

Annual Report of the Directors

of

Radio Corporation of America

to the

Stockholders for the year ended
December 31, 1921



New York, 1922

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RADIO CORPORATION OF AMERICA

BOARD OF DIRECTORS

OWEN D. YOUNG, Chairman

GORDON ABBOTT	EDWARD W. HARDEN
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DAVID SARNOFF, General Manager	CHARLES J. ROSS, Comptroller
GEORGE S. DE SOUSA, Treasurer	MARION H. PAYNE, Assistant Treasurer
JOHN W. ELWOOD, Secretary	LEWIS MACCONNACH, Assistant Secretary

WILLIAM A. WINTERBOTTOM, Traffic Manager

LEE LEMON, Director of Traffic Production

E. F. W. ALEXANDERSON, Chief Engineer

ROY A. WEAGANT, Consulting Engineer

DR. ALFRED N. GOLDSMITH, Director of Research

EDWARD B. PILLSBURY, General Superintendent,
Transoceanic Division

ARTHUR A. ISBELL, General Superintendent,
Pacific Division, San Francisco

G. HAROLD PORTER, General Superintendent,
Marine Department

ROBERT C. EDWARDS, Purchasing Agent

SHEFFIELD & BETTS, Patent Counsel

WILLIAM BROWN, Attorney

IRA J. ADAMS, Patent Attorney

HARRY G. GROVER, Assistant Patent Attorney

Report of the Directors
of
Radio Corporation of America

New York, March 20, 1922

TO THE STOCKHOLDERS:

The Directors of the Radio Corporation of America submit the following review of operations for the year ended December 31, 1921.

The scope of the business of your Corporation covers radio telegraphy both for domestic and overseas business, and radio telephony, both overseas and ship business, and radio telegraphy and radio telephony for amateur and certain private uses. Your Corporation is not engaged in carrying on commercial radio telephony in the United States.

Your Corporation, as you will recall, was formed as the result of an appeal to the General Electric Company by representatives of the Navy Department of the United States Government, to the ends of (1) establishing an American owned, operated, and controlled radio communications company, powerful enough to meet the competition of the radio interests of other nations; (2) establishing such an international communications system that the United States would not be dependent upon the foreign owned cables; and (3) providing for the construction and operation of radio stations at home and abroad under such terms and conditions as would best serve the needs of the American people and their Government.

The problem was not only to establish America in the international communications field, but to do it as quickly as possible.

Supplementing the arrangements reviewed in the annual report of 1920, providing for the organization of a corporation strong technically and financially, and in order to further the accomplishment of its aims, your Corporation in August of 1921, after a long series of negotiations, entered into an agreement with the International Radio Telegraph Company and the Westinghouse Electric and Manufacturing Company. By this arrangement your Corporation acquired the radio inventions of the International Company and those of the Westinghouse Company, the development of which had begun during the war. These patents, including the Heterodyne, and others of Messrs. Fessenden, Armstrong and Pupin, etc., and the results of the research and development work of the Westinghouse Company following the war experience, particularly as to receiving apparatus, syn-

chronizing with your Corporation's inventions along other lines, particularly as to transmitting apparatus, were necessary to the successful operation of a complete and well rounded radio communication system.

Now it is possible for your Corporation to develop, free from the previously existing patent restrictions, both receiving and sending apparatus essential to the furtherance of the art.

The Westinghouse Electric and Manufacturing Company, in order to better carry out the agreements for cooperation in the scientific development and advancement of the art of radio transmission and reception, purchased a substantial minority stock interest in your Corporation.

Your Corporation now enjoys the benefits of the highly developed manufacturing and research organizations of the General Electric Company, American Telephone and Telegraph Company, Western Electric Company, United Fruit Company, Wireless Specialty Apparatus Company, and the Westinghouse Electric and Manufacturing Company together with its subsidiary, the International Radio Telegraph Company.

The International Radio Telegraph Company also owned and operated a chain of marine radio stations on the Atlantic coast. These stations have now been added to your Corporation's system of marine radio stations which gives it added facilities for carrying on its increasing shore to ship traffic.

