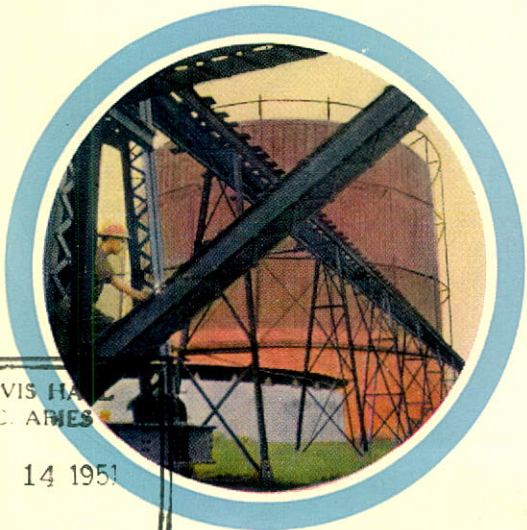


C
Stack



BRAZILIAN TRACTION, LIGHT AND POWER COMPANY LIMITED

38th Annual Report



For the Year 1950

PURVIS HALL
L. D. ARMES
JUN 14 1951
MCGILL UNIVERSITY

For thirty-nine years Brazilian Traction, Light and Power Company, Limited, through its operating subsidiaries, has supplied public utility services in south-eastern Brazil. Electric energy and telephone services are provided in the Federal District and in the most populous areas of the states of Rio de Janeiro and São Paulo. In addition, telephone service is provided in many parts of the state of Minas Gerais and has been extended to the state of Espírito Santo. The operating companies also supply gas and tramway services in the Federal District and the city of Santos, and gas in the city of São Paulo.

• • • • • *Foreword* • • •

Included in these areas of supply are the cities of Rio de Janeiro, with a population of nearly 2½ millions, São Paulo, a dynamic centre of industry, with approximately 2¼ million inhabitants, and Santos, one of Brazil's most important seaports.

Brazilian Traction's operating companies produce and distribute approximately 65% of the total electric power generated in Brazil, and supply over 80% of the telephones in service in that country.

38th Annual Report

BRAZILIAN TRACTION, LIGHT AND POWER COMPANY, LIMITED

Contents

DIRECTORS AND OFFICERS -	2
COMPARATIVE STATEMENT OF EARNINGS 1947-1950 -	3
CAPITAL EXPENDITURE AND FINANCING -	5
DIVIDENDS PAID -	6
BRAZILIAN EXCHANGE 1950 -	6
ELECTRIC POWER SUPPLY -	6
ELECTRIFICATION OF RAILWAYS -	9
TELEPHONE SERVICE -	11
GAS SERVICE -	13
TRANSPORTATION -	13
WATER SUPPLY -	13
BRAZILIAN ECONOMY -	14
FOREIGN TRADE OF BRAZIL -	19
AGRICULTURAL PRODUCTION IN BRAZIL -	19
BRAZILIAN INDUSTRY -	21
EMPLOYEES -	22
CHANGE IN BOARD OF DIRECTORS -	22
CONSOLIDATED BALANCE SHEET -	24
CONSOLIDATED PROFIT AND LOSS ACCOUNT AND EARNED SURPLUS ACCOUNT -	26
AUDITORS' REPORT -	27
MAP OF HYDRO-ELECTRIC PLANTS -	28
MAP OF TELEPHONE SYSTEM -	30
STATISTICS OF COMBINED COMPANIES -	32
MANAGEMENT COMPANY AND OPERATING SUBSIDIARIES IN BRAZIL -	33

Board of Directors

J. MCKIM BELL, Rio de Janeiro, Brazil
 HENRY BORDEN, C.M.G., K.C., Toronto, Canada
 SIR ERIC GORE-BROWNE, D.S.O., O.B.E., London, England
 E. G. BURTON, C.B.E., Toronto, Canada
 JAMES A. ECCLES, Montreal, Canada
 E. C. FOX, Toronto, Canada
 G. BLAIR GORDON, Montreal, Canada
 WALTER GOW, K.C., Toronto, Canada
 S. H. LOGAN, Toronto, Canada

THE HON. MAURICE F. P. LUBBOCK, London, England
 EDWARD HOLLAND-MARTIN, London, England
 BEVERLEY MATTHEWS, C.B.E., K.C., Toronto, Canada
 JOHN PHILLIMORE, C.M.G., London, England
 W. E. PHILLIPS, C.B.E., D.S.O., M.C., Toronto, Canada
 DR. EDGARD E. DE SOUZA, São Paulo, Brazil
 CLARANCE STANLEY, New York, U.S.A.
 G. R. F. TROOP, C.A., Toronto, Canada
 NORMAN D. WILSON, Toronto, Canada

BRAZILIAN TRACTION, LIGHT and POWER COMPANY, LIMITED

(Incorporated under the laws of Canada)

Officers

HENRY BORDEN, C.M.G., K.C. - - - - - *President*
 E. C. FOX - - - - - *Vice-President*
 G. R. F. TROOP, C.A. - - - - - *Vice-President and Treasurer*
 ARNOLD GAINE - - - - - *Vice-President (Administration)*
 OSBORNE MITCHELL - - - - - *Secretary*
 F. A. SCHULMAN - - - - - *Assistant to the President*

Principal Bankers

THE CANADIAN BANK OF COMMERCE - - - - -

Auditors

CLARKSON, GORDON & CO. - - - - - *Toronto*

Transfer Agents

NATIONAL TRUST COMPANY, LIMITED - - - - - *Toronto and Montreal*

THE NATIONAL CITY BANK OF NEW YORK - - - - - *New York*

Offices

25 KING STREET WEST, TORONTO 1, CANADA - - - - - *Head Office*

CANADIAN-BRAZILIAN SERVICES LIMITED
 148 LEADENHALL STREET, LONDON, E.C.3, ENGLAND - - *London Agents*

38th Annual Report TO THE SHAREHOLDERS

YOUR directors submit herewith the following report on the Company's affairs, together with the audited financial statements for the year 1950 including the consolidated balance sheet of the Company and its operating subsidiary companies in Brazil as at December 31st, 1950.

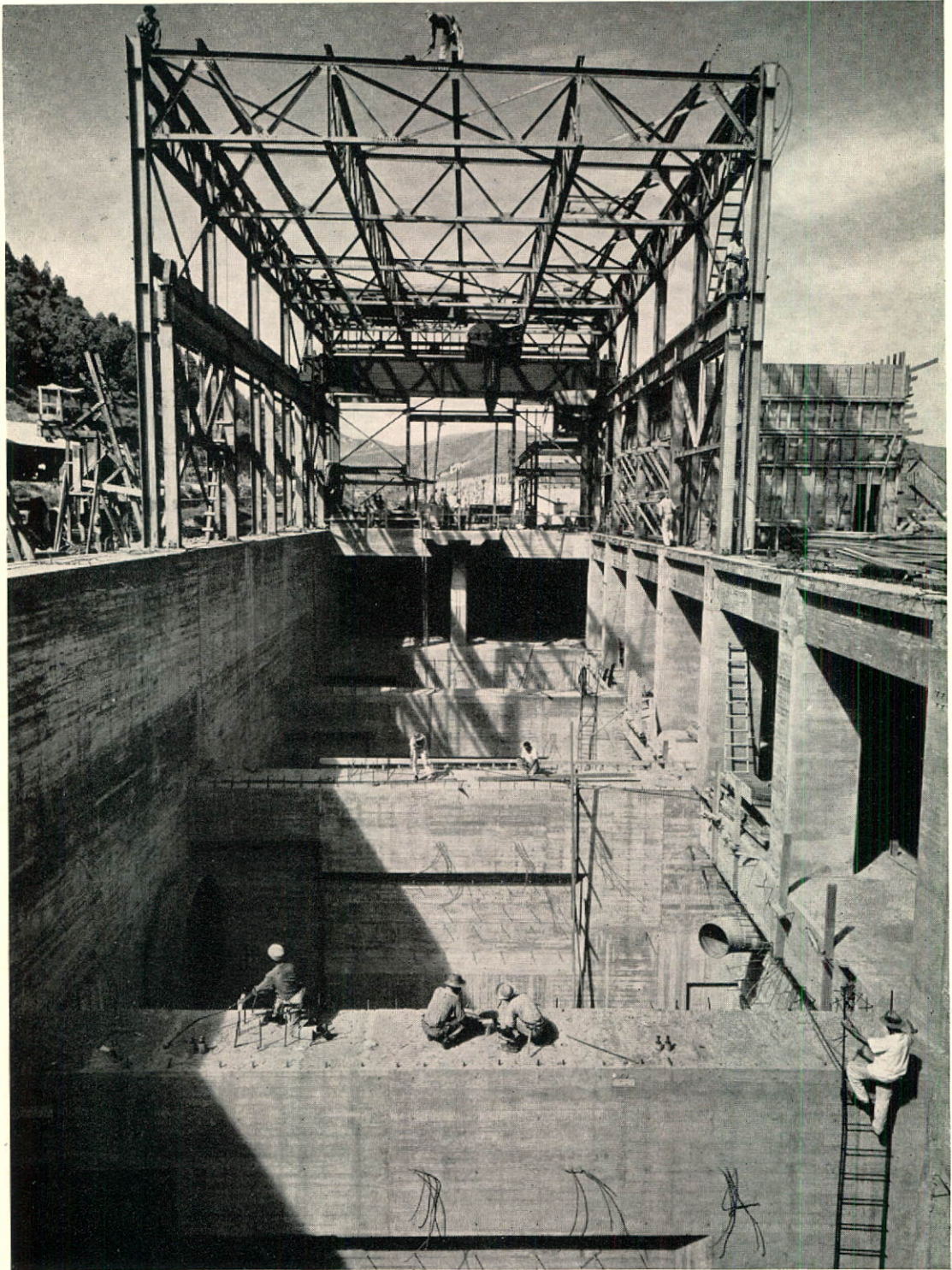
All figures in the report expressed in dollars are in United States currency unless otherwise indicated.

