," in which he outlined a plan for a grand plaza extending 2,000 feet from York Street to Scott Street, having railway traffic accommodated on a stone viaduct, and vehicle and pedestrian traffic provided for on a broad thoroughfare and a green boulevard. The annual dinner was very successful. In the course of an address on

"Architectural Education" Mr. Wm. A. Langton, of Toronto, said: "The need for this lay in the fact that the profession needed a levelling-up action—a raising of all its members to a certain standard. This was not thought so much a matter of protecting the public as of protecting the profession itself." He denied that the Association wished to create a closed corporation, but regretted that whereas the legislation at present pending before the House restricted the title "registered architect" to those who passed a certain examination, there was nothing to make it imperative for a member of the profession to thus qualify himself. "We are trying," he said, "to get that word 'registered' struck out." He thought that the University should look into the matter with a view to adding to the present instruction given in architecture at the School of Practical Science.

Mr. John A. Ewan in addressing the Association and speaking as one who knew something of the views of others than the architects warned his hearers that public suspicion would be turned against anything in the nature of a "close corporation" in connection with the licensing or control of architects. He hoped that the passing of the proposed bill would not mean that a simple village carpenter would be thrown in jail or fined for attempting to build a woodshed for a neighbor.

Officers elected for 1908-9 were: President, H. B. Gordon; Vice-Presidents, John W. H. Watts, of Ottawa, and Geo. W. Gouinlock; Treasurer, A. H. Gregg; Registrar, W. R. Gregg.

The three new members elected to the council were: J. Francis Brown, Henry Sproatt and Murray White. The other members are: J. W. H. Watts, H. B. Gordon, A. H. Gregg, G. W. Gouinlock, E. L. Horwood, H. E. Moore.

A sub-committee will confer with President Falconer of the University to-day in regard to the establishment of a department of architecture at the University.

Toronto Section of American Institute of Electrical Engineers.

At the January meeting of the Toronto Section of the American Institute of Electrical Engineers, held at the Engineers' Club. Mr. H. A. Moore presented a paper on the "Commercial Possibilities of Induction Motors." Mr. Moore gave something of the history of the introduction of induction motors, the conditions under which it does its best work. The different kinds of induction motor and the advantages of each class. An interesting and high technical discussion followed.

Earlier in the evening, at the invitation of the Executive Committee, a large number of the members of the Institute met for dinner at the St. Charles.

(Continued on Ad. Pages 4 and 5.)



DEPARTMENT OF RAILWAYS AND CANALS, CANADA.

TRENT CANAL. ONTARIO-RICE LAKE DIVISION. SECTION No. 3. NOTICE TO CONTRACTORS.

SEALED TENDERS addressed to the undersigned and endorsed "Tender for Trent Canal," will be received until 16 o'clock on Thursday, 12th March, 1908, for the works connected with the construction of Section No. 3, Ontario-Rice Lake Division of the Canal.

Plans and specifications of the work can be seen on and after the 1st February, 1908, at the office of the Chief Engineer of the Department of Railways and Canals, Ottawa, at the office of the Superintending Engineer, Trent Canal, Peterboro, Ont., and at the office of Mr. J. B. Brophy, Division Engineer, Trenton, Ont., at which places forms of tender may be obtained.

The lowest or any tender not necessarily accepted.

By order,

L. K. JONES,

Department of Railways and Canals, Secretary.

Ottawa, January 16th, 1908.

Newspapers inserting this advertisement without authority from the Department will not be paid for it.

CONSTRUCTION NEWS SECTION

Readers will confer a great favor by sending in news items from time to time. We are particularly eager to get notes regarding engineering work in hand and projected, contracts awarded, changes in staffs, etc. Printed forms for the purpose will be furnished upon application.

LIGHT, HEAT, AND POWER.

Ontario.

