

American Telephone & Telegraph Co.

REPORT OF THE BOARD OF DIRECTORS
TO THE STOCKHOLDERS
FOR THE YEAR
1929



New York
195 BROADWAY
1930

and particularly his residence with more telephones, with a view to greater convenience and utility.

Development and Research

During the year there has been a considerable increase in the size of the group engaged on research and development problems designed to produce new and improved equipment and systems for telephony and telegraphy. At the present time there are in the Department of Development and Research of the American Telephone and Telegraph Company, and in Bell Telephone Laboratories, Incorporated, more than 5,400 scientists, engineers and assistants engaged on this work.

The results of the work of this group during 1929 have emphasized again both the wisdom and the necessity of adequate expenditures for fundamental research and development if our policy of enlarged and improved service at minimum cost to the user is to be maintained.

The fundamental physical conditions which underlie efficient telephone and telegraph operation are such that large expansion either in volume of service given or in range of distance covered cannot be made economically—frequently cannot be made at all—merely by an enlarged use of existing instrumentalities.

For example, the commercial necessity for very long circuits in storm-proof cable and the need for a higher grade of transmission over such circuits, have required an entirely new adaptation of physical principles many of which are themselves new and therefore applicable only in the hands of those who are highly trained. Due to the fact that the telephone plant is a complex interconnected structure, all parts of which must function harmoniously on every connection if satisfactory results are to be assured, the introduction of new and improved facilities in one part of the plant frequently requires modification of existing plant which would otherwise be satisfactory.

During the past year, in addition to completing a large number of important developments connected with central office and outside plant equipment, noteworthy progress has been made in extending the range, improving the quality of transmission and cheapening the cost of the long-distance plant, particularly that part involved in the longer distances.

Initial designs of commercial two-way radio telephone equipment for use in airplane-to-ground and ship-to-shore service were completed and put in production. On the transatlantic telephone cable project the final development work, both on the cable itself and on the very intricate terminal apparatus required, has progressed and is rapidly nearing the point where final manufacturing specifications can be prepared.

Increase of the research and development activities has necessitated an enlargement of our laboratory facilities. New laboratories for work on radio problems and outside plant developments have been established. Land adjacent to the present laboratories in New York has been purchased and a large addition to these laboratories is under way.

Western Electric Company, Incorporated

The requirements of the Bell System for equipment increased very substantially during 1929 over the previous year and greatly exceeded the capacity of the Western Electric Company's manufacturing plants. This situation was met by temporarily expanding facilities through the rental of outside quarters; and this expansion, combined with the rapid upbuilding of the force and the utilization of overtime and night work on a large scale, enabled the company to increase its production by 67 per cent over that of 1928. Total sales for the year amounted to \$411,000,000, the largest in the company's history, and during the year the number of employees increased from 56,324 to 84,848.

At the same time provision was made for the permanent expansion of Western Electric manufacturing facilities, involving large additions to the Hawthorne and Kearny plants, and the starting of a third plant at Point Breeze, Baltimore, Maryland, where a tract of 180 acres was purchased early in 1929. Construction was started in the spring on the Point Breeze Works to provide initially facilities for making cable, insulated wire, and telephone apparatus; and the first cable was produced on the last day of the year.

At the beginning of 1929 the company's Hawthorne and Kearny Works had a combined floor area of 5,160,000 square feet, and during the year the additions made at these plants, together with the new construction at Point Breeze, increased this area to 6,520,000 square feet. In 1930 this will be further

increased to 9,190,000 square feet. This expansion program, started early in 1929 and scheduled for completion about mid-year, 1931, involves an expenditure of \$110,000,000. When the three plants are fully developed to capacity they will be about equal in size, with an aggregate floor area of 15,000,000 square feet, and will employ on a normal operating basis 110,000 people.

Although the heavy demands of the Bell System for Western Electric products necessitated intense effort being applied to increasing production throughout the year, there was no slackening of effort to reduce costs, and prices were reduced to the extent of \$11,250,000 for the 1929 volume of output.

Electrical Research Products, Incorporated

Reference was made in last year's report to the formation of Electrical Research Products, Incorporated, as a wholly-owned subsidiary of the Western Electric Company, for the purpose of making commercially available the developments and inventions of the Bell Telephone Laboratories applicable outside the telephone field.

The most noteworthy of these developments has been the talking motion picture, a new form of entertainment which has taken hold of the imagination of the American public and is now rapidly spreading throughout the world.

The Western Electric recording system is being used, under licenses granted by Electrical Research Products, by the majority of the motion picture producers; it is installed in about 70 studios and used for the production of about 90 per cent of the talking pictures being made today. Electrical Research Products has installed Western Electric reproducing apparatus in 3,300 theatres in the United States and in 1,100 theatres abroad. These installations are inspected and maintained by Electrical Research Products, in order that there may be continuity and reliability of operation.

In addition to talking motion pictures, Electrical Research Products is concerned with the commercial development of such contributions to the progress of electrical science as modern high-speed submarine telegraph cables and the recording and reproduction of sound for use in connection with phonographs. The business of Electrical Research Products is limited to making arrangements for the commercial use of these

developments by concerns operating in the fields in which they are applicable. The American Telephone and Telegraph Company neither directly nor indirectly, through Electrical Research Products or otherwise, owns any stock in any motion picture enterprise or any other commercial undertaking operating in these fields.

While the business of Electrical Research Products is of great importance in its own field, its earnings obviously cannot be a material factor in an enterprise of the size of the Bell System.

Financial

In 1929 the Bell System revenues from local exchange service increased \$47,000,000, or 7.3 per cent over the previous year, and revenues from toll and long-distance service increased \$45,000,000, or 14.5 per cent. The increase in total operating revenues was \$95,000,000, or 9.8 per cent. Due in part to additional expenditures for better service, the total expenses increased 11 per cent and investment in plant and other assets increased 10.5 per cent. The total plant and other assets at the end of the year amounted to \$4,228,000,000. The net earnings for the year were at the rate of 6.8 per cent on the cost of plant and other assets.

On April 30, 1929, the American Telephone and Telegraph Company offered to its stockholders an issue of Ten-Year Convertible 4½% Gold Debenture Bonds dated July 1, 1929. Stockholders of record on May 10, 1929, were entitled to subscribe for \$100 principal amount of these convertible bonds for each six shares of stock then held. Subscriptions for \$218,007,200 were received out of a possible total subscription of \$219,112,700. The conversion privilege attaching to these bonds became effective on January 1, 1930; and thereafter, until December 31, 1937, bondholders, subject to the terms of the indenture under which the bonds are issued, may surrender their bonds in exchange for capital stock of the Company. During 1930, the conversion price, subject to adjustment as stated in the indenture, at which stock will be issued in exchange for bonds is \$180 per share; during the years 1931 and 1932 it is \$190 per share; and during the years 1933 to 1937, inclusive, \$200 per share. It is expected that these bonds will ultimately be exchanged for capital stock.