

**BRITISH EMPIRE CABLE COMMUNICATIONS
(1851-1930):
THE AZORES CONNECTION**

by
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ABSTRACT

The advent of trans-Atlantic telegraphy in 1866 had far reaching implications for news reporting, commerce and diplomacy. Strangely the strategic significance of this British dominated technology was not fully appreciated until relatively late in the 19th century. There were Empire links via Portugal at an early stage and the Azores was connected to the mainland. Once cables became utilised for their strategic value then the «special relationship» with Portugal and the geographic location of the Azores developed a new significance.

Information on the technical, commercial, political, military and social importance of the Azores cables has not yet been fully exploited. This paper considers the currently available material within the perspective of the British Empire communications network.

RESUMO

O advento da telegrafia transatlântica em 1866 teve largas implicações para as reportagens noticiosas, o comércio, e a diplomacia. Curiosamente o significado estratégico desta tecnologia dominada pelos britânicos não foi plenamente apreciado até relativamente tarde no século XIX. Existiram ligações telegráficas via Portugal desde muito cedo e os Açores foram então ligados ao continente. Dado terem sido os cabos utilizados pelo seu valor estratégico, a «relação especial» com Portugal e a posição geográfica dos Açores ganharam um novo significado.

Informações sobre a importância técnica, comercial, política, militar, e social dos cabos açoreanos ainda restam por explorar. Este artigo estuda o material actualmente disponível, dentro da perspectiva da rede de comunicações do Império Britânico.

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ISLAND OF FAYAL, 1928. TAKING THE BAY ROBERTS — HORTA CABLE INTO HUT

Introduction

THE submarine telegraph era began as Britain's imperial status approached its zenith. Within the Empire it flourished and in return provided a means of rapid transfer of information for commerce, colonial administration and the effective deployment of military forces. It came to an end just as the last remains of colonialism were being discarded. The British cable network is almost unique in that it was largely fostered and financed by private enterprise. In the early stages its strategic importance was totally ignored by most arms of government.

One group of cable companies under the direction of John Pender expanded rapidly within the framework of Empire and whenever there was a Government requirement for strategic lines they were available to provide assistance. It will be seen that the Eastern Group also provided lines of communication for other countries and in the long

run this provided the British Empire with an important strategic advantage.

Throughout most of the period of international telegraphy Britain retained a sense of trust in Portugal, «our oldest ally» and with the agreement of both countries the Imperial network used Portuguese territories for its relay stations. This included the Azores, which assumed a special significance after 1911, when Britain appeared to have lost control over the North Atlantic cable routes.

In order to obtain an insight into the development of the Azores cable stations within the framework of British imperial communications, it is necessary to examine in detail the various aspects which together have contributed to this unique history. Firstly there are the circumstances which led to the formation, expansion and evolution of the Eastern Telegraph Group and Associates, now Cable & Wireless. Interwoven with this one must also examine the changing official attitude towards telegraph communications and in particular how it was influenced by external factors such as the expansionist policies of the colonial powers.

These various aspects are examined in the light of the special Anglo Portuguese relationship. While the history covers many discrete, but interdependent topics, it will be presented, in so far as is possible, in chronological order. There is no claim that the research is complete. Conclusions will be drawn from the information that is available. Portuguese archives have not been examined, neither have the archives at Cable & Wireless. It is hoped that this article together with its list of references will provide a basis upon which the research can be developed by those who are closer to Azorean and Portuguese primary source material.

The early history of British communications

In 1837 Cook and Wheatstone obtained the first patents for electric telegraph and within a short time were negotiating for the installation of the world's first commercial service along the Great Western Railway between West Drayton and Paddington in London. The first private company, the Electric Telegraph Co. (later known as the Electric and International Co.) was established in 1845 and after a few years of uncertainty it expanded to become the largest of the many telegraph companies within the UK inland system prior to 1871.

International communications came a short time after, being of course hampered by materials and technological difficulties. The materials problems were associated with the electrical conductor and the surrounding insulation necessary to protect it from the sea. Copper was recognised as the best conductor but it was not realised until after 1857 that uniform high purity was an absolute necessity. The timely introduction of gutta percha (a close relative of latex rubber which softens at temperatures above 70 centigrade) provided an insulator which in one form or another was used until the advent of polyethylene during the second world war. The technological problems were concerned with how to lay a durable cable and how to protect it.

A cable to France was laid in August 1850 and clearly demonstrated what was possible. However it is reported that a French fisherman fouled the cable with his anchor and believing it to be some form of exotic marine life, cut out a section to bring home as a trophy. Another cable to France was prepared for laying during the following year. It embodied a feature which was to remain unchanged during the remainder of the telegraph era. The insulation which surrounded the conducting core was protected by a serving of armouring wires. The cable was laid during late September 1851 and was opened for business on 13 November.

Other cables soon followed. A link between Ireland and England in 1852 failed within a few days of laying on account of the lightness of the cable. Heavier designs, with increased armouring for the sections close to shore were used thereafter. Dover and Ostend were connected in 1853 as were Orfordness (Suffolk, UK) and Scheveningen (Netherlands). But there also many disasters. Some cables (on account of their weight) ran out too fast during laying, others were laid too tight over rough submarine terrain. The technology had much to learn by a process of trial and often expensive error.

An insight into the expansion of the early inland telegraph network in Britain can be obtained from the unpublished writings of James Graves^(1, 2), the first Superintendent of the first European trans-Atlantic telegraph station (at Valentia island, Ireland). Up to 1865 he was employed by the Electric Telegraph Co. and during part that time he was stationed at Southampton. In his autobiography¹ he recounts a visit by the Portuguese King (Dom Pedro V).

«On the last day of May 1854 the line of telegraph from Lymington, Hants, was extended to Hurst Castle en route to Cowes and Osborne House, Isle of Wight. At this time the King of Portugal

was hourly expected on a visit to Her Most Gracious Majesty Queen Victoria and a request was made from Buckingham Palace that as the wires were completed as far as Hurst Castle some competent person should be sent there in order to watch for the King's vessels passing the Needles Passage and to signal the fact immediately to Southampton thence to be conveyed to Buckingham Palace. I was the party chosen for this purpose and accordingly proceeded upon my way to Lymington on the evening of the 1st of June 1854. Arriving there, I made my way to the office there, which I found and having taken a copy of the Portuguese Royal Standard from a signalling book, I went home with the clerk for the night. Having had supper we went to bed and rose early next morning about half past five and he went with me two or three miles on the way to Hurst Castle, when he bade me goodbye and I proceeded alone. Being so very early we had no breakfast before we started and by the time I reached a small place called Keyhaven I began to feel rather hungry; this was about 7 am. I saw just one public house and no shops and even that was closely locked up. I saw no one about anywhere. I accordingly went on a little further and came to a small farmyard. Here I stood looking at the fowls and cattle when I saw a man come out of the cowhouse. I went in and he told me to help myself to bread and cheese and milk which was just then very acceptable and I made a very hearty breakfast, after which I proceeded on my journey again round the shingle bank composed of the sands and loose stone, into which, when walking, one sinks up to their knees and it is very hard work to make any progress at all. However the tide being low and the sand dry I managed, by walking upon them close by the water's edge, to make very good progress and by 9 o'clock I had reached the castle. I happened upon a guard close by, who took me to the sergeant's house in the barracks, where the key of the office had been left. Having obtained it I proceeded to the office and found it in a very curious plight. It consisted of two rooms. The entrance was by a porch and front door leading to the instrument room or office and the inner room was intended for a bedroom. In the first of these were the following articles: under the window a carpenter's bench upon which were some old planks and some spare slates, left after completing the roofing; on the opposite side of the room up one corner stood a very dirty wheelbarrow filled with oil cans, paint pots and brushes, a lime sieve, nail bags and sundry other articles; upon the floor were some coils of spare wire, tea pots etc etc; in the other corner was fitted a cupboard on the top of which was placed the Instrument. There was a fire place, but no fender or fire irons or fuel, not a stool or a chair to sit down upon. The inner room was empty with the exception of a ladder and a few pieces of flooring.