Continuous growth has been a feature of the Company's operations for many years and the year 1950 saw new levels attained by all services with the exception of transportation. Gross earnings from operations for 1950 were \$133,998,466, or 8.16% above 1949, due to increased sales and the adjustments in tariffs obtained during 1949 under the wage-tariff agreement. Operating expenses also increased substantially over the 1949 level, due in part to the wage increases granted under the terms of this agreement. However, with greater operating efficiency and stable labour conditions, there was an overall increase in net profit of \$1,286,171.

• • • • • Comparative Statement of Earnings 1947-1950

The following statement shows the combined earnings and charges of the operating companies and of Brazilian Traction for the past four years, excluding inter-company items.

	Year ended December 31st			
	1947	1948	1949	1950
Gross earnings from operations - - - - -	\$92,578,431	\$101,945,202	\$123,884,473	\$133,998,466
Interest on temporary investments - - - - -	359,489	121,541	153,249	221,990
Other miscellaneous income - - - - -	144,388	111,824	327,979	1,224,801
Total Revenue - - - - -	<u>\$93,082,308</u>	<u>\$102,178,567</u>	<u>\$124,365,701</u>	<u>\$135,445,257</u>
Less: Operating expenses, including provision for taxes - - - - -	\$57,097,476	\$ 63,754,132	\$ 79,113,245	\$ 84,821,561
Depreciation - - - - -	6,601,311	8,136,196	8,843,419	11,883,036
Amortization - - - - -	1,771,172	1,788,938	1,806,817	1,853,758
Total operating expenses, depreciation and amortization - - - - -	<u>\$65,469,959</u>	<u>\$ 73,679,266</u>	<u>\$ 89,763,481</u>	<u>\$ 98,558,355</u>
Net profit before interest and other financial charges - - - - -	<u>\$27,612,349</u>	<u>\$ 28,499,301</u>	<u>\$ 34,602,220</u>	<u>\$ 36,886,902</u>
Less: International Bank Loan carrying charges - - - - -	—	—	\$ 1,164,277	\$ 2,304,620
Bond interest - - - - -	\$ 1,435,429	\$ 1,262,229	926,658	841,389
Preference dividends of subsidiaries and other financial charges - - - - -	195,536	150,830	146,212	111,324
Financing expenses (including discount on bonds issued in 1950) - - - - -	—	—	606,270	584,595
Total interest and other financial charges - - - - -	<u>\$ 1,630,965</u>	<u>\$ 1,413,059</u>	<u>\$ 2,843,417</u>	<u>\$ 3,841,928</u>
Net profit for the year - - - - -	<u>\$25,981,384</u>	<u>\$ 27,086,242</u>	<u>\$ 31,758,803</u>	<u>\$ 33,044,974</u>



SANTA CECILIA PUMPING STATION WHICH WILL HOUSE FOUR PUMPS, EACH PUMPING 40 CUBIC METERS OF WATER PER SECOND.

The following tabulation shows the percentage of total operating expenses (before depreciation and amortization) to gross earnings from operations over the past four years:

1947	1948	1949	1950
61.67%	62.52%	63.86%	63.30%

• • • • • Capital Expenditure

The cash expenditure on capital account by the operating companies during the past four years was as follows:

1947	1948	1949	1950
\$47,986,435	\$32,436,579	\$41,410,398	\$56,000,389

The principal work accomplished in 1950 under the construction programme is dealt with in the different sections of this report which follow. Much the greater part of construction completed during the year came under the programme being financed in part by funds borrowed from the International Bank for Reconstruction and Development. At December 31st, 1950, the amount of the Company's indebtedness to the International Bank was \$44,404,000, against which the Bank received or was entitled to call for collateral trust bonds in the following amounts:

1,361,643 Swiss Francs equivalent to \$316,845 U.S.
549,067 Pounds Sterling equivalent to \$1,770,027 U.S.
3,191,651 Canadian dollars equivalent to \$3,071,199 U.S.
39,246,284 U.S. dollars

Under the agreement of January 27, 1949 with the International Bank, the loan to be made by the Bank for the purpose of carrying out the programme was fixed at \$75,000,000 U.S. or its equivalent in currencies other than cruzeiros. The construction programme contemplated by this agreement to which reference was made in the Annual Report for 1948 was extended in 1950 to include the following:

- (a) Units "E" (now 11) and "F" (now 15), having a combined capacity of 100,000kw, for the Fontes plant.
- (b) The Floating Steam Plant "Piraquê", formerly known as "Seapower", having a capacity of 25,000 kw at 50-cycle frequency.
- (c) A second set of pumps for the Paraíba-Piraí Diversion pumping stations at Vigario and Santa Cecilia.
- (d) A change in plan whereby Unit "D" (now 12) of the original programme and Units "E" (now 11) and "F" (now 15) are to be housed in an underground plant to be known as Forçacava rather than, as originally proposed, in an addition to the Fontes power plant. The Forçacava plant will be adjacent to the Fontes plant.

As a result of negotiations carried out in 1950, a second agreement was made with the International Bank dated January 18, 1951, whereby the loan was increased to \$90,000,000. The main components of the construction programme on which this increase was based are as follows:

- (a) The completion of the Forçacava plant by the installation of 3 further units, "G" (now 13), "H" (now 14) and "I" (now 16), having a combined capacity of 195,000 kw.
- (b) The installation of a third set of pumps at the Paraíba-Piraí pumping stations at Vigario and Santa Cecilia, together with the embedded parts for the last sets of pumps.
- (c) Additional transformers and substations to permit the transmission of power from the Forçacava Plant to São Paulo at the full capacity of the existing high tension transmission line.

Capital expenditure under this second instalment of the loan is expected to begin late in 1951 and to be completed in 1954. Expenditure under the first instalment is scheduled for completion in 1953.

It is estimated that capital expenditure during the year 1951 will amount to approximately \$65,000,000. Of this total approximately \$49,500,000 will be expended in the carrying out of work contemplated by the Loan Agreement with the International Bank and it is anticipated that the Company will during 1951 draw down from the International Bank approximately \$20,000,000 or its equivalent. This will mean that the Company must find from its own resources for capital development during 1951 the equivalent of approximately \$45,000,000.

It is impossible to forecast what effect the prevailing international situation and the difficulty in obtaining materials and equipment will have on schedules established by the Company for the completion of its various projects. Up to the end of 1950, no serious delays had been experienced. As time goes on more substantial delays may be encountered, with consequent deferment of schedules.

• • • • • *Further Financing to assist Construction Programme*

In November 1950, the Company issued and sold in Canada \$10,000,000 (Canadian) Collateral Trust 4 $\frac{3}{4}$ % Bonds, Series D. The proceeds of these bonds may be used only for materials and supplies purchased in Canada and exported to Brazil.

In addition to the Series D bond issue, a short-term standby loan in the amount of Cr\$200.000.000,00 (approximately \$10,800,000) was arranged with the Bank of Brazil in May 1950 to provide against any temporary shortage of cruzeiros during the next two years in the carrying out of the construction programme.

• • • • • *Dividends Paid*

Quarterly dividends on the small outstanding balance of preference shares amounted for the year to a total of \$23,604 (Canadian funds). In addition, two dividends were paid during the year on the ordinary shares of the Company. These dividends were each in the amount of \$1.00 per share (Canadian funds) and were paid on June 15th and on December 15th. The total of these two dividend payments amounted to \$14,054,772 (Canadian funds).

• • • • • *Brazilian Exchange—1950*

The selling rate of the Bank of Brazil for the United States dollar remained unchanged during the year at 18 cruzeiros 72 centavos.

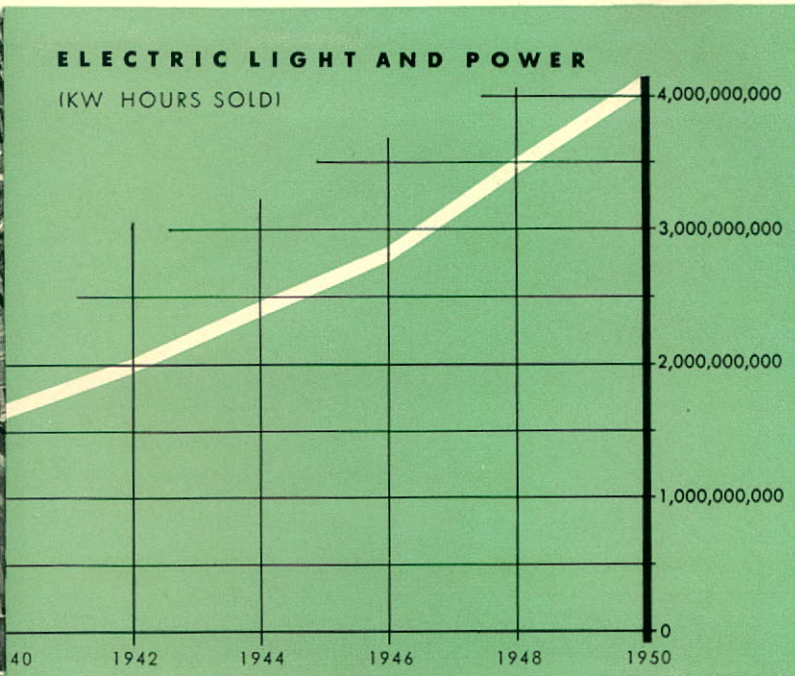
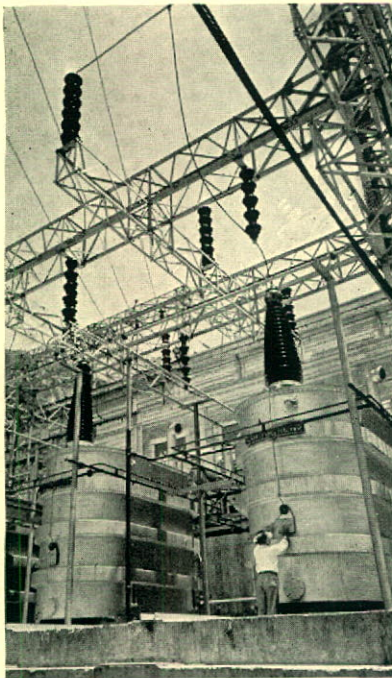
The current assets and liabilities of the operating companies in Brazil were valued at the end of the year in United States dollars at this rate.