CONTRACT WITH THE GOVERNMENT OF POLAND

In the annual report for the year 1920, mention was made of the closing of a preliminary contract with the Polish Government for a super-power station to be erected at Warsaw, Poland, for communication with the rest of the world, and primarily with the United States. On August 1st, 1921, the final contract was executed with the Government of Poland and your Corporation now has a corps of radio engineers in Poland supervising the erection of the station. One-half of the radio equipment for the transmitting and receiving stations has been forwarded to Poland. When the station is completed it will have two Alexanderson alternators, and an antenna supported by ten towers which can be used either as a whole or in two halves. The station will thus be capable of operating as a super-power station with both alternators and the whole antenna or as two normal high power stations operating simultaneously, using one alternator on each half of the antenna. The station will be provided with a long directional receiving antenna and three complete sets of receiving apparatus of the latest type, and will be capable of receiving from three sending stations simultaneously. The actual telegraph

manipulation of both transmitting and receiving stations will be performed at a central office in Warsaw which will be connected with the transmitting and receiving stations by ordinary land wires in accordance with the latest American practice.

At the time the contract for furnishing the station was closed your Corporation also entered into a mutually satisfactory traffic agreement with the Polish Government which provides favorable terms for the exchange of wireless telegraph traffic between the two countries.

SOUTH AMERICA

After the formation of the South American Radio Corporation, which was referred to in the report of last year, and which was owned jointly by your Corporation and Marconi's Wireless Telegraph Company, Ltd., it came to the attention of the owners of the South American Company that the French and the German Companies were each contemplating the erection of high power stations in the principal Republics of South America. The erection of individual stations by different nationals would have meant duplication of capital in countries where the prospective business was too meagre to warrant such duplication, particularly as the construction of stations was very expensive; and the wave lengths suitable for long distance international radio communications were so few that they should be used at their full capacity; moreover the national feeling with reference to communications ran too high to permit the successful execution of competitive programs. To have proceeded with individual competitive stations would have been highly wasteful and uneconomic.

With all these factors in mind, your representatives met, in Paris, the representatives of the Marconi's Wireless Telegraph Company, Ltd., the Compagnie Generale de Telegraphie Sans Fils, and the Gesellschaft fur Drahtlose Telegrafie, m. b. H. Negotiations were carried on for over two months and resulted in an arrangement for the development of radio communications between the South American Continent and other continents, which arrangement is substantially as follows:

All four parties grant all their external wireless communication rights in the South American Republics to Trustees to be held for the four parties in equal shares. The Trustees are nine in number, two being appointed by your Corporation, two by the British, two by the French and two by the Germans, and an additional one has been designated as Chairman by your Corporation. The person who has been so designated is Mr. Thomas Nelson Perkins, a prominent American not connected with your Corporation. It is proposed that under the Trusteeship, national companies will be formed in each of the South American Republics

for the conducting of intercontinental communication services. Each station erected is to be under the direct control of an operating committee. Such operating committees will function under a managing director. The purpose of this operating committee is to insure against discrimination between nationals in the freedom of communication. Acting under this program, a station is now being erected in the Argentine and a concession has been obtained and financial commitments made in Brazil. Provision has been made for taking under the Trusteeship the station which the British are erecting at Bogota in Colombia and also the German station at Cartagena in Colombia.

The South American Radio Corporation has been kept in existence, all of its stock now being owned by your Corporation, and it will foster the rights which your Corporation has in South America and which are not within the scope of the Trusteeship, namely, the development of continental and internal radio communications and the merchandising of amateur, experimental and commercial apparatus.

Your Corporation's business is classified as follows:

- (1) **TRAFFIC DEPARTMENT**, responsible for both the International Commercial Radio Telegraph and the Ship to Shore communication business of your Corporation.
- (2) **SALES DEPARTMENT**, merchandising of radio apparatus to domestic and foreign customers, governments, commercial companies, amateurs, experimenters, and for home entertainment.
- (3) **MARINE DEPARTMENT**, responsible for the leasing and selling of radio apparatus to steamship companies.
- (4) **ENGINEERING DEPARTMENT**, concerned with the furtherance of technical developments and their practical application to commercial, amateur, and experimental apparatus as well as high power radio equipment for transoceanic communications.

A brief summary of the activities of these departments follows.

TRAFFIC DEPARTMENT

Your Corporation has now in operation six direct international radio communication circuits as follows:

1. Great Britain; service opened March 1, 1920.
2. Norway; service opened May 17, 1920.

- 3 and 4. Germany; two distinct circuits now working, the first opened August 1, 1920, the second May 19, 1921.
5. France; service opened December 14, 1920.
6. Hawaii and Japan; service opened March 1, 1920.

