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Brazil; Our Economic Partner: A Study of Brazil and the Future of our Trade

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BRAZIL: OUR ECONOMIC PARTNER

A Study of Brazil
and the future of our trade.

A THESIS
Submitted in partial fulfillment of
the Requirements for Department Honors

By
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Approved by
Department of Economics.
May 19, 1947.
An industrialized Latin America will move into the economic position now occupied by Germany and Japan, rather than act as competitor exporter in the United States—Douglas Miller, You Can't Do Business with Hitler.

The above quotation coupled with Brazil's role in the war as an important supplier caused me to select Brazil as a subject. Prior to World War II she began an extensive industrialization program. Brazil is emerging a world power. How does this affect us? Will Brazilian-American cooperation continue?

In an attempt to answer this, I have made a brief survey of her history, resources, industrialization, and relations with the United States. Brazil, the industrial leader in Latin America, holds the key to friendship and trade with the other Latins.
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- 1
Colonial Period

Shortly after the discovery of America, Pedro Alvares Cabral, en route to India, purposely or casually deviating the course of his fleet sailed westwards and discovered Brazil in April 1500. Since Cabral's first impression of the land was that it was an island, he christened it "Island of Vera Cruz", later changing the name to "Land of Santa Cruz". It was finally called Brazil after the name of a kind of wood as red as burning coal which was found in abundance.

Although the Spaniards and French claimed to have visited Brazil before the Portuguese, it was Dom Manuel, the King of Portugal, who proclaimed to the world the discovery and occupation of the country by the Crown of Portugal. Besides, according to the Treaty of Tarde-sillas in 1494, Portugal was awarded all land that might be discovered "east of a straight line drawn from North to South Poles, at a distance of 370 leagues from Cape Verde".

Contrary to the other Americas with Indians having empires and civilizations of their own, Brazil was inhabited by numerous tribes of Indian savages. Busy with her vast empire in India, Portugal neglected apparently poor Brazil. The king limited himself to sending from time to time, expeditions which slowly discovered the Brazilian coast, incorporating it to the domains of the Metropolis. Owing to the continuous incursions of adventurers of various European nationalities and the failure of the great dream of India, Dom Joao III ascending the Portuguese throne in 1521, turned his attention to Brazil, dividing the country systematically into fifteen hereditary "capitanias", a system of colonization which England adopted with success in North America. The two capitarias which managed to develop were Pernambuco and Sao Vicente, the latter in the present state of Sao Paulo. Hence Pernambuco to the North and Sao Paulo to the South were the first two nucleuses that began the colonization of Brazil.
Dom João III united these hereditary capitaniais in 1543 under the centralized administration of a Governor-General. This system was deemed more capable of repelling the numerous attempted invasions of the French, Spanish, English, and Dutch. And the Portuguese were able in the future to keep control of their vast territory.

Baia, the central capitania, was chosen as the seat of the new government. The first Governor-General, Tome de Souza, was a man experienced in service in Asia and Africa. During his administration the Indians were treated comparatively well. After founding the city of Salvador in Baia, Souza began organizing the municipal life, parceling the land among the colonists who were not allowed to transfer the territorial concessions for three years.

Mem da Sa, another excellent Governor, some time later founded the city of Rio de Janeiro on Guanabara Bay in order to put an end to the invasions of the French, allied to the native Tamois Indians.

The first two centuries form the "sugar cane cycle" in the economic evolution of the colony with Pernambuco and Baia as the chief centers. In 1532 the first sugar cane was sent to Brazil from the island of Madeira. By 1600 Brazil had already had 120 great sugar factories, sending Europe 40 ships of sugar. The industry had become of world importance. Cattle raising was also an important factor in the development of Colonial Brazil. Cattle provided hides, means for transportation of food, and motive power for operating the sugar cane mills. The rapid development of sugar growing required more and more land, forcing the cattle raisers further inland. The discovery of gold precipitated the penetration of the vast hinterland of south Brazil, while in the north, where no gold or diamonds appeared, the economy continued to be based on the sugar cane farms and cattle breeding.

The Portuguese, being unable to oblige the Indian men to work

2 Lecture by Renato de Mendonça "The March of Brazilian Civilization" (Iowa, 1943), 1.
although they were successful in taking the Indian women, commenced to introduce African negroes as slaves. Sociologists agree that "the first Negro followed the first sugar cane". In 1585, the Portuguese colonies of Brazil had a population of about 25,000 whites, 18,000 civilized Indians, and 14,000 African negroes. Portugal could not afford to supply Brazil with all the settlers she needed because her population at that time did not exceed a million and a half inhabitants. Most of the Portuguese colonists who did so came as governors, officers, landowners, and some as liberated prisoners. Few came in family units. Hence, the men were forced to marry Indian women or simply live with them or negroes. Very soon the colony became a melting pot.

