

61. What class of vessels do you think are best adapted for it?—I should not like to answer that positively. I should say that screw vessels of light draught, or strong tug-boats, would be best. A deeper draught of water would be required for sailing vessels.

Mr. Blackett.
27th Aug., 1872.

62. What is the estimated cost of the railway works at the Grey?—I have already given a detailed statement on that: I think I made it £24,000 or £25,000. There is a great deal of expensive work to be done; but I think we may look forward to coal being worked on the south side of the Grey as well as the north side, which would make two chances for the railway. I recommended it being placed there because there is deep water on that side at the port, and it might be better extended up the country on that side. Wherever you put the railway, you would require expenditure to give shipping facilities, whether it be at the Buller or the Grey.

63. Is the Ngakawau far distant?—I think it is about twenty to twenty-five miles from the Buller. I have no knowledge of what size of vessels would enter there. I fancy it is not so big as the Grey, and that only such vessels as now navigate the West Coast might go in; but I have no particular knowledge of it, except what I have seen printed. In my own opinion, which I give off-hand, the Grey would be the most available place for economy, because we know that there is coal there in large quantities. The difficulty in the way of the Buller is, that we do not yet know the best place to get coal from.

64. What is the distance from the field to the port?—The Nakawau is about twenty to twenty-five miles, as against six and a half, or so, from the Grey. There is no really good harbour on the West Coast, yet it is astonishing the amount of trade that is done there. There was a considerable loss of vessels at first, but now, when the harbours are getting known, there are very few.

65. Could the railway carriages or trucks be made in the Colony?—I see nothing to prevent it. Of course, the larger ironwork would have to be imported,—the wheels and axles,—but all the rest might be made here. I do not think we could trust to having the wheels made here.

66. Would there be any difference in the price?—The experiment was tried in Christchurch as to waggons, and it was found there was a saving on them. The wheels and ironwork were imported. The saving was about £5 or £6 on a waggon. We have the necessary workshops in the Colony, but it is the price of labour that makes the difference in the cost. The locomotives I do not think we could make here with economy.

MONDAY, 30TH SEPTEMBER, 1872.

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

Dr. Hector.

67. *The Chairman* called the attention of the witness to a minute of Committee passed on the 24th instant, which was read as follows:—"On the motion of the Hon. Mr. Mantell, it was resolved, that prior to the adoption of any report touching the Geological Survey Department, or any addition thereto, it is expedient that evidence as to the number and efficiency of the officers required should be taken." The Chairman continued to say: You will see, from that, that the object of the Committee is to ascertain if any modification of existing arrangements, or whether existing arrangements are the best that could be made for furthering the object now stated? We want to know about the working of the department,—how the duties of the staff are regulated.

30th Sept., 1872.

68. *Mr. Bathgate.*] If there are any regular surveyors, and generally, how the duties of the staff are distributed?—I am generally, for a large portion of the year, engaged in field exploration. I have no geological assistant constantly on the staff but Captain Hutton, and besides performing his field duties, he assists in the Museum work also. To overtake the field work last year, I found it was necessary to procure some extra assistance, and accordingly Dr. Haast, of Canterbury, was engaged during four months of that year in doing field work. He is paid for his actual surveys in the field, and 25 per cent. more for the preparation of the plans and reports. Besides assisting in the Geological Department, he is also employed in the Christchurch Museum. His time is likewise a good deal occupied in preparing and arranging an account of the result of his field labours for publication. In the preparation and copying of these reports he is not unfrequently occupied a much longer time than he is actually engaged upon the field work itself. In the home country, and, in fact, in most other countries, the geological field work is performed by a distinct staff from that of the Museum; the duties of classification and arranging of the specimens being done by a Paleontologist and assistants. Six months out of the year can be spent by Captain Hutton in the field work, the remainder of the time being devoted to office work; but last year he was rather less time in the field, as he was engaged in preparing catalogues, for which work he is highly qualified, that kind of work being his speciality. During the past year several field surveys have been executed, as will be seen from a reference to "Papers relating to the Development of Coal Mines," (D. No. 3). The geological survey has hitherto, with few exceptions, been of a general character, more with the view of ascertaining the order and distributions of the various formations, than for the purpose of accurately defining their boundaries, or of determining exactly the available quantities of coal seams and other contents of the rock masses which have an economic value. It has, in fact, been of a nature of a reconnaissance survey, and, as such, has been extended as rapidly as possible to nearly every part of the Islands. This preliminary survey has had the effect of narrowing the field in which a detailed and much more expensive kind of examination is necessary. It has been found that, during the winter months, it really is not worth while keeping men out in the field, and these parties can, during the winter months, be profitably employed finishing up their work. I have already said that they can be engaged arranging collections in the Museum, and in the preparation of these collections for publication, which involves much office work.

69. *Mr. Bathgate.*] Would it not be better, do you think, for the Museum to be in a centre of population?—In order to make it attractive it is very necessary that it should be kept before the public, but as far as it is a necessary appendage to the Government Survey, it must of course be at the seat of Government.

70. *The Chairman.*] Could the labours of the department not be remodelled, or some additions made to the staff?—At the present time a variety of duties are imposed upon the department. In the first place, there is the Geological Survey, upon which a large portion of the time at our disposal is