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Notice to Architects

Architects are invited to submit plans for a fireproof building for the library of the Presbyterian College, Halifax, N. S., to cost about \$15,000. The Building Committee offer a fee of \$150 for the fully detailed plan, with specifications, that may be accepted from the sketches submitted. Full particulars as to size, accommodation and situation can be obtained on application to the

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BUSINESS NOTES.

H. Longhurst & Co., stained glass, Hamilton, have assigned to C. S. Scott.

Pierre Ostigny and Phileas Cardin have registered as proprietors of the firm of Ostigny & Cardin, contractors, Beauville, Que.

CONTRACTS OPEN.

ARNPRIOR, ONT.—The Anglicans will build a parish hall.

ALYMER, QUE.—Archie Lindsay contemplates erecting a chair factory.

PARRSBORO, N.S.—A new post-office is one of the necessities of this town.

MAGOG, QUE.—The council have in view the purchase of a stone crusher.

PARRY SOUND, ONT.—The purchase of a stone crusher is being advocated.

LEAMINGTON, ONT.—Mr. Benton, late of Ridgeway, will build a residence here.

CHESTERVILLE, ONT.—A company has been formed here to build a skating rink.

HAMPSTEAD, N.B.—Asa V. Jones, of Evandale, will erect a steam saw mill near here.

WOODSTOCK, ONT.—The Board of Works has concluded to purchase a steam road roller.

LONGFORD MILLS, ONT.—The Longford Lumber Co. will build a saw mill at Gravenhurst.

CRANBROOK, B. C.—The White Fraser Stage Co. are about to build a large livery stable here at once.

RUSSELL, MAN.—It is expected that additional school accommodation will be required next year.

MELBOURNE RIDGE, QUE.—The building of the Episcopal church has been abandoned until spring.

NORWOOD, ONT.—Recent floods carried away the dam above Cumming's woollen mills, also Neild's foundry.

MALDEN, ONT.—On January 17th the Malden Township Council will consider a by-law to raise \$2,000 for drainage.

BRIGHAM, QUE.—Wm. Warminton, of Montreal, has purchased a lot here and will build a store and dwelling thereon.

HALIFAX, N. S.—It is reported that a fine gymnasium for the military is to be built on the citadel near Cogswell street.

ST. JOHN, N.B.—It is reported that the government will erect an elevator here, near the terminal works of the I. C. Railway.

BROCKVILLE, ONT.—The interior of the Rowing Club's quarters is to be improved, under the supervision of Mr. G. A. Allan, architect.

MISPEC, N.B.—The St. John Sulphite Pulp Company will erect a large pulp mill here. Mr. M. F. Mooney, of St. John, is one of the promoters.

CAMDEN, ONT.—A by-law will be submitted to the ratepayers to raise the sum of \$6,000 to replace the old wooden bridge at Dawn Mills with a steel structure.

BRANDON, MAN.—Handley & McLeod will erect a brick implement warehouse in the spring, plans for which are now being prepared. It will have elevator and vault. W. H. Shillinglaw, architect.

GRANBY, QUE.—At the last meeting of the town council a motion to advertise for

tenders for an arc and incandescent lighting plant was allowed to stand over pending a report in regard to the tannery water power.

LEVIS, QUE.—Speaking at Quebec, the Minister of Public Works stated that he was about to examine plans for certain works to be carried out here. He pointed out the advantages of the proposed elevators.

RIVIERE DU LOUP, QUE.—The Richelieu & Ontario Navigation Company is said to have decided to build a large hotel at the Point, which will be ready in May next. This hotel will accommodate 200 guests.

STRATHROY, ONT.—A saw mill will be erected at the Strathroy furniture factory, fitted with improved machinery and having a capacity of 15,000 feet.—The Town Council will shortly decide upon the policy to be adopted for improving the streets.

WALLACERBURG, ONT.—The Wallaceburg Electric Light Company contemplate putting in an incandescent plant, having agreed to do so within eight months.—The town intends to construct in the spring a quantity of granolithic and other permanent walks.

PEMBROKE, ONT.—The contract for building the Pembroke Southern Railway is said to have been withdrawn from Mr. James Fowler, who failed to find the necessary security. W. B. Russell & Co., a local firm, have submitted a proposition for the building of the road.

NIAGARA FALLS, ONT.—Tenders are asked for until December 30th for a Y.M. C.A. building to be built on the River road, north of the Arch bridge. The building will be of frame, and will cost in the neighborhood of \$6,000. Mr. C. H. Mitchell is secretary of the Building Committee.