Thus found I the office at Hurst Castle on my arrival. There was at a little distance a canteen for the soldiers and men working at the castle and I repaired thither to see what I could get to eat for I began to want something a little more substantial than bread and cheese.

I found that I could purchase nothing in this isolated place except eggs and bacon, so during my stay I had to live upon eggs and bacon. I partook of them and then repaired to the office. I soon got some visitors from amongst the soldiers who were very curious to 'see the telegraph worked'.

Evening came on and it began to get cold and dark. One of the soldier's wives supplied me with candle and firing and as I had nothing to lie upon to rest myself one of the soldiers (who was on watch) brought me his mattress and we spread them on the floor and made a very comfortable bed, but fearing lest the ships (three in number) should arrive during the night I was fearful of going to sleep and thus I lay down merely to rest my body, pulling up occasionally to look out and attend my fire.

I had made arrangements with the Coast Guard on duty to call me if they should happen to see them coming, however they did not make their appearance before the third day after my arrival, during which time I had not one hours good sound sleep. At length the vessels hove in sight, the three forming a triangle. The Mindello, on board of which was the King of Portugal, was in front and the Saldanha and the other were close behind. I accordingly signalled them and reported their arrival to Southampton, thence it was immediately forwarded to Buckingham Palace and other places.

Having performed my duty I, on the following morning went with three soldiers in the post boat to Keyhaven, thence on foot with them to Lymington, thence by omnibus to Brockenhurst and thence finally by rail to Southampton. This was the first opening of that line of telegraph beyond Lymington. ...» .

The Times for the 3 June 1854 (page 8, col. f) reports the reception of the signal from Hurst Castle. It also mentions that the third ship of the Portuguese steam squadron was the new Brazilian screw driven corvette Mage, which had been put at the King's disposal for his visit.

It is quite by good fortune that Graves was able to transmit his message for in a technical account of his career, written many years later² he recounted the state of the new telegraph office:

«... I have remarked above that [on my arrival] the batteries were quite dry. They were the old sand battery troughs which we used to refresh from the gutta percha acid pourers with diluted sulphuric acid, but there was no acid there, nor anything else. The batteries, dry as they were, would give no current and therefore I could not communicate with the Southampton Office. What was I to do? I stood and thought when it entered my mind that perchance sea water would answer the purpose as a temporary expedient and I then borrowed a basin from the lighthouse to get the salt water with. But that was not easy for the beach was very steep and the waves rough and as they rolled along

the shingly beach the basin was emptied as fast as it filled and it was a work of patience to collect little by little sufficient water to refresh my battery. But having at last accomplished the task I had the satisfaction to find that I could communicate with Southampton and that my signals were pronounced 'very good' ...»

The early official attitude towards telegraph as a means of rapid communication of strategic information would not inspire any would-be investor with confidence. In 1845 the Brett brothers who pioneered the England-France cable wrote to the Prime Minister, Sir Robert Peel³. In their letter they listed the various benefits of this new form of communication, which they felt should be under Government control. In the present context the third advantage which they cited is of particular importance.

«The advantages of this plan applied to police arrangements throughout the United Kingdom, to the Army and Navy Departments, must at once be obvious to the Government. By its instructions might be conveyed instantly, and the movements of forces so regulated, that any available number of them may be brought together at any given point, in the shortest possible time necessary for their conveyance. ...»

There is no indication that they obtained a speedy response. They were eventually referred to the Board of Admiralty who were not unreceptive to the ideas presented.

The Electric Telegraph Co. offered to establish a line between Ireland and England for the exclusive use of the Government at an annual subsidy of £2000 but the offer was refused by the Treasury⁴. This is in one of the first examples of a bureaucratic involvement that was to be a dominant factor well into the latter part of the 19th century. Enterprises of this magnitude required enormous investment which was not easy to raise without some form of government subsidy or financial guarantee. This requirement was to lead to the development of an official attitude that the Treasury was the expert and official arbiter on cable matters.

From time to time other factors played a significant part in the development of the official attitude towards the potential of this new technology. The first long term military use of telegraph was made during the Crimea war and the experience was not good. A cable between Varna and Balaclava connected the front with London and Paris. It has been said⁵ that Napoleon III used the telegraph to run the

war on a personal basis and that this direct interference from Paris hindered the initiative of the local commanders. Nevertheless it did provide politicians in both capitals with their first sense of effective centralised control. This had been put forward by the Bretts and many others as being one of the major advantages of telegraphy. However Cain⁶ has shown that the changing relations between Britain and her colonies during the late 19th century meant that telegraphy never in fact achieved this objective.

The Indian Mutiny came at an opportune moment for the promoters of new cable ventures. It rendered the Government receptive to proposals and willing to provide financial guarantees. The American Cyrus Field was the driving force behind the first attempt to span the Atlantic. He obtained a guarantee from the Treasury for £14,000 per annum during the working of the cable. The Government also assisted with hydrological surveys and provided HMS Agamemnon as a cable laying ship. The first Atlantic expedition in the summer of 1857 was abandoned on account of technical difficulties. The cable was put into storage for the winter and laid during August 1858. The line became inoperable within a month and recent work⁷ has shed new light on the causes of this failure. However during its short existence it proved to be of considerable value to the Government. Orders had been posted to trans-ship two regiments from Canada to India to assist with quelling the mutiny. Shortly after the dispatch of these orders word was received to say that all was now peaceful in India. By means of the cable it was possible to transmit countermanding orders which resulted in an estimated saving of £50,000.

As an isolated incident the failure of the Atlantic cable might have been attributed to bad luck, but there followed a series of disasters which were to turn the British Treasury against supporting any ventures of this kind. The Indian mutiny had confirmed that there was a need for a Government line to the east and indeed the establishment and security of lines to India became a major preoccupation during the remainder of the 19th century. When the Red Sea and Indian Telegraph Co. was promoted it was offered an annual subsidy of £36,000 for a period of 50 years. However no single section of the 3,043 mile route between Suez and Karachi ever worked satisfactorily. There were also technical problems with laying cables in some of the deeper waters of the Mediterranean. The joint losses of these several failures amounted to over £1 million in addition to the Treasury guarantees. Confidence in cable telegraph was at its lowest ebb.

