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37th ANNUAL

# Report

**BRAZILIAN TRACTION, LIGHT AND POWER**

COMPANY, LIMITED

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N I N E T E E N F O R T Y - N I N E

37th ANNUAL

# Report

## FOREWORD

*For thirty-eight years Brazilian Traction, Light and Power Company, Limited, through its operating subsidiaries, has supplied public utility services in south-eastern Brazil. Electric energy, gas, tramway and telephone services are provided in the States of Rio de Janeiro and São Paulo and in the Federal District. In addition, telephone service is furnished in the State of Minas Gerais and has been extended to the State of Espírito Santo. Included in this area of supply are the cities of Rio de Janeiro, with a population of nearly 2 millions, Sao Paulo, a dynamic centre of industry with approximately 1¾ 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.*

# BRAZILIAN TRACTION, LIGHT AND POWER COMPANY, LIMITED

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# BRAZILIAN TRACTION, LIGHT AND POWER COMPANY, LIMITED

(Incorporated under the Laws of the Dominion of Canada)

## BOARD OF DIRECTORS

HENRY BORDEN, C.M.G., K.C., Toronto, Canada	EDWARD HOLLAND-MARTIN, London, England
SIR ERIC GORE-BROWNE, D.S.O., O.B.E., London, England	BEVERLEY MATTHEWS, C.B.E., K.C., Toronto, Canada
E. G. BURTON, C.B.E., Toronto, Canada	JOHN PHILLIMORE, C.M.G., London, England
JAMES A. ECCLES, Montreal, Canada	W. E. PHILLIPS, C.B.E., D.S.O., M.C., LL.D., Toronto, Canada
E. C. FOX, Toronto, Canada	DR. EDGARD E. DE SOUZA, São Paulo, Brazil
G. BLAIR GORDON, Montreal, Canada	CLARANCE STANLEY, New York, U.S.A.
WALTER GOW, K.C., Toronto, Canada	H. B. STYLE, Rio de Janeiro, Brazil
S. H. LOGAN, Toronto, Canada	G. R. F. TROOP, C.A., Toronto, Canada
THE HON. MAURICE F. P. LUBBOCK, London, England	NORMAN D. WILSON, Toronto, Canada

## OFFICERS

### *President*

HENRY BORDEN, C.M.G., K.C.

### *Vice-President*

E. C. FOX

### *Vice-President (Administration)*

ARNOLD GAINÉ

### *Secretary*

OSBORNE MITCHELL

### *Vice-President and Treasurer*

G. R. F. TROOP, C.A.

### *Assistant to the President*

F. A. SCHULMAN

### *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

## PRINCIPAL OPERATING SUBSIDIARIES

THE RIO DE JANEIRO TRAMWAY, LIGHT & POWER COMPANY, LIMITED

THE SÃO PAULO TRAMWAY, LIGHT & POWER COMPANY, LIMITED

BRAZILIAN TELEPHONE COMPANY

BRAZILIAN HYDRO ELECTRIC COMPANY, LIMITED

SÃO PAULO ELECTRIC COMPANY, LIMITED

THE SAN PAULO GAS COMPANY, LIMITED

THE CITY OF SANTOS IMPROVEMENTS COMPANY, LIMITED

SOCIÉTÉ ANONYME DU GAZ DE RIO DE JANEIRO

COMPANHIA FERRO CARRIL DO JARDIM BOTANICO

## OFFICES

HEAD OFFICE - - - - - 25 King Street West, Toronto 1, Canada

LONDON AGENTS - - - - Canadian-Brazilian Services Limited, 148, Leadenhall Street, London, E.C.3, England

# Report

## TO THE SHAREHOLDERS

**Y**OUR directors submit herewith the following report on the Company's affairs, together with the audited financial statements for the year 1949 including the consolidated balance sheet of the Company and its operating subsidiary companies in Brazil as at December 31st, 1949.

All figures in the report expressed in dollars are in United States currency (converted at the official rates) unless otherwise indicated.

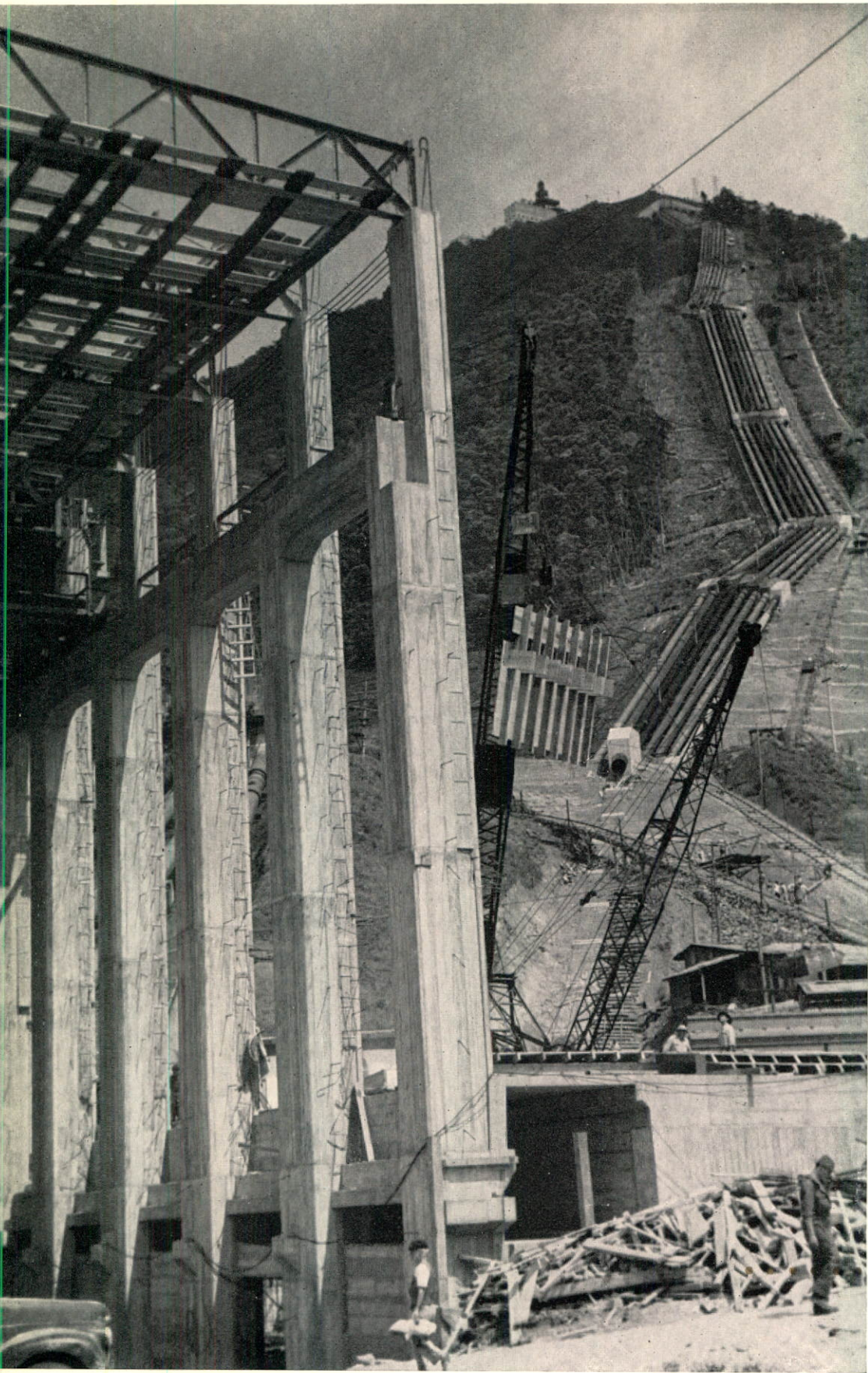
The year 1949 saw further growth in all the Company's services with the exception of transportation. A feature of the year was the substantial increase in wages which took effect at the beginning of 1949. This increase was offset in large measure by tariff adjustments made under the provisions of the wage-tariff agreement to which reference was made in last year's Annual Report.

### Comparative Statement of Earnings 1946-1949

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			
	1946	1947	1948	1949
Gross earnings from operations - - - - -	\$78,253,700	\$92,578,431	\$101,945,202	\$123,884,473
Interest on temporary investments- - - - -	689,508	359,489	121,541	153,249
Other miscellaneous income - - - - -	117,673	144,388	111,824	327,979
<b>Total Revenue - - - - -</b>	<b>\$79,060,881</b>	<b>\$93,082,308</b>	<b>\$102,178,567</b>	<b>\$124,365,701</b>
<b>Less: Operating expenses including provision for taxes - - - - -</b>	<b>\$47,079,254</b>	<b>\$57,097,476</b>	<b>\$ 63,754,132</b>	<b>\$ 79,113,245</b>
Depreciation - - - - -	5,490,531	6,601,311	8,136,196	8,843,419
Amortization - - - - -	1,000,000	1,000,000	1,000,000	1,000,000
<b>Total operating expenses, depreciation and amortization</b>	<b>\$53,569,785</b>	<b>\$64,698,787</b>	<b>\$ 72,890,328</b>	<b>\$ 88,956,664</b>
<b>Net Revenue before capital charges - - - - -</b>	<b>\$25,491,096</b>	<b>\$28,383,521</b>	<b>\$ 29,288,239</b>	<b>\$ 35,409,037</b>
<b>Less: International Bank Loan carrying charges - - - - -</b>				<b>\$ 1,164,277</b>
Bond interest - - - - -	\$ 1,464,359	\$ 1,435,429	\$ 1,262,229	926,658
Sinking funds and other financial charges - - - - -	925,256	966,708	939,768	953,029
Financing expenses written off - - - - -				606,270
<b>Total Capital charges - - - - -</b>	<b>\$ 2,389,615</b>	<b>\$ 2,402,137</b>	<b>\$ 2,201,997</b>	<b>\$ 3,650,234</b>
<b>Net Revenue for the year - - - - -</b>	<b>\$23,101,481</b>	<b>\$25,981,384</b>	<b>\$ 27,086,242</b>	<b>\$ 31,758,803</b>

Increase in gross earnings from operations for 1949 over 1948 amounted to 21.5% as compared with 10.1% for 1948 over 1947. This increase was chiefly due to increased sales and the adjustments in tariffs under the wage-tariff agreement. Operating expenses for 1949 increased 24.1%



EXTENSION OF THE LARGE SERRA DO CUBATÃO POWER PLANT TO HOUSE THE NEW EIGHTH UNIT, RATED AT 65,000 KW., WHICH WILL INCREASE THE CAPACITY OF THIS PLANT TO 473,000 KW.





over 1948 as compared with 11.6% for 1948 over 1947. This increase was principally due to the substantial rise in wages which took place at the beginning of the year.

The following is a tabulation of ratio percentage of total operating expenses before depreciation and amortization to gross earnings from operations over the past four years.

1946	1947	1948	1949
60.16%	61.67%	62.52%	63.86%

### **Capital Expenditure**

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

1946	1947	1948	1949
\$34,069,204	\$47,986,435	\$32,436,579	\$41,410,398

Short particulars regarding the main items of construction completed during the year will be found in later sections of this report. At December 31st, 1949, the amount of our indebtedness to the International Bank for Reconstruction and Development, as shown by the Balance Sheet, was \$24,923,159 against which the Bank was entitled to receive (and has since received) Collateral Trust Bonds (maturing on a sinking fund basis in 1974) in the following amounts:

273,500 in Pounds Sterling
2,729,000 in Canadian Dollars
21,273,000 in United States Dollars

It is estimated that capital expenditures during the year 1950 will approximate \$53,000,000. Of this amount approximately \$43,900,000 will be expended in the carrying out of work covered by the programme of construction agreed with the International Bank, and in this connection it is anticipated that the Company will, during 1950, draw down from the International Bank under its loan agreement approximately \$13,600,000 or its equivalent. This will mean that the Company will be finding from its own resources for capital development during 1950 the equivalent of approximately \$39,400,000.