These circuits, all of which are comparatively new, are rendering a steadily increasing public radio telegraph service in keen competition with the older established cable companies which operate seventeen submarine cables to Europe, and one to the Far East.

The most important cable services of the world center in Great Britain, with the result that the majority of the cable communications for Europe pass through London. Your Corporation, for the first time in history, has provided direct telegraph service between the United States and Scandinavian countries, and at the present time offers the only direct telegraph route to Germany and Central Europe.

Europeans have been largely employed in the field of cable communication, but the policy of your Corporation is to carefully select and thoroughly train Americans for this new development in world communication. Many ex-service men taken from the Radio sections of the Army and Navy are now devoting their careers to international radio communication.

Owing to the lack of essential corresponding high power stations abroad, your Corporation was unable to open further direct international services during the year with the exception of a provisional service to Italy furnished during the Disarmament Conference. The year 1921 was, therefore, largely devoted to increasing the efficiency and capacity of our existing communication channels and to extending, through present European correspondents, connections with other countries by wire telegraph, and thus there has been provided indirect service to almost the entire world, except South America.

OPENING OF RADIO CENTRAL

In the last annual report, mention was made of the proposed station to be erected at Rocky Point, Long Island, to be known as Radio Central. This station when completed will be a multiple station of twelve units, each consisting of a complete transmitter, and an antenna nearly one and a half miles long, supported by six steel towers, each 400 feet in height.

On November 5, 1921, the first unit of Radio Central was formally opened by President Harding, who started the automatic transmission of his own broadcasted message from the White House, which was as follows:

THE WHITE HOUSE,
Washington, United States of America.

To be able to transmit a message by radio in expectation that it may reach every radio station in the world, is so marvelous a scientific and technical achievement as to justify special recognition (stop) It affords peculiar gratification that such a message, from the Chief Executive of the United States of America, may be received in every land, from every sky, by peoples with whom our nation is at peace and amity (stop) That this happy situation may ever continue, and that the peace which blesses our own land may presently become the fortune of all lands and peoples, is the earnest hope of the American nation (stop)

(Signed) WARREN G. HARDING.

November 5, 1921.

This message was acknowledged by nineteen countries of the world, including Japan, Australia and New Zealand. Four countries acknowledged receipt of the President's message within fifteen seconds. The new unit is now in daily commercial service with Germany, and the second unit, which will soon be completed, will be assigned to service with Poland, or as a supplementary station handling our rapidly increasing traffic on the present Transatlantic radio circuits.

CENTRALIZATION OF CONTROL BY THE R. C. A. SYSTEM

Your Corporation's latest methods of operation have concentrated into its Central Radio Office at 64 Broad Street, New York, the bulk of its international radio services and have resulted in a marked economy in the cost of operation and a great improvement in the quality of service rendered. Similar improvements are now being made on the Transpacific circuits.

Prior to the introduction of the new system of operation it was considered necessary to construct radio stations in pairs—one a sending station, the other a receiving station—separated by about fifty miles and connected by telegraph wires. This plan is still in use in other countries. Its principal weakness is that it necessitates manual relaying of messages, resulting in errors and delays, and makes necessary the duplication of large and expensive telegraph staffs.

New York is, by far, the most important center of communication in this country, and the aim of all international telegraph companies has been to communicate directly with the

business center of New York City. This has now been accomplished by your Corporation, by the completion of the plan for Central Control at the Broad Street Office, in a manner which is attracting much favorable attention throughout the communication world. The method has been adopted and is already being closely followed in Germany, with the result that today New York and Berlin are in *direct* radio communication.

Briefly, the new scheme of operation consists of connecting all of the Corporation's Atlantic transmitting stations with the Central Radio Office in New York by direct wires so that the actual controlling keys are in one room. A new receiving station, described fully in the Engineering Section of this report, equipped with the latest receiving devices, has been erected on Long Island and all messages from European transmitting stations are picked up at the Long Island station. Such radio signals are automatically forwarded over wire circuits to the Central Radio Office in New York, where all transmission and reception work is now concentrated, and where a specially trained and highly skilled staff is doing the work which formerly required duplicate staffs at the outlying radio stations.

Radiograms travel at the speed of light and from the moment of transmission in Europe to direct typewriter reception in New York City, no hand relaying is involved. This new method of operation has resulted in great economies as well as increased speed and accuracy.

