

An Analysis of Trends within the British Government and Business Community Regarding the Formation of International Telecommunications Networks in the 19th and 20th Centuries

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This paper reevaluates the evolution of international telecommunications from the mid-19th to early 20th centuries, supplementing traditional political-military narratives through an economic and commercial lens. While history often highlights British imperial strategy, this study emphasises the influence of private operators and the specific needs of commercial users. Focusing on the ‘All-Red Route’ (All-British Cable Network) project, it identifies a disconnect between three key stakeholders: the business community, private operators and the British government. The business sector strongly advocated for nationalisation to lower communication costs and secure real-time market data. Conversely, the British government—despite recognising the network’s strategic weight—remained passive towards state ownership, citing concerns over acquisition costs, operational efficiency and diplomatic friction. The analysis revealed that telecommunications growth was driven by a tug-of-war between private commercial demand and cautious government liberalism rather than a singular national strategy. Ultimately, the British telegraph business remained a largely private sector endeavour at the turn of the century. The author suggests that future studies should delve into industry-specific case studies—such as shipping and finance—and the complex contractual relationships between the state and private firms.

1. The Issue at Hand

In today’s global society, commercial and economic activities on a global scale are flourishing, underpinned by the rapid and seamless movement of people, goods and information. This intensification of cross-border movement has been driven by technological innovations in the transport sector, such as the invention of the railway and steamships in the 19th century, and in the information sector, such as the invention of telegraph technology. The author’s focus here is on the development of information and communications technology in the 19th and 20th centuries and its impact.

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The telegraph (wired communication), which came into practical use in the mid-19th century, enabled rapid and smooth communication with remote locations; as a result, real-time information came to be effectively utilised in commercial, political and military contexts. Backed by its overwhelming naval and financial power, Britain succeeded in constructing an international submarine telegraph cable network led by private capital; by the turn of the century, it had established information hegemony¹ and came to utilise this for imperial domination and the conduct of war.

Against this historical backdrop, research in the field of information and communications history in recent years has focused on the development of information and communications technologies, including telegraphy and radio, the military and political use of various communications technologies and analysis from the fields of cryptography and intelligence. Specific examples of prior research include Daniel R. Headrick's *The Invisible Weapon: Telecommunications and International Politics, 1851–1945* (1991) and P. M. Kennedy's *Imperial Cable Communication and Strategy, 1870–1914* (1971). Kennedy's research provides a detailed analysis of the process of laying the United Kingdom's global information and communications network—the so-called 'All-Red Route' (All-British Cable Network)²—from the late 19th century to the early 20th century, as well as the development of information and communications policies within the British government and strategic agencies.

Conventional research on the history of international telecommunications has focused on the strategic and military use of information and communication technology, and research in this field from the perspectives of military history and the history of intelligence can be considered highly developed. In contrast, the formation of international telecommunications networks during this period was driven by British private telegraph operators, centring on the UK–India and UK–North America lines, where commercial demand was particularly high. Consequently, to understand the reality of the international telecommunications industry during this period, it is essential to analyse the business trends of private telegraph companies and the commercial and personal demands surrounding them.

Consequently, this study aims to complete the narrative from an economic and commercial historical perspective—which has been lacking in previous research on the history of information and communications—by analysing the trends and intentions of British private telegraph companies and commercial users, with a focus on the rise and maturation of international information and communications networks and services from the 19th century to the early 20th century. This paper focuses on the formation of international telecommunications networks from the late 19th century to the early 20th century, and specifically on the development of the 'All-Red Route' (All-British Cable Network) cable-laying project at the turn of the century. It examines the trends among the strategic departments of the British government, as well as the private telegraph companies providing the services and the British commercial stakeholders using them. The study aims

¹ Although there is no clear definition of information hegemony, Teruo Ariyama defines it as 'the power to control the production and distribution of information on a global scale or within a specific region, and to exert influence over the perceptions and thinking of the inhabitants within that area' (Ariyama [2013], p. 5).

² With regard to the international telegraph cable network established by Britain by the early 20th century, which ran exclusively through its own territory and was independent of other nations, much of the existing literature refers to it as the 'All-Red Route'. On the other hand, the primary sources used in this study (British Parliamentary Papers and the London Chamber of Commerce Bulletin) employ various terms such as 'All-British Cable', 'Pan-Britannic Telegraph' and 'Pan-Anglican Cable'. Consequently, in this paper, the term 'All-Red Route' (All-British Cable Network) refers to the telegraph cable network connecting the entire British Empire.

to analyse the motivations behind each group's promotion of the international submarine telegraph business.

2. Analytical Perspective

We analysed the respective trends and debates within the British government, private telegraph operators and the British business community (chambers of commerce) regarding the 'All-Red Route' (All-British Cable Network) laying project from the late 19th to the early 20th century. In doing so, our aim was to clarify the perspectives of the commercial and strategic stakeholders surrounding the international information and communications industry during this period on the international submarine telegraph cable business. We examined the characteristics of the private telegraph operators and chambers of commerce that form the subject of this analysis.

(a) Pender's Eastern Group

Since the invention of the telegraph in both Britain and the United States in the late 1830s, the formation of telegraph cable networks has progressed rapidly across the globe. British private telegraph operators were at the centre of the formation of international telecommunications networks from the mid-19th century to the early 20th century. Based on the global ownership of telegraph cables in 1892 in terms of distance, British private telegraph companies owned approximately 63.13% of the world's cables³.

Among the British operators, the companies owned by John Pender were particularly successful. In 1851, Pender founded the Magnetic Telegraph Company, together with Charles T. Bright and John Watkins Brett. After achieving success in the domestic land-based telegraph business in Britain, Pender went on to achieve results in the transatlantic submarine cable business and the submarine telegraph cable business between Britain and India in the 1860s, and from the 1870s onwards, expanded his communications network to the coasts of Central and South America and the African continent⁴. Furthermore, while laying telegraph cables in various regions, Pender served as director or chairman of numerous telegraph companies established for this purpose. By bringing these enterprises under his umbrella, Pender formed a vast corporate consortium known as the Eastern Group (Eastern and Associated Telegraph Companies) [Figure]. In terms of total cable length, the cables owned by Pender's Eastern Group accounted for approximately 45.66% of the world's total by 1892, securing overwhelming dominance in the international telecommunications market⁵.

In addition to the companies integrated into the Eastern Group, Pender served as a director of the Telegraph Construction and Maintenance Company (hereinafter referred to as 'Telcon'), which centrally managed the manufacture, management and maintenance of telegraph cables. He also maintained widespread influence in the international telecommunications industry by bringing rival companies under his control through the conclusion of joint investment agreements, the acquisition of shares and appointments to boards of directors. In short, the formation of the international telecommunications network

³ Headrick [1991] p. 29.

⁴ Baglehole [1970] pp. 3–4; Winseck & Pike [2007] pp. 17–18, 25, 29; Nishida [1971] pp. 31–35; Hoshina [2006] pp. 402–403; Headrick [1991] p. 19 (Japanese translation: Headrick [2013], p. 22); Standage [2007] pp. 87–89 (Japanese translation: Standage [2011], pp. 87–89).