HAMILTON.—The hearing of evidence in the arbitration on the street lighting contract was continued before Judge Snider on Saturday, T. W. Sothman, chief engineer of the Hydro-Electric Power Commission, was called by the city, and he estimated that the city was entitled to a reduction of \$30.12 on the \$85 charged by the company for arc lamps, owing to improvements and advances in the electric art between 1899 and 1904.

Quebec.

SHAWINIGAN.—The Shawinigan Water and Power Company earnings for the month of November were \$54,000, as against \$30,412 for the corresponding month a year ago.

MONTREAL.—Five hundred thousand feet of gas in one of the gas meters of the Montreal Light, Heat and Power Company, at the works on St. Catherine Street, Hochelaga, took fire and there was a terrific explosion, which sent the flames high into the air, entailing a loss estimated at \$30,000. Some years ago one of the holders of the same plant blew up and three men were killed.

Manitoba.

MINNEDOSA.—The Minnedosa Power Company are seeking permission to dam the Little Saskatchewan River and to raise the water of Clear Lake, in the Riding Mountain Forest Reserve, not more than five feet. This company purpose supplying light and power to citizens of Minnedosa.

TENDERS.

Ontario.

OTTAWA.—Tenders will be received until March 12th, 1908, for the works connected with the construction of Section No. 3 Ontario-Rice Lake Division of the Trent Canal. L. K. Jones, secretary, Department of Railways and Canals.

OTTAWA.—Tenders will be received for the supply of hardware, timber, etc., for use on the Welland Canal during 1908, until February 10th, 1908. L. K. Jones, secretary, Department of Railways and Canals.

Nova Scotia.

WHITE POINT.—Tenders will be received until February 8th, 1908, for the construction of a break-water at White Point, Scotch Cove, Nova Scotia. Fred. Gelinas, secretary, Public Works Department, Ottawa.

NEW GLASGOW.—Tenders will be received until February 8th, 1908, for the construction of an extension to the Harbor Commissioner's Wharf at New Glasgow. Fred. Gelinas, secretary, Public Works Department, Ottawa.

New Brunswick.

STANLEY.—Tenders will be received until February 10th, 1908, for building the Ryan Brook Bridge over the Nasbwaak River. C. H. LaBillois, chief commissioner, Fredericton, N.B.

CONTRACTS AWARDED.

Ontario.

TORONTO.—Tenders were accepted for the erection of the new public bath house on Stephanie Place, near St. Patrick's market: Carpenter work, George Henry, \$6,233; masonry, Page & Company, \$16,392; plastering, Wm. Webster, \$1,010; roofing, A. B. Ormsby & Company, \$1,398; glass tile work, Brooks, Sandford Company, \$480; painting, Faircloth & Company, \$570; total, \$26,083.

The contract for supplying asphalt for the city's plant was divided between the Barber Asphalt Company for Trinidad Pitch Lake asphalt at \$24.90 per ton, and the California Asphaltum Sales Agency, of Chicago, at \$24 per ton.

Lower tenders were received from firms selling Mexican and Texas asphalt, but the City Engineer decided these asphalts did not stand the tests required by him. The unsuccessful tenders were (1) \$25 per ton; (2) \$23.75 per ton; (3) \$23 per ton; (4) \$21.32 per ton.

RAILWAYS—STEAM AND ELECTRIC.

Ontario.

OTTAWA.—The Manitoulin and North Shore Railway Company are asking for an extension of time for the commencement and completion of the construction of their line of railway.

The Pacific and Atlantic Railway are making the following application to Parliament: (1) Extending the time for the commencement and completion of the construction of the railway; (2) confirming an agreement between the Pacific & Atlantic Railway Company and the Algoma Central and Hudson Bay Railway Company for the amalgamation of the said railways.

Quebec.