Your Central Radio Office at 64 Broad Street has been greatly enlarged to meet present and future demands. It has been equipped with the most modern devices known to the radio art, including the ink recorder which makes a permanent record of the received signal on paper tape, whereas formerly such signals were only heard momentarily in telephone receivers. This method of reception makes for far greater accuracy, provides a valuable permanent record, and affords satisfactory reception for high speed radio telegraphy. The most modern practice of automatic transmission has also been adopted by the Traffic Department, resulting in greater perfection of operation, and providing the maximum capacity for each circuit in the present development of the radio art. Automatic transmission is also being adopted to a greater degree by corresponding foreign administrations.

EXTENSION OF BRANCH OFFICES

During the year the following branch offices for the collection and distribution of transoceanic and marine radio messages were opened in New York City:

233 Broadway
105 Hudson Street
933 Broadway
500 Fifth Avenue

Your Corporation opened a radio telegraph office in Washington, D. C., for the purpose of handling the increased traffic resulting from the Disarmament Conference. This office was located in the Navy Building and a special telegraph line was maintained between Washington and your Central Radio Office in New York which gave practically instantaneous transoceanic communication service to Europe.

Although this office was originally intended as a temporary one, a demand for the continuance of the service has been created and it has been decided to continue, for the present, the Washington Office at 1110 Connecticut Avenue. Traffic from that city is increasing and this service is being used by a number of the departments of the Government as well as by the Embassies and Legations corresponding with the countries now served by the Radio Corporation. The continuance of the office will naturally depend upon the volume of traffic obtained in competition with the cable services.

Public appreciation of your Corporation's endeavors to provide a rapid and accurate international radio service might be measured by the amount of business attracted in a year of general depression and subnormal foreign trade conditions. It is to be remembered that your Corporation has been engaged in international communication only since March 1, 1920, when the Government returned your stations—barely two years—yet, last year the volume of traffic handled was three times as great as that of the previous year and it is estimated that at the present time your Transatlantic circuits are carrying twenty per cent of the international message traffic between Europe and the United States.

In connection with its Transatlantic services, your Corporation forwards its European Radiograms, destined to the interior of the United States, through both of the American land-line telegraph companies. Except in New York City, where your Corporation maintains five offices, and in Washington the American public has not yet had any ready means for using your Corporation's system for sending radiograms to Europe.

Our Transpacific service, in contrast to the above, has had an effective collection and delivery system in the entire United States through the medium of the Western Union Telegraph Company, which Company operates no submarine cable across the Pacific Ocean.

MARINE TRAFFIC

Extensive additions and remarkable developments have been made in your Corporation's system of marine radio stations. At the beginning of the year your Corporation operated two marine radio stations, one at Chatham, Mass., and the other at Belmar, N. J. Your Corporation now owns and operates such stations located at the following points:

Chatham, Mass.
Siasconset, Mass.
New London, Conn.
New York, N. Y.
Cape May, N. J.
San Francisco, Calif.

The station at Chatham, Mass., is one of the most efficient marine radio stations in existence and is capable of carrying on simultaneous communication with three ships. Reliable radiotelegraph communication is maintained with the principal ocean liners up to 2,500 to 3,000 miles distant. Radiograms destined for ships at sea are accepted by either of the American land-line telegraph companies.

In addition to the regular radio telegraph traffic passing to or from ships at sea via these marine radio stations, other important services are rendered, among which are the following:

Free medical advice by Radio for mariners made possible through the cooperation of the U. S. Public Health Service and the Seamen's Church Institute of New York.

An important daily news service, furnished to the principal passenger ships crossing the Atlantic.

Ships' position reports are received at your Corporation's stations and turned over to newspapers for publication. These reports are of considerable interest to relatives or friends of those at sea and of great value to the shipping industry.

Your Corporation has recently established Marine Radio Information Bureaus at New York and San Francisco for the purpose of furnishing the general public and steamship officials correct information as to how vessels in any part of the world may be reached by radio. These bureaus are important factors in rendering efficient and prompt marine radio service.

SALES DEPARTMENT

During the year 1921, the sales activities of your Corporation steadily increased and a satisfactory business was done.

In the domestic field, various devices were developed and sold for amateur and experimental uses and the products of the Radio Corporation found favor and met with sympathetic response on the part of the many in this country who are intensely interested in radio.

