

region, and along the "intervals" or alluvial flats which border them for many miles, Carboniferous strata occur, while the adjoining hills are composed of gneissic, granitic, and felsitic rocks, making the structure of the country both physically and geologically similar to that of other portions of Cape Breton previously examined.

The remainder of the season was occupied in Guysboro and Antigonish counties, in continuing the work commenced in 1879-1880. In September heavy rains caused the suspension of the survey of brooks and lakes much earlier than usual; but nearly all the roads of Guysboro county, and many in Antigonish, were traversed by odometer or by pacing, and subsequently a preliminary inspection of most of the gold fields was made.

Near Guysborough there are deposits of specular iron ore like those described p. 122 F. Report of G. S. C. 1879-1880. The most important of these is worked by the Crane Iron Company, of Philadelphia. Three thousand tons of excellent ore have been taken out; but the distance from a good shipping place and bad roads render its transport very costly. It sells in the United States for \$7 and \$8 per ton of 2,000 lbs, and is used as a lining for puddling furnaces.

The examination of this mine was greatly facilitated by the kindness of the manager, Mr. James Williams.

In November Mr. Fletcher spent some time at Albert, in New Brunswick, examining the curious copper deposits which occur there in so many places, in the form of gray copper ore replacing vegetable remains in the Carboniferous rocks, and also a yellow copper pyrites in rocks similar to those in which the Coxheath copper mine in Cape Breton is worked—probably Pre-Cambrian. One of these deposits in New Ireland seems to be well worth developing. Owing to litigation the work is now suspended.

Mr. Fletcher also visited and examined the coal seam on the Debert River, Londonderry county, but no definite information concerning it could be obtained. Many shallow pits have been sunk on the river flat, from which fragments of bright clean bituminous coal have been thrown out. The pits were all full of water, but there was no evidence to show that in any of them a solid seam of coal had been cut. Reports state the seam to be four feet thick, underlaid by a small seam of fire clay, and this by more coal. A seam of about the same thickness, opened some years ago on the opposite side of the river, is stated to consist of black shale with only three bands of good coal, none of which exceed four inches in thickness. This is probably the character of that found in the shallow pits above referred to. A brief examination was also made in December of some of the gold mines in Halifax county.

Mr. Fletcher was assisted by Messrs. John McMillan, Rodolphe Faribault, J. A. Robert, and M. H. McLeod. The field work continued from June to December; expenses \$1,315.00, including salaries of assistants, two to the 31st of August and two to the 15th of December.

The topographical survey of the Nova Scotia gold fields by Mr. W. Bell Dawson referred to in my last summary report as having been commenced in June, 1881, with the co-operation of the Provincial Legislature, was, it is to be regretted, not continued during the past summer, no funds having been provided for the purpose by the Local Government.

On the 12th June the plotting of the field observations was completed, and plans were made of the Laurencetown, Montague and Waverly gold fields on a scale of 500 feet to one inch, and also one sheet of the general map, embracing 18 by 12 miles, or 216 square miles, was prepared on a scale of two inches to the mile.

The surveys have extended beyond the limits of this sheet, and these have been plotted separately, to be included in the next sheet, so soon as the continuation of the field work will enable this to be prepared. The cost of the survey, as found by dividing the total expense by the area covered, is \$16.75 per square mile.

PALEONTOLOGY AND NATURAL HISTORY.

With a view to exhibiting the whole of the species in the possession of the Survey, from each formation, a reclassification of the fossils in the Museum has been