The Montreal Street Railway has made a proposition to the city, by which one-third the present cost of removing the snow from the streets traversed by the street railway may be saved. The work now costs in the vicinity of \$150,000 per year. The present arrangement is that the company has to bear one-half the cost of removing this snow; hence the interest the company is taking in having the cost reduced. "Pill boxes" is the name applied by the company to the little sleighs which, for many years past, have been employed in the work of removing the snow from the streets and conveying it to the various dumps. The railway company rightly considers this a most primitive and expensive method and declares that if the City Council will give its assent the company will remove the snow by modern methods and at a saving of from one-third to one-half the present cost, and in a much shorter time than now. It now remains to be seen whether or not the council will accept the proposition.

The C.P.R. has just placed an order for 400 composite steel and wood freight cars with the Dominion Car and Foundry Company, at Blue Bonnets. The order went to the company at Blue Bonnets—which is practically Montreal—because the cars are not of a type produced at the Angus Shops, while the Car Company is specially adapted to their production. The Nova Scotia Steel and Coal Company will also benefit considerably from this order as it would seem that the contract for the manufacture for the steel for these cars has been given to it. It is stated that the order will keep the Nova Scotia Steel and Coal Company's plant busy for one month. The Car Company has been all but shut down for a short time past and the order was very welcome.

Alberta.

The Western Alberta Railway Company are asking for an extension of time in which to commence and complete construction.

British Columbia.

VICTORIA.—Vice-President Whyte, of the Canadian Pacific Railway, says that the electrification of many portions of the lines of the company of the Rocky Mountains and British Columbia is receiving the serious consideration of the directors. It is intended to proceed immediately with the

electrification of the boundary section of the Crow's Nest Pass division.

VANCOUVER.—The Great Northern extension from Fernie to Michel is expected to be completed by February. The road, which has been under construction for the last two years, is 23 miles long. The line follows Coal Creek from Michel to Fernie, where it connects with the Hill road. Practically the route of the new line is the same as followed by the Canadian Pacific, Coal Creek being the only outlet from the mines possible for a railroad. The construction of the Fernie-Michel branch has been an expensive piece of railroad work. averaging, it is estimated, about \$55,000 a mile for the grading and track.

SEWERAGE AND WATERWORKS.

Ontario.

NEW LISKEARD.—The new waterworks system was put into commission last week. The new system is thoroughly up-to-date and insures for the town pure water. D. Sinclair, B.A. Sc, town engineer.

Quebec.

MONTREAL.—Complications are arising between the city and the contractors for the work of building the new aqueduct. Superintendent Janin, of the waterworks departments, reported to the committee, a short time since, drawing attention to the delay in the work. The superintendent, in case the work should not proceed in such a manner as to give reasonable assurance that it will be completed within the year, has power either to employ other parties or materials or carry out the work to his satisfaction, or to take the work from the contractor and carry it out himself at the expense of the contractor. Those who are present carrying out the work offer several explanations for the delay, which excuses, it would appear, are not satisfactory to the department. From present appearances, the chances of the work being finished in time, would seem to be slim.

New Brunswick.

ST. JOHN.—A new scheme of civic re-organization has been brought forward for St. John, N.B. It is proposed to abolish the directors of the board of works, public safety and water and sewerage, their functions being vested in one engineer. It is also proposed to abolish the offices of superintendent of streets and superintendent of ferries, as well as the present board of assessors, with the exception of the chairman.

MISCELLANEOUS.

WINDSOR, ONT.—The Canadian Concrete Company, a branch of the American Concrete Company, of Chicago, will locate in Windsor.

OTTAWA RIVER.—The Dominion Government has been formally asked to undertake the work of preserving the headwaters of the Ottawa River, in order to provide an ample and steady flow of water at all seasons of the year for the purpose of lumbering, power production and navigation. Favorable consideration is promised.

GRAVENHURST, ONT.—Mr. C. J. Green, of Gravenhurst, waited on Hon. William Pugsley, Minister of Public Works, to-day to ask on behalf of residents of Muskoka that an appropriation be placed in the supplementary estimates to build a Government wharf at Gravenhurst. The Minister promised to consider the request carefully.

