ore and fine coal, mixed in proper proportions, in clay pipes passing through the roof of the furnace. The ore was in great part deoxidized by the conversion of the carbon into carbonic oxide which re-acted on the ore; the carbonic oxide taking up the oxygen from the ore, and being converted into carbonic acid, while the iron was reduced to the metallic state and balled or melted on the hearth of the furnace. This method not proving very satisfactory, a revolving furnace was introduced, in which the ore and coke or small coal were melted. The chemical reactions were the same, but the revolution of the furnace worked the reduced metal into a ball of spongy metallic iron, which was conveyed to an ordinary open-hearth melting furnace and melted down in a bath of fluid cast iron. The silicon of the pig iron becoming oxidized, combined with some of the unreduced oxides of iron and passed into the slag, while the carbon became equally diffused throughout the molten metal and converted the whole into cast steel. The expense and trouble connected with the working furnace has led to its abandonment, and the method now pursued at Towcester, as described by Dr. Siemens, is briefly as follows: The iron ore is pulverized and mixed with suitable proportions of fluxing and reducing materials. Some coke or anthracite dust is spread over the hearth of the furnace to protect the silica from the action of the oxides of iron. Four to five tons of the mixture are spread over the hearth and the furnace raised to a welding heat; a powerful superficial action takes place causing a reduction of the ore to metallic iron and a fusion of the earthy constituents which pass off in the slag. In the course of two hours a thick skin of malleable iron is formed which is drawn out and hammered to free it from cinder; the furnace is again closed up, and in the course of an hour and a half another skin of iron is formed and treated in the same way, and so on until the charge is exhausted. The resulting iron may be piled up, reheated and rolled into bars or sheets, or it may be melted in a bath of molten pig iron for the production of steel as already described. Of course the addition of spiegeleisen or ferro-manganese to the bath is always necessary to remove any traces of oxygen from the steel before casting.

At the same meeting, Mr. Walter Ness, Director of the Government Iron Works in India, gave the results of some experiments made at the West of Scotland Steel Works. Indian ores (magnetic oxides) very pure, containing no sulphur or phosphorus and only from one to two per cent. of silica, were treated in a Siemens furnace and reduced, by the action of carbonic oxide, to a spongy iron, which was subsequently made into steel in a crucible.

Our rich Canadian ores might be advantageously treated by this or some analagous method. Coal screenings, wood, peat or even sawdust will serve equally well for the production of gas for a reducing or melting furnace, but it is of the first importance that both technical skill and practical experience direct the operations. We have seen so many failures in Canada and elsewhere from men quite unskilled in metallurgical operations, undertaking to put crude ideas into practice, that enterprizing capitalists cannot be too guarded against the plausible arguments of mere theorists.

We may point, for example, to the Moisic Iron Company, which erected works at Moisic to treat the magnetic iron sands which extend in enormous beds for hundreds of miles along the north shore of the St. Lawrence. The ore is free from sulphur and phosphorus and contains over 70 per cent. of iron. Here was a material capable of producing the highest grades of iron, and it did do so, but at too great cost. The method followed was far too expensive upon both labour and fuel. Treated by another and more suitable process no doubt a paying business could be established.

At Quebec, a few years ago, a couple of Siemens' furnaces were built with a view to making steel direct from these iron sands, but with no success. The operations were under the direction of an accomplished limb of the law, which gentleman was, however, not learned in either the theory or practice of steel-making. To a skilled metallurgist the points of failure are evident and could be easily overcome, but since the first unsuccessful experiments the works have been lying idle.

About three years ago a Mr. Stevens from the United States induced some Montreal gentlemen to invest in the erection of a furnace for the manufacture of iron at some absurdly low figure. After the furnace had been erected and some experiments attempted, an experienced metallurgist was consulted, who, upon examination, at once condemned the whole structure as the production of an individual ignorant of the first requirements of a reducing or melting furnace. The pretender returned to the States and remained there, while the furnace was sold for the old materials which it contained.

FINANCIAL REVIEW.

The official return of the Banks in Ontario and Quebec for September gives the following results, which we compare with those of August:

	August.	September.
Capital authorized ..	$66,966,666	$66,966,666
Capital subscribed ..	63,165,916	63,165,916
Capital paid up	58,553,515	58,533,515
LIABILITIES.		
Circulation	16,398,879	19,969,649
Government deposits on demand	2,938,124	3,292,798
Domin. Government deposits after notice.....	916,700	1,141,700
Provin'l Government deposits on dem...	1,098,562	1,275,063
Provin'l Government deposit after notice	2,279,329	1,740,462
Private deposits on demand	32,834,142	32,707,786
Private deposits after notice.....	26,419,120	25,762,418
Due other Banks in Canada	1,846,367	1,612,333
Due to other Banks in foreign countries..	335,649	247,720
Due to agencies or banks in United Kingdom	1,740,985	2,002,721
Sundries	106,062	98,711
	$86,913,919	$89,851,361
ASSETS.		
Specie	5,719,713	5,844,275
Dominion notes	7,120,913	7,024,520
Notes and cheques of other banks	3,657,206	4,155,995
Due from other banks in Canada.....	2,970,432	3,415,445
Due from agencies in foreign countries..	4,324,480	3,365,556
Due from agencies in United Kingdom ..	571,837	862,825
Available assets..	24,364,581	24,668,616
Government stock ..	3,105,330	2,909,709
Loans to Government	216,136	257,600
Loans on bank stock	2,376,731	2,370,081
Loans on Bonds....	4,138,274	4,458,534
Loans to Corporations	3,439,393	3,426,472
Current discounts....	111,300,344	113,520,313
Overdue Notes not secured	2,340,207	2,612,140
Overdue notes sec'd	3,378,543	3,374,915
Real estate	1,141,708	1,142,852
Bank premises.....	3,010,353	3,069,021
Other assets.....	1,667,738	1,692,189
	$160,479,338	$163,502,642

There is always in September an increase in circulation and discounts, as our grain then begins to move. Circulation has increased this year, as compared with August, by $3,570,770, and discounts are $2,220,199 higher. The increase in the same items in the corresponding month last year was as follows: In circulation, $2,283,862; discounts, $2,261,000. The ratio of increase in circulation is considerably in favor of this year, while the increase in discounts is nearly the same for both years. In August, 1876, circulation stood nearly one million dollars higher than the same month this year, whilst at the end of September, 1877, it was $310,000 more than in the previous September. The increase in discounts in that month of both years was a little more than $2,200,000. They now stand $341,513 higher than in September 1876.

Public deposits have decreased $783,000,