In 1859 the Government decided to appoint a committee of enquiry. It consisted of eight members, four from the Board of Trade and four from the Atlantic Telegraph Co. Detailed submissions were taken from the scientific, engineering and manufacturing communities and when the committee reported in April 1861⁸ its recommendations did much to dispel public disquiet.

After this submarine telegraphy did move ahead with renewed confidence but it should be noted that it did not alter the hardened attitude of the Treasury who continued to be the Government advisor on cable matters. Their recent experiences caused them to adopt a laissez-faire policy and they refused to sanction expenditure on any proposals for telegraph links. It will be seen that this was to have profound consequences for the evolution of the Empire attitude toward its expanding cable network.

*The Eastern Group of companies:
the first links with Portugal*

In order to appreciate the background to the development of the Eastern group of companies one must consider its founder, John Pender, a man whose experience spanned the entire spectrum from cable manufacturer to cable user. He was born in Scotland in 1815 and when still quite a young man was speculating on the cotton market, first in Glasgow and later in Manchester where he founded the firm of John Pender & Co. In 1852 he became a director of the British and Irish Magnetic Telegraph Co., the second largest of the private inland companies. In 1856 seeing the value of an American link to his cotton and telegraph interests he invested £1,000 in the Atlantic Telegraph Co. In 1861 he founded the Telegraphic Journal which later became the Electrical Review and is still a valued publication in the field of electrical engineering. He masterminded the amalgamation of the cable manufacturer, Glass Elliott & Co. and the Gutta Percha Co. who supplied the insulating material. The outcome was the Telegraph Construction & Maintenance Co. (Telcon) and he was elected its first Chairman.

The Atlantic Telegraph Co. attempted to lay an Ireland-Newfoundland cable in 1865 using the Great Eastern. The cable broke but everyone was confident that it could be raised and the work completed the following year. However financial uncertainty in the City

of London made it impossible to fund the operation under the existing conditions and the responsibility was transferred to the Anglo American Telegraph Co. This company was established with £60,000 from Lord Brassey (the railway financier), £20,000 from Daniel Gooch (who owned the Great Eastern) and £10,000 from Pender. The raising of further capital required a financial commitment from the Telegraph Construction & Maintenance Co. and when Pender found his fellow directors jibbing at the prospect of contributing £10,000 apiece he forced their hands by a guarantee of £250,000 of his own and his wife's money. The 1866 success when two cables were laid across the Atlantic propelled Pender into international telegraphy, where he was to exercise his talents and personality for the next thirty years. Being first in the field in an Empire environment with expanding markets he was able to choose the most lucrative routes and the success of his efforts was seldom in doubt.

There is an important factor which must be considered before outlining the early history of the Pender companies and that is the nationalisation of the UK inland telegraph service which became effective in 1870. As Kieve⁹ has pointed out this led to a release of capital which became available for investment in overseas ventures and Pender was not slow to take advantage.

Following the early disasters on the route to India there were calls for renewed links via submarine cable. To this end the Anglo Indian Telegraph Co. was formed but failed to raise the necessary capital. Pender stepped in with his own company the British Indian Submarine Telegraph Co. which purchased the rights from the Anglo Indian. Cable was ordered from the Telegraph Construction & Maintenance Co. (of which Pender was still chairman). Once opened for business the line became an instant success.

The Falmouth, Gibraltar and Malta Telegraph Co. was another of Pender's early companies. It was incorporated in 1869 to place England in direct communication with India by a continuous line of cable except for the Suez isthmus. Cable was ordered from the Telegraph Construction and Maintenance Co. and laying was commenced from Malta on 14 May 1870. En route the cable was landed at Gibraltar and Carcavelos (Lisbon). This latter stop-off was made at the request of the Portuguese Government. The entire line to Porthcurno in Cornwall (England) was completed in 25 days. In return for the Lisbon connection the company received concessions which included a preference for providing links to the Portuguese Atlantic colonies^(10, 12).

There are two other companies which constituted Pender's original group of four. The Marseilles, Algiers and Malta Telegraph Co. provided valuable additional connections but was above all a backup on the India route in case of cable failure on the Porthcurno, Lisbon, Gibraltar, Malta links. The Anglo Mediterranean Telegraph Co. provided links from Malta to other important places, most notably Alexandria in Egypt. It had been established in 1868 and took over the concessions granted to many of the previous companies in the region. Cable, manufactured by the Telegraph Construction and Maintenance Co. was laid between Malta and Alexandria in September 1868. The line was so busy that it was necessary to duplicate the cable in 1870.

In 1872 Pender set about rationalising these four companies into a single unit, the Eastern Telegraph Co. which was registered on 4 June. Meanwhile he established sister companies which extended communication from London to Australia and the Far East.

As traffic on these routes grew, they put increasing pressure on the arterial line, namely the cable from Porthcurno to Malta via Lisbon and Gibraltar and there were strong calls to lay a duplicate cable. Initially there was a level of uncertainty as to whether this was wise. There was a firm belief that the British Government might step in and nationalise the Empire cables¹¹. (with hindsight it can be seen that this was never likely, given the Treasury's antagonistic attitude). Despite this prospect, Eastern's shareholders eventually agreed to duplicate cable which would land at Vigo in addition to Carcavelos. This was completed in 1873. Expansion involving other Portuguese territory soon followed. The Brazilian Submarine Telegraph Co. was formed to connect Carcavelos with Pernambuco (Recife) via Madeira and Cape Verde. This line was opened on 23 June 1874.

One interpretation of Pender's progress is that he possessed an imperial vision well beyond that of many of the politicians of the time. His Eastern Group was probably the first multinational company (by 1914 it owned two thirds of all British cables and two fifths of all world cables). It is obvious that he, at least, viewed his organisation as an instrument of imperial power and that is in fact how things were to develop.

*Colonial wars and the development
of the «All Red Routes»*

R. J. Cain¹³ has developed the concept of a British Government, who after several bitter experiences wanted nothing to do with cables. During the Abyssinian Expedition of 1867 the Telegraph Construction and Maintenance Co. offered to lay a strategic cable at a cost of £60,000. This was declined. Again during the Ashanti wars of 1874 similar suggestions were ignored. This was not because the various departments such as the Colonial Office, the War Office and the Admiralty did not want the facilities, but because they continued to defer to the experience of the Treasury. The Treasury persisted in the view that private enterprise would bring cables to those parts of the Empire which were most important and those parts which were likely to be unremunerative to private investors could be safely ignored.

It was not until the late 1870s that attitudes started to change. There was always the fear of a Russian intrusion into the Indian Ocean which might jeopardise British trade routes to the East. There were Russian scares in 1878 and 1885 and in one case it was revealed that the Russian navy had purchased cable cutting equipment from a British firm. In 1879 the threat of disaster in the Zulu war eventually forced the Treasury to accept that the Government should assist in the laying of a cable to southern Africa. It was agreed that, in return for establishing a submarine connection between Aden and South Africa, a sum of £ 55,000 per annum should be paid to the Eastern and South African Telegraph Co., another of Pender's creations.

In 1879 a royal commission under the chairmanship of Lord Carnarvon examined the defences of the Empire. Its report¹⁴ is significant in that it identified the cable network as one the Empire's most important strategic resources and recommended that there should be at all times a reserve supply of cable in case a belligerent should cut the lines of communication.

