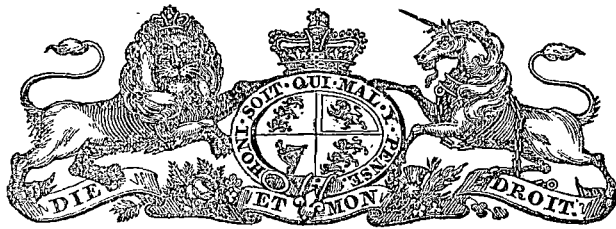


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T A S M A N I A.

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RIVER FORTH AND NORTH COAST.

GEOLOGICAL REPORT.

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Laid on the Table by the Colonial Treasurer, and ordered by the House to be printed, 8 October, 1867.



*Geological Survey Office, Hobart Town, 18th February, 1867.*

SIR,

I HAVE the honor to forward a Report upon the geological structure of a portion of the North Coast lying in the neighbourhood of the River Forth, and to the west of it.

I regret that the discontinuance of the survey has prevented me from working out in detail the structure of this District, which appeared likely to prove the most valuable mineral one in the Colony. I can therefore only acquaint you with its broad outlines, and request your attention to the accompanying Map, which roughly indicates the area occupied by the different formations. Each of these is economically interesting in its own way: the basalt, as being the source of the fertility of the land occupied by and immediately adjacent to it; the older formations as exhibiting indications of mineral value superior to any hitherto recorded in this Colony. Such remarks as I have to make will be almost entirely confined to the latter, since any connexion which might exist between the disruption of the older rocks and the introduction of metallic elements into the lodes or fissures, and the presence of basalts or other traps, could only be determined by a much longer series of investigations than I have been able to apply; while the trap rocks in this District, as generally throughout this Colony, possess little independent interest so far as useful minerals are concerned. Serpentine occurs in the neighbourhood of the Forth and of the Clayton Rivulet; and specimens of magnetic oxide of iron have been submitted to my notice by Mr. James Smith, which appear to have been obtained from it in small strings, similar to those so common in the serpentine of the West Tamar District.

The vesicular varieties of basalt afford specimens of several minerals, among the most noticeable of which are arragonite from the neighbourhood of the Leven Heads, and analcime and chabazite from the rocks fronting on the shore at Mr. Shekelton's property at Table Cape.

The older rocks contained within the limit of the coloured chart are Silurian, the upper Palæozoic beds not extending west of the Forth so far as I have yet ascended it.

It is doubtful, however, whether the whole series here developed is conformable, or whether some great break may not intervene between the breccias forming the summit of the Dial range and the clayslates and conglomerates occupying the country below.

I regret that the loss of important field notes, which I was unable to replace, prevents my giving a section (carefully prepared) of the rocks occupying the coast line from the Forth to Penguin Creek. Their general aspect may, however, be readily conveyed.

Between the Forth and the Leven the coast section is much interrupted by long sandy beaches. The rocks, where exhibited, are mostly conglomerate in alternation with micaceous schists. The strike is northerly.

The west heads of the Leven River are formed by long reefs of a coarse conglomerate; and for the distance of more than a mile similar beds occur in alternation with micaceous schists and clayslates. Near the boundary of Mr. Walker's property the included pebbles of quartzite and old metamorphosed rocks are lenticular in form, and of considerable size: this, however, is not the usual character. The beds are mostly highly inclined, and striking to the east of north.

West of the interruption of trap rock which now takes place the character of the formation alters materially, the proportion of pebbles in the conglomerate to the base or matrix being much reduced,—the conglomerates occasionally passing into breccias, and the proportion of clayslates and arenaceous constituents largely increased.

Near the mouth of the Penguin Creek quartzose grits occur containing very imperfect remains of corals, similar in character to those occurring occasionally in the grits and conglomerate of the Cabbage Tree and Blue Tier near Ilfracombe.

I recognise these beds as being intimately related to the Silurian limestones in the West Tamar District, and as probably inferior to them: and I may recall to you that in a report upon that district I entered in detail into a history of its iron ore, and after insisting upon their importance in comparison with other irregular deposits of iron found elsewhere in the Colony on account of their being contained in regular mineral lodes, proceeded to point out that more valuable minerals might be anticipated to result from the action of similar lines of mineral force acting on corresponding formations under different conditions, and to indicate the "Gordon limestones" and associated beds low down in the Silurian series as likely formations to contain useful metals.

