leading off the gases from the hot part of the furnace and not allowing them to cool in contract with the ore. In this way reduction by CO is avoided, and the fixed carbon in the charge may be consumed almost entirely to CO without formation of CO_2. This would bring the furnace consumption of carbon nearer to a definite amount, and by avoiding reduction except by solid carbon tend to use up all the carbon charged, the amount of which would be calculated by this manner of working (as in the numerical example worked out for illustration).

(4) The best solution of this difficulty may be to provide tuyeres by which air can be sent into the crucible of the furnace, and thus burn any accumulation of carbon. A given quantity of air will always burn a given quantity of carbon, and therefore the cure would seem to lie in having a variable supply of air, which is increased whenever the falling resistance of the furnace indicates that carbon is beginning to accumulate, and diminished to a small minimum supply, only enough to keep the tuyeres open, when the furnace is in good electrical running order. It would represent a combined electrical and blast furnace, with the blast so regulated as to overcome the chief difficulty of the purely electrical furnace—the accumulation of unused carbon in the crucible.

It may be quite possible, by some such device as Mr. Taylor's large electrical furnace, to practically combine the blast furnace and the electrical furnace. The writer is quite confident that any practical method of introducing electrical heat into the crucible of a blast furnace will result in large economies in the furnace working. Only one-quarter of the heating power of the fuel is developed around the blast tuyeres, and yet if half of this could be replaced by electrically-generated heat, an economy of 50% could in all probability be reached upon the fuel bill. To put it into figures, it takes 1.2 tons of coke to make a ton of pig iron in the blast furnace, and about three-quarters of a ton is burnt by the blast, producing at the smelting zone about 25% of the calorific power of the coke. If electrical energy could be made to supply one-half of this, the furnace would make iron with half the previous coke supply, that is, with 0.6 ton of coke per ton of pig iron, and this with an expenditure of electrical energy equal to 12.5 per cent. of the calorific power of but 0.15 tons of coke.

The question of economy in this case will not be, then, the simple replacement of fuel heat energy by an equivalent amount of electrical heat energy, but the comparison of fuel heat energy with the cost of one-fourth its amount of electrical heat energy. This may be quite possible in many localities, and the combined furnace would work more regularly than a purely electrical furnace. The question awaits the coming of the electro-metallurgical engineer who can make practicable the requisite combination. A possible solution may be to use cheap electrical power to superheat the hot blast, and thus to make the blast itself the agent for carrying electrically developed heat into the furnace.

CEMENT—CONCRETE.

Quebec.

MONTREAL.—A. T. Chapnon has secured a contract for cementing the wading pool in Lafontaine Park, at $1,975.

British Columbia.

VANCOUVER.—After calling for tenders for five miles of conncrete walks the city has decided to do the work by day labor. Two firms bid 14c a square foot.

Ontario.

OTTAWA.—A merger of Canadian cement companies has been affected. The capital is $30,000,000. Sir Sanford Fleming is president, and ten cement plants in this country are involved. It is reported that negotiations have been completed for the purchase of the following companies, except, possibly the Belleville plant of the Lehigh Company, with which a contract has not yet been completed. The Vulcan Portland Cement Company, Limited, of Montreal. The Lehigh Portland Cement Company, Limited, of Belleville, Ontario. The Belleville Portland Cement Company, Limited, Belleville, Ontario. The Canadian Portland Cement Co., Ltd., with properties at Marlbank and Port Colborne, Ontario. The International Portland Cement Co., Ltd., of Hull or Ottawa. The Western Canada Portland Cement Co., Ltd., with properties at Exshaw, Alberta. The Lakefield Portland Cement Co., of Montreal. The Lakefield Portland Cement Co., Ltd., of Lakefield, Ontario. The Owen Sound, Portland Cement Company, Limited, of Owen Sound, Ontario. The Alberta Portland Cement Co., Ltd., of Calgary, Alberta. The new company also proposes to construct plants immediately at Winnipeg and Victoria, B.C., where large deposits of suitable material have been discovered. As far as can be learned, the authorized and issued capital of the merger will be as follows:—

	Authorized	To be issued
Bonds	$ 8,000,000	$ 5,000,000
Preferred	11,000,000	9,000,000
Common	19,000,000	12,500,000
Total	$38,000,000	$26,500,000

Of the $9,000,000 preferred, $4,000,000 will go to pay for properties, so that only $5,000,000 will be issued to the public. A strong group of both Canadian and English financiers are already identified with the project. The provisional directors are: Sir S. Fleming, W. M. Aitkin, Hon. W. Edwards, J. S. Irvin, Hon. R. Mackay, R. Forget, M.P., J. R. Booth, F. B. Dunsford. The Bank of Montreal will be the bankers for the new company, and the Royal Trust Company will act as trustees for the bondholders.

PRESCOTT.—Last week's issue of the Canada Gazette contains notice of the incorporation of the Canadian Cement Casket Co., with a capital of $99,950. Mr. H. E. Whitney, of Prescott, is a director.

PETERBOROUGH.—E. A. Hay, city engineer, invites tenders for the erection of a reinforced concrete bridge over the River Otonabee.

(Continued from page 231).

Small factories or steam engines	5	to	25.00
Restaurants, club and pool-rooms	4	to	20.00
Taverns	10	to	25.00
Wholesale liquor stores (unmetered)	25	to	50.00
Light wagon horses, including water for washing carriage, each			2.00
Omnibus, coach or truck horses, each			1.00
Cows, each			1.00
Stalls, each			0.50
Hand hose (jet not to exceed ⅜ inch) to be used before 9 a.m. and after 5 p.m.			0.50
Soda fountains			3.00
Photograph studios	$5	to	10.00
Drug stores	3	to	10.00
Laundries not using steam power	5	to	10.00
Other places where water is used from 50 cents upwards.			
Water supplied for building purposes:			
Ordinary frame house			2.00
Large frame house			3.00
Ordinary brick house			5.00

Larger buildings by meter at the rate of five dollars for fifty thousand gallons, or less, and one cent per one hundred gallons for any quantity over fifty thousand gallons, the meter to be placed to the satisfaction of the Board at the expense of the applicant.

Repairing and re-modelling buildings.

Each barrel of lime or cement ..... .05

But no charge less than one dollar.