### **Brazilian Exchange—1949**

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

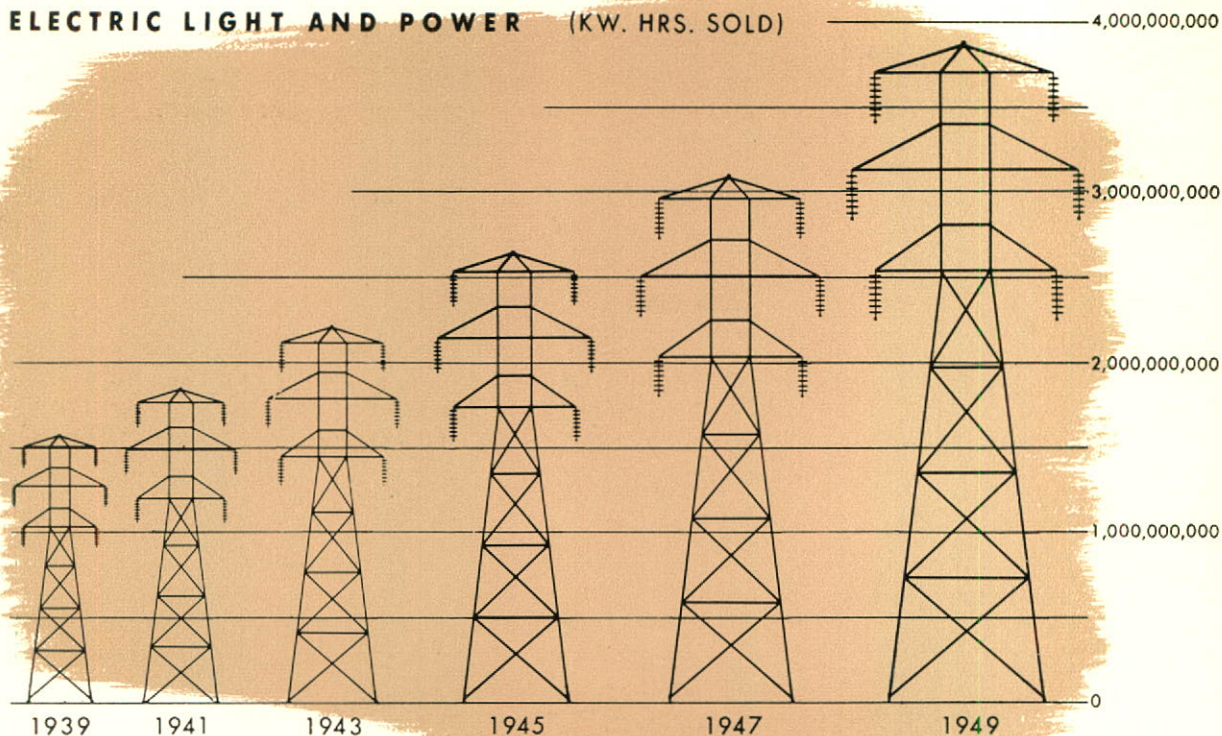
The current assets and liabilities of the operating companies in Brazil were valued at the end of the year in United States dollars at this rate.

The combined earnings of the operating companies, expressed in dollars, which are published half-yearly and which also appear in total in the tabulated statement on page 3 of this report, are calculated at the Bank of Brazil rate of 18 cruzeiros 72 centavos per United States dollar.

### **Dividends Paid**

In addition to the usual quarterly dividends, amounting to \$23,604 per annum (Canadian funds), on the small outstanding balance of preference shares, two dividends, amounting to a total of \$14,054,526 (Canadian funds), were paid during the year on the ordinary shares of the Company, viz: \$1.00 on June 1st and \$1.00 on December 15th.

## ELECTRIC LIGHT AND POWER (KW. HRS. SOLD)



ELECTRICITY SALES HAVE DOUBLED IN LESS THAN EIGHT YEARS

### Electric Power Supply

The demand for electric power continued to increase as will be seen by reference to the statistics given on page 32 of this report. There was an increase of 11.2% in kwh sales and 47,643 consumers were added to the combined systems.

In general, the river flows throughout the year were somewhat below average. A rather severe drought, experienced in the middle of the year, resulted in an appreciable drop in the water storage in the reservoirs. With the marked increase in industrial, commercial and domestic consumption both in Rio de Janeiro and São Paulo, it became evident during the year that rationing measures to restrict load growth in both cities would be necessary. Applications to accomplish this were duly filed with the proper authorities in Brazil and as a result restrictions were put into effect early in 1950. Shortages in water supply and plant capacity will continue if the demand continues to increase as in recent years.

#### RIO SYSTEM

New generating capacity was added to the Rio system during the year by the completion of Unit No. 5 at the Ilha dos Pombos plant. This hydro-electric generating unit, which was brought into service on December 15th, is the largest medium head reaction turbine in South America. It produces 45,000 kw with a turbine output of 62,000 hp.

Work on the Paraíba-Piraí Diversion project was resumed in April after the satisfactory conclusion of the International Bank loan negotiations. Construction is proceeding rapidly under a new contract with the Cia. Morrison-Knudsen do Brazil S.A. Modern construction equipment is being used and special efforts are being made to complete this diversion project on schedule by the end of 1951.

No major additions to transformer capacity in the Rio system step-down stations were made during the year but the transformer capacity at Volta Redonda (State of Rio) was increased from 13,700 to 20,100 kva, at Campo Grande from 1,200 to 2,000 kva, and at Bangu from 2,000 to 3,000 kva. Also during the year there was an increase of 57 high-tension consumers, with privately owned substations, having a total capacity of 22,150 kva.

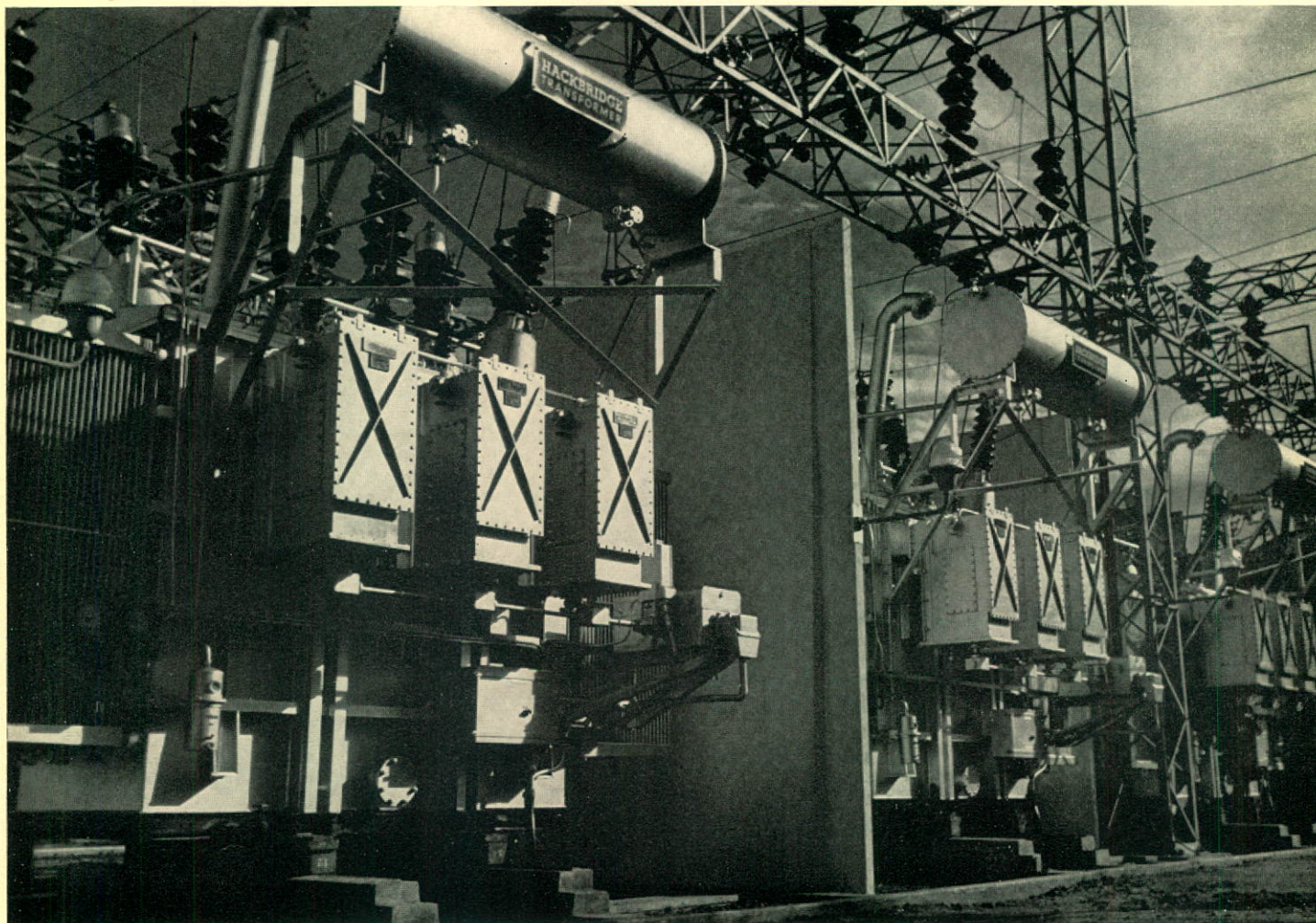
A total of 1,129 conductor kilometers were added to the distribution system during the year together with 209 transformers with a capacity of 15,310 kva.

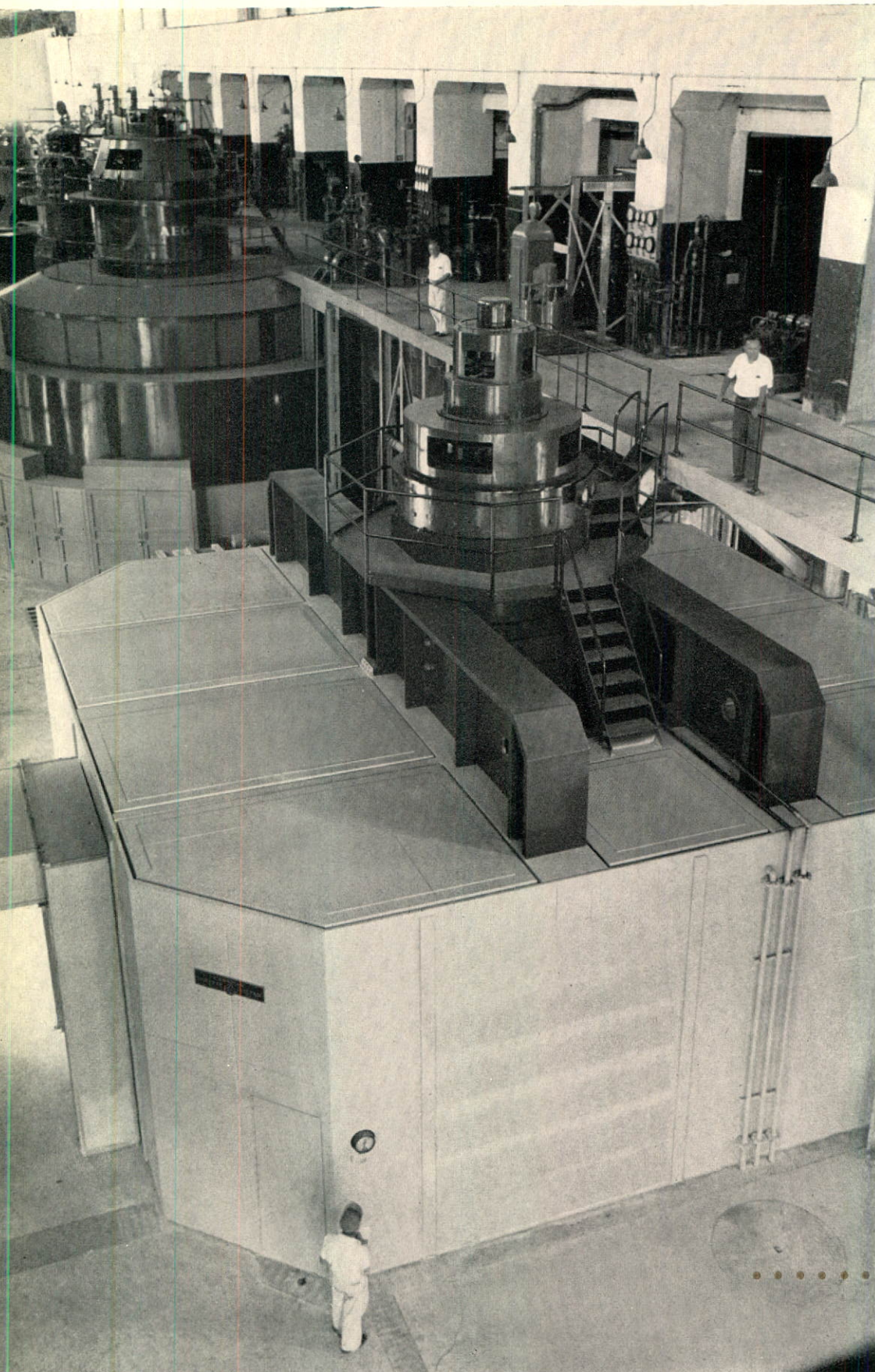
#### SÃO PAULO SYSTEM

At the beginning of the year construction was started on the installation of the 65,000 kw Unit No. 8 at the Serra do Cubatão plant. The necessary powerhouse extension had to be built over the existing tailrace without interrupting plant generation and the diversion of this water was a major problem of construction. It is expected that this unit will be ready to go into commercial service in July, 1950.