From this point onwards one can observe a shift of power (on cable matters) away from the Treasury. In 1885 the Colonial Defense Committee was established as a result of pressure from the Colonial Office, the War Office and the Admiralty. It was to continue in existence until 1939, although after 1902 it became a sub-committee of the Committee for Imperial Defense. It identified that additional connections, namely Halifax (Nova Scotia) to Bermuda and South Africa

to Mauritius were vital to the security of the Empire. In 1891 a temporary committee of the Colonial Defense Committee again restated the case that the cable network was quite inadequate in the event of war¹⁵. It proposed an «ideal of telegraphic communication for the purposes of war» and this was to form the basis of future British thinking on cable security. The ideal would only be realised when there was a network of cables landing only on British territory, following recognised trade routes (so that they could get naval protection) and not passing close to the naval stations of any possible enemy. It will be seen that although the first ideal was never totally realised, the inclusion of Portugal and Portuguese colonies and islands was generally considered just as good.

Following these recommendations the various government departments most concerned with Empire developed a fetish for «All Red Routes». This was reinforced by the 1902 report of the Inter-Departmental Committee on Cable Communications, which recommended the concept of strategic duplication of cables¹⁶. It also developed the idea that cables could be landed on the territory of some friendly neutral and this of course meant Portugal.

Concern about the security of the Empire cable system was not only confined to government circles. There were articles in the press and elsewhere¹⁷. Undoubtedly such worries were brought about by the external pressures of the time and these will be considered in the next section.

Cables, imperial rivalries and the role of Portugal

This section considers some of the international tensions in the late 19th century which arose as a result of the mad scramble by Britain, France and Germany to colonise the African continent. Submarine telegraphy was to play an important role in this and other spheres, of colonial expansion. During the period in question Britain was to become increasingly concerned about the security of her communications network, while other imperial nations were equally concerned about their dependence on British cables. One should therefore start by examining the question of the vulnerability of cables in times of crisis, see how France and Germany attempted to establish independent means of communications and finally examine the role of Portugal as a friendly neutral (to Britain) during this period.

Cable damage was a major problem, and although much of this was accidental, due to anchors or fishing gear, there was always the possibility of an intentional interruption of the Empire's lines of communication by a belligerent. Russian purchases of cable cutting equipment have been mentioned earlier. In the crisis of 1885 it was obvious that Britain's network was much more vulnerable than Russia's which was mostly overland. The International Convention for the Protection of Submarine Telegraph Cables, Paris 1884, covered the protection of cables in peacetime, but expressly avoided restricting the actions of belligerents. Indeed at the International Cable Convention in 1885 Britain insisted on the right of belligerents to cut each other's cables. Attempts were made to obtain agreements to neutralise cables but British Cabinet papers¹⁸ show that these were unfruitful. Nevertheless Britain owned 24 out of a world total of 30 cable ships and this clearly gave a level of superiority which could not be matched.

What was much more worrying to Britain was the that there no international agreement covering the contents of belligerents' messages carried via neutral countries. British law experts were of the belief that such traffic could be regarded as contraband and therefore refused by neutral operators. On the other hand the Telegraphic Convention of 1875 had resolved that in wartime, neutrals should not prevent belligerents' coded messages passing over their lines, so that a system of apparently innocuous code was proposed but was soon abandoned as being quite impractical.

Before concentrating on the conflicts of imperial powers that were ultimately to lead to the first world war, it is perhaps worth mentioning a crisis in 1896 which was to have important consequences after 1911. Colonial and military interests had long been pressing the British Treasury for improved communications in the West Indies. The deficiencies in this area were highlighted in 1896 when there was disagreement with the United States over the boundary between Venezuela and British Guiana. All lines beyond Bermuda passed through the US including those to the naval stations at Jamaica and St. Lucia. Soon afterwards a contract was signed with the Halifax and Bermuda Telegraph Co. (yet another Pender subsidiary) for an extension to Turks island and Jamaica for a 20 year period with an annual government subsidy of £8,000.

This concern was not limited to Britain. Both the French and Germans became increasingly worried about the security of their own communications systems, particularly after several unpleasant

experiences. Haigh's book on cables and submarine cables¹⁹ gives details of the development of the French network and it can be seen that for a long time they were heavily reliant on the British system. In the late 1890s this was set to change. American attempts to cut cables to Cuba during the Spanish American war of 1898 resulted in the severing of the French cable to Haiti. During the Fashoda Incident there was no contact with Paris; the British controlled West African cable was apparently out of order. Above all the British imposition of censorship south of Aden during the Boer War left both France and Germany in no doubt that they must break their dependence on British lines of communication. The French at least had an Atlantic cable in 1869 and although it soon came under British control their second cable, ten years later, was an entirely French venture and as such maintained its independence. By contrast German dependence on British cables was even more deep rooted.

The German Union Telegraph Co., established in 1869, entered into agreements with the Anglo American Telegraph Co. (owners of the first Atlantic cables) for the transmission of German traffic. Messages were sent from Norderney across the North Sea to Lowestoft, across Britain, the Irish Sea and finally the Irish mainland en route for Newfoundland, Canada and the United States. By 1871 the company owned its own Emden-Lowestoft cable but they became increasingly concerned with the long delays introduced by the relaying process. One of the bottlenecks was the fact that the Irish Sea cables were heavily congested and the British Post Office was unwilling to increase their capacity. In an effort to overcome this a direct line of cable was laid between Emden and Valentia island in Ireland. While it did circumvent overland delays it was frequently out of service due to anchor damage.

As traffic density on the Atlantic increased during the 1880s the German company found itself hampered by their 1869 Agreement with the Anglo American Co. There were now other operators on the route who offered better rates and/or faster service. In fact the American owned Commercial Cable Co. was opened for business in 1885 in direct competition with Anglo and its associate companies. It soon became involved in a vicious tariff cutting war on the subject of the monopoly on German Atlantic traffic and eventually won some concessions which seems to have endeared them to the Germans.

In 1889 the German postal authorities bought out the German Union Co. and thereafter took control of German international traffic through subsidiary companies. They were continually dissatisfied with the

service which the British firm provided, so that this together with the need for independence of communications in the era of Weltpolitik directed them towards alternative routes, one of which was ultimately to involve the Azores. There were plans to establish a network using all German technology. However their cable industry was still in its infancy. Nevertheless the major manufacturer, Felten & Guilleaume formed the German Submarine Telegraph Co. with the support of the Imperial Postal Authority. The object was to lay a cable via the Azores to America. Unable to undertake the task themselves, the cable was manufactured and laid by the British Telegraph Construction and Maintenance Co. It was to run from Germany to Spain, to the Azores and thence to America. However when it was landed at Vigo in December 1896 it proved to have unforeseen benefits for German business as well as colonial administration. Vigo gave access to all the Eastern Telegraph Co. cables and this proved so valuable that the cable was not extended further. This was excellent but did not reduce Germany's dependence on the British world communications system.

