

the industries as well as the home consumption. The home consumption will be, I admit, in the outer districts, but the main concentration will be in Dunedin proper.

26. Can you say that the greater part of it will be used in the city?—Yes.

27. Can you say what the proportion is likely to be?—I would say more than 75 per cent. We speak of it commonly as the cream of the lighting being in the business portion.

28. It may be put to you that Wellington is operating with 1,500-horse power?—That is apart from the tramways.

29. Do you think that Dunedin—and, if so, will you give us your reasons for so thinking—will use more horse-power than Wellington?—The stock of the company in Wellington is owned outside of New Zealand, and it has been the policy of the company not to push their business—in fact, they are some hundreds of meters behind their contracts. In other words, they have not the material on hand—they have not looked far enough ahead—to supply their present needs, and I do not doubt that they could, by pushing their business, increase their output perhaps 20 per cent. if they changed their conservative policy a little bit.

30. Will you deal shortly with the question of safety and hygiene in connection with the wide use of electricity compared with steam? You have had experience of the changes in America that have been brought about by the use of electrical power and its effects upon the health of the people and atmosphere in cities?—The most notable case is that of Buffalo City, where they formerly used soft coal. It was rather a black city, and was called the Smoky City, but since the advent of the power from Niagara it has become quite a clean place. The houses and gardens are bright-looking, and the atmosphere has become much clearer.

31. Have you had an opportunity of noticing whether Dunedin is a city that has a great amount of smoke in it?—Well, I live in Anderson's Bay, and look at the city often through my glass, and I see that it is smoky the greater part of the time.

32. Where does the smoke come from?—From the factories.

33. And you think that could be avoided as it has been in Buffalo City?—Yes, by a large percentage.

34. The question of change from steam to electricity is an important one to the city. We have had the element of price mentioned. Can you mention, beyond the question of price, any other advantage that electrical power offers over steam-power?—Yes. In Suplee's "Mechanical Engineering," page 749, it says, "1. Greater output per machine due to positive nature of drive; in many cases this is at least 50 per cent. 2. Ability to accurately determine—by means of recording instruments centrally located, with a multi-point switch—whether tools are being kept at work in proper manner, thereby affording a graphic record of the time each machine is in operation and its consumption of power. This will also enable the detection of tools that are in bad condition due to abnormal friction of bearings or moving parts. 3. The flexibility of placement of machine tools to suit the passage of the work through the shop. 4. Better light and absence of dirt due to belts, shafting, pulley-hangers, &c., and less first cost of building owing to the lighter overhead construction permissible when no shafting, pulleys, hangers, or belt-tension have to be taken care of. 5. Free head-room for crane service. 6. Ability to shut down or start up any one machine independently of all others."

35. In the work on "The Electrical Industry," by Adam Gowans Whyte, an illustration is given of the economy effected by Messrs. Vickers, Sons, and Maxim (Limited). At page 131 of the work it says, "In the case of the Barrow works of Messrs. Vickers, Sons, and Maxim (Limited), it was found that the substitution of electric for steam driving saved half the coal-bill, with an increase of over 50 per cent. in output"—Yes.

36. With regard to the city's supply, have you seen the letters addressed to the Town Clerks of Mornington, Roslyn, St. Kilda, and Caversham by the City Council, offering them electric power?—I have seen such a letter offering electrical power at the lowest possible rate. We were in communication with the same people at their own solicitation. They came to us first, and the city approached them without being asked. That I know.

37. Do you know in connection with electric installations in America, whether in practice an arrangement is not often made between a company and the municipal authority to work their respective electrical installations to their mutual advantage?—Yes, and I think it is possible that such an arrangement could be come to here.

38. Between your company and the municipality?—Yes, the municipality of Dunedin.

39. Along what lines?—Along the lines of sharing expenses and profits on a percentage basis.

40. You were asked by myself or by Mr. MacGregor about the cost of distribution of electricity, and you said it was from £5 to £50. I am afraid that that statement was not understood by the Committee?—I had in my mind a perfectly clear conception of it, but it really needs some illustration. There are two costs really in connection with an electrical installation: First, the capital cost of the installation of the distributing system (*i.e.*, reticulation) is dependent upon (a) whether the lines are overhead or underground, (b) the quantity of the horse-power delivered, (c) the distance to which it is delivered. This capital cost may range from as low as £2 per horse-power to an average of £30 per horse-power and to a maximum of, say, £50 per horse-power.

41. Is that what you referred to in answer to Mr. MacGregor?—Yes. Second, the annual cost of the above will therefore be dependent upon (a) the type of service—*e.g.*, the horse-power hours per year consumed from that reticulation; (b) the depreciation and interest rate which in its turn is dependent upon the guaranteed life of the conductors and their supports. I would enlarge upon that and say that it depends upon whether the cables are overhead or underground in that depreciation-rate. In a great many instances you cannot get a guarantee by a company of over five years' life of its cable. It may not be guaranteed for two years' life, or it may be guaranteed for ten years' life. A rate of charge founded upon these considerations will range from 5s. to £10 per annum as the conditions govern.