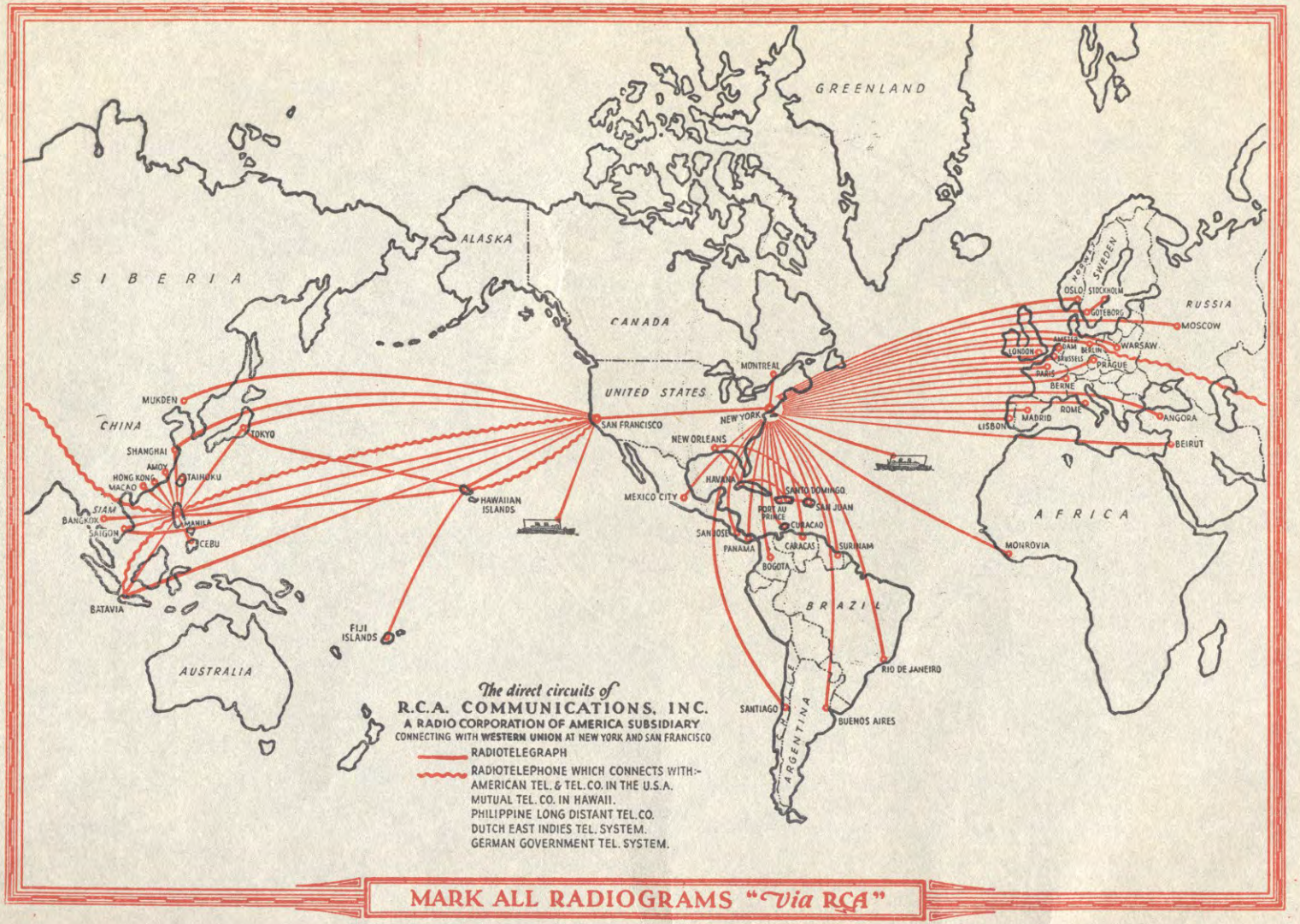
ACROSS THE ATLANTIC AND PACIFIC

"Via RCA"

COMMERCIAL DEPARTMENT
R.C.A. COMMUNICATIONS, INC.
A RADIO CORPORATION OF AMERICA SUBSIDIARY



The direct circuits of

R.C.A. COMMUNICATIONS, INC.

A RADIO CORPORATION OF AMERICA SUBSIDIARY

CONNECTING WITH **WESTERN UNION** AT NEW YORK AND SAN FRANCISCO

RADIOTELEGRAPH

RADIOTELEPHONE WHICH CONNECTS WITH:-
AMERICAN TEL. & TEL. CO. IN THE U.S.A.
MUTUAL TEL. CO. IN HAWAII.
PHILIPPINE LONG DISTANT TEL. CO.
DUTCH EAST INDIES TEL. SYSTEM.
GERMAN GOVERNMENT TEL. SYSTEM.

MARK ALL RADIOGRAMS "*Via* RCA"

Across the Atlantic and Pacific via RCA

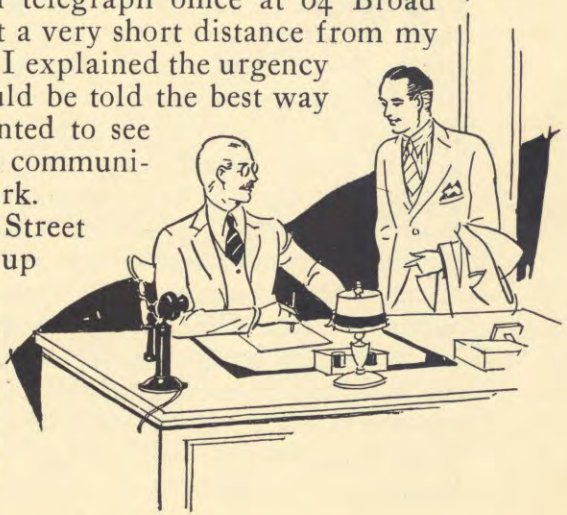
THE Chief was calling from the Country Club where he was entertaining a foursome of business associates.

"Rogers," he said, "I can close that deal with Darrow for a million, but if I do, I will have to say 'yes' on the links this afternoon and I cannot do so unless Struthers agrees. Send him a message right away and telephone me his answer."

Simple enough, except that Struthers, his partner, was in Paris. What to be done?

I looked at my watch and saw it was eleven o'clock, that is, four o'clock in Paris. I thought Struthers would be taking tea at his club then, and that I might be able to reach him there by a fast message.

On looking into the outer office I saw a boy in a neat uniform with a red badge "Via RCA" on his cap, just delivering a message. This gave me the happy inspiration to send my message "Via RCA." For a long time I had been intending to satisfy my curiosity and know something of the way that Radiograms are sent to all parts of the world. So I decided to take the message myself to the central telegraph office at 64 Broad Street, which was but a very short distance from my office. I knew that if I explained the urgency of the message I would be told the best way to send it, and I wanted to see the marvel of modern communication actually at work.



I went to 64 Broad Street and put my problem up to the Commercial Manager there and told him of my dilemma. He smilingly informed me that my trouble would soon be over.

"Paris," he said, "is quite easy, nor would it be more difficult if your employer were in South America or the Far East. You could have 'phoned me from your own desk or sent for a messenger. Just the same I'm glad you came over with the message yourself. It will give me an opportunity to show you just how we handle the vast number of Radiograms that are sent out daily from this office to all parts of the world. While you are waiting for an answer let me show you just what happens."

As he spoke he handed me a red-topped Radiogram blank. "Write out your message and I will have it typed. The way that it is written is of great importance. When typed in capital letters with double spaces between the words and lines, the chances of error in sending are reduced to a minimum. If written in longhand, great care should be taken to make the writing clear and legible.

"This message could be sent in one of several different ways, but as the time element is so important, I suggest that it be sent at the urgent rate, the fastest radio-telegraph service available. To indicate that you desire this class of service, the word 'Urgent' should be placed on your message as the first word of the address. Next in order of transmission would be the ordinary rate, in which class messages requiring prompt handling are usually sent. As most international telegrams are sent as ordinary messages, no indicator is necessary preceding the address. Those which are not quite so important or urgent, can be sent at the deferred, or half-rate, and as the name implies, their delivery is slightly deferred. There is also an additional class of service available; the radioletter, used primarily for business and social correspondence which permits of still greater deferment than the deferred, or half rate which I have just described."

I drafted my message and in a moment I was looking at this blank:

RADIOGRAM

WORLD WIDE WIRELESS

R.C.A. COMMUNICATIONS, INC.

A RADIO CORPORATION OF AMERICA SUBSIDIARY

Send the following Radiogram "Via RCA" subject to terms on back hereof, which are hereby agreed to

APRIL 23, 1933.

URGENT

HERBERT STRUTHERS

CIRCLE INTERALLIE PARIS

DARROW OFFERS ONE MILLION PITTSBURGH PLANT SHALL I ACCEPT.