In the foreign field your Corporation has established connections and effected sales contracts during the year with the Governments of Mexico, Venezuela, and Poland.

Your Corporation has obtained a contract for eight complete low power radio equipments which are to be used for internal wireless telegraph communication in Mexico.

In Venezuela your Corporation has installed three complete radio stations for internal communication and in addition has sold a quantity of material for various uses by the Government Departments of Venezuela.

Early in this report a reference was made to the signing in August of 1921, of the final contract with the Government of Poland, and the progress made under that contract has been stated.

Gross sales booked by the Sales Department for the year amounted to \$1,468,919.95.

Late in the year 1921, as a result of the erecting of broadcasting radio telephonic stations in various parts of the United States, the demand for wireless telephone receiving apparatus was very great. It is natural that broadcasting, carrying news, music, lectures, concerts, crop reports, weather reports and grand opera into the homes of all classes of American people should have created a concerted and impatient demand for the popular wireless telephone receiving sets. The demand came up very much over night and no apparatus had been developed which lent itself to quantity production.

Radio as an art is advancing very rapidly. Due to the continuous research that has been carried on, apparatus embodying the latest improvements and of a character suited for general use, has now been developed for manufacture in large quantities and it is believed by the officers of your Corporation that the demand, large though it may be, will soon be filled.

MARINE DEPARTMENT

The depression in the shipping business has occasioned a decrease in the number of ships operated under your rental and service contracts, especially vessels controlled by the United States Shipping Board Emergency Fleet Corporation, of which a large number were withdrawn from service and indefinitely laid up. The acquisition of new contracts during the latter part of the year measurably offset the result of this depression.

Improvements effected in the receiving apparatus now installed on vessels under your Corporation's form of contract and similar improvements designed for the transmitting equipment—greatly enhancing the range of communication between ship and shore stations as well as between ships at sea—proved a helpful factor for additional revenue from marine installations. In this department the gross income from leases, sales, and rentals of radio apparatus was \$553,298.71.

ENGINEERING

At the beginning of 1921 your Corporation had in operation two Transatlantic high power transmitting stations, one at New Brunswick, New Jersey, and the other at Marion, Mass.

The station at Tuckerton, New Jersey (originally constructed by a German Company), was of unsatisfactory design to meet the demands of Transatlantic service. Construction work performed by your Corporation's engineers at this station during the latter part of the preceding year culminated in making this station ready for commercial traffic service in January, 1921. Further developments during the year produced improvements in antenna insulation and grounding systems, which, combined with some extension to the antenna system, permitted the simultaneous use (each with a separate antenna), of the two Alexanderson alternators installed at the station. The Tuckerton Station now furnishes two transmitters for use on two distinct European circuits.

At Radio Central at Rocky Point on Long Island construction work commenced during the previous year was completed to such a point that on November 5th the station was officially opened and put into commercial operation, using one Alexanderson alternator and one unit of the antenna.

The development work and improvements of antenna insulation and grounding systems, mentioned above in connection with Tuckerton, were carried on at Radio Central with the object of increasing the capacity of the equipment being installed at this station. And as a result, it has now been demonstrated that the capital investment originally intended to provide one high-power circuit will actually provide two high-power circuits and give twice the traffic capacity expected and this with only a small increase in operating cost.

Radio Central added another Transatlantic transmission channel available for continuous service, making the total Transatlantic transmitters at the end of the year five as against two at the beginning of the year.

At the Pacific Stations at Bolinas, California, and Kahuku, Hawaii, duplicate Alexanderson alternators have been installed

and have been in regular operation during the last half of the year.

All your transoceanic stations are now equipped with the most modern type of high-power wireless transmission apparatus.

In connection with the reception, development has been very rapid and has been along the lines of improvements in technique and in centralization with the object of effecting economy and improving the service. As rapidly as these developments have materialized they have been incorporated in the receiving system for the Transatlantic circuits with the result that it has been possible to concentrate at one station the reception on all Transatlantic circuits in contrast to the practice of previous years when separate receiving stations located near transmission stations were employed on each Transatlantic circuit. This new receiving station is located at Riverhead, Long Island, and the one antenna consists of two copper wires nine miles long strung on ordinary telephone poles which receive simultaneously the signals from corresponding European stations in Norway, England, France and Germany. One station building contains the receiving apparatus which separates the various signals and transfers them directly over trunk line wires into the Broad Street traffic office in New York City. As an additional advantage the Riverhead Station can be expanded with only a moderate expenditure to take care of the reception of additional Transatlantic circuits as the necessity arises.