The same rate was used in converting to United States dollars the combined earnings of the operating companies, published half-yearly and also shown in total in the tabulated statement on page 3 of this report.

• • • • • *Electric Power Supply*

Consumption of electrical energy on the combined systems has more than doubled in the past eight years.

This rapid rate of growth coupled with low river flows in 1949 placed a serious strain on production capacity and threatened to drain storage reservoirs. To meet this threat daylight saving time was put into force on December 1, 1949 and rationing of consumers was initiated



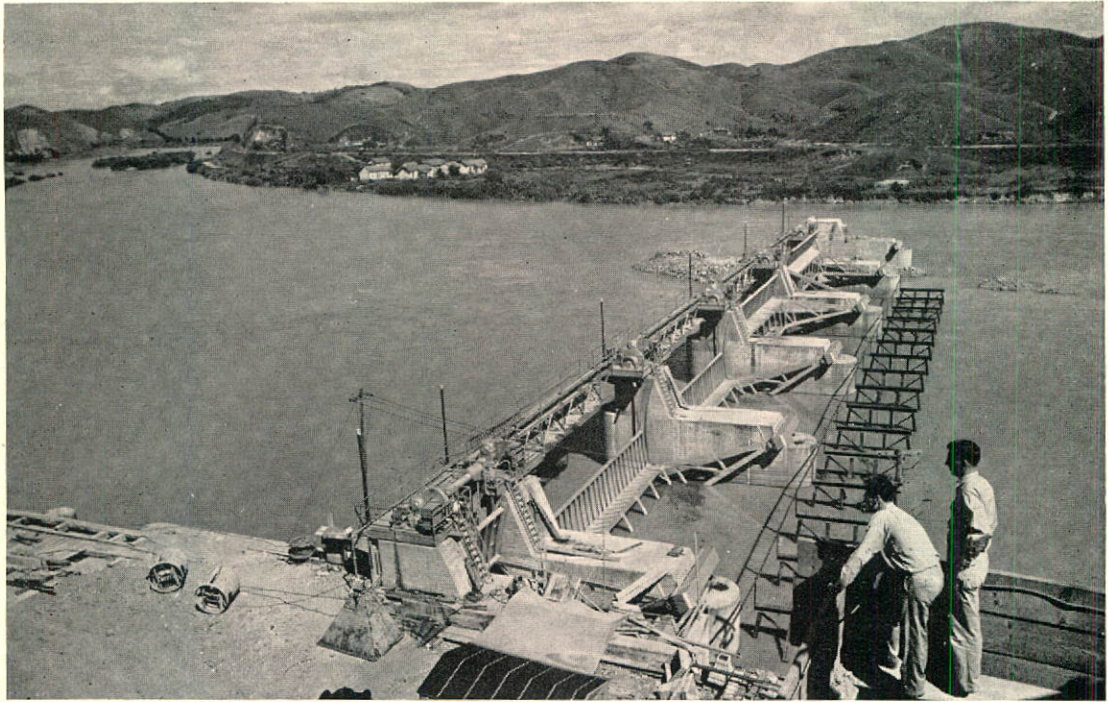
early in 1950 with the co-operation and approval of the appropriate government authorities in Brazil. As a result of these measures, the increase in kwh sales in 1950 over 1949 was held to 4.57%, compared to an average yearly increase of 10.1% in the previous five years. The number of consumers, however, increased during the year from 858,981 to 909,661, an increase of 5.9%, compared to an average yearly increase of 5.3% during the previous five years. Sales per consumer were reduced from 4,511 kwh in 1949 to 4,454 kwh in 1950.

River flows during 1950 were considerably better than in 1949 and the water storage situation at the end of the year, particularly in São Paulo, showed a decided improvement. The danger of a shortage of water in the near future seems to have been averted in so far as the storage reservoirs on the São Paulo system are concerned and, with average rainfall and river flows on the Rio system, it is thought that storage will be sufficient to obviate the need for more drastic rationing in 1951. Considerable relief should be obtained in connection with water supply when the Paraíba-Piraí diversion project is inaugurated.

• • • • • **Rio System**

The addition of the new 45,000 kw unit No. 5 to the run-of-river plant at Ilha dos Pombos in December of 1949 made it possible to take better advantage of an improved flow in the Paraíba river and so reduce the drawdown from the Lajes reservoir. Production at Fontes, using water from the Lajes reservoir, was reduced from 606 million to 489 million kwh, while production from the Ilha dos Pombos plant was increased from 851 million to 1,056 million kwh. The reserve steam plant generated more than 30.5 million kwh compared to 6.3 million in 1949. A floating steam plant with a capacity of 25,000 kw was purchased during the year and put into operation in Rio harbour in November. This plant produced 4.5 million kwh up to the end of the year.

With the addition of the floating steam plant, generating capacity on the Rio system was increased from 328,624 to 353,624 kw, a gain of 7.6%. Total kwh generation increased by 8%.



SANTA CECILIA DAM SHOWING TAINTER GATES IN PROCESS OF INSTALLATION.

CUBATÃO GENERATING PLANT—VIEW OF PENSTOCKS.



During the year the installation of the frequency changer at Aparecida was completed, thus facilitating the interchange of power between the 60-cycle São Paulo system and the 50-cycle Rio system. This frequency changer commenced operation in June. Reduced flow of power between the systems during the period of installation caused a falling-off in the total power received by Rio from São Paulo during 1950. This installation will make a larger supply of power available to Rio from São Paulo.

Transmission lines were extended by the addition of 35 miles of circuit, including a 132 kilovolt underground cable from Triagem to Campo Marte, the highest voltage underground cable in South America. The distribution system was enlarged by the addition of 672 miles of conductor. Transformer capacity on the transmission circuits rose by 76,234 kva and 205 distribution transformers with a total capacity of 14,398 kva were added to the system.

A total of 64 new high tension consumers with an aggregate load of 46,622 kw were connected to the Rio system.

Good progress was made on the Paraíba-Piraí diversion project and the work is well up to schedule. The main tunnel, over two miles in length, was holed through at the end of the year, three months ahead of schedule. It is confidently expected that water will flow from the Paraíba river to the Fontes plant by the end of 1951 and that storage in the Lajes reservoir can be gradually built up beginning in 1952.

Construction was started in September 1950 on the Forçacava underground power plant. This new plant will eventually house two 35,000 kw generating units and four 65,000 kw generating units. The total capacity will be 330,000 kw, which is somewhat in excess of 1950 peak loads on the Rio system. It is hoped that the two smaller units will be ready for operation in December 1952, with the four larger units coming into service during 1953 and 1954. This plant normally will operate under a head of 1,025 feet using water pumped from the Paraíba river (Paraíba-Piraí Diversion) but is designed so that it can be operated also with water from the Lajes reservoir, with a maximum head of 1,130 feet.

• • • • • *São Paulo System*

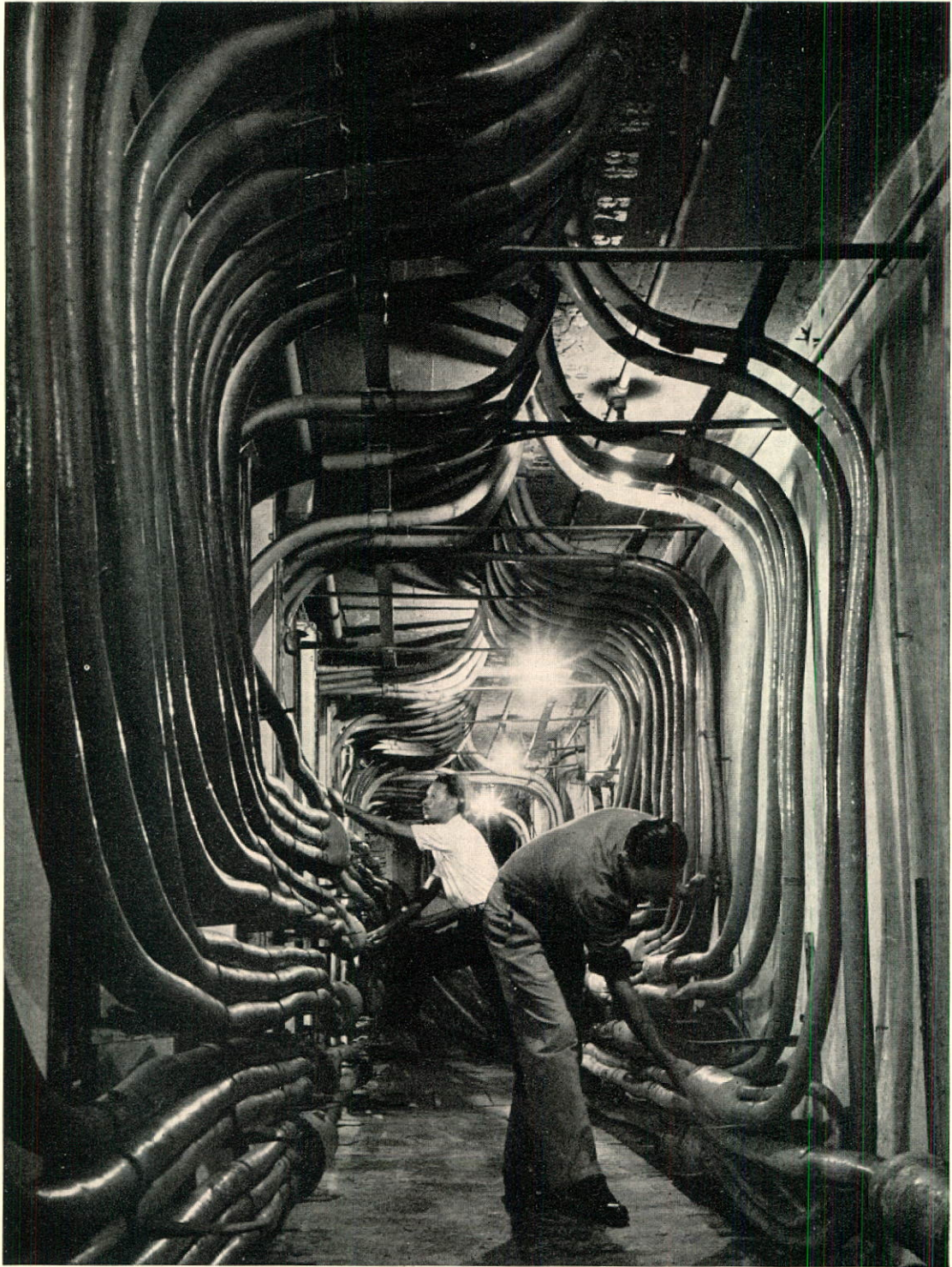
Generating capacity on the São Paulo system was increased by 66,157 kw in 1950 by the addition of a large unit to the Serra do Cubatão plant. An additional pump with a capacity of 70 cubic meters of water per second was installed at the Traição Pumping Station.