ROGERS.

FULL-RATE MESSAGE UNLESS MARKED OTHERWISE

Sender's Name and Address W.B.ROGERS 50 BROAD STREET NEW YORK, N.Y.

"Suppose," said the Manager, "we follow this message on its way. You will be interested to see each step in radio transmission. It is really fascinating. By the time I have shown you through, your answer should be here."

"Surely, you are not serious," I asked in frank amazement. Like the average business man, I had only a hazy impression concerning the science of radio and of telegraphic procedure.

"Certainly," he said, "radio waves travel at the speed of light—186,000 miles per second. One-fiftieth of a second from the time it leaves New York, our signal is in Paris."

We went to the receiving desk and gave the clerk my message. He scrutinized it carefully to make certain that the address was sufficient to insure delivery. Then he counted the words. He had no need to refer to the radio book that was before him. To my surprise, the cost was no more than for cable communication. Upon inquiry, I learned that because of the pressure of radio competition the cables have been gradually reducing their rates during the last three or four years until they are now the

same as the radio rates. The clerk stamped the time on my message—it was 11:10. As this was an urgent message, a red sticker with the word "Urgent" was pasted to the top of the blank to make it conspicuous throughout its handling in the operating room.

As I watched him, he folded the blank and put it into a container. This was inserted into a pneumatic tube and shot upstairs. We followed to the operating room. There our eyes and ears were greeted by a great bustle of orderly activity. So this was the heart of the world's greatest radio system!

"From this room," said my guide, "the long fingers of radio reach out to most of the major countries of the world. From here you can get in direct contact with more different parts of the world than from any other spot on the face of the globe."

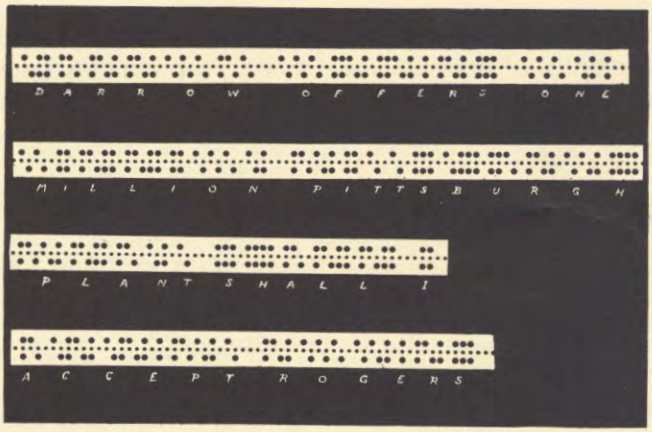
In front of the transmitters, men were pounding typewriters. Their faces were intense and they did not look up. At one desk, the pneumatic tube was shooting a stream of containers to a waiting clerk. From each one he removed a message and marked it with a number. Of this number he made a record.

The messages were then sorted according to speed of service desired—urgent, ordinary, deferred and radiogram—classified according to the country of their destination.

The traffic chief, whose duty it is to distribute these messages to the proper operators, took mine and placed it in front of the transmitting operator working the Paris circuit. As he read what I had written, his hands

flew over the keys. The man is a crack typist. But his speed is tempered with care and marked by accuracy.

Past the operators' machines there runs a continuous ribbon of paper tape, half an inch wide. Each time the operator depresses a key on the typewriter, a device, known as the Kleinschmidt Perforator, punches a different combination of perforations into the moving tape. These are the dots and dashes of the International Morse telegraph code which is used in all international telegraphy. When the operator had finished "typing" my message, this is what I saw:



The tape travels on a few inches, then it reaches what is known as the Wheatstone transmitter. As the tape passes through it at high speed, the perforations permit electrical contact to be made as they pass over the contact points. This transforms them into the short and long electrical impulses which are the dots and dashes. The "Wheatstone" is connected by wire with the distant transmitting station, and, as these electrical dots and dashes are made at 64 Broad Street, New York City, they are recorded on the moving tape of a receiver in Paris—one-fiftieth of a second later. Even as I watch it written, my message is actually there.

From the Central Radio office of R.C.A. Communications, Inc., at 64 Broad Street, New York, the electric impulses created at the "Wheatstone" are carried by wire to one of the several high-power Transoceanic sending stations which RCA maintains a few miles from New York City. These stations are equipped with the famous Alexanderson alternators and with ultra-modern high-power short-wave tube transmitters. At the transmitting stations the relatively weak currents on the wire are instantaneously amplified to such a degree that they leap from the antenna clear across the ocean or, if need be, half-way around the world.

A marvel of invention—stupendous to comprehend. Yet, day by day, radio waves carry messages back and forth, traveling at the tremendous speed of 186,000 miles per second. These waves are received on a long antenna of copper wires, perform miracles in vacuum tubes, where their strength is built up and amplified, and finally make their appearance with sufficient electrical strength to cause an inked point to make a record of them on another moving tape in Paris.

Now I knew my message had arrived. All I could do was to wait until it could be delivered to Struthers at the Circle Interallie and give him a chance to reply.

As I looked about the operating room I saw other operators handling more messages. Their destinations were varied—Belgium, Czecho-Slovakia, France, Germany, Great Britain, Holland, Italy, Norway, Poland, Sweden, Austria, Portugal, Russia, Spain, Switzerland, Syria, Turkey, Argentina, Brazil, Chili, Colombia, Costa Rica, Cuba, Curacao, Dominican Republic, Dutch Guiana, Haiti, Mexico, Panama, Porto Rico and Venezuela. To each country a special section of the operating table is assigned. Over each of these circuits the constant flow of messages is passing with almost inconceivable rapidity. Invisible messages in an invis-

ible medium! They carry good tidings and bad, seek or give information, make and close contracts and, in fact, influence the entire business and social life of the modern world. Like magic! Yet, it is all controlled by scientific study.

"What about the Far East?" I asked.

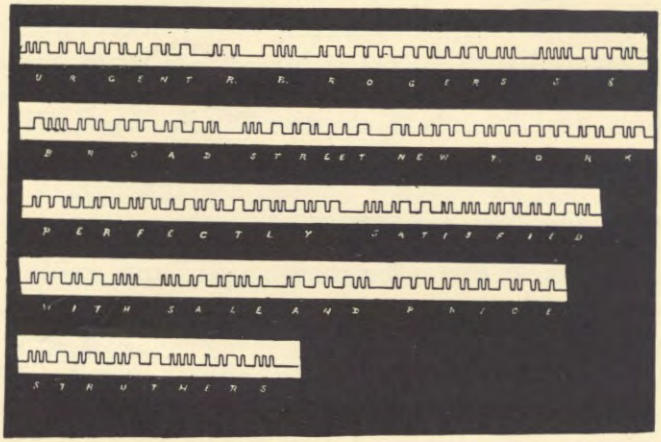
I was advised that an extensive system of direct radio circuits links various parts of the Far East with San Francisco. From the operating center in San Francisco at 28 Geary Street, direct radio circuits are in operation with China, Hawaii, Japan, Java, the Philippine Islands, Fiji Islands, Siam, the Dutch East Indies and French Indo-China. These trans-Pacific Radiograms are handled in exactly the same manner as those to Europe and South America.

"Now, we'd better be moving on," my guide lured me away. He led me to that section of the room where Radiograms are received. In this particular section, I saw but a score of men. Many others, not to be seen, are engaged in keeping the receiving circuits running smoothly. My attention was called to the receiving equipment. It appeared absurdly simple—a jiggling pointer, from which flows ink, marking a continuous line of broad and narrow peaks and valleys on white paper tape. The tape, after passing under the pen point, moves before the receiving operator where it is guided across the top of his typewriter. As this record moves in front of him, the broad dashes and the narrow dots immediately translate themselves in his mind into the letters of the International Morse code. An expert touch-typist, he records these letters on a Radiogram blank with great speed and facility.

As I watched him working away, he was intent on a message. He seemed to give scant attention to the machine on which he was writing. As he flipped one typewritten sheet from the roller, he inserted another.

In an instant he was pounding away at another message. As he finished each, a conveyor belt took it off to the receiving clerks.

I thought of an appointment and pulled out my watch—11:22. Watching the tape, my guide said, "Here comes your message now." Astonished, I looked. The undulations became apparent on the tape. This is how they looked—



My correspondent had answered in fast time. Now the operator translated the cryptic meaning of the undulations and I read my answer—

RADIOGRAM

WORLD WIDE WIRELESS

The RCA — The RCA

R.C.A. COMMUNICATIONS, INC.

