

The General Electric Company in Brazil

Geiger, Theodor

Veröffentlichungsversion / Published Version

Monographie / monograph

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Empfohlene Zitierung / Suggested Citation:

Geiger, T. (1961). *The General Electric Company in Brazil*. (United States business performance abroad, 9). Washington: National Planning Association. <https://nbn-resolving.org/urn:nbn:de:0168-ssoar-90349-5>

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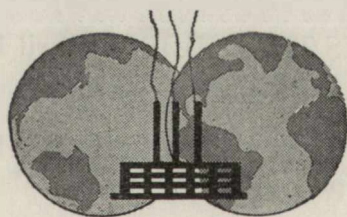
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THE
GENERAL ELECTRIC COMPANY
IN BRAZIL

(023)
(056)

by *THEODORE GEIGER*
with the assistance of *Liesel Goode*



NINTH CASE STUDY IN AN NPA SERIES ON
United States Business Performance Abroad

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Library of Congress
Catalog Card Number
61-9351

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1961 FG 2180



ACKNOWLEDGMENT

This Case Study was made possible in part by funds granted by the Carnegie Corporation of New York and by the John Hay Whitney Foundation. These foundations are not, however, authors, owners, publishers, or proprietors of this publication, and are not to be understood as approving by virtue of their grants any of the statements made or views expressed therein.





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Rio de Janeiro, July 19th, 1960

Mr. Charles J. Symington
Chairman, Policy Committee for NPA Case Studies
230 Park Avenue
New York 17, New York

Dear Mr. Symington:

I appreciate the opportunity of reviewing the draft of the "Case Study of the General Electric Company in Brazil," prepared under the auspices of the National Planning Association.

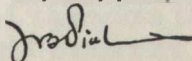
The issue of performance of foreign capital abroad, particularly of U.S. capital in underdeveloped countries or in countries in the process of development, as is the case of Brazil, is fraught with misinterpretations and distortions frequently leading to political confusion.

A study made by an independent organization such as the National Planning Association, focusing on the case of a company such as General Electric, represents a major contribution for the enlightenment of those who are really interested in getting at the core of the truth. Here is an instance in which a foreign company, in its 40 years of life, has brought into the country the benefits of its technology, introducing the production of essential items formerly imported and in many cases anticipating its manufacturing decisions to bring about production--not only to meet current needs, but future ones as well. Throughout its existence in this country, General Electric's activities have been guided and motivated by a challenging, pioneering spirit characteristic of its parent organization in the United States. It has endeavored to understand the human and industrial factors that underlie the growth of underdeveloped countries and was able to establish a successful and continuing basis of effective beneficial co-operation.

The study brings out these mutual benefits, dispelling the current misinterpretation that foreign capital necessarily implies the exploitation of one country by outside interests.

Please accept my heartiest congratulations for such valuable contribution toward a better understanding of this problem.

Very truly yours,



J. B. PINHEIRO

LUCAS LOPES

RIO DE JANEIRO

Mr. Charles J. Symington
Chairman, Policy Committee for NPA Case Studies
National Planning Association
230 Park Avenue
New York 17, New York

My dear Mr. Symington:

"The Case Study of the General Electric Company in Brazil" is an excellent piece of work, examining as it does intelligently and vividly a notable example of the success of a foreign investment in an underdeveloped country which requires besides capital, the incorporation into its economy of specialized techniques and managerial experience.

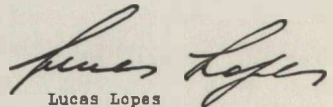
General Electric brought for its undertaking in Brazil the pioneering spirit that characterized its evolution in the United States. Here, in Brazil, it acquired a firm confidence in the future of this country, and learned to bind its development to the needs and objectives of our industrialization process.

The study of the National Planning Association describes the creation of a great industrial complex and shows how useful to an underdeveloped country can be the collaboration of foreign capital and techniques when these are capable of developing sensibility toward local problems that derive from the traits of peoples whose personalities are maturing towards self-assertion. In my opinion, this case study by the National Planning Association very effectively will contribute toward the mutual understanding of political and human problems that confront a major foreign enterprise here in Brazil which is struggling for rapid economic and social development. As the National Planning Association is a private, non-political organization representing each segment of the U.S. economy and independent of any government control, this organization would seem to be the ideal medium for explaining why General Electric has had successful operations in Brazil for the last 40 years.

The study is keenly analytical when dealing with the activities, policies, and practices of General Electric in Brazil. Finally, it is an excellent exposition of the great contribution that General Electric is rendering to the economic development of Brazil.

For all these reasons, both General Electric and the National Planning Association merit our applauses.

Rio de Janeiro, July 6, 1960.



Lucas Lopes

PREAMBLE

TO

THE GENERAL ELECTRIC COMPANY IN BRAZIL

WE RETURN ONCE AGAIN to South America for the ninth case study in our series of reports on U.S. Business Performance Abroad. In this study, we analyze the relationships between the giant of that continent—Brazil—and a giant of U.S. business—General Electric—to illustrate the distinctive ways in which responsibly managed U.S. enterprise can contribute to the economic and social development of our neighbors to the south.

Brazil is the fifth largest nation in the world in terms of size—two and one half times as large as India, but with a population only one sixth as great. South America, of which Brazil occupies one half, has only recently felt the strong impulses of industrialization. Like any other social institution, industry needs a favorable environment in which to grow, and patience has been a patent virtue for any foreign firm operating in South America. General Electric was one of the earliest U.S. companies to start industrial operations of any substantial size in Brazil. Although such operations did not begin until 1921, there had been a long history (since 1881) of market development prior thereto.

Energy producing operations are basic to the industrial growth of any country. As our author, Theodore Geiger, later emphasizes, the industrial innovator in an agrarian, raw-material exporting economy has to meet a particularly difficult set of problems. When such an innovator is the creator and manufacturer of highly sophisticated products and services—as, for example, General Electric—the task appears to be greatly magnified. Operations that more directly affect the consumer seem to be self-glamorizing, while those that contribute to the basic foundation on which industrialization can grow seem almost prosaic in the telling. Notwithstanding, our author gives us a lively story of the many ways in which GE has influenced the speed and extent of Brazilian industrialization, a solid base for free enterprise and democratic institutions.

As in other studies in this series, a number of experts in the host country were asked to review the report in draft. Grateful acknowledgment is made to two prominent Brazilian economists, Dr. Lucas Lopes, formerly Minister of Finance, and Dr. J. B. Pinheiro, Director of the National Bank for Economic Development, for their kindness in reading and commenting on the manuscript and for permission to print their letters to Mr. Charles J. Symington, Chairman of the NPA Policy Committee supervising this case study series.

Dr. Theodore Geiger is Chief of International Studies of the National Planning Association and has written several other reports in this series. Liesel Goode, his research assistant, prepared Chapter I and helped with other parts of the report. Dr. Geiger wishes to express his gratitude to General Electric officials in Brazil and the United States for their cooperation and for preparing the historical and statistical appendices.

Eugene W. Burgess

Eugene W. Burgess
Director of Research

January 1961

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THE
GENERAL ELECTRIC COMPANY
IN BRAZIL

by
Theodore Geiger
with the assistance of Liesel Goode

★

I.

Brazil—the Country
and the People

BRAZIL IS TODAY, like the United States a century ago, following its "manifest destiny" westward. Behind its nearly 5,000 miles of Atlantic coastline, with its teeming population, settled agriculture, modern factories, and spectacular concrete and glass cities, there stretches an immensity of rolling grassy plateaus and dense Amazonian jungles—larger than and potentially as rich as were the prairies and mountain valleys of our own great West in 1860. Symbol of Brazil's currently felt manifest destiny is its recently dedicated ultra-modern capital city of Brasília, built in only four years on an uninhabited, though fertile, plateau in the center of the inland state of Goiás, more than 600 miles from the sea.

Again, like our own West in the days of its early settlement, Brazil's vast western wilderness is today being pioneered by rough, tough and

dedicated men—and women—who are seeking their own and their country's fortunes by following the sun westward. The same types appear once again—the cowboy, the prospector, the miner, the trader, the surveyor, the settler, and the representatives of law and order. But there are significant differences, too. The antimalaria teams, the technical assistance missions, the highway engineers were unknown a hundred years ago. And today, the Brazilian-built jeep that is rapidly replacing the horse as the most efficient means of transport on the scrub-covered plateaus of Goiás and Mato Grosso, is likely to be carrying a General Electric salesman making the rounds of remote settlements and trading posts to supply their needs for such items as electric light bulbs, small motors, radios, and sometimes even domestic appliances.

Brazil is on the move today, not only in opening up its vast western territories but also in pushing rapidly forward into the stage of modern industry and of rising living standards. This simultaneous advance on two fronts taxes the country's available resources—human, technological, and financial. In such circumstances, the additional resources that can be obtained from other, more developed countries can be of significant help. Throughout Brazil's history, most of such additional resources have been provided by private foreign enterprises—both North American and European—in the form of direct investment in the development of the country's agriculture, mining, industry, commerce, and banking. These foreign-owned enterprises have invariably brought to Brazil not only financial capital but also technological and managerial skills and the facilities for enabling Brazilians to acquire them.

Among the foreign enterprises that have contributed importantly to Brazilian advancement in these respects, the General Electric Company has been outstanding. It was the first to establish in Brazil a manufacturing operation of significant size in an industry other than textiles and food processing. It has always been the leader not only in the training and education of Brazilians in modern industrial skills and management techniques but also in promoting Brazilians to the highest positions of managerial and technical responsibility once they have attained the required qualifications. And the diversification and expansion of its own manufacturing, marketing, and engineering activities over nearly half a century have both stimulated and been stimulated by the corresponding diversification and expansion of the Brazilian economy as a whole.

This report tells the story of Brazil's rapid economic advances in the 20th century and of the part played in them by a dynamic U.S.

corporation, the General Electric Company. In this chapter, the country and the people of Brazil are briefly sketched. The next chapter presents in outline form the origins and evolution of modern industry in Brazil. The succeeding chapters describe General Electric's operations in Brazil and analyze the specific ways in which they have contributed significantly to the country's advancement.

THE PHYSICAL SETTING

THE VAST, ROUGHLY TRIANGULAR LAND MASS that is Brazil—comprising nearly 3.3 million square miles—occupies half of the South American continent and has common borders with all other South American countries except Chile and Ecuador. The Atlantic Ocean bounds the country from northeast to southeast in a continuous sweep of nearly 5,000 miles, with the “bulge of Brazil”—which played such a vital strategic role in World War II—reaching toward Africa. Exceeded in area only by the USSR, China, Canada, and the United States, the country has a population of more than 65 million which is increasing at a rate of more than 2.5 percent a year.

Because of its enormous north-south span of almost 3,000 miles, Brazil's climatic conditions vary considerably. Over 90 percent of its area falls within the tropical and subtropical zones, but the high temperatures of the low latitudes are moderated in parts of central and northeastern Brazil by altitude, rainfall, proximity of the ocean, and prevailing winds. Only the south lies in the temperate zone, and here the change of seasons becomes more pronounced in contrast to the bulk of Brazil, where the passage of winter and summer is marked mainly by the alternation of dry and wet periods.

The heavy rainfall prevailing in much of the country has given Brazil one of the most extensive river systems in the world, with great potentials for shipping and hydroelectric power. However, the largest rivers—the Amazon and Paraná with their tributaries—flow for thousands of miles through forests and plains, too far removed from urban and industrial centers to be of much significance for present development efforts. Others, flowing through economically more developed areas, are broken by rapids and waterfalls in their descent from the central plateaus to the coast. And several that originate in the southeastern mountain ranges, almost within view of the sea, turn away from it to flow inland instead.

Only 3 percent of Brazil exceeds an altitude of over 3,000 feet, and 40 percent is less than 600 feet high. The greater part of the

country—57 percent—is composed of geologically ancient highlands that reach no great peaks but are crisscrossed by ridges, or *serras*, permitting mechanized agriculture only in the valleys. Along the Amazon River basin, the rise from the coast to the interior is gradual, while from Espírito Santo south to Rio Grande do Sul it is abrupt, with the great escarpment of the Serra do Mar rising steeply from the ocean. Brazil's highest mountain, the Pico da Bandeira, is in the northern part of this mountain chain.

Brazil's geological resources are far from completely known. Possibilities for the discovery of valuable minerals are considered good in an area of more than 1 million square miles, covered by a pre-Cambrian shield formation which is probably the largest in the world. Gold and diamonds played an important role in colonial Brazil, but despite this early start of the mining industry, the country's rich mineral resources (among them iron ore, manganese, bauxite, nickel, lead and zinc, silver, phosphate, magnesite, graphite, and semi-precious stones) have in the main still to be developed.

Petroleum has been found in quantity only in the coastal plain. Though its presence in the Amazon basin is established, even intensive drillings have thus far failed to produce it in significant volume owing to that area's extremely complex geology. The most substantial coal deposits are located in the southern states. However, the uneven distribution of Brazil's mineral wealth—coupled with the inferior grade of coal deposits and their distance from iron ore mines—have been a hindrance to fuller development.

Only a small proportion of the available land is cultivated; much of it is used for grazing or else is occupied by brushland and dense jungles. The most prevalent method for clearing land is by slashing and burning—that is, by setting fire to trees and underbrush. This system of "fire agriculture" disposes of weeds and brush for only a short time and has no regard for conservation of soil or timber. And, since in general primitive tools are used in farming, the entire process is enormously wasteful of labor and resources.

Brazil is composed of five distinct socio-geographic regions:

THE NORTH, encompassing the highlands of Guiana and the vast domain of the Amazon River basin, covers almost half of the country, though it contains only little more than 3 percent of Brazil's population. The rain-drenched, equatorial forests of the Amazon valley—abounding in broadleaf evergreen trees, luxuriant vegetation, and animal life—stretch from the foothills of the Andes to the lowlands of the river's estuary in a steadily narrowing band. These forests are

broken only by the river network which, in the words of Louis Agassiz, forms "a fresh water ocean, dividing the land" and provides the chief means of communication for the region. The Amazon itself is navigable for ocean-going ships almost to the Peruvian border.

The Amazon valley's economy, basically dependent on raw materials production, chief of which was the gathering of wild rubber, suffered a severe setback with the rise of plantation rubber in the East Indies shortly before World War I. Amazonia's rubber production at present is insufficient to meet Brazilian demands, and economic activities center on the growing of jute, Brazil nuts, medicinal herbs, lumber, cattle raising, and skins and hides. The recent large-scale exploitation of manganese deposits in the Amapá Territory—with the cooperation of the Bethlehem Steel Corporation—has been the area's major achievement in its resource development and, together with the expectation of finding petroleum in the Amazon region, has given new impetus to hopes of progress for the north.

THE NORTHEAST, situated in the "bulge of Brazil," forms a contrast to the hot and humid Amazon valley, for much of it is a semidesert scrubland where rainfall, on the whole, is insufficient and droughts occur intermittently. About 15.4 million people live in this region, which occupies 11 percent of the country and was one of the first areas to be colonized in the 16th century. The chief agricultural crops are cotton, sugar cane, corn, rice, and manioc; industrial activities include the production of carnauba wax, cottonseed oil, and salt by evaporation of sea water. Recently, Brazil's fishing industry gained new importance with the discovery of rich schools of tuna off the northeast coast, as well as through the successful canning and exporting of shrimp and lobster.

THE EAST includes, among others, the coastal states of Bahia, Espírito Santo, and Rio de Janeiro, and widens inland to encompass Minas Gerais. Here, in one seventh of the total area, lives more than one third of the country's population. Linking the coastal plateau with the northeast, the São Francisco River—often called the Brazilian Nile—flows parallel to the coast for more than a thousand miles before turning sharply eastward to the Atlantic. Its course is frequently broken by rapids and by the great Paulo Afonso waterfalls. In order to bypass these obstacles to navigation, the Brazilian government has constructed a railroad around them. And, in 1948, a government corporation began to explore the electric potentials of the falls, a step that has led to the construction of a giant hydroelectric installation and of power transmission lines to coastal cities, for which General Electric has supplied equipment.

Of major importance to the area are the production of sugar, coffee, cocoa, corn, rice, beans, tobacco, and the raising of cattle. Natural resources are abundant, although as yet largely undeveloped. One fifth of the world's known deposits of rich hematite iron ores are located here; other minerals found are manganese, gold, semiprecious and precious stones, and petroleum (in Bahia). The economic pattern of part of this region has gradually changed in recent years owing to the establishment of textile mills, cement plants, and steel mills. A fairly adequate transportation network—composed of railways and highways, though few roads are asphalted—does much to facilitate the transportation of goods from the hinterland to export points. Four of the country's most important ports are located in this area: Salvador (tobacco and petroleum); Vitória (iron ore and coffee); Ilhéus (cocoa); and Rio de Janeiro, which constitutes the main outlet for the products of Minas Gerais and the state of Rio. Three units of this geographic region alone—namely the states of Minas Gerais, Rio de Janeiro, and Guanabara (formerly the Federal District)—accounted for 31 percent of the national income in 1956. Indicative of the accelerated development of the east is the construction of Belo Horizonte, capital of Minas Gerais, a model city created in the wilderness on a site that was selected for its pleasant climate and natural beauty. Originally conceived as a political and cultural center for the area, it has long since assumed increasing importance for manufacturing, transportation, and commerce as well.

THE SOUTH resembles a vast plateau that is bordered by the Atlantic and, in the northeast, by the Serra do Mar, from which it slopes gently towards the lowlands of the Paraná basin, merging in the south with the rolling, grassy plains of Rio Grande do Sul. The climate is temperate and pleasant, except for the subtropical northern part, the warm and humid coastal plains, and the extreme south, where below-freezing temperatures are frequently recorded. The vegetation in the latter area changes from the semideciduous forests (composed of smaller trees, some of which lose their leaves during the dry winter season) of the Atlantic coast to the inland araucaria forest, which is formed by a variety of pine and broadleaf trees that resemble the pine-oak forests of the southern Appalachians.

This is Brazil's most prosperous area, and the four states of which it is composed—São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul—accounted in 1959 for 50 percent of the national income. Though they contain only one tenth of the country's geographic area, they have over one third of its total population. The contribution of

São Paulo alone to national income was 32 percent. In the south may be found the country's best transportation system—more than 9,000 miles of railways; here is located the great port of Santos; here grows the bulk of Brazil's coffee (close to 2 billion trees); and here cotton, sugar, rice, wheat, tobacco, tea, and fruit are produced in large quantities. Cattle and sheep raising is of economic importance mainly in Rio Grande do Sul. Commercially significant, too, are the Paraná pine, found in and widely exported by Paraná and Santa Catarina, and Brazilian tea (*herva maté*), consisting of the dried leaves of a species of holly which grows wild, requires no cultivation, and is exported chiefly to Uruguay and Argentina.

THE CENTRAL WEST is the other of Brazil's great underpopulated regions. Formed by the states of Mato Grosso and Goiás, it contains over one fifth of the whole country but only slightly more than 3 percent of its population. Its core is the enormous central plateau that is drained by rivers joining the Amazon in the north and the Paraná in the south. Lack of adequate transportation facilities has hitherto severely hampered the development of the central west. However, a marked westward shift of the population has occurred in recent years and is expected to gain momentum. It has been lent impetus by the rapid building of the spectacular new capital city, Brasília, in the state of Goiás, and facilitated by an accelerated highway construction program that links the area with both the eastern seaboard and the Amazon valley in the north (the new road to Belém in Pará cuts through the dense jungles for thousands of miles and is a feat of engineering). The grazing lands and salt marshes of the interior permit large-scale cattle raising, but only an insignificant portion of the total land available for cultivation is utilized. Iron ore and manganese have just begun to be developed by a subsidiary of the U.S. Steel Corporation. Rail transportation is inadequate, however, and relies on one railroad—the *Noroeste do Brasil*—which runs through the state of São Paulo westward across Mato Grosso to join the Bolivian railway system.

THE PEOPLE AND THEIR HISTORY

BRAZIL, WITH A POPULATION estimated at over 65 million in 1959, contains half of the people of South America and ranks seventh in population among the countries of the world. But, considering the vastness of the area, the population density is low:

15.8 persons per square mile (according to the 1950 Brazilian census)—compared with the 1950 U.S. census of 50.7—and estimated at about 20 persons per square mile in 1959. The distribution, reflecting the pattern of colonization, is still quite uneven, with seven eighths of the population clustering along the seaboard in about one third of the total available area. The growth in population over the last two decades has been estimated at about 2.5 percent per year. All but a small proportion of this growth is owed to natural increase.

In earlier times, however, immigration contributed importantly to the rise in population. Waves of immigrants from Europe (especially of Portuguese, Italians, Spaniards, Germans, and Poles during the 19th and early 20th centuries), and of Japanese since 1908, augmented a population that had its origin in three basic strains: the original Portuguese colonists, the native Indians whom the Portuguese subjugated, and the African Negroes who were imported as slaves. Portugal gave Brazil its language, its name, and the basic elements of its culture and traditions. But today, after more than four centuries of amalgamation, there has emerged a distinctive Brazilian culture and nationality in a land without substantial racial prejudices or color barriers.

Brazil was discovered in 1500 by the Portuguese navigator Pedro Álvares Cabral, who claimed the new land in the name of the King of Portugal. However, for a quarter of a century thereafter, Portugal did little to take possession of its new territory, its resources being directed instead toward developing its profitable spice trade with the Orient. Only when the French tried to capture the country did Portugal attempt to colonize this new territory—called *Brasil* after the red dyewood *pau brasil*—by donating huge tracts of coastland (*capitanias*) to Portuguese nobles, who were pledged to develop their holdings and to explore and Christianize the interior. Thus, the first clusters of population were established on the seaboard.

Unaided by the Crown, widely scattered, and surrounded by hostile Indians, all of these coastal settlements sooner or later failed, except two—Pernambuco in the northeast, where the first sugar cane plantations were established, and São Vicente in the south, which became the starting point for expeditions inland. Following Indian trails, bands of explorers (called *bandeirantes*) penetrated westward, founding outposts, some of which later became important towns, and stopping only when they reached the foothills of the Andes. Beset by Indian harassment, official frustration, and natural disaster, these expeditions nonetheless assured Brazil the possession of half a continent.

Economic progress came to a virtual halt from 1580 to 1640, while

Portugal was part of the Spanish empire and Brazil found itself attacked by the enemies of Spain. Growth was resumed again only after the restoration of Portuguese independence and the discovery of gold and diamonds in Minas Gerais, which brought a rush of settlers to the interior.

By the end of the 18th century, Brazil had become an important colony, comparable in civilized population and economic strength almost to Portugal itself. Though the colonial policies of the Crown were fairly enlightened, the local governors often failed to carry them out and sharp resentment became widespread. By 1789, a growing nationalism, stimulated both by the achievement of independence by the United States and the return of intellectuals and students educated in France, culminated in the first—and unsuccessful—movement for independence at the close of the century.

A new era began for Brazil in 1808, when Prince Regent João established his family and court in Rio de Janeiro to escape the Napoleonic invasion of Portugal. The ports were opened to foreign trade, ending a monopoly that had been jealously guarded by Portugal for over 250 years, and commerce, science, and the arts flourished. But, as the machinery of government became more elaborate, new taxes were imposed to meet these growing expenses and to stem the progressive devaluation of the currency. After Portugal regained its independence from France in 1815, Brazil became a kingdom under the Crown and the seat of the monarchy until 1821, when King João VI returned to Lisbon, leaving his son, Dom Pedro I, to govern Brazil as regent.

One year later, in 1822, Brazil declared its independence as a reaction against the efforts of the Portuguese court to reduce Brazil again to the status of a mere colony. There was no bloodshed or violence, and Dom Pedro I continued as head of government with the title of emperor. But his reign was short-lived, as his despotic inclinations soon clashed with the liberal tendencies of the Brazilian leaders. In 1831, he was forced to abdicate, and his infant son succeeded him as Emperor Dom Pedro II. A constitutional monarchy, approved by the people, was founded on the model of Great Britain.

Under Dom Pedro II, Brazil enjoyed nearly six decades of stable and generally enlightened government. Indeed, it was one of his government's most progressive measures which was an immediate cause of the empire's fall. The abolition of slavery in 1888—by decree of his daughter while the emperor was away from Brazil—combined with the economic aftermath of a costly war with Paraguay (1865-70), deprived Dom Pedro's regime of one of the foremost bases of its pros-

perity. The empire crashed and the republic was proclaimed in 1889.

The new republic adopted a democratic constitution based on that of the United States. The government, however, fell into the hands of local and regional bosses and the Army became an important political force. In 1930, a revolution put Getulio Vargas in power. He exercised dictatorial authority until 1945, when his regime came to an end—his resignation precipitated by the return from Europe of the Brazilian Expeditionary Forces, which had taken an active part in World War II on the side of the Allies in the struggle against dictators abroad. The Judiciary was then called upon to restore democratic government and the Chief Justice acted as President of Brazil until a new constitution could be adopted and new elections could be held. After the ensuing presidential term of General Eurico Gaspar Dutra (1946-51), Vargas was returned to office by a large majority in a free election. But, confronted with mounting opposition and corruption on the part of his closest collaborators, he committed suicide in 1954 before the end of his term of office.

In 1955, Juscelino Kubitschek de Oliveira was elected President after a campaign that stressed a comprehensive program of economic development. Taking as his slogan "50 years of progress in five years of government," he devoted himself to furthering the growth of the Brazilian economy by means of a specific "program of goals" in the fields of power, transportation, food, basic industry, and education. His support and encouragement of private enterprise attracted a heavy flow of foreign capital and stimulated an unparalleled industrial development in the country.

The 1960 presidential election was won by Janio da Silva Quadros, who polled an unprecedentedly large majority. President Quadros has committed himself to continue Brazil's extraordinary economic growth, but at the same time to overcome the country's inflationary and balance-of-payments difficulties. With an outstanding record for efficiency and honesty as governor of São Paulo, President Quadros is likely to achieve a more effective reconciliation of these conflicting objectives than Brazil has yet experienced.

GOVERNMENT AND FOREIGN POLICY

BRAZILIANS have an inherent sense of freedom. Even though they retained the monarchy after the declaration of independence, the people exercised the right to vote their own constitution, of which the first—in a series of five—was promulgated in 1824.

Since the establishment of a republic in 1889, Brazil has been essentially a democracy, with direct and free elections the rule, except during the years of the Vargas dictatorship. Though long an important political force, the Brazilian Army has nonetheless refrained from using its strength in the interest of the military, as has happened so frequently in other Latin American countries. Even the generals who became presidents of Brazil toward the close of the 19th century were chosen in free elections. And, beginning in 1894, civilian presidents were elected almost exclusively.