Britain's aggravation with the emerging German Empire was in many the most acute of the imperial rivalries and the one in which Portugal had the more significant role. The Anglo-French Colonial Convention of 1882 delineated spheres of influence in Africa and had a direct effect on German trade in the region. This trade was also seriously affected by the Anglo-Portuguese Treaty of 1884. On 18 April 1884 Bismark dispatched a protest to Portugal repudiating any intention of accepting the terms of the Treaty. By this means he accelerated a crisis. Taking advantage of the national impulse for expansion he declared German settlements throughout the world to be under Imperial protection. Thus on 24 April 1884 he inaugurated the German Colonial Empire.

This expansion of the German Empire was very rapid and during the post-Bismark, Weltpolitik era there appears to have been tensions wherever it bordered upon British territory or spheres of influence. For instance, on 3 January 1896 Kaiser Willhelm II dispatched his famous telegram to President Kruger of South Africa. He had plans for a German protectorate of the Boers and three days later he was proposing to reinforce this by landing troops in Portuguese Delagoa Bay and taking over Lourenço Marques. These impetuous plans were strenuously opposed by his Foreign Secretary, Marschall von Biberstein and were finally dropped²¹.

There then came an opportunity to take over Portuguese territory, which Townsend in her book on the German Empire²² describes in detail.

«A request from Portugal for a loan provided for a rapprochement between England and Germany over the disposal of the Portuguese colonies, for Portugal was in a bad way financially, and was obliged to mortgage her colonies in order to secure financial assistance. This rapprochement, moreover, suited the more experienced Salisbury much more than the alliance which he had always opposed, for he saw in it an opportunity to purchase immunity from German interference in the Boer region without the inconvenience of binding political agreements. Consequently on August 30, 1898, the Anglo-German Treaty was consummated which provided for the division of the Portuguese colonies of Angola and Mozambique into spheres of influence between Germany and England, should Portugal become insolvent and offer her colonies as collateral for a loan, which she seemed to be on the point of doing. In the event of the treaty taking effect England's share of Angola reserved to her the much disputed Delagoa Bay with the harbour of Lourenço Marques (*sic*), which would put an end forever to the Kaiser's ambition, as revealed in the Kruger telegram, to effect a Boer protectorate. Germany's share on the other hand secured to her southern Angola, northern Mozambique and Portuguese Timor in the South Seas.»

Townsend then lists other colonies and islands and it is obvious that Britain, in spite of German annoyance, was to get the best of the carve-up. She then recounts how the German Treaty was practically nullified by the signing of the Treaty of Windsor in 1899.

«This treaty confirmed earlier treaties by which England and Portugal, always friendly, had bound themselves mutually to protect each other's possessions and without contradicting the Anglo-German agreement in letter, it destroyed it in spirit, for it encouraged the Portuguese to avoid so encumbering their colonies with loans that they would be forced to sell ...

About the only gain accruing to Germany, as a result of the Anglo-German understanding, was that Great Britain could not independently acquire economic or political privileges and rights in the Portuguese colonies bordering upon German possessions.»

Concurrent with these events, one sees for the first time a British uncertainty about landing cables on Portuguese territory. Although there was no question about Portugal's benevolent neutrality in the event of war, the possible disposal of Madeira and Cape Verde indicated the necessity for a direct line to South Africa with links to South

America and the West Indies via Ascension island. During the next few years the Eastern Telegraph Co. and subsidiaries laid cables such as the Falmouth-Gibraltar (direct), which endeavoured to reduce British dependence on Portuguese colonies and islands.

Although Townsend, in her history of the German Empire, does not specifically confirm the details, it appears that the Anglo-German Treaty of 1913 dealt exclusively with the African colonies. Thus the islands belonging to Portugal, vital for Imperial communications, were not under threat. At this stage the role of the Azores was already firmly established and its development will be considered in the next section.

The development of the Azores telegraph stations

F. S. Weston, last Manager of the Commercial Cable Co. Station at Horta has published a history of submarine cables landed at Fayal²⁴. Many of the details in this section are taken from that source.

A contract between the Portuguese Government and the Telegraph Construction and Maintenance Co. was signed on 17 June 1893. A cable was to be laid between Carcavelos, Ponta Delgada and Horta. The link was inaugurated on 27 August 1893. On 15 April 1895 all the rights and concessions of the cable manufacturer were assigned to the Europe and Azores Telegraph Co. This company which was formed as part of the Eastern Telegraph Group in 1893 operated the line on a subsidy from the Portuguese Government. They were awarded landing rights for 25 years but in return they agreed to join all the major islands of the Azores by cable.

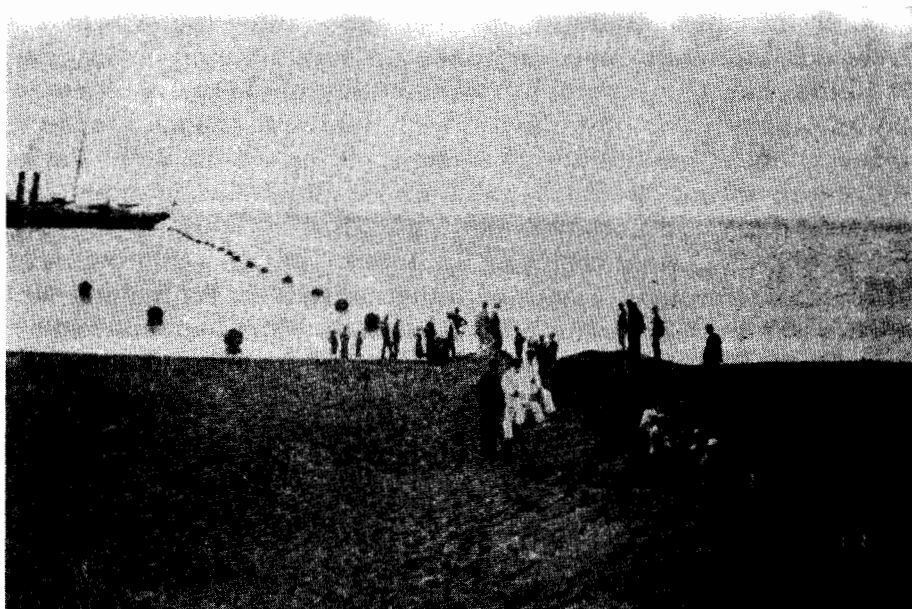
A Portuguese Government decree in 1899 authorised negotiations with the Europe and Azores Co. for the laying of cables between Horta-New York, Horta-Canada, Horta-Germany and Horta-Ireland. There is not much detail available at present, but a search through Cable and Wireless Archives in London could be very informative. Mention has already been made of the efforts of the Commercial Cable Co. to obtain an increased share of German Atlantic traffic and there is some, as yet, circumstantial evidence to suggest that they strongly encouraged the Germans to exploit an Azores connection as a means of circumventing their 1866 Agreement with the British firm.

In 1899 Felten & Guilleaume founded the German Atlantic Telegraph Co. (DAT). It had a working capital of 20 million marks and again was supported by the Postal Authority. The DAT absorbed the

German Submarine Telegraph Co. in 1904 and became responsible for all international communications.

Weston's paper²⁴ records the fact that in July 1899 the Europe and Azores Co. signed a contract with the Commercial Cable Co. and the DAT. Under the terms of the contract the concessions for establishing connections from Horta to New York, Canada, Ireland and Germany were transferred. The Commercial and the DAT were to be considered as sub-concessionaries of the Europe and Azores Co. and this was put into effect on 3 August 1899 with one interesting and possibly significant clause. The contract with the Portuguese Government stipulated that all companies would have to work within the same building.

