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T. C. MORELOCK, *Editor*

International News Communications

The Submarine Cable and Wireless as

News Carriers

by

EUGENE WEBSTER SHARP, B.J., A.M.



ISSUED FOUR TIMES MONTHLY; ENTERED AS SECOND-CLASS MATTER AT THE
POSTOFFICE AT COLUMBIA, MISSOURI—2,500

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EDITOR'S NOTE: This bulletin was written as a thesis by Mr. Sharp while he was enrolled in the Graduate School of the University of Missouri. It was submitted in partial fulfillment of requirements for the degree of Master of Arts.

International News Communications

CHAPTER I

PART I

FOREIGN NEWS GROWTH; SOME EARLY COMMUNICATION HISTORY

In recent years the world has grown smaller in the sense that each nation knows more about the doings of the other; and the means of bringing such information are becoming increasingly more adequate. The dissemination of news internationally is a great force for the mutual understanding of peoples. For such dissemination the press is dependent on swift, accurate, and reliable means of communication. In the modern world these are the submarine cable with its connecting land telegraph, the telephone, and the wireless; without them journalism, as we now know it, could not exist.

An attempt will be made here to show the definite influence on the press exerted by the submarine cable and the wireless by reason of press rates, competition, national policies of communication, and the rendering of improved service. The mutual relationships of the cable and wireless and their development will be treated; the emphasis will be on twentieth century aspects and problems of international communication.

Of the many things attributed to the recent World War one of the more important is the increased interest in foreign news of all countries concerned in it, but particularly of the United States.

In 1910 as much as half a column of foreign news on the front page of the New York Times attracted notice as being unusual. In 1925 the foreign news content of the Times for five issues taken at random averaged nearly eight columns, divided approximately two columns front page and six inside. In the issue of Dec. 2, 1925, the foreign content of the Times reached 12.7 columns, three and a half columns being on page one.

London has long been regarded as the news capital of the world due to its importance as an empire center and to its fine system of cable communication reaching out in every direction. But since the war the United States is coming rapidly to the front as a world news center. While this country still imports more news than it sends out this is because the foreign newspapers are smaller and cannot carry the volume of news the American papers can. Before the war there were only twenty-five resident foreign correspondents in the United States; now there are seventy-five. The daily file of these correspondents ranges from 500 to 3,000 words. W. W. Davies of *La Nacion*, Buenos Aires, cables 3,000 words daily besides the Associated Press report. J. W. T. Mason of the *London Daily Express* sends 2,500 words daily. The United Press cables from 600 to 1,000 words each day. Reuters, a British news agency, reports an increase of 200 to 300 per cent in news cabled to England from the United States over its file in 1914. The Associated Press, which has exchange relations with twenty-four news agencies in foreign countries, says all of them are using much more United States news than ten years ago.

"Newspapers of the United States print ten columns of news of the world to one of almost every other foreign newspaper," says Post Wheeler, diplomat and former newspaper man. "To my mind, the American newspapers are performing a remarkable service to their readers by stimulating interest in foreign news. There are, for instance, only about six newspapers in all of

Europe offering the same world-wide view of events as the commonest paper in the United States."

The cable output of the United States in news has practically doubled in the last few years. Sports, politics and financial news now dominate the scene in place of the "freak" stories formerly cabled. President Coolidge's decision of 20,000 words on the Tacna-Arica dispute in South America was transmitted to Buenos Aires in thirteen hours. It was one of the largest single cable files in South American newspaper history. Besides the text the Associated Press and the United Press sent their own interpretative stories of from 1,000 to 1,500 words each. George C. Shore, editor of International News Service, says that better cable facilities offered by American companies have contributed largely to American domination in world news. These cable companies, he says, are making progress in giving the American press service direct contact with Europe and Asia.

In the spring of 1926 foreign news writers in New York City celebrated the twenty-first year of "covering" the United States from abroad. Before 1905 no European newspaper considered the United States of sufficient news importance to warrant sending a special resident correspondent to this country. Percy S. Bullen of the London Daily Telegraph, who came over in 1905, was the first. W. F. Bullock of the Daily Mail was next. Now all the London dailies and two provincial papers are represented in New York City.

The cabling of news from New York City reached its peak during the war when thousands of American troops in France were eager for United States news. Bullock declares that there has been a slack in the speed of cabling since 1918. "We used to get instantaneous transmission to London," he said, "but cannot do so any more."

A. Arib-Costa sends *La Tribuna* of Rome a weekly news and interpretative letter. A. M. Nawench of Poland writes problem articles for his paper. The staff of *El Universal*, Mexico City, has just moved into new quarters and is increasing its news file to the Mexican capital. Davies of *La Nacion*, Buenos Aires, emphasizes sport news.

One of the interesting points in present foreign correspondence is the way Far Eastern publishers cheerfully pay high cable tolls to get American sport news, says Harold Butcher. The high rates keep the proportion of other news very low, but sport news must be had despite cost. Japan is particularly interested in baseball and golf and China in tennis. But Chinese papers report much other American news besides sport. E. K. Moy of the *Peking Daily News*, a paper printed in English, sends news every few days by mail. These are usually interpretative as they are not printed until a month later. "When news is important, I cable," Moy says.

Cables, ever since their first test in 1850, have been one of the chief means of international communication. The service they render, however, is dependent not primarily upon ownership of the cable line but on international understanding. The government which has jurisdiction over the shore on which the cable stations and relay offices are located will exercise its sovereignty by specific terms in the cable landing license and by doing what is best for its own public interest, especially in time of war. Great Britain's strict censorship during the World War was based on this principle as was her cutting of German cables.

"The question of international means of communication," says George Abel Schreiner, "is therefore, not one of remedies but one of preventives—of

prophylactic endeavor to keep nations in a state of normal and sound mentality." He further points out that the term "direct cable communication" between the United States and some other country is one likely to be most misleading. For at best only the cable end on the American shore is absolutely under the control of the American people. Even if there had been an American cable to the coast of Germany during the war and it had been left uncut little good would have resulted to the United States, he points out. For the German terminal would either have been in control of Germans whose messages would have been biased, or if Americans had been in control, they could have sent only what the land lines fed the cable terminal.

"The press has been in many ways the foster mother of the improved facilities of international communication we enjoy today," says Schreiner. "In addition to pressing ever for new and better land lines and submarine cables, and more recently for wireless connections, and promoting news services, the newspapers have paid out huge sums of money for telegraph tolls."

Since 1920 the amount of news sent from the United States to South America has increased greatly, due in part to testimony before the foreign affairs committee of the Senate in 1920, which showed that most of the news from America went via London to South America; and in part to lower press rates. Frederick Roy Martin, then general manager of the Associated Press, said he believed that South American countries had shown that they wanted United States news, but that many European countries obviously did not care for a great volume of it. In such instances no amount of cable service or low rates would avail; but this is not the general rule, but the exception, he said.

Most of the large news agencies of the world exchange news under mutual contract agreement, chiefly to save the expense of a larger news organization and personnel. It is suspected that some of the European news agencies are partially subsidized by their governments, but this has not been definitely proved.

Disputes over the means of international communication arose shortly after the invention of the telegraph by Samuel F. G. Morse in 1844. There were two tendencies which means of communication could follow: they could develop on a co-operative basis, or along the line of monopoly and special privilege. The policy of the United States is one of the reasons why telegraph and cable lines of the world today are not run on the same basis as a public utility. Private corporations own such lines in this country, preventing their operation on a nonprofit basis. The Universal Postal Union is often held up as a model for the communication systems of the world. This union is entirely nonpolitical the postmasters dealing directly with each other. It was formed in 1875 at Geneva, Switzerland. It is the political character which cable lines have assumed due to national sovereignty asserted at terminal points, that hinders a smooth-working international system with perhaps an international press rate. Such a rate has already been suggested for wireless world systems.

The beginnings of international communication go far back of the invention and development of electricity. Runners or news couriers were an early source of communication. The Incas of South America and the Aztecs of North America used them. Even today in Central America runners are used in Honduras in sending news across the mountains.

Letter couriers in the Middle Ages furnished an interesting insight into medieval journalism. In the late sixteenth century Jeremias Crasses was the

head of a news courier service operating from Augsburg, Germany. An international banking house backed the news courier system by which letters were exchanged between the capitals of Europe.

The postoffice system, which had its beginning in the reign of Queen Elizabeth, is one of the important means of communication. A considerable portion of foreign news today comes by mail. Spot news is frequently amplified and interpreted by mail news written more at length and giving a more complete account of the event.

But speed is still one of the essentials of modern news communication. The Battle of New Orleans was fought in the War of 1812 two weeks after the treaty of peace had been signed at Ghent, Belgium, because America did not yet know the war had ended. Sailing vessels often took three or more weeks in crossing the Atlantic.

The telegraph appeared in 1844. On Dec. 20, 1847, the St. Louis Republican received its first telegraphic dispatch. It appeared under a Louisville, Ky., dateline and congratulated the St. Louis paper on the "instantaneous communication of the Mississippi with the Atlantic." Not until eight years later, however, was Columbia connected by telegraph with the East. In April of 1855 telegraph lines had been completed from St. Louis through Columbia to Boonville.

From the telegraph it was a logical step to the submarine cable whose first successful trial was in the English Channel in 1850. International telegraphs, land and submarine alike, are operated largely according to the St. Petersburg Convention of 1875. The United States is not a party to this agreement but is obliged to depend largely on it for service on its foreign telegraph and cable connections. Articles 7 and 8 provide that any state can stop the transmission of any private telegram which appears dangerous to the security of the state, and may suspend the international telegraph service, if it thinks it necessary, provided it immediately notifies the other contracting governments. Great Britain's war censorship of press and commercial messages was based largely on these articles.

In 1875 the telephone was perfected and today is used largely in Europe to get European news.

The cable mileage of the world today aggregates approximately 325,000 nautical miles¹ of which America's share is approximately 85,000. The total land telegraph mileage of the world is 1,576,659, that of the United States exclusive of Hawaii and Alaska being 245,560 miles.

1. Nautical mile equals 6,080 feet.

CHAPTER I

PART II

THE FIRST ATLANTIC CABLES

The three projectors of the first cable to be laid across the Atlantic ocean were Cyrus W. Field, an American; and John W. Brett and Charles T. Bright, both Englishmen. These three signed an agreement in 1856 to work on equal terms for the establishing and working of an Atlantic cable from Ireland to New Foundland.

Only six years before this the first practical test of a submarine cable in operation had been consummated across the English Channel from Dover in England, to Cape Gris-Nez in France, a distance of about twenty-five miles. International excitement was intense when intelligible signals were first sent from shore to shore. Although an ambitious French fisherman unwittingly hooked up this cable a few days later and cut off a long piece, the submarine cable had become a fact and the channel cable was shortly replaced.

The next step was the laying of a cable, after three unsuccessful attempts, from England to Ireland in 1853. The next year Cyrus Field began to plan actively for an Atlantic cable.

A necessary antecedent to any transoceanic cable was the connection of the telegraph system of New Foundland with that of Canada and the United States at St. John's. In 1854 Field assisted Frederic Gisborne, an electrical engineer, in organizing the Newfoundland Electric Telegraph Company. Two years later a cable, eighty-five miles long, was successfully laid in the Gulf of St. Lawrence connecting the two telegraph systems.