The constitution of 1946 established Brazil as a federation of 20 states, five territories, and the Federal District (city of Rio de Janeiro), but provided for a new Federal District to be established in the future as the seat of the national government. In accordance with a law passed in 1956, a new Federal District was established on April 21, 1960, on a tract of land ceded by the state of Goiás, on which the new national capital, the city of Brasília, was built. On the same day, the former Federal District became a new state—Brazil's 21st—named Guanabara, with the city of Rio de Janeiro its capital.

The constitution guarantees freedom of religion, speech, press, and assembly, and reaffirms the principles of universal suffrage and the secret ballot. Providing for the separation of power among three departments of government—the legislative, executive, and judicial—it vests the legislative power in the national Congress, composed of the Senate and the House of Representatives. In the Senate, there are three representatives from each state and the Federal District, while the House representation is proportional to population. The President, as head of government, exercises the executive power; he is elected for a five-year term and may not succeed himself. The Federal Judiciary is the only nonelective branch of government; it is composed of a permanent corps of magistrates admitted by competitive examinations at the entrance level. The members of the 11-man Federal Supreme Court are appointed by the President with the approval of the Senate.

The Brazilian states, too, have their own constitutions, state legislatures, and state courts. The Federal constitution limits the powers of the states in fiscal matters, foreign representation, and national defense.

There are many political parties in Brazil though only a few are national in scope. Despite their different names, their principles and programs are often quite similar. Center or right-wing in orientation are the Social Democratic Party, the National Democratic Union Party, the Christian Democratic Party, and the Liberator Party. To

the left are the Labor Party and the Social Progressist Party, which are often highly nationalistic and ally themselves with the leaders of the outlawed Communist Party in their vote-getting efforts. Although the political climate in Brazil has traditionally been conservative, the tensions created by economic problems, such as inflation, have contributed to an atmosphere of social uneasiness, which tends to lead to a leftward drift in politics.

Underlying Brazil's foreign policy has been the tradition of maintaining friendly international relations based on strict adherence to international law. A staunch defender of equality of rights among the countries of the world, Brazil was a member of the old League of Nations and is a founding member of the United Nations. With its successive constitutions condemning war and enjoining arbitration as the means of settling international disputes, Brazil has consistently sought to follow these principles in the settlement of boundary questions inherited from a time of ill-defined borderlines in South America.

In both world wars, Brazil was an ally of the United States. In World War II, its troops fought in Italy, while its Navy helped in keeping the South Atlantic clear of enemy submarines. Allied military bases established on Brazilian territory and Brazilian supplies of strategic materials contributed significantly to the war effort.

One of the major tenets of contemporary Brazilian foreign policy finds expression in "Operation Pan-American," launched by President Kubitschek. Because it firmly believes that political instability and Communist infiltration can be largely attributed to underdevelopment and poverty, the Brazilian government has been a leader in rallying the Latin American nations in this joint effort designed to promote the internal development of their countries and to keep pace with the progress of other areas. Among the first important results of this cooperation were the creation of the Inter-American Development Bank and the streamlining of the Organization of American States—the latter aimed at enabling the Organization to render in the economic field services comparable to its achievements in the political sphere.

Throughout its history, Brazil's relations with the United States have been consistently friendly and have been characterized until very recently by a total lack of resentment or anti-U.S. feeling. During many regional and world crises, the two countries have stood together, with Brazil often assuming a conciliatory role in smoothing out differences between other Latin American nations and the United States.

The United States is Brazil's best customer, and the volume of

private U.S. investment in Brazil is exceeded within the Western Hemisphere only by that in Canada and Venezuela. Brazil has received extensive credits from the Export-Import Bank and maintains an excellent record of repaying its obligations. Cooperation between the armed forces of the two countries is extensive, with some standardization of equipment.

Political and economic relations between the two governments continue to be good. However, nationalistic sentiment has been increasing in Brazil in recent years. In the main, this is an inevitable reaction to the economic and social dislocations caused by the profound transformation through which Brazil is now passing. Such problems are not likely to be solved quickly or easily; indeed, they may well become more serious in the future. Inflamed by Communist propaganda, Brazilian nationalism tends to blame the United States for the disruptions caused by Brazil's own efforts at economic advancement, and it attributes to alleged U.S. ill will Brazil's own inability to match popular expectations of immediate improvements with actual economic achievements. While informed Brazilians reject such Communist charges of U.S. responsibility for Brazil's problems, it cannot be denied that the United States has tended to be somewhat indifferent in recent years to the economic difficulties of this southern good neighbor. In part, this neglect has been owed to an understandable preoccupation with critical Communist threats in Europe and Asia. However, greater U.S. interest in and concern for Brazilian progress would help to reduce the appeal of anti-U.S. propaganda in Brazil.



Brazil is the largest of the Latin American countries and one of the most democratic, dynamic, and progressive in the Western Hemisphere. Its rich natural resources and its energetic and growing population give it the potentiality of eventually achieving a greatly improved standard of living for all of its people. If the economic and social disruptions of the transition period can be weathered and if democratic political institutions continue to be strengthened, this possibility can become a reality.

II.

Development of Manufacturing Industry in Brazil

IN THE PAST TWO DECADES, the Brazilian economy has grown more rapidly and substantially than during the preceding four centuries of the country's existence. True, there have been boom periods in the past, when the incomes of certain groups in the society expanded more rapidly—from sugar cane in the 17th century, gold and diamonds in the 18th century, cotton and coffee in the 19th century, wild rubber in the early years of the 20th century. But the permanent benefits which the country derived from these earlier booms were small. Most of the wealth they generated was soon dissipated in consumption or in investments, abroad or at home, which had little impact on the country's productivity. For the first time in its history, Brazil is today acquiring permanent productive assets—both tangible factories and intangible human attitudes and skills—which will over time yield benefits many times their original cost.

Much research must still be done before the fascinating complexities of Brazil's economic history can be unravelled and the relative importance evaluated of the many different economic, social, and psychological factors involved. Nor is it possible in the brief compass of this study to present anything more than an impressionistic sketch of the origins and development of Brazil's current industrialization. Nonetheless, it may provide a background for the more detailed analysis of General Electric's operations and contributions in Brazil presented in the following chapters.

THE BRAZILIAN ECONOMY TODAY

IN THE PAST TWO DECADES, industry and related urban activities have grown substantially, yet Brazil is still an agrarian country. Over 60 percent of its inhabitants live in the countryside and obtain their livelihood in one or another branch of agricultural and related commercial and service activities.

Owing to Brazil's inflation and the complexities of its exchange rate system, it is difficult to give an accurate measure of the country's gross domestic product in terms of U.S. dollars. In 1949 prices, it was estimated at \$20.6 billion for 1959, which was about \$320 on a per capita basis. A more accurate measure than the absolute figures is the rate of growth over the past decade. Using 1949 as a base, Brazil's gross domestic product had risen to 176 by the end of 1959, an annual average rate of increase of almost 6 percent. On a per capita basis, the rate of increase has been about 3.5 percent.

The national aggregates conceal wide regional disparities. In 1957, for example, the state of São Paulo and the state of Guanabara (the city of Rio de Janeiro and its environs) accounted for nearly half of Brazil's total domestic income, although they contained only a fifth of the country's population and less than 3 percent of its area. Per capita domestic income varied from a low of \$62 in the state of Piauí on the northeast coast to \$680 in Guanabara, a range of over 10 to one. In general, the eight southern states—Espírito Santo, Minas Gerais, Rio de Janeiro, Guanabara, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul—accounted for close to 90 percent of Brazil's gross domestic income and 60 percent of the population, though they contained less than 20 percent of the country's total area. These states are today still the economic heartland of Brazil, producing the bulk of its agricultural and other raw materials as well as most of its manufactured products.

Within the economy as a whole, the biggest expansion has occurred in the industrial sector, which has increased well over 2½ times since 1949. This extraordinary growth has been owed to a high rate of capital investment, especially in the newer industries, such as automobiles, chemicals, consumer durable goods, iron and steel, pulp and paper, etc. Within the industrial sector, the two oldest branches of industry—textiles and food processing—have had relatively the smallest rates of growth. The major share in Brazil's capital formation has been owed to private investment, domestic and foreign. About 70 percent of all new capital invested in the postwar period has been provided from private sources, domestic and foreign.

These aggregative figures give an impression of the general dimensions of the Brazilian economy but cannot convey its qualitative aspects. The city of São Paulo—Brazil's main industrial center—is virtually indistinguishable from Cleveland, St. Louis, or Philadelphia in the variety and scale of its industrial plants, the complexity of its financial and commercial relationships, and the entrepreneurial vigor of its inhabitants. Judged by São Paulo, and to a much lesser extent

by the city of Rio de Janeiro, Brazil could already be considered an industrialized country. But, beyond the environs of these two cities, Brazil is only in the earlier stages of industrialization. This contrast is responsible for the wide disparity in income levels and reflects the past experiences of the different sections of the country and the distinctive characteristics of its agriculture.

THE ROLE OF AGRICULTURE IN BRAZILIAN DEVELOPMENT

THE PROCESS OF INDUSTRIALIZATION is always to a greater or lesser extent also a process of agricultural transformation. In most countries, agriculture—subsistence and commercial—is the seedbed out of which industry originally grows and is initially nourished. In many countries entering the first stages of industrialization, most—if not all—of the capital required for industrial investment may be derived in one way or another from agriculture or related commercial activities. An expanding commercial agriculture provides a large part of the initial market for the new domestic manufactures, as well as food for the swelling urban population and many of the raw materials needed by the new factories. As agricultural productivity rises, additional labor becomes available for industrial employment while the total level of agricultural output increases, or at least remains reasonably adequate for national needs. True, in the later stages of industrialization, the rural market becomes less and less important as urban areas grow in size and income. But agriculture often persists as an important source of additional labor for continued industrial expansion, and it usually remains a major supplier of industry's raw materials and of food for the urban population.

This ideal pattern is rarely achieved completely, except in a few classical examples, such as England and the United States. Nevertheless, to a greater or lesser degree, all agrarian countries moving through the successive stages of industrialization and urbanization exhibit some of these relationships.

The most frequent deviation from the ideal pattern is a lag in the growth of agricultural productivity. This may restrict the ability of the agricultural sector to provide cheap and abundant food and raw materials for industry and to contribute toward an adequate market demand for manufactured products. Lagging agricultural productivity may also cause other difficulties for the economy as a whole, such as balance-of-payments problems resulting from excessive dependence on imported food and agricultural raw materials or from failure to

earn sufficient foreign exchange through the export of agricultural products. Such a lag in the growth of agricultural productivity is what is usually meant by the imbalance between agriculture and industry in the economic development of many underdeveloped countries.

Though to a lesser extent than in some other countries, Brazilian economic evolution has always suffered from the consequences of certain characteristics of its agriculture, of which lagging productivity is one of the most important. Certain attitudes and practices established in the earliest days of Brazilian agriculture in the 16th century have persisted until the present. Both the large plantations—the *fazendas*—and the small commercial and subsistence farms—the *sítios*—have by and large been characterized by a bare minimum (if any) of capital investment in maintaining, much less improving, the productivity of the land, and by a maximization of short-term profits at the expense of continuing long-term returns. This “get rich quick” agricultural philosophy has been made possible in large part by the continuing availability of uncultivated land, by the boom prices periodically obtainable for successive commercial crops (sugar cane, cotton, coffee, cocoa), and by the relative abundance of cheap labor—first Indians, then African slaves, and later peasant immigrants from southern and eastern Europe and Japan. In part, too, it results from the nearly universal preference for large families and for consumption rather than investment, even when rural incomes are above subsistence levels.

Despite these characteristics, Brazilian agriculture has nevertheless been able to provide at least a minimum of the classical prerequisites for the start of industrialization. But, it has done so not solely or even mainly by the classical means of a rapid and sustained rise in agricultural productivity induced by a scientific revolution in agriculture paralleling the country's industrial revolution. Rather, Brazilian agriculture has been able to play the minimum necessary role in fostering the country's industrialization by virtue of its sheer size. That is, it has been the large increase in the total number of farming units over the past 40 or 50 years and the extraordinary profits earned by many of them in consequence of intermittent boom periods in world prices that have mainly provided the expanding raw materials, market demand, and capital accumulation needed for industrial growth. To a much lesser degree has the development of industry been fostered by the comparatively minor increase in the productivity and incomes of the individual farming units.

This does not mean that modern, scientific agriculture does not exist in Brazil or has not played a significant role in Brazilian economic

development. Quite the contrary. Today, there is a growing number of plantation owners and small farmers whose profit expectations have changed. Instead of seeking initially large but steadily declining profits from the shifting exploitation of successive plots of land by means of cheap labor, they now prefer the initially small but gradually increasing returns of fixed cultivation based upon the scientific preservation and improvement of soil fertility and the substitution of mechanization for uneconomic hand labor.

The Brazilian government is making efforts to accelerate the transition to scientific agriculture and is providing technical and financial assistance for this purpose. However, the capital costs are heavy, particularly for reviving land damaged by decades of unchecked erosion, depletion of minerals and humus, and deterioration of soil composition and structure. And traditional rural attitudes and practices change only slowly. Nevertheless, scientific farming has been spreading significantly in the past two decades and is responsible for most of the increases in agricultural productivity that Brazil has achieved. If and as the transition to scientific farming is accelerated, agricultural development will achieve a better balance with industrial growth and will be able to contribute more substantially to the country's progress.

ORIGIN AND EXPANSION OF BRAZILIAN INDUSTRY

TEXTILES WERE THE FIRST PRODUCTS to be manufactured on any significant scale in Brazil, as in many other industrializing countries. In the 1840s, the first cotton textile mills were established in the northeastern states, the oldest and then the richest and most populous part of the country. The center of Brazilian agriculture during the first half of the 19th century, these states produced large quantities of sugar cane and cotton by means of slave labor. Protected by a high tariff, a number of textile factories were established in the 1840s to supply coarse cotton cloth for clothing the labor force of the plantations and sacking for shipping the sugar and cotton crops abroad.

By the 1860s, the locus of Brazil's infant textile industry had already shifted to the newer and more rapidly growing states of southern Brazil. The spread of coffee and cotton production in the states of Rio de Janeiro, São Paulo, and Minas Gerais and the substantial profits earned from exporting these commodities provided the raw materials, the capital, and the domestic demand for addi-

tional and larger cotton textile factories in the cities of Rio de Janeiro and São Paulo. The freeing of the slaves in 1888 and the large-scale European immigration of the ensuing decades provided both a labor force for the new factories and annual increments to domestic demand for cotton textiles. It was during these years, and in consequence of the same stimuli, that industrial activity began to branch out from the textile field into the food-processing industries and light manufactures such as soap, glass, and paper.

The early decades of the 20th century continued to provide on a modest but expanding scale many of the prerequisites for additional growth, particularly in and around Rio and São Paulo. Large-scale immigration persisted until the 1930s, with many immigrants remaining in the urban centers, where they increased the labor force for the new factories. In addition, throughout this period there was a steady internal migration from the older and stagnating northeastern states to the more dynamic south-central and southern parts of the country. Most of the newly arriving immigrants from Europe and Japan, as well as the migrants from the north, spread out through the countryside of Minas Gerais and the states to the south of it, seeking employment on the expanding *fazendas* producing coffee, cotton, and livestock, or becoming small farmers either as tenants or on land of their own. During these years, too, the Amazonian rubber boom helped to generate some of the capital and foreign exchange needed for further industrial expansion.

World War I provided the first major impetus to the growth of Brazilian industry. The inability of Brazil's customary foreign suppliers to ship needed quantities of manufactured imports offered an opportunity for local production to become established. While the existing textile and food-processing industries continued to expand, enterprises began to be established for the first time in more advanced industrial fields hitherto dominated by imports. It was as part of this movement of industry into new areas that General Electric in 1919 began the construction of its first factory in Brazil. The expansion of manufacturing activities induced by World War I continued into the 1920s with the establishment of the first important iron and steel mills and automobile assembly plants.

Unlike its effects in the advanced industrialized countries, the great depression of the 1930s stimulated the further growth of manufacturing industry in Brazil. The collapse of the foreign markets for Brazil's chief agricultural exports—coffee, cocoa, cotton, sugar, animal and forest products, etc.—diminished Brazil's foreign exchange earn-

ings so drastically that the country could not afford to import even the limited quantities of many types of manufactured goods that the greatly reduced domestic market could absorb. Hence, with the protection afforded by drastic foreign exchange controls, a number of new enterprises were started, particularly in chemicals and metal products. For example, General Electric contributed to this depression-born industrial advance by initiating the manufacture of radios in Brazil.

However, it has been the last two decades that have witnessed the most significant and substantial development of Brazilian industry. The cessation of many manufactured imports during World War II and the balance-of-payments difficulties which plagued Brazil in the 1950s both helped to accelerate the growth of domestic production. The continued population increase, the steady westward expansion of agriculture in all of the southern states, and the continued migration from the north ensured ample supplies of agricultural raw materials and labor and a market for manufactured goods in the countryside which, though small in per capita terms, was substantial in total value. In consequence of these needs and opportunities generated during the past two decades, Brazil has been able to acquire a large-scale steel industry, particularly in the Volta Redonda complex, important new chemical and metal-working plants, and a substantial and diversified consumer durable goods industry.

The fastest growing additions to the domestic market in recent years have been the expanding populations of the metropolitan areas, not only of Rio and São Paulo, but also of such newer urban centers as Porto Alegre in Rio Grande do Sul and Belo Horizonte in Minas Gerais. Even the older and previously stagnant states of the northeast have revived economically in the postwar period, and industry has begun to grow again in its original home, especially in and around Recife and Salvador. The revival of the northeast has been aided considerably by the abundant electric power that became available through the harnessing of the Paulo Afonso falls on the São Francisco River in the state of Bahia.

This geographical expansion of Brazilian industry in the last two decades has been matched by an even more important expansion in depth of manufacture, so to speak. Not only has the number of factories risen substantially but the variety of products they make has increased enormously. Furthermore, in accordance with government policy, Brazilian industry has been rapidly taking a decisive step toward maturity by manufacturing itself—rather than importing—more and more of the components and complex subassemblies

required for making finished producer and consumer goods. Even before the adoption of this governmental policy, General Electric was one of the most important pioneers in this movement, as will be described in the following chapters.

PROBLEMS AND PROSPECTS OF BRAZILIAN INDUSTRY

AS A RESULT of the great expansion of the last two decades, Brazil today possesses factories making most of the main types of manufactured goods—even such advanced products as electronic components and equipment and the newest synthetics and pharmaceuticals. The prospects for future growth are good and would be even better to the extent to which existing problems could be overcome.

Availability of Raw Materials, Energy, and Transportation

Although large parts of Brazil have yet to be fully surveyed, it is clear that the country possesses many, if not most, of the industrial raw materials required to support continuing large-scale development of its manufacturing industry.

- Brazil has perhaps as much as one fourth of the world's known reserves of high-grade iron ore—some of it so high in iron content that it can be charged directly into steelmaking furnaces without the need for smelting.
- Other ores used in iron and steel production—manganese, tungsten, nickel, chromium, titanium, and other ferro-alloying metals and minerals—are found in abundance in various parts of the country. Except for manganese, their production has not yet been developed on a large scale.
- Recent discoveries of zinc, nickel, and lead have dispelled the common belief that Brazil was not well endowed with these non-ferrous metals.
- Excellent deposits of bauxite have been found in various parts of the country, particularly in the Amazon valley and the region near the Guianan border.
- So far, the country does appear to be deficient in copper and the known deposits are of very low grade.

Unless future explorations reveal coal and petroleum deposits not yet known, the fuel outlook for Brazilian industry is not as encouraging as that for metals. Coal is present in abundance in the southern states of Paraná, Santa Catarina, and Rio Grande do Sul. However, much of it is of such poor quality and has so high an ash and sulphur content that it must be burned locally, since its transportation to distant places is uneconomic. Although the country produces somewhat more than half of the coal consumed by its industries, a considerably larger proportion of the coking coal required for iron and steelmaking must be imported.

Since 1939, when petroleum was first found in Brazil, production has developed very slowly. For many years, exploration was inhibited by uncertainty as to whether the petroleum industry would be developed primarily by private companies or by the government. In 1953, a government-owned corporation—Petroleo Brasileiro S.A. (Petrobrás)—was established with monopolistic rights to produce and refine petroleum. Since then, Petrobrás has carried on a large-scale exploration effort, but new discoveries have fallen short of expectations and costs have been high. In consequence, Brazil continues to be a large-scale importer of crude petroleum, most of which is refined locally; imports of crude oil have grown each year from 375 thousand barrels in 1939 to 5 million barrels in 1959.

The inadequacy of domestic coal and petroleum has been, and continues to be, a major problem in the development of Brazilian industry. Nor has the growth of electric power been able to offset these deficiencies. Indeed, a persistent shortage of electricity has been a bottleneck in industrial development, particularly in the large and fast-growing industrial areas around Rio and São Paulo. New hydroelectric installations and power stations now under construction, or scheduled for the future, should help to alleviate the power shortage, though they will probably not eliminate it completely.

Perhaps the greatest physical obstacle to future industrial expansion in Brazil is the deficiency in transportation. As noted in Chapter I, the immense size of the country, the rugged terrain and great distances between important economic centers, and the absence of navigable rivers in the more advanced parts of the country have all militated against the establishment of an adequate network of railroads, inland waterways, and highways. In consequence, transportation costs within Brazil are inordinately high and limit access to the cheapest raw materials and to parts of the domestic market. Only air transportation has been reasonably adequate to the demand for passenger travel and for high-priority freight movements. Brazil

is now expanding its airports and navigational facilities to meet the needs of the new jet age.

Availability of Managerial and Technical Skills

Managerial and technical skills have also been in short supply in the Brazilian economy, although the country has not been as deficient in this respect as have many of its Latin American neighbors. Owing to the scale of its foreign trade since the late 18th century, Brazil had already developed a tradition of business entrepreneurship and acumen before World War I. Commercial and financial institutions in the seaport cities already contained a pool of executive, accounting, and clerical skills which could be drawn upon by the newly developing industrial enterprises in the 1920s and '30s.

Nonetheless, the more advanced managerial and most of the technological skills have had to be imported at every stage in Brazil's industrial growth. These have initially been obtained as an adjunct of private foreign investment and hence will be discussed in the last section of this chapter.

Labor Supply and Skills

As already noted, labor has in the aggregate always been available to meet the needs of Brazil's expanding industry, although shortages of particular skills have existed. Continuing adequacy of the labor force is a major prerequisite for the future expansion of Brazilian industry. This should not be an important problem in view of the high rate of population growth and the persistent internal migration from north to south and from the countryside to the towns. The attractions of urban living and the higher incomes available from industrial as compared with agricultural employment, where productivity is growing much more slowly, should ensure an adequate total labor supply for industrial expansion. Indeed, at times in the past and in the foreseeable future, the problem in Brazil may be an oversupply of unskilled labor in consequence of underemployment and unemployment both in the countryside and in and around the metropolitan centers.

Though the labor supply is likely to remain ample in quantitative terms, the high rate of illiteracy and the scarcity of skilled and semi-skilled workers continue to be significant impediments to industrial growth. To help overcome the shortage of skilled labor, Brazilian industry with the approval of the Brazilian government established a

nationwide institution known as SENAI (National Service of Industrial Apprenticeship) which combines general education with training in specific labor skills for growing numbers of young men. In addition, most industrial enterprises have some facilities for training unskilled labor for more advanced types of work. This is another field in which General Electric has been a major pioneer in Brazil.

Labor Legislation and the Labor Movement

The availability and productivity of the Brazilian labor force are also affected by the character of labor and social welfare legislation and by the peculiar nature of the Brazilian trade union movement.

Brazilian legislation provides for minimum wages, paid vacations, accident insurance, and retirement pensions, and regulates hours of work and the employment of minors and women. Employment practices are seriously distorted by the legal requirement of indemnity (severance) payments to workers discharged for reasons other than inefficiency or improper conduct on their part. Brazilian law requires that such workers receive one month's terminal pay for each year of employment. After continuous employment for nine and a half years, the worker obtains "tenure" and can be discharged only for "justified cause" after lengthy and involved legal procedures. In consequence, it is a common practice throughout Brazilian industry to discharge workers approaching their 10th year who are not achieving reasonably high standards of efficiency and good behavior.

The contemporary Brazilian labor movement originated in the early 1930s, when Getulio Vargas was dictator. Desirous of increasing popular support for his regime, while at the same time keeping the movement under careful control, Vargas decided to establish a trade union organization within the framework of the "corporate state" concept, which he was then trying to institute on the model of Mussolini's Italy. A *sindicato* can be formed whenever 30 percent of the workers in a particular factory or industry agree to join, and membership is permitted for many types and grades of employees which, in the United States, would be classified in the supervisory and managerial categories. The *sindicatos* are grouped into federations of related industries, which in turn were linked in three confederations covering, respectively, industrial workers, commercial employees, and transport workers. A fourth confederation for the professions was formed in 1953.

Until the death of Vargas in 1954, the government maintained close supervision over the trade union movement, approving candidates for elective office, controlling expenditures, and participating actively in the formulation of union policies and programs. In recent years, the trade unions have been given considerably more autonomy, but the government still maintains its legal rights of supervision and the Federal Ministry of Labor is still the single most influential force in the trade union movement. However, the *sindicatos* are guaranteed—and freely exercise—the right to strike.

The right of collective bargaining is also guaranteed by law to all trade unions. But the nature and extent of collective bargaining in Brazil differ substantially from those in the United States. In Brazil, the Federal government is an active participant in collective bargaining concerning wage rates, and such negotiations are generally conducted either on an industry-wide or on a nationwide basis, rather than directly between the individual employer and the local *sindicato*. For this and other purposes, the employers are also grouped into *sindicatos* of their own. Moreover, virtually all labor-management disputes and other problems that in the United States would be regarded as appropriate for local grievance procedures are not handled in Brazil through direct collective bargaining relationships but through the Federal government's Labor Courts.

These Labor Courts are of two kinds: local courts, to which individual workers, groups of workers, and *sindicatos* can bring their grievances against, and other matters in dispute with, particular employers; and regional courts, which have jurisdiction over industry-wide problems. The local courts have the power both to conciliate and to arbitrate and they make the authoritative interpretations of Brazil's complex labor and social welfare legislation. In consequence of the importance of the Labor Courts, there is very little direct contact between the *sindicatos* and the individual employers in their industries. Virtually all labor-management relations are conducted through the Labor Courts or between the employers' and the workers' *sindicatos*, with the active participation of the Brazilian government.

