In 1866, I reported that the works necessary for opening up the mine would be of a very expensive character, even if the most favourable anticipations of the extent and purity of the seam were realized.

For a short time the coal might be extracted by a level drive from the edge of the swamp, and during that time the mine would drain itself, and the haulage would be cheap; but it would soon be necessary to put down a well-lined shaft 40 to 60 fathoms deep, and powerful pumping machinery would be required in order to produce a sufficient quantity of coal to cover the heavy outlay necessary to convey the coal to the shipping place.

Considering these difficulties, I stated that it would not be advisable in my opinion to commence any imperfect system of mining; but until there is a prospect of being able to raise and dispose of at least 500 tons per month, to defer opening the field and wait for the future settlement of the country, when such works will be less expensive and a local market will exist.

2. *Wangarei.*—Mr. Bedlington is engaged in boring for coal seams at that place; and if you consider that his work is likely to assist in the discovery of useful coal, if properly carried out, I will be prepared to recommend that Government should assist his efforts.

You will endeavour to get a plan of Walton's Mine, and any statistics of the output, &c., that are available.

If you pass overland from the Bay to Wangarei, you will have an opportunity of seeing the coal seams at Hikurangi, of which there are four or five; but unless some sinking or driving has been done since I was there, it will not be worth while your making a special visit to that place.

3. *Waikato and Drury.*—You will gather any information respecting these mines that is not embodied in your previous reports, and make any practical suggestions that occur to you respecting the application of the Drury and Waikato coal for the railway service.

4. *Hauraki.*—A full report on the coal seams at this locality, with a sketch plan showing those favourable for access, extent, &c., is required.

I anticipate the foregoing work will occupy you for six weeks . . . . . .

I have, &c.,

Captain Hutton, F.G.S. JAMES HECTOR.

Enclosure 2 in No. 3.

REPORT on the Coal Mines in the Province of Auckland, by Captain F. W. HUTTON.

Kawa Kawa, Bay of Islands.

SINCE the present company took over this mine, they have opened it at the outcrop of the coal on the Waiomio Swamp, as recommended by Dr. Hector, and have been working it by a gallery from this point along the strike of the seam, in a N. by E. (true) direction. After driving for about 27 chains the coal got thinner, and was found ultimately to be cut off by a fault. At the same time the coal was also being worked below the adit level, near the entrance to the mine, where the seam is 12½ feet thick, and the coal of superior quality; but ultimately water broke in in such large quantities that their small pump could not keep it under, and this part of the mine has had to be abandoned until large pumps are erected.

The occurrence of the fault just mentioned was first pointed out by Mr. R. W. Moody, C.E., (copy of correspondence relative to Kawa Kawa Mines, A. No. 11—Report to Mr. Weaver, Engineer-in-Chief, 30th November, 1865), who was employed by the Provincial Government of Auckland to report on the coal seam. It appears to run in an east and west direction, passing at a short distance south of Moody's bore-hole, No. $\frac{1s}{1}$, and north of his bore-hole No. 3, and to have its downthrow to the south.

In order to prove the position and throw of this fault, a bore has been put down about half-way between Moody's bore-holes Nos. $\frac{1s}{1}$ and 3, on the line of strike of the coal from the level of the Waiomio Swamp, and at about 100 feet above this level.

The bore went through—

Gray sandy clay	45 feet
Hard gray calcareous sandstone	52 „
Green sandstone	71 „
Coal	7 „
Total	175 feet

This boring must therefore be on the south side of the fault, and the throw of the fault must here be about 68 feet.

As the outcrop of the coal known as Moody's outcrop was found by Dr. Hector to be about 70 feet below the level of the first seam, it is probable that this difference of level is also to be accounted for by the same fault, and that therefore there is no evidence of a second seam underlying the one at present worked.

The bore is now being commenced at a spot near Moody's No. 5 bore-hole, which is expected to be on the north side of the fault, and which will therefore prove, within certain limits, the direction in which it crosses the field. The altitude of this bore-hole has not yet been ascertained; but, should it prove to be on the north side of the fault, it will probably reach the coal at about 200 feet.

It is then intended to bore at the place recommended by Dr. Hector in 1866, near the Waimaheke Creek, where the coal should be reached at a depth of about 300 feet, and also at the place proposed by Mr. Moody, higher up the creek, where the coal should be reached at about 600 feet. These bores will prove an area of 75 or 80 acres, and will give confidence to the Company to undertake the outlay which will be necessary before the mine can be put in proper working order.

As no survey has been made of the mine, and as a large part of it is at present flooded, it is impossible to estimate with accuracy the amount of excavation that has been done, but the manager informed me that about 90,000 tons had been taken out, and that he estimated that about 40,000 tons