ST. JOHNS, QUE.—J. E. Mollere is endeavoring to form a company, with a capital of \$50,000, to build an establishment for the manufacture of underwear.—The by-law to grant a bonus for the removal of the Lefebvre vinegar factory from Montreal to this town was carried by the ratepayers.

ST. CATHARINES, ONT.—A company is said to have been formed and plans matured for building an electric railway between St. Catharines and Port Dalhousie, ready for operating April next. H. D. Symmes, manager of the St. Catharines & Thorold electric road, is at the head of the new company.

STRATFORD, ONT.—H. J. Powell, architect, is preparing plans for Mr. Brandenberger's new opera house. The new building will have a seating capacity of about 800. As soon as the plans are completed tenders will be called for, but it is not likely that work will be commenced before next spring.

PERTH, ONT.—It is stated that the Canadian Pacific Railway Co. intend to complete their new line of railway from

Ottawa, down the Ontario side of the river to Ste. Annes, then to build a direct connection from Perth to Carleton Place. It is also proposed to erect permanent car shops here.

AMHERSTBURG, ONT.—A company in Detroit has made a proposition to build an electric railway from this town to Windsor and Harrow, and want a bonus of \$15,000. Mr. Joseph DeGurse, C. E., has made estimates for grading, bridges, culverts, etc. Several bridges will be required if the road is proceeded with.

RAT PORTAGE, ONT.—The corporation will spend \$75,000 in putting in a new waterworks system, and a bill is now before the Ontario Legislature to legalize the expenditure.—The town has sent a deputation to Ottawa to ask the Minister of Public Works to construct a more suitable bridge over the east branch of the Winnipeg river.

PETERBORO', ONT.—It is probable that at an early date English capital will be secured to develop the water power of the Otonabee river, Mr. J. B. McWilliams having recently interested a representative of an English syndicate in the scheme.—The Dickson Company, of this place, will rebuild the saw mill at Lakefield, equipping it with improved band saws.

HINTONBURG, ONT.—At the last meeting of council, a proposition was read from Mr. E. J. Rainboth agreeing to put in a system of waterworks sufficient to supply a population of 10,000. He considers that it will take 20,000 lineal feet of pipe, and that the whole can be put down and in running order for the sum of \$25,000. The report was referred to a committee.

ANNAPOLIS, N.S.—The report of Mr. John S. Hodgson, Assoc. M. Inst. C.E., of Wellington, Mass., estimates the total cost of a sewerage system for the town, on the separate system, at \$26,000, for a total of 3½ miles of pipe sewer. There will be a tidal outlet, with provision for storing the sewage during height of tide. It is proposed by the town council, subject to approval of a town meeting, to execute a first instalment of the scheme, at a cost of \$13,500.

HAMILTON, ONT.—Building permits have been granted as follows: A. W. Peene, brick addition to the Hamilton & Toronto Sewer Pipe Company's building on Wentworth street north, cost \$4,500; Joseph Martin, two-story brick dwelling on Hannah street west, cost \$1,000.—Wm. & Walter Stewart, architects, will shortly take tenders for plumbing, steam heating, electric wiring and electric elevator for John Proctor's block, James st. south.

KINGSTON, ONT.—A number of summer cottages will likely be erected on Stella Point, Bay of Quinte, the coming season.—The Kingston & Smith's railway promoters will, it is said, ask for a new charter, with power to build an electric road between this city and Ottawa.—Richardson Bros. will erect a new 250,000 bushel elevator to replace the one recently destroyed by fire. The City Council has granted the firm ten years' exemption from taxation.

WINNIPEG, MAN.—At the last meeting of the Market, License and Health Committee a sub-committee reported that they had had plans prepared for a blast furnace to be used as a crematory, but before recommending the adoption of any system, they considered it advisable to send a delegation to the eastern cities to collect data. This was decided upon.—B. E. Chaffey, Chairman Fire and Light Committee, will receive tenders until Monday, 27th inst., for the supply of 1,000 feet of 2½ inch rubber hose, with couplings, and 36 pairs rubber boots.

VICTORIA, B. C.—Among the private bills that will be applied for at the next

session of the Legislature are: To incorporate a company to construct a railway from Pyramid Harbor, Lynn Canal, to the northern boundary of British Columbia, R. T. Elliott, solicitor; to incorporate companies for the construction of railways from the Skeena river to the eastern boundary of British Columbia; for the construction of a railway from Teslin Lake to the coast of British Columbia; for the construction of a railway from Rossland to Robson; and for the construction of a railway from Fort Steele to the international boundary, for all of which companies Mr. H. E. A. Robertson is solicitor.