At the end of the year, plans were well advanced in connection with the installation of the 5,500 kva pump No. 2 at Trairão. It is anticipated that this pump will go into service before the end of 1950.

NEW TRANSFORMER STATION PLACED IN SERVICE AT SOROCABA.





NEW 45,000 KW. GENERATING  
UNIT IN ILHA DOS POMBOS  
POWER PLANT.

.....

During the year the transformer capacity of the terminal stations of the system was increased by 14,100 kva, five new sub-stations were put into service and the distribution system augmented by the addition of 60,000 kva transformer capacity and some 23 new feeder lines.

The operation of one or two of the Cubatão Units at 50 cycles, whenever such units could be spared by the São Paulo System, to supply energy to Rio was continued during the year and a total of 184,324,000 kwh were received by the Rio System in this manner.

#### ELECTRIFICATION OF RAILWAYS

Progress continued in the electrification of railways in the area served by the operating companies.

In March the Central do Brasil Railway electrified a further 46.5 kilometres of its main line, completing the section running from Japerí to Barra do Piráí.

The Sorocabana Railway electrified an additional 36 kilometres of its main line, installing two new substations of 4,000 kw each. This completes a continuous electrified run of 223 kilometres from São Paulo City to Juquiratiba.

The Santos-Jundiaí Railway (formerly known as the São Paulo Railway) is continuing construction work for the electrification of its main line and expects to complete the first section early in 1950.

The electrification of these important railways, wholly with energy produced by the operating companies, is a substantial contribution to the improvement of Brazilian transportation and results in an appreciable saving to Brazil in foreign exchange.

#### Telephone Service

New demands for service continued unabated during the year. Although 18,136 new telephones were connected a large number of applications for service remained unfilled.

The number of toll calls completed in 1949 reached a new high of 19,199,365, an increase of 1,353,637 or 7.58% compared with 1948.

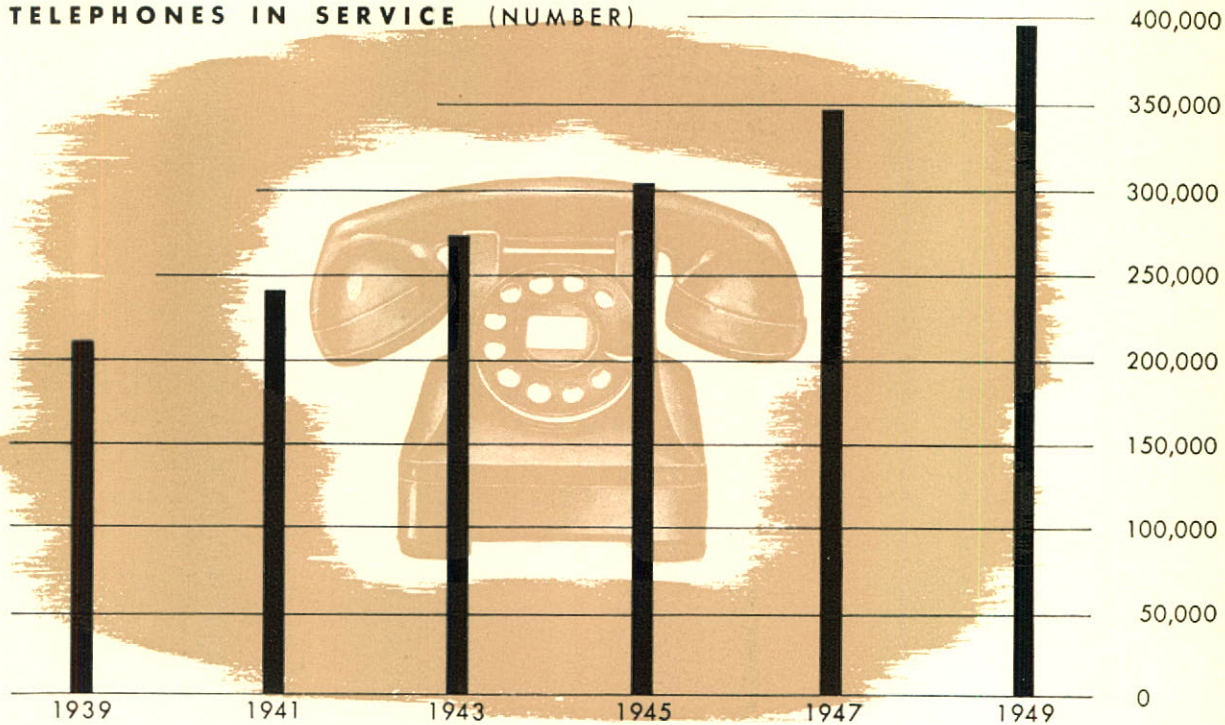
Considerable progress was made in continuation of the current construction programme. Capital expenditure for the telephone service during the year was in excess of \$9,000,000. New facilities added included five new telephone exchanges in the Federal District and in the city of São Paulo. These, together with additions made to two existing exchanges provided additional lines for 24,400 new subscribers in Rio and São Paulo. New equipment was also put into service in other localities.

A new toll line from Campos to Vitória, capital of the State of Espirito Santo, was completed in April.

Carrier terminal equipment of very high transmission quality, and which will eventually provide 48 additional channels on the Rio de Janeiro-São Paulo Toll Line, went into service during August.

In order to meet increased operating costs and also increased costs of equipment and construction, it is imperative that tariff adjustments be made to enable your Company to earn a fair return on its investment in its telephone business. During 1949 applications for increases in local service rates were filed with the authorities of 37 municipalities in which your Company operates. Up to the present time 15 decisions, all favourable, have been received.

## TELEPHONES IN SERVICE (NUMBER)



TELEPHONE FACILITIES HAVE BEEN NEARLY DOUBLED IN THE LAST DECADE

### Gas Service

Gas sales were increased by 8.5% over 1948, and in Rio de Janeiro gas rationing, which had been in force since 1942, was discontinued.

In Rio de Janeiro the construction of the new 3 million cubic ft. gas holder continues satisfactorily. Work was commenced on the construction of a continuous vertical carbonizing plant which will provide additional capacity of 2,000,000 cu. ft. of gas per day. An extension of approximately a mile of 10 inch steel high-pressure gas main was laid, two underground concrete vaults were constructed and modern regulator equipment installed to provide improved gas supply. 7,589 new customers were connected during the year in Rio.

In São Paulo and Santos normal maintenance work was carried out and also new customers were connected within the limits of the facilities available, totalling 5,520 in São Paulo and 1,541 in Santos.

### Transportation

As previously forecast, the tramway services have continued to be unremunerative. While the wage-tariff agreement referred to in the annual report for 1948, provided a slight increase in rates of fare in the cities of Rio de Janeiro and Santos, this was more than absorbed by the increase in wages. Further negotiations for fare increases have not yet been successfully concluded.

The 40-year contract under which tramway service is furnished in the City of Santos expires early in 1951. Your operating company in Santos has notified the Municipal Authorities of its



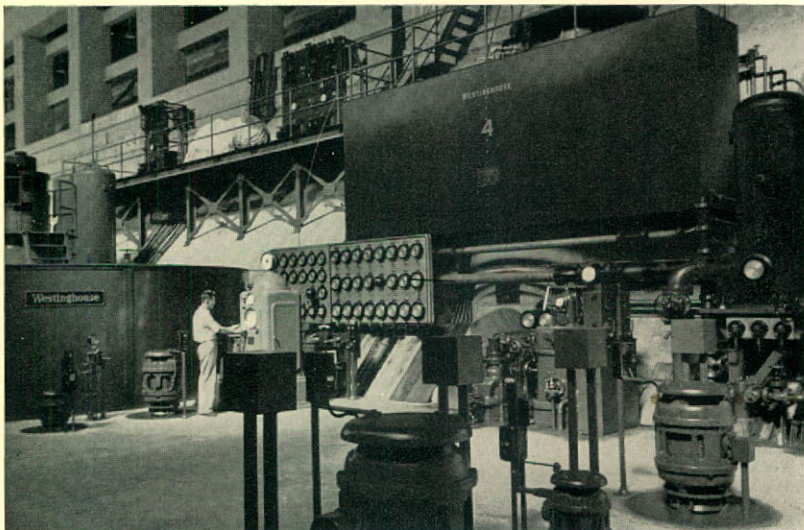
CONSTRUCTION OF APARECIDA STATION  
WHERE A 50,000 KW. FREQUENCY-  
CHANGER IS BEING INSTALLED.

.....



CONTROL ROOM AT SERRA DO CUBATÃO  
POWER PLANT.

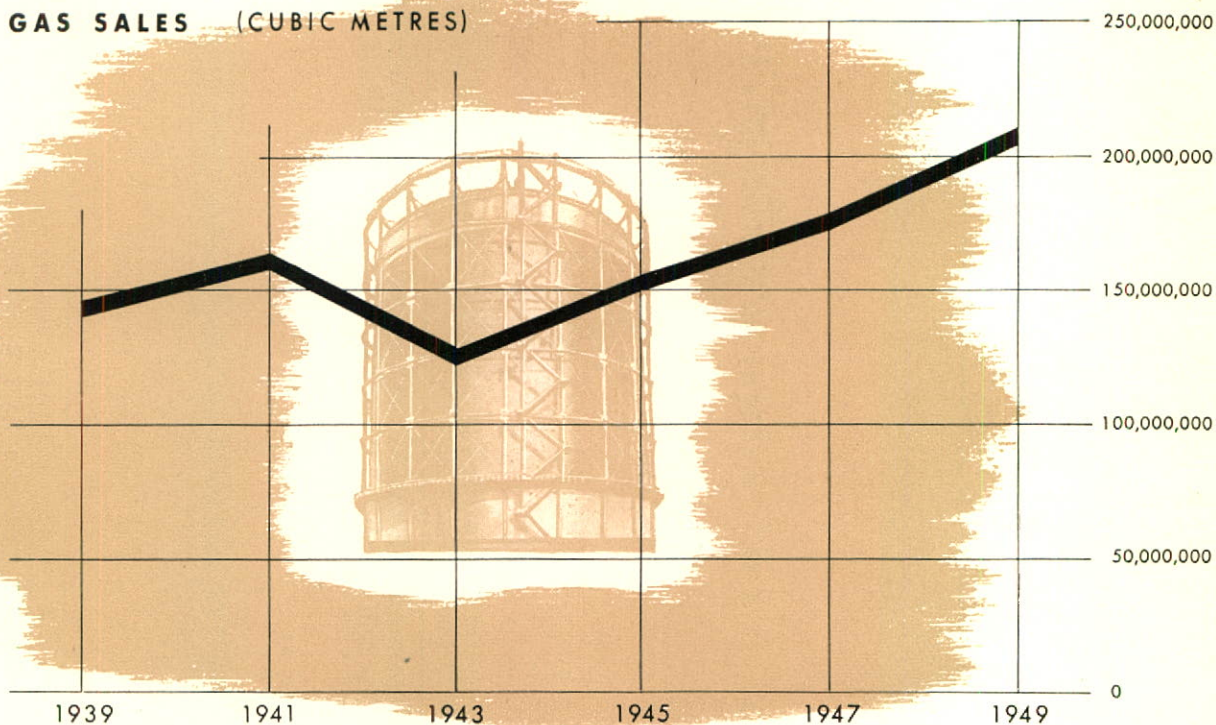
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PEDREIRA PUMPING STATION WHICH  
LIFTS WATER FROM UPPER PINHEIROS  
CANAL TO BILLINGS RESERVOIR.

.....

## GAS SALES (CUBIC METRES)



A STEADY GROWTH IN GAS SALES EXCEPT FOR THE WAR PERIOD

decision not to renew the contract. Negotiations with the City for the taking over of the service are now in progress.

### Water Service

The City of Santos Improvements Company Limited, has supplied water to the city of Santos and adjacent areas for many years. 14,871,658 cubic metres were supplied in 1949 as compared with 14,521,631 cubic metres in 1948. The Company's concession terminated in 1932 but by agreement with the State authorities the Company continued to supply water under the terms of the old concession. In the meantime negotiations for a renewal of the concession were carried on and in 1949 the State Assembly passed legislation authorizing the State Executive to renew the concession. The terms of the renewal are still under negotiation.