It is said that Field first conceived the idea of spanning the Atlantic Ocean by cable when studying a large globe of the world in his study one evening during the time that he and Gisborne were working on the Newfoundland cable. The idea was not a new one, but had not previously been considered feasible despite the fact that in 1848 Lieut. M. F. Maury of the United States Navy, had announced that he believed that there existed a broad and level plateau at the bottom of the Atlantic Ocean between Newfoundland and Ireland. He had charted this part of the ocean and held that a cable could be laid there if anywhere. This same route is now known as "telegraph plateau" from the number of submarine cables laid on it.

In the summer of 1856 Field went to London where with Brett, Bright and others, he formed the Atlantic Telegraph Company capitalized at \$1,750,000. This new company was largely backed by the Magnetic Telegraph Company of England, whose directors and shareholders subscribed heavily. Three fourths of the capital was raised in England and one-fourth in America. Field could dispose of only twenty-seven shares of \$5,000 each in this country and was obliged to contribute the remainder personally.

The British government furnished the ship, *Agamemnon*, and the American government the ship, *Niagara*, to assist in the laying of the cable, which was first attempted in the summer of 1857. A special correspondent of the *New York Herald* was sent across on the *Niagara* to cover the event; British newspapers gave considerable space also to the news of the expedition.

The landing of the shore end of the cable in Valentia Bay, Ireland, was witnessed by several hundred persons who cheered the undertaking lustily. But after 380 miles of cable had been laid in 1700 fathoms of water, the cable parted and the ships returned to Ireland with flags at half-mast. The expedi-

tion had cost the Atlantic Telegraph Company about half a million dollars. The directors decided to make another attempt the following summer.

A new plan was adopted in 1858. The two ships met in midocean, spliced the cable and sailed in opposite directions. The cable broke after 200 miles had been laid but a second attempt in the same summer was successful. The shore ends were landed on Aug. 5, and both Great Britain and the United States were plunged into wild excitement; celebrating continued for several days. The cable laid was 1,698 nautical miles long and for more than two-thirds of its length was laid in more than two miles of water.

Queen Victoria sent the first message across, congratulating President Buchanan on the advance in communication facilities; the latter replied in a similar vein. But the cable of 1858 was short-lived. On Sept. 1 the last message was sent. The use of too high a potential current is assigned as the reason for its failure.

Two hundred and sixty-nine messages were sent over from the United States to Great Britain and ninety seven in the opposite direction. One of the most important of these was an order canceling the return to England of two regiments in Canada. It is estimated that the cable message saved the British government from \$250,000 to \$300,000 in avoiding unnecessary transportation of soldiers. The first public news message received over the cable of 1858 was one telling of the collision of two steamers, the *Europa* and *Arabia*. It was sent from New York to London on receipt of news of the collision near New Foundland and prevented unnecessary anxiety on the part of friends in London. It took twenty-five minutes to send the cablegram.

One of the early news messages sent across from London to New York on Aug. 27, 1858, shows the amount of news that can be contained in a few words. It read: "To Associated Press, New York—News for America by Atlantic cable: Emperor of France returned to Paris Saturday. King of Prussia too ill to visit Queen Victoria. Her Majesty returns to England August 30th. St. Petersburg, August 21st—Settlement of Chinese question; Chinese Empire opened to trade; Christian religion allowed; foreign diplomatic agents admitted; indemnity to England and France."

After the failure of the cable of 1858, new efforts were made to raise capital for another cable expedition. Cyrus Field, working in America, was given much verbal support but very little money. Funds were obtained slowly but gradually in England. By June of 1865 preparations were completed for another attempt. The *Great Eastern*, a British ship built especially for cable laying, left England June 24 with 7,000 tons of cable in her tanks. The cable parted after 1,062 nautical miles had been laid. The cable was caught in grappling but could not be raised to the surface for splicing.

A new company, the *Anglo-American*, was formed at this juncture to straighten out the financial affairs of those backing the Atlantic cable projects. Additional capital of \$3,000,000 was voted and raised. The following summer, that of 1866, the *Great Eastern* again set forth from England to lay an Atlantic cable. The expedition was successful and the cable worked satisfactorily until 1872; meanwhile other cables had been laid.

Little excitement attended the laying and operation of the 1866 cable; the public took it much as a matter of course although it increased many fold the value of news and commercial information. The 1865 cable, which was laid nearly two-thirds of the way across the ocean, was picked up by the *Great Eastern* and put in working order by splicing on the missing length, and

thus two cables were working between England and America. For eleven years the 1865 cable worked well.

Few persons realized the use to which the new cables would be put when laid. Sixteen months after the 1866 cable had become a reality James Bennett of the New York Herald was willing to sign a contract with the cable company for one year, paying \$3,750 a month for political and general news. The rate was then \$5 a word with a minimum of twenty words per message.

Both the cable of 1865 and that of 1866 were provided for largely from British pockets. Glass, Elliott & Company was given the contract for making the cable and took a large amount of its payment in shares of the cable company, making the undertaking a contractors' affair. Sir John Pender was a liberal contributor and an ardent supporter.

CHAPTER II

A CONTRAST OF BRITISH AND AMERICAN CABLE POLICY

The interest of Great Britain in communication by submarine cable dates from the laying of the first successful cable across the English Channel in 1850. Thence forward she worked with one end in view—an empire bound together in one unit by cable lines encircling the globe.

She first turned her attention to India. Even before the cable of 1866 was carrying news across the Atlantic Ocean daily to America, Great Britain was talking with India by cable. The Daily Telegraph of March 10, 1865, carried a three-column article entitled "The Telegraph to India," which explained the laying of the cable and the advantages anticipated. The first message from Calcutta to London was dated March 2, 1865, and was published in London newspapers the following day.

Having discovered India, the long, black threads of cable sought South Africa next, later linking that colony with the larger one in Asia; then the lines were pushed onward to Hongkong and the Orient in 1871. Canada was served by the Atlantic cables, the majority of which were laid in the eighties. The question of reaching Australia, among the most distant dominions of the empire, was considered in 1896. The government laid the Pacific cable from Bamfield, Canada, to Australia via Fanning Island at a cost of approximately ten million dollars. It was finished in December of 1902 and operated by a body known as the Pacific Cable Board on which each of the Dominions was represented. The cable stretch from Canada to Fanning Island is 3,454 miles and is one of the longest operating cable links in the world.

This cable route from London to Sydney touches nowhere but on British soil and is called the "All-British" or "All-Red" cable route. Britain's plan is to extend this route until it includes every possession of the empire.

The British own three-fifths of the cables of the world and operate one-half of them. They have captured the cable field and have set up what is, in a sense, world cable control. This result was not by accident, however, but is due to a carefully worked out policy stimulated by enterprise. The vital importance of adequate communication facilities for an island empire scattered over two hemispheres was early apparent to Great Britain and she constantly has worked toward that goal.

During the years that France was having trouble with the Germans, 1865-70, the British succeeded in obtaining control of the few French cables then laid and in forcing the French government to make valuable landing concessions. Thus a cable rivalry that might have proved beneficial to the world by affording two competing cable world systems was frustrated, though France did later connect the more important of her colonies with the home land by government cables. After 1900 Germany entered the cable field in earnest and was England's cable rival until the war nearly ruined the former's world-wide communication systems.

British cable companies enjoy exclusive privileges in many parts of the world, notably in the Eastern Hemisphere which is virtually a British monopoly. The history of submarine telegraphy in the east is largely that of the Eastern Associated Telegraph Companies, which were incorporated in 1872 and which, with their subsidiaries, dominate the communication world. There are at least twenty-four cable companies in Great Britain of some importance which are capitalized at more than a billion and a half dollars. The chief

plants for manufacturing submarine cables are located in England on the Thames. Germany also has important cable manufacturing plants.

The granting of stricter landing licenses for cables is another way in which Britain has strengthened her position of late. Such licenses are exclusively favorable to her and grant absolute control over the cable terminals. These licenses now require a statement to the British postoffice, at stated intervals, of the financial condition of the company, demand control over international rates, and require renewal of the license every five years.

Yet Britain is clearly within her rights in exercising such sovereignty over cables landed on her own soil. In some respects she is much more liberal in cable matters than France or Germany. The latter countries will not allow any foreign companies to set up offices on European soil to make final delivery of cablegrams from America and the west; such messages must be turned over to government authorities for the last lap of their journey, a fact which American cable officials contend strips American companies of any advantage which private enterprise might have over government operation. Great Britain allows these companies to have offices in London and other centers and to lease wires from the cable terminals to the larger cities.

The so-called ten-day rule of the British government was discussed and denounced at United States Senate committee hearings in 1921. An outgrowth of the World War censorship, this regulation required that all cablegrams entering Great Britain on foreign cable lines be turned over to the British government for inspection ten days after they were received. Protests were unavailing, the assurance being given that the messages were only held a short time as a matter of form and could not possibly all be expanded and read.

Great Britain entered the World War without a single cable in the Atlantic Ocean directly under governmental control. She emerged from that conflict with two cables. One was acquired from the Direct United States Cable Company as an insurance against traffic interruption; the other she claims as part of her war indemnity from Germany. The latter cable was a German one that was cut by the Allies during the war and appropriated by Great Britain, one end of the cable being towed to Canada and the other to the Azores where it connected with a line to England. This cable originally ran from Germany to the United States. A second cable cut in the war was taken over by France.

The United States has never fully acceded to this summary appropriation of cable lines and now owns a one-fifth individual interest in the former German cable. It is on the agenda of the next international conference on communication. Britain has not made the least move to relinquish her German cable. The Allies also cut the German cable from Liberia to Argentina although it connected neutral countries. These two imperial cables, as Britain's Atlantic lines are called, form vital links in the all-British route from London to Australia and are not likely to be given up. International law has several prohibitions on the general subject of cable cutting but no specific ones. In time of stress and warfare might makes right and rare is the nation that will not use every means to cripple its enemy even though it injures a neutral country thereby.

Cable cutting is reported as early as 1891 during a Chilean revolution, when both sides indulged in the practice. In peace times, one of the worst foes of cables are the trawler's that ply the North Sea, scraping the ocean's bottom with their iron-shod beams. Cable breaks from this source became

so frequent in the first decade of the twentieth century that the Commercial Cable Company, an American firm, made vigorous protests to the British government. A conference was finally arranged and rules drawn up to curb the nuisance.

J. Saxon Mills in his book, "The Press and Communications of the Empire," says that there is a growing opinion in the dominions that it is beyond the capacity of private cable companies, working primarily for dividends, to provide adequately for the system of intercommunication on which the existence of the whole British empire depends. He states that the policy of the Eastern Cable Company is not to give preference to press messages, because the most profitable messages must be sent first. The state-owned lines should always give press messages the preference; hence Mills argues for more government lines. When the industry was young many cable companies were subsidized by Great Britain over a period of years, thus being secured against heavy deficits.

Prior to the fall of 1924, when a new West Indies submarine telegraph system connecting these islands with Great Britain was successfully laid, that region of the world was often cited as an example of the unsatisfactory state of communication still existing in the British Empire. Cable links connecting Turks Island and Barbados, and Trinidad and British Honduras are now under way to better the situation by putting these places on the all-British cable route to London, thereby insuring lower rates and more and better news of the empire. Conditions in British Guiana and the Bahamas are far from good yet. Communication with the former country has been intermittent since 1919, owing partly to the frequent repairs made necessary by the rocky floor of the ocean there.

But surely though slowly Great Britain is working toward an adequate system of communication to every part of the empire, however small. Since the armistice in 1918 the Eastern Associated Telegraph Companies have laid 28,000 miles of cable lines, including new cables laid between England and Gibraltar, Malta and Alexandria, Aden and Bombay, Ascension and Rio de Janeiro.