A RADIO CORPORATION OF AMERICA SUBSIDIARY

RECEIVED AT 64 BROAD STREET, NEW YORK, AT _____ STANDARD TIME

FT AN

RFD95 PARIS 15 23 1620

URGENT R B ROGERS 58 BROAD STREET NEWYORK

PERFECTLY SATISFIED WITH SALE AND PRICE

STRUTHERS

Telephone: HAnover 2-1811

I hardly believed it, but my guide smiled. "Nothing unusual," he told me. "Every day in the business year we are called on to perform such service. When a Trans-oceanic or Marine message is marked 'Via RCA' it is certain of prompt dispatch. Matters of vital importance depend upon our accuracy. We simply cannot, must not, fail."

As I pocketed my message, I walked to a telephone booth. I had only to 'phone the club and repeat it to my chief. Less than half an hour had elapsed since he had called me. His query had gone to Paris, the answer had been received, and now he could close the deal.

If you have never seen what I have just described, it is worth your while to do so. RCA officials will gladly show and describe to you the operation of this great service. With the aid of radio, friends and business associates are never inaccessible—at home, abroad, at sea—anywhere—at any time.

In addition to the almost unbelievable rapidity of urgent Radiogram service, there are the other classes of service suitable for every need. In all there are four classes of service at four different rates—urgent, ordinary, deferred and radioletter.

To radio "Via RCA" is to insure the efficiency of your communications with any part of the world.

The Magic That Is Radio

Any story of the birth and growth of the radio art must necessarily begin long before Marconi's great discovery in 1896, which ushered in a period of intensive research and development. Before that date, by isolated discoveries, various electrical phenomena were brought to light. The loadstone was recognized as early as 1550, static electrical machines were used in the latter part of the 17th century, and the leyden jar found able to store a static charge in 1719. As more and more of the fundamentals were understood the fund of electrical knowledge grew at an accelerating pace. Benjamin Franklin confirmed the nature of lightning by his famous kite experiment in 1750. In 1790 Volta made the first electrical battery and thus produced a direct current. Thirty years later Joseph Henry recognized the nature of an alternating current. Then came Faraday and Maxwell who confirmed earlier theories and proved, by mathematical deductions, many of the fundamental laws of light and electrical waves.

Prof. Hughes developed the first actual means that we associate in our minds with radio when he constructed a device to detect the discharge from a leyden jar at a distance of 500 yards. This was in 1879, and soon Prof. Henrich Hertz was successfully proving, experimentally, the laws of magnetic induction and of electrical wave propogation. Hertz took the induction coil, earlier developed by Faraday and Rhumkorff, and used it to charge two metallic plates, which were separated by two small metallic spheres, called a spark gap. This early radio transmitter sent out into space high frequency waves, which he detected by a metal loop containing a tiny spark gap. Later in 1890 Prof. E. Branley substituted for the detecting spark gap a "coherer," in the form of a tube filled with metal filings, in series with a local battery.

The stage was now set and we find, in the period of 1890 to 1892, many scientific investigators in Europe and America, stimulated by the work of Hertz and his predecessors, conducting experiments with devices for producing and detecting electromagnetic waves. Visions of space communication were beginning to dawn and Sir William Crookes gave a vivid prediction of the era about to unfold.

At the age of eighteen, Guglielmo Marconi became interested in the work of earlier savants and engaged in a series of experiments at his father's estate in Italy. The great ingenuity he displayed in using the apparatus of Hertz, but with the important additions of a metallic connection from one sphere to ground and from the other to an elevated plate, resulted in the birth of the first effective radio transmitter. A very clever improvement was made in the "coherer" and a relay, a Morse ink recorder, and a "decoherer" added to his receiving circuit. These advances enabled him to record actual telegraphic signals at a speed of from 10 to 15 words per minute over a distance of 1300 feet.

Proceeding to England in 1896, Marconi demonstrated his devices and gained such sympathetic interest that he was enabled to develop his apparatus to cover greater and greater distances. The discovery of the principle of the tuned antenna, to which Sir Oliver Lodge also contributed, was a great forward step permitting the use of a large antenna and more power. By February, 1901, communication had been established up to 196 miles and still the work progressed in covering increased distances with more reliable signals. These radio impulses had travelled far beyond the horizon. Could it be possible they would follow the curvature of the earth? Could they be detected across the Atlantic? This was a great conception and Marconi decided to stake his all to obtain the proof. Financial backing was obtained and a powerful transmitter

built at Poldhu, England, supplemented by a huge antenna of many vertical wires suspended in a panel from cables stretched between the tops of two masts, 160 feet high, and spaced 200 feet apart; all in order to test out a theory.

One of the greatest voyages of discovery of all time was made when Marconi, with two assistants, sailed for America and established his receiving equipment in an old building on a high bluff just outside of St. Johns, Newfoundland. Could they hear those signals across the long ocean miles? Finally, by means of balloons and a kite, an antenna was maintained at an elevation of 400 feet. At noon on Thursday, December 12, 1901, Marconi sat with his instruments, intently awaiting the pre-arranged signal from Poldhu. Suddenly, faintly, but distinctly, came the three little clicks or dots of the letter "S" tapped out a fraction of a second before in England. Thus it was established that wireless communication over great distances was possible; and one of the greatest wonders of science had been wrought.

While Marconi in England had been reaching from one success to another, research in America and on the Continent was disclosing new methods and new apparatus to supplement the basic principles of Marconi and soon after 1901 several companies were formed in the United States to advance the practical use of wireless. This naturally took the form of communication between ships and shore and from ship to ship. Gradually, the isolation of the seas began to disappear and in its place came radio stations afloat and ashore which enabled vessels to keep in touch with land throughout the length of their voyages.

No other event spurred the imagination of the world to the value of radio as a safeguard to life at sea, as did the sinking of the S.S. REPUBLIC on January 23, 1909. Rammed in a thick fog by the freighter FLOR-

IDA the radio distress call soon brought five vessels to the assistance of the two ships and succeeded in saving all passengers and the crews. Again and again marine tragedies have been averted or made less disastrous by assistance summoned by radio. The annals of the sea have been changed since the turn of the century and the terror and isolation dispelled by the power of modern communication.

From the moment that historic letter "S" flashed from Poldhu to Newfoundland, dreams of world-wide communication began to enthuse the great commercial countries, particularly England, which, up to 1914 had progressed well on an ambitious program to link all her dominions in one vast chain of stations. However, the war disturbed these plans and the greater technical advances made in the United States transferred the dominant position to our shores. A large number of patents covering improved methods of radio transmission and reception were awarded between 1901 and 1914 to a host of American engineers.

Because of the inherent defects in the metal filing coherer this method of detection was soon replaced by other more responsive devices working directly into sensitive telephone receivers. Many workers explored this field, including Marconi, Lodge, De Forest, Fessenden, Duddell, Pickard and Dunwoody; producing magnetic, electrolytic, bolometric and crystal detectors which were all more or less widely used. Then in 1905 Fleming gave us the two element vacuum tube detector based on a rectifying phenomenon which Thomas Edison had observed when experimenting with the incandescent lamp in the year 1884. This Fleming "valve," by the way, was the foundation of all our modern receiving and transmitting tubes.

Hand in hand with receiver development rapid improvements were being made in transmitters. The

induction coil of Marconi gave way, as need for greater power was needed, to the rotary spark discharger, obtaining its current from the electrical generator. The frequency of the spark was thus stepped up to give a high pitched musical note more easily read through static. Up to this time all transmitters emitted series of impulses consisting of trains of decaying or "damped waves" and a vast improvement was obtained in the next advance to the continuous wave transmitter. The generation of such waves was evolved through the use of distinctly different pieces of apparatus; the direct current arc and the high frequency alternator. The development of the arc for this purpose was primarily the work of Poulsen, while that of the high frequency alternator was chiefly the work of Goldschmidt and Alexanderson. The arc generator was quite widely used but subsequently gave way to the alternator on account of the increased efficiency of this method especially when used with its special type of radiating system, termed the multiple tuned antenna, a development of Alexanderson.

The advent of the vacuum tube was destined to play a romantic and important role in the whole science of radio. The first step of importance was taken when Lee De Forest in 1906 inserted a grid between the filament and the plate of the Fleming valve, so connected to a battery circuit that a feeble signal applied to the grid would control a larger current in a local circuit. Conceive, if one can, a device whereby the pressure of a finger on a small lever would lift a ton of coal, and then one can gain some idea of the important function of the grid which De Forest inserted in the Fleming tube. Until 1912 the De Forest valve or "audion" remained largely a laboratory device with little commercial application.