Total generation on the São Paulo system increased from 3,188,942,974 kwh in 1949 to 3,349,364,398 kwh in 1950.

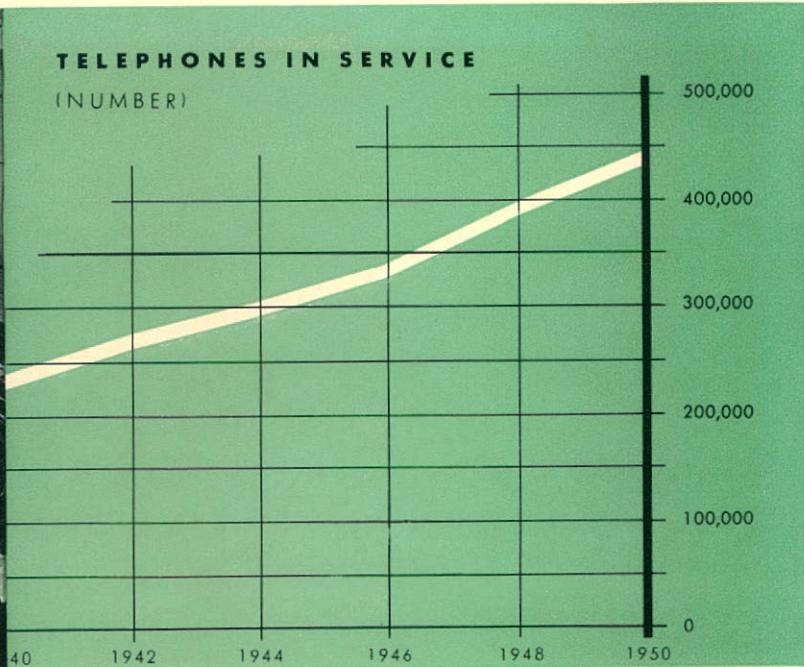
The transformer capacity on the system was increased by 118,284 kva; a new substation was installed at Cumbica; 1,738 miles of overhead wire were strung and 18 miles of underground cable were laid. The number of consumers increased by 24,117 of which 19 were new industries with primary high-tension connections totalling 4,640 kw and 1,465 new industrial consumers with low-tension connections totalling 8,927 kw.

• • • • • *Electrification of Railways*

One of the most significant contributions being made to the economic progress of Brazil by your Companies is the supply of low cost power to electrified railways. In the course of 1950, an additional 57 miles of railway were electrified in the area served by the Companies, bringing the total to 650 miles. This represents an important saving to Brazil in foreign exchange that would otherwise be required for the importation of fuel.



TELEPHONE CABLE VAULT AT NORTE EXCHANGE, RIO DE JANEIRO WHERE CABLES COME IN UNDERGROUND FROM THE STREET AND ARE DISTRIBUTED. LONGEST CABLES CONTAIN 1818 PAIRS.



• • • • • Telephone Service

There was a net increase of 29,493 telephones in service in 1950, bringing the total to 427,889. The average number of local calls per day increased by 3.2% from 7,511,988 in 1949 to 7,753,253 in 1950.

The number of toll calls completed during the year was 20,620,156, a record high and an increase of 7.4% over 1949.

Increases in plant included the addition of 35.83 miles of pole lines, 10,134 miles of wire, 67 miles of aerial and underground cable, 15 miles of underground conduit and 12,900 central office terminals.

A new automatic 16,000 line exchange was virtually completed during the year in São Paulo and went into operation in January 1951, when six-digit dialling was also introduced in the city of São Paulo. This new exchange is designed ultimately to house 30,000 lines.

In Belo Horizonte, capital of the State of Minas Gerais, a new automatic unit of 4,000 lines went into operation in April 1950. For Niterói, the capital of the State of Rio de Janeiro, a 3,000-line addition to the existing exchange was made ready and brought into operation in January 1951.

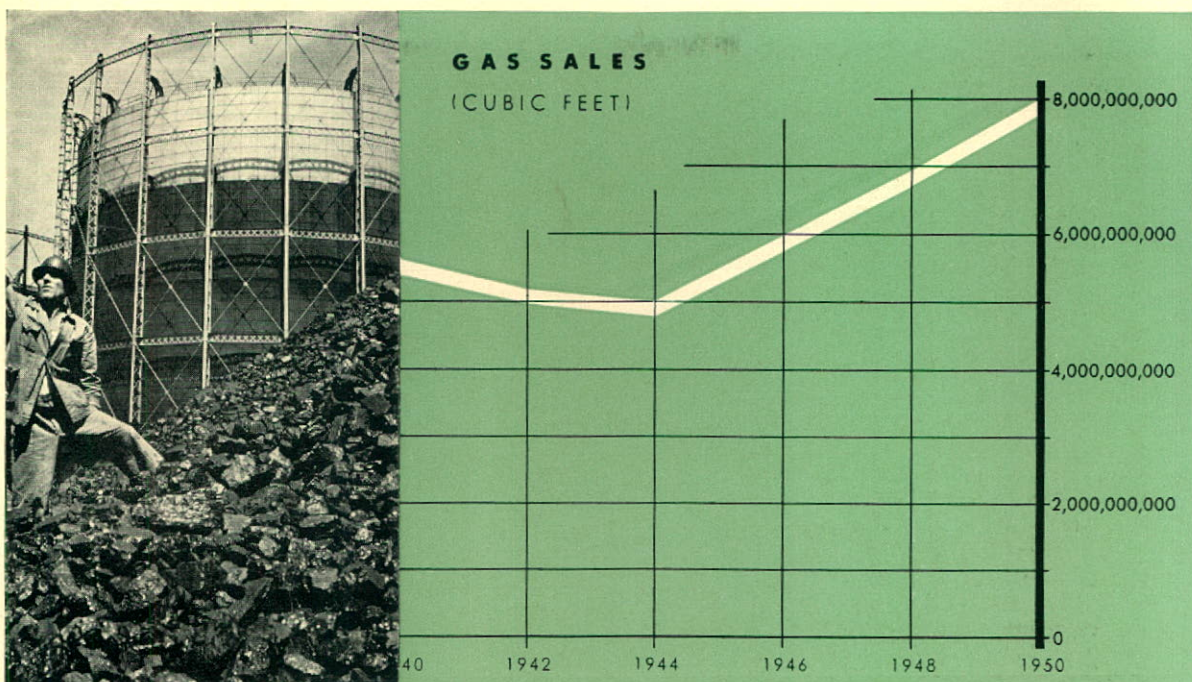
Substantial improvement was made in the toll line facilities between the cities of Rio and São Paulo. Four systems of 12-channel carrier circuits were placed in service providing 48 new lines. At the same time the new as well as the old toll lines were re-designed for 4-wire operation.

As a result of efforts made to obtain adjustments in local telephone rates to meet higher operating expenses and the rising cost of new equipment and construction, increases were authorized in a total of 40 municipalities in the interior of the State of São Paulo. These increases apply to 6.6% of the total lines in service on the whole system.

Early in 1951, your Telephone Company was authorized to increase local rates substantially in the city of São Paulo and in the State of Rio de Janeiro. These two recent increases apply to 30.2% of the total lines in service on the whole system.



RIO GAS WORKS FROM THE AIR SHOWING, LEFT CENTRE, NEW 85,000 CUBIC METER GASHOLDER UNDER CONSTRUCTION.



• • • • • *Gas Service*

Certain of your Companies produce and market gas in the cities of Rio de Janeiro, São Paulo and Santos. Total sales in 1950 reached a record of 7,827.7 million cubic feet, an increase of 5.8% over 1949. There was a net gain of 19,476 customers to reach a total of 239,565 by the end of the year. An additional 14 miles of gas mains were laid during the year. In São Paulo a gas oil storage tank with a capacity of 800 tons was installed, and in Rio de Janeiro, the new gas holder with a capacity of 3 million cubic feet was nearing completion at the end of the year.