⁵ Headrick [1991] p. 29

in the 19th century was, in essence, the creation of Pender's telecommunications empire.

(b) British Chambers of Commerce

Chambers of Commerce are economic organisations established by merchants and industrialists in various regions;⁶ in Britain, they were established in various cities beginning in the latter half of the 18th century. Among these, the London Chamber of Commerce was established relatively late. However, by 1884, it had already grown to boast the largest membership of any chamber of commerce in Britain and played a central role in the Association of Chambers of Commerce of the United Kingdom, which was founded in 1860⁷.

A distinctive feature of the London Chamber of Commerce was that it encompassed a wide variety of interests. First were financial interests centred on the Institution of Bankers, the Corporation of Foreign Bondholders and Lloyd's Registers of Shipping. The second was the trade and shipping interests of firms such as Jardine, Matheson & Company, Dent Brothers and Co. and Peninsular and Oriental Steam Navigation Company (P&O). In addition to these interests, the London Chamber of Commerce encompassed the interests of small-and medium-sized urban merchants and industrialists, who formed the sector-specific sections. Although the London Chamber of Commerce often faced the problem of conflicting opinions due to its multifaceted nature, it maintained a consistent stance on foreign policy. While encompassing a diverse range of stakeholders, the London Chamber of Commerce continued to adopt a position of urging the government to promote imperial integration and the protection and development of overseas markets⁸.

As outlined above, the London Chamber of Commerce was closely linked to the financial and commercial interests at the heart of the city and functioned as an economic organisation wielding considerable influence over the British national economy. This paper analyses the debates surrounding the international submarine telegraph business within the London Chamber of Commerce and The Association of Chamber of Commerce of the United Kingdom and examines the nature of the interest held by the British business community of the time in the international telecommunications industry.

3. The State of International Telecommunications at the Turn of the Century

Following the laying of the submarine telegraph cable linking Dover in Britain and Calais in France in 1851, the formation of an international submarine telegraph cable network progressed rapidly, centring on routes with high commercial demand. The status of the laying of major routes during this period is shown in Table 1.

From the 1850s to the early 1870s, the laying of international submarine telegraph cables

⁶ The characteristics of chambers of commerce can be broadly classified into two types. The first type comprises chambers of commerce that developed under state patronage and possess a supplementary and advisory role to the administration; these are mainly found in France, Germany and Japan (the Continental European and Japanese model of chambers of commerce). In contrast, the chambers of commerce found in the United Kingdom are voluntary membership organisations comprising individual members and trade associations; they act as interest groups and pressure groups for commercial and industrialists rooted in the local economy, making representations to the government and other bodies (the Anglo-American model of chambers of commerce) (Yokoi [2006] pp. 76–77; Sasaki & Fujii [1997] pp. 203–205; Kuwabara [1999] pp. 25–26; Secretariat of the Federation of Chambers of Commerce [1924] pp. 18–53).

⁷ Yokoi [2006] pp. 76–77; Sasaki & Fujii [1997] pp. 203–205; Kuwabara [1999] pp. 25–26; Secretariat of the Federation of Chambers of Commerce [1924] pp. 18–53.

⁸ Yokoi [2006] pp. 74–80.

by British private telegraph operators, particularly Pender's Eastern Group, was rapidly advanced across the globe, including the Atlantic, the Americas, South Asia, East Asia and Oceania. This development included the expansion of stable shipping and commercial activities under Britain's overwhelming naval power, capital accumulation during the Industrial Revolution and the development of the financial centre known as 'the City'. As commercial activities expanded on a global scale under the protection of the Royal Navy, demand grew for information on financial markets in continental Europe and cotton market prices in India and the need to lay telegraph cables primarily for commercial purposes.

Furthermore, Britain was pursuing liberal policies at this time, and it was considered desirable to leave the international telegraph business to the free activities of private enterprises. Consequently, private telegraph operators proceeded to lay submarine telegraph cable networks, focusing on routes with high commercial demand, such as the transatlantic submarine telegraph cable and the cable between Britain and India. In this context, while the British government provided public support to telegraph companies in the form of diplomatic negotiations for the laying of international cables, the granting of laying rights within British territories and surveys of the seabed in cable-laying areas, no financial assistance in the form of subsidies was provided—with the exception of a grant to the Red Sea and India Telegraph Company in 1858⁹.

A major turning point in the British government's approach to the development of international telecommunications cable projects was the annual subsidy of £35,000 granted to the Eastern and South African Telegraph Company in 1878. The British government decided to withdraw its previous policy and provide a subsidy for the telegraph cable business in Africa, where commercial demand was low¹⁰. The background to this was the loss of British supremacy and changes in external pressure amid the full-scale rise of imperialism. While British economic activity was expanding externally and the regions and colonies over which it exerted influence were expanding on a global scale, Britain at this time was plagued by the prolonged recession known as the 'Great Depression'.

Meanwhile, during the same period, the United States and Germany were experiencing rapid growth, particularly in the heavy and chemical industries, while industrialisation was also progressing in France, Italy and Russia. As a result, Britain's absolute dominance in industry and commerce—once known as the 'workshop of the world'—was beginning to wane. In addition, from the late 1870s to the early 20th century, as foreign expansion and competition for colonies among the great powers, led by Britain, became increasingly fierce and clashes with local forces in Africa and elsewhere occurred in succession, political and military tensions rose around the world. Amid such imperialist friction, as Britain's sense of external crisis intensified, the importance of telegraph cables from the perspective of imperial defence came to be recognised.

From the 1880s onwards, as the laying of strategic cables was rapidly advanced, the body that exerted influence over Britain's cable strategy was the Colonial Defence Committee¹¹, established in 1885. Surprisingly, the committee's fundamental view regarding telegraph cables as of 1885 was that the existing telegraph network held by Britain at the time was sufficient to cope with the threat of war. The reasoning behind this was that many of the

⁹ Headrick [1988] p. 116 (Japanese translation: Headrick [2005] p. 101).

¹⁰ Headrick [1991] p. 63 (Japanese translation: Headrick [2013] p. 79).

¹¹ Established in the face of external crises, including the Great Game with Russia that arose in the latter half of the 19th century, this committee was attended by representatives from the Admiralty, the War Office, the Foreign Office, the Colonial Office and the India Office (Headrick [1991] p. 77 (Japanese translation: Headrick [2013] p. 98)).

existing submarine telegraph cables, laid for commercial purposes, ran along major international shipping routes and could be adequately protected by patrols from Royal Navy cruisers. It was believed that there was little risk of the cables being cut by enemy attack, provided Britain did not lose control of the seas. Furthermore, Britain owned 28 of the 36 cable-laying vessels in existence worldwide at the time, and the Eastern Group had accumulated expertise in the laying, management and operation of telegraph cables over many years. Consequently, it was believed that even if Britain's telegraph cables were severed by enemy attacks, they could be restored immediately, thereby minimising disruption to international communications; this was cited as another reason for the assessment.