MONTREAL, QUE.—Gordon & Ironsides have asked permission from the City Council to erect a slaughter house.—J. Alcide Chausse, architect, is preparing plans for a large school building to be erected at Maisonneuve, Que., a church at Bonfield, Ont., and six dwellings on Nonancourt street for P. X. Lalonde.—The Recorder's Court has decided that several manufacturers must provide smoke consuming apparatus.—Robert Findlay, architect, is calling for tenders for seven houses, corner of Prince Albert street and Chesterfield avenue, for E. Bulmer.—Tenders have been called for tenement houses to be erected at the corner of Grey and St. Antoine streets, for A. F. Gault.—The ratepayers of St. Henri have passed the by-law authorizing the erection of a new fire station.

LONDON, ONT.—Mr. Moore, superintendent of waterworks, in his annual report, strongly recommends the adoption of water meters. He also urges that steps be taken at once to utilize the water of the springs recently purchased.—R. A. Jones has invited tenders for erecting a residence.—The Jubilee Hospital Joint Stock Company received ten plans for the proposed hospital building, and have made awards as follows: 1st prize, H. C. McBride, London; 2nd prize, Strickland, Symons & Rae, Toronto; 3rd prize, Geo. W. King and David Ogilvie, Montreal. The accepted plan provides for a brick building, with stone foundation, capable of accommodating 130 patients, and to cost \$75,000.—At a joint meeting of the Elgin and Middlesex county representatives on Friday last, it was decided to recommend that if the Coyne road bridge over the Thames be rebuilt, that it be of steel, set on steel cylinders, filled with concrete, and that the span be 240 feet with an 18-foot roadway.

OTTAWA, ONT.—In connection with the main drainage scheme, City Engineer Surtees figures that to accommodate Janelville and the surrounding district, 350 acres additional would have to be drained, at an increased cost of \$50,000.—L. Z. Gauthier, architect, of Montreal, who is preparing the plans for the new convent of the Precious Blood to be built on Sandy Hill, was in the city recently. It has not yet been decided whether the convent will be erected of brick or stone.—Mr. A. E. Schryer, of the W. C. Edwards Co., has lately purchased property on Waverley street, and will probably build thereon.—The Imperial Life Assurance Company are said to be negotiating for a site on Sparks street.—The C.P.R. will build their bridge across the Rideau river this winter, and hope to have it completed early in the spring.—A movement is on foot to construct a bridge over the Rideau canal at Concession street. Already the stone has been donated for a second bridge over the Rideau river further along the line of Concession street, as well as \$300 granted by the county council.—L. K. Jones, secretary Department of Railways and Canals, will receive tenders until December 31st for the construction of culverts for regulating sluices. Plans at above department. Mr. Jones will also receive tenders until same date for the construc-

tion of a collecting drain at St. Johns, Quebec.—A petition has been presented to the council asking that the city apply to the Dominion government for a portion of the old superstructure of the bridge over the canal on Bank street with a view to erecting a bridge over the canal in line with Concession street.