The only reservation then made, dependent on the unascertained relation of the Penguin Creek beds, may now be withdrawn; and I may appeal to the following list of minerals which have been obtained at various localities in the district as supporting the views which I expressed:—

1. Oxide of titanium.
2. Red hematite.
3. Brown hematite.
4. Iron pyrites in lodes.
5. Ditto associated with carbonate of iron.
7. Manganese, probably containing cobalt.
8. Sulphate of barytes, or heavy-spar, with other vein stuff indicating lodes.
9. Blue carbonate of copper.
10. Green ditto.
11. Grey copper.
12. Copper pyrites.
13. Cupriferosus pyrites.
14. Zincblende.

The oxide of titanium is found in the immediate neighbourhood of the River Forth, on the property of Mr. James Smith and the adjacent ground; it occurs in crystals imbedded in a hard conglomerate, and also abundantly in a detached form in the debris derived from it. Mr. Ronald Gunn also gives as a locality the vicinity of the Falls of the Forth some thirty miles up, where it probably occupies the same geological horizon. The present applications of titanium to useful purposes are not numerous; but if, as is not improbable, science should eventually extend their number, the facility with which rutile could be obtained in these localities must render them valuable.

Brown hematite occurs at many points, either alone or in combination with manganese.

A north and south lode crops on the beach west of Tea Tree Point, and not far distant from the galena to be referred to hereafter.

It also occurs abundantly at a point which, so far as I could determine, is situated near the S.W. corner of one of the southernmost of the surveyed lots on the east side of Penguin Creek. On the higher ground the ore is pure, and associated with manganese: it juts out from the ground in great masses, which terminate westward in cliffs, presenting a face of some hundreds of feet in depth, and fronting on a tributary of Penguin Creek. Throughout the whole of this thickness there is a large proportion of iron ore; and the number of tons, above the water level, of iron ore of fair quality must be something far in excess even of the largest estimate made of the available iron ore similarly situated at the lode in the Blue Tier near the Ilfracombe Tramroad. I only refer particularly to those instances which have been the most conspicuous: a special survey would be necessary to make a record of all the brown hematite occurring in this District.

*Red Hematite.*—The variety known as specular iron occurs in thin veins at the Penguin Point, at the Bluff on the Dial Range, and on the west bank of the Forth, on the property located to Mr. J. Allport; and massive hematite occurs abundantly in lodes fronting on the Penguin Creek, and outcropping on Marsden's Hill. The former appears to have a north and south course, and to be many feet in width. The latter merely shows in isolated blocks upon the summit of the hill, affording little clue to either its direction or magnitude. In both instances the ore is of the very purest quality.

Manganese, a metal chemically related to iron, and often containing in combination a proportion of cobalt, occurs in numerous localities, in the form of the oxide known as Psilomelane; and on the Penguin Point a mass of quartzose rock is traversed for a considerable distance by a great series of small parallel veins entirely filled with that mineral, which maintain a general east and west direction. The same mineral occurs at several points upon the beach east of the Penguin and in the Dial Range at intervals over at least nine or ten miles of country. Pyrites lodes upon the flanks of the Dial Range, and lodes containing pyrites associated with carbonate of iron occurring elsewhere in the District, and, as well as "vein-stuff," containing heavy-spar upon the River Forth, increase the mineral aspect of the country, since they are the common accompaniments of useful minerals in lodes.

The most important minerals, however, are the ores of lead and copper which crop upon the beach between Penguin and Tea Tree Point. One of the lead veins at the latter spot is at one point nearly one foot in thickness, but is much broken by faults. Good specimens of galena may be obtained from the smaller strings.

The majority of the strings of copper have an east and west direction, and contain blue and green carbonates and grey copper ore. More important veins containing pyrites, with a proportion of copper not yet determined, lie apparently N.W. and S.E.

I have also laid down, as accurately as is possible at present, the position of the discoveries of copper made by Mr. James Smith, and reported by him since my departure from the District.

I have the honor to be,  
Sir,

Your obedient Servant,

CHARLES GOULD.

*The Honorable the Colonial Secretary.*