The Emden-Horta cable was landed on 26 May 1900. Even at this point the German cable manufacturer was not in a position to undertake the task, so that once more the exercise was undertaken by the Telegraph Construction and Maintenance Co. On 27 July of that year the new Commercial Horta-Canada cable established the first link between America and the Azores. The German Azores-New York cable was completed on 28 August and the Commercial Horta-Ireland link was in service by November of the following year.



LANDING OF THE SHORE END OF THE 1903 GERMAN CABLE IN FAYAL

Things now moved ahead very fast indeed. The Germans installed a new Emden-Horta-New York cable during 1903, 1904. On this occasion the cable had been manufactured in Germany and laid by German ships. The Eastern Group (wearing its Europe and Azores Telegraph Co. guise) was close behind with a Horta-Porthcurno cable which gave access to the Azores without going via the heavily congested Porthcurno-Carcavelos route. Shortly afterwards the same organisation, operating as the Western Telegraph Co., laid a cable between Horta and São Vicente (Cape Verde islands). This was later extended to Buenos Aires, Rio de Janeiro as well as South Africa. These links represented the end of the first phase of the developments of the Azores as an essential part of Atlantic communications.

Cables and the Azores just prior to the Great War

In order to appreciate the significance of the Azores within the framework of the British cable network during the period just before the First World War, one must first consider several important factors. Chief amongst these was the apparent loss of British control over the North Atlantic cables. The Anglo American Telegraph Co. had been the pioneers and by 1894 they possessed four working cables between Ireland and Newfoundland. They were, however, in very poor financial condition, having inherited the capital burden of the early failures to lay an Atlantic cable. Nevertheless they were large enough to absorb many of their competitors in a monopoly called the Joint Purse Agreement or Pool. In 1881 the American Western Union Telegraph Co. insinuated itself into the monopoly upon its own terms.

In 1885 the Commercial Cable Co., another American company, was established to provide a competitive alternative to the Pool companies. It had its own efficient network of cables and feeder lines and had no reliance on Western Union who provided American/Canadian feeder lines for all Pool traffic. According to Coggeshall²⁵ Western Union's involvement in what was seen as a British monopoly brought them into conflict with the Sherman Anti-Trust Law of 1890. Behind the scenes moves by the management of the Commercial Co. prompted US Government action. The Attorney General indicated to Western Union that it would have to get out of the Pool or be forced out by implementation of the Sherman Act. Western Union's President, Theodore Vail seized on the idea that a Pool without US land-line connections would

be valueless. On the threat that it would withdraw from the Pool and remove its feeder facilities, the Pool companies were forced to accept Western Union's proposal to take them over. Thus on 1 April 1911 the Pool companies and their entire operation were leased to the American company for a period of 99 years. Now that it had total control Western Union believed that it was safe from any anti trust action.

These changes and their implications did not go un-noticed in Britain. Charles Bright, son of the engineer who laid the first (1858) Atlantic cable and author of the authoritative book on submarine cables in the 19th century, highlighted this weakness in the «All Red Route»²⁶. Subsequent events were to show his fear to be unfounded. America was to become an increasingly more friendly ally as the 20th century proceeded and Britain meanwhile was able to exercise strict control over all cable companies by means of landing licences. Nevertheless the worry was perfectly genuine and the Azores provided an alternative route. It is clear that the Horta-New York link was not viewed as particularly secure but the Eastern Group had secured duplicates for most of its other routes and this was recognised by the Committee for Imperial Defense in its 1911 report²⁷.

The possibility of a major war was recognised even before the turn of the century. In 1898 the Colonial Defense Committee had decided that cable cutting would be used for strategic purposes. They had considered the various alternatives depending on the foe. By 1911 the change in the international situation altered the perspective so that only Germany had to be considered. Most of her long distance cables had been laid between neutral points because, as Kennedy²⁸ points out, it was generally accepted that such lines should not be cut in times of conflict. Thus cutting the Emden-Azores cables was legitimate, but cutting the German lines from Horta to New York was not. Kennedy's paper «Imperial Cable Communications and Strategy (1870-1914)» lists the primary source material on this topic.

The Great War

Within a few hours of the outbreak of war all German communication links in the North Sea were cut. The GPO Archives in London contain details of the events and the wartime history of the DAT cables. Censorship was introduced on all British cables and on all cables landing in Britain or touching British colonies. This included the

American owned or dominated North Atlantic cables, the Danish Great Northern cables and many others. For a prolonged period the use of any form code, except for Government traffic, was prohibited.

Early diversions were directed towards improving communications between the British and French forces. Part of the Emden-Azores no. 2 was used for a line between Kent and Dunkirk. There is evidence that the DAT Horta-New York cables had been cut and the Germans made many representations in America about this.

The French, eager to expand their own network were pressing for increased utilisation of German cables. This was at first resisted by Britain, so that the status quo was retained until about 1916, when it was realised that 'derelict' cables would under international law revert to their original owners at the end of hostilities. If appropriated during the war they could subsequently be viewed as spoils of war. Thereafter there was a scramble to use whatever was available.

The acquisition of additional cable was of considerable help to the Allies. War had generated more traffic than the existing Atlantic cables could carry. The stations in Ireland and Newfoundland employed about 200 people each. Staff worked 12 hour shifts and despite that, non-military traffic suffered delays of up to three weeks. Any details about German efforts to cut British cables is scarce but p. 649 of a report edited by Birch and Clarke in the British Naval History Library gives some insight:

«Meanwhile U155 had arrived in the Atlantic for the second time, and, on the nights of 10th/11th and 11th/12th February [1917], succeeded in cutting three cables off Lisbon connecting Spain [and Portugal] with America, France and England. A prisoner stated that she lost two sets of cable cutting apparatus during the operation. ... »

The Emden-Azores-New York no. 1 cable was diverted into Cornwall on the eastern side and Halifax, Nova Scotia, on the western side. This provided the British Government with a cable which was entirely under their control and this was operated by the GPO until 1929. The French got the Emden-Azores-New York no. 2 cable and diverted it from the German landing place in New York to the French landing place on Coney island.

Weston²⁴ notes that once Portugal entered the war the DAT staff at Horta were interned in Terceira or Monte Brasil.

At the Treaty of Versailles the Atlantic cables were awarded to those who had diverted them during the war, hence the French presence

in Horta. Weston comments on the fact that Portugal does not appear to have exercised any claim on German cables during the Treaty negotiations.