The United States has handled the entire matter of submarine cables from a very different angle than Great Britain. The policy of the former, in so far as there is a definite one, is anti-monopolistic and in favor of privately owned companies; a constant effort to lower cable rates has also been characteristic.

The shaping of a United States cable policy was the direct outcome of the application of a French cable company for a landing license at Duxbury, Mass., in 1869. The company possessed a monopoly from the French government extending over a term of years and President Grant refused to grant the license until the objectionable clause was stricken from the agreement, and one substituted which guaranteed entire reciprocity of cable rights between the United States and France.

In his message to Congress in 1875 President Grant recommended four propositions affecting cable landings in this country: 1. That countries refusing equal privileges for American cable companies not be allowed to land cables in this country; 2. That no cable be allowed to land that was not prohibited from consolidating with other lines to regulate cable tolls; 3. That all lines give precedence to official government messages; 4. That power be reserved to the two governments concerned to fix a limit to cable rates.

The landing and licensing of cables was considered an executive function from 1873 onward, chiefly because of the acquiescence of Congress. Before that time, however, Congress had passed in 1866 an act authorizing the International Ocean Telegraph Company to lay a cable from Florida to Cuba with sole privileges for fourteen years, and the following year one permitting the American Atlantic Telegraph Company to lay a cable from the United States to Europe with monopoly privileges for twenty years. Thus it will be seen that the crusade against cable monopoly was a policy of the executive branch of the government and not sponsored whole-heartedly by Congress.

While Great Britain was pushing the cable expansion of corporation-owned and government-subsidized lines the United States' government adopted a rather lenient attitude with one eye fixed on the cable rate. The apparent lack of American interest in cable building may be accounted for in part by the fact that American capital was needed in the rapid expansion of the country westward and for internal improvements, far more than it was for additional cable lines to distant lands across the sea.

All new cables between Europe and America were laid from foreign shore to foreign shore, as the older cables had been. The fact that Newfoundland was the closest point to Ireland was a controlling factor. The lines necessary for American communication with Europe ran from British or French landings to the Azores, which are nominally Portuguese but actually British, to the shores of Canada because efficiency of operation required short cable links. Today the cable from Brest, France, to Cape Cod is the only one not controlled in some way by Great Britain.

The presidential policy of "no monopoly" for cable companies came to a head in 1920 when President Wilson refused a license to the Western Union Cable Company to lay a cable from Miami, Fla., to Barbados Island where it connected with a cable of the Western Telegraph Company, a British firm. The president contended that the monopoly held by the British company precluded its connection with American lines because the American cable company would have to be a party to the monopoly. After an attempt to lay the cable in defiance of the president's orders had been blocked the Western Union accepted a cable license and the connecting link was laid. The Senate, however, had previously passed the Cable Landing Act providing that no cable license should be granted to any company refusing equal privileges to the United States, and increasing the president's powers to grant licenses.

While the United States government continued to fight cable monopolies at home and to attempt to lower cable rates, the American companies operating lines to points abroad tried for concessions and monopolies at every point. They defended such a course by saying that they were invading a new field—that of Central and South America—where Great Britain and France were already entrenched and that they were obliged to meet these two nations on their own grounds to compete successfully. They were not openly supported by the government but had its tacit approval. Monopoly agreements were made by the All-America Cables, Inc., and the Mexican Telegraph Company with Mexico, Nicaragua, Salvador, Peru, Colombia and Ecuador.

The monopoly granted the British government by Brazil in 1873 is typical of those granted in later years and was apparently the precursor of them. It provided that: "The term of the concession will be sixty years from date, during which time no other submarine telegraph line shall be established between any points at which the company may have established sta-

tions." In 1916 the All-America Cables won a court decision against the Western Telegraph Company (British), stripping it of most of its monopolies and gaining a foothold in Brazil.

Testimony before a subcommittee of the Senate in 1920 developed the fact that the Western Union Company was operating eight cables across the Atlantic Ocean but did not own any of them. The lease on five of them owned by the Anglo-American Company, a British concern, will expire in the year 2011. Two of them are owned by the American Telegraph & Cable Company, have their landings on points under British sovereignty, and would have to be released in 1932. The lease on the eighth cable owned by the British government would expire on six months' notice. The six cables of the Commercial Cable Company in the Atlantic Ocean all have their termini on British soil.

Landing licenses issued by the British Board of Trade to cable companies landing lines on British soil clearly define the right of eminent domain of the British government. The rate for government messages is to be only half of the toll charged the public and at stated times the companies have to submit to the postmaster-general a statement as to the financial condition of the operating company. And in time of emergency such cables could be seized by the British government.

One reason why the greater part of the messages from the United States to Europe go over foreign cable lines, chiefly British, is the geographical position of the United States. The length of cable needed to reach continental Europe from the United States is too great to give the desired speed and service in cable operation. It is not desirable to operate cables of more than 2,500 miles in length, the service varying inversely as the length. This fact has had considerable weight in determining the political status and grouping of the world's cable systems. The same practical reasons made it necessary to use intermediate cable relay points, such as the Azores, wherever possible. In 1899 a common cable station was provided in the Azores by agreement, the parties being the Europe and Azores Telegraph Company, substantially British; the Commercial Cable Company, American; and a German company, the Deutsch-Atlantische Telegraphen Gesellschaft. The practical result of this move, however, was to give the Portuguese government the right to scrutinize all messages sent through the Azores.

The only important cable lines owned by the United States government are those running between this country and Alaska. There are approximately 2,700 miles of cable between Seattle and Seward in two huge loops. The cables ship Dellwood, of the United States Army Signal Corps, keeps these lines in repair.

The first new type direct cable between Spain and the United States was opened on Jan. 19, 1925. It runs from New York City to the Azores and from there to Malaga, Spain. A few weeks later this same line was extended on to Anzio, Italy, thirty miles southeast of Rome. The line from New York to the Azores was laid by the Western Union Cable Company and the part from the Azores to Italy by an Italian company, with reciprocal privileges to both companies. The cable was extended from Malaga to Rio de Janeiro via the Cape Verde Islands in November, 1925. This gave Italy direct communication with both North and South America.

As a result of this new Italian cable the Western Union Company is enabled for the first time to extend its service to the Far East due to the waiver

of preferential arrangements of the Commercial Cable Company in Far Eastern cable traffic, in return for the use of certain channels of the Italian cable. The new cable will also connect later at the Azores with a cable to be laid from Horta to Emden, Germany, thus re-establishing direct communication with Germany, which has been broken off since the war. Another new cable, from England to America via New Foundland, was also planned by the Western Union Company for 1926.

An alliance between the Commercial Cable Company and the All-America Cables, Inc., consummated in 1922, and affecting 50,000 miles of cables, provided for an exchange of traffic between the two systems so that the two lines act as one in communication between North and South America. It was hailed as a forward step in cable service by the press and the business world.

CHAPTER III

CABLE RATES

Cable rates are of importance to the press in two ways: the extent to which they limit the total volume of news; and the way in which they affect the nationality of the news sent. Very high tolls will naturally tend to limit the amount of news sent; for in such cases only stories of the greatest value would be justified and even then they might be condensed to the extent of misinformation rather than information. British news might be carried to South America instead of American or French if the cable rate for the first were more favorable.

Most newspapers and news associations are constantly pressing for lower and more equitable rates for news matter so that they may inform the public more fully on foreign affairs as well as be first with stories of prime international importance. The big rich newspapers, however, do not work consistently for lower press rates, as it would increase the competition they would meet.

Cable companies, on the other hand, grant lower rates to the press than to the public, not from altruistic motives nor from any great sense of the high office of newspapers, but because of the volume of news material sent, and because they need press stories to keep their cables working to the point of saturation; they prefer to have their lines under full pressure rather than idle. But beyond the saturation point press matter is not always given full consideration.

Most of the press traffic from Europe to the United States moves in the evening for the morning papers here. The plain English press messages are easier to handle than the coded commercial messages. Press messages are usually handled along with the regular traffic.

The press, however, depends upon rapid communication, and the national interest it represents, ought really to be considered ahead of the interests of the cable companies or of commerce. "If this is found to be difficult, owing to preferential rates allowed the press," says George Abel Schreiner, "then the rate in question should be abolished." He believes that such an action would have a salutary effect on the press of the United States, by crippling the foreign propagandist and preventing the sending of silly news dispatches; it would likewise put a premium on well-written mail matter.

Rates scheduled by cable companies fall into three distinct levels with intermediate connections. The press rate, near the bottom of the scale, is about one-fourth to one-half of the ordinary or full rate paid by the public. At the top is the urgent rate, which is generally three times or four times the ordinary rate and is supposed to give the maximum of speed and service. The intermediate rates, more seldom used, are the preferred rate, between the urgent and the ordinary; the deferred rate, just below the ordinary; and the deferred press rate, the very lowest in the scale.

Most news and feature stories go at the press rate, but as that rate does not give preference in speed of service, news is sometimes sent at the ordinary rate, and, where the value of the story justifies, at the urgent rate.

The urgent rate is more and more frequently used to obtain news, according to Moses Koenigsberg, as the competition between newspapers and press associations grows keener and as international events become matters of deeper public interest everywhere. The urgent rate was used exclusively in covering the tennis match between Helen Willis and Suzanne Lenglen, at Cannes, France, in the spring of 1926.

"Years ago, when a wire was a wire and carried one message, there might have been some justification for these high rates," says Mr. Koenigsberg. "But today, when science has shown how numerous messages may be transmitted simultaneously over the many channels to be found in one wire—and even over phantom channels between wires—today there should be a revision of cable rates downward to facilitate the dissemination of news over the world."

The United Press estimates that from 10 to 20 per cent of its news from Europe comes to the United States at either the ordinary, or the urgent rate. This was particularly the case when the world fliers were encircling the globe. The highest and almost prohibitive cable rates are found when sending news across the Pacific Ocean. The scarcity of cables there, the probable solution in radio, and other considerations make it a special problem; hence treatment of it is reserved for a later chapter.

But even in the Atlantic Ocean high cable rates are a factor; this was particularly true as regards South America. Before 1919 very little American news was sent to South American countries, and what little was sent usually came from England or France. This was because cable schedules made it cheaper to send news from Europe to South America than from the United States to South America, although the distance from the latter point was less. It was only through lower press rates granted in 1919 that it was possible for the United Press and the Associated Press to go extensively into South America.

The way in which the world was divided between the chief news agencies was also a factor in this situation. The Associated Press had the United States and its possessions, Canada, and Mexico; the French agency, Havas, had Latin Europe, Central and South America, and French possessions; the Wolff, or Germany agency, had Central and northern Europe; Reuters, the British agency, had the British colonies, except Canada, China and Asia. This made it easier for Havas to get United States news from America, cut it down and reshape it, and send it to South America, than for the Associated Press or United Press to do so, until the Associated Press made a new exchange contract with Havas allowing it to send news into South America.

The present press rate to Buenos Aires over Western Union cable lines is 12 cents a word, and over All-America Cables lines, 10 cents a word²; the ordinary rate in both cases is about 50 cents per word, and the urgent is \$1.50, depending on exchange rate and other conditions.

One of the chief concerns of the press regarding cable rates is whether they are increasing or decreasing or maintaining a more or less constant level. Clarence Mackay, president of the Mackay cable system which includes both commercial cable companies, declares that, "in spite of the advancing high costs of the operation of cables, in spite of general price advances, Atlantic cable rates have not advanced in the past forty years but have actually declined." He maintains that American cable rates are the lowest in the world, considering the better service afforded by the initiative of private companies.