TORONTO, ONT.—The Toronto Technical School Board, at its last meeting, considered the report of the Property Committee regarding the extension and remodelling of the building. Alterations amounting to \$26,000 are contemplated by the authorities of the Toronto University, who are owners of the building. The plans have been prepared by Mr. D. B. Dick.—In his fortnightly report presented on Monday last, the City Engineer recommended the construction of a macadam roadway on Tyndall avenue, from King street to Springhurst avenue; a brick pavement on Clinton street, from College street to a point 2,305 feet north of that street, and a concrete walk on the west side of Bay street, between Front and Esplanade street.—The Toronto Radial Railway bill, now before the Ontario Legislature, asks for the consolidation of various local electric railways. The lines when completed will have a radius of about one hundred miles, and run through several counties.—In connection with the new municipal buildings, contracts have yet to be let for elevators, tile flooring, clocks and telephone system, estimated as follows by the architect: Elevators, \$30,000; certain extras, \$2,750; tile flooring, \$28,000; telephone system, \$2,500; tower clock, \$4,000.—The Court of Revision last week confirmed a number of local improvement assessments, including that for a brick pavement on McCaul street. The Station street asphalt recommendation was laid over till next meeting.—The construction of a large number of pavements will be commenced as soon as the weather will permit in the spring.—W. R. Brock & Co. have purchased the property to the south of their present establishment on Bay street. The purchasers intend to rebuild immediately, and the new building will be an exact fac simile of their present warehouse.—Mr. H. B. Jacobs, of the Toronto opera house, is reported to have decided to open the Auditorium as a first-class theatre, and to remodel the building for the purpose.—Building permits have been issued as follows: House of Industry, two-story addition, cost \$5,000; J. R. Barber, three-story addition to warehouse, north-east corner Jarvis and Duke streets, cost \$3,200; Estate James Murray, alterations and additions to Nos. 36, 38 and 40 Wellington street east, cost \$4,000; C. R. Rundle, pair of dwellings on Wellesley, near Bleecker, cost \$5,500.—Mr. Wm. Williamson, contractor, proposes to erect a brick wood-working factory at the corner of Water street and Eastern ave.—A meeting has been called by the Mayor to consider what steps are necessary to secure the early construction of railways from Toronto to Sudbury and James Bay.—The Ontario government estimates for the year 1898, submitted to the House recently, includes the following sums for public buildings: Asylum for Insane, Toronto—Boilers for laundry and cottages, \$900; furniture and furnishings, \$1,300; steel sheeting for renewing ceilings, \$300. Asylum for Insane, Mimico—Heating and lighting chapel and assembly hall, \$1,200; materials for hot-water heating cottages 5 and E, \$1,300; arc light dynamo for increased lighting of grounds, \$600; carpenter and masons' supplies for subways, fencing, etc., \$1,000; furniture and furnishings, \$1,000. Asylum for Insane, London—Re-fitting store, including plastering walls and ceilings, renewal of flooring, shelving, etc., \$1,200; replacing present worn out shingle roof of wings with slate, repairs to plastering and

renewing flooring of north building, \$2,000; interior repairs and alterations, \$1,900; renewals of pipes, plumbing, etc., \$800; furniture and furnishings, \$1,200. Asylum for Insane, Hamilton—Elevator in infirmary building for patients, equipment, etc., of operating room, \$1,200; for fitting up new bathing system in wing of main building, \$1,000; ice house, \$800; furniture and furnishings, \$2,000; interior alterations, including materials, \$1,200. Asylum for Insane, Kingston—Completing new bathing system, and alterations to boiler house, \$1,000; furnishings for wards, \$1,000. Asylum for Insane, Brockville—Root-house, cellars, etc., \$800; to cover balance of contracts of main building and cottages, \$4,000; outside work, fencing, sidewalks, etc., carpenters' supplies, \$1,000; furniture and furnishings, \$1,400. Asylum for Idiots, Orillia—Drains and drainage, \$600; fuel economizer, feed pumps, covering steam pipes, etc., \$1,500; furniture, furnishings, including school furniture, painting, etc., \$800. Central Prison, Toronto—Rebuilding broom shop, \$8,000; fire pump, pump house, underground water tanks, water mains, fire hose, etc., \$5,000. Education Department, Normal and Model schools, Toronto—Reconstructing deck roofs of Normal school, \$1,000; fittings to museum, shelving, cases, etc., \$1,500. Normal and Model schools, Ottawa—General repairs to buildings, drains, grounds, etc., \$2,000; furniture and furnishings, \$500. School of Practical Science, Toronto—General repairs, \$500; apparatus for scientific purposes, \$2,000. New Parliament Buildings—For repairs, improvements, etc., \$1,750; equipment and heating of house for plants, \$750. Algoma district—Repairs and furniture for the district, \$500; lock-up at Thessalon, \$1,000. For public works the following grants are made. To construct guide piers and booms above lock at Magnetawan, \$600; re-vote to remove rock obstruction from bed of stream of Head river, \$600; re-vote to aid in improvement of channel between Shoal Lake and Lake of the Woods, \$4,000; to construct dam at outlet of Bottle Lake, and reconstruct dam on Mississiqua Creek, \$4,200; River aux Basin, re-vote to aid in deepening and removing rock obstructions from channel, on condition that the additional amount necessary to fully complete the work is provided by either the townships of Cornwall and Osnabrook or by the Dominion, \$2,000; Otonabee river, to construct cribwork along canal above lock at Young's Point, \$2,000; Mississippi river, re-vote for improvement at Ferguson's Falls, \$1,500; to construct dam and improve outlet of Gull Lake, \$2,000; re-vote of contribution towards the improvement of the Castor river, \$5,000. The grants for colonization roads include the following: Bridge piers for bridge over Winnipeg river, \$2,700; Crozier and Lash road, general improvement and completion of drain to lake on sec. 1, Lash, \$1,500; Indian Head bridge, over Lake Wolsey, \$1,500; Keewatin bridge, for superstructure, \$2,140; to renew Joseph river bridge, \$1,000; Monck road, repairs in Glamorgan, \$500; between Norland and Uphill, \$500; to repair Head river bridge and repairs in Dalton, \$250; to build Wabis creek bridge, Liskeard, \$1,000.