Only a relatively small minority of Brazilian workers participate actively in their trade unions, though all must pay the compulsory dues, or syndical tax, of one day's wages per year regardless of whether or not they are members of a *sindicato*. These funds are collected by the government and are allotted to the four trade union confederations for specified purposes. In addition, the *sindicatos* try to collect voluntary dues from members, but only a minority pay these regularly.

Though Communists are forbidden by law to hold office in Brazilian trade unions, the partial relaxation of government supervision in the last few years has permitted the election in some *sindicatos* of a number of crypto-Communists and fellow travelers. In consequence, these unions have begun to acquire a reddish tinge. However, most Brazilian unions are still anti-Communist, and are affiliated with the anti-Communist International Confederation of Free Trade Unions (ICFTU), whose Latin American regional office is located in Rio de Janeiro.

Inflationary and Balance-of-Payments Problems

Inflation is by no means a new phenomenon in Brazil's economic history. Since achieving its independence early in the 19th century, Brazil has experienced successive periods of inflation of greater or lesser severity. In the period since World War II, Brazil has been struggling with a new wave of inflationary pressures which has been in large part generated in the process of seeking to accelerate economic growth.

Brazil's current inflation is principally of the "demand-pull" type and in large measure takes the traditional form of an excess of purchasing power due to the expansion of credit and the printing of a great deal of new money by the government. Large budgetary deficits have been incurred, particularly during the 1950s, in order to finance a level of government expenditures well in excess of revenues.

- Some of these expenditures have been for purposes which contribute directly or indirectly to the economic advancement of the country—roads, harbors, hydroelectric installations and power stations, investment in new industries and plants, agricultural development, schools and hospitals, and so forth.
- Another substantial portion of government expenditures has been to pay for the construction of the new capital city of Brasília and for the transportation, communications, and other facilities needed to serve it.
- Finally, considerable sums have been spent each year in subsidies to coffee growers, whose nonexportable surpluses are bought by the government at prices sometimes even in excess of the world market price.

These three types of expenditures over and above the swelling costs of ordinary government operations have been responsible for a large part of Brazil's postwar inflation. The other major contribution has been the increase in the credit extended by banks and other financial

institutions. While the government has imposed ceilings on bank credit in recent years, it has also been concerned not to hinder economic growth by excessive stringency of credit.

In effect, the inflationary movement in the postwar period has both stimulated and harmed Brazil's economic development. There is no question that it has enabled the government to undertake public works projects, particularly in transportation and power, that have been essential to economic growth. Inflation has provided a means for obtaining the resources needed for these purposes in a way that may well have been socially more acceptable in Brazil than orthodox devices, such as an increase in taxes. At the same time, however, inflation has warped somewhat the direction of Brazilian economic growth and has thereby resulted in diverting resources to relatively less efficient or nonproductive purposes. And even efficient and productive investment has suffered from the depreciation of assets, the uncertainties and instabilities of costs, and the interruptions in the flow of raw materials, fuel, and other production factors which can be directly or indirectly traced to the effects of inflation.

The adverse consequences of the postwar inflation have been intensified by the related balance-of-payments difficulties from which the Brazilian economy has suffered in recent years. The collapse of coffee prices after the Korean War boom and the declines in the prices and volumes of other important Brazilian exports have limited the ability of the Brazilian economy to earn foreign exchange, particularly convertible currencies. At the same time, import requirements have remained high—capital goods to equip the new industries and public works, coal and petroleum to provide energy for industry and transportation, food to supply the deficiencies of Brazilian agriculture, and consumer goods, especially luxuries, to satisfy inflation-born domestic demand. In consequence, Brazil has had large balance-of-payments deficits which have been met by running down the country's monetary reserves and by large-scale borrowing from the U.S. government, international lending agencies, and private banking sources, particularly in the United States.

To meet this situation, the Brazilian government has devised an elaborate system of differential foreign exchange rates and controls over imports. This system is designed to discourage the import of goods considered nonessential and to encourage the production of certain types of exports believed to have promising possibilities as foreign exchange earners. Like the domestic inflation, Brazil's foreign exchange control system has both stimulated and distorted the country's industrial growth. Insofar as the differential exchange rates and controls

make the importation of many types of foreign manufactured goods inordinately expensive, the system has the same effect as a high protective tariff in encouraging the growth of new industries. However, in view of the high level of domestic demand for consumer goods, the system also helps to divert investment into light manufactures and other fields in which quick profits can be made. Thus, less capital is available for investment in basic industries and, particularly, in the transportation, power, and other public service fields essential to accelerated economic growth.

Whether the stimulus to economic development provided by Brazil's inflation and foreign exchange control system outweighs their adverse effects is a question that only time and the Brazilians themselves will decide.

Government Policies and Programs

Since the 1930s, the government of Brazil has been endeavoring to stimulate the country's economic development. Initially, these efforts took the form largely of protecting infant industries against foreign competition and providing a climate of investment conducive to the inflow of private foreign capital. In the postwar period, more comprehensive and active policies and programs have been adopted similar to those instituted in many other developing countries.

After considerable study, including numerous reports prepared in 1953-54 by the Joint Brazilian-United States Economic Development Commission, the Federal government's Development Council prepared in 1955 its first specific economic development program for the country covering all of the main sectors of the economy and the targets that would have to be reached in order to ensure a balanced economic growth. This program, periodically revised by the Development Council, provides a general guide to the Brazilian government and to private investors in accelerating the country's economic growth. The latest revision, entitled *Program of Goals*, was published in 1958.

Investment projects, both private and public, fitting within the scope of the program enjoy priorities for obtaining loans from the National Economic Development Bank or guaranties of loans obtained abroad to finance the import of the necessary capital equipment. Such financial assistance from the National Economic Development Bank may be as high as 60 percent of the required investment. Certain basic industries, however, such as electric power and steel, may obtain even higher proportions of their capital requirements from the Bank. In addition to providing direct loans and guaranties, the Bank

may also participate in the equity financing of new enterprises or it may underwrite the sale of their shares to private investors. The Brazilian government also invests directly in large-scale public works projects essential for economic growth, as already noted.

A new tariff law, adopted in 1958, has substantially increased the degree of protection of domestic industries and has, in effect, relegated imports to supplying the residual demand for many products in which domestic production is still insufficient.

THE ROLE OF PRIVATE FOREIGN INVESTMENT IN BRAZILIAN INDUSTRIALIZATION

BRAZILIAN INDUSTRY, from its inception, has benefited from direct private foreign investment. The earliest textile factories of the 1840s and '50s were financed in large part by British capital and their machinery, production techniques, and management skills were obtained from England. Indeed, in accordance with the universal 19th-century pattern, England continued to be Brazil's main external source of investment funds, capital equipment, and technical and managerial skills until the outbreak of World War I. It is important to note, however, that indigenous Brazilian capital participated from the beginning in financing the establishment of factories and related industrial activities.

Until World War I, European investors provided the overwhelming proportion of the foreign capital funds flowing into Brazil both for direct investment in railroads, public utilities, and manufacturing enterprises and for indirect portfolio investment in the bonds of the Federal, state, and local governments of Brazil. Since then, U.S. investment has predominated. During the 1920s, Brazil—like other Latin American countries—benefited from the avidity with which American investors purchased the foreign government bonds underwritten so enthusiastically by Wall Street investment banking houses until the stock market crash in 1929. In consequence, indirect portfolio investment far exceeded the volume of U.S. private capital available to finance new productive enterprises in Brazil during those years. Since the revival of U.S. private investment abroad after the depression of the 1930s, the overwhelming proportion of private U.S. funds flowing to Brazil has been for direct investment in factories and commercial and financial activities. Total U.S. direct private investment in Brazil is estimated to be in excess of \$1 billion.

With the rapid expansion of Brazilian industry in the post-World War II period, private foreign investment has become a smaller and smaller proportion of the total. Today, Brazilian investors or Brazilian government agencies own and manage most of Brazil's factories, financial and commercial institutions, transportation facilities, and related service establishments. Private foreign investment, particularly from the United States, continues to be an indispensable element in Brazilian economic advancement less because of its quantitative magnitude than because of its qualitative contributions. In general, the establishment of a new branch of industry and the introduction of new manufacturing and marketing techniques are owed to the initiative of experienced business firms from the United States and Western Europe. But once the new industry or technique is established, Brazilian investment in them soon follows.

Recognizing the benefits which the country has derived from responsible private foreign investment, Brazil has throughout its history endeavored to ensure conditions conducive to an inflow of private capital. Today, legislation and government policies affecting private foreign investment in Brazil are among the most liberal in the world. They provide:

- Unrestricted entrance and remittance of capital and earnings through the free foreign exchange market; special (favorable) rates of exchange for remittances of earnings on certain types of investments considered relevant to national economic development;
- Importation free of tariff duties of machinery and equipment deemed essential for national economic development, when brought to Brazil as capital transfers; low duties on less essential machinery and equipment for productive enterprises;
- Favorable exchange rates for importing fuel and raw materials not produced in the Brazilian economy;
- Access to government loans and other sources of credit to encourage the establishment and operation of productive enterprises relevant to national economic development.

Despite these and other government policies designed to encourage private foreign investment, there are certain difficulties and dangers confronting private foreign investors. In addition to the problems created by Brazil's persistent inflation and balance-of-payments difficulties, already noted, the complexities of the foreign exchange

system and the necessity for obtaining prior government approval for many types of transactions often result in long and sometimes costly delays occasioned by bureaucratic cumbersomeness and inertia.

Of greater concern, however, to many foreign investors is the upsurge of nationalistic feeling that has been occurring in the last few years in consequence of Communist infiltration into parts of the labor movement and the left-wing parties, and the political passions aroused by the 1960 presidential campaign. In addition, this increasingly vociferous nationalism has to some extent been fostered by certain Brazilian business interests who object to the favorable treatment extended to foreign enterprises in their particular fields. Should these nationalistic sentiments increase and translate themselves into significant discriminatory actions against foreign enterprises, the benefits which Brazil has been deriving from responsible private foreign investment for well over a century could be reduced to minor proportions.



In many important fields of industry, Brazil has made gigantic strides in the past two decades. In large measure, this is owed to the efforts of the Brazilian people to develop their own natural resources and to achieve a better life for themselves and their children. But, to a significant extent, it is also owed to the activities of business firms and private investors from the more industrialized countries of North America and Western Europe. The most outstanding of these companies have acted as catalysts in greatly accelerating the development process through their own innovating and pioneering activities. In the chapters that follow, this catalytic effect is analyzed in some detail as it can be observed in the operations of one U.S. corporation—the General Electric Company.

III.

GE's Activities in Brazil

THE INDUSTRIAL INNOVATOR in an agrarian, raw-material exporting economy has a particularly difficult set of problems to solve. What product should he start to make and when is the most propitious time? What must he do to develop the potential market? Will he automatically attract the necessary skilled and unskilled workers, or will he have to recruit them? Must he conduct extensive labor training programs? Will he be able to buy locally the raw materials and components he needs, or must they be imported? Can he meet the competition of imported products? These and many other problems must be overcome by the pioneering firm if it is to become a successful operation.

The history of the General Electric Company* in Brazil is the story of how one of the country's first and largest innovators met and overcame these problems. In essence, it consists of the gradual evolution of an originally simple importing operation into a set of highly complex and interdependent engineering, manufacturing, marketing, servicing, financial, training, and managerial activities. As each new activity was developed, and as the products made in Brazil increased in variety and quantity, the Company became more deeply integrated into the Brazilian economy and its contributions to Brazilian advancement became progressively more significant.

Had General Electric never come to Brazil, the manufacture of electrical equipment and appliances would eventually have been developed in that country on the initiative of other foreign-owned companies, or perhaps even of Brazilian entrepreneurs. As a matter of fact, other U.S. and European electrical manufacturing firms have followed General Electric by producing in Brazil, though in most cases after a considerable lapse of time. But, in Brazil, GE deserves the credit for being the pioneer in many types of economic activity

* Unless otherwise specified, the abbreviation "GE" will be used to refer to the Brazilian subsidiary, while the term "General Electric" will denote both the parent company in the United States and its wholly-owned subsidiary, the International General Electric Company, through which it controls its foreign operations.

and product lines. Through trial and error, and with the help of the parent organization in the United States, GE has surmounted most of the obstacles to industrial innovation in Brazil. In the course of its evolution, which is sketched in this chapter, the Company has worked out certain policies and practices which have provided helpful guides for other foreign-owned corporations and Brazilian-owned firms as well. These are discussed at greater length in the next chapter.

THE ORIGINS AND GROWTH OF GENERAL ELECTRIC

By the mid-1880s, the four main companies that later combined to form General Electric were already actively engaged in electric power generation, lighting, and transportation in the United States. They were the Brush Electric Company, the Edison Electric Company, the Thomson-Houston Electric Company, and the Sprague Electric Railway and Motor Company. Each had its beginnings during the period from 1877 to 1884, and each owed its existence to a different basic invention in electric power generation or use.

- First in point of time were the inventions of Charles F. Brush who greatly improved the original European-made dynamos and devised the earliest effective automatic action arc lamp system. Produced and marketed in 1877, initially by the already existing Telegraph Supply Company, Brush's inventions were soon taken over by a new corporation, the Brush Electric Company, which became a leader in the electrical generating and lighting field.
- More important was the formation in 1878 of the Edison Electric Company to sponsor Thomas A. Edison's efforts to invent a useful and practical incandescent lighting system. These bore fruit on two memorable days and nights in October 1879, when Edison's carbonized cotton filament glowed for over 40 hours before burning out. The special dynamo, perfected by Edison to meet the power needs of the new incandescent system, enabled the Edison Company early in 1881 to build a power station and install wiring and fixtures for incandescent lighting in over 900 buildings on Manhattan Island. By the end of the decade, Edison incandescent systems for interior lighting had been installed in many of the nation's larger cities.
- Meantime, the arc lamp still predominated for outdoor lighting. The largest manufacturer of such equipment was the Thomson-

Houston Electric Company, formed in 1883 to produce and market the inventions of Elihu Thomson and Edwin J. Houston, two Philadelphia science professors. In addition to developing a greatly improved dynamo and arc lamp system, this brilliant team pioneered some of the earliest and best electric transformers, motors, control devices, watt-hour meters, resistance welding machines, and switching and protective equipment. These and many other products were soon being manufactured by the enterprising Thomson-Houston Electric Company.

- Frank J. Sprague, another of the basic inventors, established the Sprague Railway and Motor Company in 1884. Its first major project was a street railway with an overhead wire power source in Richmond, Virginia. Sprague's trolley pole and electric motors were the most efficient of the many types of electrical equipment for street railways installed during the late 1880s. A less efficient type of trolley pole had already been patented by Charles J. Van Depoele, Sprague's leading rival in the street railway business. One of Van Depoele's earlier inventions, that of the first practicable carbon brush for the electric motor, had made possible the economical use of electricity for propulsion purposes in vehicles.

Pressures for combination among these companies mounted as each recognized the desirability of covering as much as possible of these rapidly expanding fields. In 1887, Thomson-Houston absorbed the Brush Electric Company and in the following year acquired Van Depoele's street railway business. It was in 1888, too, that Edison Electric merged with the Sprague Railway and Motor Company and thus extended its activities into transportation. The late 1880s saw the acquisition by both Edison Electric and Thomson-Houston of other smaller companies. In 1889, various Edison enterprises were combined to form the Edison General Electric Company.

By 1891, the stage was set for the final combination of these two remaining giants—a merger dictated as much by technical as by financial considerations. Both Edison General Electric and Thomson-Houston felt that their respective competitive positions required them to manufacture the full range of electrical products. But patent restrictions and other technical problems prevented either of them from achieving the most economical operation possible in all electrical fields. For example, Edison General Electric owned the incandescent lighting patents but could not install the alternating-current systems with which the incandescent lamp worked best. The basic transformer

patents needed for an efficient alternating-current system were controlled by Thomson-Houston, who could not, however, manufacture incandescent lamps owing to Edison General Electric's patents. Parallel problems existed in transportation equipment and other electrical fields. After a year of negotiation, the two companies combined in April 1892 to form the General Electric Company.

The new Company was at its birth, and has continued to be, the largest and most dynamic manufacturer of electrical products in the United States. From its Edison Electric parent, it acquired the fruits of Thomas A. Edison's inventive genius and an ingrained conviction of the importance of research and development in a growing national economy. From its Thomson-Houston parent, the new Company inherited the efficient production methods and the aggressive marketing philosophy and organization which were owed in no small measure to the unusual managerial talents and business sagacity of Charles A. Coffin. A founder and president of Thomson-Houston, Coffin became General Electric's first president, an office which he held until 1913. Thereafter, he was chairman of the board until his retirement in 1922.

Under Coffin's firm and skillful direction, the Company successfully overcame the difficulties of merging into a single, unified organization the two rather different and individualistic corporate entities of which it was composed. Since then, General Electric has grown steadily, as shown in the following table of its sales volume and net earnings from 1892 to 1959:

<i>Year</i>	<i>Sales</i>	<i>Net Earnings</i> <i>(\$ millions)</i>
1892	11	3
1900	29	6
1910	71	11
1920	275	22
1930	376	57
1935	233	27
1940	456	57
1944	1,448	53
1950	1,960	173
1955	3,464	209
1959	4,350	281

During the same period, the Company's average yearly number of employees grew from 10 thousand in 1892 to 250 thousand in 1959; and

its stockholders increased from 3,200 in 1892 to 400 thousand in 1959. Today, General Electric operates 166 plants, which make over 200 thousand different products. These range from air conditioners and atomic reactors to ultrasonic generators and X-ray equipment and from tiny artificial diamonds to giant diesel-electric locomotives and steam turbine generators.

Over the past half century, General Electric has become well-known among major U.S. corporations not only for its financial success but also for its pioneering in scientific research and technological development, in employee welfare policies and practices, and in management and employee training and education programs. For example:

- Under such outstanding scientists as Charles P. Steinmetz, W. R. Whitney, William D. Coolidge, and Irving Langmuir, General Electric's research laboratories have made—and continue to make—major contributions not only to technology but also to basic science.
- In the field of employee welfare, the Company instituted one of the earliest and best-known pension retirement systems and finances various large-scale insurance plans, incentive compensation and savings arrangements, and other benefits.
- The Company's training and education courses are open to all employees and cover the main technical and economic fields of importance to its operations, including advertising, atomic development, chemistry, metallurgy, engineering, finance and accounting, manufacturing, marketing, physics, and public and employee relations. Its Management Research and Development Institute at Crotonville, N.Y., conducts regular courses in the leading aspects of business administration which are periodically attended by virtually all managerial personnel from General Electric's president to its most recently-hired junior executive.

In these three major fields, General Electric particularly exemplifies the motto, which it has made so familiar to the U.S. public: "Progress Is Our Most Important Product."

GE STARTS IN BRAZIL

GENERAL ELECTRIC'S PARENT COMPANIES were, from their inception, interested in selling their products outside the

United States, and both Edison Electric and Thomson-Houston licensed some of their patents for manufacturing in Europe. Thomson-Houston was particularly active in promoting sales in Latin America and after the formation of General Electric these efforts continued with renewed vigor.

Even before World War I, General Electric recognized the desirability of manufacturing its products in other countries in addition to intensifying its export business. The difficulties arising from the first World War, the growing complexities of international trade and payments, and the problems of developing manufacturing plants in many different countries combined to convince the Company that a separate, wholly-owned subsidiary should be established to supervise General Electric's varied activities outside the United States. Accordingly, the International General Electric Company was established in 1919 and has continued ever since to conduct the Company's foreign operations.

No one knows when products manufactured by one of the parent companies of General Electric were first imported into Brazil. As early as 1881, 60 incandescent lamps made by the Edison Electric Light Company were used to light the exhibits in an industrial fair held in the main hall of the Ministry of Public Works building in Rio. The city of Campos installed 30 Brush arc lamps and 2 steam-driven Brush dynamos in 1883 in the first power system in Brazil to provide electricity for public service street lighting. In 1892, the Thomson-Houston International Electric Company furnished dynamos and trolley cars to a company in Rio de Janeiro which established the first street railway in South America to operate on power from overhead wires.

It was in connection with Thomson-Houston's street railway contract in Rio that the first resident representative of one of General Electric's parent companies arrived in Brazil. James Mitchell, an electrical engineer, was appointed as the Company's agent and also served as a technical consultant to various Brazilian government ministries and private firms interested in the possibilities of electricity. When the parent companies merged to form General Electric, Mitchell was retained as the Brazilian representative of the new corporation. He also opened a branch office in São Paulo and arranged with retail shops there and in Rio for regular sale of General Electric products. Under his energetic direction, General Electric's sales in Brazil grew rapidly, limited only by the still meager supply of electrical power.

In 1898, James Mitchell relinquished the General Electric agency, which was transferred to the well-known Guinle family, long established in the importing, banking, and investment businesses in Brazil. The Guinle family—under various company names—represented Gen-

eral Electric until 1914. During this decade and a half, General Electric's sales of producer and consumer goods grew substantially. A large share of the equipment for the many new power plants and street railways constructed during those years was provided by the Company, and its lamps became the leading brand in Brazil.

So extensive had General Electric's exporting business to Brazil grown by 1914 that it became desirable for the Company to handle it directly rather than through a Brazilian agent. Accordingly, the Companhia General Electric do Brasil was incorporated in the state of New York as a wholly-owned subsidiary of the General Electric Company to take charge of its operations in Brazil. The new subsidiary opened offices in Rio and a few years later in São Paulo. Whatever uncertainty there may have been about the success of the new subsidiary was removed by the outbreak of World War I. Brazil's European suppliers of electrical equipment and appliances were soon heavily committed to their countries' war efforts. U.S. firms were the only manufacturers with substantial quantities of goods available for export, and among them General Electric was by far the largest.

The decade of the 1920s was a period of growth for Brazil. In the capital goods field, demand was particularly strong for the electrical equipment needed for new power plants, urban transit systems, and railroad electrification. Consumer demand for electrical appliances of all types also expanded. To meet the needs of these growing markets, and to enable itself to undertake manufacturing activities in Brazil, the Company took steps in 1919 to become a Brazilian legal entity. The New York corporation, Companhia General Electric do Brasil, was dissolved and its place was taken by the General Electric Sociedade Anônima (hereinafter referred to as GE), incorporated in Rio de Janeiro as a wholly-owned foreign subsidiary of the International General Electric Company.

Though GE's manufacturing activities in the country started in 1921, the sale of Company products imported from the United States and Canada provided the major part of its business until World War II. Since the 1940s, however, GE's manufacturing activities in Brazil have increased so rapidly that their output now far exceeds the volume of imported General Electric products sold in the country.

GROWTH OF GE's BRAZILIAN OPERATIONS



EVER SINCE THE 1880s, the variety and complexity of the electrical products sold in Brazil have enormously in-

creased. This growth and evolution have reflected the development of the Brazilian economy during the past three quarters of a century. At first requiring only simple electrical generating, transmitting, and illuminating equipment, Brazil gradually developed the need for elaborate hydroelectric installations with their associated power transmission and distribution systems; extensive urban lighting and transit systems; numerous electric locomotives, substations for electrified railways, and diesel-electric locomotives; and increasingly complex and diversified productive machinery powered or controlled by electricity. Over the same period, consumer demand for electric lamps and appliances also grew substantially in quantity and variety.

Whether as an importer or as a local manufacturer, GE has usually been both the first and the largest company contributing to the evolution in Brazil of an industrial economy based on electricity. In each of the three main types of electrical goods—lamps and illumination equipment, producer goods, and consumer products—GE has attained an impressive list of "firsts." After providing the first lamps, the first dynamos and generators, and the first street railway equipment, GE continued to be Brazil's major supplier of electrical goods through the decades from 1920 to the present. The electrical equipment for many of the important public utility, industrial, and transportation projects, which opened up Brazil's hinterland during those years, was supplied by GE. Similarly, the earliest electrical appliances, especially refrigerators, regularly marketed on a significant scale in Brazil were those which were first imported and later manufactured in the country by GE. A detailed chronology of the development of GE's activities in Brazil and their contributions to the country's economic growth will be found in Appendix I.

The Company first became interested in the possibilities of manufacturing in Brazil during World War I, which demonstrated the vulnerability of any country dependent upon imports of manufactured goods. By then, the growth of the Brazilian market for manufactured products had reached the point where domestic demand was likely to be sufficient to sustain some types of local industry.

At the end of the war, there was at least one General Electric product in this category—incandescent lamps. It was then, and still is, the Company product sold in the largest number of units in Brazil. Despite the wide variety of voltages in the country (even today voltages for lamps range from 6 to 250), lamps are a standard product and the adjustments required in the machinery to make the different sizes are comparatively minor. Hence, the economies of scale operated in favor of lamps becoming the first product to be made by GE in Brazil.

Accordingly, in 1919, GE purchased a tract of about 57 acres in the northern part of Rio, which contained some unfinished buildings originally intended for a match factory. GE modified the buildings for its own needs and constructed warehouses. Two years later, in 1921, the factory began to produce incandescent lamps. This was the first manufacturing activity of any significant size in the electrical field in Brazil.

The same considerations of growth of market demand and practicability of standardized repetitive production dictated the choice of the subsequent products to be manufactured by the Company in Brazil. It was not, however, until 1929 that these factors again combined to make possible the next substitution of Brazilian manufactures for imported goods from the United States. This commodity was the watt-hour meter, an essential measuring device of considerable precision, the demand for which grows directly with the number of purchasers of electricity. By 1929, there were enough new users of electricity each year to warrant the capital investment required to manufacture watt-hour meters in Brazil. In the same year, production started at the factory in Rio.

In 1930, the factory added another new department for the manufacture of transformers for power distribution. Thereafter, the great depression of the 1930s put a stop to further industrial growth until 1936. In that year, the first power transformers were produced in the Rio factory, the assembling of radio receivers was begun in a newly-purchased building in São Paulo, and a technical laboratory for testing and development was also inaugurated in Rio.

With the economic revival at the end of the 1930s and the approach of World War II, GE's manufacturing activities in Brazil expanded rapidly. In 1939, the lamp department was modernized with the installation of high-speed automatic glass bulb-blowing and shaping equipment. A 50-acre site was purchased in 1942 at Santo André, a suburb of São Paulo. In the same year, the Rio factory began the production of fluorescent lamps and also opened a new department to make circuit breakers, switchgear, motor control equipment, and disconnecting switches.