The importance of this advance was quickly recog--nized throughout the radio world and research investi-

gations were undertaken by engineers everywhere, whereby the underlying phenomena of the vacuum tube became well understood and many practical applications discovered. Armstrong, in particular, contrived circuits for use, with tubes perfected by Langmuir, as powerful radio frequency and audio frequency amplifiers. The most epic-making circuit disclosure was that if the plate and grid circuits were closely coupled the system became a self-sustained generator of high frequency currents which could be used for radio transmission; the forerunner of our present-day high power vacuum tube transmitters. Very efficient receiving circuits using the improved tubes quickly came into universal use, and these tubes developed for radio use also found important applications in many allied industries.

Extensive development work on transmitting tubes finally produced reliable generators of a frequency range considerably higher than possible with the alternators which had, by that time, become the foundation of transoceanic radio communications. These efficient tube transmitters opened up a new band of wave lengths which had characteristics of great promise. They were but little affected by static disturbances, could be operated at high speeds and had the great advantage that the physical dimensions of the antenna structures were smaller, thus permitting schemes to be utilized to reflect the energy and concentrate it into directed paths. The early work along these lines was done by Marconi but many improvements and innovations were worked out and applied by the engineers of the R.C.A. Communications, Inc., and of the Bell Laboratories. One serious drawback, signal fading, retarded the universal use of the short-wave circuits but was practically overcome by the ingenious use of the diversity system of receiving in which the energy from three widely spaced antennae is combined. This important development was one of the

many contributions of H. H. Beverage, in the practical applications of radio.

In the short space of time since 1912 one important commercial application followed close on the heels of another. Radio transmission of messages assumed a dominating position in foreign communications, and where speed, accuracy and high quality service are demanded, business houses are depending more and more on radio.

It is but natural that the vast knowledge and facilities acquired by the R.C.A. Communications, Inc., in the radiotelegraphic field could be utilized to advantage in allied fields. Of these new applications Photogram service, radiotelephony and the transmission of overseas radio program material to and from foreign countries are speedily acquiring an important commercial value.

Photogram service or pictorial radio transmission is a fascinating subject in itself and is described elsewhere in this booklet.

Telephone conversations carried over the facilities of RCA, in conjunction with operating telephone companies, are now linking various countries with the magic of the spoken word and adding an intimate personal touch to international communications.

RCA transoceanic radio circuits are capable of carrying song or speech with uncanny fidelity and any broadcasting studio in this country may deliver its message by word or music, through the medium of RCA circuits, to the far ends of the world, there to be broadcast locally to vast audiences thousands of miles from the point of origin, at the same instant that you listen to the program by your fireside at home.

Thus the story of radio unfolds itself. First the groping in the dark for a few isolated bits of scientific knowledge; then the fitting together of these scraps, like a jig-saw puzzle, the addition of a piece here and there, the experiments, the study to determine the why and the wherefore; finally, as the picture takes shape, come the dreams of the work it will do for mankind. Many times the picture changed, parts were discarded and new elements added until no trace of the original was left; only the fundamental principles remained, but bearing ever with them the wonder and the romance of the MAGIC THAT IS RADIO.

Radio Service to Ships at Sea

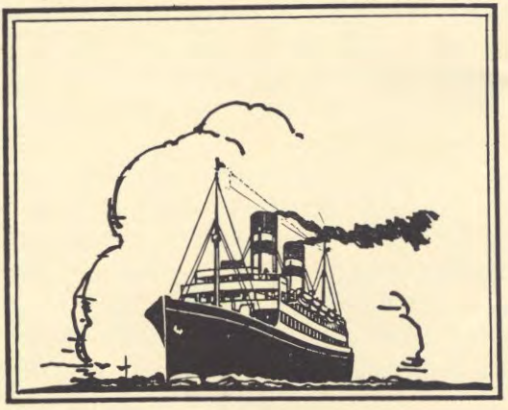
The vessel sails on over trackless wastes, hundreds of miles from land. Yet she can always receive the Radiograms that anyone on shore sends to those on board.

The marine radio equipment developed by RCA is the voice and ear of the vessel at sea. She is in constant two-way communication with other radio-equipped vessels and with shore. At the coastal radio stations maintained by RCA trained radio operators are on the alert every hour in the twenty-four to receive and answer messages from ships at sea.

These stations are situated in the most advantageous locations for communication with ships plying the regular transoceanic, coastal and Great Lakes routes.

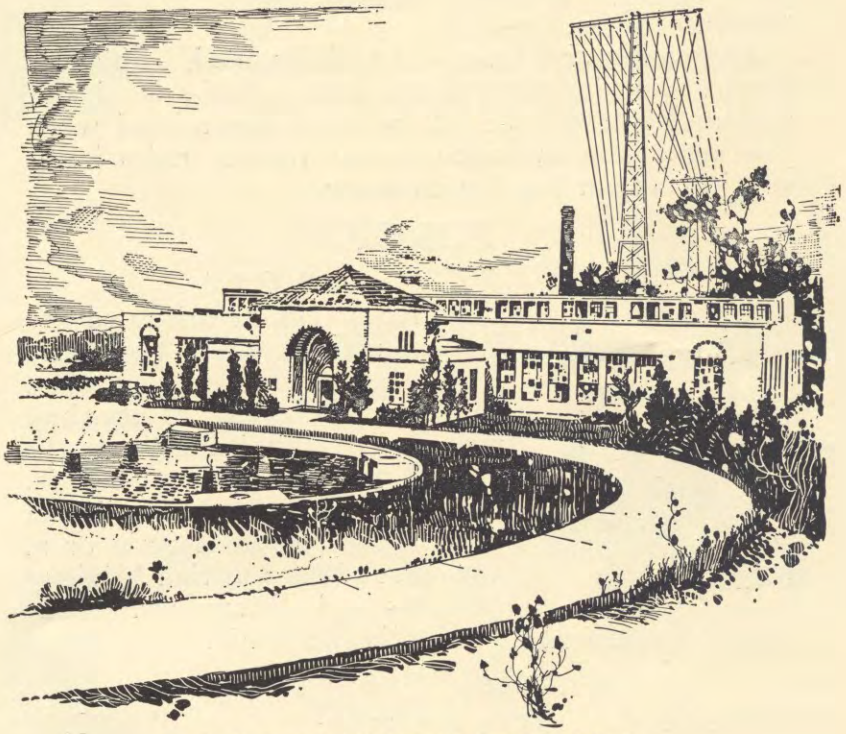
The Chatham, Mass., New York City, New London, Conn., Tuckerton, N. J., Savannah, Ga., and Palm Beach, Florida, stations are connected by direct wire to the Radio Marine Bureau of the Western Union Telegraph Company at 60 Hudson Street, New York, and handle the radio traffic to and from all vessels navigating the North and South Atlantic Ocean.

The Galveston and Port Arthur stations communicate with ships in the Gulf of Mexico. The Chicago, Cleveland, Buffalo and Duluth stations with vessels on the Great Lakes, and the Los Angeles and San Francisco stations with trans-Pacific and Pacific coastwise vessels.



The stations at Chatham and San Francisco are equipped with specially designed apparatus to cover long distances and are able to maintain contact with properly equipped vessels practically around the world.

Marine Radiograms can be filed at any RCA office or at any office of the Western Union Telegraph Company.



Radio Central at Rocky Point, Long Island, N. Y

RADIO SERVICE
for foreign travelers

While traveling abroad, the most modern, direct and efficient way to maintain contact with your home and business in the United States is to use the extensive radio network which now exists throughout the world and connects practically all countries with the United States.

The charm and beauty of Old England, of historic France and Germany, of the Alps and of the ruins of ancient Rome will be all the more appreciated when you know that throughout your travels, radio keeps you in constant touch with home.

EUROPE

AUSTRIA

A radio circuit operated by Radio-Austria, A.G., Renngasse 14, Vienna, is in direct connection with London. This is the best means of communicating with the United States while in Austria. Radio messages should be filed at the office of Radio-Austria or at any office of the Austrian Ministry of Posts and Telegraphs. They should be marked "Via Radio Marconi".

BELGIUM

The fast direct radio service between New York and Brussels constitutes a very important link in world-wide radio communications. In Belgium the radio service is operated by the Belgian government direct from the Central Telegraph Office in Brussels which is

connected by telegraph lines to all parts of Belgium. Messages may be filed at any government telegraph office and marked "Via Belradio".

CZECHO-SLOVAKIA

Prague, the capital of this Central European country, has a modern radio station in direct communication with New York, which affords excellent service to the United States. Radiograms can be filed at any office of the Czech Telegraph Administration and should be marked "Via Prague Radio".

DENMARK

From Copenhagen, direct telegraph wires lead to Gothenburg, Oslo and London. From these three centers direct radio communication is available to the United States and Radiograms can be filed at any Danish telegraph office with the routing instructions "Via Gothenburg Radio", "Via Stavanger Radio" or "Via London Marconi".

ENGLAND

In Old England, radio messages should be filed at the offices of the Imperial and International Communications, Limited, in London, Liverpool, Bradford, Manchester and other important cities, or at any Government Post Office throughout Great Britain and Ireland. Radiograms should be marked "Via Marconi".

