

to be made of the lignite of the Souris district in Manitoba, of which so much was said and predicted when its discovery was first announced. If this formation is of any value at all as a fuel, the settlers on the almost treeless districts around Brandon and the adjacent country would be much benefitted by such fuel being made accessible. We notice also that no mention is made of Peat or Peat deposits. Whether this formation can be classed as a mineral we do not profess to know from a geological point of view, but we fancy it would not be a very easy matter to state accurately where Peat ceases and where lignite begins. We hope the next issue of this report will include these products of the mine.

The amount of labour bestowed on the Report by Mr. Ceste and his assistant, Mr. Brumell, does those gentlemen great credit, and although the tables as they appear do not look very formidable, we can assure our readers that no one who has not buried himself in statistical reports can form any idea of the vast amount of time and labour, and burning of the midnight oil that goes to make these very tables. Sheets of calculations and pages of addition are often represented in a plain table of one or two columns, occupying perhaps in their totals half a page of matter. We bespeak the thanks not only of the mining community but of business men generally for this useful and concise Report—a report which will be consulted in the United States and in Great Britain equally with Canada. An official report always carries weight, the sources from which its information is obtained being authentic, and as reliable as any such information can be. The only wonder we can express is that the Government has not called for such a report long before this. To the mining industry and to the general public it certainly is the most useful of all the reports that can emanate from the Geological Survey, being shorn as it is of the scientific parlance peculiar to the ordinary geological reports.

#### Ontario's Imbecile Mining Laws.

It is very gratifying to notice that other journals are now taking up the question of the backward condition of the mineral development of the province consequent upon the present unsatisfactory state of the mining laws. The *Toronto World* of the 9th inst. advocates as a necessity "A mining policy for Ontario," and continues daily to show evidence of its necessity, and other papers have followed suit with equally good cause for complaint. The total neglect of the interests of the mining community by the authorities (save and except in the instance of a few chosen parties and the district in which they operate) has been too well carried out for the benefit of the few favorites, and to the detriment of the real workers—the discoverers of minerals. As we have again and again pointed out in these columns, the present system of granting mineral

lands is nothing short of legalized fraud, and is too glaring an injustice to be allowed to remain any longer in this condition. Are the Ontario legislators blind or asleep? If not, let them read carefully the pages of *THE CANADIAN MINING REVIEW* during the past year, as well as the recent issues of the *World*, and awake to the urgent claims of the mining community for justice. Our demands are:—The location of a mineral claim by the discoverer on the ground, instead of the present system of having it done, or rather having it *not* done, as it is too often the case in the land office, that Mr. Speculator has a prior and unlimited application for a whole district. Free grants of mining claims to miners, and compulsory development of these claims, under just and proper regulations for the manner of working. Surface lines as boundaries of mining claims are not the just mineral boundaries. A miner should follow the dip of the lode, vein or bed of ore, as surface lines or boundaries are not those in the interest of development, or protection of capital or labor invested. Auction sales of mining lands are in the interests of speculators only, and ought to be discontinued. Competent mine inspection, and complete provincial mining statistics, and trustworthy mineral reports, and not political advertisements, as at present, by "special agents" of questionable standing. Equal educational advantages to mining and agricultural students, or none, to any one.

#### Iron and Steel Institute.

We have to acknowledge this month the second volume of the Journal of the Iron and Steel Institute for 1887. Among the many interesting features of its extensive and well edited pages we need only select the titles of a few of the principal papers in order to show its scope: "On the Metallurgical and Mechanical Exhibits at the Manchester Royal Jubilee Exhibition," by Mr. Thomas Ashbury; "On the Reduction of Ores of Iron in the Blast Furnace," by Sir Lowthian Bell, Bart., F.R.S.; "Notes on the Basic Open-Hearth Process," by Mr. J. W. Wailes; "On Electric Lighting in Works and Factories," by Professor J. A. Fleming M.A. An old pamphlet published in London by the iron manufacturers of Great Britain as far back as 1756, and entitled "The Case of the Importation of Bar Iron from our own Colonies of North America," is also reproduced, and will be read with peculiar interest by the iron manufacturers of the Dominion.

#### Raw Phosphates.

Previous to the year 1770 it is difficult to find any record of the use of bones for agricultural purposes. In 1740 their value for a top-dressing for grass lands was accidentally discovered at Sheffield, where a heap of bone shavings, scrapings, &c., was buried in a field with marvellous results.

The mechanical division of bones in their

raw state was difficult and so costly that it precluded their use in any other form than crushed.

Liebig, some fifty years ago, found that by the application of sulphuric acid to bones it reduced them to a finer state of division than could be done by then known mechanical means.

This application is often called dissolving bone in acid. There is no clear solution.

It is a mere breaking up, it is a softening, pap-forming process, and bone in this state, would more appropriately be called bone pap.

The bone is merely so far reduced that, when rubbed between the thumb and finger, no grit is felt. Bone cannot all dissolve, for the sulphuric acid, when added rightly, unites with the lime of carbonate and phosphate, and forms with that insoluble sulphate of lime or plaster.

It is this which gives the grayish white look to the bone porridge.

At the present time comparatively few bones are used for fertilizing purposes; phosphate rock, phosphorite, apatite and coprolites having been substituted generally in place of bones in manufactured superphosphates and commercial fertilizers. Where originally it was impossible to get raw bones ground fine by machinery that difficulty does not exist with phosphate rock, phosphorite, apatite and coprolites, as they are all easily reduced to an impalpable powder at a low cost with the present machinery now in use, and it has been found by repeated experiments by competent authorities that if the phosphates are ground to an impalpable powder, they are as available to crops as if they had been treated with sulphuric acid, the carbonic acid of the soil and the soil water being as efficient a solvent as the sulphuric acid.

In saying that phosphoric acid is insoluble it is meant that it is insoluble in pure or distilled water. Water which contains carbonic acid, ammonia or common salt (and all water contains one or more of these) has the power of liberating the phosphoric acid from its base lime and rendering it available to roots. The action is slow, but it is sufficient, and it is more rapid the finer the pulverization of the phosphate.

In fact phosphates treated with sulphuric acid to render them soluble before, but not after they are applied to the soil and sold under the name of superphosphate, when applied to the soil reverts or goes back to its original condition; this is generally admitted, but it is soluble in the acids of the soil in the same manner as are the phosphates ground to an impalpable powder. It is estimated that 400,000 tons of sulphuric acid, 50° strength, are used annually in the United States to convert insoluble phosphoric acid into soluble phosphoric acid, and that this quantity will be doubled during the next five years.