

in metallurgical industry, are fully described in Dr. Woodman's report on the Iron ores.

In view of the facts stated, it is evident that, Nova Scotia will soon be in an exceptionally favorable position, as regards official information on the iron, coal, and general mineral resources and industries of the Province.

THE GYPSUM DEPOSITS IN N. S.

Mr. W. F. Jennison, has been for some time engaged in preparing a report on gypsum in N. S. From the following preliminary report the scope of Mr. Jennison's work may be guessed at:

"Gypsum in the provinces of Nova Scotia and New Brunswick has been known to exist since the discovery of the country, and the deposits have been operated a more or less extent for nearly a century.

The development of this mineral in Canada to-day, is only in the primary stage, and has not made the same progress exhibited by other countries.

The operations are carried on almost exclusively by American capital, and the product of the quarries is shipped to the United States in a crude condition for further treatment.

The deposits occur as huge masses, some of which cover square miles in area, having exposures of over 100 feet in height—above water level—and extending several thousand feet. They may be considered practically unlimited, with a quality unsurpassed anywhere in the world.

During the past decade there has been a great increase in the production of gypsum, and in the demand for the various articles manufactured from gypsum. Production in the United States increased over 500 per cent. This fact, and the promising outlook that the demand will continue to increase, make these deposits of great economic value, and one of the most important natural resources of the country.

Realizing these conditions, and perceiving that the comparatively small development of these deposits is due to the lack of information already obtained, and also that it is very important our own citizens and others interested, should have full information as to the extent and uses of gypsum, and demand for the many products manufactured therefrom, I was instructed July 16, 1908 to prepare a monograph showing:—

- 1—History and distribution of gypsum deposits.
- 2—The trade history of gypsum.
- 3—Statistics and graphic charts of gypsum production. The geography and topography of the Canadian gypsum deposits, with maps and photographs, showing extent of deposits and facilities of manufacture and shipping.
- 4—Origin of gypsum, general theories.
- 5—Deposition from sea water, by thermal springs by the action of iron pyrites on the carbonate of lime.
- 6—Gypsum as a fertilizer. Its uses among ancient people. The experiments by well known authors. Theories of action on gypsum as a fertilizer.
- 7—The chemistry of gypsum, plaster of Paris, cement plaster, methods of analysis.
- 8—Technology of gypsum. General and physical properties.
- 9—General requirements of a plaster mill, with cuts and specification and costs of construction. Chemistry of the manufacture of plaster. Retarders accelerators.
- 10—The methods of operation, with costs.
- 11—Markets, and value of product, etc. etc."

THE TREATMENT OF TIMBER FOR USE IN MINES.

A method of treating of timber, known as the Henry Aitken method, is now used at many collieries. In this process the idea is to soak the timber in water, raised to a temperature of from 190° to 200° Fahr., containing enough common salt to form a thoroughly saturated solution.

The timber should be free from bark, fairly well seasoned, and thoroughly dry.

Any tank, either wood or iron, of a size suitable to contain the timber to be treated will do, and the water should be heated by exhaust steam, or otherwise.

The time necessary for completing the process largely depends on the nature and size of the timber, but two days will, in general, be sufficient.

By sawing off a small part of the timber being treated, it can be seen whether thorough penetration by the salt has been obtained.

When the timber is removed from the treating tank it is soft, and not in a condition for immediate use.

It is dried by being put into a covered shed, or stacked in the open air.

The cost of treating timber by this process averages in Great Britain, about one penny per cubic foot.

Some of the managers of the largest collieries in Scotland, who have adopted the process, write as follows:

Mr. Maevie, manager Cadzow collieries, Hamilton, regarding the Aitken process for treating the timber for use in mines, states that in his five years' experience he had never seen the least indication of decay in any timber so treated. About four years ago, gears (every alternate one treated) were put in the main return airway of the No. 3 Pit Ell coal seam, Cadzow colliery. About a year ago, all the untreated gears were replaced, owing to decay. The treated timber is still in use, and in good condition. As regards the contention that the Aitken process reduces the strength of the timber, he had never seen anything to make him think this was the case. Indeed, he had stopped using larch timber, and now used treated Scotch, or foreign fir.

Mr. Ferguson, manager Benarty colliery, Fifeshire, writes that the Aitken process has been in use at the Lochore and Caplethrae collieries for upwards of six years, and during that time it has proved a great saving, not only in wages renewing broken timber, but also in the price of wood used, which is now nearly all foreign timber. The treated wood had stood in the return airways for six years, and was quite sound. If this wood had not been treated it would have been replaced twice during the above period. No tree which had been treated had shown the slightest decay during the six years.

Mr. Carlow, managing director Fife Coal Company, Leven, Fifeshire, writes that the Aitken process has been in use for four years.

The following experiments have been made with the process: Two pieces of ordinary fir, 3½" in diameter and 3 feet long, both weighing 10 pounds before being treated, were selected. One of the pieces was treated by the salt process and the other was not. After taken underground it weighed 12 pounds. Both were after eleven months and placed in a return air course, and the untreated timber then weighed only 5 pounds, whereas the treated one weighed 12 pounds, being ex-