

furnace. Aluminium is thus obtained from cryolite and bauxite. Phosphate is also separated from apatite and other mineral phosphates. Calcium carbide, obtained in the same way, is becoming an important industry."

"Electrical energy can be generated on a coal field where coal, of good calorific value, is raised at a cost of three shillings per ton, cheaper than by a water fall, even at Niagara."

Eastern and Western Canadian coal fields are separated by thousands of miles, but water power is abundant throughout nearly all this coalless region.

Our western coal fields are vast and their market at present limited. If coal can be raised cheaply enough and the raw material for the work be discovered in the neighbourhood, they may give rise to electro-chemical and electro-metallurgical industries without the intervention of water power.

The commercial production of calcic carbide (acetylene gas), by electrolysis, is the discovery of Mr. T. L. Wilson, (a grandson of the late Hon. J. M. Wilson of Saltfleet, Ontario,) who has established works on the water powers of the Welland Canal and has shipped this product all round the world.

The electric production, commercially, of caustic soda and chlorine is under the patent of Mr. Ernest A. Lesueur, son of the Secretary of the General Post Office Department, Ottawa. This manufacture is now being carried on by a Boston company at a New England water power.

MINING.

There is another field nearly as widespread as our water power in which electricity is destined to play a most important role, and this is mining, which is now spreading over the Dominion with the same rapidity as the utilization of our forests for pulp and paper purposes. Over this area, from the Atlantic to the Pacific, minerals have been discovered and in many cases tested and successfully worked, and from recent results we appear to be on the threshold of remarkable developments in this direction, especially as so small a portion of so great an area has been prospected sufficiently for mining purposes.

For power purposes alone, electricity is invaluable in mines, and its multifarious uses (as enumerated by Mr. Preece) are "for moving trams and for working hoists: it lights up and ventilates the galleries, and, by pumping, keeps them free from water. It operates the drills, picks, stamps, crushers, compressors, and all kinds of machinery. The modern type of induction motor, having neither brushes nor sliding contacts, is