Although World War II greatly increased Brazilian demand for all GE products, no new lines of production could be added during that period in the Company's factories—except unit substations and metal-enclosed switchgear cubicles in 1944—owing primarily to the impossibility of obtaining the needed capital equipment. It was not until 1948 that additional General Electric products could be manufactured in

Brazil. These were welding electrodes and glass tubing for fluorescent lamps. In 1949, the newly-built factory at Santo André began operations with the production of integral-horsepower induction motors and DC arc welding sets.

The initial postwar expansion of GE's manufacturing activities reached a high point in 1951 with the starting at the new Santo André factory of an assembly line for domestic refrigerators. The production of some X-ray apparatus began in 1952. More recent additions to the lines of local manufacture have included: at the Rio factory—large high-voltage power transformers, a plant for the metallurgical reduction of Brazilian tungsten-bearing ores and the production of metallic tungsten in ductile form for the drawing of lamp filaments; 15-KV oil circuit breakers and 600-volt automatic air circuit breakers; and at the Santo André factory—vertical and special application squirrel-cage induction motors, including horizontal types up to 300 hp, oscillating fans, hermetically-sealed motor compressors for domestic refrigerators and their controls, and a wide variety of other producer and consumer electrical goods. The São Paulo factory, which began during the 1930s with the assembly of radio sets, and added television receivers in 1954, has since expanded its production to include portable transistor radios; standard, hi-fi, and stereophonic electric phonographs and radio-phonograph combinations; automatic flatirons; automatic waffle irons; and other appliances.

GE's local manufacturing activities will experience a major expansion in the next few years when a large new factory, now under construction near Campinas in the state of São Paulo, is completed and commences operations. To be devoted to manufacturing capital equipment, the Campinas factory will enable GE to produce increased quantities of the types of transformers, circuit breakers, switches, motors, and generators already being made in its other factories as well as to add many new and larger sizes and varieties of these and other producer goods, which have hitherto had to be imported. Thus, the opening of the Company's Campinas factory will mark another significant step forward in Brazil's industrial development.

Today, General Electric's Brazilian subsidiary is the Company's largest manufacturing unit outside the United States and Canada. In the postwar period alone, that is, since 1945, GE's total sales in Brazil have more than tripled, as has its number of employees, which has increased from two thousand to almost seven thousand, indicating clearly the rapidly growing share of locally-produced goods in the Company's total sales volume. GE continues to be Brazil's largest

manufacturer in total of electrical and related goods, and it has the most extensive and diversified output, though it is not the largest producer of every commodity it makes.

EXPANSION AND SPECIALIZATION OF GE'S OPERATIONS

IT HAS BEEN as a local manufacturer rather than as an importer that GE has made the deepest impact on the Brazilian economy. Any U.S. business firm that starts to manufacture its products in a foreign country inevitably becomes more concerned about the state of the market demand in its new location than it was before, when only a small fraction of its U.S. output may have been exported there. Manufacturing—particularly in the electrical and electronics industry—requires a sizable capital investment, which can be preserved and made remunerative only if the market can be developed for its output. In addition, a firm's production costs and methods must be sufficiently economical to enable it to sell its products at a price which the market can afford and which can meet the competition of imports. Hence, an enterprise that undertakes to manufacture its products abroad immediately becomes concerned with, and must actively engage in, a much greater and more specialized range of functions and relationships than does an importing firm.

It is by means of such a progressive diversification of activities involved in manufacturing that a foreign company has the most pervasive and profound impact on the economic growth of a developing country. And if, as in the case of GE in Brazil, the firm happens to be the first to engage in complex, advanced manufacturing on a significant scale, its influence is all the more important. Hence, GE's stimulation of Brazilian production of the materials, components, and subassemblies needed for its own manufacturing; its development of marketing and manufacturing organizations and techniques; its introduction of methods for financing wholesale and retail distribution; its ways of meeting competition and consumer resistance—these and other increasingly specialized activities, new to the country and which the Company had to institute in consequence of its decision to make its products in Brazil, need also to be briefly described.

Incandescent Lamps—An Example

Perhaps the best way to convey a picture of this increasingly complex diversification of activities is by means of an example. Incandes-

cent lamps were the first—and are still the largest in terms of units produced—GE commodity manufactured in Brazil. A summary of this product's development may serve to illustrate the general experience.

- The materials and components required to make incandescent lamps are comparatively few and simple: glass bulbs and stems, brass bases, tungsten filaments and supports. At the beginning, the Rio factory carried on an assembly operation using imported components; indeed, it was jokingly said that the only Brazilian product in these original lamps was the vacuum. But, as early as 1923, glass lamp bulbs were being blown in a new department of the Rio factory and brass lamp bases were being made, using imported brass or copper, by Brazilian suppliers, whom GE had helped to initiate this production. Thereafter, only tungsten wire for filaments, lead-in wires, brass for bases, and soda ash for glass-making continued to be imported.
- In 1948, machines were imported for drawing tungsten wire to the various sizes needed for filaments of incandescent lamps, although the wire itself was still purchased abroad. Finally, in 1954, production of ductile metallic tungsten wire made from Brazilian ore began at the Rio factory. In 1959, limited production of aluminum lamp bases was started to substitute Brazilian material for imported brass.
- Except for the tungsten wire, the skills needed to make and assemble the components of a finished lamp, though specialized, are not very difficult. But their acquisition was necessary and a logical first step toward the local manufacture of more complicated electrical and electronic equipment.

The groundwork laid and the lessons learned by producing lamps at the Rio factory helped make possible the subsequent introduction by GE of the manufacture of parts, components, and subassemblies for watt-hour meters, radios, and television sets, all of which required considerably higher engineering skills, more complex production equipment, and more difficult assembly and testing techniques. This advance has been especially important because, in the case of radios and television sets, many of these components are not produced in GE's Brazilian factories but are made by independent Brazilian manufacturers helped by the Company to learn how to make, and maintain the quality of, the products it needs. The significance of such technical assistance activities by GE will be discussed in Chapter V.

Of no less importance to Brazil has been the development of the marketing and promotional activities needed to sell GE's incandescent lamps after production started at the new Rio factory in 1921. Until the early 1920s, the Company had been content if its sales increased more or less directly with the growth of the Brazilian economy, and particularly with the expansion of electric power facilities. Thereafter, it was faced with the necessity of actively and imaginatively promoting its products if its investment in manufacturing was to be justified.

This necessity was made all the more pressing by the nature of consumer tastes in Brazil. As in most underdeveloped countries dependent upon imported manufactures, goods produced by domestic industries were generally regarded by consumers as of inferior quality—and, therefore, as less desirable—than imports from Western Europe and the United States. Though the lamps made in the Rio factory were identical with those produced in GE's factories in the United States, sales of the former lagged seriously wherever the latter were still available. Not only were retailers reluctant to stock the national product, but even GE's Brazilian salesmen made only half-hearted efforts to sell the output of the Rio factory so long as they could still take orders for imported GE lamps. In consequence, the inventories of finished lamps at the Rio factory increased alarmingly during late 1922.

An accident in 1923 gave the decisive impetus to the sale of lamps produced by GE in Brazil. Fire destroyed the Rio warehouse in which virtually all the available inventory of imported GE lamps was stored. GE's salesmen had to sell the national product or do no business at all. Thus, necessity produced the needed conviction and initiative. By the mid-1920s, lamps made at the Rio factory were widely accepted throughout Brazil as equal to the imported product.

Overcoming consumer resistance to GE's Brazilian-made lamps was a significant event in the country's economic development. Outside the already familiar field of textiles, this was the first national product manufactured on a substantial scale to supersede imported goods. And this achievement was all the more noteworthy because it was accomplished without tariff protection, direct or indirect governmental subsidies, or any other type of special competitive advantage.

Nonetheless, so firmly rooted has been the Brazilian consumer's conviction of the greater desirability of imported goods that the battle for acceptance of national products has had to be fought over again each time GE has introduced a new product line in its Brazilian factories. Of considerable assistance to the Company in these

efforts has been the growing prestige throughout Brazil of the GE brand mark. Brazilian consumers generally have tended more and more to regard it as a guaranty of high quality. In consequence, the GE label has helped importantly to foster consumer acceptance of national products.

Because each major group of products has its special manufacturing and marketing problems, GE has found it desirable to organize separate departments for them and to give each a high degree of autonomy, as described in Chapter IV. The Lamp and Illumination Department is responsible for the manufacture and sale of incandescent, fluorescent, and other lamps, lamp products, and lighting fixtures, and also for selling GE's technical and advisory services on illumination problems. Today, this department deals with approximately 200 independent wholesale lamp distributors and about 20,000 independent retail outlets handling GE lamps. Unlike its marketing practices in the United States, GE maintains direct contact with most Brazilian retailers as well as with the wholesalers. This situation reflects not only the fact that the network of wholesalers does not yet cover the entire country but also the inability of most wholesalers to provide the required sales guidance and assistance to their retail outlets. Consequently, GE has had to fill these gaps with its own personnel, who serve as zone sales promoters. Each has about 200 retailers within his zone whom he contacts regularly. While he usually does not sell any lamps directly to the retailers, he helps them with their display and other promotional work and advises them on competitive and technical problems.

Wholesale distributors are a comparatively recent development in Brazil—and one to which GE has made a significant contribution. Originally, like all importers of manufactured goods, GE dealt directly with retailers, usually helping them to start their businesses and often opening its own retail outlets until a Brazilian entrepreneur could be found to take over the operation. It was only when the lamp market reached a certain size that it became economical to differentiate out the wholesale distribution function. This began to occur during the late 1930s and has only grown to substantial proportions in the post-World War II period. The great majority of Brazilian firms now engaged in wholesale distribution of GE products were actively encouraged and helped to go into business by the Company.

Generally, wholesalers buy lamps from GE at 58 to 62 percent of the suggested retail price and receive 30 to 60 days' credit. However, credit terms usually range from 60 to 90 days in the more remote parts of the country where distribution from wholesalers to retailers

is slower due to inadequate transportation. In turn, the wholesalers sell to retailers at about 70 percent of the suggested retail price and on the same credit terms they receive from GE.

The main regions where GE's salesmen sell directly to retailers—and often to individual consumers—are the vast but sparsely populated states of Pará and Amazonas in the Amazon basin and the highlands of Mato Grosso. Salesmen in these zones have specially equipped jeeps which carry about one month's supply of lamps. In this wild country, the rare dirt road is the equivalent of a superhighway; most roads are only pairs of wheel tracks meandering through the bush. Yet, there are enough electrical installations powered by small steam and internal combustion engines, windmills, or waterwheels to warrant the expense of maintaining this sales force. The men of GE's interior sales section lead rough and adventurous lives, but there is apparently no dearth of Brazilians who are attracted to an existence analogous to that of the traveling salesmen in the "wild west" of the United States a century ago.

Well over half of GE's lamp sales are in the economically most advanced and heavily populated parts of the country—the states of São Paulo, Guanabara, and Rio de Janeiro, the southern part of Minas Gerais, and the northern portion of Paraná. The cities of São Paulo and Santos and their environs together account for more than one fifth of total lamp sales. In these heavily populated areas, the largest retail outlets for lamps are the food markets, as in the United States.

Other GE Products

In general, the manufacturing and marketing of other GE products in Brazil have presented similar problems, which have been overcome by similar methods. But there have been some significant differences. For example, the development of the Brazilian market for electrical appliances has been a slower and more difficult process than for lamps not only because of the former's substantially higher cost but also because of the consumer's relatively greater unfamiliarity with the benefits to be derived from most of the products involved. In effect, GE has had to acquaint Brazilians with the uses and advantages of each newly introduced appliance before demand could be depended upon to grow naturally. This active development of consumer tastes has been one of GE's most important contributions to higher health and living standards in Brazil; its significance will be discussed in Chapter V.

The market for appliances is even more concentrated in the states of Guanabara, Rio de Janeiro, São Paulo, and southern Minas Gerais than is the case with lamps and illumination equipment. GE's Consumer Goods Department—responsible for the manufacture, sale, and development of all appliance lines—does about three quarters of its total Brazilian business in these sales territories, in which nearly three fifths of its approximately 500 distributors are located. This concentration reflects the very large differences in per capita incomes and living standards between the Rio-São Paulo area and most of the rest of Brazil. In contrast to lamps, a demand for which exists even in low-income homes, most appliances can be afforded only by consumers with incomes large enough for them to be considered good credit risks.

Consumer credit has been one of the most important factors in the booming sales of appliances in Brazil since World War II. In accordance with government policy, Brazil has no consumer financing facilities available to the buying public through banks or other credit financing institutions. Hence, it has been necessary for the selling organizations—the retailers, wholesale distributors, and producers—to provide consumer credit to facilitate purchases on extended time terms. Cash sales to customers are less than 5 percent of the total because the incomes of the buying public (except for a comparatively small group of professional people, business executives, high government officials, shopowners, etc.) are too low to permit purchases other than on an installment basis.

The chain of credit extends back from retailer to wholesale distributor to producer, and in major part rests upon the manufacturing firm's access to commercial bank loans and upon its own financial resources. In periods when the Brazilian government's inflation control policy restricts commercial bank facilities, the flow of credit has to be reduced and appliance sales soon decline. At such times, the manufacturers generally try to offset in part these restrictive effects by lengthening their credit terms to distributors and retail dealers. However, their own financial resources are usually sufficient only to provide the credit for slowing down, but not for reversing, a decline in sales.

Depending on the availability of commercial bank credit, GE's terms on appliance sales to wholesale and retail distributors may vary from as much as one year to as little as 30 days. Naturally, the Company prefers the shortest possible credit extension. But the necessity of maintaining sales above the "break-even" point, of minimizing the dealers' hardships, and of meeting the growing competition

in the appliance market operates to lengthen GE's credit terms beyond the desirable minimum whenever government policy restricts the banks' credit facilities. GE's credit terms also vary with the cost of the appliance involved. The more expensive the product, the longer the consumer will take to pay for it; hence, the longer the chain of credit originating from the manufacturer.

Credit terms also vary somewhat with the size of the dealer. GE's five largest retail distributors in São Paulo account for nearly a third of its total sales in this territory. These large outlets, as well as the Mesbla firm in Rio, which is one of GE's biggest wholesale distributors, receive the longest credit terms when they need them to sell on long terms to consumers. However, these big organizations are generally also eligible for their own lines of credit at the commercial banks and are thus less dependent upon the manufacturer's credit terms. The fact that a substantial portion of GE's appliance sales is made through a relatively small number of large dealers enables the Company to be somewhat more liberal in its credit terms to the many small distributors.

Development by GE's Producer Goods Department of its local manufacturing and marketing operations has not entailed the creation of a distribution network as large or elaborate as in the cases of lamps and consumer appliances. This department sells both directly to customers and to wholesale and retail distributors. In general, the distributors handle such standardized mass-produced items as watt-hour meters, welding electrodes, welders, smaller sizes of standard integral horsepower motors, insulating varnishes, compounds, etc. Large transformers, large motors, switchgear, unit substations, and similar heavy electrical capital equipment are usually custom-made products, designed to meet specific application needs, and therefore are sold by GE direct to central station, industrial, and railway customers.

Diversification of production of large capital equipment by GE in Brazil has necessitated the evolution by the Producer Goods Department of another specialized function not nearly so necessary for mass-produced standardized commodities. This is the design engineering function. Formerly, such large, especially-designed electrical equipments produced as single items or in small lots were imported from GE's plants in the United States. In the last few years, GE's Brazilian engineers and skilled workers have been acquiring the experience and developing the competence necessary to design this special equipment and to produce it efficiently. As shown in Appendix I, production from GE's Brazilian factories—rather than imports

from the United States—now fills an ever-growing proportion of orders awarded to the Company for large, high-voltage transformers, power circuit breakers, motors, and other electrical equipment for new power stations and industrial enterprises.

RECENT DEVELOPMENTS AFFECTING GE'S POSITION IN BRAZIL

IN THE THREE MAIN FIELDS of electrical products—lamps and illumination equipment, consumer appliances, and producer goods—GE has been mainly responsible for initially developing the market and inaugurating the manufacture in Brazil of many of the constituent commodities. At the same time, the growth of the Brazilian economy and the example of the success of GE's efforts have opened the way for local manufacturing competitors, both foreign and Brazilian. Nevertheless, taking all three branches of production together, GE continues to be the recognized leader and largest producer of electrical goods in the country, with the absolute volume and value of its sales steadily increasing.

GE dominated the market for producer goods until the early 1950s. Since then, a number of leading European electrical equipment firms have started, or substantially increased, production in Brazil, and the Westinghouse Electric Corporation has licensed some of its smaller products for manufacture by Brazilian firms. In consequence, competition has in recent years become much keener in the equipment field. For example:

- Today, quite a number of firms in Brazil manufacture transformers, but most of these companies are very small and make only a few smaller sizes for strictly localized markets. GE has retained about one quarter of the total market for transformers, including imports of very large high-voltage or custom-made units. However, the latter are being rapidly displaced by increasingly large locally-made transformers, produced both by GE and by others in Brazil, who are encouraged by government policies that protect home industries through customs duties levied on imported products as soon as local manufacturers can produce them.
- The competitive situation is somewhat different in the electric motor field. GE enjoys about one third of the total market (in-

cluding imports) in sizes up to 150 hp. Its chief competitors are Arno (a large local company) and two smaller Brazilian firms, Búfalo and Motores Brasil. In addition, there is considerable competition from the larger sizes of imported motors produced by European companies.

- In watthour meters, GE has had only one small Brazilian competitor, producing with European know-how, but the Italian firm of Galileo is now beginning to manufacture watthour meters in Brazil. Imports, especially from Hungary, have been considerable during recent years, but are expected to decrease when the government's policy of protecting local manufacture through import duties becomes effective in this field.

Until the post-World War II period, GE's only lamp competitors were firms in the United States, Europe, and Japan, who exported their products to Brazil. In consequence of the prestige of GE's brand name, this competition was not serious. However, in the past decade, two European firms and one Brazilian company have begun to manufacture lamps in Brazil. Nevertheless, with the vigorous growth of the lamp market during this period, the absolute volume of GE's lamp business has continued to expand as new specialty lines and the sale of components have been added to make up for the percentage of the market going to competitors. At present:

- A little more than half of the lamps sold in Brazil are made by GE.
- The well-known N.V. Philips Gloeilampenfabrieken of the Netherlands has captured over one third of the market by vigorous and expensive selling efforts which—among other activities—involve supplying more than 12,000 retail outlets directly by means of its own fleet of jeeps.
- The German firm of Osram enjoys around a sixth of total sales.
- The remaining few percent of the lamps sold are made by Marcicano, a Brazilian company.

Despite the fact that the local manufacturing activities of these three firms have meant more competition for GE, the Company has nevertheless helped them get production started. In the beginning, both Philips and Osram bought all lamp components from GE and merely assembled them into finished products, which bore their own brand names. Osram still buys all of its components from GE, but

Philips has been reducing its purchases as its own component production lines have gotten under way. Marcicano has a special arrangement with GE under which the latter supplies it with components for assembly by this Brazilian firm into the many special sizes and types of lamps not made by the three other producers.

GE's early efforts to acquaint Brazilians with the respective labor-saving, sanitary, and entertainment advantages of electric irons, refrigerators, fans, radios, television sets, and other appliances have borne ample fruit in the past decade, not only for the Company itself but also for other appliance manufacturers, both foreign- and Brazilian-owned. Until the 1950s, GE's main competition was from imported appliances, which did not constitute a serious threat owing to small volume and excessive price. However, once the growth of consumer incomes and GE's promotional work had created a substantial and rapidly increasing demand for consumer durable goods, other manufacturers began to enter this attractive new market. So enterprising have some of these newcomers been that in the case of refrigerators their sales now exceed those of GE. For example:

- By 1959, about 30 percent of the market for refrigerators had been captured by a Brazilian firm called Climax, which makes a very low-priced product selling for one half the price of GE's quality models. Six other smaller Brazilian firms together accounted for another 15 percent of the market. The remaining 55 percent of the Brazilian market for refrigerators is shared among GE, Frigidaire (General Motors), and Brastemp, a Brazilian firm in which the Whirlpool Corporation owns a one third interest. These three manufacturers produce refrigerators comparable in serviceability and durability to those normally marketed in the United States. Of this quality market, Brastemp enjoyed about 15 percent, GE 15 percent, and Frigidaire 25 percent in 1959.
- More than 60 firms, mostly small Brazilian companies, assemble television sets, but the five biggest manufacturers account for 85 percent of the total. In 1959, GE was the largest. The quality market for TV receivers is shared among GE, Philco, and the Netherlands firm of Philips. Invictus, a Brazilian manufacturer of low-priced sets, was second in 1959 in volume of production.

The Company's attitude toward loss of its pre-eminent market position in some lines is significant. On the one hand, GE welcomed the advent of other manufacturers, particularly Brazilians, because of the greater security for private enterprise which results from a larger num-

ber of entrepreneurs. On the other hand, some of the new competitive factories, with the most up-to-date production equipment and techniques, were more efficient than GE's older plants. This situation led the Company to adopt and implement a more aggressive policy toward modernization and expansion of facilities and new marketing methods. The reorganization of GE in 1958, described in the next chapter, has helped the Company to meet the challenge of the growing competition from other manufacturers in Brazil.



Thus, GE's development of manufacturing and marketing in Brazil has had in many ways a far more significant impact on the country's economic advancement than has the Company's older and, before the end of World War II, more extensive importing activity. It has been as a concomitant of the Company's own manufacturing operations that GE has done the most to stimulate and assist Brazilians to become producers of materials, components, and subassemblies; to acquire advanced technological and managerial skills; and to develop a modern wholesale and retail distribution system.

Today, GE manufactures a wide variety of producer and consumer goods in Brazil and has ambitious plans for the future. Scheduled for introduction into its existing Brazilian lamp and appliance factories during the next year or two are sealed-beam lamps for automotive vehicles, fluorescent lamps for outdoor lighting, room air conditioners, washing machines, vacuum cleaners, electric toasters, skillets, and other appliances. In the producer goods field, vital to Brazil's further growth, the Company has launched a major expansion into large-scale manufacture of an extensive line of heavy equipment for electric power generation, transformation, distribution, and utilization.

It is sometimes said that the pioneering firm in industrial and technological innovation finds that the enterprises which later follow its lead take over the cream of the market it has developed. Despite the increasingly competitive situation that has emerged in Brazil in recent years, GE has maintained the industrial leadership it has held for over half a century. The Company's expansion program, its increasing integration into Brazil's industrial economy, and its farsighted policies and practices described in the next chapter provide assurance that it will continue to maintain its position of leadership in the future.

IV.

GE's Policies and Practices

WHEN A LARGE BUSINESS ENTERPRISE establishes itself abroad, the character of its foreign operations is inevitably the result of an interaction between the policies and practices developed in its home country and the expectations and limitations of the host country. Some U.S. corporations try inflexibly to reproduce in different cultural and economic environments faithful copies of their U.S. operations. More often than not, such a company satisfies neither its own requirements nor those of its host country. At the other extreme are U.S. companies which initially are, or in the course of time become, entirely assimilated to the cultures of their host countries. In such cases, the U.S. firm may win local acceptance by being indistinguishable in its policies and practices from indigenous enterprises. However, it is not likely to serve as an effective agent for transmitting to the host country those U.S. policies, techniques, and methods which could significantly hasten the process of economic growth.

In contrast, U.S. business firms which avoid these two extremes in their operations abroad have a much greater chance of becoming not only economically effective enterprises but also dynamic influences for economic progress in their host countries. Judged by its activities in Brazil, GE is an outstanding example of a company which has successfully adapted U.S. business policies and industrial techniques to the particular needs and capabilities of a different environment. In the United States, General Electric is well-known for having a distinctive management philosophy and set of basic policies. These lay great stress upon raising productivity and profitability by means of large-scale development and research, continuous improvement of management methods, fostering employee welfare, and very extensive employee training. But there are limits within which such policies and practices can be followed in an economically less developed country. Also, in countries where educational facilities and health conditions are inadequate and the labor force has little or no experience of industrial occupations, much greater efforts and ingenuity are required to achieve adequate standards of productive efficiency and employee welfare. Thus, GE has been confronted with the difficult task of

adapting its U.S. policies to Brazilian conditions and of devising new ways to achieve the standards required for its own business success as well as for the economic advancement of Brazil. This chapter describes the Company's achievements in these respects.

GE'S ORGANIZATION AND MANAGEMENT POLICIES

UNLIKE THE FOREIGN SUBSIDIARIES of some U.S. companies, GE's Brazilian organization has from its beginning been entrusted with a great deal of autonomy. The parent corporation recognized that its managers in Brazil must have the flexibility and freedom required to cope effectively with Brazilian conditions. Hence, they have always had full responsibility, within general Company policies, for making specific policy and operating decisions in Brazil.

Major policy questions have, of course, normally been referred to the appropriate top management personnel of the International General Electric Company in New York. These questions generally relate to financial matters—the profitability of the Brazilian operation, the remittance of earnings to the United States, the export of additional capital to Brazil, plant and product expansion in Brazil, and so forth. Also, International General Electric actively supervises the career development of GE's managerial and professional personnel, Brazilian and foreign, and selects or passes upon all officers and top-level managers of the Brazilian subsidiary.

In addition, there are close and continuous working relationships between the Company's U.S. and Brazilian organizations regarding the export to Brazil of General Electric's U.S.-made products; the solution of engineering, design, and production problems in the Brazilian factories; the provision of specialized technical and managerial assistance to the Brazilian organization; training in the United States of personnel from Brazil; and many other operating matters. The U.S. organization is also responsible for hiring, or assigning from its own staff, the small number of U.S. citizens employed in the Brazilian operation to fill specific needs.

GE's Brazilian operation was entirely reorganized in 1958. Following the policy instituted earlier by the parent Company in the United States, a decentralized structure and assignment of responsibilities were substituted for the previously centralized Brazilian administration. Formerly, GE was organized on a functional basis. Each of the main functions—engineering, manufacturing, marketing, employee relations, finance and accounting, legal, and other services—constituted

a separate department under its own general manager. The latter were in turn under the supervision of the top officials of GE's headquarters in Rio. Responsibility for ensuring interdepartmental coordination was centralized at the top management level.

Under its new plan, the Company is organized on a product basis. Each of the three main product groups is a separate, autonomous, and largely self-sufficient department. The Lamp and Illumination Department, the Consumer Goods Department, and the Producer Goods Department each have their own engineering, manufacturing, marketing, finance, and employee relations sections. Thus, the general manager of the Lamp and Illumination Department is responsible for designing, making, and selling GE's lamps and illumination systems. Formerly, the personnel working on each of these three functions reported to three general managers.