The treatment of international submarine telegraph cables during wartime was a matter of significant concern for the major powers of the time. As early as the First International Telegraph Conference (Paris Conference) held in 1865, France had already put forward the concept of the political neutrality of cables, and at the Third International Telegraph Conference (Rome Conference) in 1871, Cyrus West Field and Samuel Finley Morse of the United States also petitioned for the neutralisation of cables. Subsequently, the International Telecommunication Convention, concluded at the Conference on the Protection of Submarine Cables, held in Paris in 1884, established provisions for the protection of submarine telegraph cables in peacetime. On the other hand, due to the insistence of Britain—which held a dominant position in naval power and international telecommunications technology—this convention did not impose restrictions on attacks by belligerent nations on telecommunications cable networks during wartime¹².

As mentioned earlier, the Colonial Defence Committee at this time highly valued the potential for wartime communications via Britain's existing international telegraph cable network; at the same time, it expressed the view that the policy of ensuring the security of communications through the neutralisation of cables worldwide—a matter under discussion at the International Telegraph Conference—would be beneficial to Britain. However, the Colonial Defence Committee frequently expressed pessimistic views regarding the realisation of this cable neutralisation and the operation of neutral cables. This was because it was considered difficult to establish a completely neutral cable network in France and Russia, which were Britain's hypothetical enemies at the time, and because it was believed that neutralisation alone could not ensure secure communications with distant colonies, particularly India¹³.

By the 1880s, Britain had established direct communications with the majority of its self-governing territories and colonies around the world through the cable-laying operations of private telegraph companies centred on the Eastern Group. On the other hand, several strategic concerns remained, such as the fact that direct communication with the home country had not been established in the Bermuda Islands, where a naval base was located; that telegraphic communication with the West Indies passed via Cuba and the United States; and that British cables across the Atlantic passed through Portuguese-controlled islands. To address these concerns, it became desirable to establish a strategic cable network—namely, the 'All-Red Route' (All-British Cable Network)—which would pass solely through British territories and colonies and be managed and operated independently by Britain¹⁴.

¹² Kennedy [1971] pp. 732–733; Headrick [1991] pp. 75–78 (Japanese translation: Headrick [2013] p. 97); Headrick [1988] pp. 113–119 (Japanese translation: Headrick [2005] p. 110).

¹³ Kennedy [1971] pp. 732–733.

¹⁴ Headrick [1991] pp. 77–78 (Japanese translation: Headrick [2013] p. 99).

4. The British Chamber of Commerce and the ‘All-Red Route’ (All-British Cable Network) Laying Project

Discussions regarding the ‘All-Red Route’ (All-British Telegraph Cable Network) began to take shape in the late 19th century against a backdrop of external crises, driven by considerations of imperial defence. During this period, the British business community—including the London Chamber of Commerce and The Association of Chamber of Commerce of the United Kingdom—engaged in repeated debates concerning Britain’s international submarine telegraph cable strategy. We will attempt to analyse the discussions within the British business community during this period, drawing on articles and minutes relating to the submarine telegraph cable project published in *the Chamber of Commerce Journal* (the bulletin of the London Chamber of Commerce).

An example of the earliest discussions regarding trans-Pacific submarine telegraph cables at the London Chamber of Commerce is a meeting of the Electrical Section held in November 1897, which was attended by numerous telegraph and telephone companies¹⁵. At this meeting, the importance of communications across the Pacific was recognised, and the laying of a trans-Pacific submarine telegraph cable was advocated. Subsequently, an article entitled ‘An Ideal Cable Scheme’ was published in the *Chamber of Commerce Journal*, vol. 17, no. 57, in January 1899. In that article, the necessity of a submarine cable network connecting the entire British Empire was strongly advocated, citing its commercial, maritime and strategic importance. It was anticipated that the establishment of a telegraph cable network spanning the Empire would enable the rapid transmission of information regarding stock management and transport, as well as market prices, thereby streamlining and encouraging commercial activity within the Empire and leading to increased profits in commerce and shipping.

Furthermore, the strategic value of laying submarine telegraph cables—regarded as a highly secure means of communication with a low risk of disruption due to damage from disasters or attacks from within the Empire and difficult to intercept—and thereby establishing immediate, confidential communications between the British homeland and its colonies and naval bases around the world was highly valued within the British business community at the time. The shipping networks and markets essential to their commercial activities were protected by British naval power, and there was strong recognition of the importance of strategically utilising an international communications network to maintain that naval power¹⁶.

The *Chamber of Commerce Journal* article introduced the plan for an international submarine cable spanning the Pacific and Indian Oceans proposed by the Canadian Samford Fleming and argued that, as a first step, the Pacific Cable should be laid under state leadership. Fleming’s plan was proposed at the 1887 Colonial Conference and enthusiastically supported at the 1894 Colonial Conference. Furthermore, the article noted that the colonial governments of Canada and Australia had expressed their support for Fleming’s plan and their intention to contribute towards the cost of laying the cable; it was expected that the British government would also actively support this international submarine cable project¹⁷.

¹⁵ *Chamber of Commerce Journal*, vol. 16, no. 45 (December 1897, London), pp. 258–259.

¹⁶ *Chamber of Commerce Journal*, vol. 17, No. 57 (January 1899, London), pp. 247–248.

¹⁷ Headrick [1991] pp. 93–98 (Japanese translation: Headrick [2013] pp. 121–128).

In addition to the calls for the laying of international submarine cables, the *Chamber of Commerce Journal* article also examined the centralised state management of the Empire's postal and telegraph services and the benefits that would result. At that time, international telegraph services were provided by private telegraph companies; however, the telegraph service also provided an information infrastructure and was a matter of significant public interest. In Britain, from the perspective of public interest, the nationalisation of domestic telegraph services had already been implemented in 1870 under the Telegraph Act 1868¹⁸. It was expected that state-run telegraph services would also be provided for international telegraph operations¹⁹.

Against the backdrop of growing demand from the business community for a trans-Pacific submarine telegraph cable, The Association of Chamber of Commerce of the United Kingdom repeatedly discussed the 'All-British Telegraph Cable Enterprise' at its Annual General Meetings and Autumn Conferences between 1899 and 1901.

At the 39th Annual General Meeting of the Association of Chamber of Commerce of the United Kingdom in March 1899, B. Plummer of the Newcastle Chamber of Commerce submitted a motion regarding the telegraph network within the Empire. This motion strongly urged the government to construct telegraph cables linking the home country and the colonies in coordination with the respective colonial governments, without passing through other countries, and was passed unanimously. At the Autumn Conference held in September of the same year, Plummer again tabled a motion, reiterating the necessity of laying a pan-British telegraph cable, including a trans-Pacific submarine cable. During the discussions at this Autumn Conference, the strategic aspects of utilising the trans-Pacific submarine cable were addressed in considerable detail, including the point that a declaration of war could be transmitted from the home country to Australia without interference from continental nations²⁰.