Your engineers have given a large portion of their time to the development of vacuum tubes for medium and high power transmitting and receiving stations. The new Marine Radio Station at Chatham, Massachusetts, embodies the latest developments in transmission and reception. Vacuum tubes ten times as powerful as those in commercial use are being developed, and an installation of these tubes is about to be undertaken at Radio Central, for experimental purposes.

In cooperation with the engineers of the American Telephone and Telegraph Company, your engineers have developed during the last year radio telephone vacuum tube transmitters and receivers for use on board ships, which, in tests recently carried out, gave excellent telephone communication between ships and various points on shore over distances of 400 miles.

MAINTENANCE

When the stations were returned by the Government at the beginning of 1920, they were all in a somewhat unsatisfactory condition due to the fact that during Government occupation provision for adequate maintenance had not been made. During 1920 work was directed principally on getting the stations into

condition to go in commission and give service. The most important maintenance features were given some attention, but at the end of the year the stations were not by any means in ideal condition, the very difficult labor conditions prevailing during 1920 having also proved a serious handicap in connection with maintenance work. During 1921 very thorough maintenance work has been carried out at all stations with a result that at this date all your properties are in excellent condition.

This year, as last, every foreign country which now has in process or is contemplating the erection of a high power long distance radio station desires first of all communication with the United States. Construction programs take into consideration these desires and must therefore anticipate the normal growth of the future. The facilities of your Corporation, its equipment and plant, must always be sufficient and adequate to take care of the maximum traffic load required and fulfill its obligation of serving the public.

PATENTS

Hundreds of new inventions and patents have been studied and tested, and attention has been given to almost every one of the parts making up the complex stations to see how they might be improved, with the result that an unusually large number of improvements have been introduced into the transmission and receiving stations, into the wire connections, and other apparatus, all resulting in substantial economies in the operation, maintenance and construction of the stations and plant.

GENERAL

During the past year your Corporation has dealt with various matters involving legal affairs of vital importance to its organization, and your Officers regard the general revision of the present national radio laws as a necessity, particularly if the existing, well recognized preeminence of the United States in world radio affairs is to be preserved and the control by Americans of the transoceanic radio communication of this country is to be maintained. The By-Laws and Charter of your Corporation provide that it shall be American in its management, control and operation.

Under the present regulations, it is possible for radio transmitting stations to be erected before a license permitting such erection has been obtained. The United States is practically the only great country where such a condition prevails and your officers have advocated a method of licensing to remedy this condition.

Although the use of codes and high speed sending and receiving are protecting the privacy and secrecy of messages, your Officers have advocated the further protection of messages, by prohibiting,

through licensing or other adequate governmental means, receiving stations from picking up and distributing commercial messages addressed through other stations.

Supervision and regulation of high power transmitting stations are essential for guarding against mutual interference, and receiving stations should be so regulated as to prohibit all improper interception of messages.

FINANCIAL

Balance Sheet

Your Corporation's capital stock consists of 3,955,974 shares of 7% preferred stock of a par value of \$5.00 per share, and 5,732,000 shares of common stock of no par value, against which there is shown on the balance sheet attached hereto an equity of \$12,039,607, which is approximately \$2.11 per share, for each share of common stock. No dividend was paid during the year 1921 on either the preferred or the common stock outstanding.

While there has been very little change in the total current assets, the current liabilities have been reduced by about \$930,000.00; therefore, the Corporation's financial position has been considerably strengthened. Current assets exceed current liabilities by nearly four million dollars.

Your Corporation, as last year, has no bonded indebtedness, current liabilities shown consisting of current bills for merchandise and material not yet due.

Your Corporation has expended during the year \$3,000,000 in extending its plant and equipment and now has invested in plant and equipment \$12,702,086.

Reserves for depreciation and obsolescence of plant and amortization of patents at the end of the year amount to \$2,318,135.

OPERATIONS

After charging depreciation reserves, the operations for the year resulted in a net profit of \$426,799., which amount has been applied against "Reserve for Patents," and is inadequate to cover the depreciation in the life of patents which your Corporation owns.

The gross revenue from transoceanic communications showed an increase of 137% over the previous year and sales increased 184%; while gross revenue from Marine Department operations remained about the same.