Portugal ceased to be a sovereign nation in 1580 when the Spanish and Portuguese crowns were united. The French, English, and chiefly the Dutch, enemies of Phillip II, were incited against Brazil. The two Dutch invasions were the most important ones to which Brazil submitted during the Colonial period. A Dutch fleet occupied Baia, capital of Brazil, in 1624 but it was easily repelled. In 1627 another expedition, stimulated by the Dutch West Indies Company, conquered Recife and Olinda in the State of Pernambuco. After a series of skirmishes won by the Dutch, Holland sent out to Pernambuco John Maurice of Nassau as Governor-General. Maurice of Nassau attracted scientists and well-known artists in Holland to Pernambuco. He limited the prerogatives of the West Indies Company thus establishing freedom of commerce. His administration was liberal and progressive. This period of the Dutch invasion was a consequence of the Thirty Years' War, and it was only after Portugal's independence was restored in 1641 that the Portuguese and Brazilians managed to expel the Dutch. The period of domination finally ended in 1654. This success for the Brazilians marked Brazil's first awakening of national conscience.

3 Mendonça, Z.
The earliest inhabitants of Brazil remained near the coast. A few ventured inland in search of gold and to capture natives. It was not until the eighteenth century that expeditions through the Brazilian hinterland became more audacious and more frequent. The "Bandeirantes" (pioneers) reached the Amazonas in the North and went nearly to the Andes occupying regions reserved for Spain. Open struggles ensuing between the Spanish Jesuits, ardent defenders of the natives, and the pioneers continued until the expulsion of the religious order by the Portuguese government in 1759. The "bandeirantes" constituted one of the finest examples of pioneer movements in the history of the formation of a country. They not only explored the wilds, claiming it for Portugal, but also discovered mines and founded towns.

The Portuguese finally saw their dreams of an "Eldorado" come true when the auriferous region of Minas Gerais was opened by the bandeirantes. Ferros Dias Paes Lime discovered the first aquamarines in 1661 and soon after the first real emeralds in the territory of Minas Gerais. Gold was discovered on the banks of one of the tributaries of the Sao Francisco. The first diamonds were tossed aside as playthings until their real worth became known.

The news of such treasure attracted all sorts of adventurers to Brazil. The cultivation of land was abandoned in the feverish search for gold and diamonds. The usual misery of impoverished mining towns ran tantamount to the existing splendor. Gold and diamonds left Brazil without interruption to the lavish expenditure of the Portuguese Crown. Under the operation of the mercantile theory Brazil furnished Portugal with the necessary gold to settle trade balances with Great Britain. So it was that Brazilian gold contributed to the progress of world trade, strengthened British national wealth, and provided Portugal with a hundred years of prosperity. The cycle of the Brazilian mines lasted throughout the eighteenth century. From 1700 to 1801 about 982,000

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4 Ministry of Foreign Affairs, Brazil 1943 Resources and Possibilities (Rio de Janeiro, 1944), 16.
kilos of gold were extracted from Minas Gerais, Mato Grosso, Baia, and Sao Paulo. Minas Gerais alone furnished about 616 kilos of diamonds during the eighteenth century. The government of the Portuguese Metropolis sought to organize the administration of the gold regions, creating the "capitania" of Minas Gerais. The Portuguese policy was fiscal extorsion, prohibiting the erection of any factory in the mining region, applying rigorous sanctions against contraband, establishing a duty of 1/10 on gold produced, and decreeing the monopoly of the diamonds in the benefit of the Crown. Exploration of the mines could only be effected by means of contracts. These compressive measures added to the economic difficulties resulting from the abandonment of agricultural and commercial undertakings and to the spirit of insubordination and indiscipline, incited the first manifestations of national independence. At the close of the gold and diamond cycles, Brazilians again turned to the more stable sugar cane.

While republican movements were taking place on the one hand and foreign invasions on the other, Portuguese domination was facilitated by the difficulties of internal communications and the lack of capital. The colonists looked to the United States and the Spanish liberator, Bolivar, as shining examples of the independence they desired.

Independence

To Napoleon we can trace Brazil's first step towards freedom. When he invaded Portugal in 1807, the Prince Regent, Dom Joao fled, setting up the new seat of his kingdom in Brazil. Dom Joao immediately opened the Brazilian ports to world commerce. To him is due the founding of the Bank of Brazil, the Schools of Medicine, the Royal Press, The National Library, the National Museum, and the School of Fine Arts. In 1815 he raised Brazil to the category of the United Kingdom of Portugal.
and Algara. Personally the King was weak but his Spanish wife, Queen Carlota Joaquina, imposed her will upon him. His government became involved in disputes with the newly independent Argentine and took possession of the French Guiana and Cayene which were returned during the Vienna Congress of 1815.