FIRES.

The planing mills at Bracebridge, Ont., owned by J. R. Higgins and occupied by Tate & Bateson, were destroyed by fire on the 16th inst.—The American hotel and Dr. McBride's dwelling and livery stable at Amherstburg, Ont., were burned recently.—A building at Dunnville, Ont., owned by the Oddfellows' Society, has been destroyed by fire.—The car barn of the Port Arthur Electric Railway Company at Port Arthur, Ont., was burned on the 15th inst., together with the rolling

stock. Loss, \$12,000; insurance, \$10,000.—The mill at the Cochrane Hill mine at Melrose, N. S., was burned to the ground last week.—No. 2 planing mill of the Rat Portage Lumber Company at Rat Portage, Ont., was burned on the 17th inst., the entire property being totally destroyed. The loss is fully covered by insurance.—A large block on Erie street, Wheatley, Ont., owned by Lewis Wigle, was burned on Monday last. Loss, \$3,000; small insurance.—Fire at Moncton, N. B., on the 20th inst., destroyed property valued at over \$50,000. Among the burned buildings are those owned by F. P. Reid & Co., J. W. Smith, Mr. Rudnick and Geo. A. Vye.—The granary and stable of Andrew Keilly, near Stoco, Ont., has been burned. Loss, \$1,100.

CONTRACTS AWARDED.

TILSONBURG, ONT.—The contract for the superstructure of the steel bridge over the Otter creek: has been let to the Dominion Bridge Company.

STRATFORD, ONT.—W. W. Cowan, of this city, has received a contract for the construction of a steel bridge forty-three feet long over a creek in the township of Fullarton.

CHATHAM, ONT.—The contract for the completion of the residence of Matthew Wilson, Q. C., has been let to Ludlam & Fuller, Councillor Selkirk and Col. Wilkinson, all of Leamington.

TORONTO, ONT.—Contracts for an addition to the Metallic Roofing Company's factory have been awarded as follows: Excavating and stone and brick work, Alex. McCurdy; carpenter work, Young & Co.

EDMONTON, N. W. T.—Mayor McDougall has received a telegram from Hon. Wm. Pugsley, of St. John N. B., closing the deal for the building of the Edmonton District Railway to Athabasca Landing.

HAMILTON, ONT.—William & Walter Stewart, architects, have let contracts, amounting to about \$8,000, for the carpenter and brickwork, painting and glazing, plastering, galvanized iron work, vault doors, etc., for alterations to John Proctor's block, James street South. Tenders for plumbing, steam-heating, electric wiring and electric elevator will shortly be asked for.

PARKSBORO, N.S.—The town is installing a complete arc and incandescent system, and has awarded contracts as follows: Complete steam plant, including Monarch Economic boiler and two engines, Robb Engineering Co., Amherst, N.S.; arc dynamo and lamps, Thompson Electric Co., Hamilton; alternating generator, Munderloh & Co., Montreal, as agents for the Warren inductor type transformers, W. A. Johnson Electric Co., Toronto; lamps and meters, Packard Electric Co., St. Catharines; supplies, General Electric Co., Toronto. The plant is expected to be in operation by Feb. 1st. Mr. George White-Fraser, of Toronto, is consulting engineer.

MONTREAL, QUE.—Nap. Lessard has been given a contract to erect a three-story wood and brick residence, 35 x 50 ft., at a cost of \$2,500.—Jos. Sawyer has let the carpenter and joiner's work of four houses, brick and stone front and gravel roof, to be built on Knox street, Point St. Charles, for Arthur Boisvert, to A Boisvert.—A. Prefontaine, architect, has accepted tenders as follows for a college at Boucherville: Masonry, T. Binda & Son; joinery, Ostigny & Cardin.—W. E. Doran, architect, has let contracts as follows for a house for John Quinlan: Plumbing, heating and gas fitting, Gardiner Bros.; roofing, Campbell & Gilday; carpenter work, M. McGee.

QUEBEC, QUE. Building permits have been granted as follows: Repairation of a

(Continued on page 4.)