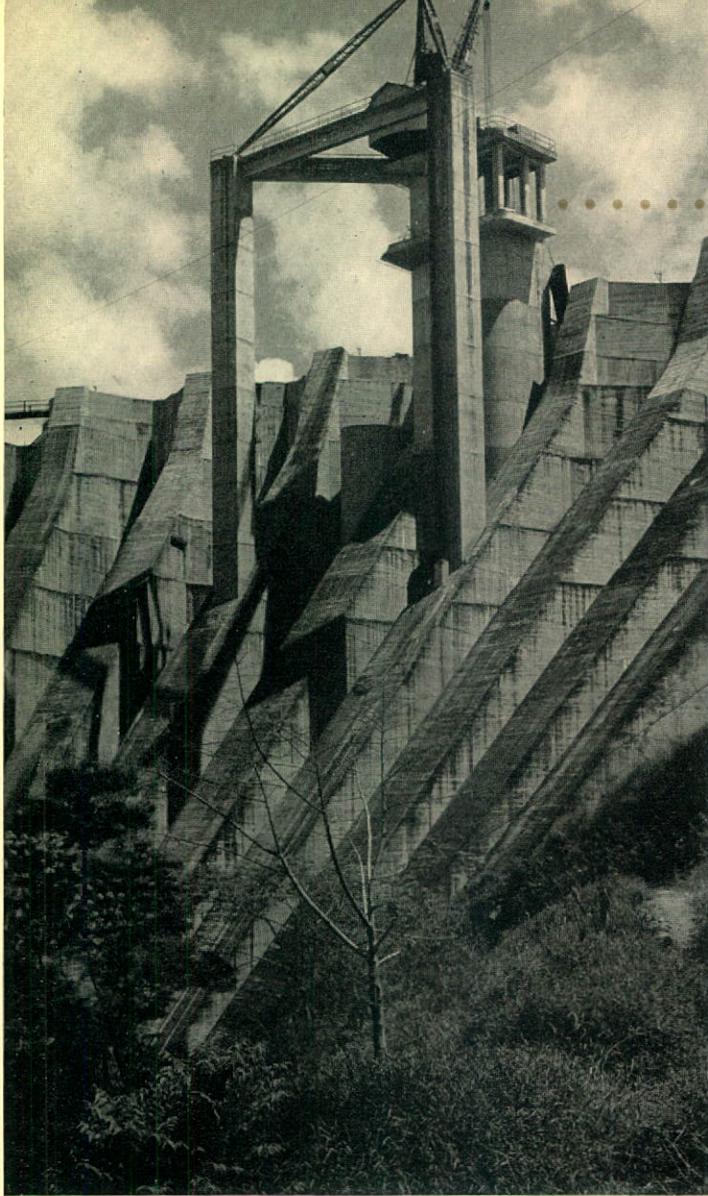
### Foreign Trade of Brazil

The value of Brazil's foreign trade in 1949 was somewhat lower than in 1948. The following table shows the position for the past five years, computed in United States dollars:

	Exports (000)	Imports (000)	Balance (000)
1945	\$ 604,996	\$ 433,855	\$171,141
1946	911,476	651,436	260,040
1947	1,084,385	1,166,811	-82,426
1948	1,158,613	1,120,593	38,020
1949	1,076,175	1,102,607	-26,432

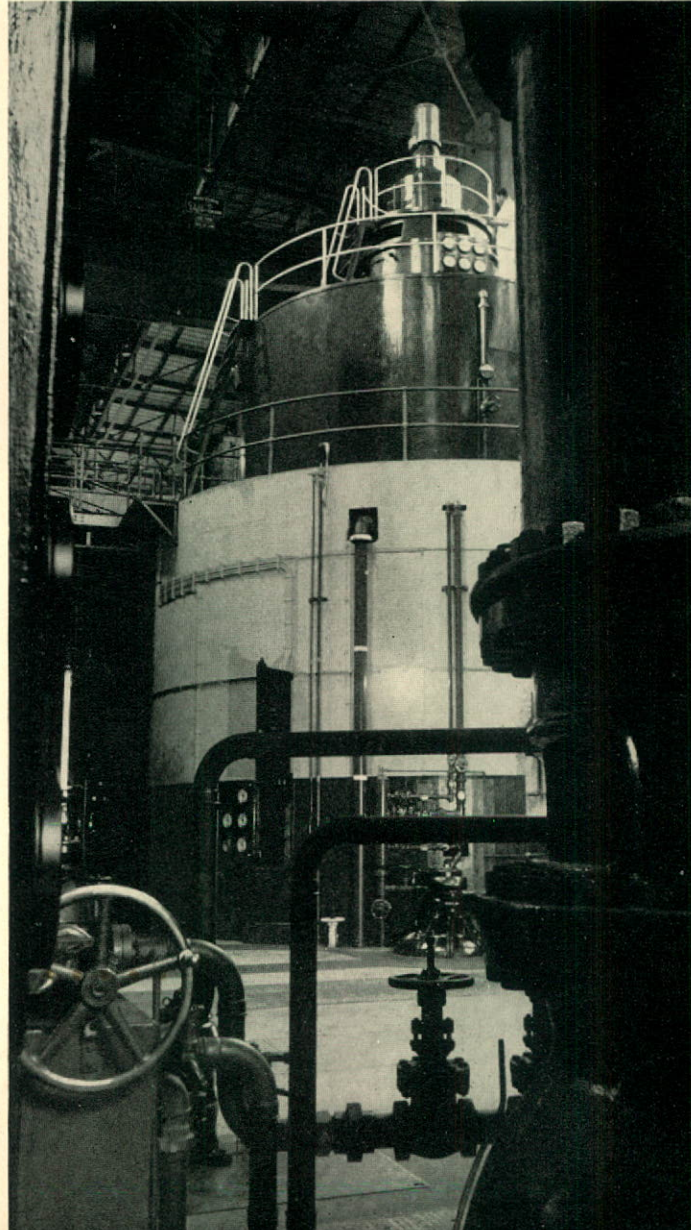
(Figures published by Brazilian Government Trade Bureau—March 1950)



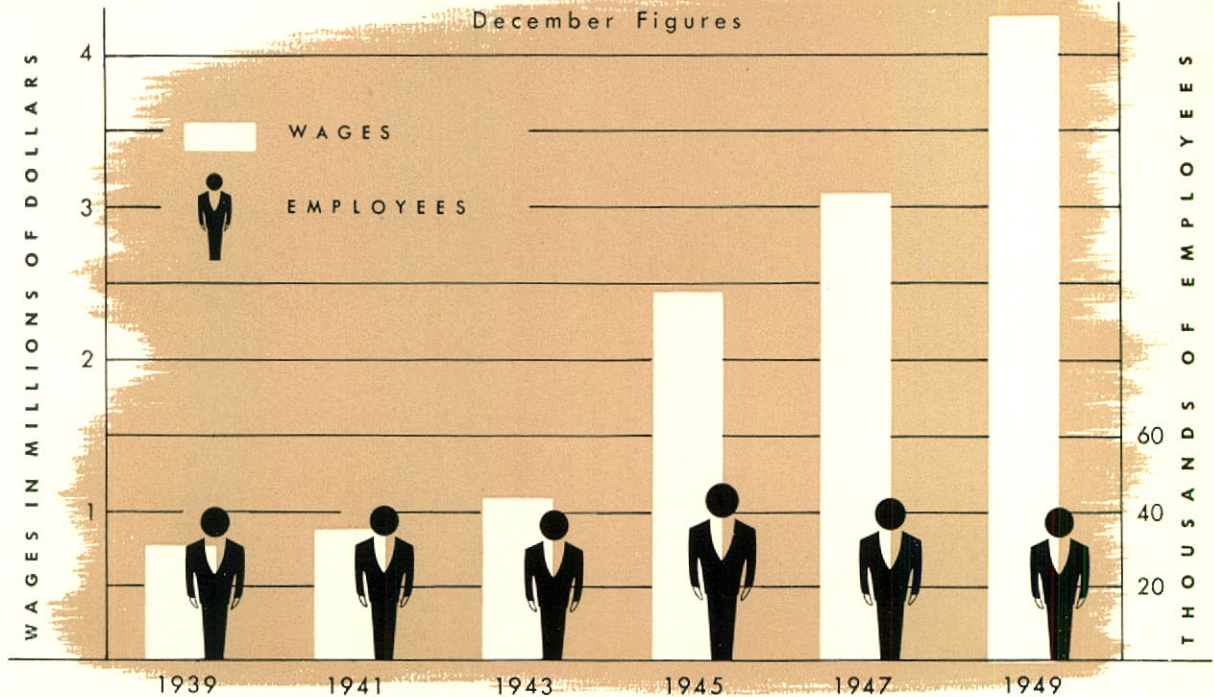


DOWNSTREAM SIDE OF LAGES DAM.

FONTES POWER PLANT WHERE UNITS TOTTALLING 154,000 KW.  
ARE INSTALLED.



## WAGES & EMPLOYEES OF OPERATING COMPANIES IN BRAZIL



WAGES ARE FIVE TIMES WHAT THEY WERE TEN YEARS AGO

In the last two years there has been a significant change in the origin of imports and the destination of exports. An increasing shortage of hard currency has caused Brazil to continue a stringent system of import controls designed to reduce imports from hard currency countries and to increase purchases in soft currency areas.

Imports from the United Kingdom, in United States dollar equivalents, increased from \$113,000,000 in 1948 to \$142,400,000 in 1949, a gain of over 25%, while imports from the United States decreased from \$585,000,000 in 1948 to \$482,000,000 in 1949, a decrease of 19.1%.

This trend resulted in a substantial unfavourable balance of trade with the United Kingdom, the Argentine, and certain other countries, and a small favourable balance with the United States.

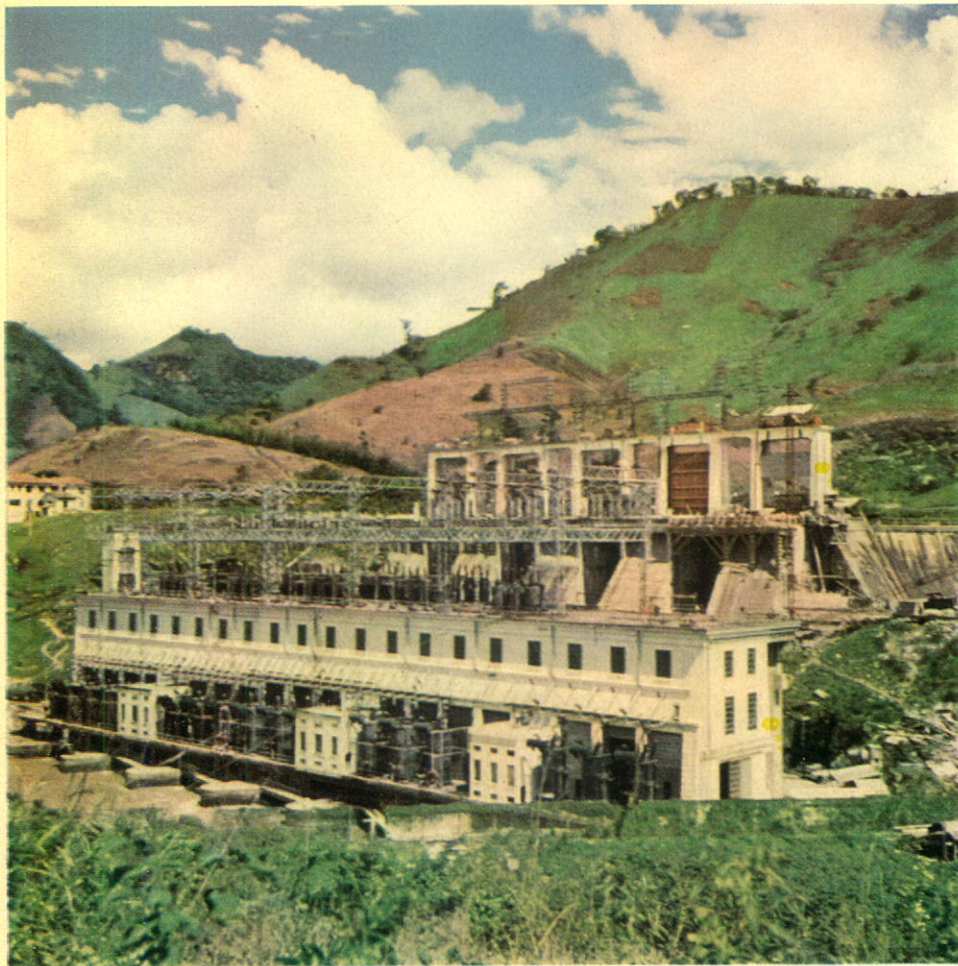
Brazil's trade with the United States, since 1945, has been as follows:

	Exports (000)	Imports (000)	Balance (000)
1945	\$330,000	\$260,000	\$ 70,000
1946	423,000	416,000	7,000
1947	450,000	760,000	-310,000
1948	505,000	585,000	- 80,000
1949	555,000	482,000	73,000

(Figures published by Brazilian Government Trade Bureau—March 1950)

The improvement in Brazil's trading account with the United States was greatly accentuated in the last four months of the year due to a substantial increase in coffee prices, coupled with a stricter application of import controls. For the first eight months of the year Brazil's trading account with the United States showed a deficit of over U.S. \$50,000,000, so that the net gain in the last four months alone amounted to U.S. \$123,000,000.