PERSONNEL

Two years ago your Corporation possessed only a skeleton organization for undertaking the responsibilities incident to fur-

nishing a great public international radio-telegraph service. Many of its expert traffic men and engineers were enrolled in the Government radio service during the war.

With the return of the stations by the Navy Department former employees returned to us and many other deserving ex-service radio men found satisfactory positions in your organization.

There was no precedent to follow in the new art of commercial radio communication. New men, new methods, new machinery had necessarily to be developed quickly to meet the demands of an increasing transoceanic communication business, to the difficulties of which were added the problems involved in trying to harmoniously standardize the working methods with half a dozen different foreign corresponding administrations.

So rapid has been the progress made by your organization that several of our expert radio operators have been loaned to European Administrations and foreign representatives have been sent to us for training.

Your research and construction engineers have solved intricate technical problems, efficient use of available wave lengths, economical methods of high speed recording, etc. New and more powerful sending stations have been erected in record time, work being pushed forward often under most adverse weather conditions.

During the past two years the heavy demands for properly trained personnel have sometimes been difficult to meet and on such occasions the existing staff has been called upon for increased effort and self-sacrifice and it is a pleasure to record that there has always been the most generous and enthusiastic response. Much credit is due to those who have so loyally, untiringly and conscientiously met these demands. One of your Corporation's greatest assets is the highly trained group now serving in the various departments—all enthusiastic members of the staff of the Radio Corporation of America and ready at all times to meet the demands of a world-wide wireless service.

For the Directors:

OWEN D. YOUNG, *Chairman of the Board.*

EDWARD J. NALLY, *President.*

Printed by order of the Board.
JOHN W. ELWOOD,
Secretary.

RADIO CORPORATION OF AMERICA

BALANCE SHEET—DECEMBER 31, 1921

ASSETS

PLANT AND EQUIPMENT:

Comprising High Power Stations in Operation with the necessary equipment thereto, together with ship stations and sundry machinery, tools and furniture.....

\$12,702,086.84

PATENTS, PATENT RIGHTS, CONTRACTS, GOODWILL, ETC.....

16,584,845.50

STOCKS OF SUBSIDIARY AND ASSOCIATED COMPANIES.....

598,000.00

CURRENT ASSETS:

Cash on Hand and at Call.....

\$ 550,455.74

Accounts Receivable.....

2,967,497.66

Merchandise Inventories.....

895,232.80

Investments at Cost (Market Value December 31, 1921, \$494,039.90).....

497,737.42

Total Current Assets.....

4,910,923.62

DEFERRED CHARGES:

Including Organization Expenses and part of the cost of re-establishment of the transoceanic business.....

916,228.58

\$35,712,084.54

LIABILITIES & CAPITAL

CAPITAL STOCK:

3,955,974 shares 7% Preferred \$5 par... \$19,779,870.00

5,732,000 shares Common (no par value) 12,039,607.88

Total Capital Stock.....

\$31,819,477.88

CURRENT LIABILITIES.....

954,471.07

DEFERRED LIABILITY.....

620,000.00

RESERVES:

For Depreciation of Patents—

Balance..... \$ 964,284.12

Add: Amount Transferred from 1921 Earnings.....

426,799.59

\$1,391,083.71

For Depreciation and Obsolescence of Plant.....

818,329.42

Other Reserves.....

108,722.46

2,318,135.59

\$35,712,084.54

RADIO CORPORATION OF AMERICA

SUMMARY OF OPERATIONS—YEAR ENDED DECEMBER 31, 1921

GROSS INCOME FROM OPERATIONS:	
From Transoceanic Communications	\$2,138,625.86
Gross Sales	1,468,919.95
From Marine Service	553,298.71
	<hr/>
<i>Deduct:</i> General Operating and Administration Expenses,	
Depreciation of Plant and Cost of Sales	3,762,231.48
	<hr/>
	\$ 398,613.04
OTHER INCOME	28,186.55
	<hr/>
BALANCE APPLIED AGAINST AMORTIZATION OF PATENTS	<u>\$ 426,799.59</u>

CERTIFICATE OF AUDITORS

We have examined the books and accounts of the RADIO CORPORATION OF AMERICA and certify that in our opinion the foregoing Balance Sheet and Summary of Operations correctly set forth in brief the financial position of the Corporation at December 31, 1921, and the operations of the year 1921 as shown by the books.