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THE GRAND HOTEL, St. Hyacinthe, Que.

THE NEW CUSTOMS-APPRAISERS STORES, NEW YORK, now building, which will consume 5,000 tons.

THE PARLIAMENT BUILDINGS, OTTAWA, portion of which was recently destroyed by fire and rebuilt.

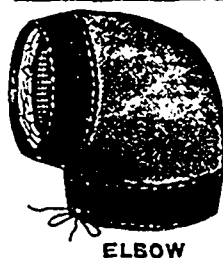
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house on Mountain Hill; contractor, M. Guichereau. One house, 35 x 30 feet, wood, lined in brick, three stories, on de la Reine street, for Mme. Vve. Charles Lessard; contractor, N. Lessard; probable cost, \$2,500.—Contracts for the restoration of the "Cerche Catholique" estate premises on St. Francis street have been awarded as follows: Joinery, E. St. Pierre; plumbing, N. Veza; roofing, N. Barbeau.—Jos. St. Hilaire, contractor, has the contract for the work to be done at the church and sacristy of St. Edward de Frampton. David Ouellet is the architect.—The contract for the galvanized iron roofing at St. Victor de Tring church has been awarded to S. Fancher.

ACTION OF LIME, ETC., ON IRON.—The action of lime, plaster and cement on iron, especially the destructive influence of lime and plaster, is worthy of great attention owing to its extensive and steadily increasing use for building purposes. If a piece of iron, f. i., is thrown into fresh mortar, prompt oxidation may be witnessed, especially with wrought and rolled iron. This oxidation quickly passes into the interior of the iron and considerably lessens its resistive power. Besides, the enormous expansion of these bodies must be taken into consideration. Thus it occurs that solidly built iron frames are broken. The action of gypsum is the same as that of lime, unless the gypsum had been exposed to damp air previously to use. Cement, however, is an excellent protection against rust, for it has been proven by experiments that a piece of iron covered with cement was not attacked by water. The only remedy to prevent the deleterious effect of lime and gypsum is said to be a coating of minium applied to the iron.

The manner in which the huge gasometers on the site of the new South Union Station, Boston, were demolished was certainly novel and interesting, says the Brick-builder. These were built of brick, with

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very heavy walls so strongly knit that the roof of one of the buildings was blown off with dynamite without weakening the walls in the least, although before the dynamite was used the iron bolts and braces had been removed. In taking down the brickwork an application was made on a gigantic scale of a principle often used in cutting butter and cheese. At intervals of about twenty-five feet above the gasometer were narrow windows extending the greater portion of the height of the wall. A strong wire cable was made fast to the ground at the base of the inside of the wall, carried over the top and down to the ground on the outside of the line of a window, and taken through a pulley block, to the drum of a hoisting engine. When all was ready the engine was started, the wire wound up on the drum, and the great strain forced the cable to cut vertically through the bricks and mortar almost as smoothly as it might have passed through an immense cheese. After the brick wall had thus been cut vertically a table was passed around a pier between two windows, the hoisting cable attached to this cable on the inside and thence carried over the top of the wall and directly to the hoisting machine. When the power was gradually applied the immense slice of wall began to reel and totter and finally fall with a crash on the outside of the enclosure. This is about as expeditious a way of removing a large mass of masonry as we have ever heard of, and accomplished the desired result with great satisfaction.

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A curious method of construction, which is said to have been much in use in Ireland upwards of a century ago, came to light recently in connection with the attempt to straighten the spire of a church in the county of Cork. After the spire had been examined by an architect, and the contractors had set about taking it down, with the view of re-building, the surprising discovery was made that it could not be taken down except it was done en masse, as the stones of which it is built were hermetically bound to each other with a combination of molten lead and sand, which rendered it absolutely impossible to separate one stone from another, the whole spire being, as it were, one solid block. On further and closer inspection it was found that the entire building was erected in a similar manner, no other mortar or binding substances of any kind being used save the sand and molten lead. A huge iron shaft runs through the top portion of the spire, on which the stones were slipped like rings and irrevocably rivetted with lead and sand.

The Ontario government was waited upon last week by a deputation from Stratford representing two sides of a dispute about the waterworks system of that city. The water supply is in the hands of a private company, which was chartered before the passage of the law providing for a reference to arbitration when the municipality desires to take the service over. That is the position at the present time in Stratford, but the company is not willing to give up its franchise. Representatives of the city asked that the government should take steps to bring the company under the arbitration law.

