

Mr. ALEX. ARMSTRONG to Mr. W. CONYERS.

OTAGO RAILWAYS.

Office of Engineer of Permanent Ways and Rolling Stock,  
Dunedin, 3rd December, 1875.

SIR,—

*Shag Point Coal.*

I have the honor to inform you that trial of this coal was made in No. 18 engine, while engaged working the ordinary trains between Dunedin and Port Chalmers, and find it much superior to any native coal yet tried. The amount consumed per mile was 45 lbs., and cost, at 25s. per ton, 6d., while for last month the engine driver's returns show for Newcastle coal a consumption equal to 30·40 lbs., and cost, at 35s. 6d. per ton, 6½d., thus showing a small saving in favour of the Shag Point coal.

It would be well, however, before coming to conclusion as to the capabilities of this coal, to accord to it a more extended trial, as it is hardly possible to arrive at a correct result from the use of so small a quantity—in this case 5 tons 10 cwt.

I have, &c.,

ALEX. ARMSTRONG,

Engineer Permanent Way.

W. Conyers, Esq.,  
General Manager, Otago Railways.

Sir J. VOGEL to the CHAIRMAN of the NATIVE FUEL COMMITTEE.

THE CHAIRMAN OF THE NATIVE FUEL COMMITTEE,—

I do myself the honor, at your request, to write down the evidence I am able to give before your Committee. As you have not available a copy of Dr. Percy's book "On Fuels," I copy from one in my possession some extracts [marked A] on the subject of lignites, under which term the author includes brown coals.\*

Several years ago, Dr. Hector threw out the suggestion that the Otago brown coals might probably be capable of being made into valuable artificial fuel by compression. I was not aware of this until lately. My attention was attracted to the subject by observing in various parts of the Continent the prevalent use of compressed fuel for locomotive purposes.

On my reaching England, I instituted inquiries into the subject. Paper marked B shows the first questions I put, and the answers I received. At this time, I began to feel the conviction that brown coals, such as those of Otago, would be suitable for the artificial fuel. I observed that Dr. Percy, as you will see in the extracts enclosed, pointed out the difficulty of permanently getting rid of the hygroscopic water, and was of opinion that after it was driven off, the substance would re-absorb it. It seemed to me that by converting the brown coal into compressed fuel, the water would be driven off, and that in its new form re-absorption would not take place. I saw Dr. Percy: he considered the question a very interesting one, and promised me to investigate it. I arranged an interview between him and Dr. Hector, who, I found, was strongly of opinion that the water in the brown coal could be disposed of. Dr. Percy afterwards wrote the following note:—

"1, Gloucester Crescent, W., 20th November, 1875.

"DEAR SIR JULIUS VOGEL,—

"I have seen Dr. Hector, who fully explained to me what he proposes for the conversion of the New Zealand lignite into serviceable fuel; and I am satisfied that the process is practicable.

"I cannot say, in the absence of experiments, how much less bulky the manufactured fuel would be than the original lignite.

"There is not, in my opinion, any material so suitable for agglutination as pitch.

"With regard to cost of production in New Zealand, I am not able to offer any opinion. In order to form a judgment on that subject, a knowledge of local circumstances, such as amount of wages, &c., is required.

"I have a very high opinion of Dr. Hector's ability, and I am sure you may have entire confidence in what he undertakes to perform.

"Sir Julius Vogel, K.C.M.G."

"Very truly yours,

"JOHN PERCY.

Dr. Percy agreed to place his laboratory at Dr. Hector's disposal, to try, by actual experiment, the point in question. I believe Dr. Hector was not able to take advantage of the offer, or perhaps it would be more correct to say that he thought it would be better to test the question on a larger scale. At my instance, Dr. Hector visited Wales, to see some of the machinery used for the operation, and he returned quite convinced of the feasibility of making good fuel from brown coal. I made, as I thought, arrangements by which, after I left England, a quantity of brown coal would be actually converted into compressed fuel; but the arrangements fell through. I have since sent 10 tons of Otago coal to England at my own expense, and I propose, if possible, to have it converted into compressed fuel.

Whilst the various circumstances were passing to which I have already referred, I was instituting inquiries in several other directions. They all confirmed me in the belief that compressed coal was becoming one of the most important fuels in use. It seemed that a great many processes which had been employed had failed to produce a fuel sufficiently coherent, and the failure of these had thrown discredit on others more successful. But the properly-made compressed fuel was making great way. Its advantages of many kinds over ordinary coal are undeniable. It is perfectly clean in use; it can be closely packed; it suffers little from the attrition which reduces ordinary coal to powder, and is proof against deterioration from exposure to the atmosphere. The cost of manufacture is incredibly small, whilst the machinery is comparatively inexpensive. I have an estimate that the best machinery, without the power for working it, capable of turning out 12 tons of fuel per hour, can be obtained free on board in London for £4,500. This machinery, properly erected, becomes almost self-acting