

trappers and lumbermen, and in the summer time by sportsmen, for the river and its tributary streams have long been choice ground for salmon and trout fishing.

The district under consideration lies approximately along the meridian of 65 degrees 50 feet West Longitude, and the parallel of 47 degrees 25 feet North Latitude, and is near the southern boundary of the county of Gloucester. The limits of the field have as yet been by no means defined or determined, but may be taken, according to present knowledge, as having an extreme length of some 20 miles north and south, with a width of not less than 5 miles. This extreme length takes in the field on the "Mill Stream" (so called) lying some 8 to 9 miles northwest of the town of Bathurst, as well as the portion, which is hereafter described more fully, on the northern bank of the Nipisiguit river. The larger section has an area of approximately 30 square miles. There is a linear gap of about 16 miles between the Nipisiguit area and the small area on the Mill Stream.

The rocks in which these deposits of iron ore are found are all metamorphosed or crystalline. They have been mapped as Pre-Cambrian, and belong, probably, to one of the Huronian members.

In a general way they consist of micaceous and chlorite schists and slates with some quartzites. They are infrequently cut by small veinlets of quartz, and are also infrequently penetrated by dikes of jasper.

The surface rock about the outcrops is a mica schist, but the immediate hanging wall of the deposit is igneous, being a gabbrodiorite; the underlying rock or foot wall is a completely altered rock showing, under the microscope, only chlorite and muscovite, and its origin is uncertain, but it suggests (as is shown in the hanging) that it comes from a true volcanic.

The foot wall rock is filled with cubic crystals, both large and small, of pyrite on the edge near the body of iron ore, but its lower portion is more free from this metallic sulphide. The structural and stratigraphical relations remain to be worked out.

The designation of the ore found in this field is best given by the words "Magnetic-hematite." It has, as a rule, the characteristic cherry red streak and dark grey color of hematite, but in spots and in the vicinity of jasper intrusions is altered to a black ore which is magnetite. As a rule the ore is attracted by the magnet, a frequent characteristic of many grey specular ores. The magnetism, however, does not permeate all portions of the ore body, but is most frequently noted in the vicinity of the small intrusive veinlets of quartz and jasper which here and there penetrate the ore mass; in such places the ore has been converted into a strict magnetite which gives the characteristic black streak, but remote from such intrusions the red streak of hematite is everywhere noted.

At the northern edge of this field (on the Ellis property) the only ore seen is a grey specular, which has not been exploited, but which appears to be more steeply inclined and to have a width of not over 5 or 6 feet.

The shore of the Bay of Chaleur contains a narrow strip of rocks belonging to the lower and middle Carboniferous, which is followed to the south by red and purple shales and sandstones which represent, probably, the Mill Stone Grit, as they are followed by, and include some of, the typical coarse grey sandstones of the Grit. This Carboniferous system extends along the eastern bank of the Nipisiguit river for 13 or 14 miles,

but the western bank shows only the old granites and gneisses of Laurentian Age for the same distance. The inclination of the Carboniferous is very slight, the average running from 3 to 4 degrees from the horizontal. Above, or to the south of, the Laurentian and lying directly upon the granite are reddish and grey schists and slates, shading into blue or black slates which, in places, are highly disturbed and occasionally cut by quartz veins which render the schists more quartzose and less feldspathic. Frequently the black slates are ferruginous with pyrites, and in places the silicification has formed hard green quartzites whose color is doubtless due to a mixture of chlorite.

It is in this series of altered schists and slates that the iron beds occur. Twenty-eight years ago these schists and slates were provisionally regarded as "Cambro-Silurian" or portions of them as "Pre-Cambrian." Although unaltered eruptives were not noticed in the field the microscopic examination of the hanging and foot wall country indicate their presence in the vicinity.

Geological exploration of the region is exceedingly difficult owing to the dense growth of timber which covers it, and to the frequent patches of thick moss which cover the rock exposures. Undoubtedly a field party will be put into this new district during the coming summer in an endeavor to more clearly define the probable limits of the field, and to make a correct section, if possible, of the rock series in which the ore occurs.

Geography and topography.—The property lies about 21 miles from the town of Bathurst in a southwesterly direction, and on the north bank of the Nipisiguit river. The country rises quite rapidly in this distance, so that the elevation of the beds is about 450 to 500 feet above the sea level. Going southwest the country rises steadily until the hills of this section are reached, which vary in height from 800 to 1,500 feet above the sea level. The general character of the country is hilly and broken, with stretches of level lands along the main river. The general direction of the slight elevations which give a rolling character to the country is northwest and southeast, and across these ridges, with a general strike of north northeast, run the bands of the formation which carry the iron ore, and which in consequence are sometimes exposed along the crests of the ridges.

Discovery.—The first discovery of ore in this field dates back to the year 1902, when Mr. William Hussey, of Bathurst, in attending some traps which had been set on Austen Brook (a tributary of the Nipisiguit River) hurt his foot upon a rock beneath the snow which turned out to be a piece of float ore from the crest of the hill nearby. The heavy character of this small boulder puzzled Mr. Hussey, who knocked off a piece and took it home with him, where it was shown to one or two people, and, by the kindness of Mr. T. M. Burns, was taken to Fredericton for examination by a Provincial Government official there, who at once pronounced it to be iron ore of a fairly good quality.

The previous history of iron ore deposits in New Brunswick had not been such as to make their mining particularly attractive as a venture, and it is not therefore surprising to find that little interest was shown in the matter. I am informed that a representative of the Dominion Iron and Steel Corporation visited the locality a few years ago, but saw only the scattered and comparatively small outcrops in the area which is now designated as "No. II." I am also informed that this