Joseph Northup, a former cable editor of the Chicago Tribune, however, says that the cost of cable service increases as its speed decreases and that when important events occur, the cables are pitifully inadequate and become clogged with the stories of competing correspondents.

2. All rates given in this chapter unless otherwise specified refer to 1924 tariffs.

The proposal, made at the International Telegraph Congress held in October, 1925, in Paris to increase the daytime cable rates on press matter by 50 per cent, was killed, owing chiefly to the activity of the British delegation, which throughout the sessions led all fights against any increase in rates. This attitude of the British toward press rates is further reflected by the reduction which has been effected in the last fifteen years in press rates in the British Empire.

A table prepared by J. Saxon Mills for 1908 and 1923 shows that the press rate between England and India was reduced from 24 cents a word to 8 cents; between England and South Africa from 25 cents to 7 cents; between England and Canada from 10 cents to 7 cents; and between England and Australia from 24 to 15 cents a word. The London to Australia rate has been further reduced to 6 cents a word since this table was made. Some really substantial reductions are shown here, particularly in the case of the rate to India and South Africa. While it is true that the government itself controls the cable lines on the London to Australia route and could thus afford a lower press rate than private companies might, it is also true that private companies control largely the India and South Africa routes, though in many cases the companies are subsidized by the government. But even though Great Britain had special reasons for lowering the press rate in some instances, there is no denying that she has accomplished it to a considerable extent. And the Empire Press Union is endeavoring to obtain even further reductions.

It is argued by some British authorities that more government-owned cables would be the solution to the rate question, because then the cables could be operated as a public utility for the good of national and international understanding through complete press reports. This is in effect what is being done today in the all-British cable route from London to Australia. But there is always the contrary argument that private companies and active competition can furnish far better service at only a slight increase in cost. A uniform cable rate throughout the empire regardless of distance, has also been advocated, but no definite steps taken in that direction.

Though nominally based on the cost of construction, and cost of operation plus a fair return on the investment, cable rates, in reality, seem to follow no rule or logic. "There is no way in the world to explain the telegraph, cable and radio charge," says W. S. Rogers. "And when you look at the world as a whole, in many places there are secret rates and rebates, and then they have four or five different rates charged, and they have a kind of pool and the thing makes for confusion and international animosities."

In these pooling arrangements the cable companies route traffic over each other's lines and divide the profits. These pools were more common in the eighties due to rate wars among the companies competing for United States traffic. In the pool of Sept. 24, 1880, the two British companies received 84 per cent of the common receipts of the combination, while the French company had to take what was offered it—the remaining 16 per cent. Another pool formed in 1881, following the laying of another cable, included the American companies, the proportion being 87½ per cent to the European companies and 12½ to the American companies.

In other instances a wholesale press rate is sometimes granted. For example the Western Cable Company, a British concern, at one time had a low wholesale press rate for one million words a year, provided the entire million

were sent. The drop rate affects press rates as quoted. If a copy of a news cablegram is dropped off at several points en route to the final destination, an extra charge per word is made for each place the story is dropped. Supposing the press rate from New York to Buenos Aires is 10 cents per word, and the drop rate is a half a cent per word. If the message were dropped off at ten places the total charge for the message would be at 15 cents a word.

"If countries of the Pacific side have liberal ideas of 'drop copy' the same does not happen with those of the Atlantic side where the cables are subject to a transit impost," said Jorge A. Mitre, of La Nacion, Buenos Aires, at the first Pan-American Congress for journalists held in Washington, D. C., April 8 to 14, 1926. "The impost is great in Rio de Janeiro and impedes the ample diffusion of news, even in Brazil itself."

He declared that the injustice was more flagrant because the Brazilian official impost is the same for private as for press messages, and since the volume of the press dispatches is greater and the rate per word less, the fiscal tax bears especially on the newspapers.

Except across the Pacific Ocean and for unusually important news, the urgent rate is little used. Sir John Pender of Great Britain says that the urgent rate is an admission by the cable company that its service is poor and that there should really be only one rate for all press messages.

Most American correspondents abroad now send prepaid messages to their papers instead of sending the press collect. This has been found to be more satisfactory than the C. O. D. method but means that correspondents must be provided with thousands of dollars for cable tolls. The varying money exchange rate also is a big factor. In some instances it might be cheaper to send the message collect on account of the exchange. The International Telegraph Union Convention specifies that payment in the gold franc is the standard method of paying for cablegrams in Europe. Soon after the recent war cable companies refused to accept payment in the paper franc. The Western Union Company in particular, carried many messages out of Paris at a loss, refusing payment except in the gold franc.

That the press does not realize fully the advantage of the press rate is the contention of Sir John Denison-Pender, chairman of the Eastern Telegraph Company. He points out that the volume of press messages handled is about 22 per cent of the total carried while the revenue is only 2 per cent of the total receipts.

The question frequently comes up at cable offices as to just what makes a message press and hence entitled to the lower rate as compared with ordinary messages. The International Convention, a body of rules governing international telegraph traffic and drawn up at St. Petersburg in 1875, defines press messages as those conveying "information and news relative to politics, commerce, etc., intended for publication in newspapers." Publication, however, is said to be the acid test of whether or not a message is press, according to Walter S. Rogers, an authority on questions pertaining to international news communications.

Cable messages are sent in either plain language, code or cipher. All press cablegrams are in plain language, i. e., words that can be found in the dictionary and are easily understandable. But all press messages are condensed to save cable tolls and wire space, and this condensation, of the type peculiar to newspaper correspondents is known as "cablese." It has evolved after long experiment on the part of newspaper men and may consist in the prefixing of

extra syllables to a given word or the omission of articles and prepositions. No abbreviations or deliberately misspelled words are allowed, however. Cablese serves the same purpose for newspapers that code does for business firms. The amount of cablese which a correspondent may use varies with the practice of the cable company in question. For example the Western Union Cable Company will allow considerable more cablese than the Commercial Cable Company whose rules on that point are strict.

Plain language messages, and hence press messages, restrict the length of the words to fifteen letters; anything over fifteen letters counts as two words. In sending quotation-marks each character counts as a word, but five digits may be sent as one word. By a ruling made Oct. 24, 1925, at the International Telegraph Convention in Paris, editorial references such as "with reservations," may be included in a press message without extra charge. The convention also abolished the old rule, seldom used, that press messages could only be sent after 6 p. m. They may now be sent any hour in the twenty-four.

To keep as low as possible the cost of cabling and to facilitate the transmission of messages, it is customary, all over the world, to register a code word of ten letters or less representing the complete name and address of a firm, newspaper or individual. Thus, a message could be filed in London bearing the address, Fasmithco, New York, which, decoded would be, F. A. Smith Company, 1432 Water Street, New York. The same is true of newspaper firm names. It is required that all press messages be sent to the newspaper as a corporation and not to an individual editor if press rates are to apply. Since 1919 a central bureau has been maintained by the cable companies for the registering of all cable addresses at an annual charge of \$2.50. Only one address per company is allowed. Before the entrance of the United States into the World War in 1917, some firms had as many as 300 different cable addresses, each with a slightly different secret meaning. All these were canceled during censorship.

In feature stories and those in which the time element is not of first importance, newspapers often take advantage of week-end and cable letters on which a special rate is made on twenty words. The week-end letter rate between New York and London is \$1.25 with a charge of 6½ cents for each word over the twenty. The cable letter rate between the same points is \$1.40 while the press rate for twenty words, New York to London, would be approximately \$1.50.

Government messages take precedence over all others in being sent by cable companies; service messages are next, then commercial and press, unless the ordinary or urgent rate is paid. In 1924 the Western Union Company handled land-line and cable messages for the United States government for \$736,000 less than the actual cost of operation, and \$809,000 less than such business would have brought at commercial rates, according to the company's annual report for 1925.

In the early days of American cable history high rates went hand in hand with monopoly agreements. In the Guatamalan concession given the Mexican Telegraph Company in 1881 for twenty-five years, the charge per word between the United States and Guatemala was not to exceed 75 cents a word. With the Costa Rican agreement the maximum rate rose to \$1.25 per word. The highest rate was under the fifty year monopoly with Ecuador, \$2.50 maximum per word.

In the Atlantic Ocean competition helped to keep the rates down in the eighties. When the American Telegraph & Cable Company opened its trans-Atlantic line in 1881, announcement was made that the rate would be 35 cents per word as against the English 2 shilling (50 cents) and the French 2.50 franc (then about 48 cents). The Anglo-British cable pool promptly reduced its rate 50 per cent, thus undercutting the American company.

To sum up, cable rates are favorable to the press to the extent that cable companies do allow a reduced rate, but they are unfavorable to the extent that this special rate does not carry with it the maximum of service. Press rates have shown a tendency to come down gradually in the last twenty years in spite of increased costs of operation and maintenance. Press rates influence in some degree the amount of news sent and the nationality, in so far as one international route is cheaper than another. Rates are abnormally high on the Pacific Ocean lines. The most favorable rates for the press are found on British government lines, though the service is not always the best.

CHAPTER IV

WIRELESS ENTERS THE FIELD

Today (in 1926) the telegraph and the submarine cable no longer hold undisputed the field of swift international news communication; the wireless telegraph and, in a small degree, the wireless telephone, are rivals that are furnishing active competition and supplementation. Together the cable and the wireless are breaking down the last vestiges of communication barriers, to unite a world by carrying news. Wireless is here to stay and is beyond the purely experimental stage in international communication; it is a factor to be reckoned with in any serious consideration of this broad field.

"In wireless³, lies the future communication of newspapers and press associations," M. Koenigsberg, president of International News Service, said recently.

Guglielmo Marconi is generally credited with being the father and developer of wireless, if not its inventor. He is an Italian, born in 1874 and still living. He early became interested in the Hertzian waves and the possibility of these waves' carrying electrical impulses through the air in all directions.

Failing to interest the Italian government in his work, Marconi went to England in 1895-6 where he continued his experiments with the aid of the British Postoffice. In 1899 the first signals were sent across the English Channel. In December, 1901, the first code signals were sent across the Atlantic Ocean from Poldhu to New Foundland. From then on wireless progressed by leaps and bounds. Marconi had sent a complete message across the Atlantic by 1903. A regular wireless service from Poldhu and Cape Breton to liners in the Atlantic was begun in 1904. Small newspapers were published on shipboard by its aid. Eighty ships now receive news by wireless while at sea for use in their daily ship paper. The Cunard Daily Bulletin has been issued on the Cunard liners since 1904. The London Times obtained war bulletins by wireless during the Russo-Japanese War.

The first international radio convention, called in 1906 at Berne, was one of the earliest indications that wireless was to be more than a national toy. In 1912 the international second wireless conference was held in London. The United States was a party to the convention signed there. Press dispatches were handled across the Atlantic as early as 1907. (This was only under favorable weather conditions, however.)

The World War starting in 1914 did much to prove the worth of wireless in communication; army, navy and signal corps used and developed it. Meanwhile, side by side with wireless telegraphy, the wireless telephone had been making long strides. Experiments in 1915 proved that the human voice could be heard in Paris and Honolulu from Washington, D. C. The message was carried by telephone wire from Washington to Arlington where it was broadcast. In 1923 officials of the American Telephone & Telegraph Company talked for sixty minutes to persons in London by wireless.

The wireless telegraph is used almost exclusively today in carrying international news, as compared with the wireless telephone, partly because the code used in telegraphy cannot be picked up so easily by the average owner

3. Where the terms "wireless" and "radio" are used without qualification, the reference is to wireless telegraphy.

of a receiving set, and partly because the human voice cannot span the ocean except under almost ideal conditions. The wireless telephone, however, is occasionally used to send out bulletins of important news.