At the Autumn Conference of The Association of Chamber of Commerce of the United Kingdom held in September 1900, a motion was tabled by P. J. Hemelryk of the Liverpool Chamber of Commerce. It proposed that the chamber of commerce should provide reasonable support for the investigation into the actual state of existing telegraph operations to be conducted by the Inter-Departmental Committee to be established shortly. The aim was to investigate the international submarine cable operations, which were then run by private telegraph companies, examining the relationship between these companies and government agencies, the extent of the government's control and authority, and the appropriateness of existing telegraph rates to determine in what respects government intervention was necessary. Hemelryk believed that the telegraph rates at the time were excessively high and argued that the chamber of commerce should cooperate with the committee to ensure that a more affordable and efficient telegraph system was put into operation.

In response to Hemelryk's proposal, F. Carver of the Nottingham Chamber of Commerce expressed his support for the motion and further stated that the government itself should become actively involved in the business of laying and operating telegraph lines. Although international submarine cable operations at the time relied on the commercial activities of private telegraph companies, he believed that state-run operations would provide a safer

¹⁸ Telegraph Act 1868 (BPP 1867–68(82)).

¹⁹ *Chamber of Commerce Journal* vol.17, no.57 (January 1899, London), pp.247–248; Telegraph Act. 1868 (BPP 1867–68(82)).

²⁰ *Supplement to the Chamber of Commerce Journal* (April 1899, London), pp. 30–31; *Supplement to the Chamber of Commerce Journal* (October 1899, London), p. 12.

and more efficient communications system, thereby further promoting commercial activity between the mother country and the colonies. Considering the views of Hemelryk and Carver, Plummer reiterated the importance of constructing the 'All-Red Route' (All-British Cable Network), including the Pacific submarine cable; this resolution was passed unanimously²¹.

At the 41st Annual General Meeting held in March 1901, a motion strongly calling for the construction of a communications network connecting all parts of the Empire without passing through foreign countries was jointly submitted by the chambers of commerce of Newcastle, Liverpool and Southern England. The issue of cable communications across the entire Empire had been repeatedly discussed at The Association of Chamber of Commerce of the United Kingdom and passed unanimously on each occasion; furthermore, in accordance with a resolution passed at the previous Autumn Conference, representatives of the chambers of commerce attended meetings of ministerial committees to present the Federation's resolutions and views.

Thus, the British business community strongly supported the pan-British cable enterprise for the promotion of trade and the defence of the Empire. Furthermore, it was suggested here that, to guarantee the public interest in communications, consideration should be given to the state acquiring, managing and operating the telegraph system. Although this proposal regarding the acquisition of the telegraph system was not formally submitted as a motion and was therefore not subject to discussion or a vote at this meeting, it was suggested that state management should be considered in promoting the British cable enterprise. At the conclusion of this debate, C. J. Willson of the South of Scotland Chamber of Commerce explained the details of the All-British Cable Scheme drafted by Fleming, including the route of the telegraph cable and communication charges, and the resolution was passed unanimously²².

Then, at the Autumn Conference in September 1901, a motion was tabled by the Liverpool Chamber of Commerce, suggesting that, regarding the landing rights granted by the government to private companies when laying telegraph cables, consideration should be given to imposing restrictions on the activities of private telegraph companies as a condition for granting such rights. In previous submarine cable projects, private telegraph companies had been granted absolute rights, creating a situation in which it was difficult for other private telegraph companies to enter the market and generate competition.

In this regard, the chambers of commerce had no intention of imposing sanctions on private telegraph companies. On the other hand, it was considered undesirable for the international telegraph business to be monopolised by specific companies, and it was also believed that the government should not relinquish its vital authority. Consequently, the Liverpool Chamber of Commerce requested that Joseph Chamberlain, the Colonial Secretary, insert an additional clause stipulating that when granting landing rights in the future, the government should be able to purchase cables on appropriate terms where necessary in the public interest and that no exclusive rights be granted to the telegraph company regarding the landing rights on the Keeling Islands for the laying of the All-British Cable in the Indian Ocean; consent had already been obtained. The motion concerning this additional clause regarding landing rights was passed unanimously²³.

At the Annual General Meetings and Autumn Conferences of The Association of Chamber of Commerce of the United Kingdom between 1899 and 1901, British business

²¹ *Supplement to the Chamber of Commerce Journal* (October 1900, London), pp. 21–22.

²² *Supplement to the Chamber of Commerce Journal* (April 1901, London), pp. 28–29.

²³ *Supplement to the Chamber of Commerce Journal* (October 1901, London), p. 25.

leaders repeatedly raised the issue of submarine telegraph cable operations connecting the Empire as a key agenda item and consistently supported the construction of the ‘All-Red Route’ (All-British Cable Network), including the Pacific submarine cable. Furthermore, they demanded that the British telegraph cable enterprise be nationalised to ensure the security of communications and improve their efficiency. This stemmed from the fact that British business leaders at the time recognised the commercial and strategic importance of the telegraph. By utilising the telegraph, commercial parties were able to obtain financial information and market price data for commodities, such as cotton, at the earliest opportunity; furthermore, they could communicate swiftly regarding inventory management and transport.

Consequently, the contribution of international telecommunications services to commercial activities was highly valued. Furthermore, to safeguard the international shipping routes and markets essential for the stable and smooth conduct of their commercial activities, there was a demand from commercial sector to establish a means of communication that could be utilised by strategic departments, particularly the Royal Navy. For these reasons, the British business community at the turn of the century was a fervent supporter of an all-British telegraph cable network passing solely through British territories and colonies—namely, the All-Red Route.

5. The British Government’s View on the ‘All-Red Route’ (All-British Cable Network)

As discussed above, the ‘All-Red Route’ (All-British Cable Network) was strongly supported not only by strategic sectors but also by the British business community of the time. In response to this growing demand from various sectors, the British government established an inter-departmental committee in November 1900 with the aim of investigating the existing telegraph system in order to examine the All-British Telegraph Cable Plan.

The establishment of the Inter-Departmental Committee on Submarine Cable Communications was proposed at the 1900 Congress of the Chamber of Commerce of the Empire²⁴. At that conference, the Empire’s telegraphic communications system was raised as a key issue. A resolution strongly urging the government to establish a committee to investigate the existing telegraphic system and to consider formulating a future policy involving the eventual nationalisation of private telegraphic facilities and the establishment of a government-operated telegraphic network across the entire Empire was tabled. Following this resolution, during the 1900 session of the House of Commons, Sir Edward Sassoon of the Liverpool Chamber of Commerce raised a question regarding the establishment of the committee. In response, the committee’s powers and composition were announced by the Chancellor of the Exchequer, Robert William Hanbury. Consequently, on 29 November 1900, the Inter-Departmental Committee on International Submarine Cable Communications (hereinafter the Inter-Departmental Committee) was officially established²⁵.

The composition of the Inter-Departmental Committee is shown in Table 2. The Inter-Departmental Committee was established with the aim of investigating the existing private

²⁴ *Chamber of Commerce Journal* (August 1900, London) vol. 19, no.76, pp. 143–144.