EDMONTON, ALTA.—At a joint meeting of the representatives of the cities of Edmonton and Strathcona and the Alberta Government, arrangements were concluded to-night whereby Edmonton and Strathcona contribute \$60,000 towards the construction of a traffic deck on the C.P.R. high bridge. Edmonton gives \$42,500. Strathcona \$17,500, and the Alberta Government has promised to grant \$100,000.

TORONTO.—A motion to wind up the Toronto and Belleville Rolling Mills, with head offices at Belleville, which assigned last December, was made at Osgoode Hall, on behalf of James P. Scott & Company, iron merchants, Toronto creditors. The petition for winding up declares that the in-

debtedness aggregates \$300,000, and that the unsecured claims amount to \$102,000. The assets of the company, it is declared, if realized by sale, would not bring in sufficient to pay liabilities.

PERSONAL.

MR. A. E. WARREN will succeed Mr. Cameron at Port Arthur.

MR. E. W. WALKER, B.A.Sc., district engineer for Regina, has returned to the West, after spending a month in Ontario.

MR. J. R. CAMERON, of Port Arthur, has been made general superintendent of Canada Northern Railway Western Lines, with headquarters at Winnipeg, Man.

ENGINEERING SOCIETIES.

CANADIAN RAILWAY CLUB.—President, W. D. Robb, G.T.R.; secretary, James Powell, P.O. Box 7, St. Lambert, near Montreal, P.Q.

CANADIAN STREET RAILWAY ASSOCIATION.—President, E. A. Evans, Quebec; secretary, Acton Burrows, 157 Bay Street, Toronto.

CANADIAN INDEPENDENT TELEPHONE ASSOCIATION.—President, J. F. Demers, M.D., Levis, Que.; secretary, F. Page Wilson, Toronto.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—413 Dorchester Street West, Montreal. President, W. McLea Walbank; secretary, Prof. C. H. McLeod. Meetings will be held at Society Rooms each Thursday until May 1st, 1908. January 28th, 1908, annual meeting of the Society.

TORONTO BRANCH OF THE CANADIAN SOCIETY OF CIVIL ENGINEERS.—96 King Street West, Toronto. President, E. H. Keating; secretary, T. C. Irving, Jr. Traders Bank Building.

ENGINEERS' CLUB OF TORONTO.—96 King Street West. President, J. G. Sing; secretary, R. B. Wolsey. Meeting every Thursday evening during the fall and winter months. February 1st, 1908, annual dinner.

CANADIAN ELECTRICAL ASSOCIATION.—President, R. S. Kelsch, Montreal; secretary, T. S. Young, Canadian Electrical News, Toronto.

CANADIAN MINING INSTITUTE.—413 Dorchester Street West, Montreal. President, Frederick Keffer, Greenwood, B.C.; secretary, H. Mortimer-Lamb.

NOVA SCOTIA SOCIETY OF ENGINEERS, HALIFAX.—President, R. McColl.

AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS, TORONTO BRANCH:—Louis W. Pratt, secretary, 123 Bay Street, Toronto.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—29 West 39th Street, New York. President, H. L. Holman; secretary, Calvin W. Rice.

ORDER OF THE RAILWAY COMMISSIONERS OF CANADA.

The Approving of Plans of the Fort William Terminal Railway.

The Weston Crossing C.P.R. into Vernon, Man.

The Tillsonburg, Lake Erie and Pacific Railway Company Extensions.

4179—Dec. 28—Authorizing the Grand Trunk Pacific Railway Company to construct and maintain a subway carrying the highway under its railway between Sec. 12 and 13, Tp. 52-53, West of 4 P.M., Alberta.

4180—Dec. 26—Authorizing Neil Watson, Mull, Ont., to carry telephone wires across the track of the Pere Marquette Railroad Company, at Mull Side Road, 100 feet east of Wilkie Station, Ont.

4181 and 4182—Dec. 26—Authorizing the Bell Telephone Company to place its wires across the G.T.R., 2 miles west of Canfield Junction, Ont., and at St. Clair Avenue, Toronto, Ont.