As either the sending or receiving station in an international wireless circuit is on the soil of countries independent of each other, wireless stations like cable termini are subject to the regulations of the government in which they are located. In the United States, Herbert Hoover, secretary of the Department of Commerce, has charge of wireless and radio regulation; in Great Britain the British Postoffice has control; in Japan the Japanese government, etc.

But while the means of communication are national the business is international so the international regulation necessary is provided by the International Radio-Telegraph Convention of 1912. The international office of the Telegraphic Union is at Berne, Switzerland. Here are compiled lists of all the wireless and radio stations in the world, together with information on the advances in the science and mechanics of wireless, and similar data. Here also the nations of the world are allotted their call letters. The United States has all the combinations beginning with W and N, the latter being reserved for the navy, and K calls between KDA-KZZ.

The international list of radiotelegraph stations in the world as of Jan. 1, 1924, lists more than 56,000 wireless stations of all degrees of power and radius. These stations, are distributed in approximately 150 countries.

As yet, the cable mileage of the world is twice that of the wireless circuits, the former being about 325,000 and the latter 150,000. But new international wireless circuits are being added rapidly. The total annual transoceanic traffic going over both cable and wireless lines was estimated at 500,000,000 words in 1924.

Aside from the high-powered wireless stations maintained by the leading governments of the world for their own use, the two most important wireless systems in the world today are the Marconi system, British, and the Radio Corporation of America system, United States. Circuits are operated between all the chief commercial centers of the world.

The Marconi Company is now engaged in connecting the various colonies of Great Britain by wireless to build up a communication system for the British Empire similar to the "All-Red" cable route. The original plan, whereby the British government was to be a partner with the Marconi Company in building the wireless chain, was abandoned when the World War broke out in 1914. The station at Leafeld, England, was the home station erected under the original agreement. Following the war the various dominions took charge of their own wireless problems, arranging their own circuits with London and each other. It is planned to have stations so built that messages can be relayed at intervals of 2,000 miles or so.

In the United States the United States Navy operates about forty high-powered stations, capable of working up to 5,000 miles in radius. These stations, while designed primarily for the government's own use, are also used at times for commercial and press messages. This is particularly true in the Pacific Ocean region.

On Jan. 1, 1926, the Radio Corporation of America, organized in 1919, was operating twelve international circuits between the United States and the following countries: England, France, Germany, Norway, Poland, Italy, Argentina, Hawaii, Japan, Dutch East Indies, Sweden and Holland. Most

of the foreign stations with which the Radio Corporation of America Communicates are government owned. These services are competitive with those offered by the various cable companies.

The Radio Corporation of America at the beginning of 1924 claimed to be handling 30 per cent of all trans-Atlantic tel-electric communication over seven duplex circuits. However, information shows that this amounted to only 100,000,000 words per year. Working at full capacity under average conditions a total of 300,000,000 words is theoretically possible for the Radio Corporation of America to send. In the Pacific ocean traffic the Radio Corporation of America sends an average of 8,000,000 words, as against 32,000,000 words sent over the two Pacific cables—the Commercial Pacific and that of the Pacific Cable Board Line, a British cable. It is in this latter region that the Radio Corporation of America is doing much to alleviate the cable shortage.

The French government has a state wireless service that embraces all the French colonies, including Indo-China, the West Indies, French Guiana, Madagascar, and northern Africa. Germany had built several wireless stations in her African colonies, but these stations were taken over by the Allies during the war. In Germany proper there are several powerful stations especially at Nauhen, near Berlin.

The demand of ocean travelers for news on board steamships became so insatiable in the spring of 1925 that the safety of vessels was said to have been impaired and the Radio Telegraph Committee of the League of Nations asked the Radio Telegraphic Union to act immediately to clear the air so as to insure better chances of picking up wireless calls for assistance. It was said that the constant flow of news dispatches day and night to vessels at sea seriously interfered with the reception of SOS messages.

A consortium of the wireless interests of the United States, England, Germany, and France, formed in 1920 to put up a large wireless station near Buenos Aires, South America, is also planning a powerful station at Pernambuco, Brazil, to be used as a relay station between the United States and Europe and between Rio de Janeiro and Buenos Aires. The station was expected to be working by 1927.

Wireless had begun to make itself felt as a probable competitor for the cable as a means of communication as early as 1904. It was provided in the renewal of the cable monopoly granted the South American Cable Company by Colombia that "further renewals of this monopoly may be made at two-year periods following the twenty-year extension herein granted, providing that at the termination of each such period of two years the government has not entered into any contract for the establishment of other means of communication different from that of the submarine cable." At that time the wireless telegraphy was largely an experiment, yet its possibilities were recognized and guarded against.

Again in 1905 when the monopoly of the same company in Peru was prolonged for twenty-five years, wireless was taken into consideration as follows: "But in case the wireless system should become of general use by commerce in the world, and should substitute in a permanent and normal manner the cable between Europe and Lima and if the government should receive proposals to establish it between Lima and Panama, the government has the right to require the company to decide within six months whether it will establish the wireless system."

Since those days of its infancy in long-distance communication, wireless has advanced to that stage where it invites comparison with the submarine cable on the common ground of cost, rates, speed, reliability and service.

It costs much less to install an international wireless circuit than it does a cable between the same terminal points. The cost of installing a high-powered radio station for trans-Atlantic service, with a range of 3,000 miles varies from one to two million dollars; for a two-station circuit the cost would therefore be between two and four million. A modern cable 3,000 miles long would cost at least \$7,000,000 not allowing for subsequent repairs.

Wireless is not yet as reliable at all times and in all kind of weather as the cable, but new inventions are increasing the effectiveness of its service to the press and the commercial world.

The lack of secrecy in wireless messages, which has been attacked as one of its chief weaknesses, is said to be partly overcome by the speed of complicated receiving apparatus. A speed of 110 words a minute has been reached in automatic tape reception between Paris and New York. The ear and hand limit was 45 to 60 words a minute in 1926.

Clarence H. Mackay, president of the Mackay telegraph and cable systems, has this to say of the service rendered by cable lines today: "We have builded on such a solid foundation of competition and service that we do not even fear the great Radio Corporation of America, which, under the leadership of Gen. Harbord, is accomplishing such wonderful things for intercommunication. On the contrary, we regard them as 'friendly enemies.'"

Cable companies are not inclined to take the view that their business is imperiled by the advent of wireless. In the fall of 1924 the Western Union Cable Company spent ten million dollars on the United States-Azores section of the cable to Spain and Italy. Other companies are planning replacements or new cables which would call for an expenditure of not less than \$100,000,000 by American companies alone. Expenditures on such a scale would not indicate fear of the wireless.

Newcomb Carlton, president of the Western Union Cable Company, in testifying before the foreign affairs committee of the Senate of the United States, in 1919, said: "It has been our view that the resources of radio will be combined with those of the cable in the development of a system of world communication that will place the United States first among all the countries for capacity and reasonable rates, provided the government will adopt a progressive and business-like method of dealing with cable companies. We are disposed, therefore, to think of the radio in terms of a great medium of transmission and as a potential ally, rather than in terms of a continuing competitor." In his annual report for 1923 he states: "The effect of wireless competition upon ocean cable traffic has been closely observed for several years. It is our experience that, where cables can be assured efficient landline connections as for example, in Great Britain, France, Italy, Germany, the Netherlands and Belgium, the cables will hold the business as against wireless competition."

Ernest Walker Sawyer, member of the Institute of Radio Engineers, early in 1925 challenged the statement of Newcomb Charlton that a certain new invention, "permalloy," assured the supremacy of the cable in trans-Atlantic communication. Mr. Sawyer pointed out that the 5,422 miles of cable to Italy was estimated to have cost at least \$7,000,000 while radio stations operating between New York and Rome, using the prevailing type of equipment, represented an outlay of approximately \$3,000,000. In addition

he said that the radio stations of the New York-Rome circuit could be used for communication with other points.

The cable relies for its supremacy principally on secrecy and continuous service day and night. Wireless' chief dependence is in affording an additional channel of communication to the crowded cables and in forcing lower press rates.

Today cable and wireless rates are very nearly in accord on most of the chief circuits of international communication. When wireless first entered actively the field of international communication its rates were considerably lower than those of the cable lines, making what is known as the rate differential in favor of wireless. It was because of this differential that the first international wireless traffic was developed.

In April, 1923, American cable companies reduced their trans-Atlantic rates about 20 per cent. In spite of this cut the gross revenue declined less than 10 per cent, as compared with 1922. At the same time trans-Atlantic wireless rates were generally raised, resulting in approximate equality of wireless and cable rates, and virtually wiping out the differential.

Radio press rates from London and from Paris are the same as the cable press rates from those points to the United States, 7 cents from London and 10 from Paris. From Berlin, however, the difference between the cable press rate of 14 cents and the wireless press rate of 7 cents, is considerable. This is probably due in part to the fact that the cables that were formerly owned by Germany before the World War are now operated by the Allies and Germany has developed wireless more fully and relied more strongly upon it.

Radio companies have the same classes of rates as the cable companies after which their traffic schedules are fashioned, i. e., deferred, press full or ordinary and urgent. The wireless press rate from England and France and Rome via the Leaffield station to the station at Halifax, Nova Scotia, and thence to American newspapers, is 6 cents a word, in contrast with a press rate of 7 and 8 cents a word by commercial radio companies and to the cable press rate of 7 cents from England, 8 cents from French cable terminals and 12 cents from Rome. Thus it costs twice as much to send a press dispatch from Rome to the United States by cable as by Leaffield wireless. As a comparison between the rates of the Radio Corporation of America and the Marconi Company, it may be noted that the full rate for the former between New York and London is 20 cents a word, while the latter charges 9 pence, or about 18 cents a word. The Marconi Company also does considerable traffic in week-end letters via radio from Great Britain to Australia and South Africa.

From Japan to San Francisco the press rate of the Radio Corporation of America until February, 1926, was 27 cents a word as compared with 30 cents a word via cable of the Commercial Pacific Company. The navy wireless from Manila to San Francisco grants a press rate of 6 cents a word which is comparable to the Leaffield wireless press rate.

With the advent of wireless, however, the cables, as if seemingly spurred on to greater efforts, have evolved a new type of much greater speed than the old, which is likely to counterbalance in part, the advantages of wireless.

The new type of cable is known as "permalloy" and is said to be "loaded" A speed of 1,950 letters per minute has been attained on the new cable; it is expected this will be increased to 2,500 in a new cable which has been ordered. This speed would be roughly about nine times as fast as the old type of cable, or about 500 words a minute, counting an average of five letters to a word.

In addition to this another invention will allow several transmissions over the cable simultaneously by use of vacuum tubes and filter circuits. These several transmissions are known as channels of communication. A similar working has been possible for some time over shorter length land wires, but this is a new departure for long submarine cables. By means of relays an operator in London may transmit directly to Chicago or other points at a distance beyond the cable end, or two or more cables may be joined together. A cable of this new type is planned between New York City and Great Britain by way of New Foundland.

The invention of a new alloy of nickel and iron, known as "permalloy," or by the British as "mumetal," which is wrapped around the core of the cable, is mainly responsible for the great increase in speed. It has been hailed as the most important development in cable history since the first transoceanic cable was laid in 1866. F. B. Jewett, vice-president of the International Western Electric Company, declares permalloy will probably mean the construction and laying of direct cables of a length hitherto impossible on account of limits of capacity. The new loaded cable will not displace existing means of communication but will cause a new alignment of the fields of the different kinds of communication. The real fields of wireless and cable in transoceanic communication will probably become much more easily distinguished.