(Continued on page 19)



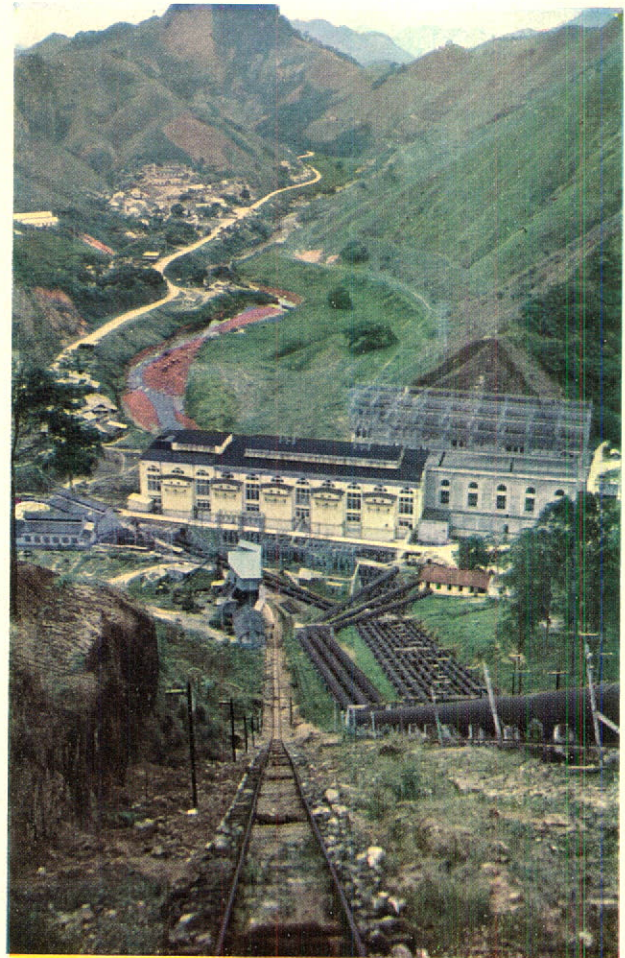
ILHA DOS POMBOS POWER PLANT  
WHERE NEW GENERATING UNIT  
BRINGS INSTALLED CAPACITY TO  
162,000 KW.



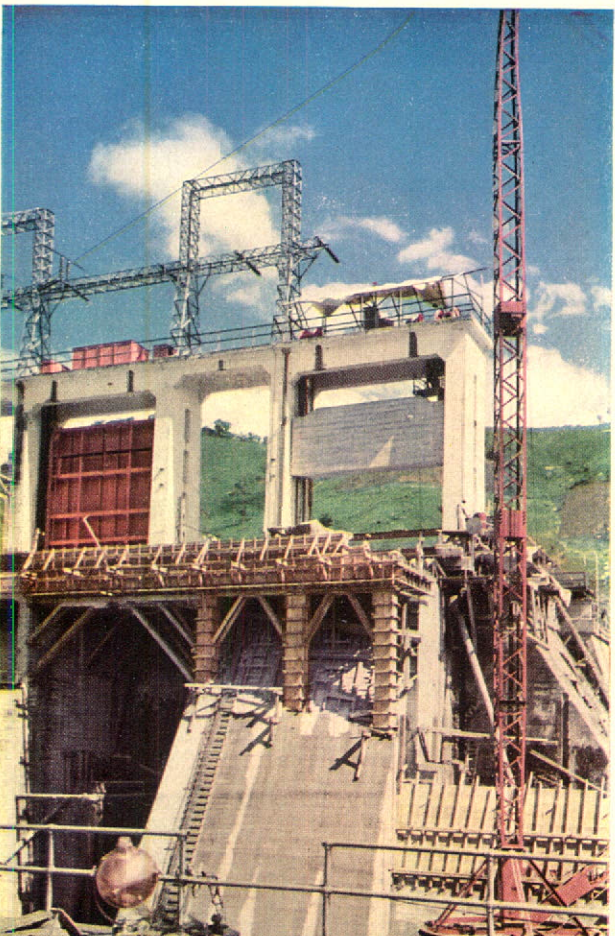
COPACABANA, RIO DE JANEIRO,  
RAPIDLY GROWING RESIDENTIAL  
DISTRICT.



EXCAVATION FOR VIGÁRIO TUN-  
NEL TO CARRY WATER FROM  
PARAÍBA RIVER TO FONTES  
POWER PLANT.

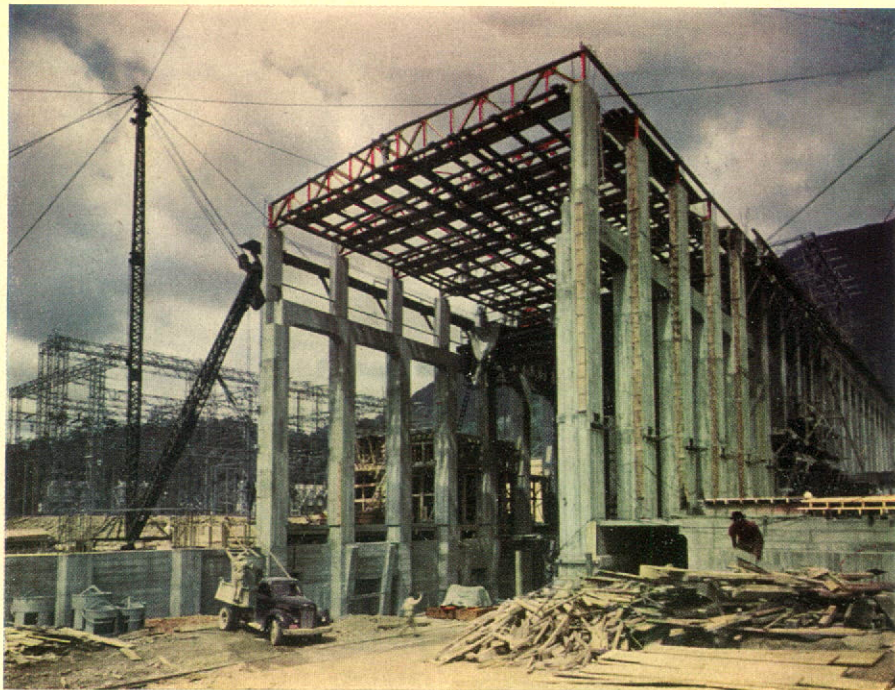


FONTES POWER  
CAPACITY 15



CONSTRUCTION OF NEW FORE-  
BAY GATE FOR THE NEW UNIT  
AT ILHA DOS POMBOS.

CONSTRUCTION OF NEW EXTENSION TO SERRA DO CUBATÃO PLANT TO HOUSE NEW 65,000 KW. GENERATOR, TO BRING CAPACITY TO 473,000 KW.



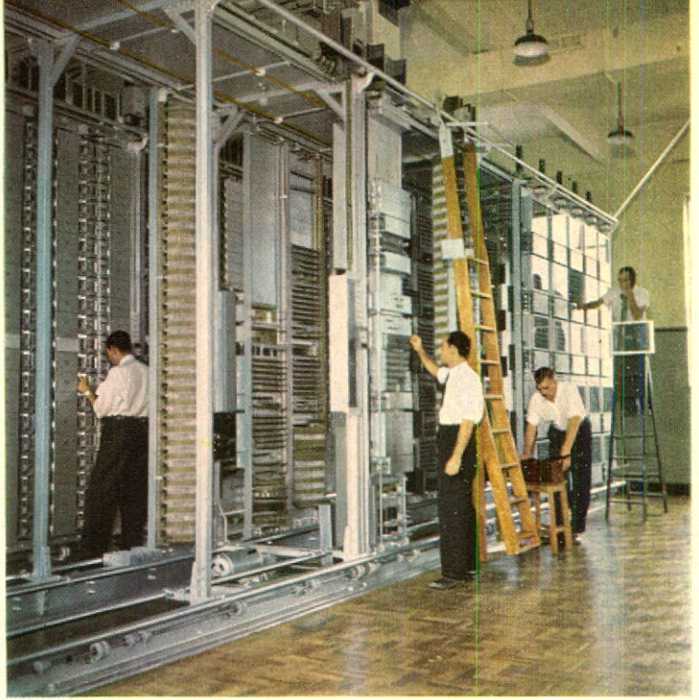
HOUSE—INSTALLED 4,000 KW.

PEDREIRA PUMPING STATION WHICH PUMPS WATER TO THE BILLINGS RESERVOIR TO FEED THE SERRA DO CUBATÃO PLANT.



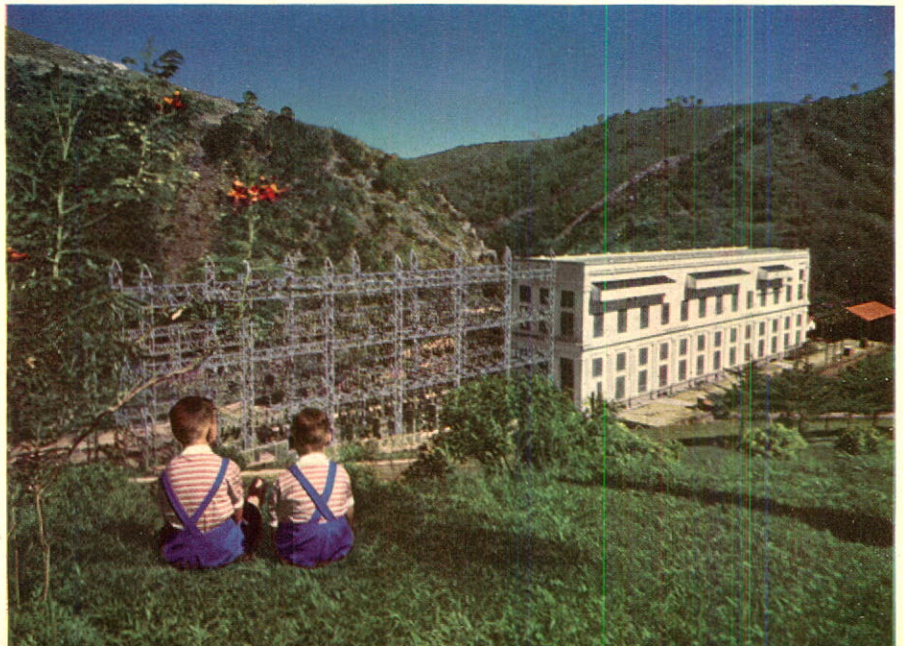
THE CITY OF SÃO PAULO, SHOWING IN CENTRE THE OFFICES OF SÃO PAULO TRAMWAY, LIGHT AND POWER COMPANY, LIMITED.

INSTALLING EQUIPMENT IN  
ONE OF THE MANY AUTOMATIC  
TELEPHONE OFFICES IN RIO DE  
JANEIRO.



NEW RETORT STRUCTURE FOR  
THE GAS PLANT IN RIO DE JANEIRO.

ITUPARARANGA POWER PLANT—  
INSTALLED CAPACITY 56,000 KW.