In 1820, Portugal adopted a constitutional regime. The Constitutional Chambers of Portugal sought a reactionary policy in relation to Brazil, by suppressing the gains obtained by the former colony. King John had to return to Portugal. Regent Dom Pedro, his son, refused to leave Brazil and return to the continent under the pretense of finishing his education when it was so intimated by the home government. Instead on September 7, 1822 during a trip through the districts of Sao Paulo on the bank of the River Ipirango, Dom Pedro tore up newly arrived resolutions of the Chambers at Lisbon and dramatically proclaimed the independence of Brazil. He was acclaimed Emperor by his followers among whom was Jose Bonifcio, the "Patriarch of Independence". In Baia, the Portuguese troops resisted for almost a year.

Internal strifes continued in Brazil, however, daily becoming more inflamed, compelling Emperor Dom Pedro to abdicate on April 7, 1831 in favor of his minor son. Dom Pedro sailed for Portugal to defend that throne against his brother's usurpation.

The Empire--The Reign of Dom Pedro II

A regency governed Brazil until the assembly declared the majority of Pedro's son, Dom Pedro II on July 23, 1840 to overcome the tremendous agitation of revolutionary movements in this critical period in the young life of the new nation.

The reign of Pedro II was outstanding as an era of civil reorganization and internal peace. The government was finally able to occupy itself with the political organization of Brazil, setting an example of order to the other politically unsettled South American countries. Two great political parties, the Conservative and the Liberal, alter-
nated in governing on the lines of the constitutional monarchies of Europe.

The political complications in the Plate (Argentina, Uruguay, and Paraguay) forced Brazil to intervene directly in the defense of national interests. In 1866 Brazil joined Argentina and Uruguay against the dictator of Paraguay, Solano Lopez, until the latter's defeat in 1870. After this war, the material progress of Brazil became earnest. General production increased, communications were improved, the first railway lines were laid down, foreign trade developed, and an excellent financial administration was carried out. By this time coffee had become its chief product. North American competition helped by British capital, ruined Brazil's cotton and tobacco hopes in the world markets. The exploitation of rubber in the Amazon began during this period. Until 1910, when the Far East took over, the Amazon controlled the world markets.

In spite of general prosperity, the Empire of Pedro II suffered the first great shocks between 1870 and 1880. The question of the abolition of slavery was a motive for the most violent passions. On May 13, 1888 Parliament, through a government bill, definitely abolished slavery without it causing any conflict. The liberal and republican ideas gained ground rapidly and the military question caused by the discord between the higher officers of the Army and the Imperial government facilitated the proclamation of the Republic without a struggle on November 15, 1889 by Marshal Deodoro da Fonseca. The new political regime was well received by the nation. It has been said that Dom Pedro II told a friend in exile that he himself would have organized the republic of Brazil if it had been possible.

7 Mendonça, S.
A provisional government was organized under the presidency of Marshal Deodoro da Fonseca with Rui Barbosa, the Minister of Finance, as its most conspicuous collaborator. To the latter, chiefly, the republican regime owes its constitution and judicial organization. Fonseca became the first president under the Constitution of 1891. This regime was mostly inspired by the political institutions of the United States. The first two administrations were marked by violent party quarrels. Brazilian economy, above all public finance, suffered from the natural consequences of the serious disturbances in public order. Exchange, which the Empire left at 27d (legal parity), fell to 8d. In 1902, Rodrigues Alves, the new president, carried out a policy of heavy constructions. During this government yellow fever was wiped out, transforming Rio de Janeiro into a great modern and healthful city. The principal ports were greatly improved and railroad construction was intensified.

World War 1 was the starting point for great economic transformations. Brazil declared war on Germany and participated in the Peace Conference at Versailles in 1919. The world wide financial collapse following World War 1, if not one of the causes of the Revolution of 1930, provoked the political outcome and circumstances finally resulting in the fall of exports. Vargas became president of the provisional government in 1930, assuming dictatorial powers. The First Republic was unsuccessful in solving the economic problems of the country. Disorganized public administration, too frequent elections, and the misuse of political energy for speechmaking and political party combinations and disputes deprived the nation of the necessary and essential administrative direction. Vargas was elected president of the Second Republic under the new Constitution of 1934. Political disorder as manifest in the Communist Revolt of November 1935 caused Vargas to re-
voke the constitution, call off the 1938 election, and promulgate his own constitution on November 10, 1937. From 1937 to 1940 he ruled under a state of emergency. Brazil severed relations with Germany and Japan and formally declared war against Germany August 22, 1942.