London

Tower Chambers, Moorgate, E. C. 2
Marconi House, Strand, London, W. C. 2
1a Fenchurch St., London, E. C. 3

The Baltic Exchange, St. Mary Ave., London, E. C. 3
18 Old Broad St., E. C. 2, and numerous other offices throughout London.

Offices are also maintained at Birmingham, Bradford, Dundee, Edinburgh, Glasgow, Hull, Leeds, Leith, Liverpool, Manchester, Newcastle-on-Tyne and Southampton.

FRANCE

In France, la Compagnie Radio-France, which maintains an office at 166 Rue Montmartre, Paris, operates the France-United States radio circuit. Radio messages destined to the United States should be filed at the office of Radio-France or at any office of the French Ministry of Posts and Telegraphs and should bear the routing instructions "Via Radio-France".

GERMANY

Transradio is the company operating the radio circuits which link together Germany and the United States and afford direct communication between these two countries. Radiograms should be filed at any German Government Post Office or Telegraph Office. The necessary routing instruction to secure direct radio service to the United States is "Via Transradio".

HOLLAND

The government-owned radio station at Amsterdam affords the only direct means of communication between Holland and the United States.

Radiograms to the United States may be filed at any government telegraph office, and marked "Via Holland Radio".

INDIA

When in distant India, radio communication with the United States can be obtained by filing your messages at any Indian telegraph office with the instruction "Via IRT London-Marconi".

ITALY

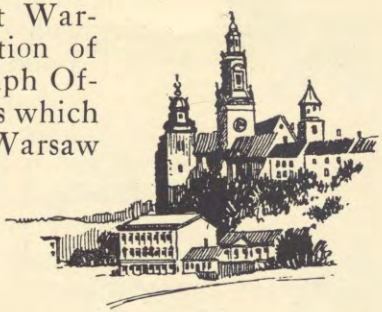
Societa Italo-Radio is the Italian company engaged in radio communication with the United States. Messages may be filed at their offices in Catania, Florence, Genoa, Messina, Milan, Naples, Palermo, Rome, Siracusa, Taormina, Turin and Trieste, or at any Italian Government telegraph office. Mark these messages "Via Italo-Radio".

NORWAY

Norway is one of the pioneers in radio communication with the United States and the Norwegian Government operates the station in that country. Radiograms can be filed in Norway at any office of the Norwegian Telegraph Administration and should be marked "Via Stavanger Radio" to insure their traveling over the only direct channel between Norway and the United States.

POLAND

This is a country enjoying direct communication with the United States through the medium of a high power station built for the Polish Telegraph Administration at Warsaw by the Radio Corporation of America. Any Polish Telegraph Office will handle radio messages which should be marked "Via Warsaw Radio".



PORTUGAL

Direct radio communication between Lisbon and New York is available. Lisbon has direct telegraph connection with all important cities in Portugal and Portuguese Colonies. Messages may be filed at any Portuguese Government telegraph office and marked "Via Radio Directa".

ROUMANIA

The direct radio circuits connecting Bucharest with Paris, London, Berlin and Rome make possible the most efficient communication between that country and the United States. Radio messages should be filed at any Roumanian telegraph office and marked "Via Bucharest-Radio".

RUSSIA

Direct service is maintained between Moscow and New York. Radiograms should be handed in at any of the government telegraph offices and routed "Via Moscow-Radio".

SPAIN

Transradio Española, S.A., is operating the radio service in Spain. Direct radio service between Madrid and New York offers the best channel of communication between Spain and the United States. Radio messages may be filed with the company's offices in Madrid and Barcelona or at any Spanish telegraph office and should be marked "Via Transradio".

Madrid—Alcala 43.

Barcelona—Ronda de la Universidad 35.

SWEDEN

The Royal Telegraph Administration of the Kingdom of Sweden is operating an excellent direct radio circuit with the United States. Radiograms can be filed at any Swedish Telegraph Office and should be marked "Via Gothenburg-Radio".

SWITZERLAND

Radio-Suisse S. A., Berne, operates a most efficient radio service, and excellent communication is available between Switzerland and the United States. Messages should be filed at the office of the company in Berne or at any Swiss telegraph office. They should be marked "Via Radio-Suisse".

TURKEY

The Turkish Government radio station at Ankara is in constant touch with New York. Istanbul (Constantinople) is connected with the radio station at Ankara by direct telegraph wires and Radiograms filed at government telegraph offices routed "Via Radio-Ankara" are assured of fast service.

CENTRAL & SOUTH AMERICA

ARGENTINA

The radio telegraph station in Argentina is owned by Transradio Internacional, with headquarters at San Martin, 301, Buenos Aires. Radiograms to the United States may be filed here or at any government telegraph office. The routing "Via Transradio" marked on the message assures direct transmission.

BRAZIL

Brazil has direct radio-telegraph communication with the United States. The central radio office of the Compania Radiotelegrafica Brasiliera which owns and operates the Brazilian radio circuit is located at Avenida Rio Branco No. 77, Rio de Janeiro. An office is also main-

tained at Recife. Messages to the United States may be filed at any government telegraph office. They should be marked "Via Radio-Bras".

CHILE

Transradio Chilena Cia. de Radiotelegrafia Ltda. is the Chilean company engaged in direct communication with the United States. Messages may be handed in at their offices in Santiago-Chile and Valparaiso or at any national telegraph office, marked "Via Transradio".

COLOMBIA

The establishment of direct radio communication between Bogota and New York eliminated several relays formerly necessary by cable and telegraph. Radiograms to the United States may be filed in Bogota at the office of Marconi's Wireless Telegraph Co., or at any government telegraph office in Colombia. To insure direct transmission they should be marked "Via Marconi".

COSTA RICA

Central American countries are in touch with the outside world by radio through the high-power stations of the Tropical Radio Company, which maintains service with the United States through its central station at San Jose. Radiograms from Costa Rica, Honduras Republic, Nicaragua, British Honduras and Guatemala may be filed at offices of the Tropical Radio Company or government telegraph offices marked "Via Elradio" or "Via Tropical Radio".

CUBA

In conjunction with the Cuba Transatlantic Radio Corporation, direct high speed radio service between New York and Havana is maintained, such as will appeal to the alert business man. Radiograms from Havana, Santiago de Cuba, Camaguey and Cienfuegos may be filed at the offices of the Cuba Transatlantic Radio Corporation. At all other points in Cuba they should be filed at the government telegraph offices and marked "Via CTRC".

CURACAO

This Dutch West Indian island is in radio communication with the United States through the Colonial Government radio station, which also communicates with the Dutch Islands—Aruba, Bonaire, Saba, St. Eustatius and St. Martin. Radiograms are accepted at the government telegraph offices and should be routed "Via RCA".

DOMINICAN REPUBLIC

Direct radio service between this Republic and the United States was inaugurated on December 24th, 1930, when R.C.A. Communications, Inc., opened its office in Santo Domingo City, thus providing an adequate service to insure the future development of our neighboring West Indian Republic. Messages should bear the routing "Via RCA".

DUTCH GUIANA

The development of the extensive natural resources of Dutch Guiana was retarded for a long time by inadequate communication facilities and high charges for telegraph service. With the introduction of direct radio communication between Paramaribo and New York, rapid service is now available at low rates. Radiograms may be filed at any government telegraph office and marked "Via Paramaribo-Radio".

HAITI

The latest country to be linked directly to the United States by Radio is Haiti. Here the R.C.A. Communications, Inc., have established an office in the Leger Building in Port au Prince for the acceptance of messages to foreign parts. The Haitien Government Telegraph and Telephone system cooperates by carrying messages from interior points to the RCA in Port au Prince for transmission, marked "Via RCA".

MEXICO

The Telegraph Administration of our neighboring republic maintains excellent radio facilities at Mexico City for the exchange of Radiograms with this country, providing a fast direct communication link with New York. Messages may be filed at any telegraph office of the Administration and should be marked "Via RadioMex RCA".

PANAMA

The extension of RCA service to the Canal Zone was effected on May 1st, 1930, when a direct radio circuit was placed in operation between New York and Panama City. A fast automatic telegraph line connecting with Cristobal insures rapid and direct service between the United States and both sides of the Isthmus. Messages should be filed at the offices of the Tropical Radio Company and marked "Via Tropical Radio".

PORTO RICO

The opening of the direct circuit between San Juan, Porto Rico and New York City marked another extension of radio communication facilities. Messages to the United States should be filed at our radio office in The Ochoa Building, San Juan, and marked "Via RCA". Messages from interior points in Porto Rico should be filed at offices of the Insular Telegraphs marked "Via RCA".

