

General Assembly Library, if not already to be found there. At page 517 is a full description and clear illustration of the gas furnace at the Berlin Mint. They are both supplied by Dr. H. Wedding, of Berlin, and the furnace was made in the foundry of his brother, Mr. W. Wedding, of the same city. The description would be useless without the illustration, which I am unable to copy. I quote from it:—"Brown coal was at first used with perfect success in this furnace, but a better result was afterwards obtained with bituminous coal, which produces less ash. *A* is a chamber of fire-brick, having an ordinary flat grate composed of bars *c*, and another grate above, in which flat bars of iron *b* are placed crosswise, one above another, like steps. The last kind of grate is called *trappen rost*, or step grate, by the Germans.

No. 15. Certainly not; especially if every possible means be adopted in order to reduce the cost of railway haulage from the fields of brown or altered brown coal to the place of burning; among which means the use of the native fuel itself, for its own haulage must be reckoned the principal one. I can confidently assert that the opinions expressed to me by all the producers and consumers of the native fuel, within my personal knowledge, concur to the effect that if the cost of haulage and terminal charges were reduced to reasonable rates, the demand would at once be increased tenfold, and the ability of producers to supply that larger demand at lower prices would be augmented in proportion.

Market Place North, Christchurch, 29th September, 1876.

EDMUND FORD.

The Hon. Mr. G. R. JOHNSON to the CHAIRMAN of the NATIVE FUEL COMMITTEE.

SIR,—

Hobson Street, 24th September, 1876.

I find that again I shall be prevented from attending the Committee of your House on native fuel. I have therefore roughly put down on paper the substance of my information on the subject of the petroleum springs. I fear there is little worth recording, but the references I have given to Dr. Hector's geological report and Dr. Skey's analysis may lead to something beyond.

I am convinced that a company, with sufficient capital at command, would have every prospect of success. I do not see, however, how Government could assist beyond giving facilities for leasing such lands as it holds. The springs worked by the company are on private property.

Yours truly,

J. C. Wason, Esq., M.H.R.

G. RANDALL JOHNSON.

PETROLEUM.

MEMORANDUM by the Hon. G. RANDALL JOHNSON.

About three years ago a company was formed to work some petroleum springs in the neighbourhood of Poverty Bay. Only a very limited number of shares, however, were allotted, and consequently the available capital was very small; in fact, not more than £5,000, a sum quite inadequate to carry out the undertaking. Nevertheless, the shareholders determined to proceed, and an excellent plant for boring, as well as a person to superintend the works, was obtained from New York.

The site chosen for the commencement of operations was near the top of a hill, and about 1,300 feet above the level of the sea. Petroleum was escaping from the surface close by, and the soil, which is a kind of strong clay, seemed saturated with it.

For the purpose of boring, it was necessary to get on to solid rock, and a shaft was sunk some 90 feet, but no rock was reached. In performing this work, the men were much troubled with the gas escaping from the ground—the more so the deeper they went; and on their resuming work on Monday mornings, a quantity of the oil was found to have collected in the shaft.

As this shaft had not been properly timbered, it was found necessary to sink a fresh one, and this time a spot not far away was chosen; it having been ascertained by means of testing rods, that there was rock there not far from the surface. The new shaft was sunk, and boring commenced in a kind of sandstone rock. At first all went well, but, as the depth attained increased, it was found that the rock was not sufficiently solid; that when the boring instrument was taken out, the hole would not stand, and the work was consequently stopped. Other attempts were made, but every one with similar results, and at last the company ceased operations.

The experience gained seems to amount to this: that there is a very large quantity of petroleum apparently not far distant from where the works were carried on, and that the main difficulty in reaching it arises from the softness of the rock, which will not admit of boring in the ordinary way. It is very probable that the person who was in charge of the works was not sufficiently experienced to conduct them successfully. Indeed, he himself acknowledged he had never met with a difficulty elsewhere such as that with which he had to contend here. At the same time, he stated he had in no other part of the world seen such indications of petroleum appearing on the surface of the ground; in fact, he spoke most confidently of the success which would attend the undertaking if some method was discovered by which the hole formed by the auger could be kept open, so that the boring could be carried on at any depth necessary.

It may seem strange that the boring operations should have been commenced near the top of the hill, instead of at some lower point. The reason was that it was thought better to make the trial where petroleum was actually found on the surface, rather than where this was not the case. The hill being of considerable size, and not abrupt in its rise, the only site for operations which could have been obtained at any much lower level would have been a long distance away from the oil springs themselves.

It may be mentioned that Dr. Hector has drawn up, but not as yet printed, a report upon the geology of this district, and on reference to this report (to be found amongst papers at the Museum) it will be seen that he attributes the appearance of petroleum at so high a level to the fact of its being forced up through a fissure in the rocks below this particular spot. His report refers not only to the springs already mentioned, but also to others in the neighbourhood of the East Cape; in fact, it includes a description (geological) of the whole district on the East Coast of Auckland within which similar springs are to be found—a district of large extent.