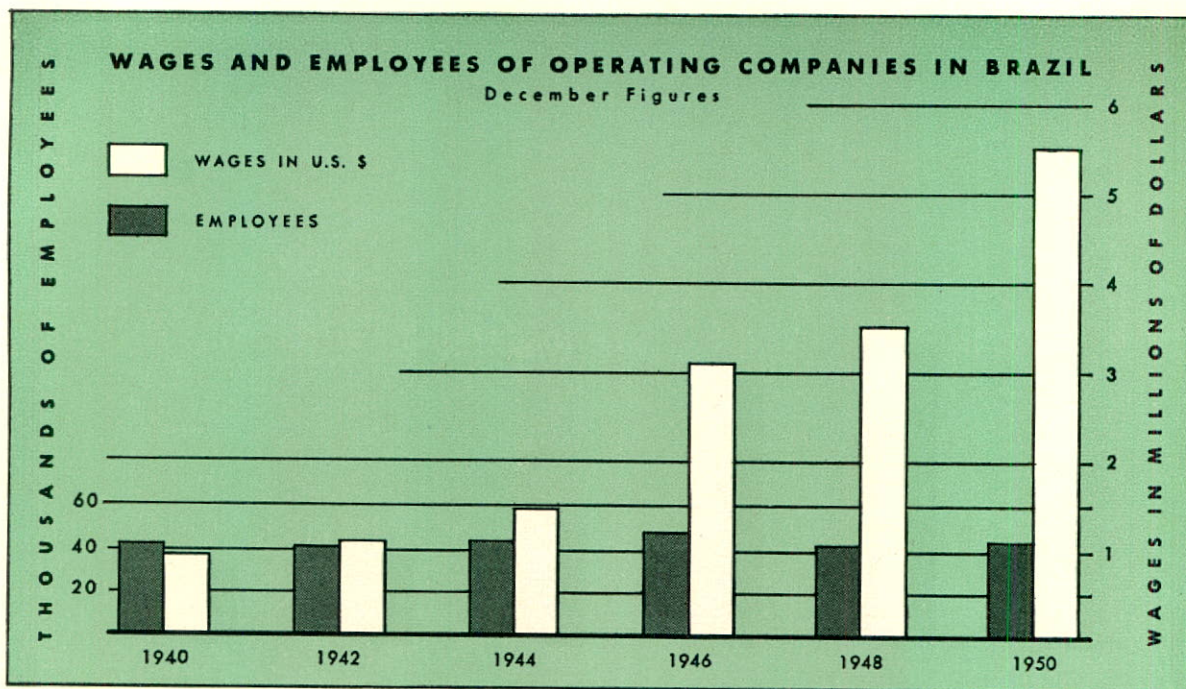
• • • • • *Transportation*

In spite of a determined effort to reduce the chronic deficit from tramway operations in Rio de Janeiro, operating expenses increased by 5.4%, while gross revenue increased by only 2.1%, resulting in a greater loss on operations than in 1949.

In the city of Santos negotiations continued throughout the year, looking towards a transfer to the municipal authorities of the tramway operations in this city.

• • • • • *Water Supply*

The City of Santos Improvements Company, Limited, one of the Company's subsidiaries, supplies water to the city of Santos. Sales of water increased in 1950 over 1949 by 1.6% and amounted to a total of 533,774,642 cubic feet. The number of consumers totalled 30,785 at the end of 1950, an increase of 5.7% over the previous year. Revenue from the sale of water was up 8%. The terms of the renewal of the concession referred to in last year's report are still under negotiation.



..... *Brazilian Economy*

The Brazilian economy is still dominated by coffee. In 1950 this product accounted for 65% of the total value of Brazilian exports.

In 1939 the average export price of coffee was \$6.92 per bag of 132 pounds and the value of coffee exports in that year amounted to \$114,110,000. The corresponding figures for the last three years are as follows:

	Average price per bag of 132 lbs.	Value of Exports
1948 - - - - -	\$27.54	\$481,761,000
1949 - - - - -	32.02	620,230,000
1950 - - - - -	57.28	849,763,000

(Based on figures supplied by Brazilian Ministry of Finance)

In 1950 as compared with 1949 agricultural production was at a higher level in volume and value and industrial output was considerably increased, particularly in the heavy industries; domestic trade was more active and foreign trade produced a favourable balance of approximately 246 million dollars, compared to a deficit of over 26 millions in 1949.

The year 1950 ended with the index of wholesale prices 15% above December 1949, the cost of living index 6% higher, wages in heavy industries up 8%, and business profits at a higher level.

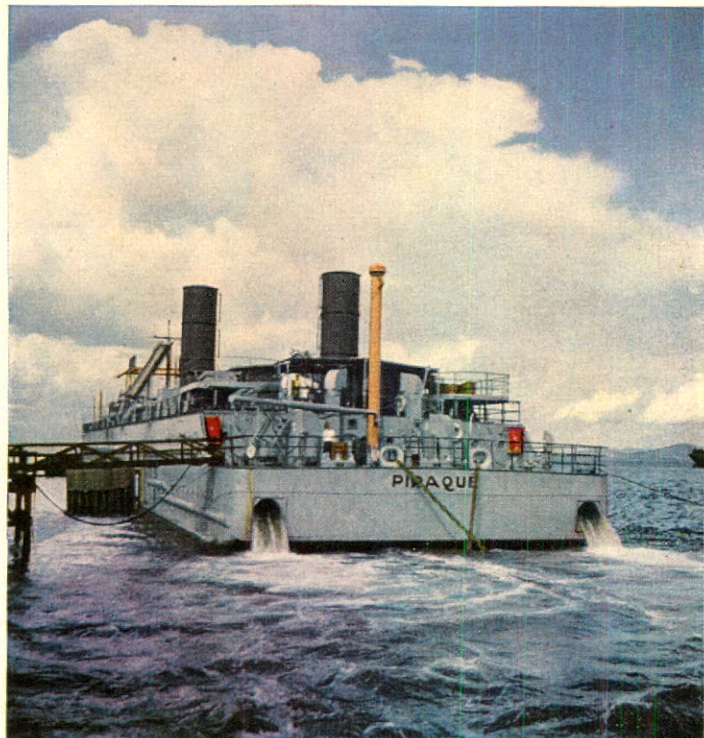
During the year the amount of currency in circulation was increased by about 30%. This increase was balanced to some extent by a much improved foreign exchange position and by increased productivity. There was a reduction of approximately 20% in the external debt, following the redemption of £22,000,000 of Sterling bonds.



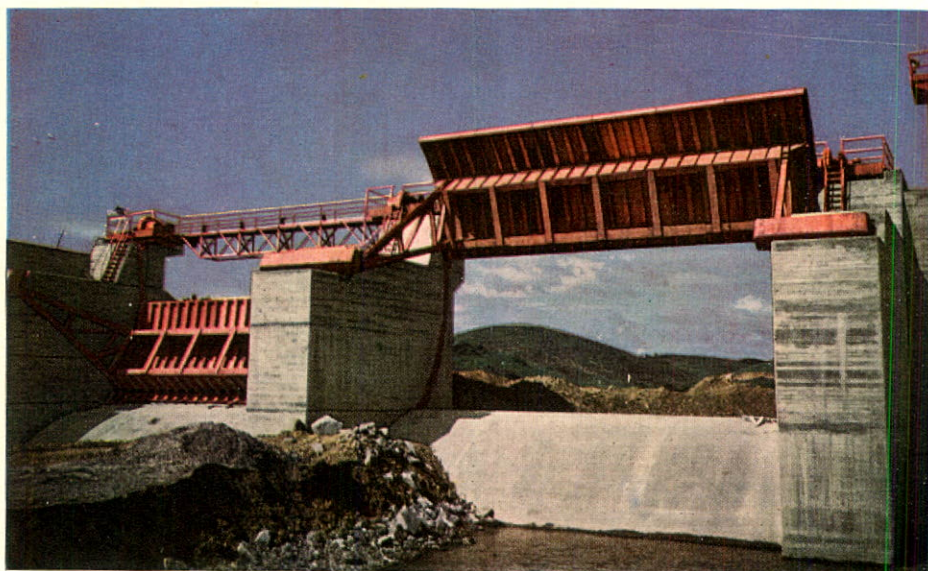
LYING AT THE FOOT OF THE SERRA DAS ARARAS, FONTES HYDROELECTRIC GENERATING STATION SUPPLIES 154,000 KW TO RIO DE JANEIRO, APPROXIMATELY FIFTY MILES DISTANT. BEYOND THE HILLS IS LAJES RESERVOIR WHICH STORES WATER FOR THIS PLANT. WHEN THE PARAÍBA-PIRAÍ DIVERSION PROJECT IS INAUGURATED, WATER FROM THE PARAÍBA RIVER WILL BE PUMPED UP TO SUPPLY THE FONTES PLANT AND A NEW UNDERGROUND HYDROELECTRIC GENERATING STATION, NAMED FORÇACAVA, NOW BEING EXCAVATED IN THE HILLS TO THE RIGHT OF THE FONTES PLANT AS SHOWN IN THE ABOVE PICTURE. THE NEW UNDERGROUND PLANT WILL ADD 330,000 KW TO THE RIO SYSTEM.



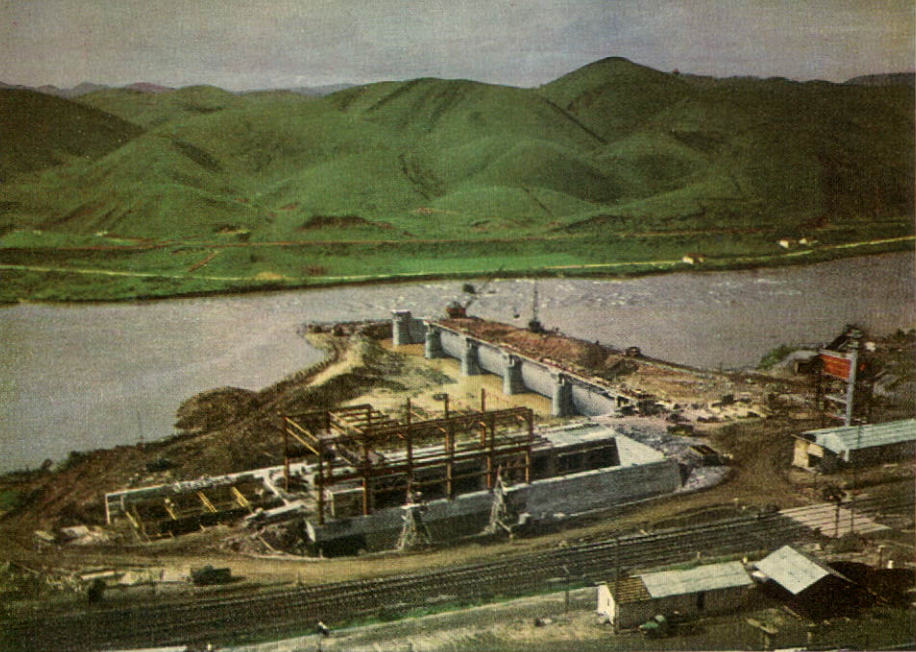
GAS METERS ARE TESTED REGULARLY.