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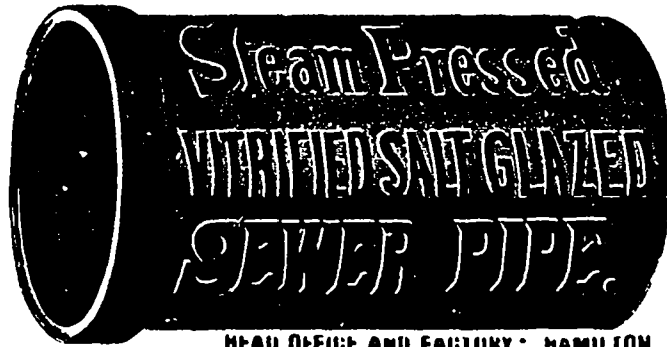
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MUNICIPAL DEPARTMENT

ROAD MACHINERY.

Mr. A. W. Campbell, Instructor in Road-making for Ontario, in his annual report, says of road machinery.

Improved and modern road-making machinery is as necessary in the construction and maintenance of highways as are self-binders in the harvest field. Roads cannot be well or economically constructed without suitable tools and implements. If a workman is known by the condition of his tools, a very damaging reflection is certainly cast upon the majority of townships. Not merely are improved machines seldom employed, but the scrapers, plows, wagons, etc., used in the performance of statute labor are rarely on hand as needed, and the utmost carelessness is observed with regard to them.

GRADES.—Road-grading machines are now very commonly used by townships. Their greatest value is in the shaping of dirt roads. The crowning of the roadway can be done very rapidly by their use, and for this work alone every township requires at least one grader. Some townships using as many as four feel that they are needed. On gravel roads there is a marked tendency for ruts to form in such a way that the metal is forced upward and out from the wheel tracks, and a road grader can be very profitably used to level the ruts by scraping this gravel back to its place. Another important quality in the maintenance of gravel roads is the facility with which the shoulders of the roadway can be cut off. These shoulders usually consist of square corners left in the original construction of the road, augmented by dusty material washed down from the centre. They obstruct the flow of water from the travelled portion of the open drain. When cut off by the grader, the material should be thrown outward and across the ditch and used in levelling the side of the road. The stuff from the shoulders and from the ditches should never be drawn to the centre of the road, a practice which has ruined a number of excellent gravel roads. It is a mixture of dust, clay, horse droppings and sod. Placed on a good gravel foundation, it may afford a temporary benefit in summer, but in wet weather it works the destruction of the entire road. The shoulders having been formed, the proper treatment, as stated in the section on "Existing Roads," is to crown the roadway with clean gravel.

ROCK CRUSHERS.—The rock crusher is one of the most important of modern additions to the list of road-making machines. By their use stone can be crushed so much more cheaply than by the old method of hand breaking that, so far as cost is concerned, stone roads are within the reach of every municipality having

suitable rock in the vicinity. In the treatment of gravel a crusher is frequently most valuable, since, if containing many large stones and boulders, it will be possible to place a crusher in the pit and pass all the gravel through. A rotary screen attached to the crusher and driven by the same power will screen the resulting metal, removing sand and clay. Whenever a crusher is employed the rotary screen should be used also to separate the road metal into grades according to size. The most common type of rock crusher is that in which the breaking is done by the opening and shutting of strong iron jaws arranged so that they can take in large stones, and, by successive openings and shuttings, fracture the stones until the fragments are sufficiently small to drop between the lower margins of the jaws. The fragments are there caught in a chain of pockets, or elevator, and passed up to the rotary screen, which is so designed as to separate the product into grades according to size. Rock crushers can be readily moved from place to place, and where boulders are plentiful in the fields along the road, may be set up so as to crush stone for short sections of road as required. Municipalities in which boulders are plentiful will find the property owners willing to provide, at the crusher, all the stone that can be gathered from the fields.

ROLLERS.—Road rollers are of designs to be operated by horse or steam. Horse rollers usually consist of one main roll in two sections. The standard diameter is fifty inches, with each section twenty-six inches wide, giving a total rolling width of fifty-two inches. The standard weight is about four tons, but may be increased by loading to six or eight tons. The reversible type, whereby the tongue may be revolved from one side to the other, is to be preferred. Steam rollers generally weigh from ten to twenty tons, the most popular being of ten, twelve or fifteen tons. For country roads a weight of ten tons will be sufficient, especially on gravel roads and in view of the strain on culverts and bridges. In towns twelve tons, with the ability to load more heavily for surface consolidation, will be satisfactory. If it is proposed to rent it for township work, ten tons will generally be better, and will give excellent results. The lesser weight, while requiring more repeated operation to compact the road metal, is believed by some to do more

durable work. Steam rollers are all very much of the same type.

