The route recommended by the Pacific Cable Committee at London, in 1896–97, was from Vancouver to Fanning Island (or Palmyra Island), Fiji, and Norfolk Island, with branches thence to New Zealand and Queensland.

The Committee point out that "there would be a decided advantage in taking the cable *vid* the Hawaiian Islands, instead of *vid* Fanning or Palmyra Island, as the section would be shorter and less costly for the same speed, or faster for the same cost, and some traffic would, if no line is laid from California, be obtained from Honolulu; but," it is added, "this would involve a departure from the principle of using only British territory." The Committee, however, later on have to admit that the Pacific cable, although connecting with only British territory, would necessarily be dependent on the American land-lines and trans-Atlantic cables.

The telegraph-line from the eastern seaboard of Canada to Vancouver belongs to the Canadian Pacific Railway Company, which connects at Canso, in Nova Scotia, with the Commercial Company's (an American company) three cables from Great Britain. The other Atlantic cable companies, whether British or foreign, connect and are in alliance with the American Western Union Telegraph Company, which effects a junction with the Canadian Pacific Railway Company's lines at Montreal, and will shortly, if it has not already done so, connect with Vancouver by means of its lines through the United States territory as far as British Columbia.

The traffic will therefore be divided, part of it going through an American-owned cable and Canada, and part through British and foreign cables and the United States. The latter route is said to be less affected by adverse climatic conditions and more reliable in the winter. If so, it will carry the greater volume of business. Surely this cannot be called an all-British line of communication complying with the Imperial sentiment which supports the undertaking.

The length of cable by the route recommended by the Committee, allowing 10 per cent. slack, is about 7,986 knots, viz.:—

Vancouver to Fanning Island	3,561	knots.
Fanning Island to Fiji	2,093	"
Fiji to Norfolk Island	961	"
Norfolk Island to New Zealand	537	"
Norfolk Island to Queensland	834	"
Total	7,986	knots.

The tenders received in 1894 for this section were—

	£	s.	d.
The Indiarubber, Guttapercha, and Telegraph Works Company	1,517,000	0	0
W. T. Henley's Telegraph Works Company	1,826,000	0	0
Siemens Bros. and Company	2,170,000	0	0
Fowler-Waring Cable Company	2,350,000	0	0

The total distance is given as 7,145 knots, which makes no allowance for slack. The tenders are for a State-owned cable, the contractor to maintain and keep the cable in repair for three years. Since these tenders were received the prices of copper and guttapercha have considerably risen. For the latter the price is still rising, and will, I am informed, probably reach 10s. per pound.

The cost of the cable, of course, largely depends on the type of cable to be used, the weight per knot of the copper-wire and the guttapercha forming the core necessary to attain a specified or reasonable speed of working in the longest length—viz., 3,561 knots. Lord Kelvin recommended a core of 552 lb. of copper and 368 lb. of guttapercha per knot for a speed of sixty letters per minute, possibly eighty letters. Sir William Preece, as Chief Electrical Engineer to the British Post and Telegraph Department, recommended 800 lb. of copper and 550 lb. of guttapercha for the longest section. Dr. A. Muirhead thinks a cable of 552 lb. copper and 368 lb. guttapercha, with experienced operators, would give eighty letters per minute, and with 650 lb. copper and 400 lb. guttapercha as much as ninety-five letters per minute, whilst Sir William Preece says it would give at most sixty-three letters, which appears to be confirmed by other experts.

From the somewhat conflicting evidence the conclusion arrived at by the Committee is that a core of 552 lb. copper and 368 lb. of guttapercha would give forty paying letters per minute, and that a core of 650 lb. of copper and 400 lb. of guttapercha would give forty-eight paying letters. They considered that the core should not be lighter than 552 lb. of copper and 368 lb. of guttapercha, nor over the long section heavier than 650 lb. of copper and 400 lb. of guttapercha. The speeds given are the theoretical speeds for simplex working.

As nearly all the cablegrams are in code, about eight letters on the average go to the word, and in calculating the working-capacity only paying words should be taken into account, at least one-third of the words sent being non-paying.

Then, again, owing to the difference of longitude—ten hours between England and the eastern colonies—the flow of traffic is mostly in one direction. The bulk of the messages from Australia come in between 4 and 6 p.m., reaching, or being delivered in, London in the early morning, whilst messages from London are handed in during the afternoon and are delivered in Australia in the morning. But little advantage, therefore, is gained by duplexing, which can only occasionally be availed of, and there are many hours in the twenty-four when the cables are practically silent. The business comes in rushes at certain hours of the day, and to work it off quickly to avoid delay duplexing or two cables are required.

In view of this the Committee quite correctly, in estimating the working-capacity of the Pacific cable, adopt eighteen hours a day for six days a week, and take into account only payable words, and neglect words used in preambles, official communications, repeats, &c., which constitute, as