THIS FLOATING STEAM ELECTRIC PLANT,
USED AT GHENT, BELGIUM, DURING
THE LAST WAR IS NOW SUPPLYING
25,000 KW TO RIO DE JANEIRO.



SANT'ANA DAM, PART OF THE PARAÍBA-PIRAÍ DIVERSION PROJECT, NEARS COMPLETION.

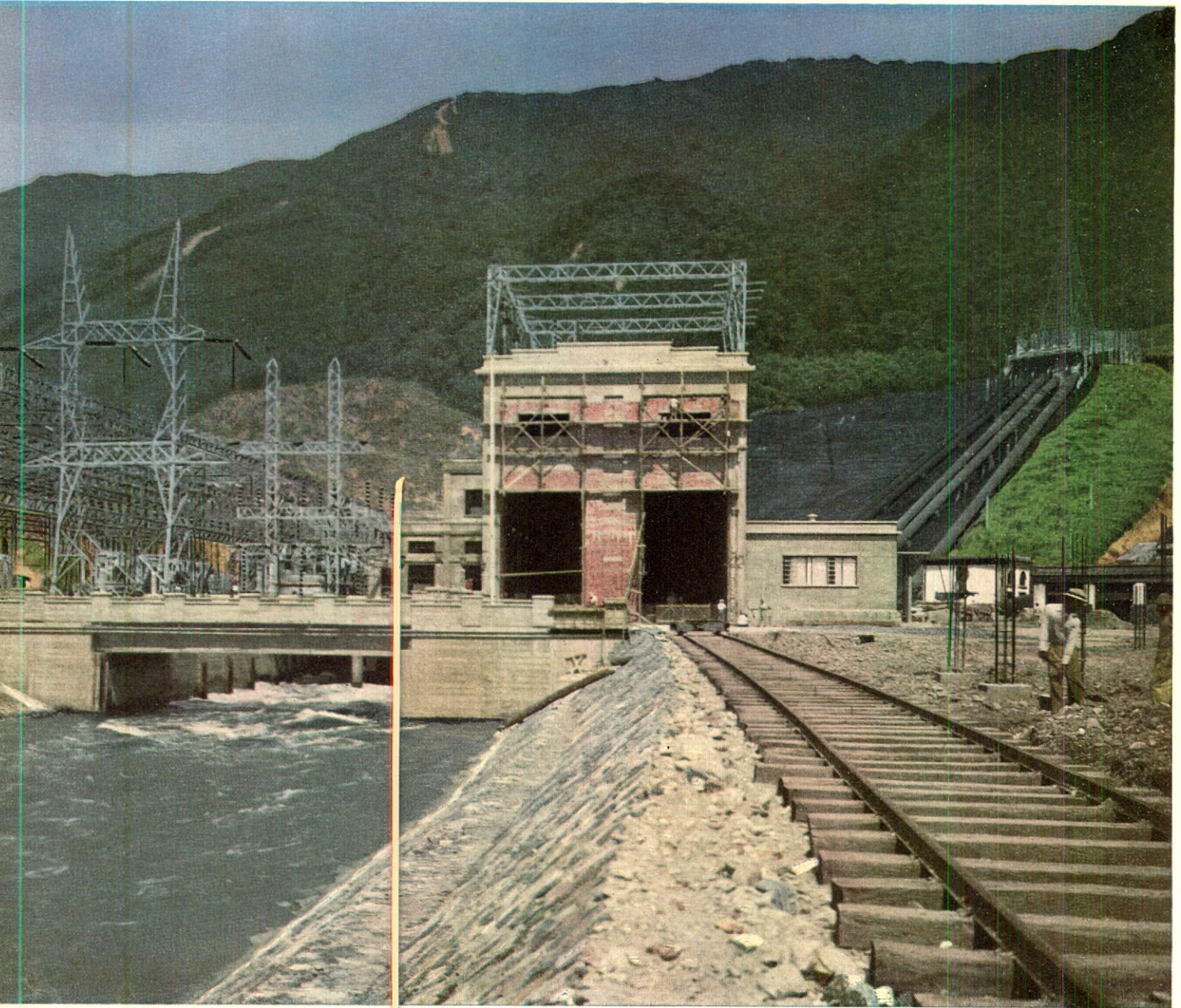


SANTA CECILIA DAM AND PUMPING STATION WHICH, WHEN COMPLETED, WILL PUMP WATER FROM THE PARAÍBA RIVER.

ONE OF THE MERCURY ARC RECTIFIERS PROVIDING DIRECT CURRENT FOR STREET RAILWAYS.



THE NEW AUTOMATIC TELEPHONE EXCHANGE INSTALLED IN SÃO PAULO IN 1950.



THE LARGEST OF THE COMPANY'S HYDROELECTRIC GENERATING STATIONS, CUBATÃO, LYING AT THE FOOT OF THE SERRA DO MAR. LAST YEAR A NEW GENERATING UNIT WAS ADDED TO THIS PLANT INCREASING ITS CAPACITY FROM 407,847 KW TO 474,004 KW. WATER TAKEN FROM THE BILLINGS RESERVOIR AT THE TOP OF THE ESCARPMENT DROPS 2,358 FEET IN STEEL PENSTOCKS TO SUPPLY THIS LARGE PLANT. ELECTRIC ENERGY IS TRANSMITTED TO SÃO PAULO, A DISTANCE OF APPROXIMATELY TWENTY-TWO MILES.

Foreign Trade of Brazil

The total value of Brazil's foreign trade in 1950 was higher by 10.8% than in 1949. The following table shows the position for the past five years, computed in United States dollars at the average rate of exchange for each year:

	Exports (000)	Imports (000)	Balance (000)
1946	\$ 934,944	\$ 668,209	\$266,735
1947	1,131,077	1,217,052	-85,975
1948	1,159,021	1,120,987	38,034
1949	1,076,554	1,102,996	-26,442
1950	1,330,849	1,085,119	245,730

(Based on figures supplied by Brazilian Ministry of Finance)

Brazil's balance of trade with the United States showed a very substantial improvement as a result of large sales of coffee at high prices and the continuation of the policy of restricting imports from hard-currency countries. This influx of dollar exchange allowed Brazil to liquidate a large amount of dollar arrears on imports.

The following table shows Brazil's trade with the United States in the past five years, computed in United States dollars at the average rate of exchange for each year:

	Exports (000)	Imports (000)	Balance (000)
1946	\$394,561	\$388,936	\$ 5,625
1947	438,663	746,337	-307,674
1948	501,432	580,972	- 79,540
1949	540,456	468,502	71,954
1950	725,628	374,174	351,454

(Based on figures supplied by Brazilian Ministry of Finance)

Agricultural Production in Brazil

There was a higher volume of production during the year due principally to an increase in the areas under cultivation. The sources of revenue to the producer from certain crops in 1950 were:

Coffee 20.5%	Rice 14%	Mandioca 6.6%	Beans 5.7%	Potatoes 2.6%
Corn 15.1%	Cotton 13.2%	Sugar cane 6.6%	Wheat 3%	

The total value of agricultural production is estimated for 1950 at the equivalent of United States \$2,275,641,000, approximately \$347,222,000 above 1949.

Coffee production in 1950 was only 1% above 1949 in spite of an increase of 10% in the area under cultivation. Coffee exports amounted to 14.8 million bags compared to 19.4 million bags in 1949.

No final estimates have yet been published for the 1951 coffee crop, but flowering has been generally good and it is anticipated in Brazil that the crop will be larger than last year.



SANTOS, WHERE ONE OF THE OPERATING COMPANIES PROVIDES ELECTRICAL ENERGY, GAS, STREET RAILWAY AND WATER SERVICES.

LATHE SECTION OF APPRENTICE SCHOOL WHICH HAS FACILITIES FOR TRAINING 150 BOYS IN VARIOUS TRADES.



The 1950 cotton crop turned out better than had been expected and was greater by 11% in volume and by 6.5% in value than the 1949 crop. Up to August, exports lagged behind 1949 both in volume and in value but the situation improved considerably in the latter months of the year. The present situation is highly favourable owing to liquidation of surplus stocks in the United States and strong demand at higher prices. With reasonably good weather conditions, production of cotton in 1951 should be considerably greater than in recent years.

The cocoa crop was smaller in volume by 3.6% compared to 1949. In the latter part of the year cocoa prices on world markets increased substantially and exports in 1950 produced the equivalent of United States \$59,402,000 for 108,000 tons shipped compared to \$34,402,000 for 92,000 tons shipped in 1949. Both demand and prices continued firm during the early part of 1951.

All other major crops, with the exception of tobacco and peanuts, were greater in value in 1950 than in 1949.

..... *Brazilian Industry*

The volume of industrial production was well maintained and higher prices brought larger profits to industry in general. The largest increases in production occurred in the steel, cement, chemical, pharmaceutical and rubber goods industries.

There was an increase of 30% in total volume of steel produced. The National Steel Mill at Volta Redonda, now manufacturing about 50% of the Brazilian output of rolling-mill products, received an additional loan of 25 million dollars from the Export-Import Bank for the expansion of its facilities. The Company expects to increase its annual production from 300,000 to 500,000 tons of steel.

The cement industry which now supplies a very large percentage of domestic requirements increased its capacity in 1950. Two new factories are expected to go into production in 1951 with a combined annual capacity of 255,000 tons and additions to existing plants are expected to increase production by a further 450,000 tons in 1952.

In spite of the almost complete absence of export orders the textile industries had a good year and production was higher for all classes of textiles. Of considerable significance is the intensive campaign to improve existing equipment by importing the most modern types of machinery. Textile machinery of a value exceeding \$100,000,000 has been imported since 1945.

An important development was the completion during the year of the first Brazilian petroleum refinery at Mataripe. This plant is producing refined products at the rate of 2,500 barrels per day and it is planned to increase daily production to 5,000 barrels. A larger refinery is under construction at Cubatão, near the main hydro plant of your São Paulo subsidiary. This refinery is scheduled for completion in 1953 and is being designed to produce 45,000 barrels of refined products per day from imported crude oil. It is planned to have two pipe lines connecting the new refinery to the city of São Paulo.

