*Dr. Hector.*
14th Aug., 1872.

29. In answer to other questions, witness said: The Collingwood Mine yields a good gas coal, and, taken altogether, it is perhaps the most valuable we have. The cost of a tunnel, recommended in page 27 of the report, would be, I think, about £1,000. There is a tramway to the point of embarkation, and, in the event of the seams turning out extensive, there would be no difficulty in loading ships of any size with proper arrangements.

30. What thickness of seam is necessary for profitable working?—A good deal would depend on other circumstances. Four-foot seams are worked profitably in Scotland and in Belgium, but you would require practical miners for the purpose. The Collingwood Company have only discontinued because they have worked out all they can get at with the present system of working. I have already reported fully on that subject. The West Wanganui coal is better, if anything, than the Drury, though it has the same characteristics. It burns well, but leaves a heavy ash. I have not satisfied myself that coal will be found near the Wairoa Gorge, or on the flank of the hills towards the Top House, although certain indications of it have been discovered.

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16th Aug., 1872.

FRIDAY, 16TH AUGUST, 1872.

Dr. HECTOR, F.R.S., in attendance, and further examined.

31. *The Chairman.*] Can you give us any further information about the Ngakawau mine?—There is about 10 feet of water on the bar, and the present improvements going on, to which I have alluded in the printed report, will give safe access to vessels drawing 7 feet of water, in fine weather. The improvements contemplated will not affect the bar, but further improvements could be made to do so. There is a fair anchorage-ground outside the bar, but no shelter to it. There is no harbour near: vessels must come into the river. The nearest harbour is Westport. With reference to the Malvern Hill coal, it is of two kinds: where it has been altered by volcanic action it is good, but otherwise it is inferior. It seems to be of considerable extent. I would draw your attention to a letter (page 34) which I wrote in consequence of a shaft having been sunk there by Mr. Hill, with the result of finding a soft brown coal instead of altered coal, as expected. There is, however, a very considerable quantity of good steam coal, and mines are being opened now, at the expense of private individuals. All the assistance wanted would be, I believe, a tramway. I do not know if it is all on private property. There are three mines opened: one on Hawkin's River; another is Hart's mine, on the Selwyn River, which is very good coal, but in very thin seams. That was what was burned in the "House" last year. There is also the coal opened up by Mr. Hill, where he expected to find a coal of the same kind and value as Hart's. It is found in shafting, at 130 feet from the surface, to be a soft coal, containing, when first extracted, about 28 per cent. of water. I would draw attention to Dr. Haast's report on pages 34 and 14, and especially to the report on page 16.

32. What is the Oamaru seam composed of?—It is the same coal formation as that in the Malvern Hills. Of course, those places mentioned in the report are from where we have obtained samples. The coal near Hokitika, in Westland, is a continuation of the Greymouth formation. The seams, where opened out, are all rather highly inclined, or in faulted ground. They run from three to four feet in thickness. There is a full account of them in page 35.

33. At what angle is it possible to work these mines?—Where you get level-free workings in the face of a hill, then you may work at any angle. With a dipping seam you cannot work so cheaply, because of the water. The steepest men can stand at is from 30 to 35 degrees of dip; but I have no actual knowledge of such a mine. It would be very difficult to get the coal to the shaft, and be expensive to work in many ways. The best inclination for working coal is 1 in 12. The Greymouth pit is that. The coal in Westland is described in page 35 as being quite on edge—from 70 to 90 degrees at the Kanieri workings. Referring to Otago, I may say the Shag Point coal has been worked for ten years. There is a report from Dr. Haast on the present state of the mine at page 22, D. 3 The coal is found on a promontory, and has hitherto been taken off in boats when weather permits, and sold in Dunedin. It is very good—a superior kind of brown pitch coal, better than the Green Island. The best place to ship it from would be Moeraki. Dr. Haast suggests the propriety of being at some expense in removing rocks in the way of the present shipping place, and I believe an engineer's report is being obtained on the subject. The thickness of the seam is fully described in the report. The Green Island and Saddle Hill seams are described in page 38 of the report. I would specially call attention to the conclusion of that report, and the remarks on the appearance and nature of the coal in page 39.

34. Is this coal of any value?—Unless it can be artificially improved, as has been done in Italy, it is of no use for marine steam purposes. I suggested its artificial improvement in 1863. The Clutha and Tokomairiro are much the same in quality. They are separate portions of the same formation, which extends, with intervals, from Dunedin to Preservation Inlet. You cannot go ten miles without getting coal of some kind in that district; in some cases of good quality, but it is all of the brown coal formation. With regard to Southland, there is an older formation, which I have described in evidence given before the Committee last year. In Preservation Inlet you will find two qualities, but the only good seam is very much disturbed and broken.

35. From your explorations throughout New Zealand, could you mention any particular direction to explore for coal in the North or South Islands?—Only those places I have recommended in the memorandum on page 3.

36. In answer to questions:—There is coal in the Wanganui District: it is mentioned in the Table, page 42 of the report. I believe the coal seam at Mokau will go right through and join the Wanganui coal.

37. Can you give us any information about petroleum?—There are two or three places where it is supposed to be found in payable quantity, as at East Cape and elsewhere in the North Island. I could not satisfy myself as to the probable quantity. I have had specimens of rock oil from Taranaki, which is very good lubricating oil, equal to any oil used for that purpose at home. It is obtained by collecting the leakage from cracks or fissures in the rocks. I have not known of more than two casks