The second growth of the Azores stations

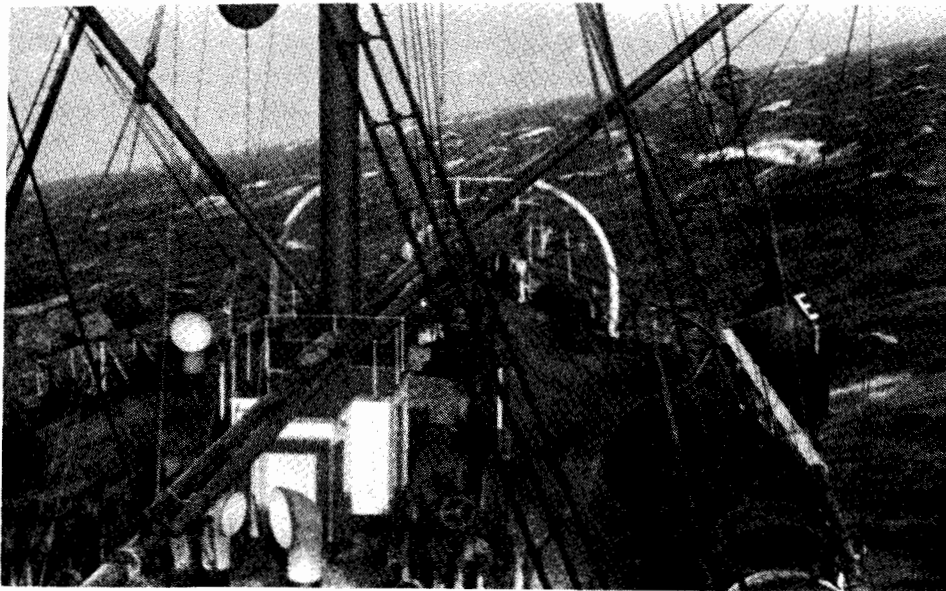
Although the entire political complexion had changed the post-war British Empire requirement for secure communications remained and if anything increased. The GPO had purchased an old Atlantic cable from Western Union which gave them two lines, one via the Azores and one from Balinskelligs, Ireland (removed to Cornwall in 1922) to Harbour Grace, Newfoundland. These were operated under the title Imperial Atlantic Cables until 1928 when the Government decided to rationalise the multitude of companies and modes of communication (wireless telegraphy was now competing for traffic). The Imperial Wireless and Cable Conference decided that a new unit should be formed and that this should represent an amalgamation of Imperial Atlantic Cables, all the Eastern Group including the Europe and Azores Telegraph Co. as well as the wireless telegraphy companies. Accordingly Imperial and International Communications Ltd. was incorporated on 29 Sept 1929, the name being changed to Cable and Wireless in 1934.

The war had taught everyone that the existing cable network was quite inadequate. Hostilities were at an end but the peace negotiations and an expansion in business resulted in the maintenance of a high level of traffic in the immediate post war era. However the pressure on the cable companies was relieved by several technological developments which are outside the scope of this article. It is sufficient to mention that during the early 1920s the multitude of operators at the terminal points were replaced by a smaller number of skilled staff operating on early forms of telex machines. The staff at the intermediate or relay stations was cut drastically when electromechanical equipment was introduced for signal regeneration. However increased demand for traffic capacity led to a rush to land even more cables in the Azores.

On 15 March 1924 the Portuguese Government signed contracts with Western Union Telegraph Co. and Italcable for cables to be landed at Horta. It was proposed that Western Union would cooperate with the Italians for the handling of their traffic. The Germans were soon back on the scene. A contract for a new DAT Emden-Horta cable was signed on 6 September 1924. Weston²⁴ reports that negotiations

concerning the Western Union and Italian contracts were protracted: «... There were difficulties and objections introduced by the other interested companies ...». This aspect of the story requires much more research and access to Portuguese documents would probably be helpful. Experience suggests that the Commercial Cable Co. would certainly have made every attempt to prevent any expansion on the part of its arch rival.

Western Union's Horta-New York cable was landed on 18 September 1924. This cable represented another very significant technical innovation. By means of including a special magnetic material during manufacture the cable had what is called inductive loading. This had the effect of increasing the traffic capacity by a factor of four or five although the cable could only be operated in simplex (unidirectional) mode. The Italian cable from Horta to Malaga and Anzio (Rome) was completed on 30 October of that year and was operated by Western Union on behalf of Italcable. The new German cable (also inductively loaded) was landed on 2 October 1926. Onward transmission was via Western Union whose duplex (bidirectional) loaded cable between Horta, Bay Roberts (Newfoundland) and New York was operational by September 1928.



VIEW FROM C.S. «DOMINIA» WHILE LAYING THE 1928 BAY ROBERTS-HORTA CABLE

Accommodation for the companies seems to have been on the same basis as before the war, namely that they should all operate within the same building. A seismic-proof building was constructed to house the Commercial Co., the DAT and Western Union. It was the property of the Europe and Azores Telegraph Co. [ie Imperial and International Communications Ltd., later Cable & Wireless] who had contracts with the other companies for rent and maintenance. It is not clear whether the Europe and Azores Co. operated their own and the French cables from here or from the old building. Nevertheless one can speculate on the nature of the control which the British company was in a position, on account of its franchises, to exercise over the others. It is also not clear to what extent France, Germany, Italy and the United States were aware of this possibility or whether, if they were, they viewed it as prejudicial to their interests. The French at least might have had reservations. On 19 November 1930 responsibility for the French cables was removed from the control of the Europe and Azores Co. and handed over to the Commercial Cable Co. (by then part of ITT) who were thereafter to represent the company in Horta.

The great depression of the 1930s brought about an abrupt end to Horta's second phase of growth. The contraction in world economy caused a drastic reduction in traffic and staff were laid off or had to endure pay cuts in an effort to limit operating losses and this condition remained until the outbreak of the second world war.

Conclusion

From this point onwards there is little that can yet be added to what Professor Francis Rogers has already stated²⁹. There is however much work to be done, particularly relating to the importance of the Azores connection during the second world war. Information on virtually any aspect of Allied communications strategy during this period is not yet freely available so that the picture is still very sketchy. The German cables were cut as in the previous war but there are unconfirmed reports that the isolation was not as effective or indeed as one-sided; the Germans succeeded in cutting the Vigo-Porthcurno cables in 1940³⁰. The Horta-Rome cable was cut immediately upon Italy's entry into the war. Charles Graves³¹ provides details of the role of Cable & Wireless's cable ship, *Mirror*, in this operation. He also gives a

harrowing account of the Carcavelos station besieged by European refugees attempting to contact relatives in America³².