4183, to 4193, inclusive—Dec. 26—Authorizing the Bell Telephone Company to place its wires across the tracks of the Q.M. & S. Railway, the Orford Mountain Railway, and the Canadian Northern Railway Companies, at various points.

4194—Dec. 21—Authorizing the Wood Bay Telephone Company to place and maintain its wires over the tracks of the C.P.R. on road allowance between Sec. 31 and 32, Tp. 3, R. 10, West 1 P.M., Man.

4195—Dec. 24—Approving plan, profile, and book of reference showing location of the Fort William Terminal Railway and Bridge Company's line in the city of Fort William, Ont.

4196—Jan. 2—Granting leave to the Crow's Nest Southern Railway Company to use for construction purposes only, until the 1st March, 1908, or until the interlocking plant ordered by order of the board September 10, 1907, is installed, the crossing of the C.P.R. spur $\frac{3}{4}$ miles east of Hosmer, B.C.

4197—Dec. 28—Extending the time specified in order 4124 of December 10th, to the 15th January, 1908, for the submission to the board of schedules for the running of C.P.R. and G.T.R. trains, under which reasonable time will be allowed for the transfer of passengers and mails at Brockville, Ont.

4198—Jan. 2—Amending Order of Board No. 4009, dated November 12, 1907, to provide that the C.P.R. Company may operate its trains over the said crossing.

4199—Jan. 2—Appointing the Chief Commissioner to examine upon oath any witness who may be produced before him to give evidence in the application of the C.P.R. Company for approval of location of its proposed new station at St. Boniface, Man.

4200—Dec. 11—Authorizing the Municipality of the Village of Weston, Ont., at its own expense, to construct a highway in the line and of the width of Denison Avenue, in said village; and rescinding Order of the Board No. 3969, dated 15th November, 1907.

4201—Jan. 2—Authorizing the Walkerton & Lucknow Railway Company to construct and maintain a branch line of railway in the Town of Durham, County of Grey, Ont., from its main line at mile 15.25, to the premises of the National Portland Cement Company.

4202—Jan. 7—Authorizing the C.P.R. Company to construct and operate branch lines or spurs at Lemburg, Sask., to and into the premises of F. Karlenzig, Sec. 21, Tp. 20, R. 9, West 2nd Mer.

4203—Jan. 8—Authorizing the Essex Terminal Railway Company to cross the track of the Lake Erie and Detroit River Railway Company, at Walkerville, Ont.

4204—Jan. 7—Authorizing the C.P.R. Company to construct and operate a branch line or spur in the city of Vernon to and into the premises of the Vernon Electric Light Plant.

4205—Jan. 7—Authorizing the C.P.R. Company to construct its railway along Beach Street and across Tupper Street, in the Town of Alliston, Ont.

4206—Jan. 7—Approving plan, profile, and book of reference showing proposed deviation from the located line of the North Fork Extension of the Kettle River Valley Railway Company's railway in Sec. 1 and 2, B.C.

4207—Jan. 7—Authorizing the C.P.R. Company to construct a bridge at mile 8.4 of the Swift Current section of its line, in the Province of Saskatchewan.

4208—Jan. 7—Authorizing the Reliance Coal Mining Company, Limited, to construct a tunnel under the right of way and track of the C.P.R. on the N.E. Quar. Sec. 3, Tp. 10, R. 16, West of 4th Mer., Alberta.

4209—Jan. 7—Authorizing the Bell Telephone Company to place and maintain its wires across the tracks of the C.P.R. at Bedford Station, Que. (To be Continued.)

MARKET CONDITIONS.

Toronto, January 23rd, 1908.

The following are wholesale prices for Toronto, where not otherwise explained, although for broken quantities higher prices are quoted:—

American Bessemer.—Fourteen-gauge, \$2.65; 17, 18, and 20-gauge, \$2.75; 22 and 24-gauge, \$2.85; 26-gauge, \$2.95; 28-gauge, \$3.20.