The expansion of the Brazilian domestic market and the stringent import restrictions on consumer goods are having the effect of inducing United States, British, and European manufacturers to establish branch factories in Brazil or to expand existing capacity in that country.

Perhaps the most reliable index of the growth of industrial production is the consumption of electric energy. Even with the rationing of existing industries and the limiting of new connections, sales of power to Brazilian industries by your Companies in 1950 increased by 9.6% over

1949. This increase was, in large measure, the result of greater consumption by the following groups of industrial consumers:

	1950 Consumption in millions of kwh	Increase in energy consumption over 1949	Percentage of 1950 in- dustrial energy sales
Railway Electrification - - - - -	332	8.0%	11.7%
Steel Mills, Foundries and Enamelling - - -	315	3.3%	11.1%
Textiles—Cotton - - - - -	266	1.7%	9.4%
Paper Mills and Products - - - - -	167	10.9%	5.9%
Textiles—Silk - - - - -	131	9.7%	4.6%
Chemicals - - - - -	101	7.8%	3.6%
Machine Shops and Metal Works - - - - -	101	6.4%	3.6%
Foodstuffs, Baking, etc. - - - - -	81	30.5%	2.9%
Mills, Flour and Other Cereals - - - - -	71	27.2%	2.5%
Rubber Goods - - - - -	59	9.0%	2.1%
Glass - - - - -	57	22.0%	2.0%

The operating subsidiaries of your Company continued in 1950 their practice of purchasing wherever possible their materials and supplies from Brazilian industry. These purchases for maintenance and for new construction totalled the equivalent of United States \$13,230,450 compared with \$10,326,900 in 1949. They consisted of a large and growing variety of products including electrical machinery and apparatus, telephone equipment and appliances, wire and cable, cement, fuel, iron and steel, hardware, explosives, cotton goods, ducts, bricks, tiles, foodstuffs, office supplies, lumber and stone.

• • • • • **Employees**

The total number of employees in the operating Companies in Brazil at the end of 1950 was 43,804, a reduction of 1,139 compared to December 1949.

• • • • • **Board of Directors**

During the year Mr. J. McKim Bell was elected a member of the Board of Directors of the Company, in succession to Mr. H. B. Style, and at the same time was appointed Chief Executive Officer in charge of the Company's operations in Brazil.

Your directors record the Company's appreciation of the loyalty and enterprise of the staffs and of the efficient service they have rendered in Brazil and elsewhere throughout the year.

For the Board of Directors,

HENRY BORDEN, *President.*

Toronto,
April 24th, 1951.



SANTA CECILIA TUNNEL—NORTH HEADING 6 DAYS BEFORE HOLING THROUGH.

BRAZILIAN TRACTION, LIGHT and POWER COMPANY, LIMITED
AND ITS PRINCIPAL SUBSIDIARY COMPANIES

● **ASSETS**

	December 31 1950	December 31 1949
Property, Plant and Equipment at cost - - - - -	\$510,591,914	\$459,614,214
Rights, Franchises, Contracts, Goodwill, etc. - - - - -	1	1
Investments in and advances to subsidiaries not consolidated:		
Investments in securities at cost - - - - -	14,084,571	14,083,102
Advances - - - - -	25,354,819	23,462,256
	<u>\$550,031,305</u>	<u>\$497,159,573</u>
Prepaid Expenses and Sundry Assets:		
Sundry prepaid expenses, deferred charges, etc. - - - - -	\$ 2,573,635	\$ 2,630,572
Securities and cash on deposit with trustee under trust indentures -	1,468,548	80,742
Investment in shares representing minority interests in other companies, at cost - - - - -	3,285,258	3,285,258
Guarantee deposits and sundry assets - - - - -	1,531,244	1,647,665
	<u>\$ 8,858,685</u>	<u>\$ 7,644,237</u>
Current Assets:		
Cash (including Brazilian currency) in banks and on hand - -	\$ 13,597,861	\$ 13,418,548
Temporary investments in securities of the Governments of Canada and the United States at amortized cost plus accrued interest (market value \$21,653,321) - - - - -	21,811,510	15,157,449
Consumers' deposits lodged with government banks - - - - -	5,712,960	4,960,642
Accounts receivable less reserve - - - - -	17,177,384	16,291,069
Stores on hand and in transit as determined and certified by the management and valued at not more than cost - - - - -	19,899,298	16,652,825
	<u>\$ 78,199,013</u>	<u>\$ 66,480,533</u>
Notes to the financial statements:—		
(1) The above consolidated balance sheet and the related statements of consolidated profit and loss and consolidated earned surplus are expressed in terms of United States currency. Current assets and current liabilities in other currencies are valued as follows:		
(a) Brazilian cruzeiros—at the closing official sight rate for exchange on New York;		
(b) Canadian dollars—at the closing current rate of exchange;		
(c) £ sterling—at the closing official rate of exchange.		
(2) The transfer of cash balances is subject to the exchange regulations of Brazil, Canada and the United Kingdom as the case may be.		
(3) The Canadian dollar funded debt has been converted at the rate prevailing on the date of issue. The funded debt expressed in sterling has been converted to United States dollars at \$4.86¾ to the £.		
(4) Total commitments outstanding for construction, equipment, etc., at December 31, 1950 were approximately \$41,000,000.		
(5) By a supplement to the Loan Agreement with the International Bank for Reconstruction and Development, effective April 10, 1951, the \$75,000,000 loan was increased to \$90,000,000 and the 3½% interest rate and 1% commission rate formerly charged on amounts advanced to the Company against the first (\$75,000,000) instalment were combined into a 4½% per annum interest rate. Interest is payable on the second (\$15,000,000) instalment at 4¼% per annum. As a result of this change, bonds issued to the International Bank after April 10, 1951 (including bonds replacing those issued in January 1950 as listed in Note 7 on the December 31, 1949 consolidated balance sheet) will bear interest at 4½% per annum (if they represent drawdowns under the first instalment of the loan) and at 4¼% per annum (if they represent drawdowns under the second instalment).		
(6) The companies' usual accounting practice is to exclude profits and losses on foreign exchange from profit and loss and earned surplus accounts and to adjust such items through reserve accounts. In 1950 this practice resulted in a credit to reserve accounts of \$1,229,773 arising primarily from the revaluation of the Canadian dollar on September 30, 1950 and the payment at maturity of the 5% 22-year sterling bonds of The Rio de Janeiro Tramway, Light and Power Company, Limited.		
	<u>\$637,089,003</u>	<u>\$571,284,343</u>

Consolidated Balance Sheet

AS OF DECEMBER 31, 1950 (WITH COMPARATIVE FIGURES AS OF DECEMBER 31, 1949)

LIABILITIES

	December 31 1950	December 31 1949
Capital:		
Authorized—		
3,934 6% cumulative convertible preference shares of a par value of \$100 each.		
7,920,220 ordinary shares of no par value subject to increase up to a total of 7,933,333 shares of no par value by conversion of preference shares.		
Issued and outstanding—		
3,934 preference shares	\$ 393,400	\$ 393,400
7,029,893 ordinary shares	179,358,230	179,358,230
Earned Surplus	118,775,457	98,816,727
	<u>\$298,527,087</u>	<u>\$278,568,357</u>
Shares of Subsidiaries in Hands of Public	\$ 1,684,193	\$1,684,193
Funded Debt:		
Brazilian Traction, Light and Power Company, Limited—		
collateral trust 4¾% bonds Series D (November 1, 1970)—		
Canadian dollars \$10,000,000.00	\$ 9,569,378	\$ —
The Rio de Janeiro Tramway, Light and Power Company, Limited		
5% 50-year mortgage bonds (April 1, 1958)—balance after sinking fund redemptions—£1,437,916	6,997,856	7,990,433
The São Paulo Tramway, Light and Power Company, Limited		
5% perpetual consolidated debenture stock—£821,917	3,999,996	3,999,996
São Paulo Electric Company, Limited—		
5% 50-year first mortgage bonds (January 1, 1962)—balance after sinking fund redemptions—£698,740	3,400,535	3,770,401
	<u>\$ 23,967,765</u>	<u>\$ 15,760,830</u>
International Bank for Reconstruction and Development:		
Sinking fund loan maturing January 1, 1974	\$ 75,000,000	\$ 75,000,000
Less amounts undrawn	30,595,645	50,076,841
	<u>\$ 44,404,355</u>	<u>\$ 24,923,159</u>
Reserves and Provisions:		
Provision for depreciation (including depreciation of physical assets of subsidiaries not consolidated)	\$129,693,066	\$118,636,657
Provision for amortization (including sinking fund reserve)	53,190,966	50,825,038
General reserve	12,223,975	11,896,850
Provision for contingencies	36,726,567	32,301,453
	<u>\$231,834,574</u>	<u>\$213,659,998</u>
Current Liabilities:		
Accounts payable and accrued charges	\$ 27,076,231	\$ 26,877,092
Consumers' deposits (per contra)	5,712,960	4,960,642
Liability for 5% 50-year mortgage bonds of The Rio de Janeiro Tramway, Light and Power Company, Limited drawn for redemption April 1, 1951	283,359	—
Liability for outstanding 5% 22-year bonds of The Rio de Janeiro Tramway, Light and Power Company, Limited—matured October 1, 1950—£24,496	119,213	1,320,563
Sharewarrant and bond coupons payable, dividend cheques outstanding and accrued interest on funded debt	3,479,266	3,529,509
	<u>\$ 36,671,029</u>	<u>\$ 36,687,806</u>
	<u>\$637,089,003</u>	<u>\$571,284,343</u>
On behalf of the Board:		
HENRY BORDEN } Directors		
E. C. FOX }		

BRAZILIAN TRACTION, LIGHT AND POWER COMPANY, LIMITED
AND SUBSIDIARY COMPANIES

Statement of Consolidated Profit and Loss

FOR THE YEAR ENDED DECEMBER 31, 1950

(With comparative figures for the year ended December 31, 1949)