In addition, under the new plan there are divisions which provide the three operating departments with certain services that cannot be effectively decentralized, and which also assist the top management group at GE's Rio headquarters. These are:

- The Sales Branch Administration, which provides housekeeping and administrative services for GE's seven district sales offices in Brazil: Belo Horizonte, Curitiba, Porto Alegre, Recife, Rio de Janeiro, Salvador, and São Paulo.
- The Corporate Finance Operation, which handles the financing of the Company's activities and carries on the aggregative accounting and the independent auditing functions. For administrative convenience, the economic studies section, which undertakes the market research and forecasting work, is a part of this operation.
- The Legal Operation, which is responsible for interpreting government laws and regulations affecting the Company's activities, legal proceedings, and the supervision of contracts and other legal matters.
- The Public Relations Operation, which ensures uniformity of policies followed by the employee relations sections of the operating departments, supervises institutional advertising and promotional work, and prepares publications and reports issued by the Company in Brazil.

In consequence of this decentralized mode of organization, each GE installation in Brazil, depending upon its functions, contains activities and personnel which fall under the jurisdiction of one, two, or all three

autonomous operating departments. For example, while the Rio factory is mainly devoted to the production of lamps and illumination equipment, it also contains the production facilities for many lines of producer goods, such as transformers, switchgear, welding electrodes, and watt-hour meters; and for certain consumer goods, such as transformers for refrigerators. However, refrigerators as such are produced at Santo André; but so, too, are motors, arc welders, and other producer goods items. A big district sales office, as in São Paulo or Rio, will contain three large departmental groups of sales personnel, each reporting to the sales manager of one of the three different product departments.

GE's decentralized structure enables it to cope more effectively with the growing competitiveness of the Brazilian market. It should also make possible greater initiative and inventiveness in the expansion of manufacturing operations and in the development of new lines of related commodities not hitherto produced, since each department concentrates on its particular market potentialities. These benefits are, however, achieved at the expense of certain disadvantages of decentralization. The autonomy and self-sufficiency possessed by each of the three operating departments result in some duplication and additional costs. Each, for example, has its own payroll section in place of the centralized one which formerly served the entire Company. However, GE believes that such comparatively small additional costs are more than offset by the gains resulting from much more effective coordination at the working levels among the engineering, manufacturing, and marketing personnel concerned with each of the three major product groups. Similarly, at the top management level, a departmental general manager responsible for all operations from designing through sales and service has both the incentive and the power to integrate these activities much more closely than under the previous system. Experience already acquired under the new organization indicates that both productivity and salesmanship have improved significantly.

LABOR-MANAGEMENT RELATIONS

IF THE PRESENT ORGANIZATION OF GE in Brazil is an example of borrowing almost entirely the policies of the parent Company, the same cannot be said of GE's labor-management relations. Because of the special character of organized labor in Brazil, described in Chapter II, GE has had to devise wholly different policies

from those followed by its U.S. parent. Sometimes, this situation has meant that personnel transferred from the United States to Brazil have undergone a considerable reorientation during their first few months in the country.

As explained in Chapter II, direct relationships between companies and local unions are much less important in Brazil than in the United States. Hence, the major decisions affecting GE's labor-management relations are generally made at the industry-wide or national level, with the formal or unofficial participation of the government. And, even the Company's relations with the local *sindicato* are more often conducted through the Labor Court than they are in direct dealings with the union's officials.

Most of GE's workers are members of the Sindicato dos Metalurgicos e de Material Elétrico. This is one of the unions that informed and objective Brazilians believe has been penetrated by crypto-Communists and fellow travelers in recent years. It is impossible for an outside observer to determine if, and which of, the Sindicato's officers are in this category and the extent to which their commitment to communism is ideological rather than merely opportunistic in nature. Nevertheless, some indication of the Sindicato's present orientation may be seen in the fact that it has recently voted to maintain close contacts with the international metal workers affiliate of the Communist-dominated World Federation of Trade Unions (WFTU), though it has not yet joined the latter organization.

The president of the Sindicato expressed the view to the writer, when he was in Brazil, that GE was "no better or no worse" in its labor-management relations than the average corporation, whether Brazilian- or foreign-owned. At the time this study was completed, GE had no problems of major magnitude in its relations with the Sindicato, and there appeared to be widespread good will toward the Company among all grades of employees regardless of whether they were members of the Sindicato or not.

When the field work for this study was done, the only problem in dispute between the Company and the Sindicato arose from the fact that GE had recently raised the price of the subsidized meals served in its cafeterias and had instituted a small charge for fresh milk, which had hitherto been provided free. The Company continued to pay half the cost of the meals and maintained that, owing to Brazil's persistent inflation, it was justified in increasing slightly the price charged employees for the other half. This dispute was about to be put before the local Labor Court, but it was clear that the Sindicato did not have very strong feelings in the matter.

This absence of labor-management difficulties has not, however, protected the Company from criticism from the *Voz do Metalúrgico*, an unaffiliated labor newspaper published for workers in the metal-working industries. Written, to judge from its contents, by crypto-Communists and fellow travelers, *Voz* periodically makes sensational charges against GE, as well as against many other large employers, in an effort to discredit the Company in particular and to whip up anti-U.S. sentiment in general. Its stories, which are highly distorted and exaggerated misinterpretations of usually innocuous facts, seem so far to have had no discernible impact on the Company's employees or on Brazilians generally.

GE's labor relations in Brazil are, in fact, indistinguishable from those of most socially responsible Brazilian- and foreign-owned corporations. While GE's policies and practices toward the unions in Brazil bear little or no resemblance to General Electric's rather distinctive labor policies in the United States, they are well adapted to prevailing Brazilian conditions and practices. Similarly, the future problems that GE may have with the Sindicato are likely to arise less because of the Company's specific policies and actions than from the current general leftward drift of the Brazilian labor movement and the increasing seriousness of Communist penetration of the trade unions.

BRAZILIANIZATION

GENERAL ELECTRIC SOCIEDADE ANÔNIMA is a Brazilian company not only in name but also in the people who compose it. At all levels, the Company is staffed overwhelmingly by Brazilians. In no other respect has GE's success in adapting its policies to Brazil's needs and expectations paid greater dividends in good will among Brazilians generally.

While today many other foreign-owned companies follow a similar policy, GE was among the first in Brazil to initiate a program of deliberately encouraging and training Brazilians to qualify for all positions within its organization. At present, GE's managerial, supervisory, and technical personnel total about 500. Of these, nearly 90 percent are Brazilians; about 7 percent are U.S. citizens; and the remainder are of other Latin American and European nationalities. Of the 51 highest managerial positions in the Company, 35 are held by Brazilian nationals, 15 by U.S. citizens, and the remaining position by an Argentine citizen.

Among the engineering and other specialized professional personnel, the proportion of Brazilians is equally striking. Of 19 engineers in the Consumer Goods Department, only one is a U.S. citizen; in the Producer Goods and the Lamp and Illumination Departments, all the engineers are Brazilians. In the Corporate Finance Operation, which handles such functions as negotiating for bank credits and auditing the accounts of the operating departments, half of the responsible supervisory and technical positions are held by Brazilians. The Employee Relations Division has only one non-Brazilian in its total of 36 managerial and technical employees. All of the supervisory positions in the Legal Operation are held by Brazilians.

An outstanding example of what a Brazilian can achieve in GE is the career of Dr. José de Assis Ribeiro, who rose to be president and general manager of the Brazilian corporation before his retirement at the end of 1958. Born and raised in São Paulo, Dr. Assis attended Union College in Schenectady, N. Y., and became an engineer. After obtaining industrial experience in running a jute textile mill and helping to pioneer the production of automobile tires from Brazilian raw materials, he joined the staff of GE in 1926, serving successively as an engineer, as manager of the São Paulo district office, as vice president of the Company, and finally as its president and general manager. Dr. Assis' unusual achievement in rising to the top of one of the largest U.S.-owned operations in Brazil is widely regarded in Latin America and in the United States as a tribute both to his own outstanding abilities and to the farsightedness of General Electric.

An interesting indication of the success of Brazilianization is the fact that managerial and technical personnel serve in their assigned jobs without regard to the nationality of their supervisors. Thus, many of the comparatively small number of U.S. citizens and all of the Europeans employed by the Company serve under Brazilian supervisors. Similarly, Brazilians do not mind if personnel changes place them under non-Brazilian supervisors, for they know that promotions and transfers are made on the basis of personal competence and specific Company needs. In consequence, GE's productivity is favorably affected by the close working and personal relationships that characterize its managerial, supervisory, and technical personnel.

One consequence of the effectiveness of GE's Brazilianization policy has been that qualified Brazilian managerial and technical personnel, who received their initial training and experience in a GE factory or sales office, have been in great demand throughout Brazil. While most of GE's Brazilian personnel have made their careers with the Company, many of those who have left now fill important positions in other

industrial and commercial enterprises. But whether they leave the Company for other posts or stay on, the prominence of GE-trained Brazilians at top management levels and in technical and specialized positions testifies to the Company's forward-looking policies and to the intelligence and capacity for personal development of the people of Brazil. GE's extensive Brazilianization constitutes one of the most important reasons for the Company's wide popular acceptance in the country. From the point of view of Brazil's economic and social development, GE's training of people for managerial and technical positions has been as important as almost any of the Company's other contributions.

EMPLOYEE TRAINING AND EDUCATION

A MAJOR PRECONDITION for the Brazilianization of GE's staff has been the extensive employee training and educational programs which the Company conducts. As already noted, General Electric in the United States has for many years placed major emphasis on employee training, for which it has devised many special courses to meet the differing needs of various kinds of workers, technicians, and managers. However, in following a similar policy, GE in Brazil has not only been conforming to general Company policy but it has also been overcoming the deficiencies in training and education which are inevitable characteristics of lesser developed countries. By so doing, GE has made an important contribution to Brazilian progress as well as provided itself with employees possessing needed skills and technical qualifications.

GE's training and educational programs in Brazil are of several kinds, each designed to fit the needs of a particular group of employees:

- Most newly employed factory workers have no technical skills or previous industrial experience and hence are given a basic orientation course and on-the-job training in the particular tasks they are to perform. In cases where special knowledge or a semiskill is also required, workers are given supplementary courses by their supervisors.
- Owing to the great shortage of experienced skilled workers who can be obtained outside the Company, GE makes a practice of providing opportunities to its semiskilled workers for upgrading themselves through special training courses in more advanced

skills. These courses, conducted from time to time by experienced supervisors, are open to all qualified GE employees, who contribute half of the required time, while the Company pays them for the other half and meets all expenses of the courses.

- In addition to training in skills and semiskills, GE also provides a basic literacy and arithmetic course for all employees on the same 50-50 basis.
- Once they have learned reading, writing, and arithmetic with a fair degree of proficiency, GE's factory employees are then eligible to take a series of more advanced technical courses which are offered from time to time in such subjects as mathematics, blueprint reading, elementary chemistry and physics, general mechanics, metallurgy, and electricity. All of these courses are voluntary, the workers contributing half of the time involved and GE paying them for half time and meeting all the other expenses.
- For its clerical and other office employees, GE has a parallel series of more advanced training and educational courses. In addition to the required basic orientation courses and on-the-job training in their specific tasks, office employees are offered voluntary courses in English, shorthand and typing, business correspondence, and other clerical skills. These are financed on a similar basis.

At any given time, approximately 10 percent of GE's factory and office workers are attending one or another of the voluntary courses. Some are taught by senior supervisory personnel, but most are the responsibility of five full-time teachers who constitute GE's permanent educational staff.

Educational opportunities are provided for engineers and technicians at an early stage of their development. In contrast to many lesser developed countries, Brazil today has good educational institutions and facilities for training many types of engineers. Originally, Brazilian engineering schools produced only civil engineers. After World War I, when GE began to manufacture in Brazil, the Company took the initiative in providing the leading engineering schools in Rio and São Paulo with substantial assistance in developing the training of electrical engineers. Though the training of mechanical and chemical engineers still lags somewhat, Brazil's engineering schools now offer high-quality instruction in virtually all civil, electrical, and electronic engineering fields. The standard course covers five years, only the

best students can qualify for admittance, and instruction is provided in small classes and with a high degree of individual attention. GE continues to work closely with the engineering schools to encourage improvement in the quality of their electrical and electronic engineering curricula, instruction, and laboratory work.

Since the 1930s, GE has provided financial assistance and special opportunities for applied training to a selected number of electrical engineering students. At regular intervals, the Company interviews likely candidates in the third year of their electrical engineering course. Those who meet GE's standards are hired to work part-time for the Company during the fourth and fifth years of engineering school. Thus, these students obtain good practical experience in electrical engineering work along with their academic studies. Upon graduation, many of these young men are offered—and many accept—full-time, permanent positions with the Company.

Virtually all Brazilian engineers who are permanent employees of GE are from time to time offered opportunities to take advanced courses at the parent company's training facilities in the United States. At these courses in many new and developing fields of electrical and electronic engineering, GE's Brazilian engineers live and study in close association with personnel from the Company's factories and laboratories in the United States, Canada, and other countries. GE pays its engineers' salaries and expenses while they attend these advanced courses in the United States.

Extensive opportunities for further training and educational improvement are also provided for GE's managerial and supervisory employees regardless of nationality. These follow the pattern of the management training programs established by General Electric in the United States. Supervisory personnel can take courses in indoctrination and job-instruction methods, employee relations, job-safety training, and production methods improvement. For higher managerial personnel, GE provides courses in management methods improvement, leadership, and other areas of advanced management. Each year, the Company sends a number of its managerial employees to the United States to take advanced courses in business management conducted by the parent organization. Some of them are taught at General Electric's Management Research and Development Institute at Crotonville, N.Y. In other cases, arrangements are made for Company personnel to study at Columbia University's Graduate School of Business, the Harvard Business School, Colgate University's Sales Management Program, the American Management Association's courses, and other university business schools and similar institutions.

Upon their return to Brazil, these employees are expected to conduct identical courses for their colleagues. Thus, many of the benefits of advanced management training are widely disseminated in the Company. In addition, two well-known Brazilian management specialists are employed by GE on a part-time basis to conduct advanced courses for its supervisory and managerial personnel.

GE is justifiably proud of its extensive training and educational programs. They provide opportunities for economic and cultural advancement for every category of the Company's employees, from the lowest-paid unskilled laborers to the general managers of its departments and even to the president of the corporation himself. The Company is more than satisfied that the comparatively modest costs of these programs are far outweighed by their benefits in improving productivity, both directly through the increase of skills and indirectly by stimulating higher employee morale.

For their part, GE's employees are equally enthusiastic about the Company's training and educational facilities. In surveying the attitudes of Brazilian employees, there were no queries which evoked more positive and strongly felt responses than those pertaining to the worth of GE's educational activities. The eagerness of Brazilians to avail themselves of the educational opportunities which GE provides and the conscientiousness with which they apply themselves to their studies are important assets in Brazil's efforts to accelerate its economic and social progress.

EMPLOYEE POLICIES AND BENEFITS

WHILE GE CONTINUES clearly to be the leader in Brazil in employee education and training, the extensive social welfare programs of the Brazilian government and the rapid advances of Brazilian enterprises have been closing the gap between Brazilian practices and GE's standards in other aspects of employee relations. In fact, some of the most enterprising Brazilian firms have already surpassed their U.S. colleagues in these respects. In the provision of health and medical care, employee housing, paid vacations, bonuses, and other "fringe benefits," these Brazilian firms are second to none, not only in Latin America, but in the United States as well.

However, many of GE's employee welfare policies were innovations in normal Brazilian practices when the Company first introduced them many years ago, and they have served as standards for other business firms and employers to emulate. As explained in Chapter II, Brazil—in

common with many Latin American countries—has in recent years adopted an elaborate system of labor and social welfare legislation. Minimum wages, sickness benefits, pension retirement arrangements, and accident compensation are required by law and, in some cases, are administered by governmental institutions. All business enterprises must conform to the minimum standards established under these legislative and administrative arrangements. For GE, this situation has meant that the task of marrying U.S. and Brazilian practices in the area of employee benefits and welfare has often required considerable ingenuity.

GE follows a policy of conscientiously complying with all the requirements of the country's labor and social welfare regulations. In most areas, the Company voluntarily exceeds minimum legal requirements because it believes that its employees are entitled to greater or more secure benefits, which in turn may contribute to improving labor productivity. In some cases, the Company has to compensate for the malfunctioning of the government's welfare legislation.

After negotiation with the employers' and workers' *sindicatos*, the Brazilian government establishes the minimum monthly wage rates for all types of employees. Owing to the post-World War II inflation, the minimum monthly wage rates have been periodically revised upward as the purchasing power of the currency has declined. However, even for unskilled workers GE generally pays in excess of the minimum monthly rates. Also, it has on occasion increased its wage rates (owing to the inflationary situation) well before a change in the mandatory minimum was decreed. Such voluntary increases have to be negotiated with the Brazilian government and the electrical workers' trade union.

One reason for GE's forehandedness is the abnormally high rate of turnover, particularly among unskilled workers, which is a feature not only of Brazilian industrialization but of most lesser developed countries in the throes of their industrial revolutions. Wherever and whenever rural populations are experiencing for the first time the unaccustomed disciplines of modern production systems and the novel opportunities of urban living, there is generally a high rate of turnover among unskilled workers. At GE's factories in Brazil, the rate may average as much as 30 percent a year.

In addition to keeping ahead of the legal minimum wage, GE has endeavored to minimize its turnover problem by devising tests and screening interviews which aim at enabling its personnel sections to select applicants who seem least likely to change their residences and jobs frequently during their initial years in or near the big city.

In the successively higher grades of semiskilled and skilled workers, the rate of turnover becomes progressively lower. However, workers in the skilled categories are in great demand in the booming industrial centers of Brazil. This, too, has had its effect on GE's pay scales. From time to time, the Company must unilaterally raise its pay for particular types of semiskilled and skilled labor to hold its own in the competition.

Absenteeism is another problem that is markedly more important in a lesser developed country than it is in the United States, and which requires special action on GE's part. Among newcomers to industrial employment, family troubles and other personal problems, the search for alternative homes and jobs, or simply a desire to take the day off, all weigh more heavily than regular attendance on the job. Often ill-health is offered as an excuse, despite the care provided by GE's medical staff. Employees can usually obtain from lenient individuals in the government's medical institutes written excuses for such absences which the Company must honor.

To combat absenteeism, GE offers its factory and office workers an extra day's pay for every week in which they have a perfect attendance record and are not more than 15 minutes late for the job. While this is a measure of how seriously GE regards absenteeism, neither this problem nor that of turnover are more critical at GE than among other industrial employers, Brazilian or foreign. In no sense do these problems reflect specific employee dissatisfaction with working conditions at GE's plants, but rather they stem from the much more profound sociological and psychological difficulties of the transition from agrarianism to industrialism.

The Company maintains elaborate employee welfare programs for its workers which have also helped to enhance GE's good reputation in Brazil. Some are required by the laws of the country:

- From 12 to 15 paid holidays are common each year depending upon government proclamation.
- Except in cases of excessive absenteeism, all employees receive paid annual vacations of 20 working days (excluding paid holidays).
- All employees are legally entitled to 15 days of sick leave each year. While on sick leave, the worker is paid one third of his regular wage by a governmental institute, to whose support all employers must contribute 2 percent of their gross payrolls.
- Accident insurance premiums must also be paid by the employer.

- A governmental institute established for each industry administers the retirement system. The pension benefit is 80 percent of the average of the employee's last three years' salary for retirement at age 55, and 100 percent for retirement at age 60, up to a maximum retirement benefit of three times the highest minimum salary established by law. This retirement system is supported by a levy of 8 percent each on employers' gross payrolls and on employees' wages. The government is supposed to contribute a similar amount.

However, in the cases of most of these legally-required benefits, GE substantially exceeds the minimum standards fixed by legislation. For example, when its workers are on sick leave, GE voluntarily pays the remaining two thirds of the employee's regular salary as a supplement to the one third paid by the governmental institute. In addition, women employees are given maternity leaves, during which the Company pays them their regular salaries for six weeks before confinement and for six weeks after. In special cases, paid maternity leave is given for eight weeks, both before and after confinement, on the recommendation of GE's medical staff.

Other substantial medical benefits are made available by GE to its employees in excess of those required by law. At GE's factories, where the largest concentrations of employees exist, there are clinics and conveniently-located subsidiary dispensaries at which all employees and their families get the free services of doctors, X-ray technicians, dentists, oculists, and trained nurses. Each employee is given a complete medical examination upon entering the Company's service and thereafter once each year upon returning from his or her annual vacation. Prescriptions are provided free and common proprietary drugs are sold to the employees at cost. Medical care is available to employees and their wives or husbands, children, parents, and minor brothers and sisters. However, in hardship cases, other members of the employee's family may also be treated.

Retirement benefits is another area in which GE's practice goes beyond legal minimums. Owing to inflation, the purchasing power of the fixed pension benefits of older retired employees has drastically declined. Unfortunately, under the law, it is practically impossible for an employer to supplement the inadequacy of the official retirement system with a voluntary pension plan of his own. Hence, in hardship cases involving meritorious employees due for retirement, GE resorts to the morally justified procedure of continuing to employ them at purely nominal jobs in order to ensure that they have an adequate income in their old age.

Other employee benefits voluntarily provided by the Company are:

- A production incentive plan, whose rate of extra compensation depends upon the type of work done by each worker.
- GE's Christmas bonus plan, which is of substantial importance to the Company's employees, who are eligible to participate after one year of employment. The amount of the bonus varies with length of service and ranges from about one week's additional pay for those who have just qualified, to over a month's additional pay for those who have been with the Company for 10 years or more.
- A voluntary program of providing term life insurance for all employees after one year of service. This policy pays an indemnity equivalent to 15 months' salary at the employee's highest rate prior to death. The Company contributes a substantial part of the cost and the employee pays the remainder.
- The privilege of purchasing GE products at discounts of from 30 to 50 percent of the retail price. In consequence, most employees' homes are well-stocked with GE appliances, a not inconsiderable addition to their standard of living.

Because of the suburban location of its factories and the advisability of ensuring workers a well-balanced, high-energy meal, the Company maintains cafeteria-style restaurants open to all factory and office employees at the Rio and Santo André factories. Both lunch and dinner are served in these restaurants. The employee pays only about half the actual cost of the meal. In addition, coffee—strong and sweet, as the Brazilians like it—is served free twice a day to all employees.

Social clubs, organized and run by the employees, are helped in various ways by the Company. It provides free club rooms and maintains football (soccer) fields and other recreational facilities for the use of club members. In addition, GE sponsors the operation of Holiday House—a mountain resort hotel accessible from both Rio and São Paulo—where club members may spend their vacations at very reasonable rates.



On the whole, GE is a popular employer and the Company continuously strives to improve its reputation in this respect. In part,

these efforts contribute directly to the Company's own benefit, for they counteract the shortage of workers with needed skills and the adverse effects on productivity of excessive turnover, absenteeism, and the difficulty of getting the better types of workers. In part, however, GE's employee policies reflect a sense of its obligation to the host country, as one of the oldest and largest industrial enterprises in Brazil, to set a good example to more recently established business firms, both Brazilian and foreign.

The one area in employee relations in which GE continues clearly to be the leader in Brazil is in employee education and training. Here, the Company's pre-eminence derives from the tradition which has become ingrained in General Electric's organizations wherever in the world they may be operating. The Company is justly proud of its educational and training work in Brazil and will undoubtedly continue to make outstanding contributions in this respect to Brazilian progress for many years to come.

The effectiveness of these GE policies is in no small measure owed to the flexibility which the Company's managers in Brazil have had in adapting General Electric's U.S. practices to the special needs and limitations of the country. This freedom to revise and amend the policies of the U.S. parent corporation, combined with the conscientiousness, patience, and good will of the Brazilian organization, have enabled GE to make available to Brazil those specific experiences of U.S. industry that are relevant to the country's present conditions.

V.

GE's Contributions to Brazil

THOSE WHO LIVE in industrially advanced countries sometimes forget or do not realize how special and sophisticated are the institutions and attitudes which are required for modern economic growth.

Looked at one way, economic growth can be considered as a process of increasing specialization or division of labor among producers, as Adam Smith explained two centuries ago. The production and distribution of goods and services require many complex and interdependent operations, which gradually become differentiated from one another and are carried on as separate—often as independent—activities. The results of this progressive division of labor are rising productivity and increasing economic opportunities. Economic growth resembles biological growth in involving the increasing differentiation of the original organism into more and more specialized parts.

However, implied in this classical definition of economic growth is a rather special set of attitudes toward life and work. If the society is to improve its material situation, there must be, for example, the kind of faith in the future which allows a considerable habit of saving to develop; there must be a sizable body of people able and willing to invest such savings productively. Productive labor and conscientious performance of the work task must be reasonably high in the society's standard of value. There must be scope in the society for accepting innovations, and a measure of respect accorded to those innovators willing to devote their time and resources to improving the society's material lot. A liberal stock of technical and scientific knowledge, spread adequately throughout the society, is another requirement for economic development.

Merely to list in this way some of the main requirements is to illustrate how all-pervasive is the economic growth process and how radical are the changes which are brought about in its course in countries, such as Brazil, that are only now experiencing their industrial revolutions. Therefore, when we find a single agent in the growth process which has pioneered as many innovating economic activities as has GE in Brazil, the record deserves both a close reading and a careful evaluation.

It is undoubtedly true that if GE had not assumed the initiative in undertaking new economic functions in Brazil, some other enterprise or group of enterprises would eventually have done so. But the fact is that GE was the pioneer in a wide range of activities. More important, the Company so conducted itself as to provide not merely opportunities but also active encouragement for others to join in the task. In both of these respects, GE's contributions to economic growth in Brazil have been of signal importance.

In evaluating GE's contributions, it may help to look at the Company's achievements first against the tangible evidence of Adam Smith's definition of economic growth and then against the intangible requirements which are implied by it. As we have seen in Chapter III, the development of GE's activities in Brazil has been a process of differentiating a succession of separate economic functions in accordance with the classical pattern. Some of these functions the Company has undertaken itself; some have originally been developed by the Company but were later turned over to Brazilian enterprises engaged in or established for such purposes as the manufacture of subassemblies and components, wholesaling and retailing of finished products, advertising, and so forth. At the same time, the development of GE's activities in Brazil has notably promoted those attitudes toward life and work on which economic growth depends. By developing new products which helped bring about changes in consumer tastes, by setting high standards of product quality and business performance, and by its Brazilianization policy, the Company has made contributions to the economic progress of Brazil that are just as important as the actual creation of the new material wealth for which the Company's manufacturing and importing activities have been responsible.

