

greatest results when detonated in a confined space, at high density.

The rapid expansion of this gas in all directions, declared the witness, drives the air away from the area over which the explosion extends. But the gases cool rapidly, and as they cool they again contract, creating a partial vacuum and allowing the air to rush in again over the affected area. It was this sudden withdrawal and return of the air over Halifax which caused houses to collapse like cardboard boxes and smashed the windows and doors of more substantial structures. The witness said that although it would be too light to be seen in daylight, the explosion would be accompanied by a flame which would spread over the whole area of the explosion, and he had no doubt that this flame was responsible for houses being set instantaneously on fire, although possibly in many cases fire would have occurred anyway from the upsetting of stoves.

The greatest previous explosion, said the expert, was that of 500,000 pounds of dynamite which blew up the steamer "Alum Chine" in Baltimore harbor. The "Black Tom" Island explosions of last year were caused by about 350,000 pounds of explosives similar to those which blew up at Halifax, distributed on freight cars and lighters. Even then, there were several different explosions. The island is about one and a half miles from the Battery, New York, where much damage was done, and glass was broken in some parts of Brooklyn, four miles away. There is no doubt, testified the witness, that the wreckage at Halifax was the worst ever created by any explosion in the history of the world.

ONTARIO'S METALLIFEROUS PRODUCTION

Returns received by the Ontario Bureau of Mines for the three months ended March 31st, 1918, are tabulated below. For purposes of comparison the quantities and values are given for the corresponding period in 1917:—

Summary of Metalliferous Production—First Quarter of 1918.

Product.	Quantity.		Value.	
	1917.	1918.	1917.	1918.
Gold (ounces)	127,692	113,387	\$2,601,760	\$2,265,521
Silver (ounces) ...	3,945,957	4,114,856	2,831,873	3,740,843
Cobalt (metallic) (lbs.)	84,710	37,545	78,668	75,625
Cobalt oxide (lbs.)	83,014	81,760	66,798	130,486
Nickel oxide (lbs.)	5,495	.....	550	.....
Nickel (metallic) (lbs.) .....	.....	44,154	.....	17,662
Other Cobalt & nickel compounds (lbs.)	118,292	143,381	13,695	18,386
*Nickel in matte (tons)	10,141	9,677	5,070,410	5,806,200
*Copper in matte (tons)	5,063	4,727	2,025,227	1,748,990
Copper ore (tons) ..	1,507	.....	44,097	.....
Iron ore (tons)	23,035	32,530	58,205	127,916
Pig iron (tons)	163,020	148,752	2,743,441	3,948,209
Molybdenite, concentrates (lbs.)	25,073	17,410	32,202	24,548
Lead, pig (lbs.) ...	263,046	60,283	27,290	5,066

*Copper in matte was valued at 20 cents and nickel at 25 cents per pound in 1917. For 1918 the values have been placed at 18½ and 30 cents per pound, respectively.

Molybdenite ore, to the extent of 1,295 tons, was treated by the Mines Branch, Ottawa, and by the Renfrew Molybdenum Mines, Limited, at Mount St. Patrick. The output of the last-mentioned company is shipped direct to France. There are works at both Orillia and Belleville for the production of ferro-molybdenum.

MUNICIPAL ELECTRICAL ASSOCIATION

IT was very fitting, said President E. V. Buchanan, of London, Ont., in opening the meeting of the Association of Municipal Electrical Engineers of Ontario in the Refectory in Queen Victoria Niagara Falls Park last Friday afternoon, that the first annual convention of the association should be held at Niagara Falls, where several million horse-power await harnessing.

About 160 engineers, representing municipal electrical plants throughout Ontario, three-quarters of which are Hydro plants, attended the convention, which lasted two days. The association was formed three months ago. A hundred and eighty-four municipalities were asked to join, said Secretary R. A. Clement, of Toronto, and eighty-three of these had already become members. There is a bank balance of over eight hundred dollars to the association's credit.

Just before the convention opened, the delegates watched a blast made for the Hydro's 13-ft. 6-in. pipe line which is nearing completion, and which will make possible the development of about 50,000 more horse-power at the Ontario Power plant.

The papers read at the convention were as follows:—

"Factory Lighting," by M. H. Madgsick, of the engineering department of the National Lamp Works of the General Electric Co., Cleveland, Ohio.

"The Evolution of Electrical Inspection in Ontario," by H. F. Strickland, chief electrical inspector, Hydro-Electric Power Commission of Ontario.

"Thirty Years as an Electrical Salesman," by Geo. Rough, vice-president, Packard Electric Co., St. Catharines.

"Overseas Trade," by Fred. W. Field, H.M. Trade Commissioner, Toronto.

"Application of Synchronous Motors to Industrial Uses," by M. J. McHenry, manager, Hydro-Electric System, Walkerville, Ont.

"Sales Service," by J. F. S. Madden, sales engineer, Hydro-Electric Power Commission, Toronto.

Wills MacLachlan, of Toronto, gave a valuable demonstration of a new and successful method of resuscitation.

H. G. Acres, hydraulic engineer of the Hydro-Electric Power Commission, gave a ten-minute talk on the Chippawa-Queenston development, after which the members were motored to the Whirlpool yards and from there were taken on a construction train to the power house site near Queenston; the machine shops, the sub-station and the big Bucyrus shovels being inspected en route.

The following officers were elected for the ensuing year: President, E. V. Buchanan, manager of the London Public Utilities Commission; vice-president, E. I. Sifton, Hydro manager at Hamilton; secretary, S. A. Clement, assistant engineer, municipal department, Hydro-Electric Power Commission; treasurer, R. C. McCollum, municipal auditor of the Hydro-Electric Power Commission.

The by-laws were amended to reimburse the members for their railway expenses in attending the convention; to add five district vice-presidents to the list of officers; and to admit non-voting and non-office-holding commercial members at a fee of \$10 per annum. This class of membership will include manufacturers, contractors and dealers in electrical equipment and supplies dealing directly with the municipalities.

The Class A members are the municipalities, each of which can be represented at the meetings only by the chief operating executive of the municipality's utility.