Antimony.—Quiet at 11½ to 13c. New York opinions are that the present low prices cannot continue.

Bar Iron.—\$2.20 base, from stock to the wholesale dealer. A moderate supply on hand.

Beams and channels, \$2.75 to \$3, according to size and quantity; angles, 1¼ by 3-16 and larger, \$2.65; tees, \$2.90 to \$3 per 100 pounds. Extras for smaller sizes.

Boiler Heads.—25c. per 100 pounds advance on boiler plate.

Boiler Plates.—¼-inch and heavier, \$2.50. Supply probably adequate and quotations still firm.

Boiler Tubes.—Lap-welded steel, 1¼-in., 10c.; 1½-in., 9c. per foot; 2-in., \$9.10; 2¼-in., \$10.85; 2½-in., \$12; 3-in., \$13.50; 3½-in., \$16.75; 4-in., \$21 per 100 ft. There is no reduction in price.

Building Paper.—Plain, 32c. per roll; tarred, 40c. per roll, and the market decidedly strong at these prices.

Bricks.—Common structural \$10 per thousand, wholesale; small lots \$12 to \$13, and the demand fairly brisk. Red and buff pressed are worth \$18 at Don Valley Works.

Cement.—Star brand, Toronto, 1,000 barrel lots, \$2.25 per barrel, 350 pounds net, including bags, or \$1.85 ex-package, small lots cost \$2.10 warehouse, \$2.15 delivered. National and Lakefield prices are identical; English, Anchor, \$3 per barrel in wood. Demand is steady.

Felt Paper—Roofing Tarred.—Market steady at \$2 per 100 lbs.

Fire Bricks.—In steady request; English, \$32 to \$35; Scotch, \$30 to \$35; American, \$25 to \$35 per 1,000.

Galvanized Sheets—Apollo Gauge.—Sheets 6 or 8 feet long, 30 or 36 inches wide; 10-gauge, \$3.25; 12-14-gauge, \$3.35; 16, 18, 20, \$3.50; 22-24, \$3.70; 26, \$3.95; 28, \$4.37½; 29 or 10¼, \$4.70 per 100 lb.

Ingot Copper.—Market shows improvement, quiet, with firm prices. Our quotation is 15 to 16½c.

Lead.—Outside markets are improving; no change here from 4½c.

Nails.—Wire, \$2.55 base; cut, \$2.70; spikes, \$3.15. Supply moderate.

Pitch.—Quiet at 75c. per 100 lbs.

Pig Iron.—Summerlee No. 1, always in demand, generally for small lots, quotes now, nominally, \$27; Gleggarnock, \$26.50; No. 2, \$26; Cleveland, No. 1, \$23.50, \$24; Clarence, No. 3, procurable in Montreal, price here \$23 to \$24.00.

Steel Rails.—80-lb., \$35 to \$38 per ton.

Sheet Steel.—In moderate supply; 10-gauge, \$2.65; 12-gauge, \$2.75.

Tar.—Market unsettled, \$3.50 per barrel the ruling price.

Tank Plate.—3-16-in., \$2.65.

Tin.—Developing great strength in primary markets. We still quote 31 to 32c. here.

Tool Steel.—Jowitt's special pink label, 10½c. per pound; Capital, 12c.; Conqueror, highspeed, 70c. base.

Wrought Steam and Water Pipe.—Trade prices per 100 feet are: Black, ¼ and ¾-in., \$2.59; ½-in., \$2.89; ¾-in., \$3.90; 1-in., \$5.60; 1¼-in., \$7.65; 1½-in., \$9.18; 2-in., \$12.24; 2½-in., \$22.15; 3-in., \$30.00. Galvanized, ¼ and ¾-in., \$3.41; ½-in., \$3.74; ¾-in., \$5.06; 1-in., \$7.26; 1¼-in., \$9.90; 1½-in., \$11.88; 2-in., \$15.84; 3½-in., black, \$39.00; 4-in., \$42.85. Prices firm but unchanged, stock light.