The first American cable of the new type to be laid was the one between New York and the Azores by the Western Union Company in 1924, which joined a similar cable from the Azores to Italy via Spain. The cable between New York and the Azores is 2300 miles long. Signals go from New York to the Azores in three-tenths of a second, and follow each other so rapidly that it takes six automatic typewriting machines to handle the volume of traffic flowing over the cable when going at maximum speed.

The permalloy tape does not cause the signals to go faster per mile per second but strengthens them en route and keeps them more distinct so that in reality they are received faster. In order to utilize this speed all of the channels of communication in it must be used. Two of the channels in the Azores cable will be leased to the Commercial Cable Company. The German-Atlantic Cable Company is arranging the manufacture and laying of a loaded cable between Emden, Germany, and Horta in the Azores, where it will connect with the Western Union and Commercial companies and afford direct cable service between the United States and Germany.

The speed of cable communication between London and New York on cables of the old type averages 245 letters per minute or 50 words a minute with the cables operating about twenty-four hours out of every twenty-four. The Dawes report, consisting of 44,000 words, which was cabled under the Atlantic April 8, 1924, is the longest message ever cabled up to the beginning of 1926. It was filed over four direct cables and required eight hours' time. The complete text of the Locarno pact text totaling 5,000 words was sent across from London to New York at the rate of 50 words a minute over a 3900-mile circuit without any relay. Even the punctuation of the original text was strictly adhered to.

Recently the British have put magnifiers on their cables, increasing their capacity 30 per cent. A direct printer is also expected to increase their capacity. It was estimated that the British can obtain a speed of more than 2,000 letters a minute in one direction with their new alloy cables. It is proposed to divide the alloy cable into five channels of 400 letters each. Associated Press officials

predict that a cable will be laid in the Atlantic in 1926 which will make it possible to send a message and receive an answer between London and Boston in eighteen seconds.

The rivalry of wireless and cables for international traffic is perhaps best summed up by Sir John Denison Pender of the Eastern Telegraph Company of London who stated that "the world wants radio, but that it cannot do without cables." Therefore he believes that radio and cable companies should unite and says that will eventually be the case. He contemplates a certain loss of revenue from radio competition but is certain that with the cable developments in prospect that they will be able to hold their own against wireless. Wireless will take a certain amount of traffic away from the cables, he feels, but whether that amount will do wireless any good remains to be seen. Sir John says that if a merger is effected between wireless and cable companies, rates would certainly not go up and might come down. Cable companies hope to reduce cable rates when the new high-speed cables are numerous enough to handle a much heavier traffic at less time and money. The cable press rate between New York and London was reduced from 7 to 5 cents a word in November, 1926. This is declared to be the irreducible minimum in trans-Atlantic press cable rates. It was due in part to wireless competition and in part to more permalloy cables in the Atlantic.

To meet the greater efficiency of permalloy cables the wireless world has evolved the "beam" method of transmission which combines directional qualities with a much smaller requirement in both electric power and money and a greater amount of secrecy than the broadcasting method.

Marconi is the inventor of the beam system which is now being used in the British Empire chain of imperial wireless stations uniting the empire. Beam service between Canada and England was started in October, 1926. By means of a parabolic shield and tuned circuits the wireless impulses are concentrated in a single beam and sent in only one direction instead of in all directions as is the case with the ordinary broadcasting method. The concentration of the electrical energy means a great saving in the amount of power used, the stations cost less to build and the short waves used travel farther in daylight than the long waves, as well as pierce static more easily.

"I am now firmly convinced," said Marconi in the early part of 1925, "that the beam stations employing only a small fraction of the power used by the long-wave stations, and much lower and fewer masts, will be able to communicate at practically any time with any part of the empire."

The beam system increases the available number of wave lengths by eliminating interference that would result from the use of similar wave-lengths or kilocycles in the old non-directional manner. Signals were successfully sent in November, 1924, between England and Canada, the United States, Brazil, Argentina, Australia, India, and South Africa. Fifteen kilowatts of power and a wave-length of 51 meters were used.

For twenty-three and a half hours out of twenty-four on Nov. 10, 1924, beam signals were exchanged between England and Australia. Instruments showed that the direction of the beam changed according to the position of the sun so that part of the time the signals traveled 12,200 nautical miles and part of the time only 9,380 miles. The intensity of the signals also varied with the mean altitude of the sun when above the horizon.

Each of the dominions of the British Empire has contracted for the erection of beam stations which will communicate with reciprocal stations in England and between the various dominions themselves. One of the dominion delegates to the last Empire Press Union meeting (in 1925) strongly advocated that wireless charges be based on commercial considerations and deprecated the British Postoffice favoring cable interests at the expense of the wireless. He said that it would mean that instead of the public reaping the benefit of wireless facilities the rates would be fixed by a combination of other government organizations to make excess profits for the benefit of the general revenue.

A New York-London beam service is planned to begin in January, 1927. The home beam stations for England will be built near Dorchester. Contracts for Australian stations call for a capacity of 43,000 words duplex daily, the station to cost \$600,000.

The linking of the land telephone with the wireless telephone may open up still another field of communication. This has been done in Japan for emergency use in time of storm or earthquake. It will also be tried in the Hawaiian Islands. The most successful radio duplex-line telephone now in operation and one of the first, is that between Copenhagen and the Isle of Bornheim in the Baltic Sea. The sound waves are carried over ordinary telephone lines to the transmitting station at Lingby where they are sent to the island via wireless. A London-New York wireless telephone service is contemplated between the powerful Rugby station and Rocky Point, Long Island. The charge for a three minute talk will probably be \$75. Service will be possible, however, only under ideal weather conditions.

Direct telephone communication between London and Berlin, which was severed in August, 1914, was re-established during the summer of 1925. Almost all the British dailies get the bulk of their continental news via telephone wires the lines being carried in cables under the English Channel. Calls are put through at fixed periods during the day and night.

To summarize, wireless entered the field of international communication definitely, following the World War, and despite considerable improvements in cable service and capacity, seems destined to have a large niche of usefulness in the communication field; by co-operating with existing media, wireless can be of real importance to the press and the business world.

CHAPTER V
PART I

WIRELESS AND THE PRESS, INCLUDING THE PACIFIC PROBLEM

Wireless telegraphy has now reached the point where as a carrier of international news it merits comparison with the submarine cable. The New York one of the first newspapers in the United States to use the wireless telegraph in obtaining European and Oriental news and one of the very few to openly acknowledge this indebtedness to wireless by crediting it in the dateline of the news story, today, gets between 35 and 40 per cent of its foreign news by wireless.

T. E. Meinholtz, manager of the radio department of the New York Times, estimates the proportion of wireless news to cable to be in the ratio roughly of 40 to 60. An examination of five issues of the New York Times in the latter part of 1925 showed that the average amount of wireless news per issue was 35.8 per cent. The Wireless news ran as high as 48 per cent and as low as 24 per cent. The table for the five issues follows:

Date	Wireless page one	Wireless inside	Cable page one	Cable inside	Total Foreign	Per Cent Wireless
	Col. in.					
Nov. 20.....	15	84½	16	92	207½	48
Dec. 2.....	40	64	30½	120	254½	39
Dec. 17.....	9	13½	24	37½	83½	26
Dec. 23.....	14	39½	0	72½	126	42
Dec. 24.....	13	17	7	85	122	24
Totals	91	218½	77½	407	793½	179
Average per issue....	18.2	43.7	15.5	81.4	158.7	35.8

In the table just given the stories were measured in column inches exclusive of the headlines. It shows that the amount of wireless news used varies considerably, but the important thing is that it is consistently used and has made sufficient progress against the much longer established cable systems to carry an average of more than 35 per cent of the foreign news.

As early as 1907 the New York Times was getting foreign news by wireless telegraph and giving credit in the dateline. It aided Marconi in establishing the first trans-Atlantic wireless circuit in that year. One of the stories sent by wireless and dated Nov. 29, 1920, was seven inches long and was used as the page one lead to a cable story from London. The wireless dispatch was filed in Berlin. It stated that Lenin admitted a plot in his speech delivered in Moscow. The New York Times had its own receiving station for foreign wireless news ready for use in 1920. A story dated Nov. 30, 1920, also sent from Berlin by wireless, said that a war on cake had been declared by Berlin officials. The story was four inches long as it appeared in the Times. Since then wireless has gradually increased in favor until in 1926 it had become a competitor of the cable, figuring prominently in each issue of the paper.

The Times states that as wireless expands it will increase its wireless filing from abroad. The Times' own correspondents in foreign countries file about 6,000 words by radio and about 9,000 words by cable nightly, not in-

cluding the foreign news service of the Associated Press and the Chicago Tribune foreign service. In regard to static, Meinholtz says: "Such enormous strides have been made in reducing static that delay on transoceanic traffic is almost negligible." Radio press rates, according to him, are slightly cheaper than cable press rates.

The Times' radio station is maintained solely for receiving news of use to that newspaper. Working in conjunction with the Times' station and originally an outgrowth of it, is the wireless station at Halifax, Nova Scotia, built and maintained by a group of sixteen American newspapers including the Times. Two leading news agencies also use it. Transmission of press dispatches has been contracted for with England, France and Italy. The foreign transmitting stations are Leaffield and Northolt in England, Lyons in France, and Rome and Coltana in Italy. The press rate on this circuit is 6 cents a word from England, France and Italy as against a cable rate of 7, 8 and 12 cents, respectively. Besides being more economical the service given through these stations is faster and often dispatches are in the hands of editors in New York fifteen or twenty minutes after being written in London.

The average number of words sent is about 10,000 per night but the number has reached as high as 12,000. The London representatives of the syndicate not only send British news but also collect news by cable from Berlin and Paris. The members of the syndicate controlling the Halifax station speak in high terms of the efficiency, speed and accuracy of the Leaffield service; they say the transmission is better than that of any service they have ever received, either cable or wireless. The news is sent at the rate of from 30 to 50 words a minute.

Arrangements are being made to build another station at Halifax to relay the press messages on into the newspaper offices in New York, Chicago and Philadelphia, and to hire cables to collect more news in Europe for transmission to America. In the 1923 report of the United States Federal Trade Commission, it is stated that the Halifax station was built to escape the monopoly of the Radio Corporation of America, under which no message originating in foreign countries can be received in America except through the Radio Corporation.

The Associated Press, one of the largest news agencies in the world, uses wireless to obtain about one-fifth of its foreign news, the other four-fifths coming by cable. Charles Thompson, in charge of the Associated Press foreign service, says that wireless is not entirely beyond the experimental stage yet, and is not as uniformly reliable in point of time under all conditions day and night. As experience seems to justify, however, he declares that the Associated Press will increase its use of wireless telegraphy in the foreign news field.

The United Press still uses the cables more freely than the wireless in obtaining news from abroad. The problem of static is cited as one reason for the greater dependability of the cable, by J. H. Furay, in charge of foreign service. The United Press does, however, use wireless a great deal, in fact, whenever possible to do so without delaying the service.

The Chicago Tribune, one of the pioneers in using wireless to gather foreign news, receives about 5,000 words of press nightly from Europe and Japan, getting about one half of its transoceanic news by wireless. The advantages of wireless, according to the Tribune, are that it is cheaper and faster than the cable, though not yet as dependable. The Tribune does not broadcast any news from the United States to European countries, but does broadcast

news to ships in the Atlantic, on which an ocean edition of the Tribune is printed with this news.