VENEZUELA

Excellent communication is maintained over the new direct radio-telegraph service between Venezuela and the United States. Radiograms to the United States may be filed at any government telegraph office. They should be marked "Via Radio RCA".

FAR EAST

CHINA

Direct radio service between the United States and China is maintained through two channels. The direct RCA circuit between San Francisco and Shanghai is augmented by a second direct circuit between San Francisco and Mukden, thus insuring rapid communication with all parts of China. Radiograms via Shanghai should be routed "Via CGRA", those via Mukden should be routed "Via Anten-Muk". (See also Hong Kong.)

DUTCH EAST INDIES

This important Dutch Colony has excellent communication facilities through the direct radio service between San Francisco and Malabar, Java. Radiograms can be filed at any Colonial telegraph office and should be marked "Via PKX".

FIJI ISLANDS

Radio service is available from the Fiji Islands to the United States via Honolulu and messages should be routed "Via Radio".

FRENCH INDO-CHINA

The Telegraph Administration of this important colonial possession of the French Republic operates a high-power radio transmitting station at Saigon which operates direct with San Francisco. Messages destined for the United States may be filed at any government telegraph office and marked "Via Saigon-RCA".

HAWAII

The radio circuit between Hawaii and the United States carries the bulk of the communications exchanged between that Mid-Pacific territory and the United States. Radiograms can be filed directly with R.C.A. Communications, Inc., 125 South King Street, Honolulu, or at any office of the Mutual Telephone Company, with the routing "Via RCA".

HONG KONG

The extension of RCA service to Hong Kong provides rapid radio service between the United States and that important city. Messages to the United States may be filed at any telegraph office in Hong Kong and marked "Via Radio Manila".

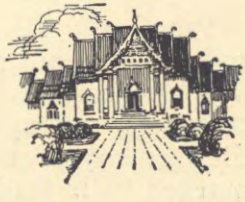
JAPAN

Far away Japan sent her call for help by radio when the earthquake of September 1st, 1923, destroyed all other contact with the outside world. Ever since she has looked to radio to carry on most of her telegraphic correspondence and radio messages are accepted at any Japanese telegraph office with the routing instruction "Via Tok".

THE PHILIPPINE ISLANDS

RCA realized one of the ambitions of its founders when it established direct communication between San Francisco and Manila, P. I. In the Philippines, Radiograms to the United States should be filed at the office of the R.C.A. Communications, Inc., Plaza Moraga, Manila, or at government telegraph offices, marked "Via RCA".

SIAM



This progressive Eastern country is in radio communication with the United States through the RCA station at Manila. Radiograms should be filed at the government telegraph offices and routed "Via Radio Manila".

AUSTRALIA

Radio service between the Australian Commonwealth and the United States is available over the direct high speed beam circuits now in operation between Montreal and Melbourne. Messages from Australia may be handed in at offices of the Amalgamated Wireless (Australasia), Ltd., at 47 York Street, Sydney—167-169 Queen Street, Melbourne, or at government offices marked "Via Beam".

AFRICA

SOUTH AFRICA

The Union of South Africa is very much on the world radio map and from this thriving country one may direct Radiograms to the U. S. A. by the route "Via Overseas Anten London Marconi". They should be filed at the offices of the government telegraph system.

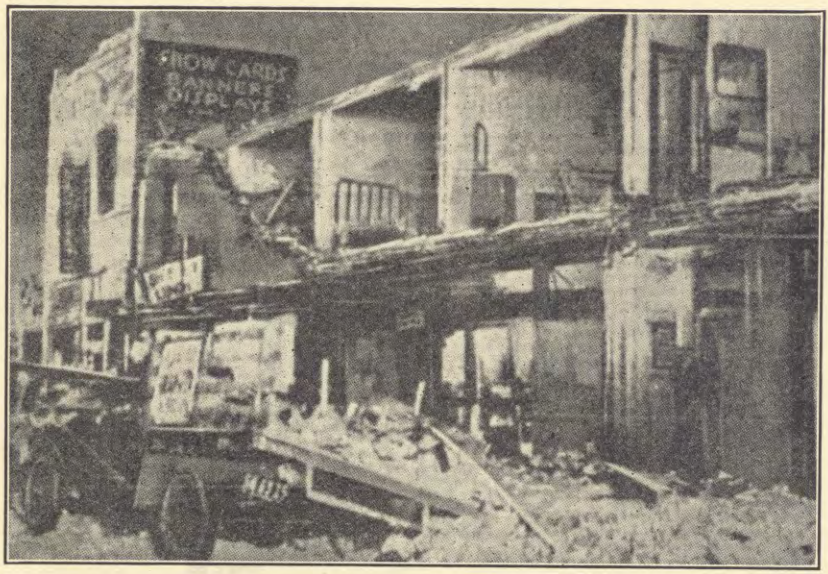
IN OTHER COUNTRIES

Practically all other countries have their means of radio communication, and as telegrams are handled by the Government Telegraph Administrations in those countries, messages for radio transmission should be filed at any of the government telegraph offices and marked "Via Radio".

Photogram Service

What are Photograms? The answer to this question tells the story of one more of the wondrous triumphs of radio in the annihilation of time and distance. Photogram transmission is a system of sending through space, in facsimile form, pictorial reproductions of photographs, designs, drawings and written or printed documents. This engaging problem has inspired and stimulated inventors and development engineers for many years. Owen D. Young once said, "I look forward to the time when the whole page of a newspaper can be fed into a machine and ZIPP, it will be received complete in facsimile form across the Atlantic." That was the vision, and, Photograms are the answer. Not yet has science achieved the full measure of the dream but the progress has been steady, as one after another of the intricate problems has been successfully solved, and now the results of years of effort have produced a system which is fast taking an important place in world-wide communications.

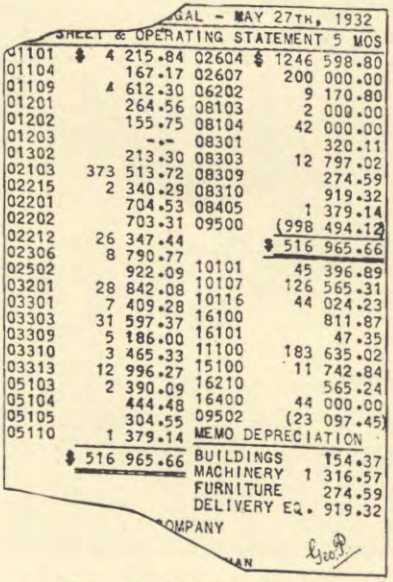
The engineering staff of R.C.A. Communications, Inc., has been conspicuous for the inventive and development work it has done to bring Photogram equipment to its present high state of perfection. For some time this company has been using perfected equipment, capable of sending and receiving pictorial matter of a thoroughly practical commercial quality over its trans-oceanic circuits. As a chain can have no weak links and still be a good chain it became necessary that the foreign associated stations be equipped with apparatus equal to ours in order to assure a reliable overseas facsimile service. This has now been done with the result that a dependable two-way system is being operated between the United States and several European countries, as well as South America.



Picture of hotel at Long Beach, California, destroyed in the recent earthquake, as printed in the London Daily Telegraph. An Associated Press picture by Photogram to London from New York.

Long years of exacting experience and a wealth of technical information, gained in the development and operation of transoceanic radiotelegraph transmission and reception, have provided the background for this system of faithfully speeding pictures through space. The excellence of the results obtainable is well illustrated by the quality of the copies shown in this booklet, which are all photographic reproductions of subject matter transmitted across the Atlantic Ocean by Photogram. These were chosen to illustrate the great variety of material being sent regularly to and from foreign countries by this process, and to show the actual commercial use which is being made of this new method of fast international communication. Almost daily new uses for this service and interesting applications of Photograms are being suggested.

Pictorial reproduction is playing an ever-increasing part in modern business and Photograms in advertising



GAL - MAY 27TH, 1932

SHEET & OPERATING STATEMENT 5 MOS

01101	$ 4	215.84	02604	$ 1246	598.80
01104		167.17	02607	200	000.00
01109	4	612.30	06202	9	170.80
01201		264.56	08103	2	000.00
01202		155.75	08104	42	000.00
01203		-.-	08301		320.11
01302		213.30	08303	12	797.02
02103	373	513.72	08309		274.59
02215	2	340.29	08310		919.32
02201		704.53	08405	1	379.14
02202		703.31	09500	(998	494.12)
02212	26	347.44		$ 516	965.66
02306	8	790.77			
02502		922.09	10101	45	396.89
03201	28	842.08	10107	126	565.31
03301	7	409.28	10116	44	024.23
03303	31	597.37	16100		811.87
03309	5	186.00	16101		47.35
03310	3	465.33	11100	183	635.02
03313	12	996.27	15100	11	742.84
05103	2	390.09	16210		565.24
05104		444.48	16400	44	000.00
05105		304.55	09502	(23	097.45)
05110	1	379.14	MEMO DEPRECIATION		
	$ 516	965.66	BUILDINGS		154.37
			MACHINERY	1	316.57
			FURNITURE		274.59
			DELIVERY EQ.		919.32

COMPANY

A large manufacturing company sends monthly operating statements by Photogram. Actual size of sheet 4x6 inches, costs $48.00 for transmission from London.