Zinc.—The market is more active and price steady. Toronto, slab, \$5.50; sheet, \$7.50.

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Montreal, January 23rd, 1908.

In the United States, there has been a considerably better inquiry for pig iron, and it is stated that fully 100,000 tons have been sold during the past few days, particularly by Southern furnaces. These are quoting lower prices than Northern furnaces are prepared to meet.

Local demand is fair, considering the season of the year, and a fair tonnage has been sold for prompt delivery. All Canadian furnaces are now in blast and producing regularly, the result being that the tonnage of import iron is limited to the special grades which customers desire for mixing purposes. Generally speaking, the feeling throughout Quebec and Ontario seems to be improving and a number of manufacturing establishments have recently taken steps to increase their output.

Antimony.—During the past week the market has steadied and prices are still 12½ to 13c. per pound. Demand is dull.

Bar Iron and Steel.—There is little doubt that, for large quantities, regular quotations would be shaded. Rolling mills are not very busy and any reasonable offer for a large quantity would probably receive consideration. Prices are still quoted as follows: Bar iron, \$2.15 per 100 lbs.; best refined horse-shoe iron, \$2.55, and forged iron, \$2.40; mild steel, \$2.20 per 100 pounds; sleigh shoe steel, \$2.20 for 1 x ¾-base; tire steel, \$2.30 for 1 x ¾-base; toe calk steel, \$2.95; machine steel, iron finish, \$2.30.

Boiler Tubes.—The market holds steady, and dealers do not expect to see any decline in price, as boiler-makers are busy. Prices are as follows: Two-inch tubes, 8 to 8¼c.; 2½-inch, 11c.; 3-inch, 12 to 12¼c.; 3½-inch, 15 to 15¼c.; 4-inch, 19¼ to 19½c.

Cement—Canadian and American.—Canadian cement is 10c. lower, being quoted at \$1.80 to \$1.90 per barrel, in cotton bags, and \$2.20 to \$2.30 in wood, weights in both cases 350 pounds. There are four bags of 87½ pounds each, net, to a barrel, and 10 cents must be added to the above prices for each bag. Bags in good condition are purchased at 10 cents each. Where paper bags are wanted instead of cotton, the charge is 2½ cents for each, or 10 cents per barrel weight. American cement is steady at \$1 per 350 pounds, basis Lehigh mills, conditions being the same as in the case of Canadian mills, save that when the cotton bags are returned in good condition, only 7½ cents is allowed for them. American cement sold at \$2 to \$2.10 on track.

Cement—English and European.—English cement is unchanged at \$1.80 to \$2 per barrel in jute sacks of 82½ pounds each (including price of sacks) and \$2.10 to \$2.20 in wood, per 350 pounds, gross. Belgian cement is quoted at \$1.75 to \$1.90 per barrel, in wood. German is \$2.52 to \$2.55 per barrel of 400 pounds for Dyckerhoff.

Copper.—The market is gradually declining and quotations are now lower than for a long time past, being 15 to 15½c. per pound. Demand is dull and offerings are liberal.

Iron.—Dealers make the claim that they will not accept less than the following for carload lots: Londonderry is only offering for future shipments, and is quoted at \$24 f.o.b. Montreal for No. 1. Tor-

onto prices are about \$1.25 more. Summerlee iron is arriving, and is quoted at \$24 f.o.b. on cars, Montreal, for No. 2 selected, and \$25 for No. 1. No. 1 Cleveland is unobtainable at the present time, and Clarence at \$20 to \$21. Carion special, \$24; soft, \$23.75, to arrive.

Lead.—There has been a slight recovery in the market for lead during the past week and quotations are now \$3.95 to \$1.05 per 100 pounds. Supplies are apparently not too large.

Nails.—The market is steady and demand is dull. Cut nails are quoted at \$2.50 and wire at \$2.55, base prices.