ARTHUR YOUNG & Co.,
Members American Institute of Accountants.

New York,
March 20, 1922.

RADIO CORPORATION OF AMERICA

SALES DEPARTMENT

E. E. BUCHER,
Sales Manager

PIERRE H. BOUCHERON,
Advertising and Publicity Manager

TRAFFIC DEPARTMENT

W. A. WINTERBOTTOM,
Traffic Manager

J. B. ROSTRON,
Asst. Traffic Mgr. (Transoceanic)

T. M. STEVENS,
Asst. Traffic Manager (Marine)

H. CHADWICK,
Superintendent, 64 Broad St., N. Y.

C. J. WEAVER,
Assistant Supt., 64 Broad St., N. Y.

W. H. BARSBY,
Assistant Supt., 64 Broad St., N. Y.

L. A. BRIGGS,
Assistant Supt., 64 Broad St., N. Y.

A. A. ISBELL, General Supt., Pacific Div., San Francisco, Cal.

W. E. WOOD,
Superintendent, Chatham, Mass.

G. E. BAXTER,
Superintendent, San Francisco

F. M. ROY,
Superintendent, Marshall, Cal.

H. A. OXENHAM,
Superintendent, Koko Head, T. H.

W. P. S. HAWK,
Superintendent, Honolulu

C. H. GRASSER,
Manager, Washington, D. C.

A. H. MORTON,
Representative, Washington, D. C.

MARINE DEPARTMENT

G. HAROLD PORTER,
General Superintendent

J. B. DUFFY,
Superintendent Eastern Division, 826
Broadway, N. Y.

L. A. MALARIN,
Marine Superintendent, San Francisco

G. W. NICHOLLS,
Dist. Supt., 136 Federal St., Boston

L. L. MANLEY,
Supt., Maintenance, Repair and Installa-
tion, 326 Broadway, N. Y.

E. M. HARTLEY,
Assistant Superintendent

J. A. POHL,
Supt., Gulf Division, 1001-3 Canal-
Commercial Bldg., New Orleans

E. A. NICHOLAS,
Superintendent Great Lakes Division,
1599 St. Clair Ave., Cleveland

W. P. KELLAND, Dist. Manager,
Gay and Pratt Sts., Baltimore

F. H. ILLINGWORTH, Dist. Manager,
109 S. 2nd St., Philadelphia

L. H. GILPIN, Dist. Manager,
220 Brewer St., Norfolk

A. THOMAS, JR., Dist. Manager,
510 Bonheur Bldg., Chicago

A. W. DORCHESTER, Dist. Manager,
109 Stewart St., San Francisco

W. F. MCAULIFFE, Dist. Manager,
Maritime Building, Seattle

H. L. BLEAKNEY, Dist. Manager,
Southern Pacific Bldg., San Pedro

O. B. MINTER, Dist. Manager,
30 Realty Bldg., Port Arthur

J. E. BROUSSARD,
Representative, P. & O. Steamship Co.,
Key West

R. H. COFFIN,
Representative, 80½ St. Francis St.,
Mobile

COMPTROLLER'S DEPARTMENT

C. J. ROSS, Comptroller

H. A. SULLIVAN, Auditor of Disbursements

A. NICOL, Auditor of Receipts

ENGINEERING DEPARTMENT

E. F. W. ALEXANDERSON, Chief Engineer

DESIGN AND CONSTRUCTION DIVISION

A. E. REOCH, Assistant Chief Engineer

C. H. TAYLOR, Assistant Chief Engineer

J. L. FINCH, Transmitter Design

R. H. RANGER, Receiver Design

F. H. KROGER, Low Power Design

L. C. EVERETT, Estimating Engineer

R. T. ROSSI, Construction Supt.

OPERATING DIVISION

W. A. GRAHAM, Operating Engineer

A. W. AIRD, Engineer-in-Charge,
New Brunswick, N. J.

B. S. Y. CLIFTON, Engineer-in-Charge
Marion, Mass.

G. L. USSELMAN, Engineer-in-Charge,
Radio Central

F. E. JOHNSTON, Engineer-in-Charge,
Riverhead, L. I.

G. J. ESHLEMAN, Engineer-in-Charge,
Tuckerton, N. J.

J. S. PHILBRICK, Engineer-in-Charge
Bolinas, Cal.

W. H. GRAFF, Engineer-in-Charge
Kahuku, T. H.