(Continued from page 14)

The chief commodities shipped abroad in 1949 were:

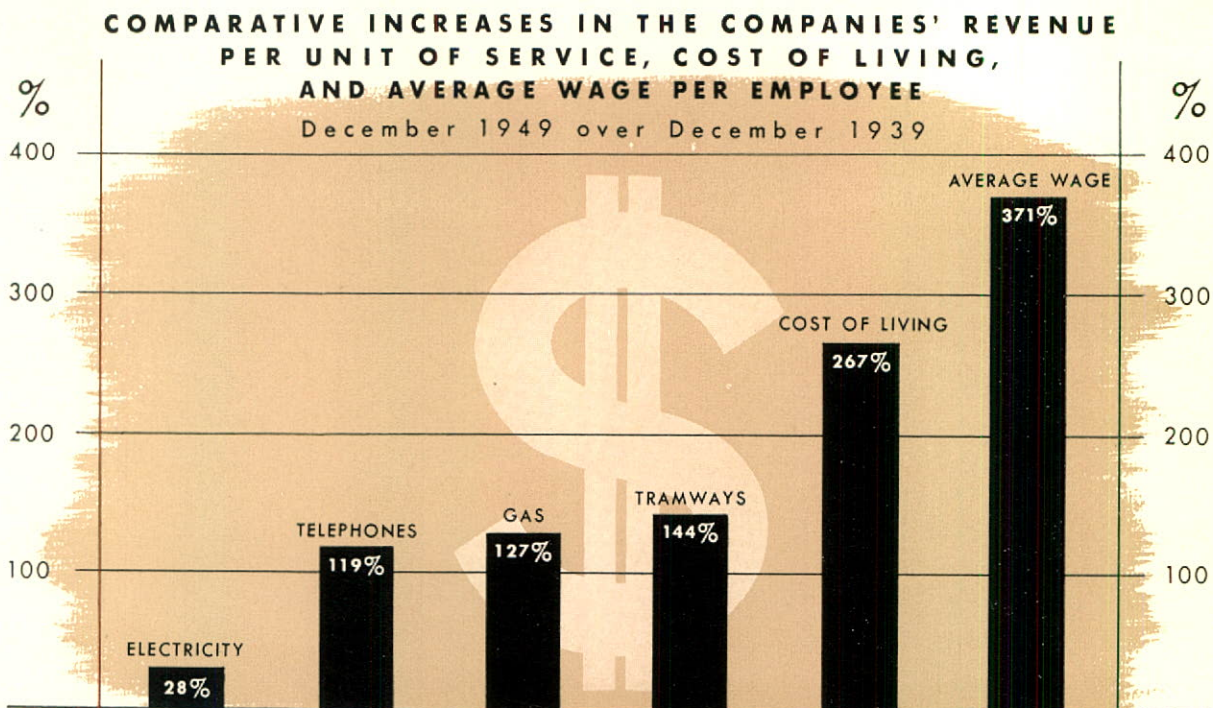
Product	Value in U.S. \$	Increase or Decrease against 1948
Coffee - - - - -	\$ 620,011,647	\$ +138,420,329
Raw cotton - - - - -	107,167,338	\$ - 73,591,501
Cocoa beans - - - - -	51,451,167	- 5,467,038
Skins and hides - - - - -	36,983,398	- 3,762,030
Pinewood - - - - -	31,235,422	- 12,098,250
Cotton piece-goods - - - - -	19,450,150	- 6,185,535
Carnauba wax - - - - -	18,337,399	+ 3,078,990
Tobacco - - - - -	14,912,912	+ 586,918
Mamona - - - - -	13,950,856	- 9,529,924
Chilled meat - - - - -	10,642,460	+ 2,194,740
Other products - - - - -	152,031,936	-116,085,085
<b>Total - - - - -</b>	<b>\$1,076,174,685</b>	<b>\$ - 82,438,386</b>

(Figures published by British Chamber of Commerce in Brazil—March 1950)

During 1949 some of Brazil's important agricultural products became difficult to place on world markets at profitable prices. To offset this, Brazil negotiated a number of bilateral trade

OPERATOR'S COLONY AT ITUPARARANGA POWER PLANT.





WHILE WAGE INCREASES HAVE GREATLY EXCEEDED THE RISE IN THE COST OF LIVING SINCE 1939, TARIFF INCREASES HAVE BEEN VERY MODERATE

agreements which permitted the liquidation of part of her surplus stocks. Official sanction was also given to numerous private barter agreements involving foreign manufactured products and such surplus Brazilian products as cocoa beans and cocoa butter, bananas, oranges, caffeine, carnauba wax, sisal and other vegetable fibres, pine lumber, and plywood, which did not find a ready sale in dollar markets.

### Agricultural Production in Brazil

With the exception of sugar cane, castor seed and grapes, all of the main Brazilian crops were greater in 1949 than in the previous year, both in volume and in value.

Coffee is the foundation of the Brazilian economy. The area cultivated in 1949 was 3.5% greater than in the previous year, but the yield was slightly lower and production was at approximately the same level. Because of early droughts in some parts of the States of São Paulo and Parana, prospects for the 1950 crop are not as favourable as for the 1949 crop. It is estimated that the 1950 crop will yield about 15 million bags (60 kilos each) for export. Brazilian exports in 1949 exceeded 19 million bags and by June 30th, 1950, the end of the crop year, there will be little or no carry forward into the next crop year, with the exception of essential port stocks. With an annual world demand estimated at more than 31 million bags and current world production at considerably less than 30 million bags, the present relationship between world consumption and production is highly favourable for Brazil as the largest exporter of coffee.

Cotton is Brazil's second most important crop and second largest item of export. The area planted was greater and the yield per acre was higher in 1949 than in 1948, resulting in an increase of 25% in total production.



Both the cocoa and rice crops were higher in volume than in the previous year while the sugar crop was lower on account of reduction in the area under cultivation. Prices were higher for sugar and rice and lower for cocoa.

### Brazilian Industry

Brazilian industry, after a period of very rapid expansion during and after the war, seems now to have entered a phase of consolidation. Steel production was again substantially increased during the year, but in most of the other branches of industry production was at approximately the same level as in 1948. The general index of industrial production based on volume showed a monthly average of 114.3 for 1949 compared with a monthly average of 111.2 for 1948 (1946 monthly average = 100).

Companhia Siderúrgica Nacional, the national steel mill at Volta Redonda, increased its output of rolling-mill products to approximately 250,000 short tons, an increase over 1948 of more than 30,000 tons. A much larger proportion of total production was in the higher priced items, particularly tinplate, so that the value of production was substantially higher and the saving in foreign exchange through reduction in imports was considerably greater.

Cement production exceeded 1,000,000 tons, a small increase over 1948. The total capacity of the cement industry was increased by 35,000 tons during the year.

The textile industries had a good year in spite of greatly reduced exports. Production was slightly higher in volume and considerably higher in value owing to increased domestic demand for better quality cloth.

The restrictions placed on imports of certain manufactured products have induced many foreign manufacturers to consider establishing branch plants in Brazil or increasing their present capacity there.

The operating subsidiaries of your Company continued in 1949 their practice of purchasing as large a share as possible of their materials and supplies from Brazilian industry. These purchases, both for maintenance and for new construction, totalled the equivalent of U.S. \$10,326,900 as compared with U.S. \$9,256,300 for 1948 and represented a large variety of products including the following:

	1949		
Cement - - - - - U.S.\$	467,900	Lumber - - - - -	610,900
Clay and clay products (ducts, bricks, tiles, etc.) -	68,950	Copper wire and cables - -	1,932,400
Cotton goods (canvas, thread, strings, cords, and waste) - - - - -	314,450	Steel and iron - - - - -	1,456,050
Electrical machinery, appa- ratus and appliances - -	1,253,450	Office supplies - - - - -	514,600
Foodstuffs - - - - -	500,700	Paper - - - - -	245,300
Fuel (coal) - - - - -	345,050	Rubber goods (tires and tubes) - - - - -	232,950
Hardware (tools, pipe connections, etc.) - - -	92,000	Telephone apparatus and appliances - - - - -	1,031,100
		Stone - - - - -	229,700
		Miscellaneous - - - - -	1,031,400
		Total - - -	<u>U.S.\$10,326,900</u>

Total electric energy sales for industrial purposes in the Rio, São Paulo and Santos areas increased by 14.8%. This increase was, in large measure, the result of greater consumption by the following groups of industrial consumers:

	1949 Consumption in millions of kwh	Increase in energy consumption over 1948	Percentage of 1949 industrial energy sales
Railway Electrification - - - - -	307	12.5%	11.6%
Steel Mills, Foundries and Enamelling - - -	266	33%	10%
Textiles—Cotton - - - - -	261	8.3%	9.9%
Paper Mills and Products - - - - -	151	16.1%	5.7%
Machine Shops and Metal Works - - - - -	135	10.6%	5.1%
Textiles—Silk - - - - -	119	6.2%	4.5%
Chemicals - - - - -	94	36.2%	3.6%
Foodstuffs, Baking, etc. - - - - -	62	72.2%	2.3%
Mills, Flour and other Cereals - - - - -	56	40%	2.1%
Rubber Goods - - - - -	54	5.9%	2%

### Number of Employees

The total number of employees in the operating companies in Brazil, as of December 31st, 1949, was 44,943, a net increase of 403 compared with December 31st, 1948. This increase was due to an addition of 981 employees to the hydro-electric construction crews whereas there was a decrease of 578 in the operating personnel.

### Fiftieth Anniversary of The São Paulo T, L & P Co., Ltd

On May 7th, 1950, one of the operating companies, The São Paulo Tramway, Light & Power Company, Limited, will complete its 50th year of operations.

The São Paulo Tramway, Light & Power Company, Limited began operations with the Parnaíba Plant (now known as the Edgard de Souza Plant) on the Tietê River with 2 units of 1,000 kw each. At the half-century it has the responsibility for the operation not only of that plant, with an installed capacity to-day of 26,000 kw, but also for a number of other plants which with the Edgard de Souza Plant and the great Serra do Cubatão Plant provide collectively 538,000 kw of power for the São Paulo system. With the addition of the No. 8 unit, the Serra do Cubatão Plant will have an installed capacity of 473,000 kw, making it one of the largest hydro-electric plants in the world.

In the past half-century the city of São Paulo has developed into the greatest industrial centre in South America and the State of São Paulo into the most prosperous region in Brazil. São Paulo to-day is a busy metropolis, with a population of nearly two million people. Your Company, by supplying large quantities of hydro-electric power at low cost to the consumer, has contributed greatly to the growth and prosperity of this modern city and progressive state.

### Death of Mr. A. W. K. Billings

It is with deep regret that your directors record the death on November 3rd, 1949 of Mr. A. W. K. Billings, formerly President of the Company. Mr. Billings had been associated with

the Company for more than twenty-five years. During this period he was responsible for the design and construction of your Company's large hydro-electric installations. Some months before Mr. Billings died, the great Rio Grande Reservoir of the Serra do Mar system was renamed the Billings Reservoir in commemoration of the inspiring leadership he gave in that tremendous engineering achievement and the outstanding contribution that he made to the building up of the Company's great hydro-electric system and to the development of Brazil.

### Staff

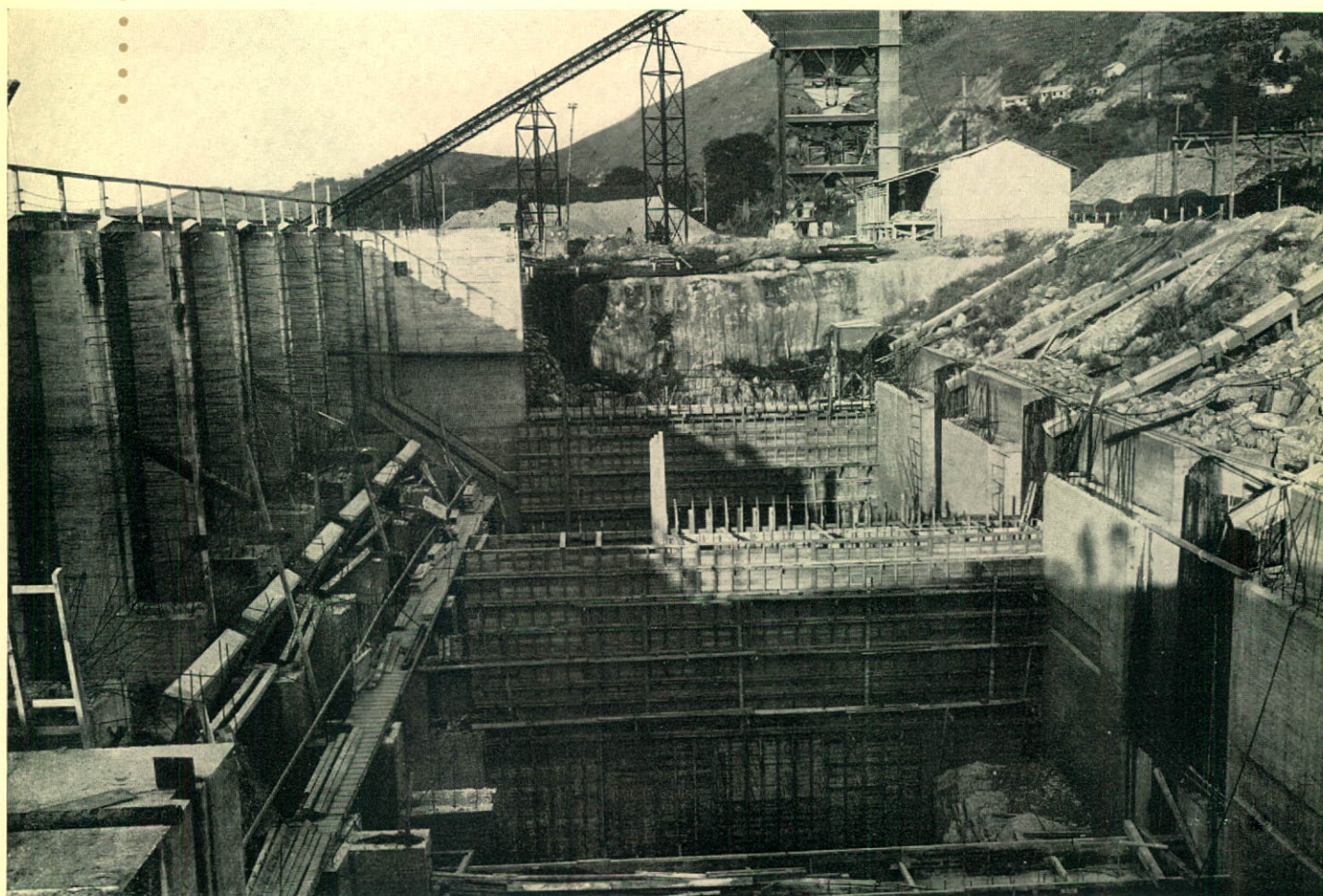
Your directors record the Company's appreciation of the loyalty and enterprise of the staffs and the efficient service they have rendered in Brazil and elsewhere throughout the year.

