

TELEGRAPH ACROSS COOK'S STRAITS.

26. I need scarcely observe that the results above-mentioned have been derived from well authenticated official returns, embracing among other interesting particulars, facts as to the number of conducting wires, the length, the depth of submersion, weight per mile, and the period during which each cable has worked, on all the principal telegraph lines in Europe and elsewhere, since 1851.

27. Full consideration of the valuable experience thus available, has led me to recommend a form of cable which I believe would be best suited for the proposed connection now under discussion; and I am fortunately in a position to furnish a specimen section (herewith supplied) of the particular description of cable referred to, together with details as to the probable cost of the work.

28. My estimates are as follows:—

<i>Southern Route as per Chart.</i>			
Forty miles of main cable, at £151	.	.	£6,040 0 0
Fifteen miles of shore end, at £244*	.	.	3,660 0 0
			<hr/>
Provision for—say sixty miles of land line, at £50	.	.	£9,700 0 0
Testing boxes, instruments, fittings, and other gear	.	.	3,000 0 0
			<hr/>
			1,300 0 0
			<hr/>
			£14,000 0 0
Expenses attending transport from England, including cost of steam power in laying cable between the points indicated	.	.	7,500 0 0
Engineers' expenses, including temporary labour	.	.	1,500 0 0
Incidental expenses	.	.	1,000 0 0
			<hr/>
Estimated total cost of the work	.	.	£24,000 0 0
<i>Northern Route as per Chart.</i>			
One hundred and twenty miles of main cable, at £151	.	.	£18,120 0 0
Ten miles of shore end, at £244*	.	.	2,440 0 0
Provision for—say forty miles of land line, at £50	.	.	2,000 0 0
Testing boxes, instruments, fittings, and other gear	.	.	1,300 0 0
			<hr/>
			£23,860 0 0
Expenses attending transport from England, including cost of steam power in laying cable between the points indicated	.	.	8,000 0 0
Engineers' expenses, including temporary labour	.	.	1,500 0 0
Incidental expenses	.	.	1,000 0 0
			<hr/>
			£34,360 0 0

29. The above estimates, in so far as the probable cost of the cable is shown, are based on the authority of the description and prices given by Messrs. Glass, Elliott and Co., cable manufacturers, for the particular description of cable now under mention, as follows:—

<i>Components.</i>	lbs.	cwt.
Seven copper wires, in one strand, per knot	150	
Three coverings of gutta percha, and three of Chatterton's compound	230	
	<hr/>	
Weight of core	380	3 40
Jute and tar		4 20
Ten best charcoal iron wires, (No. 6)		52 40
Outer coverings of Clark's patent preparation		14 00
		<hr/>
Weight per knot, complete		74 00

Shore ends of the same materials, but much heavier, would weigh one hundred and fifty-four hundredweight to the mile. The prices named are as follows:—

For main cable, f. o. b., £151 per mile. For shore ends, f. o. b., £244 per mile.

30. It will thus be seen that the cable recommended for Cook's Straits, would consist of a single copper conductor, composed in the aggregate of seven small copper wires, combined in one strand, insulated by a triple covering of gutta percha, and the same of Chatterton's patent compound, forming together the core; this would be protected by a covering of jute saturated in tar, which would interpose between the insulation and the ten No. 6 iron wires, forming the sheathing next to be applied as the outer protection of the core; this in turn would be covered by Mr. L. Clark's patent preservative preparation as a preventative of rapid oxidation in the sheathing wires.

31. I have carefully examined the various specimen sections of cables at present in my possession, and find none, in my opinion, so well adapted for the proposed service as that now recommended.

32. With regard to the mode in which the work should be performed, I consider that the best course would be to invite and accept tenders in England, from competent persons, for carrying out and completing under stated conditions the whole of the submarine portion. The short lengths of land line required on either side of the Straits, might in the meantime be provided directly under local supervision.

The Hon. the Chief Secretary, &c.

I have, &c.,
SAMUEL W. MCGOWAN,
General Superintendent of Electric Telegraph.

* Geographical measurement.