On Oct. 20, 1920, the Tribune claims that it made newspaper history by receiving by direct wireless telegraph from Bordeaux, France, the first news dispatch received by any newspaper from a foreign country. Three other newspapers installed receiving sets for wireless news about the same time. They were: The New York Times, the New York American, and the Philadelphia Public Ledger. These papers had as their common source the powerful arc type stations at Lyons, Bordeaux and Nauven.

This arrangement of obtaining wireless news from the Bordeaux station had to be modified in 1922 to the extent that the Tribune and other papers using Bordeaux news had to obtain all their wireless dispatches through the Radio Corporation of America. They continued to receive the dispatches direct, however, although they had to pay double for the privilege. The Bordeaux station was built by the United States during the World War and operated by it until 1922 when the French government took it over.

An average of about 3,000 words daily was received by the Tribune via wireless from Bordeaux previous to the Radio Corporation agreement. These news stories reached the Tribune office from three to six hours earlier than if they had been filed by cable or by the Marconi wireless system and cost 30 per cent less than if sent by other channels. Promptly at 7 p. m. Greenwich Meridian time, or 1 p. m. Chicago time, the Tribune foreign correspondent would begin sending his story from Bordeaux. This would allow plenty of time for the important stories to be translated and filled in by the cable editor and in the forms in time for the first edition early in the evening. The block of time between 1 and 5 p. m. Chicago time was reserved for the Tribune.

Whenever crashes of static prevented the operator from getting a word correctly, he would signal Bordeaux, using the Great Lakes sending station, by remote control, and the word would be repeated. Operators state that a dispatch seldom comes through letter-perfect. The Tribune maintains twenty-eight foreign correspondents abroad. In crediting stories, however, no mention is made as to the carrier of the news, whether cable or wireless, the credit being simply: "Chicago Tribune Foreign Service." Hence no accurate tabulation of the wireless stories used by the Tribune can be made from its files as is the case with the New York Times. The cable editor of the Tribune is obliged to note in his schedule whether the story came by cable, mail or wireless. Hugh Redwood, foreign editor of the London Daily News, declares that wireless is destined to effect all-important economies in the transmission of news in the future.

Although the bulk of wireless news carried today is by wireless telegraph and doubtless will be for many years yet, the wireless telephone acts in a small way as a carrier of news. Radio stations owned and operated by newspapers, give the listening public news bulletins at stated times during the day and when the news is of transcendent national or international importance, a running account of the affair is broadcast. An example of the latter is the broadcasting of national election returns, the "covering" of the World Series, big football games and other sporting events by radio; and the reporting of presidential inauguration ceremonies. In the spring of 1925 the oath of office which President Coolidge took was plainly heard in Jay H. Neff Hall at the University of Missouri where it was received by radio from a chain of sta-

tions. A vital limitation of radio telephone for local press services however, is that it is a one-way service and is not as flexible as a wire circuit.

In America the Associated Press whose rules against making public any news gathered by its members' news staff are drastic, in April of 1925 modified the ruling in so far as it affects broadcasting. Now, the Associated Press papers broadcast national election returns and big sporting events. The United Press, which sells its services outright, has always made liberal use of broadcasting nationally important news.

Station KYW, owned by the Chicago Evening American, broadcasts a few of the more important news bulletins every half hour, day and night. Other stations, such as KSD, end their radio weather and market report, with a news item or so. KOA at Denver and WGY, Schenectady, give the listener the gist of the day's news in a few condensed bulletins about 6 p. m. Numerous stations issue hourly market and weather reports, which is news of a high order to thousands of farmers and traders. The Boston Transcript broadcasts daily at 3 and 6 p. m., the "Events of the Day," from station WEEI. It boasted that through WEEI it gave listeners of the east the first news of the Lenglen-Wills tennis match played at Cannes, France, in the spring of 1926. The Transcript also wired the news to stations WEAJ and WCAP.

An example of a news story whose developments became important enough to warrant broadcasting is the Floyd Collins case. A relief party was digging to find Collins who had been entrapped in a cave and pinned under a large rock. When finally found he was dead. Public interest was so great that many newspaper stations broadcast hourly bulletins on the progress of the workers. The verdict of the Loeb-Leopold murder trial was also broadcast for the same reason.

In Great Britain the situation is somewhat different. There the broadcasting interests are closely supervised by the state, are consolidated into a small number of stations, and are separate from the newspapers proper. In order to protect the evening papers in Britain what is known as the 7 o'clock rule is in effect. This rule prohibits any broadcasting of news bulletins till 7 o'clock after the final editions of the afternoon papers are off the press. The British Broadcasting Company receives its news from the four authorized news agencies who vouch for its accuracy.

Now and then, however, false news reports have been known to be circulated via wireless telephone, and to have done greater harm, perhaps, than if they had only been printed. A case in point was a false report broadcast at Brisbane, Australia, that England had resolved to resort to arms to uphold her financial interests in the Orient and that all available warships and troops were being mobilized. Officials declared that such reports were capable of starting panics and doing great harm.

The case of possible libel by radio would also follow. Recently the British Broadcasting Company announced through the ether that Cyril Tolley, British amateur golfer, had been divorced in America. Mr. Tolley, who happened to be listening in at Birmingham, telephoned a correction to London at once. He had been confused with Cyril William Tolley, Canadian golfer; the British Tolley was not married. The correction was made, but it was pointed out that thousands who heard the first announcement may not have been listening when the correction was made. English barristers claim that at present radio telephone stations are not liable for either slander or libel.

An examination of average radio programs in Paris shows that station "Radio Paris" news bulletins and exchange rates are broadcast three times during the afternoon and early evening. In continental Europe News may be sent out by radio telephone as soon as it is off the press.

But it is when telephone and telegraph wires are broken and tangled by storms making communication by the ordinary channels impossible that the radiotelephone really comes into its own in a news way. The heavy sleet storm of December, 1924, in the Middle West furnished an excellent test. Scores of cities and towns were isolated from wire communication. The United Press and Associated Press took to the air at once to reach their client newspapers by radio telephone. Station KSD, St. Louis, responded promptly to a request from the local office of the Associated Press to broadcast news for use in newspapers having membership in that association. This service was begun the night of Dec. 20, 1924, and continued up to and including the night of Dec. 27. During a part of this period the KSD service was the only source of Associated Press news to morning papers in Jefferson City, Springfield, Mo., Mattoon, Jacksonville, Decatur, Bloomfield and Springfield, Ill., and to some papers in Oklahoma, Iowa and Kansas. A Jacksonville, Ill., paper was dependent on this radio service for an entire week. In that time every morning important news story bore the credit line, "By A. P. from Radio Station KSD." Except for a short time on the opening night of the service, when code was used, the news was broadcast by radio telephone, and reached thousands of listeners.

The United Press performed a similar service for its readers and listeners Station KYW, Chicago, WCAE at Pittsburgh, and KFJF, Oklahoma City, were used. On Dec. 19 and 20 the news of the day was broadcast to United Press papers for three hours.

The amateurs, who have conversed with each other between distant lands, showed that they can be relied upon to keep the news moving in a crisis. The Decatur Herald, a morning newspaper in Decatur, was entirely dependent on an amateur circuit between there and St. Louis. Five front-page stories appeared under various date lines, with the credit line, "By Amateur Radio." They used a telegraph transmitter, talking in code for nine-hour stretches two nights.

As a result of the sleet storm experience the United Press sent out to editors on Nov. 7, 1925, a list of broadcasting stations which would be used in case of emergency, together with the time of such broadcasting. The list was: Denver, KOA, 11:30 to 11:45 a. m., 1:15 to 1:30 p. m., 8 to 8:30 p. m.; Kansas City, WHB, at short intervals from 8:50 a. m. to 11:45 p. m.; Chicago, KYW, ten minutes at 10:40, a. m., 12:50, 1:40 and 2:30 p. m.; Omaha, WOAW, 9:30, noon and 1:30 p. m.; St. Paul, WCCO, at short intervals from 9:30 a. m. to 6 p. m.; Boston, WEEL, 10 to 10:45 a. m., 12 to 1 p. m., 2:30 to 3 p. m.; Pittsburgh, WCAE, at short intervals throughout the day; Atlanta, WSB, 12 to 1, 2:30 to 3:30 p. m., 8 to 9 p. m., 10:45 p. m. to midnight. Radio is also being employed now as an emergency stand-by in the intermountain territory of the Rockies to guard against interruption of news service to editors during blizzards and washouts. In co-operation with the United Press Station KOA would broadcast the reports at stated intervals.

While the examples of wireless telephone broadcasting in the United States are not in themselves international, they would be in Europe over a like extent of territory. Furthermore the tests held early in March of 1926 and the efficiency of the wireless telephone between New York and London indicate

clearly that even now the human voice can span the Atlantic. The first news story, about Ambassador Houghton, has already been sent over the Atlantic by wireless telephone.

At the time of the sun's eclipse, Jan. 24, 1925, the Associated Press date-line on its leading news story read: "Aboard Naval Dirigible Los Angeles, en route from Nantucket, Mass., Jan. 24. (By wireless to the Associated Press.)" The entire account of the eclipse was broadcast from the Los Angeles to the Associated Press. Thus broadcasting of news stories from airships and airplanes has taken its place in the journalistic world. In the future this may be developed to a considerable extent since many events covered by newspapers are spread over so large an area that one reporter cannot possibly describe the event as well as if he were above the scene of activity in an airplane. He would have also the advantage of being able to dictate his story directly to the newspaper office, just as it unfolded.

The flash of the flight of Roald Amundsen to the North Pole in the spring of 1925 was broadcast in code from a ship at King's Bay. It was picked up in Halifax and relayed to New York. Daily accounts of the progress of the expedition were sent by wireless telegraph to newspapers in Europe and America. No longer does a news story have to wait till it can be carried by steamer or sledge or cart to the nearest cable terminal. Wireless penetrates wherever man goes.

With the advent of news bulletin broadcasting some authorities have professed to see a new problem arising—the developing of the broadcasting station into a possible rival of the newspaper. None of them contend that it is at present a serious problem, but content themselves with pointing out future tendencies. In Great Britain, where the broadcasting stations are centralized under the direction of the government, the discussion is more in earnest than in America. W. L. Dixon of the National Union of Journalists, goes so far as to predict the ultimate disappearance of the newspaper of today. His is an extreme view, however. Capt. Walter Elliott, M. P., believes it will become equal in power to the newspaper. The middle ground, and that held by the majority, is that not one inch less of printed news will result from broadcasting; that the bulletins sent out on the air will only serve to whet the appetite of the reader for more details; that the time element, which would prevent a set owner from hearing news unless he were listening in at the precise time it was broadcast, will react heavily in favor of the newspaper, which may be read any time during the day. Spoken news would have to be heard in its entirety and could not be verified by the listener in case of doubt.

It is argued that the news of the world can only be broadcast in brief and inadequate form. It will need amplifying, classifying, and commenting upon—a function peculiarly the newspaper's own. One cannot select news as he listens in; he must take what the announcer gives and wait. "We have hardly yet reached the stage," says the *Newspaper World*, "of permitting loud speakers in our drawing-rooms or nurseries to belch forth messages all day long about 'Horrible Murders in Hyde Park' followed by the result of the Derby." Lord Burnham of the *London Daily Telegraph* says, "In broadcasting newspapers may have found real rivals."

