sium dissolving with merely a slight hissing. If, however, the mixture has been heated till vapors have begun to make their appearance, the reaction is extremely violent. It is, therefore, best to allow the contents of the crucible, after fusion, to cool down to a low, red heat, when the introduction of the magnesium is perfectly safe. When all the action has ceased, the contents of the crucible are again heated strongly, and afterwards allowed to cool until the furnace has become quite cold. On breaking the crucible, all the potassium chloride is found to have been volatilized, leaving a regulus of metallic manganese, fused together in a solid block, about three parts of weight being obtained for every two parts of manganese added. The metal, as thus obtained, is readily broken up by hammering into fragments of a whitish-gray color, possessing a bright metallic lustre. The lustre may be preserved for months in stoppered glass vessels; but when exposed to air the fresh surface becomes rapidly brown. The metal is so hard that the best files are incapable of making any impression upon it. It is so freely magnetic that a powerful horse-shoe magnet, capable of lifting a kilogramme of iron, has no appreciable effect upon the smallest fragment. It was noticed that the introduction of a small quantity of silica rendered the manganese still more brittle, and caused it to present a conchoidal fracture, that of pure manganese being uneven. The specific gravity of the metal, former determinations of which have been very varied, was found to be 7·3921 at 22 degrees C. This number, which was obtained with a very pure preparation, is about the mean of the previous determinations. Dilute mineral acids readily dissolve the pulverized metal, leaving a mere trace of insoluble impurity. It is also satisfactory that practically no magnesium is retained alloyed with manganese, and the introduction of carbon is altogether avoided by the use of this convenient method.—*Kuhlow.*

Mr. John Muir, who has leased what is known as the Kirby area, situated at a point between New Glasgow and the Vale colliery, is working on a four-foot seam of very fine coal. The situation of his property, however, places him at some disadvantage, as he has to haul his coal by road into New Glasgow at a cost of something like 50 cents per ton.

Another valuable discovery is reported from Salt Springs. Mr. Hall in continuing his exploratory work has just opened up a seam of coal three feet thick, pitching an angle of 29 degrees. The seam formerly opened out though workable was almost vertical. Exploring still goes on, and Mr. Hall thinks his latest discovery will greatly increase the value of the property. The coal is of superior quality. In order to develope the four foot seam it has been decided to at once sink upon it. To do this an engine and necessary buildings will be placed in position forthwith. It is expected that all will be in readiness to begin sinking about the 15th. Three carloads of coal have been shipped from Salt Springs during the past day or so—one going to Truro.

IMPROVEMENTS IN THE MANUFACTURE OF COPPER.—The improvements in copper smelting, by P. C. Gilchrist, relate to the separation of copper from impurities, more especially arsenic, antimony and tin. In roasting of white or pimple metal for the production of blister copper, in the treatment of metallic bottoms for the removal of arsenic and conversion into blister or into refined copper, and also in the toughening and refining of blister copper, reverberatory furnaces are used, lined with shrunk dolomite, magnesia, chrome iron ore or other basic or neutral lining by which means it is possible to maintain during the operation of refining a basic slag instead of the acid slag as hitherto. A purer product is thus obtained, together with a larger yield and increased output. It has been found that a suitable amount of lime to add when charging white metal containing 75 per cent. of copper, is from 2 to 3 cents per seven tons of white metal charged. The metal should be melted down slowly under air. Much less slag will be formed than is usual in sand-lined furnaces. A good heat should be kept on the furnace throughout the charge. It is often advantageous to add a few shovelfuls of lime to the slag shortly before tapping the charge. Care must be taken not to form too thick a slag or the operation will be retarded. It is often convenient to charge in also some copper oxides or slags, and to subject the surface of the latter to the action of an air blast, the oxidising action of which materially assists the diminution of arsenic. The object of the smelter should be to obtain as little slag as possible, and with a low percentage of copper in it, skimmings of slag should be made three or four times, as desirable. When the sample begins to show a blister fracture a few shovelfuls of lime are to be added once or twice until the bath is ready for tapping. The slags obtained when working as described will not average more than 30 per cent. of copper, whereas when working with the ordinary sand bottom the slag usually averages 55 per cent. of copper, besides weighing considerably more per ton of blister produced. It was found when treating 400 tons of metallic bottoms in a basic lined furnace that there was obtained 323 tons of blister and 107 tons of slag, averaging 25 per cent. of copper, and that when treating an equal weight of metallic bottoms in a sand-lined furnace there was obtained 191 tons of blister only and 221 tons of slag, averaging 55 per cent. of copper. A slag in which there is no more silica than 20 per cent. should be worked with, as with more silicious slags the elimination of the impurities takes place more slowly.—*Journ. Soc. Chem. Ind.*

ONTARIO.—The Silver Center Mining Company of Ontario is the name of a new mining company incorporated by S. C. Duncan-Clark, John Flett, Henry Lowndes, Robert McClain, Richard Chaddick, Thomas Claxton, George Dunstan, O. A. Shaw, O. A. Howland, S. J. Dawson, M. P., and Ed. Gordon, to acquire, hold, lease, exchange and sell mining lands, consisting of mining location "R64," in the township of Lybster, District of Thunder Bay, and other locations in the district, and to develop the said lands by working mines, smelters, stamping mills and other necessary works. The capital stock is $300,000.