²⁵ BPP 1902 [Cd.1056] p. 1.

telegraph systems connecting various parts of the Empire, examining the relationship between private telegraph companies and government agencies, the extent of the control and authority exercised by the government, the appropriateness of existing telegraph rates and in what respects government supplementation was necessary. In addition, the investigation by the Inter-Departmental Committee involved the consultation of various government agencies and telegraph companies, person in the business such as Sassoon and Plummer and electrical engineers such as Charles Bright.

In March 1902, this Inter-Departmental Committee submitted a report²⁶, which summarised the following 12 recommendations:²⁷

1. *In view of the probability of cable cutting, a variety of alternative routes should be provided wherever it is essential to secure telegraphic communication in time of war.*
2. *Appreciable but not paramount value should be attached to the provision of "all-British" routes. Every important colony or naval base should be connected with this country by one cable touching only on British territory or on the territory of some friendly neutral. After this, there should be as many alternative cables as possible following commercial routes.*
3. *We recommend the construction of —*
 - (a). *A cable connecting either Rodoriguez and Ceylon, Cocos-Keeling and Ceylon or Cocos-Keeling and Singapore.*
 - (b). *A land line connecting the Straits Settlements and Burmah.*
 - (c). *An "all-British" cable to St. Lucia — to be commenced as soon as the state of cable enterprise in the West Indies permits.*
4. *While land lines are cheaper to construct and maintain than submarine cables, it is in certain cases essential on strategic grounds that the former should not be permitted to drive the latter out of the field of competition.*
5. *We are aware of no power of controlling cable companies possessed by the State besides the following: —*
 - (a). *The power to make stipulations when granting a subsidy or guarantee.*
 - (b). *The power to employ public funds in competing or encouraging competition with private enterprise.*
 - (c). *The power to grant or withhold general facilities.*
 - (d). *The power to grant or withhold Government messages and unrouted telegrams.*
 - (e). *The power to grant or withhold landing rights.*
6. *The possible advantage of giving guarantees of minimum revenue in place of subsidies should be considered.*
7. *No direct return should be demanded for landing rights. The concessions should, however, be regarded as a check on any marked unreasonableness.*
8. *The normal policy of this country and its dependencies should be to encourage "free trade in cables." Exceptions should only be made to this rule on the ground of national, not private, interests.*
9. *We recommend that the cables (Landing Rights) Committee should be strengthened, and that its functions should be enlarged so as to include the consideration of all questions relating to cables, that is should be entitled "The Cables Committee," and*

²⁶ BPP 1902 [Cd. 958]; BPP 1902 [Cd.1056].

²⁷ BPP 1902 [Cd.1056] pp. 42–43; *Chamber of Commerce Journal* vol. 21, no.98 (June 1902, London), pp.118–119; *Chamber of Commerce Journal* vol. 21, no. 98 (June 1902, London), pp. 124–125.

that it should report direct to the Treasury, the Board of Trade being relived of its present responsibilities with regard to cables.

10. We are strongly opposed to the general purchase of cable by the State.

11. We are not prepared to say that any of the existing rates are excessive, with the exception of those to the Gold Coast and Nigeria. We recommend that an attempt should be made to reduce these in connection with the renewal of the Eastern Telegraph Companies' landing rights at Porthcurno in 1903.

12. We would welcome the introduction of "deferred" rates in any case where —

(a). The time required for postal communication is considerable and —

(b). The cables are not fully occupied with ordinary messages, but —

(c). Are sufficiently occupied to admit of a real distinction between ordinary" and deferred messages.

A notable feature of this Inter-Departmental Committee report is that, while emphasising the 'All-Red Route' (All-British Cable Network), it strongly advocated the need to provide multiple alternative routes in addition to it. By this time, thanks to private telegraph laying projects, a network of telegraph routes connecting key locations around the world—passing only through British territory, colonies and friendly nations—was already nearing completion. However, in the event of actual warfare, these telegraph routes were highly susceptible to attack by enemy nations and were likely to be severed. Consequently, even if the Empire maintained its own telegraph routes, there was a significant risk of communications being cut off if they consisted of a single line. Given such risks, it was considered necessary to prepare multiple alternative routes so that communications within the Empire could be maintained, even if a particular telegraph cable was severed ²⁸.

Furthermore, alongside the importance of alternative routes, the Inter-Departmental Committee report emphasised the policy of entrusting international submarine cable operations to the commercial activities of private telegraph companies. In the committee's view, 'Free Trade in Cables' should be recommended as the fundamental policy for British international communications, and exceptions to this should be applied only when justified by national interests, not for the benefit of private enterprise. The reasons cited for opposing the state acquisition of international submarine cable operations included the difficulty of securing favourable terms for the government when purchasing cables from private telegraph companies. The inability to demonstrate that the government, with its broader range of responsibilities, could operate more efficiently than private telegraph companies that had specialised in the telegraph business. Above all, the potential for various problems to arise if a single nation were to manage cables that also crossed foreign territories.

Consequently, the Inter-Departmental Committee firmly opposed the state acquisition of telegraph cables and argued that the cables in the aforementioned alternative, as far as possible, should be laid and operated via commercially viable routes. Furthermore, in its investigation, the committee sought opinions from commercial stakeholders and electrical engineers regarding cables deemed important for commercial and strategic reasons and is considering the laying of state-owned telegraph cables via various routes. Consequently, while many of the proposed routes were not deemed to offer sufficient benefits to warrant state-owned construction or support through public funds, several regional telegraph lines were recognised as being of national importance. These included:

²⁸ BPP 1902 [Cd.1056] pp.16, 42–43.

- (1) the Indian Ocean submarine telegraph cable linking Rodrigues, Ceylon, the Keeling Islands (Cocos Islands) and Singapore.
- (2) the terrestrial telegraph cables in Southeast Asia, including Burma and the Straits Settlements.
- (3) the All-British submarine cable in the Atlantic Ocean to Saint Lucia.

These Indian Ocean and Atlantic Ocean submarine cables were laid by private telegraph companies at the request of the government during the period from the late 19th to the early 20th century²⁹.

As outlined above, the Inter-Departmental Committee conducted an investigation of the international submarine cable business at the time in response to requests from the government and the business community. In its conclusions, the committee, like The Association of Chamber of Commerce of the United Kingdom, recognised the importance of the 'All-Red Route' (All-British Cable Network), which included the Pacific submarine cable project, and adopted a stance of promoting the telegraph business; however, it did not regard this pan-British cable as the sole priority. The committee attached great importance to preparing multiple strategic alternative cables and maintaining free competition in the cable business and consequently adopted a cautious stance regarding the expansion of the All-British Telegraph Cable under state ownership.

6. The British Government–Eastern Telegraph Company Agreement on Telegraph Cable Laying at the Turn of the Century

As stated in the Inter-Departmental Committee report, the British government's fundamental policy regarding the laying of international submarine telegraph cables was to entrust the laying and operation of telegraph cables to the commercial activities of private telegraph operators. So, how exactly were the laying operations carried out in practice?