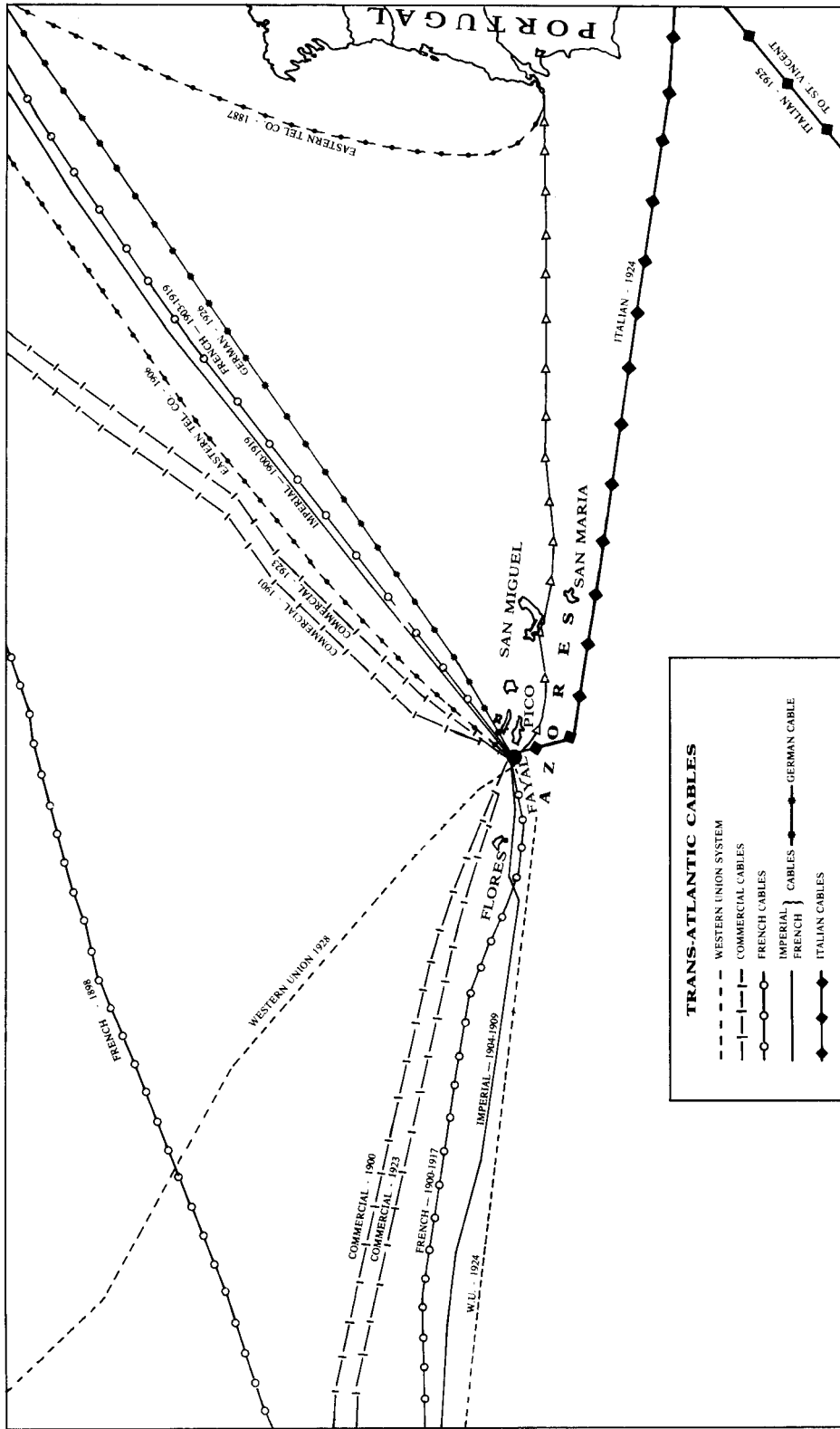
Although Portugal was neutral during the war, it maintained its friendly relations with Britain and permitted the establishment of a base at Terceira. It might sometime be instructive to compare its neutral role with that of Ireland, which like the Azores provided an important link in the Empire communications network³³.

The operation of the Horta station during the war and prewar period requires further research. There is the question of nationals from mutually antagonistic countries co-operating within the one building as leasees of Cable & Wireless.

Finally, it should be clear from what has been said, that Cable & Wireless and its predecessors were in a unique position to exert influence for the benefit of the Empire and its most important strategic resource; its cable network. Much circumstantial evidence has been presented to support this supposition. However the true significance of the Portuguese concessions has yet to be fully assessed. Research in Portuguese archives, Cable & Wireless archives and the British Public Record Office should keep historians occupied for many years.

Acknowledgement

Discussions with Daniel Headrick of Roosevelt University, Chicago and access to his manuscript «Submarine cables and great power rivalries 1870-1914» are gratefully acknowledged.



1930s MAP OF ATLANTIC CABLES LANDING IN THE AZORES. NOTE THAT CABLES IMPERIAL 1900/1919, IMPERIAL 1904/1919, FRENCH 1906/1917, FRENCH 1903/1917 WERE THE GERMAN CABLES WHICH WERE SEIZED DURING/AFTER THE FIRST WORLD WAR.

NOTES

- ¹ J. Graves: *Autobiography* (unpublished), pp. 52-55.
- ² J. Graves: «36 years in the telegraph service» (unpublished).
- ³ G. R. M. Garrett: «100 years of submarine telegraphy», HMSO, 1950, p. 8.
- ⁴ R. J. Cain: «Telegraph cables in the British Empire». Ph.D thesis, Duke University, 1970, p. 10.
- ⁵ A. W. Kingslake: «Invasion of Crimea», 6th Ed., Vol. VIII, pp. 296-297.
- ⁶ R. J. Cain: *ibid.*, pp. 193-197.
- ⁷ D. de Cogan: «E. O. W. Whitehouse and the 1858 trans-Atlantic cable». *History of Technology*, vol. 10, 1985, pp. 1-15.
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- ¹⁰ Hugh Barty-King: «Girdle Round the Earth» (a history of Cable & Wireless), Heineman 1979, p. 34.
- ¹¹ Hugh Barty-King: *ibid.*, p. 44.
- ¹² K. R. Haigh: «Cables and Submarine Cables», STC, 1978, p. 140.
- ¹³ R. J. Cain: *ibid.*, mentioned in outline in Abstract and Preface. Treated in detail, pp. 206-212.
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- ¹⁵ Report of the Colonial Defense Committee, 1891.
- ¹⁶ P. M. Kennedy: «Imperial cable communications and strategy», *English Historical Review*, Vol. 86, 1971, pp. 728-752.
- ¹⁷ Percy Hurd: «Our telegraphic isolation», *Contemp. Rev.*, vol. 69, 1896, is a typical example.
- ¹⁸ «Neutralisation of cables in times of war», *British Cabinet Papers CAB 8/1/22 m* (19/7/1896).
- ¹⁹ K. R. Haigh: *ibid.*, pp. 320-347.
- ²⁰ M. E. Townsend: «The rise and fall of Germany's colonial empire», Howard Fertig, New York 1966, p. 84.
- ²¹ M. E. Townsend: *ibid.*, pp. 184-185.
- ²² M. E. Townsend: *ibid.*, pp. 190-191.
- ²³ M.E. Townsend: *ibid.*, pp. 345-350.
- ²⁴ F. S. Weston: «Os Cabos Submarinos no Faial», *Boletim do Núcleo Cultural da Horta*, vol. 3, 1963, pp. 215-230.
- ²⁵ I. S. Coggeshall: «Annotated history of submarine cables and overseas radiotelegraphs 1851 to 1934» (unpublished), pp. 42-44.
- ²⁶ C. Bright: «Imperial Telegraphs», *United Empire*, August 1911, pp. 541-552, Sept. 1911, pp. 622-633.
- ²⁷ Report of the Committee for Imperial Defense, 1911.
- ²⁸ P. M. Kennedy: *ibid.*, p. 743.
- ²⁹ Francis M. Rogers: «Atlantic Islanders of the Azores and Madeira», The Christopher Publishing House, Norwell, MA 02061, USA.

³⁰ Hugh Barty-King: *ibid.*, p. 270.

³¹ Charles Graves: «The Thin Red Lines», Standard Art Book Co., London, 1946, p. 23.

³² Charles Graves: *ibid.*, pp. 35-37.

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