

6. Are you not aware that there were two deputations which waited on the Minister in Auckland?—I could not say.

7. *The Chairman.*] Why are the engineers and the owners of steam-ships opposed to men who have not certificates having charge of these oil-engines?—I suppose it is human nature. It is a branch of engineering which has always been run by engineers heretofore, and where the owners of steam-vessels have to carry higher-paid men than the owners of auxiliary-driven vessels it is natural, I suppose, that they should resent it.

8. *Mr. Lawry.*] I suppose the Committee has to understand that with the engineers, as with the shipowners, it resolves itself into a question of pounds, shillings, and pence?—No; it is a matter of principle.

9. The question of payment does not enter into the matter at all: it is purely a question of principle?—The question of payment has nothing to do with the engineers; that has to do with the owners.

10. Why are the engineers opposed to these other men driving the engines?—Because they are not qualified engineers according to law.

11. When they received their certificates as marine engineers the question of running oil-engines was never contemplated?—The Shipping Acts are altered from time to time to suit the circumstances as they appear, and the Imperial Act of Great Britain was altered in 1894 to suit the altered condition of things. The American Act has been altered repeatedly, and New Zealand will have to follow. It is only within the last few years that oil-engines have been used.

12. In your evidence before, you said there had been a specified number of boats made to be propelled by oil-engines?—I said specifically that the number of boats surveyed by us appeared in our books.

13. Does that include schooners?—It included all that were running legally.

14. The number you mentioned included those boats supplied with oil-engines?—Yes; in New Zealand. I said there had been so many vessels surveyed by us in New Zealand and built to carry oil-engines, and that if there were any vessels outside our books they were running illegally.

15. For instance, that boat running between Auckland and Gisborne would be included in your list?—Yes. I have a list of the boats here. [Produced.]

16. *Mr. Crowther.*] Does that show where and when built?—The port where owned, the name of owner, and the maker of the engine. Of the thirty-two vessels in the colony, only three of the oil-engines were made here. All the other machinery which has been surveyed and appears on our books was imported.

17. When you made the statement contained in your report that all the oil-engines and fittings were imported from America, you had forgotten the existence of the factory in Auckland?—No; it was stopped for some time, and I understood it was not working when I was in Auckland last.

18. Have you heard any remarks made as to the quality and efficiency of the machines made in Auckland as against the imported ones?—Yes; I think they are a very good article indeed. I have no fault to find with them.

19. Then your contention that all the machinery and fittings were imported from America is very largely discounted?—There are thirty-two in our books. If there are any running outside of our books they are running illegally. There are only three running which have engines made in the colony.

20. You would not object to the colony being able, in the near future, to make all the oil-engines required for the trade?—I wish they could.

21. Do you not think there would be as many mechanics employed as in making steam-engines?—There might, but I hardly think so, as no boilers are used.

22. It is not a question of economy as between oil and steam?—No. I will take a fifty-brake horse-power engine. Benzine equals 1s. 3d. per gallon; naphtha, 2s. 10d. per gallon. Add these two together and divide by two, and you find the average price of the oil is 2s. per gallon. A fifty-brake horse-power engine will use  $\frac{3}{4}$  pint of this oil per brake horse-power per hour. That equals  $4\frac{3}{4}$  gallons per hour the oil-engine would use. At 2s. per gallon that equals 9s. 6d. per hour, and in a day of twenty-four hours the cost would be £11 4s. Now, for a modern steam-engine of fifty-horse-power I produce the indicated horse-power cards of the steamer "Onda," belonging to the British Steam Navigation Company, a vessel which was in Wellington recently. The average consumption of this vessel was 1.6 lb. of coal per indicated horse-power per hour; but for rough calculation we will say she used 2 lb. of coal per indicated horse-power per hour. I take these cards because she is not a locally-owned vessel, and therefore there can be no bias. Take a vessel with the same consumption of fifty horse-power: 50 multiplied by 2 = 100 (that is the amount consumed per hour), multiplied by 24 is the amount consumed per day, and dividing by 2,240 lb. in a ton equals 1.1 tons of coal per day. With regard to the prices of coal, they vary, but take the price at: Bay of Islands (steam coal), 10s.; Auckland, 15s.; Wellington, £1; Westport, 10s. Say the average at the very highest is £1 per ton for steam coal in any part of New Zealand, and the cost will be £1 2s. for a fifty-horse-power engine per day, as against £11 4s. for oil-engines; and yet one gentleman said it was too costly to run steam-vessels.

23. *The Chairman.*] Will you add the cost of the first, second, and third engineers and the stokers?—They do not require to carry them. They only require to carry one engineer and no stoker, say in restricted limits for small power of fifty horses. An engineer gets £16 per month, and these other men only £6.

24. *Mr. Crowther.*] Does the engineer do all the stoking?—Yes, for these limits.

25. *Mr. Lawry.*] What do you mean when you say that a big steamer uses as much oil as one propelled by an oil-engine?—Because the oil-engine is only worked two or three hours when going in and out of a harbour.

26. Then you do not credit a ship with the cost of oil used in connection with steam?—No, I