DEVELOPMENT OF MANUFACTURING INDUSTRY

GE HAS CONTRIBUTED to the economic development of Brazil in a variety of ways. Perhaps the most obvious is the extent to which the country's stock of capital equipment includes producer goods either manufactured in GE's Brazilian factories or imported from General Electric's plants in the United States and Canada. For example, close to 40 percent of Brazil's combined hydroelectric and thermoelectric generating capacity has been manufactured by the Company. Almost half of the electric locomotives and nearly two thirds of the diesel-electric locomotives on Brazil's railroads have been

built in whole or in substantial part with General Electric equipment. Appendix II contains other indices of GE's direct physical contribution to the country's productive capital.

Equally important have been the indirect effects of the Company's increasingly diversified activities. After General Electric came to Brazil, as we have seen in Chapter III, it conducted only an importing operation for several decades. By the end of World War I, the market was large enough to justify the start of manufacturing in Brazil. Initially, GE's manufacturing activities consisted solely of assembling finished products out of imported materials and components. However, the Company soon differentiated out the functions of making the various parts and components it assembled into finished commodities.

Had the Company undertaken only to specialize its own lines of production and train its own employees to make all of the components involved, this in itself would have been a significant contribution to the economic advancement of Brazil for it would have provided the country with the facilities for making things not previously produced and would have released foreign exchange resources to finance other import needs. But GE contributed more significantly to Brazilian development by making it possible for newly established or existing Brazilian-owned firms to undertake the production of some—in certain cases of many—of the parts and components required for the finished products manufactured by the Company. Thus, the importance to Brazil of GE's industrial innovation has been greatly enhanced.

An example from each decade since GE began to manufacture in Brazil will give some indication of the variety of activities stimulated and of the nature of the assistance provided:

- In the early 1920s, when GE first began to manufacture lamps, it required containers in which to wrap these fragile products for shipment. At that time, there was no producer of paperboard containers in Brazil. Accordingly, the Company found a small Brazilian paper-products manufacturer who was willing to venture into a new field. GE lent him the funds to purchase the necessary machines and received reimbursement in the form of containers. Today, this Brazilian-owned firm of Costa Ribeiro is one of the largest manufacturers of paper products and paperboard containers in Brazil.
- In the late 1930s, GE needed a variety of small metal parts for the new appliances and producer goods it was starting to manufacture. The Company found a small Brazilian-owned metal-working firm whose management was willing to expand. GE's

engineers taught Delta's personnel how to design and make the parts required and how to ensure the output of large quantities within very small tolerance limits. Delta was informed of the quantities that GE was prepared to buy for a considerable period of time so that the Brazilian firm could make plans, on the basis of assured sales, to increase its production in accordance with the prospective growth of GE's needs. In more recent years, GE's requirements for these small metal parts have grown so much more rapidly than it or Delta had anticipated that the Company has had to develop additional production of such components by other Brazilian suppliers.

- In 1949, when GE began to manufacture electric motors, it needed cast-iron frames in large quantities. Sofunge, a very small Brazilian-owned iron foundry, was approached to see if it would be interested in expanding to meet this new demand. GE brought one of its engineers from the United States to show Sofunge how to make the patterns for the castings, and the Company supplied technical assistance in many other ways as well. Sofunge proved to be an enterprising firm and, with the help of GE's orders and technical advice, soon became the largest cast-iron foundry in Brazil. In the last few years, it has begun to make castings for Brazil's new automobile industry and has no longer been able to meet all of GE's needs. In consequence, the Company has begun to develop other small Brazilian-owned cast-iron foundries as supplementary suppliers.
- In 1958, GE needed top quality porcelain bushings for high voltage transformers. A Brazilian manufacturer of porcelain products, Cerámica Santana, was asked whether he wished to expand into a new field. When he replied in the affirmative, GE arranged for him to obtain a patent license and the technical "know-how" for producing the same kind of high quality porcelain bushings that General Electric makes in the United States. Today, the Brazilian firm is also manufacturing these porcelain bushings for other electrical goods producers in Brazil.

In each of these cases—and there are many more—GE has actively searched for Brazilian firms who might already be undertaking, or could be encouraged to start, the production of needed materials, components, and subassemblies. The Company's policy has enabled Brazilians to acquire the technological and managerial skills needed to develop their own manufacturing activities. At the same time, GE has helped Brazilian entrepreneurs to accumulate productive capital.

GE has helped local producers and suppliers in the following ways:

- Its patents have been licensed to Brazilian firms.
- It has financed the purchase by some of its Brazilian suppliers of the necessary capital equipment and its engineers have helped many of them select the most suitable machinery and set up efficient production processes.
- It has provided technical and managerial "know-how" through "trouble-shooting" services; by testing the quality of the products produced; by bringing new scientific and technological advances to the attention of Brazilian producers; and in other ways. A metallurgist on GE's permanent staff works continuously with the Company's Brazilian copper and brass suppliers to improve their productive efficiency and the quality of the materials and parts they make for GE. Inevitably, the benefits to productivity arising from these technical assistance activities affect other products and operations of these Brazilian firms.
- It has given its Brazilian suppliers considerable financial help. The Company has often contracted on a long-term basis for all, or a large part, of the prospective output of new enterprises, thereby ensuring them of markets during their most difficult early years. GE has been willing to make advance payments to its Brazilian suppliers—sometimes as much as 40 percent upon placing the order—so as to provide them with the operating capital needed to fulfill their contracts.

In the 1920s and 1930s, when Brazilian manufacturers were comparatively few and inexperienced, GE usually had to take the initiative in seeking out a prospective supplier. Today, with Brazilian entrepreneurs multiplying rapidly, the Company has the satisfaction of being approached with increasing frequency by new or expanding Brazilian firms desirous of supplying it with materials, components, and subassemblies. Each producer soliciting GE's business is visited by the appropriate Company personnel, who inspect his plant, assess his capabilities, and investigate his record. If their report is favorable, the Company asks the prospective supplier to make samples of the products it needs. After testing the quality of these samples, GE determines whether or not to develop a continuing relationship with the Brazilian firm.

The Company is interested not only in helping new suppliers to get started, but also in keeping old suppliers abreast of technological and

competitive developments. For example, a Brazilian firm in São Paulo has for many years supplied GE with screw-threaded and other machined hardware for watt-hour meters. A competitor installed a new thread-rolling process, which substantially reduced his costs and enabled him to undersell GE's supplier. The latter approached the Company to ask for assistance in meeting this serious competition. GE engineers helped him prepare the designs for a new plant, select the most efficient equipment, iron out the initial production "bugs," and solve other technical problems. Today, GE's supplier is able to meet any competition in price, quality, quantity, or delivery. In contrast, a Brazilian plastics manufacturer producing trays for GE's refrigerators was not only unable to meet the price competition of a more enterprising Brazilian firm, but was also unwilling to make the necessary changes in equipment and methods. GE's offers of help were neglected and, after a reasonable time, the Company had to shift its business to the more efficient and lower-cost supplier.

GE has, of course, considerable self-interest in the productive efficiency of its suppliers and the quality of the products it buys from them. If one of its suppliers lags too far behind in these respects, the Company must in self-protection avail itself of the alternatives of purchasing from a more efficient competitor or of helping a new firm get started. However, unlike the usual practice elsewhere, GE in Brazil adopts one or the other of these alternatives only after it has tried to help its regular supplier keep abreast of the latest technological advances or meet price and quality competition in other ways.

Thus, one of GE's most significant contributions to the development of Brazilian industry has been its efforts from the beginning to produce itself, or to stimulate the production of, the many components and subassemblies needed for its increasingly complex finished products. In consequence, a considerable proportion of the numerous commodities produced by GE in Brazil are now truly national products. The table on page 75 shows the percentage by value of the raw materials, components, and subassemblies produced in Brazil and used in the manufacture of some leading GE commodities.

In the case of refrigerators, only 76 percent of the value of materials and parts is of Brazilian origin owing primarily to the fact that the Brazilian steel industry cannot supply all of the needed sheet steel for cabinets. However, once it becomes possible to obtain all of the sheet steel locally, only about 13 percent of the value of materials and components required for refrigerators would have to be imported. When radio and television picture tube production starts in Brazil—expected very shortly—the imported portion of these products will fall

<i>Produced in Brazil</i>	<i>Percent (by value of raw materials)</i>
Electric lamps	95
Electric irons	90
Electric motors	84
Watt-hour meters	80
Radios	80
Refrigerators	76
Transformers (depending on size)	60-70
Television receivers	60

to less than 5 percent. For most GE commodities, there is apparently an irreducible minimum of necessary imports—mostly raw materials, such as copper and nickel, and semi-processed materials, such as special alloy steels, cold-rolled silicon sheet steel, and certain chemicals—which have so far not been produced or are unlikely soon to be made in Brazil. A similar dependence upon certain indispensable imports exists in the United States, as in all industrialized countries.

The Brazilianization of television receiver production is an especially good example of GE's efforts to stimulate development of component manufacture by Brazilian firms. Television receivers contain numerous small but highly intricate resistors, capacitors, potentiometers, and many other electrical and electronic components which require high-quality workmanship to ensure that they will meet the strict tolerances and other standards necessary for the higher-grade products made by GE. At first, all of these components had to be imported from the United States or Europe. But the Company worked diligently to help new and existing Brazilian firms meet its standards and supply the quantities it requires. Today, only 40 percent by value of the materials and parts necessary to make television receivers must still be imported. This will soon decline to less than 5 percent when the production of electronic tubes (including picture tubes) by Brazilian firms is achieved. The creation of an electrical and electronic components industry in Brazil is one of the most significant economic advances that country has made in recent years.

GE provides a prominent example of another important aspect of the growing maturity of Brazilian industry. When an economy is able to make its own technological innovations, as distinct from adopting or adapting those developed in more highly industrialized societies, it can be considered well on the way to self-sustained economic growth. GE's engineers and technicians have not only been adapting the Company's discoveries and advances in the United States to the needs and

capabilities of Brazil; they have also developed on their own some entirely new processes and products. One example is a new white inside coating for the tubes of fluorescent lamps. This was developed by GE's Brazilian engineers, who also designed the special equipment needed to make and apply it. This new white coating is now used not only at the Rio factory but also in General Electric plants in other parts of the world.

Another GE activity potentially significant for the general economic advancement of Brazil has been the Company's contribution to the creation of a capital goods industry in the country. Mention has already been made of the fact that GE has been manufacturing in Brazil more and more of the electrical producer goods which the country requires for its development—large power transformers, motors, distribution transformers and equipment, electric control and switchgear devices, and similar items. In addition, it has been helping many Brazilian manufacturers design manufacturing equipment of all types for which the Company has supplied the electrical components. In other ways, too, GE has played an important part in the creation and initial development stage of a specialized machinery and machine-tool industry in Brazil.

For example, the Company itself has recently become directly engaged in producing manufacturing equipment as a by-product of its own needs. The latest U.S. fully automatic machines for manufacturing electric lamps are made to operate at such high speeds and to turn out such large quantities that they are not practicable for use in the comparatively small markets of lesser developed countries. In consequence, GE's engineers in Brazil have recently designed efficient but smaller lamp-making machines which the Company is now producing both for its own use and for sale to other Brazilian lamp manufacturers. As the Brazilian market for such fully automatic machinery is limited, the Company plans to export them on a regular basis to other lesser developed areas as well. Though the quantities of machines involved may be small, it is nevertheless a significant step forward for a country like Brazil to embark upon the export of capital goods.

Finally, as has already been described in Chapter III in some detail, GE has fostered the development of wholesale and retail distribution in Brazil. Originally, the Company carried on the wholesaling function itself and in some localities the retailing function as well. Even today, GE provides the retail distribution system for its products throughout much of the vast wilderness of the Amazon valley and the interior highlands of Goiás and Mato Grosso. But, in the more populous and advanced states of eastern Brazil, the Company has always ceased

its retailing and wholesaling activities just as soon as other organizations were able and willing to take them over. Again, its usual practice has been to help Brazilian firms assume these functions and to provide them with continuing assistance in carrying them on more effectively.

In these concrete ways, GE's activities in Brazil have fostered the growing division of labor within the Brazilian economy in accordance with the classical pattern of economic growth in a developing country. More important, GE has pioneered this diversification of functions in Brazil not simply as a by-product of its own operations, but as a conscious policy. By interpreting its own interests so broadly, GE has greatly enhanced the value of its contributions to the economic progress of Brazil.

THE DEVELOPMENT OF STANDARDS AND PEOPLE

THESE GE CONTRIBUTIONS to the creation of manufacturing plants and technical skills in Brazil are only the tangible half of the story. The Company's efforts in fostering the intangible requirements for growth implicit in Adam Smith's definition are perhaps equally important.

An evaluation of GE's impact on Brazilian attitudes toward economic development must of necessity be impressionistic. There is no generally accepted list of the social values required for modern economic growth, much less a generally accepted way of measuring how deeply they have taken root in a given society. For these reasons, this aspect of a U.S. company's impact overseas is often passed over with a few generalities or ignored entirely.

However, in the case of GE in Brazil its contribution in certain of these intangible respects has been so evident and noteworthy that something more specific can and should be said about it. GE has had a very substantial impact in Brazil on consumer tastes and standards; it has had singular success in inculcating high standards both in the design and manufacture of its products and in business management; and, through its Brazilianization policy, it has done much to make modern manufacturing and marketing, with all their many ramifications, respectable careers in the eyes of the population at large. Each of these contributions will be examined in turn.

Consumer Standards

In the field of consumer attitudes and expectations, GE's contribution has been both unique and arduous. In the 1920s, the Company

was one of the leaders in the struggle against Brazilian consumers' strong preference for imported goods. In the early decades of Brazilian manufacturing, the designation "Indústria Brasileira," or "national product," was regarded as little more than a euphemism which could not conceal the consuming public's suspicion of a "home-made" commodity. If today it has become a term of genuine respect, and even of pride, in Brazil and if the products of most Brazilian industries are now fully as acceptable to Brazilian consumers as imported goods, both these changes in the attitudes of consumers owe much to the efforts of GE.

Moreover, in many cases the problem faced by GE was not only to make the national product competitive with the imported one; it was to interest Brazilian consumers in the commodity itself, regardless of where it was made. This was especially true with respect to several of GE's most important consumer appliances.

It might be assumed that in a largely tropical underdeveloped country the main, if not the sole, obstacle to the purchase of household refrigerators would be a financial one—the inability of the people to afford them. This is not always the case. In the early 1930s, GE decided to make a vigorous effort to interest the Brazilian public in domestic refrigerators, the import of which had hitherto been very small. The Company opened its own retail outlets in Rio and São Paulo, but sales lagged badly despite favorable prices and generous credit terms. Upon investigation, GE found that the resistance of consumers financially able to afford refrigerators was owed in the main to the widespread notion that there was grave danger of catching pneumonia from the cold air released whenever the refrigerator door was opened.

The Company determined to prove the falsity of this fear by a mass demonstration both of the harmlessness of refrigerators and of their practical utility. Trucks loaded with refrigerators toured the residential suburbs of Rio and São Paulo, stopping at likely homes and offering to install the machines for a free trial period. At the same time, a U.S.-type advertising campaign through the press, radio, and other channels explained to the Brazilian public that, far from making people ill, refrigerators promoted better health by preventing food spoilage and, by so doing, saved them money as well. So successful were GE's direct selling efforts that first its retail outlets and later its wholesaling function were turned over to Brazilian firms. Of lasting benefit to the Company and its distributors has been the fact that high-quality domestic refrigerators seem permanently associated in the public mind with the GE brand mark.

A similar effort had to be made when the Company decided to promote the sale of air conditioning equipment. For years, the mistaken fear of pneumonia and other respiratory diseases blocked the introduction of air conditioning not only into private homes but, more importantly, into offices, shops, theatres, public buildings, and even hospitals. In 1938, GE held a national conference in Rio of doctors, hospital administrators, sanitary engineers, and public health officials to explain and demonstrate the benefits of air conditioning in hospitals, clinics, and other health installations. The results of the conference were widely publicized in Brazil. In consequence, many Brazilian hospitals introduced air conditioning in their operating rooms and later in their wards. Their example was soon followed by business firms, theatres, retail establishments, banks, and, finally, apartment dwellers and home owners.

Promoting the use of refrigerators and air conditioning equipment was certainly good business for the Company, but it was also a significant contribution to developing among the Brazilian people a willingness to accept new things in their lives—the new products which contribute to a modern standard of living. Similarly, the Company's practice of training service and repairmen for its electrical equipment and appliances was an important aspect in stimulating sales. But, at the same time, it has enabled large numbers of Brazilians to acquire skills that would otherwise have been beyond their means and to get higher paying jobs with retail firms or to start their own businesses, many of which have prospered and grown substantially. Here, as in the case of GE's aid to Brazilian manufacturers, what is significant is not that the Company acted in its own interest, but that it interpreted its interest broadly so that its market development activities could also be of benefit to others.

Standards of Business Performance

Hardly less important than its impact on consumer attitudes has been GE's effort to acquaint Brazilians with the fact that industrial growth requires high performance standards in the factory and in the office. The Company has set for itself high standards both in the production of goods and in the conduct of its business activities and has followed them consistently for more than half a century. It has also tried actively to disseminate these standards to the firms and individuals with whom it has to deal.

A modern industrial system depends for its efficiency on the economies of scale made possible by the extensive use of automatic ma-

chinery, by long production runs, and by the rapid assembly of finished products from ready-made, standardized materials and parts. The more complex and advanced the industry, the more it becomes dependent upon the availability of increasingly intricate and carefully made standardized materials, components, and subassemblies. As each industry progresses, the relevant qualities (size, shape, durability, speed, weight, etc.) of each type of part are permitted to vary from an established standard by smaller and smaller tolerances. To make increasing quantities of such parts with finer and finer limits of tolerance requires greater skills and closer attention to the quality of the production methods and of the products made by them.

One of the most difficult obstacles to overcome during the early stages of industrialization is the unwillingness or inability of newly-established manufacturers to appreciate the essentiality of conforming to such product quality and production standards. The great industrial advance in Brazil since 1950 has stimulated scores of Brazilian firms to go into the business of making materials, components, and subassemblies not only for the electrical and electronics industry but also for more recently-developed lines of manufacturing, such as automotive vehicles, farm equipment, and other hard and soft goods. In every case, the inexperienced manufacturer of parts has had to learn the painful lesson that the end-product makers will soon cease to buy his output if it does not conform to the specific qualities and tolerance limits they require. A substantial number of Brazilian parts manufacturers have gone bankrupt or have been in serious financial danger through not learning this lesson in time. Nor is the lesson easily or quickly learned by a society emerging from centuries of accepting without question the lack of uniformity as a natural—in fact, usually desirable—characteristic of the output of handicraft forms of production.

From the first product it made in Brazil—incandescent lamps—to its present efforts to help Brazilian manufacturers learn to produce complex electronic tubes, GE has ceaselessly been disseminating high quality and production standards throughout the Brazilian economy. It has worked patiently with each new parts supplier, helping him to set up his production line, regulate his machinery, test his products, and eliminate unexpected irregularities in output. Where a producer has been slow to appreciate the importance of conforming to strict production standards, the Company has arranged for him and his engineer and chief foreman to visit its assembly lines so that they could see for themselves how and why each part fits into the finished product. In some cases, GE has sponsored tours of factories in the

United States for Brazilians seeking to learn the intricacies and the demanding standards of parts production for advanced industries.

As part of its efforts to promote quality standards in Brazilian industry, GE helped to found and has participated actively in several technical organizations and trade associations working in this field. These include the Brazilian Technical Standards Association, the Brazilian Association for the Development of Basic Industries, the Brazilian Ceramics Association, the Pan American Standards Committee, with headquarters in Rio de Janeiro, and others.

Equally important, though more difficult to describe and document, has been GE's contribution to the dissemination in Brazil of the principles of high standards of business performance. The mutual trust and presumption of good faith required for reasonably efficient and profitable relationships between salesman and wholesaler, supplier and producer, retailer and consumer, banker and client are vital ingredients of any modern economic system.

Such standards of personal and business conduct are necessary not only between enterprises but also within them. Management must learn to conform to certain minimum standards of performance with regard to general business morality; basic respect for workers as individuals; socially responsible employee, labor, and community relations; cooperation with government agencies; etc. For their part, factory workers and office employees must be willing, and must learn, to achieve certain minimum standards of personal integrity, conscientious performance of the work task, regularity of attendance, responsible care of machinery and equipment, positive interest in the enterprise's productive performance, and so on. Without these and other norms of personal and business behavior, substantial economic growth is not likely to occur because the production process will remain too inefficient and economic relationships too undependable.

These standards of business performance are much less tangible and more difficult to inculcate than are those relating to the physical characteristics of parts and finished products, for they are direct reflections of the most basic values and attitudes of a society. Pre-industrial societies do not generally attach high value to productive labor per se, to disciplined, interdependent teamwork, to impersonal institutional loyalties, and to regularity of attendance at repetitive routine work tasks and their conscious and conscientious performance. The transition to the kind of "puritan ethic" required for a modern industrial system—whether capitalistic or socialistic—is neither easy nor rapid, as the industrializations of Western Europe, the United States, Soviet Russia, and Japan have each proved in different ways.

Brazil as a whole is as yet in the earlier stages of this profound transformation, though it has already gone quite far in the industrially more advanced parts of the country.

Sociologists and economists do not yet understand much about the complex factors which enter into the transformation of preindustrial values and attitudes into those required for a dynamic industrial system. However, they are generally agreed that one significant influence is the example set by the activities of business enterprises from already industrialized countries. General Electric is by no means unique in the United States among companies that exemplify in greater or lesser degree the values and attitudes of industrial society. But in Brazil GE was one of the pioneers and hence its influence in disseminating such standards of business performance has been of proportionately greater importance. In part, this effect has been the natural and inevitable result of GE's own operations. However, it has also been the result of a deliberate and conscious effort by the Company to set a good example.

Once again, by interpreting its own interest broadly, the Company has been able to contribute more effectively to the advancement of the country. The widespread acceptance by Brazilian industry of standards of product and production quality and of personal and business conduct has been a major factor in the country's magnificent industrial growth in the past decade. Without it, Brazil would not yet have been ready for its own burgeoning automotive industry, its expanding steel mills, its growing capital goods production. While GE has certainly not been the only enterprise responsible for the dissemination of standards in the Brazilian economy, its contribution in this respect has, in the opinion of the writer, been one of the most outstanding.

Development of People

GE's impact on consumer tastes in Brazil and its success in inculcating the standards indispensable to economic growth are two very important "intangible" contributions the Company has made. But perhaps the most important contribution of all has been GE's development of people within its own organization. It has been by affording unlimited opportunities for Brazilians to operate and manage the Company's affairs in Brazil, and by providing both the training and the inducements needed by Brazilians to take full advantage of these opportunities, that GE has done most to make the complicated business of manufacturing and marketing respectable among the popula-

tion at large. At the same time, GE's outstanding record in the development of its people is probably the most important of the factors responsible for the widespread good will that the Company has enjoyed in Brazil.

Chapter IV has described in some detail the training and educational programs carried on by GE and its policy of promoting Brazilians to any position within the organization, including that of president. In the writer's experience, there is no aspect of a U.S.-owned company's activities abroad that is more closely watched in lesser developed countries than its practice with respect to the training and promotion of the local people. Other considerations being equal, the degree of local acceptance of a foreign business firm varies directly with the extent to which it provides its local employees with opportunities to acquire technical and managerial skills and to rise to any position for which they can qualify. A foreign company may be making outstanding contributions in many other ways to the advancement of the host country; but unless it is also training the local people and promoting them to positions of responsibility, those contributions are likely to be overlooked or belittled.

While it is well known in Brazil that GE is U.S.-owned, only the rabid nationalists and crypto-Communists have tried—hitherto without much success—to use this fact as a means of attacking the Company. The vast majority of Brazilians regard GE as a Brazilianized—even if not a Brazilian—organization because, in their relations with it at whatever managerial level and on whatever technical or business problem, they deal almost exclusively with fellow countrymen who have the authority to make decisions and the competence to carry them out. And, because the Company is so regarded, its policies and practices are accorded a degree of respect which would otherwise be unattainable.

It was by no means easy for GE to implement its Brazilianization policy effectively. Considerable difficulties had to be overcome in developing local people capable of filling skilled and responsible positions. These obstacles are not simply the lack of education and training but, more importantly, they reflect more fundamental cultural differences, already noted, which affect local attitudes toward work and modern factory or office disciplines, the relative values attached to monetary and nonmonetary compensations and to material consumption as compared with other kinds of satisfactions, and the prevailing public, business, and personal moralities. Sometimes these cultural differences are so great as to be incompatible with the requirements of modern industrial, commercial, and financial enterprises.

For its part, the Company has obligations to its affiliates and shareholders in the United States which it cannot ever disregard. It must operate in an efficient enough manner to preserve the capital invested and sooner or later to earn reasonable profits. It must conform to the laws and regulations of the host country as well as to those of the U.S. government, where they apply. These and other factors impose certain limits on the Company's freedom of action with respect to its personnel policy.

These two sets of considerations combine to complicate the adoption and effective carrying out of a policy of training local people for the higher-level technical and managerial positions. Nonetheless, many companies have successfully overcome the obstacles involved and more U.S. enterprises are now making determined efforts to do so. Among the former, General Electric has been one of the pioneers, not only in Brazil but in other countries where it operates. Over the past 40 years, and especially since World War II, its example has been followed and many of its methods adopted by increasing numbers of other foreign-owned enterprises in Brazil.

Developing skilled and responsible technicians and managers despite educational deficiencies and cultural differences, though by no means easy, has nonetheless been less difficult in Brazil than in many other countries. Major industrial growth was only just beginning in the early 1930s, but quite a few Brazilians had already been able to acquire experience in modern business methods and standards, owing to the fact that Brazil had been carrying on large-scale foreign trade since the 18th century. Thus, when GE started its employee development activities, there was already a long tradition of responsible business conduct and of the use of comparatively advanced commercial and financial methods at least in the country's chief trading centers and seaports—Rio, São Paulo, and Santos. Moreover, by the 1920s, large numbers of Germans, Italians, and other Europeans, raised in industrialized or industrializing countries, had settled in Brazil and had become important progressive influences within the country.

