

have on the cylinder?—Very likely score the cylinder. The explosion would pass down through the grooves and impair the efficiency of the engine. It would have to come out and be repaired.

480. You saw the advertisement that was in the Auckland newspaper; is it possible to fix an engine so that no engineer could work it for an hour?—I suppose it is.

481. So that there is nothing in this advertisement at all?—They might be able to do something to the engine which would prevent it working.

482. It might be so fixed that the engineer would have to take it all to pieces?—Yes; they could have done something with it.

483. So that the £10 was perfectly safe?—Yes.

484. Supposing you tried, could you take that engine to pieces in an hour?—No. I should like to get two hours.

485. What pressure would an oil-engine get a certificate for?—We do not restrict the pressure. The mean pressure is about 180. You can regulate the pressure.

486. Suppose that engine was in work, and anything went wrong, and the pressure could not be relieved; could it be increased so as to burst the cylinder?—It would stop it.

487. Have you surveyed the Monitor or Mogul engines?—No.

488. *Mr. Monk.*] You said there was just as much danger with an oil-engine cylinder as with a steam-engine; will you explain to me what constitutes the danger?—The pressure in the oil-engine is 180 lb. to the square inch, and the pressure in a steam-cylinder is practically the same. It is a question of study to hold on those two covers.

489. Is that what constitutes the danger in a steam-engine; is it merely the pressure on the cylinder-head?—There is no danger to the cylinder from explosion; it is the boiler. If an oil-engine generates water it will blow the head off, as it did in the case of the "Mokau." If the water gets into the end of the piston it will knock the cover off.

490. What was the momentum?—The momentum was in the fly-wheel. Water is non-elastic, and therefore it will knock it off. While the air is there free from water it will not knock it off. There are very few cases of the cylinder-head being knocked out of a steam-engine. I have never, in all my experience, seen a cylinder-end knocked out by water.

491. *Mr. Duncan.*] Is there not a valve at the back to prevent that accident happening?—Yes; a relief-valve.

492. Have you known any accident to a boiler in your experience in New Zealand?—Yes; sometimes there are slight accidents with all boilers.

493. But the boiler is a very safe factor in your experience in New Zealand?—Yes.

494. *Mr. Crowther.*] What happens when the tubes begin to leak?—That is when the trouble comes.

495. *Mr. Duncan.*] Would there not be the same danger, if there was leakage, if the oil-tank were in the bow of the vessel as if placed in the engine-room?—Yes. I think if it is placed under decks forward it might be more dangerous there.

496. And the gases might not escape?—No.

497. The supply-pipe between the tank and the engine would be led along the lower and upper part of the hold, and if the hold were filled with cargo when anything went wrong they would not be able to do anything until the cargo was displaced?—No.

498. You know the "Beryl"?—Yes. The driver drives his own launch. It is used for fishing and little excursions. It was built in Auckland by the Century Motor Company. The owner has had very bad luck with it, and would be very glad to get quit of it. He would sell it at less than half price. He was a novice at it.

499. Take the "Sunbeam"?—I remember the "Sunbeam"; she is a launch. She is run by the owners—novices—but not successfully. The last time I saw her she was in the hands of the doctor, getting some rings put in. She has a Union oil-engine.

500. Do you know anything about the "Mona"?—Yes. Mr. Smith, of Kaipara, is the owner; Union engine. The "Mona" was not successful. The man who owned her at first returned her and bought a steam-launch. Mr. Smith, at Kaipara, has given it to a first-class man who holds a certificate, and he keeps it in repair for him. Mr. Smith gets it when he wants it.

501. Take the "Nellie Brown"?—She is a Kaipara boat.

502. Is she successful?—She is an open launch, running up a creek. The man who runs her owns her. She is a Union boat. Her power is two and a half or three horse. The owner gets on very well with her, but he told me that if he had got a little mechanical knowledge he would have got on very much better.

503. Take the boat called the "Coy," at Tauranga?—She is a launch. The owner runs her himself. He has been stuck up once or twice, and gets a second engineer if he wants some one to do repairs. At the last survey I pointed out several defects which might lead to ducking or drowning when he takes out his wife and children. He might be knocked on the beach in bad weather.

504. Take the "Dolphin": does she work well?—Yes. She was taken from the Kaipara to Hokianga. While at the Kaipara there was a novice who owned her. He sold her, and a third-class man was put on board, and he took her to Hokianga. I have heard that the men who took her over were novices and took the engines out of her. After the novice took her up they had very bad weather and could not manage her afterwards.

505. Take the "Tawhera," at Gisborne?—She is driven by a river engineer, and goes into the roadsteads for cargo from the large steamers. At first they had a lot of trouble with her, but now manage her well.

506. Take the "Pareora"?—She is on the Kaipara. Previous to going there she was with the Waiuku Steam Navigation Company, and tendered the "Weka." She was a complete failure,