On 22 June 1901, the British government concluded a contract with the Eastern Telegraph Company (hereinafter referred to as the Eastern Company) to lay a submarine telegraph cable capable of transmitting 100 words per minute between Ascension Island and Sierra Leone³⁰. This was requested for strategic purposes, namely, to establish direct communication with Sierra Leone, where an important British naval base was located. This agreement was approved by the House of Commons on 13 August 1901. Subsequently, in accordance with the provisions of the agreement, the Eastern Company laid the cable within six months of its approval by the House of Commons³¹. This newly laid cable was connected to the existing telegraph cable laid by the Eastern Company the previous year, providing a communication service linking Porthcurno (Cornwall) and Cape Town via Madeira, Saint Vincent, Sierra Leone and Ascension Island.

The agreement signed for the laying of this cable contained 15 articles setting out detailed provisions, including operational regulations, such as the operating hours of the new route, conditions regarding communication charges and the priority of communications, provisions concerning the payment of subsidies for cable laying and the transfer of rights

²⁹ BPP 1902 [Cd.1056] pp.19–22, 34, 42–43.

³⁰ BPP 1901 (254).

³¹ BPP 1901 (254); *Hansard*, Commons, 22 May 1900, vol. 83, pp. 933–934; *Hansard*, Commons, 4 July 1901, vol. 96; *Hansard*, Commons, 13 August 1901, vol. 99, p. 728.

and contracts and the obligations of the British government and the rights of the Eastern Company in relation to the route. Under this agreement, the British government undertook to pay Eastern Company an annual subsidy of £4,500 for a period of 20 years, on the condition that satisfactory communication services were maintained.

Furthermore, provisions were established to ensure the UK's centralised management of communications on the route, premised on the strategic use of telecommunications. These included the requirement to locate the land terminus of the telegraph cable within the fortifications of Sierra Leone or Ascension Island, the prioritisation of official communications of the British government and colonial governments over other communications and the restriction of operational staff to British nationals only. Furthermore, a notable feature of this agreement was the provisions concerning the British government's obligations and the rights of the Eastern Company regarding the route. The agreement stipulated that the British government bears no obligations towards the route other than the payment of the subsidy. Furthermore, it is stipulated that, once the 20-year subsidy period has elapsed, the route shall become the property of the Eastern Company, and that all revenue derived from communications via this cable shall accrue to the Eastern Company³².

What can be inferred from this agreement is that while the British government attached great importance to the strategic use of the cable between Sierra Leone and Ascension Island, it entrusted its laying and operation to the commercial activities of the Eastern Company, thereby minimising the government's own responsibilities. This fundamental stance of the British government towards cable-laying projects was consistent with the policy of 'Free Trade in Cables' set out in the report of the Inter-Departmental Committee submitted in March 1902.

7. Completion of the 'All-Red Route' (All-British Cable Network)

As discussed above, the 'All-Red Route' (All-British Cable Network) was strongly demanded not only by the British government and strategic departments but also by commercial stakeholders. The aim was to secure strategic cables that Britain could manage and operate independently from the perspective of imperial defence amid rising external tensions. Consequently, at the turn of the century, as the final phase of the global international submarine telegraph cable network, projects were launched to lay submarine cables in the Indian Ocean from East Africa to the Seychelles and Mauritius, submarine cables connecting Britain with India and Australia via Africa and the Indian Ocean and a Pacific Cable linking Canada and Australia³³.

Of these cables, the project to lay the cable connecting East Africa with the islands of the Indian Ocean proceeded relatively quickly. These regions were key strategic bases for maintaining British naval supremacy in the Indian Ocean. Furthermore, as they were also sugar-cane-producing areas, the importance of communication was high from both a strategic and commercial perspective. Consequently, in 1893, the South East African Telegraph Company, part of the Eastern Group, laid a cable from Zanzibar on the East African coast to the Seychelles and Mauritius. The costs of laying this cable were borne by the colonial government of Mauritius (£7,000), the colonial government of the Seychelles

³² BPP 1901 (254).

³³ Headrick [1991] pp. 77–78 (Japanese translation: Headrick [2013] p. 99).

(£1,000), and the British government and the Indian colonial government (£10,000 each)³⁴.

Furthermore, the laying of submarine telegraph cables to Australia via Africa and the Indian Ocean was also promoted by telegraph companies affiliated with the Eastern Group, in the same manner as the Indian Ocean cables. In 1898, the Eastern Company and Telcon laid the Cape Town–Saint Helena–Ascension line and established a new communications base on Ascension Island. In addition, in 1901, the Lands End (Porthcurno)–Madeira–São Vicente–Ascension–St Helena–Sierra Leone line was completed. By connecting this cable to the Cape Town–Ascension line laid by the Eastern Company in 1898, a direct communications network was established between Britain and Cape Town. From Cape Town, an overland line was laid to the east coast city of Durban, and from Durban, lines were laid to Aden and Bombay, as well as to Mauritius. Furthermore, from Mauritius, the Eastern Extension Australasia and China Telegraph Company (Eastern Extension Australasia and China Telegraph Company; hereinafter referred to as the Eastern Extension Company), the Mauritius–Rodrigues–Cocos Islands (Keeling Islands)–Fremantle–Adelaide line was laid between 1901 and 1902, thereby completing the telecommunications link with Australia via the Indian Ocean³⁵.

Thus, the network of submarine telegraph cables crossing the Indian Ocean was laid and operated as a commercial venture by private telegraph companies, in accordance with the British government's stance on the handling of telegraph cables—discussed in the preceding chapters—and the contract with the Eastern Company. In contrast, the Pacific submarine cable project linking Canada and Australia was an exception, as its laying was carried out under state leadership. Chamberlain, who became Colonial Secretary in 1895, expressed an interest in the construction of a telegraph cable network linking various parts of the Empire. Consequently, the Pacific Cable Committee was established in 1896, and it was recommended that the state-owned Pacific Cable be laid with the initial investment of £2,000,000 to be borne by the United Kingdom and Canada in equal shares of 5/18 each, and by the four colonial governments of New South Wales, Queensland, Victoria and New Zealand.

In August 1901, the Pacific Cable Act of 1901 was passed. Regarding the laying of this state-owned cable, Pender, which already owned a cable to Australia, expressed opposition on the grounds that it would compete with its existing telegraph cable operations; as cooperation from the Eastern Group could not be expected, the British government entrusted the laying project to the newly established Pacific Cable Board. This Pacific Cable Board entered into a contract with Telcon and completed the laying of the Pacific Cable by October 1902, making it the first state-owned submarine telegraph cable³⁶. With the laying of this Pacific submarine telegraph cable, the 'All-Red Route' (All-British Cable Network) was finally completed.

³⁴ Headrick [1991] p. 78 (Japanese translation: Headrick [2013] pp. 99–101).

³⁵ Baglehole [1970] pp. 11–12; Kennedy [1971] p. 734; Headrick [1988] pp. 104–110 (Japanese translation: Headrick [2005] pp. 100–105).

³⁶ Baglehole [1970] pp. 12–14; Porter [1991] pp. 148–152 (Japanese translation: Porter [1996] pp. 153–158); Headrick [1991] pp. 93–98 (Japanese translation: Headrick [2013] pp. 121–122); Headrick [1981] p. 163 (Japanese translation: Headrick [1989] p. 196); Headrick [1988] p. 104–110 (Japanese translation: Headrick [2005] pp. 100–105).