This situation provided a good basis for applying GE's own employee development methods described in Chapter IV. But equally important has been what might be called the spirit that has pervaded GE's organization during the past 40 years. By and large, the Brazilians employed by GE—particularly the medium and upper levels of factory, office, technical, and managerial personnel—are characterized by pride in their work, conscientiousness of effort, and loyalty to the Company. Such attitudes compensate for, or offset, the lingering effects of traditional preindustrial values and cultural differences.

The elements that have been responsible for this high institutional morale are intangible and therefore difficult to define and appraise. In part, it has been owed, particularly before World War II, to the prestige of working both for an internationally-known company and in the advanced scientific fields of electricity and electronics. In part, too, it results from the Company's invariable practice of treating its Brazilian employees as indistinguishable from its U.S. and European staff members. Finally, it has been fostered by the actual experience of seeing that training opportunities have been freely available to Brazilians and that qualified local people in large numbers have actually been promoted to higher and higher levels within the Company. Whatever the causes, this spirit, or high institutional morale, has been a major factor in fostering the advancement of GE's Brazilian employees and has enhanced the popular acceptance of the Company in the country.

Another reason for GE's popularity in Brazil has been the fact that its solicitude for the development of its people has not been focused mainly upon the upper technical and managerial levels. The Company has been equally concerned to advance its unskilled and semiskilled workers—the great bulk of its employees. For example, after the factory at Santo André was completed, the unskilled and semiskilled construction workers who built it were offered the opportunity to stay on with the Company and learn to fill factory jobs in which their earning power would substantially increase. Many construction workers availed themselves of this offer and today constitute a higher-skilled and higher-income group than those who declined. Another example is the comparatively large number of blind and other physically handicapped Brazilians whom GE has deliberately hired and trained for skilled jobs. These and other activities have convinced Brazilians of the Company's interest in developing people, regardless of their previous social and economic status, and have also contributed significantly to popular acceptance of the Company in Brazil.

THE OUTLOOK FOR THE COMPANY AND THE COUNTRY

LIKE OTHER COMPONENT PARTS of the Brazilian economy, GE is at present in a period of accelerated transition and expansion. The Company's economic environment is changing rapidly and profoundly as industrialization progresses and as the new ways of working and thinking associated with urban living spread to more and more of the population. This transformation has both favorable

and adverse consequences for the Company. In its own adaptation to these external changes, GE must seek to maximize the good and minimize the unfavorable.

Despite the persistence of inflationary pressures and balance-of-payments difficulties, Brazil can be expected over the longer term to continue, and perhaps even accelerate, the extraordinary economic growth of the past decade. Market demand has been growing rapidly and investment capital—public and private, domestic and foreign—has been flowing at an impressive rate into these expanding economic opportunities. This favorable situation could continue indefinitely with probably only temporary interruptions. Like all competent producers of capital goods in the country, GE should benefit from the fundamental growth trend. This expansiveness of the Brazilian economy should provide conditions basically favorable to the further growth and prosperity of GE in Brazil.

The competitiveness of the Brazilian market for electrical products has, however, been increasing at about as fast a rate as its total size. This is a sign of the dynamic quality of the Brazilian and foreign entrepreneurs, who have been eager to avail themselves of the opportunities created by the country's economic growth. From the viewpoint of the Brazilian economy as a whole, the increasingly competitive character of the market is of great benefit. But whether it is favorable or unfavorable for the individual enterprise depends largely upon each firm's specific response to such changing conditions.

GE has long been the largest industrial enterprise in the electrical field in Brazil and its pre-eminence as a pioneering innovator continues undiminished today. However, several energetic Brazilian-owned and foreign-owned firms have appeared on the scene in recent years to offer increased competition to GE in several important product lines. In all probability, the market for electrical and related goods will become more, rather than less, competitive in the future. In that event, the Company will have to intensify its efforts to improve its productivity, salesmanship, and employee relations, so as to maintain an adequate share of the growing market and continue to attract enough efficient labor to operate profitably.

Paralleling these economic changes, and related to them, are a number of political and social trends which are also likely to have important consequences for GE. Politically, Brazil has had one of the most stable governments in Latin America and one of the friendliest to foreign business firms. This basic situation is likely to persist, for most responsible and influential Brazilians recognize both the benefits and the obligations derived from mutually satisfactory relationships, governmental and private, with other countries and their citizens.

However, it cannot be denied that in recent years nationalistic—and even antiforeign—sentiment has been rising in Brazil. True, Brazilian politics have always been nationalistic and successful politicians have at times relied upon antiforeign election appeals. But this traditional type of nationalism has been intensified in recent years by the process of industrialization and urbanization. Today, some of the new and rapidly-growing groups of Brazilian businessmen are quite nationalistic and are opposed to the foreign companies on the theory that an antiforeign attitude serves their self-interests. Others, motivated more by national pride, have been fired by the achievements and potentialities of Brazilian industry and are unwilling to concede a significant share to foreign enterprises either in the past performance or in the future prospects of the national economy. Finally, the swelling urban populations—often crowded into makeshift and insanitary *favelas* (as shantytowns are called in Brazil)—are easily influenced by nationalist or Communist agitators to believe that all their problems would be solved by throwing out the foreigners in general and the North Americans in particular.

Reinforcing the effects of these political and social changes have been the leftward drift and increasing Communist penetration of the Brazilian labor movement. Although the Brazilian trade unions are among the most responsible in Latin America, they will probably be considerably more independent and militant in the future. The danger is that, under greater Communist influence, this increased activity will take forms which could slow down, if not halt, the extraordinary economic growth from which the country as a whole has been so substantially benefiting in recent years. This threat is particularly relevant to those industries, such as metallurgical and electrical products, where the *sindicatos* have already been significantly penetrated by Communists and fellow travelers. Thus, GE—along with all entrepreneurs in Brazil—probably faces more difficult labor conditions in the future.



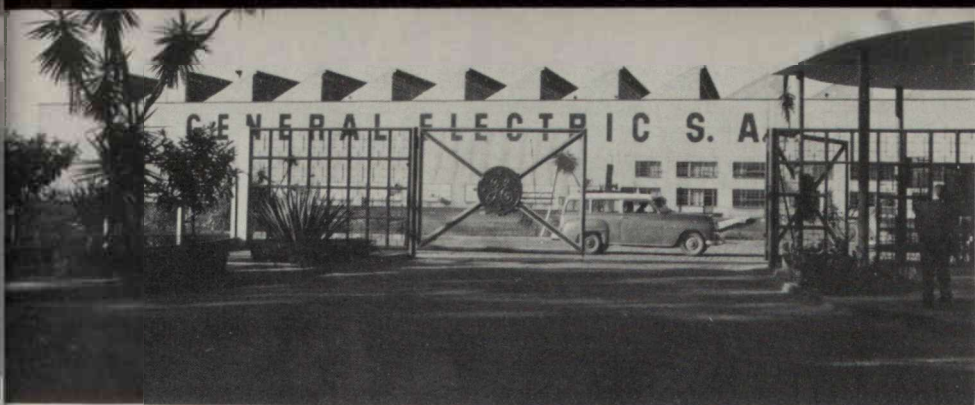
In summary, the basic trends in Brazil over the coming years should be favorable to the continued growth both of the economy as a whole and of well-managed enterprises of all types. However, Brazilian-owned companies and, to a much greater degree, foreign-owned firms are likely to encounter new problems and to experience increased difficulties in their efforts to participate in this growth. The extent to which a company can anticipate emerging problems and make relevant

adjustments in its policies and practices will be directly reflected in its profitability and its public acceptance in the country.

GE has certain evident advantages resulting from its own past achievements in seeking to maximize the advantages of the favorable fundamental trends while minimizing the possible adverse consequences of increasing competition, nationalism, and Communist penetration of the labor movement. Chief among these advantages are: the prestige that the Company has enjoyed in Brazil for more than half a century; the accumulated experience of the past five decades and the extensive knowledge derived from it of Brazilian conditions, limitations, and expectations; the very high degree of Brazilianization at the managerial and technical levels; GE's decentralized form of organization and almost complete operating autonomy combined with intelligent general policy supervision by the parent corporation in the United States; and last—but by no means least—the constructive attitudes and the broad interpretation of Company interest which have enabled GE to contribute to the advancement of the country. These and other qualities inherent in GE's present organization and personnel provide strong grounds for believing that the Company will have the foresight, flexibility, and self-confidence needed to adjust successfully to its inevitably changing economic and social environment.

Many of the adjustments that might become necessary may not be easy for GE to make. For example, meeting more intense market competition without sacrificing some of its socially responsible policies and practices will demand a combination of toughmindedness and broadmindedness that is most difficult to maintain. Rising nationalistic sentiment may require GE to complete the logic of its own Brazilianization program by admitting Brazilians to significant financial, as well as managerial, participation in the capital structure of its Brazilian subsidiary. Dealing constructively and responsibly with increasing militancy and Communist influence in the trade union movement will certainly necessitate still greater attention to labor-management relations and much more patient good will and greater skill than have ever been required of the Company in Brazil.

Although the specific changes in GE's policies and practices which the future may require cannot now be foreseen, it seems more than likely, based on past performance and present capabilities, that the Company will find ways to cope successfully with new and emerging problems. So long as national policy permits foreign companies to participate significantly in Brazil's economic growth, GE should continue to make important contributions to the progress of the Brazilian economy and the welfare of the Brazilian people.

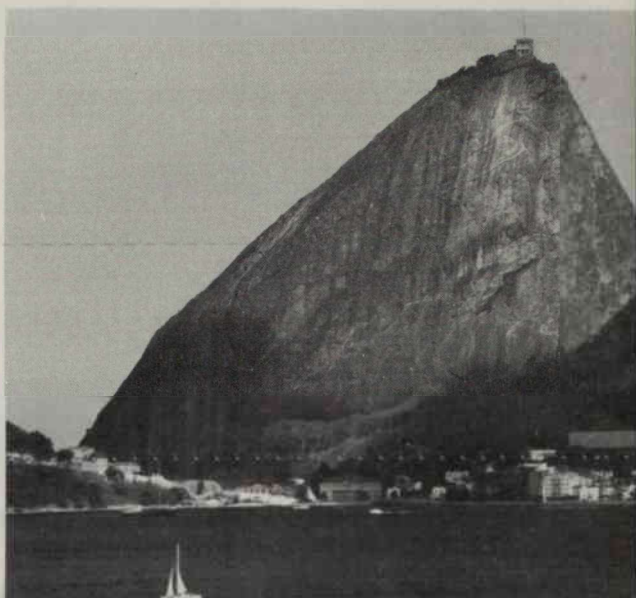


GE'S INTEGRATION INTO BRAZIL'S ECONOMY

THE HOST COUNTRY • • • The Brazilian economy has grown more rapidly and substantially in the past two decades than during the preceding four centuries. Half as large as all South America, with half the continent's people, Brazil is richly endowed in natural resources and an energetic and growing population, but difficult problems still impede the country's drive for economic growth and greatly improved living standards for all Brazilians.

AND THE GUEST • • • During half a century, GE has evolved from a simple importing operation into a set of complex and interdependent engineering, manufacturing, marketing, servicing, financial, training, and managerial activities. It has concentrated on training Brazilians in modern industrial skills and management techniques and in their promotion to top managerial posts. Not only has GE assisted Brazilians in becoming producers of materials, components, and subassemblies and in starting retail outlets, but also its successes in opening new markets have stimulated new investment and production by competitors—both Brazilian and foreign-owned firms.

GE-EQUIPPED television transmitter at top of Sugar Loaf, Rio de Janeiro.





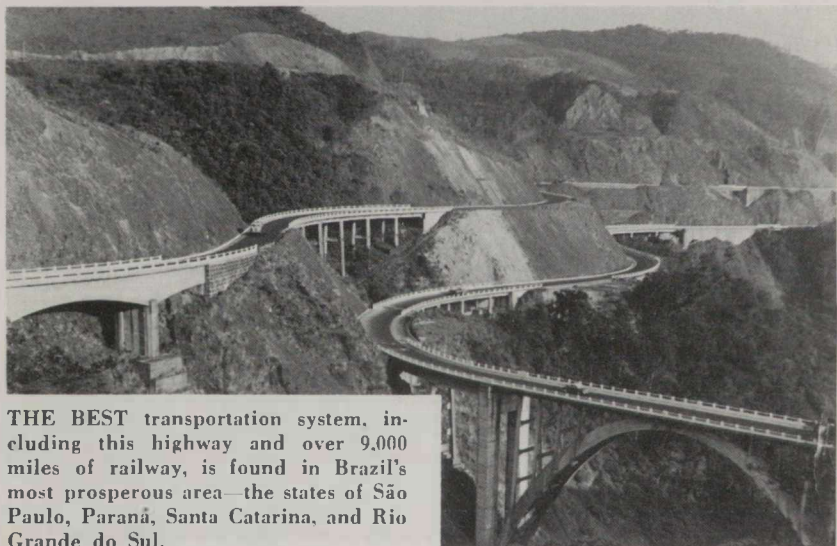
ALMOST HALF of Brazil's 227 electric locomotives and nearly two thirds of its 701 diesel-electric locomotives were built in whole or in substantial part by GE.

BRAZIL'S ECONOMIC DEVELOPMENT

Brazil's efforts to achieve more rapid and balanced economic development have been intensified since 1955 when the Federal government's Development Council initiated a comprehensive program, periodically revised, covering the main economic sectors.

TRANSPORTATION

An inadequate transportation network is perhaps the greatest material obstacle to future expansion, and improvements are slowed by Brazil's immense size and the rugged terrain in parts of the country.



THE BEST transportation system, including this highway and over 9,000 miles of railway, is found in Brazil's most prosperous area—the states of São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul.

THIS ROAD indicates the extent of the transport problem in the arid northeast region—about 11 percent of Brazil's total area, where per capita income is only about one tenth that in Rio and its environs.

Esso Standard do Brasil





Pan American Union

NAVIGABLE for ocean-going ships almost to the Peruvian border, the Amazon River provides the chief means of communication for the vast underdeveloped and sparsely populated northern half of Brazil.

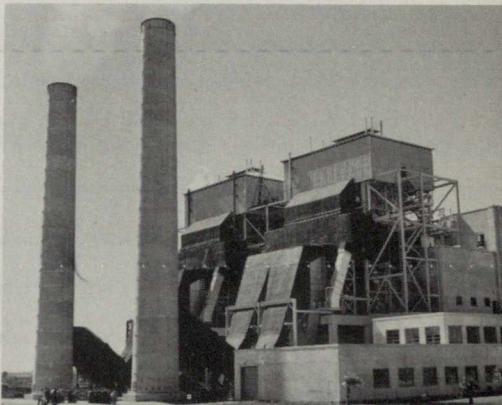
POWER

As a result of inadequate domestic coal and petroleum, more electric power is a prerequisite for industrial development. The installations and power stations already constructed, plus those now under construction or scheduled, should help to alleviate the persistent shortage of electricity.



Pan American Union

GE'S SHARE of Brazil's total electrical generating capacity—over 4 million KW—amounts to 37.3 percent. At left are penstocks at Cubatão Hydroelectric Station, which, expanded and completely equipped by GE in 1960, became Brazil's largest hydro station. Piratininga, below, also GE equipped, is the largest thermoelectric power generating plant in South America.





FASTEST GROWING additions to the domestic market in recent years have been the expanding populations of the metropolitan areas, not only at São Paulo, shown above and to the right, and Rio, below, but also at such newer urban centers as Porto Alegre, Belo Horizonte, and presumably soon Brasília.

INDUSTRIAL AND URBAN GROWTH

Industry has increased by well over two and a half times since 1949 as a result of a high rate of private capital investment—domestic and foreign—especially in such new industries as automobiles, chemicals, consumer durable goods, iron and steel, pulp and paper. Brazil has most of the industrial raw materials required to support continuing large-scale development, though many have not been fully developed.

Real Airlines





Hans Mann, "Strolling Through Rio," Colibris Editora Ltda

CONTRASTS IN HOUSING portray the rapid changes that are taking place in the lives of Brazilians—but also how much remains to be done before all Brazilians achieve desirable living standards. Programs are underway to move Brazilians from Rio's shanty towns like this one, high on the slopes overlooking modern housing projects.

A RESIDENTIAL AREA in the recently dedicated ultra-modern inland capital city of Brasilia.





THE BULK of Brazil's crops grows in the prosperous southern and eastern regions. In addition to coffee, above, other important farm products are cotton and sugar, along with beans, cocoa, corn, rice, tobacco, wheat, and cattle.

AGRICULTURE

Brazil's rapid growth in industry has not been matched by increased agricultural productivity. Modern scientific agriculture exists, but many old and wasteful practices persist. The government, however, is giving technical and financial assistance to speed development of modern agriculture which can contribute more substantially to the country's advancement.



Pan American Union



Pan American Union

OVER 60 PERCENT of all Brazilians live in the countryside and obtain their livelihood in some branch of agricultural and related handcraft and petty trading activities.

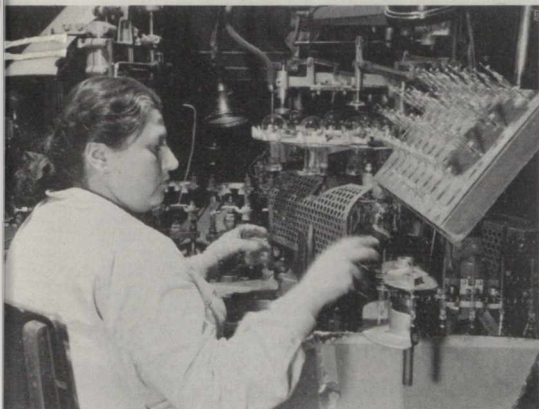
Pan American Union

Pan American Union

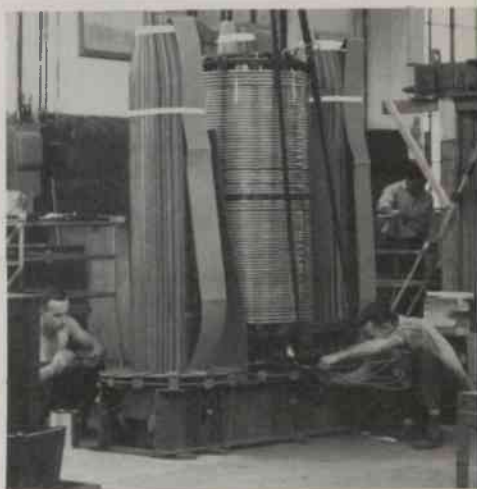


GE'S DIVERSIFIED ACTIVITIES

Beginning as an importer in the 1880s, then turning to manufacturing, GE has reached the point where its Brazilian output far exceeds the volume of imported products it sells in Brazil. It is Brazil's largest single manufacturer of the three main types of electrical goods—lamps and illumination equipment, producer goods, and consumer products.



PRODUCTION of lamp bulbs at GE's Rio plant dates back to 1921, when GE became the first electrical manufacturer of significant size in Brazil. By 1929, there were enough new electricity users in Brazil to begin manufacturing watt-hour meters. But the main expansion took place in the late 1940s and the 1950s. Now in addition to many other producer and consumer goods, the Rio plant makes large high-voltage power transformers, and other capital equipment.



IN SAO PAULO, assembly of radio sets was begun in 1939; production of television receivers, left, started in 1954; later products include portable transistor radios; standard, hi-fi, and stereophonic phonographs and radio-phonograph combinations; automatic flatirons; and many other appliances.



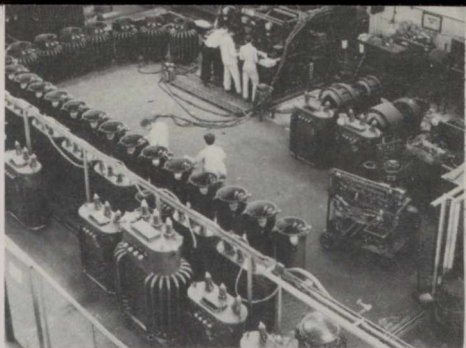
SANTO ANDRÉ. the GE factory built on a 50-acre site in a suburb of São Paulo, in 1949 began producing integral-horsepower induction motors and DC arc welding sets. An assembly line for domestic refrigerators began in 1951, and production of X-ray apparatus in 1952. Subsequently, Santo André began manufacturing additional types of motors and compressors, and a wide variety of other producer and consumer goods.



A new factory, now under construction at Campinas in the state of São Paulo, will manufacture capital equipment—including increased quantities of that already being made in its other factories and many new and larger sizes and varieties of these and other producer goods which hitherto have been imported.

GE'S EMPLOYEE POLICIES

From the start, the GE management in Brazil has had a great deal of autonomy, and its program of deliberately encouraging and training Brazilians to qualify for all positions within its organization was among the first begun by foreign-owned companies in the country. Now, nearly 90 percent of GE's 500 managerial, supervisory, and technical employees are Brazilians, including 35 who hold the majority of GE's 51 highest managerial positions. The total number of employees increased from two thousand in 1945 to almost seven thousand in 1960.



ENGINEERING and managerial talents are being developed in a number of GE's diverse educational programs. These include substantial cooperation with, and assistance to, leading Brazilian engineering schools; financial aid and opportunities for applied training for a selected number of engineering students; arranging for and financing trips to the United States by engineering, supervisory, and managerial employees for special courses in the General Electric Company's training facilities and in U. S. colleges.

TRAINING AND EDUCATIONAL programs are of several kinds, each devised to fit the needs of a particular group of employees—and at any given time approximately 10 percent of GE's factory and office workers are attending one of the voluntary courses. These range from a basic literacy course to such advanced technical courses as general mechanics, metallurgy, and electricity. In each, the employee contributes half of the time required for the course, while the Company pays for the other half and meets all other expenses.



GE COMPLIES conscientiously with Brazil's elaborate system of labor and social welfare regulations, and often substantially exceeds legal minimums—for example, higher wage rates, sick leave payments, and retirement benefits; incentive payments. Christmas bonuses, and contributions to life insurance; provision of clinics, dispensaries, and free services of doctors, X-ray technicians, dentists, oculists, and nurses; and substantial discounts on GE products. Cafeterias are open to all workers at both lunch and dinner, and free coffee is provided twice a day.



GE'S LAMP AND ILLUMINATING Department has developed about 200 independent wholesale distributors and 20,000 retail outlets. GE's own employees sell directly to consumers as well as retailers only in the outlying sparsely populated areas. These GE street lights are at Brasilia.

DEVELOPMENT OF MARKETS

In selling its Brazilian-made products, GE constantly has had to struggle against the consumers' traditionally strong preference for imported goods, and to undertake special campaigns proving the advantages of each newly introduced appliance. Such campaigns, for example, were needed in the 1930s to combat widely held beliefs that refrigerators and air conditioners caused pneumonia. This continued development of consumer tastes has been good business—as illustrated by the tripling of total sales since 1945—but also has helped make Brazilians more willing to accept new ways of life in a changing economy.

THE CONSUMER GOODS Department has approximately 500 distributors. Sales of over 156,000 domestic refrigerators from 1951 through 1959, and great quantities of other consumer goods, would have been impossible had it not been for GE's leadership in providing credit on extended time terms to distributors, who pass it on so that retailers may provide consumer credit on easy terms.



THE PRODUCER GOODS Department sells standardized mass-produced items to wholesale and retail outlets. But the heavy electrical equipment is usually custom-made for specific applications and sold directly to customers. As GE's Brazilian engineers have acquired the experience necessary to design and produce such equipment, an ever growing proportion of such orders are filled from the Brazilian factories rather than through imports.

GE'S RELATIONS WITH SUPPLIERS AND COMPETITORS

GE has enhanced its position in Brazil by providing financial assistance and engineering and managerial services in a variety of ways to help Brazilian firms supply many of the materials and parts—of a quality to meet precise specifications—which go into GE's diverse products. Furthermore, rather than resisting the steadily growing competition for the markets which it has tried so hard to develop, GE has welcomed both Brazilian and foreign-owned competitors, while stepping up its own programs for modernizing and expanding both manufacturing and marketing activities.



TELEVISION RECEIVERS provide one example of cooperation with local suppliers. GE at first had to import all of the many small and intricate parts. Now, as a result of working with new and existing Brazilian firms, 60 percent (by value) of the components are produced in Brazil and this percentage will be more than 95 percent very soon when Brazilian firms start production of picture tubes. Similar examples are found in components for lamps, motors, and many other products.





GE ENGINEERS not only have adapted U. S. techniques to Brazilian needs, but, on their own, have developed entirely new processes and products. An example is a new inside coating for lamps and the special equipment needed to make and apply it.

AS PART OF EFFORTS to promote quality standards in Brazilian industry, GE has helped to found and has actively participated in several technical organizations and trade associations. And it joined with Brazilian leaders in setting up SENAI (National Service of Industrial Apprenticeship). In the SENAI building, at right, general education is combined with training in specific skills for growing numbers of young men.



Through trial and error, and with the help of its parent organization, GE has developed many policies and practices which have worked well for the Company, and also have provided helpful guides for other foreign-owned operations as well as Brazilian-owned firms. In so doing, it has enjoyed good relations with its host country, and has contributed significantly to Brazil's ongoing efforts to build a better future.

Photographs, unless other credits are given, courtesy of the Brazilian Embassy, Washington, D. C., and General Electric Company.

Appendix I

Chronological List of Main Events in GE's History in Brazil

- 1881—Edison Electric Light Company lamps installed in Ministry of Public Works building in Rio de Janeiro.
- 1883—City of Campos inaugurates Brazil's first power plant for public street lighting, using Brush dynamos and Brush arc lamps.
- 1892—First street railway company in South America to run cars on power transmitted by wire begins to operate in Rio with dynamos and trolley cars furnished by Thomson-Houston International Electric Company.
- 1893—James Mitchell, first representative of the newly-formed General Electric Company, arrives in Brazil and establishes an office in Rio de Janeiro and, a few years later, one in São Paulo.
- 1901—Two GE 1000-KW generators—until then the largest built—go into operation in the Parnaíba Hydroelectric Station in the state of São Paulo.
- 1909—The Piabanha Hydroelectric Station, with three GE 3000-KW waterwheel generators and complete GE equipment, is inaugurated in the state of Rio de Janeiro.
- 1910—The Itatinga Hydroelectric Station, with five GE 3000-KW waterwheel generators and complete GE equipment, is inaugurated as the principal source of power for the city of Santos and its port installations. After 43 years of service, the station was completely modernized in 1953, but the original GE generators were retained because of their excellent condition.
- 1914—Companhia General Electric do Brasil, Inc. is formed in New York state to take charge of General Electric's exports to Brazil.
- 1919—General Electric Sociedade Anônima, a wholly-owned Brazilian subsidiary of the International General Electric Company, is formed in Rio to handle both imports and local manufacturing operations.
- 1921—GE's Rio factory starts production of incandescent lamps assembled from imported components.