Melville E. Stone, former general manager of the Associated Press and now its counselor, says that the radio telephone can never compete with the newspaper in providing the public with news. "There are fundamental difficul-

ties in the collection and transmission of news by radio that could not meet the organized facilities of the newspapers," Stone declares.

The St. Louis Post-Dispatch sent out questionnaires to hundreds of persons following the broadcasting of news bulletins from station KSD during the sleet storm of 1924-25 when wires were down everywhere in the Middle West. Almost without exception the listeners said the broadcasting spurred their interest in the news printed in the newspaper and in no wise tended to make them desert the paper for the broadcasting.

A feature of broadcasting in the soviet republic in Russia is the so-called "radio newspaper." There are two editions, one at 12:25 p. m. and the other at 7:55 p. m. Both are timed to coincide with the dinner hours of the workmen. The evening edition has all the features, except illustrations, of the printed paper, such as special articles, musical, literary, dramatic and movie reviews. A children's radio newspaper is also said to be planned.

Telephotography, the transmission of pictures by wire, was begun in 1924 and by 1926 a regular picture service was being maintained over telephone wires between New York, Chicago and San Francisco. Pictures were also sent successfully across the Atlantic ocean by wireless in 1925.

CHAPTER V
PART II

COMMUNICATION ACROSS THE PACIFIC

The fact that only two cable lines cross the Pacific Ocean (one owned by the Pacific Cable Board and British—the other ostensibly American but really British and operated by the Commercial Pacific Cable Company) together with a high press rate for the transmission of news between the United States and the Orient, has led to what is called “The Pacific Problem in Communication.”

- Karl A. Bickel, president of the United Press Associations, has stated the problem in these words: “The principal problem involved in Pacific transmission is that of getting a reasonable press transmission at a reasonable rate in money. The press rate to and from the Orient is far too high to make it possible to send a large volume of news at anything but an almost prohibitive price.”

The rates to which Mr. Bickel referred are the press rate of 30 cents a word over the Commercial Cable and the wireless press rate of 27 cents a word of the Radio Corporation of America. The press rate over the British cable from Canada to Australia is much lower, only 6 cents a word, but this cable is operated primarily for the benefit of the British Empire, and is not a direct or as easily accessible as the Commercial Cable for American newspapers.

Early in February, 1926, Mr. Bickel announced the important fact that the press rate between America and Japan via the Radio Corporation of America had been cut from 27 cents a word to 10 cents, subject to the approval of the Japanese minister of communications. This rate of 10 cents, which was refused by the Japanese government in June, 1926, is very close to what V. S. McClatchy, chairman of the Pacific Committee of the Foreign Trade Council, has called the ideal, fair press rate across the Pacific—9 cents a word. This 9 cent rate was in effect for a time during the Washington Arms Conference in 1921 but a continuance of it could not be obtained. On Nov. 1, 1926, the wireless press rate from Japan to San Francisco was reduced to 18 cents a word; 22 cents to New York.

The press rate of the Radio Corporation between the United States and Hawaii is 5 cents, while the rate from Hawaii to Japan was 22 cents, out of all proportion to the remaining distance traversed. An agreement between the Radio Corporation and Japan was said to have been responsible for the high rate from Hawaii to the Orient.

The Pacific problem is, according to Walter S. Rogers, one for wireless to solve and he believes that the United States government now owns adequate radio facilities in the Pacific and that in time commercial wireless companies will have developed their circuits to the point where they can materially lower their press rates. The laying of another cable across the Pacific from America is not considered as a probable solution of the difficulties because of the heavy outlay of capital required, the great length of the cable links, the difficulty of obtaining landing permits, and wireless competition.

Mr. Rogers has also advanced a proposal for international ownership and operation of trans-Pacific cables. He says that Great Britain, Japan, China and the United States ought to get together and formulate and develop a comprehensive cable scheme with a view to providing ample facilities at low rates. Several cables in other parts of the world are operated jointly by two

countries and he would extend the idea to include four countries. Such a joint program of cable development and operation would enable the former German cable system, which extends from Shanghai to Yap thence to the Celebes, to be incorporated into a general system administered for the best interests of the press and commercial worlds.

There is need for a cable from Seattle to the Aleutian Islands with branches extending to Japan and to Asiatic Russia which cannot now be reached directly from the United States, Rogers further points out. Connecting cables would also be needed to insure service despite any given section being out of order. With low rates there would soon be a sufficient volume of business to justify the laying of other cables. But at present there is no reasonable expectation that private enterprise will meet the political and commercial communication needs of the Pacific.

The wireless circuits of the United States government have been used since 1920 in the most serious attempt yet to meet the difficulties of the Pacific problem. In that year the United States navy's stations in California, Hawaii and the Philippines were, by joint resolution of Congress, allowed to transmit press messages. The secretary of the navy fixed the rate at 3 cents to Hawaii and 6 cents to the Philippines. This first agreement was for two years. After a strong fight it was renewed in 1922 for three years and in 1925 extended for two years more. It is not expected that agreement will be renewed beyond the summer of 1927, since by that time privately owned radio stations are expected to be available for this service. Strong interests are opposed to such use of the navy's equipment any longer than absolutely necessary.

The Radio Corporation of America expected to have in operation in the Philippines by 1927, a \$4,000,000 station capable of sending a million words daily. In China, acting through the Federal Telegraph Company, the Radio Corporation is attempting to build a station for communication with Hawaii and America. Up to the spring of 1926, however, it had been unable to make any headway owing to a five-power dispute over wireless rights in China.

The parties concerned are China, Japan, United States, Great Britain and Denmark. The United States claims a concession granted to the American Federal Telegraph Company of Delaware in 1921 to erect a main station at Shanghai with four subsidiary stations at nearby points. The Mitsui Company of Japan, which has already built a station near Peking, claims a thirty-year wireless monopoly to all wireless communication between China and the outside world. China, who is between many fires and really prefers to run her own wireless stations, lacks the capital to do so. The British and Danish claims, which are basic, are founded on monopolies granted to cable interests of those countries. These monopolies cover all external Chinese communication till 1931.

Proposals for a wireless consortium of the nations involved to operate the wireless stations, and for joint American-Japanese control, have been made without avail. Japan is reported to be very eager to make some arrangement as the Mitsui station is built and has been idle for some time. The United States government is standing squarely behind the American Company. China has threatened to repudiate all agreements, but this would do little good since she has not the money to go ahead with the stations. Meanwhile wireless communication with China is at a standstill.

The Chicago Tribune has found that the model line of communication across the Pacific is the British Imperial Cable from Vancouver to Sydney.

This cable has been duplicated, the northern span being landed in November, 1926. Service, the Tribune says, is fast and accurate over this line and the rate, although the distance is twice as far, is just half that directly across the Pacific from the United States. The Tribune has also stated that if a 9 or 10 cent press cable rate were established between the United States and Japan and China, it would double its volume of news traffic at once. The American Publishers' Committee on cable and radio says that if press rates were established between the United States and the Orient proportionate to that between Vancouver and Sydney, 6 cents, that news traffic out of China would be increased four or five times.

One reason for the high rates and comparatively poor service on the Commercial Pacific Cable, in the opinion of Walter S. Rogers, is that while ostensibly American, it is in reality controlled by British interests, which own half of the stock, Americans owning one-fourth and Danes one-fourth. The cable was begun in 1900 under a secret British monopoly agreement with China which was then embroiled in the Boxer Rebellion.

One of the primary uses of the navy's wireless in press work was to furnish American possessions in the Pacific, Hawaii and the Philippines, with news of the United States. Consequently most of the news traffic across the Pacific is westward. The Associated Press report is broadcast at San Francisco, picked up at Honolulu by the navy radio operators, and then broadcast to Manila. Papers taking this service are the Honolulu Star-Bulletin and the Manila Times. The United Press and the International News Service send only about 300 words by cable daily to Tokyo. A good deal of wordage to the Far East goes from the London bureaus because it is cheaper and somewhat faster in spite of the greater distance. The Commercial Cable is often out of order for weeks at a time and is congested with commercial messages a good part of the time.

As an example of the value of the navy's wireless service and that of the Radio Corporation to newspapers in Hawaii an examination of five 1926 issues of the Star-Bulletin was made in column inches with the following result:

Date	Total Radio News	RCA	Navy	Navy Per cent	Page 1 Radio	Cable
Feb. 8	43	5	35½	82.5	34½	0
Feb. 9	42½	32½	12	28.5	30	0
Feb. 10	65½	16	49½	75.5	41	0
Feb. 11	55½	15	40½	71.18	45	0
Feb. 12	32	1½	25½	80	23½	2
Total	238½	70	163	337.68	174	2
Average	47.7	14	32.6	67.5	34.8	.4

Here is plain evidence of the value of the navy's wireless service. Of the total amount of news carried by wireless in the five issues an average of 67.5 per cent was handled by the navy, and only 32.5 per cent by the Radio Corporation. Cable news was negligible, only two column inches in five issues. The table shows that an average of nearly 50 column inches of news brought

by wireless is carried by the Star-Bulletin. This is the case with nearly all of Hawaii's foreign news—it comes by wireless. But it can do so in large measure only because the navy allows so low a press rate.

The local staff of the naval radio station in Hawaii can handle 27,000 words daily. The news comes in by wireless telegraph to the navy offices where it is decoded, translated into English and sent direct to the newspaper offices in Honolulu. The service is good in all but the worst weather conditions.

At present the largest news flow into Japan is the Trans-Ocean Radio Service, a subsidized German report broadcast from the Nauen station near Berlin and distributed in Tokyo for \$35 a month. It comes over every day about noon (Tokyo time.) The Japan Advertiser uses this press service as do the Japanese papers in Tokyo. Although the Japan Advertiser uses wireless dispatches from many points over the world as brought to it in news services like the Kokusai, United Press and Reuters, it is obliged to specifically credit only the Trans-Ocean Radio Service from Nauen. Five 1926 issues of the Advertiser show the following stories credited to wireless and measured in column inches:

Date	Wireless Total	Page One Wireless
Jan. 31	7½	1½
Feb. 2	10	1
Feb. 3	21½	10½
Feb. 5	13½	9½
Feb. 9	12	7½
Total	64½	30
Average	12.7	6

An average of 12.7 column inches per issue coming by wireless shows that a consistent use is made of such news items. Most of the stories are very short, only twenty-five words or so, and a great variety of topics is covered.

Press news is also broadcast from Hamburg, Germany. Harold Meyer, a former student at the University of Missouri, in the spring of 1925 translated the news from German into English and made the announcement in English. The French wireless report from Bordeaux smacks so much of propaganda it is not much used in Japan or the Far East. The Nauen service is freely used.

CONCLUSION

The press of the world, in its endeavor to furnish the public the best and the latest foreign news, has been assisted very materially by the chief carriers of that news—the submarine cables, the telegraph lines and the wireless telegraph and telephone. In turn these media of communication have themselves been aided and developed by the enterprise of the press and by its continued patronage. The two have co-operated and must do so in the future for their mutual prosperity and for international peace.

Cable and wireless press rates have a definite bearing on the amount, quality and completeness of the news exchanged between nations. For the most part rates are becoming slowly more favorable to the press, notably so in the cable press rate to South America, from the United States since 1920. and in the new wireless press rate across the Pacific Ocean.

The competition of wireless and cable will tend to keep the press rates down, but this competition will not prevent their friendly co-operation where the good of communication demands it.

The newspapers of America are making an increased use of the wireless telegraph which, because of its smaller cost, is proving a means of getting more foreign news than formerly. The outlook is for a more sustained interest in international news.

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