SELECTION OF MACHINERY.—In all kinds of machinery, the most important points to observe are simplicity of design, quality of material and workmanship, ease of operation, lightness of draft and adaptability to the work for which it is intended.

OPERATOR.—Graders, crushers and rollers should not be passed around from section to section for everyone and anyone to operate, but capable men should be employed for this purpose and should always accompany them. It is further necessary to see that the operator is a man who knows something of road-making and machinery, and has good practical judgment. A machine of itself possesses very few of these qualities, and unless the operator does, dissatisfaction and failure will be the result.

PURCHASE OF MACHINERY.—With regard to the purchase of these machines, it is desirable that every township should possess at least one grading machine, and as many more as circumstances may require. The extent to which broken stone will be needed, and the location of the quarry, will suggest the best policy to pursue with respect to the crusher. When one crusher to provide stone for the main roads of a county is sufficient, it may be advisable for the city council to own it, arrangements being made with the various towns and township municipalities either for the rental of the machine or for the purchase of the crushed metal. Circumstances may render it advisable for a private citizen to provide metal at a fixed price per cord; thus a man owning a threshing machine, and having the steam engine idle for a portion of the year, might be readily induced to consider such a proposition, to the advantage of all parties concerned. If water is available within reach of a quarry, it will afford a cheap means of obtaining the requisite power.

GOOD ROADS CONVENTION.

The second annual convention of the County of the District of Bedford Good Roads Association will be held at Sweetsburg, Quebec, on Thursday, December 30th. There will be present a number of prominent speakers to deliver addresses on the subject of improved country roads. Among them will be the Ontario Government Roads Commissioner, Mr. Archibald Campbell, C.E., whose valuable addresses were the feature of last year's convention. Mr. Campbell has already accepted the invitation of Judge Lynch, president of the association, to be present. It is expected acceptations will be received from several other well-known public men shortly.

The good roads movement received the attention of the Quebec Legislature recently, when a bill was passed authorizing councils to purchase road rollers, rock crushers, etc., for the use of the various townships and villages in the county.

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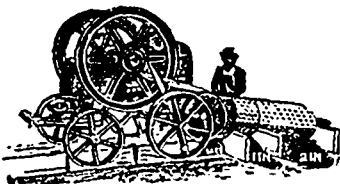
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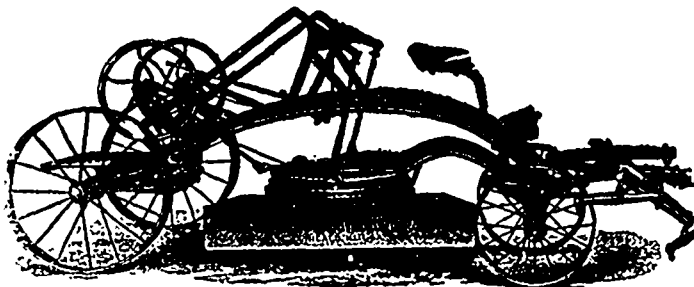
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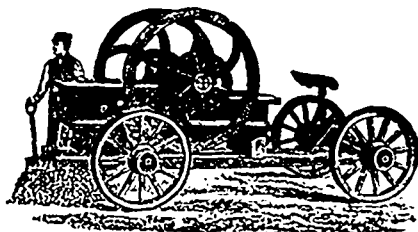
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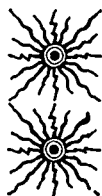
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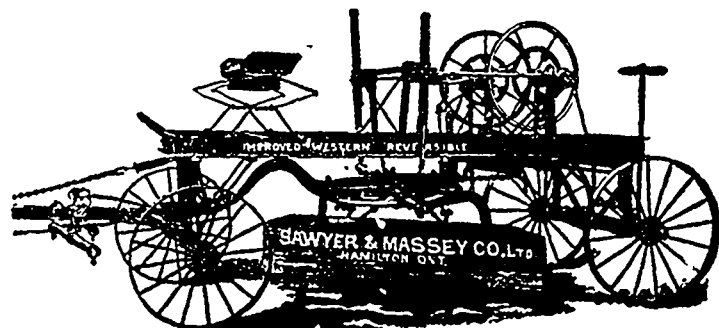
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