- GE electric locomotives and substation equipment begin to arrive for the 3000-volt electrification of the Companhia Paulista de Estradas de Ferro railway in the state of São Paulo. For this electrification—Brazil's biggest—GE has supplied up to 1960 a total of 65 electric locomotives, including five 245-ton locomotives of 5900 hp—among the world's largest—and also most of the motor-generator sets, rectifiers, and other substation equipment.
- 1922—GE introduces commercial refrigeration in Brazil.
- 1923—GE provides two 1200-hp motor-driven centrifugal water pumps for removal by high pressure water jets of the Morro do Castelo hill in downtown Rio.
- 1924—GE supplies two 5600-KW waterwheel generators and all electrical equipment for the Fagundes Hydroelectric Station serving the state of Rio de Janeiro.
- 1925—To overcome the serious power shortage in São Paulo, GE makes a record delivery of two 10,000-KW waterwheel generators and all electrical equipment for the Rasgão hydroelectric plant, which was built in 11 months.
- 1926—GE establishes branch offices in Belo Horizonte, Porto Alegre and Salvador, and also a Lighting Service Bureau in Rio (with a branch later in São Paulo) to disseminate the theory and practice of good lighting.
- The Cubatão Hydroelectric Station is inaugurated at the base of the Serra do Mar mountain range near Santos as the main power source for São Paulo. Initially equipped with two GE 44,000-KW waterwheel generators and all GE equipment, this station was subsequently enlarged by the addition of six GE 66,000-KW waterwheel generators and other GE equipment, thus making it the largest hydroelectric station operating in Brazil in 1960.
- 1928—The Maribondo Hydroelectric Station inaugurated in São Paulo state, with two GE 3200-KW waterwheel generators and other electrical equipment.
- First electric street traffic control installed on the Avenida Rio Branco in Rio de Janeiro, using GE equipment.
- 1929—GE's Rio factory begins production of watthour meters.
- First hospital operating-room air conditioning installation made in Brazil, using GE equipment.

- 1930—GE's Rio factory starts manufacture of transformers of distribution type.
- First automatic hydroelectric power station with remote controls inaugurated in Brazil in Juiz de F6ra, state of Minas Gerais, with all equipment supplied by GE.
 - For the first time in Brazil, completely indirect lighting is installed in a church—the Candel6ria in Rio de Janeiro—with the design and installation made by GE.
 - GE establishes at its Rio factory the first training program in Brazil for graduate engineers. In time, this program develops into the GE Engineering Student Training Course which, up to 1960, has given practical factory experience to more than 600 young engineers.
- 1931—The monument of Christ the Redeemer is inaugurated at the top of Corcovado Mountain in Rio de Janeiro, overlooking the city and Guanabara Bay. GE designed the lighting of the monument and made the complete floodlighting installation, which Guglielmo Marconi turned on by radio from his yacht anchored in the Bay of Naples, Italy.
- 1933—GE supplies two 3000-KW steam turbine generators and all electrical equipment for the first large industrial electric power station in Brazil, located at the cement mills of the Cia. Nacional de Cimento Portland, a subsidiary of the Lone Star Cement Company of the United States, in the state of Rio de Janeiro.
- 1936—GE's Rio factory begins manufacture of power transformers.
- Research and development laboratory inaugurated at the Rio factory.
 - Production of radio receivers begins at new GE factory in S6o Paulo.
- 1941—Apprentice training course is started at the Rio factory.
- 1942—GE's Rio factory begins production of fluorescent lamps, oil circuit breakers, magnetic motor starters, and disconnecting switches.
- GE purchases site for a new factory at Santo Andr6, S6o Paulo.
- 1943—Three modern Class M destroyers, built for the Brazilian Navy by the Navy Arsenal in Rio de Janeiro and equipped with GE main drive geared propulsion steam turbines and GE auxiliaries, are launched and go into service.

- 1944—GE's Rio factory begins production of insulating varnishes and compounds, metal-enclosed switchgear, and unit substations.
- GE substation equipment is installed on the first section of the 3000-volt electrification of the Sorocabana Railway, state of São Paulo, for which GE also supplied, up to 1960, a total of 25 130-ton, 2200-hp electric locomotives, the complete mechanical portions for 21 additional locomotives, and mercury-arc rectifiers, transformers, and other substation equipment for further electrification extensions.
- 1945—GE supplies large quantities of auxiliary motors and controls, the electrical main drives for various rolling mills, and two 5000-KW steam turbine generators, large pump motors, etc., for South America's largest steel mill at Volta Redonda. In all subsequent expansions of this steel mill, GE equipment, including main drives for additional rolling mills, and two 10,000-KW steam turbine generators played a leading role.
- 1946—GE supplies principal electrical equipment for South America's largest newsprint, cellulose, and paper mill, the Indústrias Klabin do Paraná de Celulose S.A., at Monte Alegre in Paraná, including a 10,000-KW waterwheel generator for the hydroelectric station and later an additional 12,500-KW waterwheel generator.
- GE furnishes and completes installation of entire electrical and hydraulic equipment of the 13,000-KW Gafanhoto Hydroelectric Station, and the Industrial City substation at Belo Horizonte, Minas Gerais.
- 20 modern ocean-going freighters built in the United States and Canada for the Lloyd Brasileiro line—all with GE auxiliaries, and 16 with GE-geared turbine main drive propulsion equipment—go into service.
- 1947—Brazil's first aluminum reduction mill at Saramenha near Ouro Preto, Minas Gerais, begins operation, with GE supplying all electrical equipment.
- 1948—Production of welding electrodes and also of glass tubing for fluorescent lamps begins at GE's Rio factory.
- Hydroelectric pilot power plant with GE generator and equipment begins to supply construction power for the gigantic Paulo Afonso hydroelectric development on the São Francisco River.

1949—Production of integral-horsepower induction motors and of 200-ampere DC arc welders begins at new GE factory at Santo André.

—GE 50,000-KW frequency changer goes into operation at Aparecida substation for power interchange between the Rio Light 50-cycle power system and the São Paulo Light 60-cycle power system.

—3000-volt DC electrification of the Central do Brasil railway, from the Rio suburbs at sea level to 2,300 ft. elevation at the top of the Serra do Mar mountains at Barra do Pirai, is inaugurated. For this electrification, GE supplied nine 165-ton, 4400-hp electric locomotives, the complete mechanical portions for six additional locomotives, and substation equipment, including an inverter substation of electronic type—the first of its kind in operation on railway service.

1950—Four Class A Destroyers with GE geared-turbine main drives and GE auxiliaries, built at the Naval Arsenal in Rio de Janeiro, are commissioned by the Brazilian Navy.

—GE supplies two 25,000-KW waterwheel generators and all electrical equipment for the Salto Grande Hydroelectric Project on the Santo Antonio River in Minas Gerais, as well as complete substation equipment for the Itabira substation in the heart of the iron ore mining region and for the Santa Luzia substation at Belo Horizonte's new Industrial City. This new power system employs a transmission voltage of 161 KV—a new class for Brazil.

—The "Piraquê" floating steam electric power plant, with a GE 30,000-KW steam-turbine generator, purchased by Rio Light from the Puerto Rico Power Authority, arrives and is anchored in Rio's Guanabara Bay. Connected into the Rio Light system, it augments Rio's power supply.

—GE's Santo André factory begins production of "Formex" enamel-insulated wire, for use in GE's Brazilian-made motors and for sale to others. Manufacture of insulating compounds, varnishes, and solvents is transferred from GE's Rio factory to Santo André, where production is greatly expanded.

1951—Santo André factory begins production of GE domestic refrigerators, utilizing motor-compressor units imported from the United States.

- 1952—Pumping stations along the Santos-São Paulo oil pipeline are equipped with GE motor drives and controls for pumps.
- Modern high-speed rotary printing presses, with GE electric drives and controls, are installed by the newspaper *O Estado de São Paulo* in one of South America's largest and most modern printing establishments.
 - Hydraulic pumps start operation in the pumped water storage system of Rio Light with four 9500-hp vertical synchronous motors in the Santa Cecilia pumping station and five 22,500-hp vertical synchronous motors in the Vigário pumping station, all supplied by GE.
- 1953—GE's Rio factory produces its first 5000-KVA, 3-phase transformers—the largest manufactured in Brazil.
- 1954—GE's Rio factory inaugurates a complete, specialized, metallurgical plant for the reduction of Brazilian tungsten-bearing ores and the production of ductile metallic tungsten, including processing the material into wire for subsequent drawing into filaments for lamps. This plant was and still is the first of its kind in South America. The ductile metallic tungsten wire output is used not only for filaments of GE lamps but is also sold to other Brazilian manufacturers of lamps and electronic tubes.
- GE's São Paulo factory begins production of television receivers, utilizing largely imported components.
- 1955—Two GE 100,000-KW steam turbine generators—then the largest in South America—go into operation in the new 200,000-KW Piratininga Power Station of São Paulo Light.
- The Rio factory begins production of automatic electric flat-irons for which it manufactures the cast-in Calrod heating elements and thermostats.
- 1956—The new underground Cubatão Hydroelectric Power Station is inaugurated, with four 63,750-KW GE waterwheel generators, 230-KV GE transformers, and switchgear.
- GE's Rio factory manufactures its first 92-KV class power transformers—the highest voltage transformers produced in Brazil.
 - GE receives order for two 22,500-KW waterwheel generators and switchgear for the Camargos Hydroelectric Power Station in Minas Gerais completed in 1960.

- 1957—GE receives order for four 5000-KW gas turbine-generator sets and all auxiliaries for the Flórida Paulista gas-electric power station in the state of São Paulo—the largest of its kind in Brazil, entering operation in 1960.
- 1958—GE's Santo André factory begins production of hermetically-sealed motor-compressor units for refrigerators, making possible a reduction in the value of imported materials, parts, and components from 38 to 24 percent.
- The Santo André factory begins production of oscillating electric fans.
 - The Rio factory begins manufacture of 50,000-ampere interrupting capacity, 600-volt class GE-type air circuit breakers.
 - Two more 27,000-KW GE waterwheel generators enter operation in the expanded Salto Grande Hydroelectric Station on the Santo Antonio River in Minas Gerais.
 - The first two (of four) 17,000-KW GE waterwheel generators start operation in the new Salto Grande Hydroelectric Station on the Paranapanema River in the state of São Paulo.
 - Petrobrás orders from GE three 7500-KW steam turbine generators; also, all switchgear and mechanical drive steam turbines for its new Duque de Caxias oil refinery, as well as all transformers—the latter to be manufactured in Brazil at the GE Rio factory.
 - GE's Rio factory manufactures 8000/10,000-KVA, 138-KV, 3-phase transformers—the largest and highest voltage transformers produced in Brazil.
- 1959—The third 17,000-KW GE waterwheel generator enters operation in the Salto Grande Hydroelectric Station on the Paranapanema River.
- GE's Santo André factory begins manufacture of 400-ampere DC arc welders.
 - GE's Rio factory manufactures four 15,000-KVA, 1-phase, 161-KV power transformers—the largest single-phase units yet manufactured by anyone in Brazil, and the highest voltage class produced by GE. Rio factory also manufactures two 15,000/20,000-KVA, 34.5-KV, 3-phase power transformers, which are the largest capacity units produced by GE, as well as two 10,000/12,500-KVA, 3-phase transformers of the 138-KV class,

which, in point of combined capacity and voltage class, represent the highest rating so far produced by the Rio factory.

—The Rio factory manufactures 15-KV class oil circuit breakers having a 350-MVA interrupting capacity.

1960—The fourth (and last) 17,000-KW GE waterwheel generator starts operation in the Salto Grande Hydroelectric Station on the Paranapanema River, completing the installation of this 68,000-KW power station, which supplies power to the states of São Paulo and Paraná.

—Two GE 125,000-KW steam turbine generators—the largest units in South America—go into operation in the extended Piratininga Power Station. With the two GE 100,000-KW units operating there since 1955, the total generating capacity of this station becomes 450,000-KW, making it the largest thermoelectric power generating plant operating in South America.

—GE receives order for two 5000-KW gas turbine-generators with auxiliaries, for the standby power station at Brasília, the new Federal capital of Brazil.

—GE receives order for 4,800 street lighting luminaires of advanced design and 16,000 latest-type “power-groove” fluorescent lamps for street lighting of the city of Brasília.

—GE receives order for one 12,650-KW and one 3750-KW steam turbine-generators for the power station of the new COSIPA steel mill being built near Santos, state of São Paulo.

—GE receives order for all 345-KV class power transformers required for the first construction stage of the Furnas Hydroelectric Project. These are the highest voltage transformers as yet acquired by any power system in Brazil and mark the beginning of the use of the 345-KV voltage class in the country.

—GE receives orders from the Rêde Ferroviária Federal S.A., the government railway system, for a total of 173 Diesel-electric locomotives, ranging from 430-hp to 900-hp, for service on various Brazilian wide and narrow gauge railroads, and also six 123 ton, 4500-hp, wide gauge, 3,000 volt electric locomotives for service on the E.F. Central do Brasil.

- GE's Rio factory manufactures two 12,000/16,000/20,000-KVA, 3-phase, 132-KV/69-KV/13.8-KV, 3-winding transformers, which in KVA, voltage classes, and complexity combined, represent the highest rating as yet produced by GE.
- The Rio factory manufactures one 20,000/26,600/33,300-KVA, 3-phase, 69-KV/13.8 KV transformer, which in terms of absolute rating is the largest transformer built in Brazil by any manufacturer.
- GE acquires a tract of land measuring 168 acres in the Boa Vista suburb of Campinas, state of São Paulo, as the new industrial site for a major expansion of GE's manufacturing facilities in Brazil. This site, about six miles from the center of Campinas, lies alongside the main line of the wide gauge, electrified Paulista Railway, and very near the Anhanguera express highway leading to the city of São Paulo, 70 miles distant. Designs are completed and construction is beginning of the first GE plant at this new site—a large, modern, multiple-purpose factory having a covered area of 210,000 square feet. Scheduled for completion by the middle of 1962, this factory will have ample manufacturing, quality control and testing facilities, and a model shop for product development, suited for large-scale production of the most extensive variety of heavy electrical stationary and rotating apparatus as yet undertaken by any manufacturer in Brazil or elsewhere in Latin America. The factory will enable GE to produce in Brazil such heavy electrical apparatus as: power transformers up to 380,000 volts of virtually any size required; instrument transformers, power circuit breakers, and disconnecting switches up to 380,000 volts; waterwheel generators up to 150,000-KVA; steel mill maindrive motors up to about 7000-hp, alternating and direct-current motors, generators and motor-generator sets of medium and large sizes and various types for diverse heavy-duty industrial, marine, and other applications; rotating electrical components for Diesel-electric and electric locomotives, and for Multiple-Unit trains, trolley buses and street cars; complete electric locomotives; etc.

Appendix II

Statistics Illustrating GE's Quantitative Contribution to the Brazilian Economy

1. Electric Power Generation

Installed electrical generating capacity in Brazil on December 31, 1959, was:

hydroelectric	3,262,400 KW
thermoelectric	801,100 KW
Total	<u>4,063,500 KW</u>

This installed generating capacity contained:

GE waterwheel generators (U.S.- and Canadian-built)	1,207,800 KW
GE steam turbine generators (U.S.- built)	311,400 KW
Total in GE generating units ..	<u>1,519,200 KW</u>

Thus, GE's share of Brazil's installed electrical generating capacity was at the end of 1959:

hydroelectric	36.9%
thermoelectric	38.8%
Total	37.3%

2. Rail Transportation—Locomotives

a. Electric locomotives in railway service in Brazil at the end of 1959:

Total number of electric locomotives (supplied by 9 manufacturers: 2—U.S., 2—British, 4—Continental European, 1—Brazilian)	227
Number of GE electric locomotives (U.S.-built)	107
General Electric participation	47%

b. Diesel-electric locomotives in railway service in Brazil at the end of 1959:

Total number of diesel-electric locomotives (supplied by 3 U.S. manufacturers)	701
Number of GE diesel-electric locomotives (U.S.-built)	246

Number of ALCO diesel-electric locomotives with GE electrical equipment (U.S.-built)	205
Total number of diesel-electric locomotives with GE electrical equipment (U.S.-built)	451
General Electric participation	64%
c. Diesel-electric locomotives in industrial and port switching services in Brazil at the end of 1959:	
Total number of diesel-electric locomotives (supplied by 2 U.S. manufacturers)	65 (est.)
Number of GE diesel-electric locomotives (U.S.- built)	61
General Electric participation (approx.)	93%

3. Lamps

Principal types of lamps produced by GE in Brazil; years in which initial manufacture of each type commenced at Rio factory; and units of lamps sold up to December 31, 1959:

<i>Type of lamp</i>	<i>Year</i>	<i>Thousands of units</i>
large incandescent	1921	555,700
miniature incandescent	1934	81,600
photographic	1939	11,900
fluorescent	1942	13,700
Total		662,900

4. Miscellaneous items

	<i>First manufactured</i>	<i>Cumulative totals to 12/59</i>
Distribution and power trans- formers	1930	44,965 units 2,896,947 kva
Domestic refrigerators	1951	156,493 units
Radio receivers	1936	300,551 units
Integral horsepower induction motors	1949	230,959 units 1,075,706 hp
Watthour meters (accurate production figures available only since 1941)	1929	2,270,528 units
Welding electrodes	1949	20,047,251 kg

THE POLICY COMMITTEE'S STATEMENT

IN UNDERTAKING THIS PROJECT the National Planning Association is not attempting to assess or describe how U.S. business enterprises generally operate abroad. Rather we are concerned with an objective study of some selected cases in which U.S. business management has, in pursuance of normal and profitable operations abroad, taken positive steps toward raising living standards and helping to integrate into countries less developed than the United States the foundations of a more mature economy. We are attempting only to sketch out those aspects of typical managerial efforts that contribute to the general economic and social progress of a host country. In confining ourselves to this facet of the problem of U.S. private enterprise abroad, we are not deprecating or belittling the other side of the coin, nor are we trying to write the "success" stories of nonprofit operations.

Underlying this project are the following assumptions concerning the relationships between U.S. private enterprise and the interests of the countries in which this private enterprise is operated:

First Assumption

We assume that certain, though not all, U.S. private enterprises operating in foreign countries have made contributions to the welfare of those countries and that these contributions have resulted from the foresight of management. We are convinced, therefore, that well-operated and profitable businesses abroad can establish patterns of behavior that contribute materially to the welfare of the countries involved without unduly disturbing native cultures, living patterns, and ideologies.

Second Assumption

Properly managed private enterprise abroad contributes to its market and economic area an organizational pattern, within which new enterprises are developed by people native to the host country. This chain reaction helps to create a manageable, more productive economy. In other words, well-run U.S. enterprise abroad not only can be self-sustaining, but also can give birth to or stimulate the development of corollary enterprises as a result of the private enterprise pattern taking hold.

Third Assumption

A basically private enterprise economy in less developed countries, of which well-managed U.S. private enterprises can well be a part, provides strong insulation against Communism, totalitarianism, and political instability. Therefore, it is to the national interest of the United States to have "policies" that promote enlightened and well-managed U.S. enterprises abroad. Conversely, it is in the best interests of all parties concerned that the United States Government use its influence to promote cooperation between U.S. private enterprises abroad and democratic countries in which they operate.

Fourth Assumption

The soundest way of assuring continued access in the less developed countries to those vital raw materials which the United States needs is to take cooperative measures to help those countries improve their standards of living and strengthen their economies. One of the most practical ways of doing this is to provide encouragement to U.S. private enterprises to help these countries develop their resources insofar as they want the assistance of U.S. management organization, private capital, knowledge, experience, and technical skill.

Fifth Assumption

In the long run, the "success" of an enterprise abroad must be judged in the light of its relations to the host country. The ultimate success and permanence of the enterprise must necessarily be related to the importance of its contributions insofar as the host country is concerned, since enterprises typical of those we are studying do not exploit host countries, but create wealth which is shared by their citizens. If U.S. private enterprises abroad are managed in such a way that the host countries are convinced they are also promoting their economic and social development, then it is most likely that they will receive the cooperation essential to long-run survival.

Since the above assumptions are general considerations, it is unlikely, that any specific *Case Study* will bear directly on all these points. All *Case Studies*, however, will be measured against the fifth basic assumption. Our inquiry, therefore, is an area that until now has been almost wholly neglected.

The files, information, and services of our governmental departments, numerous agencies and special commissions, the Export-Import Bank and the International Bank for Reconstruction and Development are replete with current and historical information helpful to the businessman contemplating operations in foreign lands. In addition there are many private agencies—particularly commercial and investment banks maintaining foreign departments—engaged in counseling on legal, financial, trade, transportation, and local political conditions throughout the world. Our *Case Studies* will not aid the student or businessman seeking out specific answers to questions in the legal, financial, political, and related subjects. We are under no illusions as to the many difficulties that beset management in initiating and maintaining operations abroad.

We do not assume that U.S. enterprises will go abroad unless they believe they can return a satisfactory profit on the capital placed at risk, although collateral considerations may be involved. In pursuing profits, however, the "successful" enterprise finds it pays dividends to strive consciously to contribute to the social and economic life of a host country. For this reason, there should be no misunderstanding of what we are studying. We are not delving into the business transactions of any company under study except as they may relate to these contributions in our area of inquiry.

We frequently hear these days of the unsettled conditions abroad, that little or no basis exists for private investments in foreign countries, and particularly that the world is hostile to U.S. capital and our production methods (though not to our achievement!). This may be true among certain segments of the world's population, but an increasing number of foreign governmental and private leaders are consciously trying to create and maintain an economic climate favorable to such ends. Most of the world is short of capital and very short of dollars—yet at present it is only from the United States that they may obtain both to a degree necessary to their continued growth.

Capital that goes abroad without management—as much of it did in the early twenties—often constitutes a poor risk. That which goes abroad under American management—through U.S. business firms establishing branches or subsidiaries—usually shows better results both from a profit standpoint and in terms of economic and social contributions to the host countries. Governmental guarantees by this country are not nearly as effective in safeguarding such investments as the enlightened attitudes of the U.S. businessmen who manage the investments. This coun-

try has much to offer the world in business organization, technical know-how, and creative capital. The building of economic units in foreign countries that are not only profitably managed but also provide a positive economic and social contribution to their host countries are the surest guarantees that such capital will not be subject to abnormal risks.

The rapid expansion of industrial capacity here and abroad has enormously increased the need for raw materials throughout the world. On this basis alone, it is in our self-interest to encourage private capital to seek profitable opportunities in underdeveloped areas. And in so doing, we can demonstrate that we are creating new outlets for electric power, transportation and port facilities, increased industrialization, greater demand for U.S. capital goods, and contributing to the increase in international trade in general. However, unless we can come to a more realistic "import" policy, the export of U.S. capital will shrink and with it will go one of the principal ways to meet the present critical "dollar gap." This dollar shortage abroad is already seriously threatening our nondefense export trade.

Because we live in a world of state trading, exchange controls, export subsidies, import quotas, and intensified nationalistic aspirations there is special need for correlating private and governmental action in the exportation of U.S. capital. Everyone, including the taxpayer, benefits when governmental action constructively complements the flow of private capital abroad; when such action anticipates and helps create the appropriate climate, and when it fosters the long-range development of economic and trade relations of this and responding host countries.

The fact that we are only studying successful companies certainly implies that they have been profitable to their stockholders, and therefore we will not concern ourselves directly with this facet of their success. Our concern is rather how these selected though typical companies have earned the title "successful" insofar as they have benefited the host countries. For convenience, we may outline these principal possible benefits in the order of greatest ease in ascertaining their existence:

I. Contribution to the basic economy

- A. Additional resources (land, minerals, etc.) brought into use for the country.
- B. Transportation, energy, communications which are built, fostered, subsidized, or otherwise created by the company or by virtue of its operations and available to the use of the country in whole or in part.

- C. Products of the company consumed or used in the host country.
- D. Related industries developed with company assistance or which are attributable to the company's operations.
- E. Service industries and trades dependent on and arising because of the operations of the company and the additional purchasing power of the labor force.

II. *Contributions to living standards*

- A. Improvement in wages, hours of work, and employment conditions.
- B. Better housing.
- C. Improved health and sanitation.
- D. Greater opportunities for education and recreation.
- E. Higher levels of nutrition.

III. *Institutional benefits*

- A. Formation of and use of local capital.
- B. Improvement in skills.
- C. Changes in patterns of doing business.
- D. Tax, social, and other legislation encouraged or fostered.
- E. Changes in public administration.
- F. Greater civic responsibility.

IV. *Cultural*

- A. Are the company operations as a whole tending to increase the middle class?
- B. Is initiative passing to more responsible groups?
- C. Are class conflicts decreasing?
- D. Is there greater respect for human rights?

Unfortunately many of these broad areas of benefits cannot be measured or even detected except over a considerable period of time. They will be present or absent in varying degrees according to the type, size, and purpose of the capital investment and the stage of the country's development at the time the initial investment was made. Certainly the cultural benefits will emerge gradually and probably only will be measurable by the influence of the total impact of all managed capital—foreign and local—rather than any one part of it.

In addition to these external factual areas, we are vitally interested in studying the relationships and attitudes that have made these practices successful:

How has the company met the obstacles which it has encountered?

To what extent has the company introduced U.S. managerial skills and methods cut to fit the operating picture abroad?

How has the company sought and obtained the cooperation of employees, government officials, and community; and have the views of these people changed markedly since the company first started operations?

Has the company sought to identify itself with the community as a friendly institution?

Has it sought to train native labor for the higher skills, for supervisory and executive positions, and have such efforts resulted in higher productivity, greater responsibility, and understanding on the part of labor?

Have the company's practices in investing capital and securing return of profits been made progressively easier?

Has the company brought know-how, technical assistance, and business management that could not have been provided at all—or as effectively—by government programs?

Above all, we shall be describing U.S. business management attitudes toward its job of conducting successful operations abroad, its flexibility and patience in meeting the great obstacles that are presented in so many fresh and challenging ways. Let no one be deceived by these studies into believing that the way of business management abroad is all romance, huge profits, and success, purchasable in the market place. The rewards are adequate, the work is hard but interesting, and, as at home, the results are created, not bought.

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