For the Board of Directors,

HENRY BORDEN, President.

Toronto,  
May 2, 1950.

SANTA CECILIA PUMPING STATION UNDER CONSTRUCTION.



**BRAZILIAN TRACTION,  
LIGHT AND POWER  
COMPANY, LIMITED**

AND ITS PRINCIPAL

**ASSETS**

	December 31 1949	December 31 1948
Plant, Property and Equipment at cost - - - - -	\$459,614,214	\$422,082,588
Rights, Franchises, Contracts, Goodwill, etc. - - - - -	1	1
Investments in and advances to subsidiaries not consolidated:		
Investments in securities at cost - - - - -	14,083,102	14,268,993
Advances - - - - -	23,462,256	21,387,000
	<u>\$497,159,573</u>	<u>\$457,738,582</u>
Prepaid Expenses and Sundry Assets:		
Sundry prepaid expenses, deferred charges, etc. - - - - -	\$ 2,630,572	\$ 2,366,377
Cash on deposit with trustee for sinking fund - - - - -	80,742	109,504
Investments in shares representing minority interests in other com- panies, at cost - - - - -	3,285,258	3,258,547
Guarantee deposits and sundry assets - - - - -	1,647,665	1,490,419
	<u>\$ 7,644,237</u>	<u>\$ 7,224,847</u>
Current Assets:		
Cash (including Brazilian currency) in banks and on hand - - -	\$ 13,418,548	\$ 10,522,289
Temporary investments in securities of the Governments of Canada and the United States at cost and accrued interest (market value \$15,248,329) - - - - -	15,157,449	5,524,786
Consumers' deposits lodged with government banks - - - - -	4,960,642	4,207,068
Accounts receivable less reserve - - - - -	16,291,069	13,200,947
Stores on hand and in transit as determined and certified by the management and valued at not more than cost - - - - -	16,652,825	17,969,516
	<u>\$ 66,480,533</u>	<u>\$ 51,424,606</u>

NOTES—

- (1) The above consolidated balance sheet is expressed in terms of United States currency.
- (2) The current assets and liabilities of the operating companies in Brazil were valued at the closing sight rate for exchange on New York.
- (3) The current assets and liabilities in Canadian dollars and in sterling were valued at the official rates for United States dollars.
- (4) The transfer of cash balances is subject to the exchange regulations of Brazil, Canada and the United Kingdom as the case may be.
- (5) The funded debt expressed in sterling has been converted at U.S. \$4.86 $\frac{2}{3}$  to the £.
- (6) Total commitments outstanding for construction, equipment, etc., at December 31, 1949 were approximately \$13,500,000.
- (7) In January 1950, the following 3 $\frac{1}{2}$ % Collateral Trust Bonds due January 1, 1974 were issued in connection with the loan from the International Bank—
  - Series A \$21,273,000 (U.S.)
  - Series B \$ 2,729,000 (Can.)
  - Series C £273,500.

\$571,284,343

\$516,388,035

CONSOLIDATED BALANCE SHEET

AS AT DECEMBER 31, 1949

(WITH COMPARATIVE FIGURES AS AT DECEMBER 31, 1948)

LIABILITIES

	December 31 1949	December 31 1948
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 - - - - -	98,816,727	80,502,535
	<u>\$278,568,357</u>	<u>\$260,254,165</u>
Shares of Subsidiaries in Hands of Public - - - - -	<u>\$ 1,684,193</u>	<u>\$ 1,684,193</u>
Funded Debt:		
The Rio de Janeiro Tramway, Light and Power Company, Limited		
5% 50 year mortgage bonds (April 1, 1958)—balance after sinking fund redemptions (£1,641,870) - - - - -	\$ 7,990,433	\$ 8,922,683
5% 22 year bonds (October 1, 1950) (£271,349) - - - - -		1,320,563
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 (£774,740) - - - - -	3,770,401	4,121,093
	<u>\$ 15,760,830</u>	<u>\$ 18,364,335</u>
International Bank for Reconstruction and Development		
Sinking fund loan maturing January 1, 1974 - - - - -	\$ 75,000,000	
Less amounts undrawn - - - - -	\$ 50,076,841	
Reserves and Provisions:	<u>\$ 24,923,159</u>	
Provision for depreciation (including depreciation of physical assets of subsidiaries not consolidated) - - - - -	\$118,636,657	\$111,157,847
Provision for amortization (including sinking fund reserves) - - -	50,825,038	48,571,296
General reserves - - - - -	11,896,850	12,439,483
Provision for contingencies - - - - -	32,301,453	22,687,881
	<u>\$213,659,998</u>	<u>\$194,856,507</u>
Current Liabilities:		
Accounts payable and accrued charges - - - - -	\$ 26,877,092	\$ 31,662,795
Consumers' deposits (per contra) - - - - -	4,960,642	4,207,068
Liability for 5% 50 year mortgage bonds of The Rio de Janeiro Tramway, Light and Power Company, Limited drawn for redemption in 1949 - - - - -		331,894
5% 22 year bonds of The Rio de Janeiro Tramway, Light and Power Company, Limited—maturing October 1, 1950 (£271,349)	1,320,563	
Sharewarrant and bond coupons payable, dividend cheques outstanding and accrued interest on funded debt - - - - -	3,529,509	5,027,078
	<u>\$ 36,687,806</u>	<u>\$ 41,228,835</u>
On behalf of the Board:	<u>\$571,284,343</u>	<u>\$516,388,035</u>
HENRY BORDEN, } E. C. FOX, } <i>Directors.</i>		

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

STATEMENT OF CONSOLIDATED PROFIT AND LOSS

FOR THE YEAR ENDED DECEMBER 31, 1949  
(With comparative figures for the year ended December 31, 1948)

	Year ended December 31 1949	Year ended December 31 1948
Gross earnings from operations - - - - -	\$123,884,473	\$101,945,202
Interest on temporary investments - - - - -	153,249	121,541
Other miscellaneous income - - - - -	327,979	111,824
<b>Total revenue - - - - -</b>	<b><u>\$124,365,701</u></b>	<b><u>\$102,178,567</u></b>
<i>Less:</i>		
Operating expenses including provision for taxes - - - - -	\$ 79,113,245	\$ 63,754,132
Provision for depreciation - - - - -	8,843,419	8,136,196
Provision for amortization - - - - -	1,000,000	1,000,000
<b>Total operating expenses, depreciation and amortization - - - - -</b>	<b><u>\$ 88,956,664</u></b>	<b><u>\$ 72,890,328</u></b>
Net profit before bond interest, sinking funds and other financial charges - - - - -	\$ 35,409,037	\$ 29,288,239
<i>Less:</i>		
International Bank Loan carrying charges - - - - -	\$ 1,164,277	
Bond Interest - - - - -	926,658	\$ 1,262,229
Sinking funds and other financial charges - - - - -	953,029	939,768
Financing expenses - - - - -	606,270	
<b>Total interest and other financial charges - - - - -</b>	<b><u>\$ 3,650,234</u></b>	<b><u>\$ 2,201,997</u></b>
<b>Net profit for the year - - - - -</b>	<b><u>\$ 31,758,803</u></b>	<b><u>\$ 27,086,242</u></b>

(1949—Remuneration of directors (excluding executive officers) \$17,521; remuneration of counsel, solicitors and legal advisers including payments by subsidiary companies \$384,778; remuneration of executive officers including payments by subsidiary companies \$622,950.)

STATEMENT OF CONSOLIDATED EARNED SURPLUS

FOR THE YEAR ENDED DECEMBER 31, 1949

Balance December 31, 1948 - - - - -		\$ 80,502,535
Net profit for the year ended December 31, 1949 - - - - -		31,758,803
		<u>\$112,261,338</u>
<i>Less dividends:</i>		
Preference shares—paid in Canadian funds		
\$6.00 per share - - - - -	\$ 23,604	
Equivalent in United States dollars - - - - -		\$ 22,542
Ordinary shares—paid in Canadian funds		
\$1.00 per share paid June 1, 1949 - - - - -	7,027,216	
\$1.00 per share paid December 15, 1949 - - - - -	7,027,310	
	<u>\$14,054,526</u>	
Equivalent in United States dollars - - - - -		<u>13,422,069</u>
Balance December 31, 1949 - - - - -		<u>\$ 98,816,727</u>

NOTE—The above Statements of Profit and Loss and Earned Surplus are expressed in terms of United States currency.

*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, 1949 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 the accounting records of the companies. We have obtained all the information and explanations which we have required.

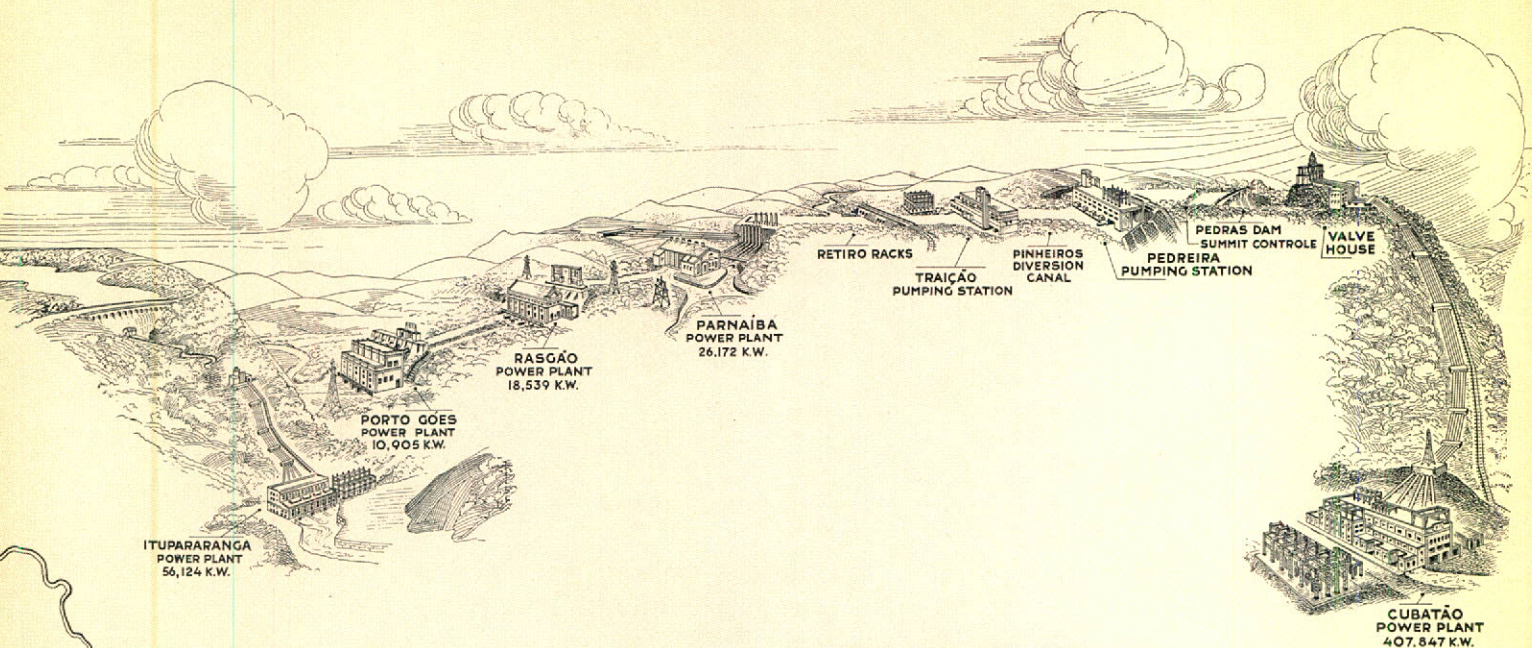
The aggregate profits and losses of subsidiaries, the assets and liabilities of which are not included in the consolidated balance sheet, have been fully provided for in the statement of consolidated profit and loss.

