

"Be it therefore resolved that if a company is organized with a capital of \$3,000,000, and at least half of such capital is subscribed for, and if the company shall have expended to the satisfaction of the mayor and two persons to be nominated by the City Council, the sum of \$20,000 in acquiring a site and commencing to build a plant in or near Victoria for the manufacture of iron and steel billets, with a capacity of not less than 50,000 tons per annum, that the council will cause a by-law to be submitted to the ratepayers to authorize the city to guarantee the interest at the rate of 5 per cent. per annum on the company's bonds to the extent of \$1,000,000, for a period of twenty years, such guaranteed bonds to be issued from time to time as the work progresses, and to be secured by a charge on the assets of the company and the bounties available from the Canadian government, or otherwise to the satisfaction of the council."

In the course of the discussion on the paper read by Professor Clowes before the British Association, in which that gentleman described his apparatus for detecting the presence of foul air in collieries, Dr. Haldane, Oxford, gave the result of his observations on the effect of the deleterious gases met with in coal mines upon human health. He said that his own experiments, repeated on many different individuals, showed conclusively that air containing as much as 20 per cent. of carbonic acid could not be breathed even for a minute without serious consequences. Even 5 per cent. of carbonic acid caused distress of both body and mind, while any proportion higher than 10 per cent. produced distinctly poisonous effects. He pointed out that the danger in mines often arises from a deficiency of oxygen, or from the presence of poisonous gases such as sulphuretted hydrogen and carbon monoxide, rather than from the presence of carbonic acid.

A new apparatus for concentrating sulphuric acid, which has been invented by G. Siebert, consists of a flat, closed vessel, in an inclined position, the bottom of which is terraced or stepped, with each step inclined backwards so as to form a shallow trough. The upper part of the vessel has a dome for carrying off steam or vapors and the lower end an outlet for the concentrated acid or liquid. At the upper face of the vessel is an inlet surrounded at the outside with a basin and protected internally by a screen, so that the liquid in the basin forms a hydraulic joint. In one form of the apparatus each step or terrace has a metal ridge or rib, which is shorter than the entire length of the step, so as to leave at one end a gap for the passage of the liquid; and the gaps being on the alternate sides in successive steps, the liquid traverses at each step the whole length to and fro as it flows, step after step downwards. The vessel is heated underneath.

In his review of the Florida phosphate industry in 1893, Dr. David T. Day (*Mineral Resources of the United States*) says: "As is well known reports have made the foreign consumers think of western Florida as a smooth tract of phosphate, of which it was possible to state the available tonnage by the cubic contents of that part of the State obtained from the acreage multiplied by a theoretical depth. The utter recklessness of such a method is realized when it is understood that the floor of the phosphate section is limestone rock, with an extremely irregular surface. At places the limestone outcrops: at others it is covered with still more irregular deposits of phosphate rock, clay and sand. In one place the phosphate rock will be visible at the surface, and a few feet away it is likely to be found covered with many feet of barren sand or clay, or both. The rock must be sought, therefore, above the pitted, often jagged, surface of the limestone, and below the equally irregular piles of sand and clay. And even then the phosphate boulders and pebbles must be separated from the sand and clay with much labour and mechanical ingenuity, which has developed a system of mining that is somewhat novel, and, therefore, requiring comparatively costly supervision to adapt it to the constantly changing details of occurrence, even after expert and costly prospecting has defined the deposit. With the uncertainty as to the persistency of a given deposit, the phosphate is not, as a rule, followed below water level. It

will be understood that the writer is endeavouring to represent the condition of things in what is generally thought of as the Florida phosphate field, i.e., the "hard rock" region. The pebble region, which, by the way, is developing more satisfactorily than the rock phosphate, is susceptible of more systematic treatment; but even here the necessity is recognized for the greatest skill in selecting only here and there a property which may be profitably worked. After the usual primitive and careless methods of effecting sales characteristic of a new mining region, have had time for teaching their costly lessons, it might be expected that the financial results would be as good as the condition of demand and supply could possibly warrant. But there is general doubt as to whether this condition has been realized. It is confidently asserted by producers in the best position to judge that the price should be nearly double that which is now realized, and further, that the foreign manufacturers, who are the best customers for high grade phosphate rock, are perfectly willing to pay this high price provided they can be assured that all must pay it, and there is to be no great deviation in the price. The most evident policy which suggests itself, that of combination, still seems difficult to effect."

Mr. Titus Ulke, reporting to the United States Geological Survey, on the soapstone mine at Hewitt's, in North Carolina, says: "The mine is located on a hill side, from which the crude talc is lowered in a chute to a grinding mill having a capacity of from 8 to 10 tons per day of ten and a half hours. Most of the product is ground, but some block and pencil talc cut to order is also shipped. The blocks are usually 6 by 4 by 1 inch in size; the pencil talc is cut to about 4 by  $\frac{3}{4}$  by  $\frac{1}{4}$  inch sizes. During 1893 the mill was running continuously for about three months only. The pencil and block talc is shipped in cases according to the amounts ordered; the ground talc is packed in sacks of 220 pounds each. At the mill the crude talc is first passed through a 'rumble,' i.e., a rotary screen, 6 feet long by 4 feet in diameter, which removes the dirt from the talc, and the dirt thus removed passes through longitudinal slits into a water spout which carries it away. The good talc remaining in the rumble is dumped into a car, from which it is fed into a buhrstone grinding mill. The ground material is then hoisted to the floor above and emptied into a silk bolting cylinder. The bolted talc is caught in a dust-collecting chamber, into which it is drawn by an interposed centrifugal fan. The fine white ground talc is finally sent to an automatic packer and filled into sacks, each holding 220 pounds.

Gouverneur, Saint Lawrence County, New York, continues to furnish the entire product of the fibrous variety of soapstone. This mineral is used almost exclusively as a filler in the manufacture of medium grades of paper, a small amount being used in making dynamite. The product in 1893 was 35,861 short tons, valued at \$403,436, against 41,925 short tons, worth \$472,485, in 1892. The year of largest production was in 1891, when an output of 53,925 short tons, valued at \$493,068, was reported. At the beginning of 1893 prospects were bright for a good year's business, and until the first of June the production was about equal to that of the first five months of 1892. After the first of June, however, the demand fell off, and while prices were fairly well maintained, the amount of business for the rest of the year was about 75 per cent. of that of the preceding year.

An American inventor has devised a machine for making gas for illuminating purposes out of wood instead of coal. The machinery is said to be very simple, consisting merely of a retort and purifying chamber, with a tank for holding the gas. It is claimed that the machine can be used for domestic purposes, and that by attaching it to an ordinary cooking stove enough gas to last a day can be made by the fire necessary to do the cooking. We would rather not make any remarks about this machine. We have not seen it ourselves and we don't know anybody who has.