8. Conclusion

In this paper, we have analysed the development of the ‘All-Red Route’ (All-British Cable Network) laying project at the turn of the century, focusing on the movements not only of the British government and strategic departments but also of the private telegraph companies providing the service and the British business community using it. The aim was to understand the motivations behind each party’s promotion of the international submarine telegraph business.

The international submarine telegraph cable network connecting the entire British Empire—established by the turn of the century—facilitated commercial activities between the metropolis and the colonies by enabling an immediate grasp of market demand and price trends for goods and allowing for the rapid transport of goods from production centres to sales destinations in response to demand. In addition to this commercial importance, the British business community ardently supported the international submarine telegraph cable business due to its strategic importance in defending its own trade routes. Furthermore, the business community sought cheaper and more secure international communications and strongly advocated for the nationalisation of the international submarine telegraph business.

On the other hand, although the British government at that time supported the project to lay international submarine telegraph cables connecting the Empire from a strategic perspective, it took a reluctant stance towards nationalising the project, and negative views were expressed even at inter-ministerial meetings. Of course, establishing and centrally managing international means of communication was an issue of extreme importance from both political and military perspectives in Britain at the turn of the century. Kennedy’s research provides a detailed analysis of this point; it is clear that strategic bodies, including the Colonial Defence Committee, engaged in vigorous debate and exerted influence regarding matters such as the selection of cable-laying routes. However, in contrast to the enthusiasm of British business leaders, the British government’s official stance on the nationalisation of the international submarine telegraph cable project remained consistently cautious throughout this period.

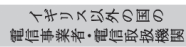
The reasons for this included the extreme difficulty in calculating the acquisition price of the business, the lack of proof regarding the extent of efficiency gains that nationalisation would bring, and, above all, the anticipated political and diplomatic risks associated with the state’s centralised management of cables spanning multiple nations. At the time, the construction of this ‘All-Red Route’ (All-British Cable Network) was being debated, Britain was in the midst of the Boer War (1899–1902), and political and military tensions were rising as the great powers’ expansion abroad and competition for colonial acquisitions grew increasingly fierce. Amid such imperialist friction, the British government and strategic planners—increasingly concerned about external threats—were often compelled to take a cautious stance towards state-led international submarine telegraph cable projects, which risked provoking political and diplomatic conflicts compared to the private sector’s commercial demands for economic rationality. Consequently, until the turn of the century, Britain’s international submarine telegraph operations—except for the Pacific Cable Board’s project to lay submarine telegraph cables in the Pacific—were all carried out as commercial activities by private telegraph operators, with Pender and other private operators serving as a sort of buffer.

This paper attempted to analyse the commercial demands that underpinned the

development of the international telecommunications network at that time. This was contrary to conventional historical research on international telecommunications, which has primarily focused on political and strategic applications. As a result, regarding the formation of international telecommunications networks centred on Britain from the late 19th to the early 20th century, it is clear that the British business community of the period ardently supported the construction of international submarine telegraph networks and their centralised management by the state. Their aim was to facilitate their commercial activities and lobby the British government through cooperation with the Inter-Departmental Committee. In contrast, the British government's basic policy was to operate international telegraph services as one of the commercial activities of private telegraph companies.

For future research, the first priority is an empirical analysis of how international telecommunications services were utilised commercially from the 19th to the 20th century. We propose to undertake an examination of specific cases to determine the nature of interactions across various sectors, including finance, trade, shipping and journalism. Furthermore, to clarify the relationship between the government and the private sector in the international telecommunications industry, we intend to continue our examination of the case regarding the laying contract between the British government and the Eastern Group.

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Source: Compiled by the author based on Headrick, Daniel R. [1991] & Baghelole, K. C. [1970].
* This document is a revised version of the figure published in *Yoneda Sitom* 3: 5 "A Study on the Formation of International Information and Communication Networks Centered on Britain from the Mid-19th Century to the Early Period of World War I: From the Perspective of Submarine Telegraph Cable Networks and the Activities of International News Agencies." (*Master's Thesis*).

Table 1: Major initiatives in submarine telegraph cable laying in the late 19th century

	Year of Laying	Route and Direction	Laying Company/Founder	
1850 Date	1850	Dover – Calais	English Channel Submarine Telegraph Company	John Watkins Brett (UK)
		Cable break		Jacob Brett (UK)
	1851	Dover – Calais	Submarine Telegraph Company	John Watkins Brett (UK)
	1852	Toward Amsterdam and Rotterdam	Electric Telegraph Company	William Fothergill Cooke (UK)
				John Lewis Ricard (UK)
	1850s	Toward Ireland	Magnetic Telegraph Company	John Pender (UK)
				Charles T. Bright (UK)
				John Watkins Brett (UK)
	1850s	The East Coast of the United States and the Coast of British North America	Western Union Telegraph Company	Jason Jay Gould (US)
	1857–58	The First Transatlantic Cable	Atlantic Telegraph Company	Cyrus West Field (USA)
1860		Failure		Charles T. Bright (UK)
				John Watkins Brett (UK)
	1853–57	Red Sea Submarine Cable	Mediterranean Electric Telegraph Company	John Watkins Brett (UK)
		Failure	Mediterranean Extension Telegraph Company	
			Europe and Indian Junction Telegraph Company	
	1860	Constantinople – Bombay	Red Sea and India Telegraph Company	Lionel Gisbone (UK)
		Failure		
	North America			
	1866	Second Transatlantic Cable	Anglo-American Telegraph Company	John Pender (UK)
	1869	Brest (France) – Duxbury (USA)	Société du Câble Transatlantique Français	(France)
Decade	South America			
	1868	Key West – Havana	International Ocean Telegraph Company	James Scrymser (USA)
	1870	Batabano – Jamaica	Brett signed a contract with India Rubber, Gutta Percha and Telegraph Works Ltd. and laid the cable	John Watkins Brett (UK) Matthew Gray (UK)
	East Asia			
	1870	Mediterranean / Suez – Bombay	British Indian Submarine Telegraph Company	John Pender (UK)
			Anglo-Mediterranean Telegraph Company	
			Falmouth, Gibraltar and Malta Telegraph Company	
			Marseille, Algiers and Malta Telegraph Company *1	
	1870	Madras – Penang – Singapore	British Indian Extension Telegraph Company *2	John Pender (UK)
	Asia and Oceania			
1870 Decade	1871	Singapore – Darwin	British Australian Telegraph Company *2	John Pender (UK)
	1871	Singapore – Saigon – Hong Kong – Shanghai	China Submarine Telegraph Company *2	John Pender (UK)
	1879	Banyuwangi – Singapore	Eastern Extension of the Australasia and China Telegraph Company	John Pender (UK)
	1879	Penang – Singapore (double tracking)	Eastern Extension Australasia and China Telegraph Company	John Pender (UK)
	North America			
	1873	North Atlantic Cable	Anglo-American Telegraph Company	John Pender (UK)
	74	North Atlantic Cable	Anglo-American Telegraph Company	John Pender (UK)
	80	North Atlantic Cable	Anglo-American Telegraph Company	John Pender (UK)
	1870	North Atlantic Cable	Direct United States Cable Company	(UK)
	1879–80	Brest (France) – Cape Cod (USA)	Compagnie Française du Télégraphe de Paris à New York	(France)
	South America			
	(West Indies)			
	1871	St Thomas–Trinidad		John Watkins Brett (UK)
	1871	Trinidad–Georgetown (Guyana)		John Watkins Brett (UK)
	1872	San Juan (Puerto Rico) – Jamaica		John Watkins Brett (UK)
	1873	Colón – Jamaica		John Watkins Brett (UK)
	(South America)			
	1873–74	Lisbon – Recife	Brazilian Submarine Telegraph Company	John Pender (UK)
	1873	Belém – Rio de Janeiro	Western and Brazilian Telegraph Company	John Pender (UK)