Showing an artist's ideas while at the English Derby. Picture used in advertising by Hart, Shaffner and Marx.

are a new angle of approach and often fulfill a need for a type of quick communication which cables and radiograms cannot serve.

News agencies, business houses, lawyers, financial institutions and advertising agencies are finding the Photogram Service is eminently practical and of great commercial value in many of their foreign contacts.

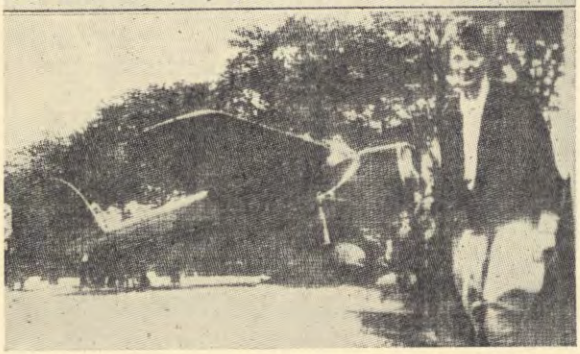
First picture of the Spanish Cabinet. By air mail, Madrid to London, thence by RCA Photogram to New York and published in the New York American.

The following list shows some of the types of subject matter of commercial value which are suitable for transmission:

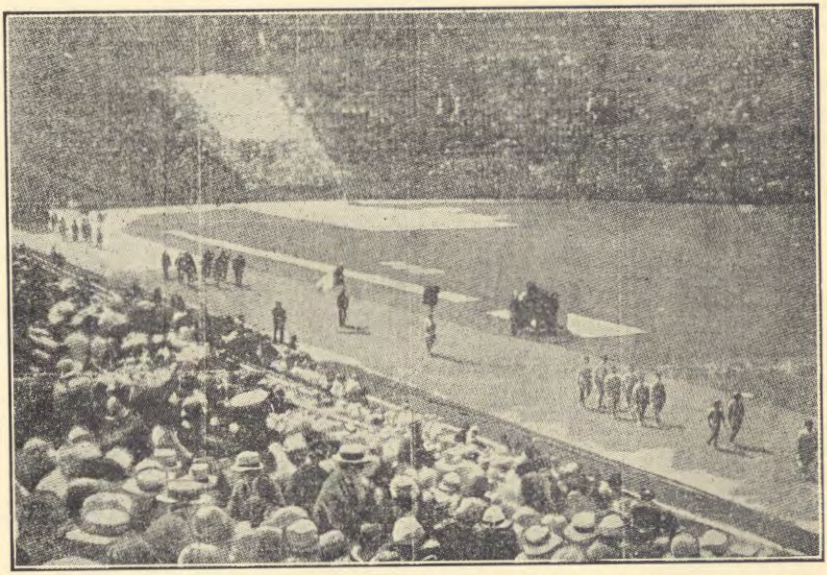
Showing how the Ladies Home Journal advantageously uses Photograms to bring home the latest Paris styles.

Photographs, half-tones, pen sketches, charts and maps, production curves, diagrams, hand written matter, holiday greetings, police photographs, news pictures, financial statements, machine drawings, fashion designs, architectural designs, typewritten matter, printed matter, affidavits, contracts, signature verifications, other legal papers, charcoal drawings and finger prints.

Safe in Londonderry Pasture Where Her Flight Ended



This picture was made from the N. Y. Herald Tribune reproduction of a Photogram from London showing Amelia Earhart Putnam after her successful Atlantic flight. Acme Picture.



Actual photograph of newspaper half-tone as it appeared in the Paris Excelsior; showing the 1932 Olympic Games. Keystone picture by Photogram to Berlin.

Drawing of a famous ball player. Photogram transmission from New York for publication in London.

Captain Hawkes, as he arrived in Rome. Photogram transmitted to the New York American.

C★★★ TUESDAY, AUGUST 16, 1932 Telephone Randolph 2121

Here's a *REAL* Good News Picture Telephotoed Exclusively From Berlin to Chicago Herald and Examiner Last Night

August 12, 1932.

M. S. Szymczak,
Comptroller, City Hall,
Chicago, Ill.

Sir: I have selected and do hereby designate George O. Dahlmann as my proxy for me and in my name place and stead to affix my signature as Mayor to Board of Education educational fund tax anticipation warrants issued against 1931 taxes, bearing six per cent interest numbers EL 128975 to EL 135774 and EL 135775 to EL 255774 for $50 each, total $4,340,000; and EC 19001 to EC 25600 for $100 each, total $660,000; and ED 1001 to ED 1500 for $500 each, total $250,000; and EM 1501 to EM 2000 for $1,000 each, total $500,000; and EVM 1 to EVM 200 for $5,000 each, total $1,000,000. Appended hereto is a written signature as my name is to appear on said tax anticipation warrants executed by said George O. Dahlmann with said proxy's own signature underneath as required by statute.

A. Cermak

An important legal document via RCA Photogram from Berlin; sent by the late Mayor Cermak of Chicago, releasing $6,750,000 worth of warrants for immediate payment to school teachers. A full week was saved by using radio and wire picture transmission.

In commenting on the above document, the Chicago Herald and Examiner said:

"The Photogram offers a medium for the transaction of international affairs, for large financial transactions and for the speedy production of evidence from a distance in a court room. It will not be a complicated matter to protect the process against fraud."

Comment by prominent Chicago lawyers follows:

Judge Rudolph, of Criminal Court—"Such methods of transmission offer many possibilities for speeding up the work of courts. I see no reason why it cannot be adopted for this purpose."

Attorney Otto Baer—"I see no reason why courts would not uphold the acceptance of documents transmitted by wire or wireless as sound evidence."

Judge Andrew A. Bruce, Professor of Criminal Law—"I see no real obstacle to the adoption of this method in court procedure. Transmission of a document in this fashion provides in one sense, a photostatic copy of the original."

Another sketch made at the English Derby.

A recent issue of Collier's Weekly bore a cover design based on this sketch which was submitted by the artist from London by Photogram.

A birth certificate was urgently required by a man born in Sweden to effect his re-entry into the United States after a visit to Canada. Upon request by radiogram to the man's mother, a certificate of birth was filed

FIRST PHOTO-RADIO-ADVERGRAM

FROM JOHN WANAMAKER NEW YORK
TO JOHN WANAMAKER LONDON

via The Radio Corporation of America to
the Marconi Company of London

PUBLISHED SIMULTANEOUSLY
IN LONDON, PARIS, NEW YORK AND PHILADELPHIA

"The Atlantic ocean in our thoughts is not half as wide as it used to be," wrote John Wanamaker in 1919, "the balloons traveling over it, and the airplanes, and the visions of inventors and engineers and the Columbuses who are exploring the air altogether have created the belief that the whole world has come to be neighbors". It was the age of Kipling's "Night Mail."

Came then a greater magic—the radio

In 1922 Wanamaker's, which had received Marconigrams on top of their buildings as early as 1907, began radio broadcasting—our programs being heard in Europe.

December 10, 1923, the Wanamaker station, WOO transmitted for the first time across the Atlantic the voice of a president of the United States,

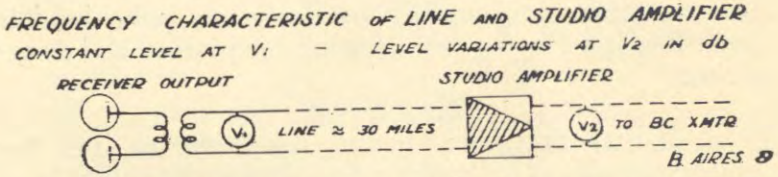
An early example of a pictorial radio message to London. It suggests the advertising value of Photograms.

The Victor crosses the line. La Nacion of Buenos Aires printed this picture of the winner of the 1932 Olympic Marathon. Transmission from New York to Buenos Aires required but eight minutes.

in Stockholm for transmission to London by wire and on to New York by Photogram. The received copy was accepted as authentic by both the Canadian and the United States immigration authorities and on the evidence of this document the man was permitted to enter this country.

Weather maps prepared by the U. S. Weather Bureau are now being supplied to ships at sea daily by Photogram. These maps show the isobars, the movement of storm centers and the prevailing winds, thus giving at a glance information impossible to put in a word message. They are proving a valuable aid to navigation.