Pipe—Cast Iron.—The market is next thing to dead, as nothing is used during the winter. Prices are steady at \$36 for 8-inch pipe and larger; \$37 for 6-inch pipe, \$38 for 5-inch, and \$39 for 4-inch at the foundry. Gas pipe is quoted at about \$1 more than the above.

Pipe, Wrought.—Trade continues on the dull side. Quotations and discounts for small lots, screwed and coupled, are as follows: ¼-inch to ¾-inch, \$5.50, with 53 per cent. off for black and 38 per cent. off for galvanized. The discount on the following is 66 per cent. off for black and 56 per cent. off for galvanized: ½-inch, \$8.50; 1-inch, \$16.50; 1¼-inch, \$22.50; 1½-inch, \$27; 2-inch, \$36; and 3-inch, \$75.50.

Spikes.—Railway spikes are not in very good demand, \$2.60 per 100 pounds, base of 5½ x 9-16. Ship spikes are steady at \$3.15 per 100 pounds, base of 5½ x 10 inch and 5½ x 12 inch.

Steel Shafting.—At the present time prices are steady at the list, less 25 per cent. Demand is very dull and lower figures would hardly be refused.

Steel Plates.—Demand is quite dull and a firm bid at lower figures than quotations would be considered. Quotations are: \$2.75 for 3-16, and \$2.50 for ¼ and thicker, in small lots.

Tin.—The market is a shade firmer, this week, and prices are about 1c. higher, at 31 to 31½c. per pound.

Tool Steel.—Demand is light but the market is firm. Base prices are as follows: Jessop's best unannealed, 14½c. per pound, annealed being 15½c.; second grade, 8½c., and high-speed, "Ark," 60c., and "Novo," 65c.; "Conquerer," 55 to 60c.; Sanderson Bros. and Newbould's "Sabon," high-speed, 60c.; extra cast tool steel, 14c., and "Colorado" cast tool steel, 8c., base prices. Sanderson's "Rex A" is quoted at 75c. and upward; Self-Hardening, 45c.; Extra, 15c.; Superior, 12c.; and Crucible, 8c.; "Edgar Allan's Air-Hardening," 55 to 65c. per pound.

Zinc.—The market shows a firmer tone and prices have advanced ¼c. per pound, being now 5¼ to 5½c.

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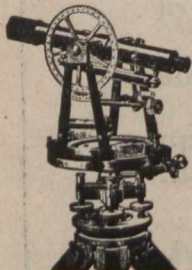
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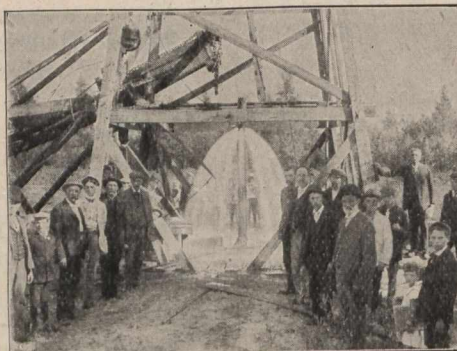
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SHIPBUILDING IN BRITAIN.

Shipbuilding in Great Britain seems to have taken a severe depression, as a result of general bad trade and depression, not improved by the excessive prices for material, which are said by one shipbuilder to be \$3.75 per ton higher than is charged by British steel-makers to German shipyards. Here is a deliberate charge of that grievous sin of dumping, from which all British manufacturers are said to suffer at the hands of the foreigner. Of course the shipbuilder and the steel-

maker look on matters with very different eyes. But even lower prices will not arrest the downgrade of tonnage put into the water if it be true that shipowners are fully supplied or even oversupplied with all the ships they want. It looks as though the industry must go slowly for a time until the inevitable reduction of ships by wear, tear, loss and wreckage create a fresh demand. Ships are always being lost or used up and must be replaced. The financial stringency undoubtedly keeps back some orders that would just now be very welcome.



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