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, 1949, 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 25, 1950.

*Clarkson, Gordon & Co.*

Chartered Accountants.

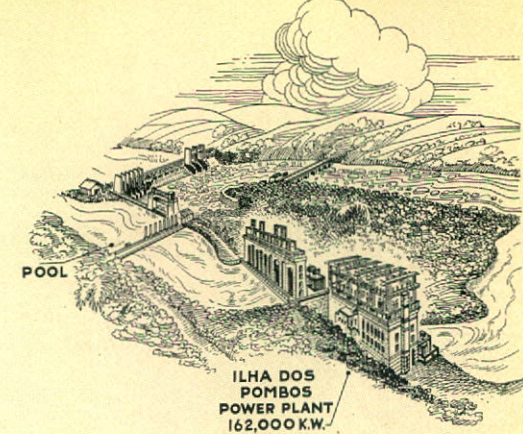
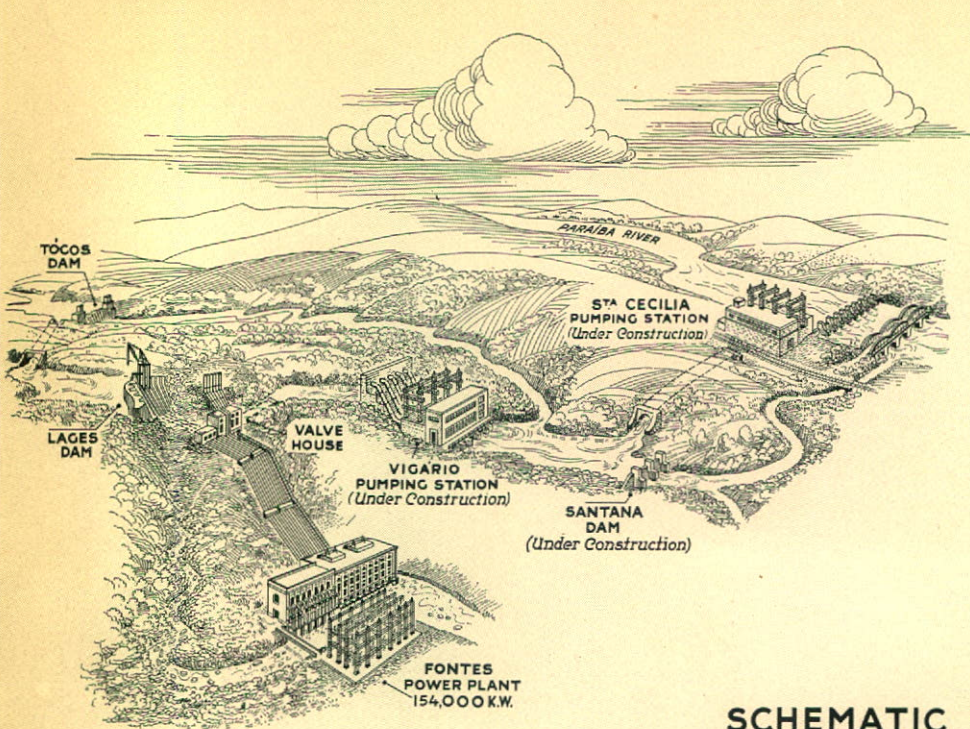


**SCHEMATIC PROFILE**  
**ITUPARARANGA - TIETE RIVER - PINHEIROS DIVERSION CANAL**  
**AND**  
**CUBATÃO HYDRO-ELECTRIC DEVELOPMENTS**  
**THE SÃO PAULO TRAMWAY LIGHT & POWER CO LTD**

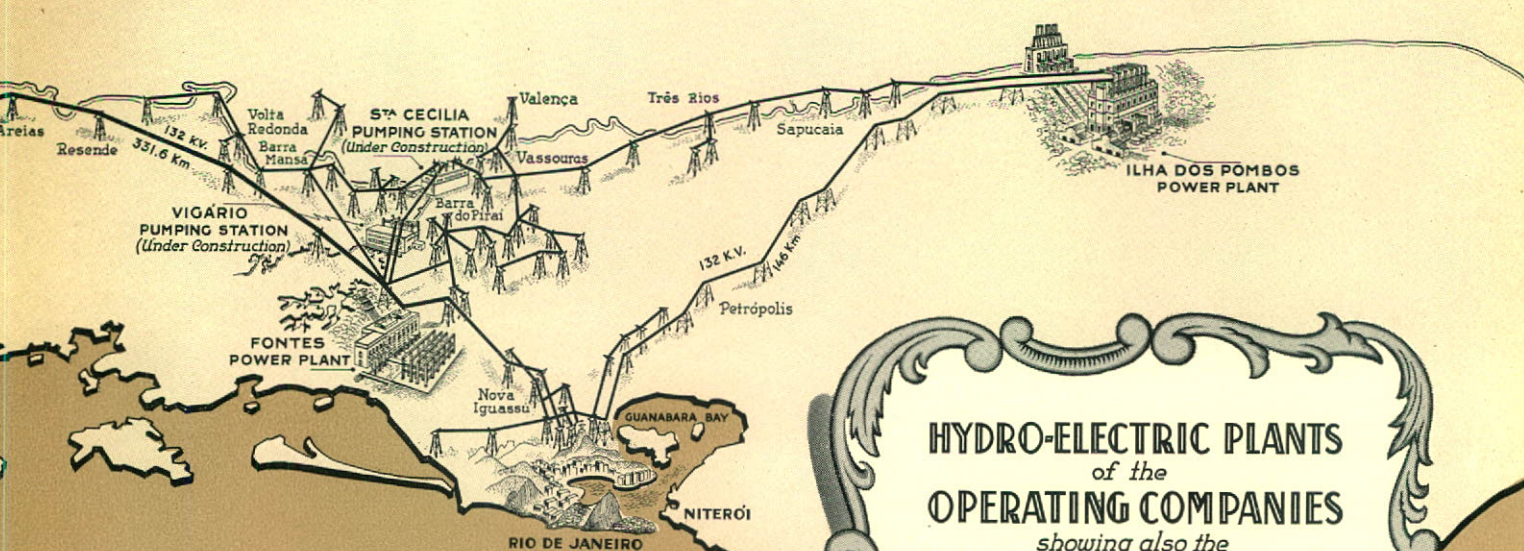


ATLANTIC



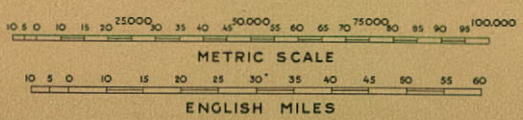


**SCHEMATIC PROFILE**  
**PARAÍBA-PIRAÍ DIVERSION - ILHA DOS POMBOS**  
**AND**  
**LAGES HYDRO-ELECTRIC DEVELOPMENTS**  
**THE RIO DE JANEIRO TRAMWAY LIGHT & POWER CO LTD**



**HYDRO-ELECTRIC PLANTS**  
*of the*  
**OPERATING COMPANIES**  
*showing also the*  
**PUMPING PLANTS, RESERVOIRS**  
**AND MAIN TRANSMISSION LINES**

CEAN



JOAQUIM MENDES

GOIÁS

MINAS

MATO GROSSO

SÃO PAULO

PRES. PRUDENTE

PARANÁ

ARAGUARI

UBERLÂNDIA

UBERABA

ARAXÁ

ICEM

FRANCA

S. JOSÉ DO RIO PRETO

BEBEDOURO

S. SEBASTIÃO DO PARAÍSO

JABOTICABA

RIBEIRÃO PRETO

GLICÉRIO

ARARAQUARA

S. CARLOS

POÇOS DE CALDAS

TUPÁ

S. JOÃO DA BOAVISTA

OURO FINO

MARILIA

BAURÚ

JAÚ

PIRACICABA

ITAPETINGA

BOTUCATU

CAMPINAS

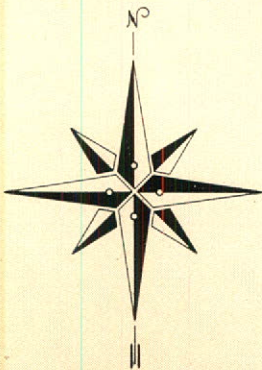
TIETÉ

SOROCABA

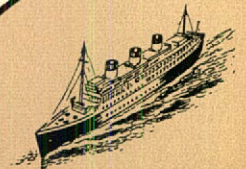
S. PAULO

SANTOS

JACAREÍ



JOAQUIM MENDES





# GERAIS

# ESPIRITO SANTO

CURVELO

COLATINA

PITANGUI

BELO HORIZONTE

NOVA ÉRA

DIVINÓPOLIS

VITÓRIA

FORMIGA

OURO PRETO

PONTA NOVA

ALEGRE

CASTELO

LAFAIETE

CARANGOLA

CACHOEIRA DE ITAPEMIRIM

VARGINHA TRÊS CORAÇÕES

BARBACENA

UBÁ

MIMOSO DO SUL

CAMBUQUIRA

CATAGUAZES

MIRACEMA

SAFRA

JUIZ DE FÓRA

MORRO DO CÔCO

CAXAMBÚ

TRÊS RIOS

CORDEIRO

CAMPOS

ITAJUBÁ RESENDE

VOLTA REDONDA

RIO DE JANEIRO

TERESÓPOLIS

CRUZEIRO

CONNECTION WITH WORLD HIGH RADIO SERVICE

PETRÓPOLIS

TAUBATÉ

FEDERAL

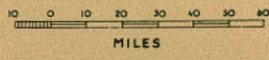
RIO DE JANEIRO

NITERÓI

ATLANTIC OCEAN



## BRAZILIAN TELEPHONE COMPANY'S SYSTEM



# S T A T I S T I C S   O F   C O M B I N E D   C O M P A N I E S

	1945	1946	1947	1948	1949
<b>Electric Light and Power</b>					
Kilowatt-hours Sold - - - -	2,606,418,262	2,825,522,186	3,092,006,765	3,482,345,144	3,874,529,061
Capacity of Generating Plants (kw) -	662,570	662,570	757,466	822,271	867,265
Total Connected Load (kw) - - -	1,725,853	1,839,043	1,984,920	2,196,454	2,420,935
Total Consumers - - - - -	694,957	731,751	768,014	811,338	858,981
Transmission Lines (miles of circuit) -	2,091.33	2,069.31	2,335.31	2,411.36	2,472.60
Distribution Lines (miles of wire) - -	35,332.60	36,759.23	38,506.54	40,441.27	42,637.49

## Telephones

Total Number of Telephones in Service	305,889	325,893	349,492	380,260	398,396
Average Daily Calls - - - - -	5,531,667	6,159,054	6,465,860	7,028,629	7,511,988
Wire Strung (miles) - - - - -	1,512,224	1,545,874	1,652,254	1,690,833	1,761,209
Pole Lines (miles) - - - - -	8,044	8,268	8,543	8,769	9,041

## Gas

Gas Sold (Cubic metres) - - - -	152,175,571	166,081,567	176,426,486	193,199,198	209,585,858
Total Consumers - - - - -	178,108	181,746	190,513	205,439	220,089
Mains Laid (miles) - - - - -	1,259.87	1,272.23	1,279.33	1,296.29	1,308.96

## Tramways

Total Track (miles) - - - - -	529.63	527.90	359.43	359.08	357.81
Rolling Stock:					
Passenger Cars - - - - -	2,066	2,081	1,508	1,517	1,517
Freight and Service Cars - - -	276	263	194	194	194
Car Miles Run - - - - -	74,788,706	74,712,732	60,806,628	48,365,538	48,003,247
Total Passengers Carried- - - -	*1,239,612,655	*1,162,589,794	*932,426,248	*747,193,332	748,281,956

\*Including bus operations discontinued in 1948.

## Water

Water Sold (Cubic metres) - - -	13,007,566	13,275,009	13,976,733	14,521,631	14,871,658
Total Consumers - - - - -	24,625	25,312	26,101	27,289	29,137
Trunk Mains Laid (miles) - - -	37.68	37.76	37.67	37.66	37.66
Distribution Mains Laid (miles) - -	272.11	275.72	279.36	284.68	294.85







