

board these oil-boats: is there the same danger with oil-engines as with an ordinary steam-engine with a boiler?—Absolutely not.

219. Could there be any explosion?—It is very improbable. Supposing you had the oil-tank leaking, that would be the same as if you let your gas on in a room.

220. That would have nothing to do with the engine?—Nothing; so far as the engine goes, it is entirely different.

221. That would be negligence?—Entirely so.

222. You say there is a company or syndicate in existence in Auckland to construct engines on a large scale?—We, Frank Henderson and Co. (Limited), cannot manufacture on a large scale, because it is a question of capital at present.

223. But you have it in contemplation?—Quite so.

224. And then you will be able to compete with America?—Yes; both as regards price and workmanship.

225. *Mr. Lawry.*] I was going to put a lot of questions myself, Mr. Chairman, but you have anticipated them, and put them in so much nicer than I could.

226. *Mr. Symes* (to witness).] Can these vessels be fitted up cheaper with oil-engines than with ordinary steam-engines?—For small power I think the oil-engine would be the cheaper.

227. *Mr. Lawry.*] Do you think it necessary for a qualified marine engineer to be employed to drive one of these oil-engines?—No.

228. With regard to the new boat the Northern Steamship Company built, would they be quite satisfied to have taken one of the oil-engines if you could have got sufficient power to drive her?—Yes, that is one of the things Captain Anderson told me.

229. And he is one of the directors?—Yes.

230. Was that the boat in which they afterwards put a steam-engine?—Yes.

231. And if you had been in possession of the necessary machinery to build an engine of sufficient power, it is very probable that she would have been driven by an oil-engine?—Most probably. I was satisfied myself from the private information I had that it was absolutely certain we should have got the order.

232. In your remarks with regard to the Examiners, you did not wish to pass any reflection on the Marine Department?—That was furthest from my mind.

233. What you meant was that the examinations should not be conducted in a perfunctory manner, but that a man should be a thoroughly practical engineer so far as the oil-engines are concerned?—Yes.

234. Before giving the certificate, you would have to be perfectly satisfied that the man was qualified to do the work?—Yes.

235. Do we understand you to say that the test would be to throw some parts of the oil-engine out of gear?—I would not remove, but would displace some of them.

236. And it would be an important matter with you to see that the man could put them together again?—Yes, within a certain time.

237. Could a thoroughly competent marine engineer, unacquainted with an oil-engine, do that?—No, not unless he had made a study of the oil-engine.

238. Then the two branches are separate and distinct?—Yes, beyond the ordinary question of cylinders and so on. There are other technicalities which a man who has only studied a steam-engine cannot understand. He must have had a particular experience in these things. I have had an instance where the chief engineers of very large steam-ships were completely nonplussed until they had had some practical illustration given to them. When they grasp the theoretical part of the question they become as proficient as anybody else.

239. I think you have made it quite clear to the Committee that oil-engines are infinitely less dangerous than steam-engines?—That is so.

240. Do you think it is necessary for a man to serve three years in shop-work?—I say it is very preferable to have a man who has served some time in a shop, but not for these little pleasure-boats going round the harbour. For engines above twenty-horse power it would be better.

241. Three years' probation seems a very long time: could there be some preliminary examination? If a boy or a man had been two years in a workshop, and said he was qualified to pass an examination, do you think there would be anything wrong in allowing him to pass a preliminary instead of a final examination?—I do not think there would be any harm in that.

242. All you would require is competency?—That is it.

243. Would you like all examinations to be competitive, supposing there were five applicants to fill three situations?—That all depends upon the law of supply and demand.

244. *Mr. McLean.*] You said there were some hundreds of engines working in Auckland?—Gas-engines for stationary purposes. I pointed out that these marine-engines and gas-engines, as far as the engines themselves are concerned, are exactly the same. There is the same cycle, the same ignition, the same explosion, and the same exhaust.

245. And in handling them, one is practically the same as the other?—Yes.

246. If there is no examination needed in the one case, what necessity is there for an examination in the other?—Of course, I cannot see that.

247. *The Chairman.*] If an accident occurred to a gas-engine in Auckland, or in any place on shore, mechanics would be called in to repair the broken pieces, but a man inexperienced with tools would not be able to do it?—If a man broke his crank-shaft at sea, the repairs could not very well be carried out.

248. But for minor repairs, if a man understood the use of tools he could use them?—Yes.

249. *Mr. McLean.*] Which class of engines is most likely to go wrong—a marine oil-engine or a steam-engine, giving equally good handling in each case?—One is practically the same as the other.