messages, which has been estimated as at least £300,000 a year. A further cause has been competition offered by the telephone service, but against this the Post Office has received royalties from telephone companies and revenue from trunk telephone lines. These amounted in 1887 to £26,170 and £1312 respectively; in 1897 to £85,289 and £113,294, and in 1907 to £240,331 and £479,639 respectively.

The following table shows the financial results of the business in the year immediately following the purchase of the telegraphs by the state, in the two years preceding and the two years following the introduction of the 6d. tariff, and in the seven financial years from 1900-1907:—

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Year. | Number of  Messages. | Gross Receipts. | Total Expenditure. | Percentage of Total Expenditure to Gross Receipts. | Net Revenue or Deficiency. | Net Revenue after omitting from Total Expenditure the cost of Sites, Buildings and Telegraph Extensions. | Interest on Stock created for Purchase of Telegraphs. |
|  |  | £ | £ |  | £ | £ | £ |
| 1870-71 @@\* | 9.850.177 | 801,262 | 462,762 | 57∙75 | 338,500 | 342,618 | 214.500 |
| 1883-84 . . | 32,843,120 | 1,789,223 | 1,808,920 | IOI∙IO | τ~ 1A697  Deficiency | 330,835 | 326,417 |
| 1884—85@@! | 33.278.459 | 1.784.414 | 1,820,764 | 102 ∙03 | 36,350  Deficiency | 274.271 | 326,417 |
| 1885-86 . . | 39,146,283 | 1,787,264 | ι,832,401 | IO2∙52 | \_ ¾5√37  Deficiency | 167.915 | 326,417 |
| 1886-87 · ■ | 50,243,639 | 1.887,159 | 2,032,632 | «07-70 | 145ζ473 Deficiency r337,641 Deficiency | 88f484 | 326,417 |
| 1900-01 . | 89,576,961 | 3.459.353 | 3.796,994 | IO9∙76 | 6,861  Deficit | 298,860 |
| 1901-02 . . | 90.432.041 | 3,570,046 | 4.221,927 | 118∙26 | 651,881  Deficiency | 169,772  Deficit | 298,860 |
| 1902-03 . . | 92,4711000 | 3,723,866 | 4.325,577 | ii6∙i6 | 601,711  Deficiency | 109,760 Deficit | 298,860 |
| 1903-04 . . | 89,997,000 | 3,736,115 | 4,693,898 | 125-64 | 957.783 Deficiency | 306,108  Deficit | 278,483 |
| 1904-05 . . | 88,969,000 | 3,920,023 | 4.839.459 | i23∙45 | 919.436 Deficiency | 160,989  Deficit | 271,691 |
| 1905-06 . | 89,478,000 | 4,151,380 | 4.892,199 | 117-85 | 740,819  Deficiency  652,055 Deficiency | 12,693 | 271,691 |
| 1906-07  (Estimated) | 89.493.000 | 4.369.230 | 5,021,285 | 114-92 | 214,982 | 271,691 |

*Submarine Telegtaphs.—*The first commercially successful cable was that laid across the straits of Dover from the South Foreland to Sangatte by T. R. Crampton in 1851, and two years later, after several futile attempts, another was laid between Port Patrick in the south of Scotland and Donaghadee in Ireland. This was followed by various other cables between England and the neighbouring countries, and their success naturally revived the idea which had been suggested in 1845 of establishing telegraphic communication between England and America, though this enterprise, on account of the distance and the greater depth of water, was of a much more formidable char­acter. On the American side Cyrus W. Field acquired a con­cession which had been granted to F. N. Gisborne for a land line connecting St John’s, Newfoundland, and Cape Ray, in the Gulf of St Lawrence, and proceeded himself to get control of the points on the American coast most suitable as landing places for a cable. On the British side the question of con­structing an Atlantic cable was engaging the attention of the Magnetic Telegraph Company and its engineer Mr (afterwards Sir) Charles Bright. Visiting England in 1856, Field entered into an agreement with Bright and with John Watkins Brett, who with his brother Jacob had proposed the constructing of an Atlantic cable eleven years previously, with the object of form­ing a company for establishing and working electric telegraphic communication between Newfoundland and Ireland. The Atlantic Telegraph Company was duly registered in 1856, with a capital of £350,000, the great bulk of which was subscribed in England. The manufacture of the cable, begun early in the following year, was finished in June, and before the end of July it was stowed partly in the American ship “ Niagara ” and partly in

the British ship “ Agamemnon,” both being war-ships lent for the purpose by their respective governments. The shore end was landed in Valentin Harbour on the 5th of August, and next morning paying out was started by the “ Niagara,” to which the laying of the first half had been entrusted. For the first few days the operation proceeded satisfactorily, though slowly, but on the afternoon of the 11th, when 380 m. had been laid, the cable snapped, owing to a mistake in the manipulation of the brake, and the ships returned to Plymouth with what remained. Next year, 700 m. of new cable having been made, the attempt was renewed, with the same ships, but on this occasion it was

decided to begin paying out in mid-ocean, the two vessels, after splicing together the ends of the cable they had on board, sailing away from each other in opposite directions. They left Plymouth on the 10th of June, but owing to a terrific storm it was not till the 25th that they met at the rendezvous. A splice having been made they started on the 26th, but the cable broke almost immediately. Another splice was made, to be followed, after the “ Agamemnon ” had paid out about 40 m., by another break. Again the ships returned to the rendezvous and made another splice, and again there was a break after the “ Agamem­non ” had paid out 146 m., and then the “ Agamemnon,” after again returning to the meeting-place in the vain hope that the “Niagara ” might have returned there also, made for Queens­town, where she found her consort had arrived nearly a week previously.

Although a good deal of cable had been lost, enough remained to connect the British and American shores, and accordingly it was determined to make another attempt immediately. To this end the ships sailed from Queenstown on the 17th of July, and having spliced the cable in mid-ocean, started to pay it out on the 29th. The “ Niagara ” landed her end in Trinity Bay, Newfoundland, on the 5th of August, while on the same day the “ Agamemnon ” landed hers at Valentia. The electrical con­dition of the cable was then excellent, but unfortunately the electrician in charge, Wildman Whitehouse, conceived the wrong idea that it should be worked by currents of high potential. For nearly a week futile attempts were made to send messages by his methods, and then a return was made to the weak currents and the mirror galvanometers of Sir William Thomson (Lord Kelvin) which had been employed for testing purposes

@@@\* 5th February 1870.—Transfer of telegraphs to the state.

@@@ 1st October 1885.—Introduction of sixpenny tariff.