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	1874–75	Rio de Janeiro – Montevideo	Western and Brazilian Telegraph Company	John Pender (UK)
	1870s	Montevideo – Buenos Aires	River Plate Telegraph Company	John Pender (UK)
	1875–76	Valparaiso – Chollillos	West Coast of America Telegraph Company	John Pender (UK)
	African continent			
	1879	Aden – Durban	Eastern and South African Telegraph Company	John Pender (UK)
1880	Western Africa			
Years	1883	Cádiz – Canary Islands	Spanish National Submarine Telegraph Company	Matthew Gray (UK)
From	1886	Dakar – Luanda	West African Telegraph Company	Matthew Gray (UK)
	1889	Príncipe Island – Bonny	West African Telegraph Company	Matthew Gray (UK)
	1886	Sierra Leone – Bonny	African Direct Telegraph Company	John Pender (UK)
	1888	Santiago Island (Cape Verde Islands) – Bathurst	African Direct Telegraph Company	John Pender (UK)
	1888	Santiago Island (Cape Verde Islands) – Sierra Leone	African Direct Telegraph Company	John Pender (UK)
	1893	Bonny – Cameroon	African Direct Telegraph Company	John Pender (UK)
	Eastern Africa			
	1889	Cape Town – Luanda	Eastern and South African Telegraph Company	John Pender (UK)
	North America			
	1881	Cornwall – Halifax	Western Union Telegraph Company	(US)
	1880s	England – Halifax	Commercial Cable Company	(US)
	South America			
	1880	Galveston – Veracruz	Mexican Telegraph Company	James Scrymser (USA)
	1880s	West Coast of South America	Central and South American Telegraph Company	James Scrymser (USA)
	Atlantic Ocean			
	1890	Halifax – Bermuda	Halifax and Bermuda Cable Company	
	1897	Bermuda – Jamaica	Direct West India Cable Company	
	Asia and Oceania			
	1884	Hue – Haiphong – Hong Kong	The French Navy and the Ministry of Colonies entered into a contract with the Eastern Extension Australasia and China Telegraph Company	
	1890	Sydney – Nelson (double tracking)	Eastern Extension Australasia and China Telegraph Company	John Pender (UK)
	1891	Madras – Penang (double tracking)	Eastern Extension Australasia and China Telegraph Company	John Pender (UK)
	1892	Penang – Singapore (double tracking)	Eastern Extension Australasia and China Telegraph Company	John Pender (UK)
	Indian Ocean			
	1893	Zanzibar – Seychelles	Eastern and South African Telegraph Company	John Pender (UK)
	1893	Zanzibar – Mauritius	Eastern and South African Telegraph Company	John Pender (UK)
	1898	Cape Town – Ascension	Eastern Telegraph Company	John Pender (UK)
	1901	Lands End – Sierra Leone	Eastern Telegraph Company	John Pender (UK)
	1901–02	Mauritius – Adelaide	Eastern Extension Australasia and China Telegraph Company	John Pender (UK)
	Pacific			
	1902	Vancouver – Queensland	Pacific Cable Board	(UK)
			Telegraph Construction and Maintenance Company	
1910	1910	Buenos Aires – Ascension	Eastern Telegraph Company	John Pender (UK)
Year	1912	Gibraltar – Malta – Alexandria (double tracking)	Eastern Telegraph Company	John Pender (UK)
Onwards	1913	Aden – Colombo – Penang	Eastern Telegraph Company	John Pender (UK)
	-14			
	1913	Singapore – Hong Kong	Eastern Telegraph Company	John Pender (UK)
	-14			
	Post-WW1	Rio de Janeiro – Ascension	Eastern Telegraph Company	John Pender (UK)
	Post-WW1	Aden – Seychelles	Eastern Telegraph Company	John Pender (UK)
	Post-WW1	Aden – Colombo	Eastern Telegraph Company	John Pender (UK)
	Post-WW1	Suva – Auckland	Eastern Telegraph Company	John Pender (UK)

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- Source Baglehole [1970] pp. 1–9, 11–14.
 Headrick [1981] p. 163 (Japanese translation: Headrick [1989] p. 196)
 Headrick [1988] pp. 104–110 (Japanese translation: Headrick [2005] pp. 100–105).
 Headrick [1991] pp. 14–15, 17, 19–20, 24, 33–36, 40–41, 53–58, 62–66, 75–78, 93–98 (Japanese translation: Headrick [2013], pp. 15–16, 20, 22–23, 28, 40–43, 49–51, 66–73, 76–82, 96–101, 121–128).
 Kennedy [1971] pp. 734, 736; Standage [2007] pp. 74–84 (Standage [2011] pp. 79–89).
 Winseck & Pike [2007] pp. 19–22, 25–29, 37.
 Ishii [1994], pp. 76–77.
 Ono [2018], p. 27.
 Nishida [1971] pp. 14, 17–19, 21, 24–28, 31–35, 44.
 Hoshina [2006], pp. 402–403.

Compiled by the author with reference to the above

*1 The Eastern Telegraph Company was established in 1872 through the merger of four companies.

*2 In 1873, three companies were merged to form the Eastern Extension Australasia and China Telegraph Company.

* This document is a revised version of the table published in Yuzuka Satomi, 'The State of the Information and Communications and Electrical Industries in the 19th-Century British National Economy: Focusing on the Establishment of the Electrical Section of the London Chamber of Commerce' (History of Global Arms Transfer, vol. 19 (Research Institute for the History of Global Arms Transfer), pp. 93–110).

Table 2: Membership of the Inter-Departmental Committee on International Submarine Cable Communications

Position	Name
Secretary for Scotland (Chairman)	The Lord Balfour of Burleigh
Postmaster General	The Marquess of Londonderry
Chairman of the Board of Agriculture	The Right Honourable R. W. Hanbury
Under-Secretary of State for India	The Earl of Hardwicke
Under-Secretary of State for the Colonies	The Earl of Onslow
Director of Military Intelligence	Major-General Sir J. C. Ardagh, K.C.I.E., C.B., R.E.
Director of Naval Intelligence	Rear Admiral R. N. Custance, R. N.

Source: Compiled by the author from BPP 1902 [Cd. 1056] p. 1 "Treasury Minute"

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