	Year ended December 31 1950	Year ended December 31 1949
Gross earnings from operations - - - - -	\$133,998,466	\$123,884,473
Interest on temporary investments - - - - -	221,990	153,249
Other miscellaneous income - - - - -	1,224,801	327,979
Total revenue - - - - -	<u>\$135,445,257</u>	<u>\$124,365,701</u>
<i>Less:</i>		
Operating expenses including provision for taxes - - - - -	\$ 84,821,561	\$ 79,113,245
Provision for depreciation - - - - -	11,883,036	8,843,419
Provision for amortization - - - - -	1,853,758	1,806,817
Total operating expenses, depreciation and amortization - - - - -	<u>\$ 98,558,355</u>	<u>\$ 89,763,481</u>
Net profit before interest and other financial charges - - - - -	<u>\$ 36,886,902</u>	<u>\$ 34,602,220</u>
<i>Less:</i>		
International Bank loan carrying charges - - - - -	\$ 2,304,620	\$ 1,164,277
Bond interest - - - - -	841,389	926,658
Preference dividends of subsidiaries and other financial charges - - - - -	111,324	146,212
Financing expenses (including discount on bonds issued in 1950) - - - - -	584,595	606,270
Total interest and other financial charges - - - - -	<u>\$ 3,841,928</u>	<u>\$ 2,843,417</u>
Net profit for the year - - - - -	<u>\$ 33,044,974</u>	<u>\$ 31,758,803</u>

(1950—Remuneration of directors (excluding executive officers) \$20,225; remuneration of counsel, solicitors and legal advisers including payments by subsidiary companies \$265,160; remuneration of executive officers including payments by subsidiary companies \$697,871.)

Statement of Consolidated Earned Surplus

FOR THE YEAR ENDED DECEMBER 31, 1950

Balance December 31, 1949 - - - - -		\$ 98,816,727
Net profit for the year ended December 31, 1950 - - - - -		33,044,974
		<u>\$131,861,701</u>
<i>Less dividends:</i>		
Preference shares—paid in Canadian funds		
\$6.00 per share - - - - -	\$ 23,604	
Equivalent in United States dollars - - - - -		\$ 21,700
Ordinary shares—paid in Canadian funds		
\$1.00 per share paid June 15, 1950 - - - - -	\$ 7,027,358	
\$1.00 per share paid December 15, 1950 - - - - -	7,027,414	
	<u>\$14,054,772</u>	
Equivalent in United States dollars - - - - -		13,064,544
Balance December 31, 1950 - - - - -		<u>\$118,775,457</u>

Clarkson, Gordon & Co.

Chartered Accountants

Toronto, 1

CANADA

AUDITORS' REPORT TO THE SHAREHOLDERS

We have examined the consolidated balance sheet of Brazilian Traction, Light and Power Company, Limited and its principal subsidiary companies as at December 31, 1950 and the statements of consolidated profit and loss and consolidated earned surplus for the year ended on that date. In connection therewith we made a general review of the accounting methods and, without making a detailed audit of the transactions, examined or tested accounting records of the companies. We received all the information and explanations we required.

The aggregate profits and losses of subsidiaries, the assets and liabilities of which are not included in the consolidated balance sheet, have been fully provided for in the statement of consolidated profit and loss.

We report that in our opinion the accompanying consolidated balance sheet and related statements of profit and loss and earned surplus have been drawn up so as to exhibit a true and correct view of the state of the companies' affairs at December 31, 1950, and of the results of their operations for the year, according to the best of our information and the explanations given us and as shown by the books of the companies.

Toronto, Canada,
April 17, 1951.

Clarkson, Gordon & Co.

Chartered Accountants.

MINAS GERAIS STATE



SÃO PAULO STATE



GOIÁS

MINA

MATO GROSSO

SÃO PAULO

PARANÁ

ARAGUARÍ

UBERLÂNDIA

UBERABA

ARAXÁ

ICEM

FRANCA

S. JOSÉ DO RIO PRETO

BEBEDOURO

S. SEBASTIÃO DO PARAÍSO

GLICÉRIO

JABOTICABAL

RIBEIRÃO PRETO

TUPÁ

ARARAQUARA

S. JOÃO DA BOAVISTA

POÇOS DE CALDAS

PRES. EPITÁCIO

PRES. PRUDENTE

MARILIA

BAURÚ

S. CARLOS

OURO FINO

CAMBARÁ

PIRACICABA
BOTUCATU

CAMPINAS

TIETÊ

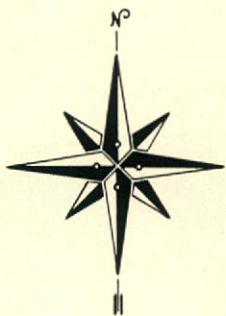
FARTURA

SOROCABA

LONDRINA

ITAPETINGA

SANTOS



PONTA GROSSA

CURITIBA

PARANAGUÁ

MALLET

QUARATUBA





**BRAZILIAN TELEPHONE COMPANY'S
SYSTEM
1950**



- COMPANY'S COMPLETED LINES** —————
- COMPANY'S LINES UNDER CONSTRUCTION** - - - - -
- CONNECTING COMPANIES' LINES** ————

Statistics OF COMBINED COMPANIES

	1946	1947	1948	1949	1950
Electric Light and Power					
Kilowatt-hours Sold - - - -	2,825,522,186	3,092,006,765	3,482,345,144	3,874,529,061	4,051,703,866
Capacity of Generating Plants (kw)	662,570	757,466	822,271	867,265	958,412
Total Connected Load (kw) - -	1,839,043	1,984,920	2,196,454	2,420,935	2,645,970
Total Consumers - - - - -	731,751	768,014	811,338	858,981	909,661
Transmission Lines (miles of circuit)	2,069	2,335	2,411	2,473	2,569
Distribution Lines (miles of wire) -	36,759	38,507	40,441	42,637	44,918
Telephones					
Total Number of Telephones in Service	325,893	349,492	380,260	398,396	427,889
Average Daily Calls - - - - -	6,159,054	6,465,860	7,028,629	7,511,988	7,753,253
Wire Strung (miles) - - - - -	1,545,874	1,652,254	1,690,833	1,761,209	1,771,343
Pole Lines (miles) - - - - -	8,268	8,543	8,769	9,041	9,077
Gas					
Gas Sold (Cubic Feet) - - - - -	5,865,087,498	6,230,413,140	6,822,733,078	7,401,419,782	7,827,691,895
Total Consumers - - - - -	181,746	190,513	205,439	220,089	239,565
Mains Laid (miles) - - - - -	1,272	1,279	1,296	1,309	1,323
Tramways					
Total Track (miles) - - - - -	528	359	359	358	357
Rolling Stock:					
Passenger Cars - - - - -	2,081	1,508	1,517	1,517	1,515
Freight and Service Cars - - -	263	194	194	194	193
Car Miles Run - - - - -	74,712,732	60,806,628	48,365,538	48,003,247	44,483,589
Total Passengers Carried - - - -	1,138,476,674	908,513,656	735,455,108	748,281,956	735,489,253
Water					
Water Sold (Cubic Feet) - - - -	468,800,305	493,581,338	512,824,138	525,185,166	533,774,642
Total Consumers - - - - -	25,312	26,101	27,289	29,137	30,785
Trunk Mains Laid (miles) - - -	38	38	38	38	38
Distribution Mains Laid (miles) -	276	279	285	295	305

COMPANHIA BRASILEIRA ADMINISTRADORA DE SERVIÇOS TÉCNICOS (COBAST)
(MANAGEMENT COMPANY IN BRAZIL)

Directors

- A. J. ACKERMAN—*Vice-President—Hydroelectric Construction.*
- DR. J. G. DE ARAGÃO—(*Executive Vice-President of The Rio de Janeiro Tramway, Light and Power Company, Limited, Brazilian Hydro Electric Company, Limited, and Société Anonyme du Gaz de Rio de Janeiro.*)
- H. L. BANFILL—*Vice-President—Operations. (Vice-President of Brazilian Telephone Company.)*
- J. M. BELL—*Executive Vice-President. (Director of Brazilian Traction, Light and Power Company, Limited. Managing Director and Vice-President of the Subsidiary Operating Companies in Brazil.)*
- HENRY BORDEN, C.M.G., K.C.—*President. (President of Brazilian Traction, Light and Power Company, Limited, and of its Subsidiary Operating Companies in Brazil.)*
- P. R. CASTANHEIRA—(*General Manager of Brazilian Telephone Company.*)
- H. B. CHURCHILL—*Vice-President—Finance.*
- DR. ANTONIO GALLOTTI—*Vice-President and General Counsel.*
- MAJOR K. H. McCRIMMON, C.B.E., D.S.O. — *Vice-President—Public Relations. (Vice-President of Subsidiary Operating Companies in Brazil.)*
- DR. EURICO SODRÉ—(*Legal Consultant of The São Paulo Tramway, Light and Power Company, Limited.*)
- DR. EDGARD DE SOUZA—(*Director of Brazilian Traction, Light and Power Company, Limited.*)
- DR. ODILON E. A. SOUZA—(*Executive Vice-President of The São Paulo Tramway, Light and Power Company, Limited and São Paulo Electric Company, Limited.*)
- ERIC G. TAYLOR—*Vice-President—Personnel.*
-

Principal Subsidiary Operating Companies in Brazil

- BRAZILIAN TELEPHONE COMPANY—P. R. CASTANHEIRA, *General Manager.*
- THE CITY OF SANTOS IMPROVEMENTS COMPANY, LIMITED—H.T.W. PILBEAM, *General Manager.*
- THE RIO DE JANEIRO TRAMWAY, LIGHT AND POWER COMPANY, LIMITED—HAROLD GREIG, *General Manager.*
- THE SAN PAULO GAS COMPANY, LIMITED—G. E. SEYLAZ, *General Manager.*
- THE SÃO PAULO TRAMWAY, LIGHT AND POWER COMPANY, LIMITED—W. L. SIMPSON, *General Manager.*
- SOCIÉTÉ ANONYME DU GAZ DE RIO DE JANEIRO—L. V. JONES, *Manager.*