Identified through a Photogram picture an alleged counterfeiter has recently been arrested here at the



A drawing of a few lines is often of more value than a long description. This diagram from Buenos Aires shows the possibilities of transmitting technical data.

request of the police of Poland, who have charged him with participating, in that country, in a forgery of $21,300 worth of travelers' checks.

A young man from Holland obtained employment in a large New York bank. One day he filled a suitcase with money, and set sail for Europe. As he walked down the gangplank "over there", in fancied security,

This picture of "Tony" Fokker, famous aeroplane designer, made a fast trip from New York to London by Photogram. Published in England by World Wide Photos.

VIA PHOTORADIOGRAM

The up-to-date Christmas card is a photograph and a hand-written message sent by RCA Photogram. Mr. Adolph S. Ochs, the proprietor of The New York Times, has sent Christmas cards in this novel way to all his friends in London.

he was taken into custody by detectives, who held in their hands a Photogram showing his picture and finger prints.

A British freighter, bound for America, lost her rudder two hundred miles off our coast. The only blueprints of the parts to be replaced were in England. Right here Photogram Service stepped into the affair and four days later, as the ship was being towed into an American shipyard, there awaited the repair parts all nicely fabricated to fit her rudder post. Thousands of dollars were thus saved her owners, who otherwise would have had to tie up the ship until blueprints arrived from England.

Many other interesting applications of this system of facsimile transmission have proved of more than money value to its users.

Photograms for transmission to Austria, Denmark, Germany, Great Britain and Ireland, Italy, Norway, Sweden and to the Argentine Republic will be accepted at any office of the R.C.A. Communications, Inc., in New York, Boston, Washington, D. C., and San Francisco. Photograms accepted at Boston and Washington will be forwarded by registered mail, special delivery, to New York for transmission. Those accepted at San Francisco will be transmitted by Photogram to New York for retransmission.

The R.C.A. Communications, Inc., will be glad to furnish expert advice as to the suitability of material considered for Photogram transmission or to consult on how this service may be used to the best advantage. Information and rates may be obtained at any office of the company or by direct communication with the Commercial Department, at the main office, 64 Broad Street, New York.

Overseas Radio Program Service

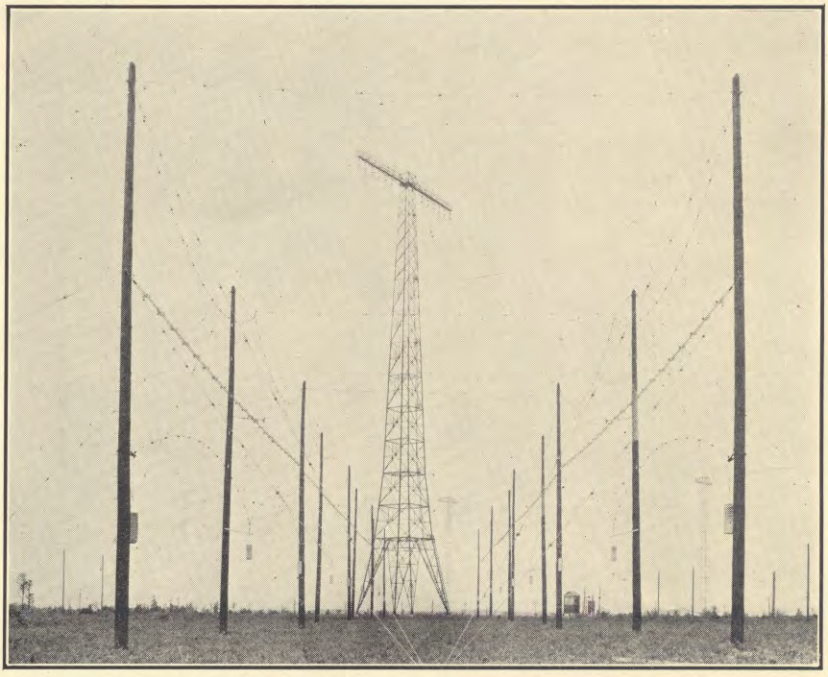
If the discovery and development of radio telegraphy was magic then certainly the broadcasting of alluring music or fascinating drama is romance. The creation and development of the radio broadcasting art has been the most spectacular of scientific achievements, for in the space of a few years the air we breathe has become vibrant with song and story, with myriad voices awaiting our every mood and pleasure. No home in this broad land of ours need be without the joy and benefit of the best there is in music or of the great educational advantages of hearing famous leaders speak on all important topics of the day.

Nor is the scope of broadcast radio confined to our shores for our voices and our music are sent across the seas to the far ends of the earth. Radio is today truly world wide and there is no country where important events occur that cannot send back a program of interest to you through your favorite station. The broadcasting systems have used the extensive transoceanic circuits of the R.C.A. Communications, Inc., to carry their programs to and from twenty-four foreign countries. Perhaps you have listened to some of these interesting programs, such as the music from Marconi's yacht cruising in the Mediterranean; the thrilling accounts of Admiral Byrd's landing at New Zealand after his flight over the South Pole; the vivid description of the earthquake disaster in Honduras; the Encyclical and other messages of Pope Pius XI from the Vatican; the stirring description of the Oxford-Cambridge boat race; and many other engaging programs.

The high quality and variety of radio entertainment in this country has been made possible by advertising

or sponsored programs and national advertisers have been quick to seize upon this medium to develop new markets for their products. They have come to recognize that their vast foreign markets, of immense purchasing power, are practically untouched by the intimate contact of direct radio sales effort, and now use this means to find additional buyers. This is particularly true of South America, where this highly effective form of advertising can be brought to the million families in the vicinities of Buenos Aires and Rio which are well equipped with receivers and where the many good broadcasting stations have enthusiastic audiences. The European countries which permit radio advertising also provide a fertile field for this type of sales promotion.

Transmitter building containing powerful equipment for Overseas Radio Program Service.



One of the many transmitting antennae which projects Overseas Radio Programs in directed paths to designated receiving stations in foreign countries.

The excellent RCA radio circuits from San Francisco to Honolulu and to Manila likewise are extensively used for commercial broadcasts and offer remarkable opportunities to spread a knowledge of the merits of American goods to these important trade centers.

Overseas Radio Program Service is available to radio chains and to advertisers to carry sales production matter or sustaining programs, in either direction, between the United States and many foreign countries. The Commercial Department of the R.C.A. Communications, Inc., will be glad to supply details of this service.

Where To File Radiograms

Via RCA

NEW YORK

Central Radio Office

64 Broad Street — Always Open — Phone: HAnover 2-1811

Branch Offices

120 Cedar Street	Phone: REctor 2-1677
103 Maiden Lane	Phone: BEekman 3-1924
19 Spruce Street	Phone: BEekman 3-8220
126 Franklin Street	Phone: WAlker 5-4891
25 East 17th Street	Phone: ALgonquin 4-7050
264 Fifth Avenue	Phone: LExington 2-5347
405 Lexington Ave. (Chrysler Bldg.)	Phone: MUrray Hill 2-1891
102 West 56th Street	Phone: CIrcle 7-6210

8 A. M. to 8 P. M. (Except Sunday)

Produce Exchange — Phone: BOwling Green 9-2321

8:30 A. M. to 4:30 P. M. (Except Sunday)

19 West 44th Street — Phone: MUrray Hill 2-4996

8 A. M. to Midnight (Except Sunday)
10 A. M. to 6 P. M. (Sunday)

BOSTON

109 Congress Street — 7 A. M. to 11 P. M. — Phone: Liberty 8864

WASHINGTON

1112 Connecticut Avenue — Phone: National 2600

8:30 A. M. to Midnight (Except Sunday)
9 A. M. to Noon and 4 P. M. to 6 P. M. (Sunday)

SAN FRANCISCO

28 Geary Street — Always Open — Phone: Garfield 4200
330 California Street — Phone: Garfield 4200

6 A. M. to 7 P. M. (Except Sunday)

HONOLULU

125 South King Street — Always Open — Phone: No. 6116

SAN JUAN, PORTO RICO
Edificio Ochoa

MANILA, P. I.
Plaza Moraga

SANTO DOMINGO CITY, R. D.
Edificio Diez

PORT au PRINCE, HAITI
Leger Building

Transatlantic radiograms, if marked "Via RCA," will also be accepted at any office of the Western Union Telegraph Company, except in New York City, Boston, Washington and San Francisco, in which cities transatlantic radiograms should be filed in the offices of R. C. A. Communications, Inc.

Transpacific radiograms will be accepted at all RCA and Western Union offices.

Marine radiograms may be filed at all RCA and Western Union offices.

MARK ALL RADIOGRAMS "VIA RCA"

COMMERCIAL DEPARTMENT

R.C.A. Communications, Inc.

A Radio Corporation of America Subsidiary


Via RCA