In October 1945 there was a bloodless revolution instigated by the army to overthrow President Vargas. There was much unrest in Brazil after World War II. Again the people feared that Vargas would break his promise of elections. Chief Justice Jose Linhares became interim president following the forced resignation of Vargas. General Eurico Gasper Dutra, former minister of war, became president in February 1946. A new constitution was adopted September 17, 1946, granting universal suffrage at age 18. One of the powers of the new central government is to intervene in the management of private industry for the public interest.

Thus, we see that Brazil is still operating under a centralized state to improve her economic, political, and social problems. Whatever we might personally think of a centralized state we must remember that while Brazil became a political entity in 1822 she continued to operate as a colonial up to 1930, producing basically one or two crops with Great Britain, principally controlling her trade and capital. The United States became her largest export market following the first world war. For the first time under Vargas it was Brazil for the Brazilians. Industrialization and diversification are her chief aims. As we shall see in studying her resources, industrialization to date, and her relations with the United States, Brazil will probably continue this policy. Gone forever is Colonial Brazil. In the future she should play an increasingly more important role in world trade and politics.
PHYSICAL CHARACTERISTICS

Turning briefly to the physical characteristics of Brazil we find that it is the largest state in South America, having an area of 3,275,510 square miles, exceeding the size of continental United States excluding Alaska by 250,000 square miles. Its vast Atlantic coastline stretches for 4,889 miles and it extends approximately 2,676 miles from North to South and 2,694 miles East and West. On the north we find Venezuela and Dutch, British, and French Guianas; on the east the Atlantic Ocean, on the west Bolivia, Peru, and Colombia.

The northern part is heavily wooded basin of the Amazon (1,465,637 square miles in Brazil) which rises in the Peruvian Andes and empties into the Atlantic at the Equator. The Amazon basin has a vast network of rivers navigable for 15,814 miles while the Amazon is navigable for 1,700 miles, its extent in Brazil. Brazil possesses a total of 27,316 miles of navigable waterways. Mountain ranges, interspersed with fertile valleys, traverse the eastern and southern states.

Brazil is entirely within the Temperate and Tropical Zones, but the climate is modified in different sections of the country by many high table-lands and mountain ranges. Brazil occupies a favorable position between the line of extreme heat and the cold of the southern latitudes.

Politically the country is divided into 20 states, a Federal District (the seat of the government) and a Federal territory. These states are characterized by the great differences in their geographic area.

When Cabral discovered Brazil there were no domesticated animals. The natives knew only capybaras, deer, elk, armadillas, and jaguars. Cattle, horses, goats, sheep, and poultry were practically unknown.

Today Brazil ranks fourth in the production of cattle, horses, and swine; third in mules; eighth in goats; and fourteenth in sheep.

The total herds in Brazil are estimated at 96 million heads contrasted with a population of 43 million.

At first the value of animals depended on their usefulness as draft animals and for hides and skins. Gradually salted and dried meat became important. Later we find the development of the dairy industry, packing houses, leather, and finally frozen meats.

The first serious efforts to improve livestock were made in the 1920's-1930's. Large areas of grazing land, prolific growth of grass, and the climate are favorable to stock raising. Transportation is the most serious difficulty. Sao Paulo and Rio Grande do Sul lead the country in the production of beef and veal, in which Brazil ranks fourth or fifth in the world, producing more than half the animal total of 800,000 to 900,000 tons. The canned meat industry is now the third largest in the world.

Hogs used to be slaughtered for their lard but today pork and its by-products has become a first class industry, ranking eighth in the world with large overseas markets. Minas Gerais is the largest corn and pork producer in Brazil. From 275,000 to 300,000 tons of pork are produced annually with 130,000 tons of lard.

The largest herds of goats are in the dry region of the Northeast. There is no plausible explanation for the strong Brazilian aversion

1 Jose Jobim, Brazil in the Making (New York, 1943), 59.
3 Jobim, 60.
4 Ibid.
to lamb, mutton, and goat meat. Brazil is twenty-second in the world production: the annual output of mutton averages 7,000 tons and goat meat 5,000 to 6,000 tons.

Meat has come to be one of the largest "processed products". Meat production at 2,000,000 contos ($100,000,000) is valued at 500,000 5 contos more than coffee.

The dairy industry very early concentrated on cheese because it could be transported long distances without spoiling. Minas Gerais is the leading cheese producer. The output in 1942 amounted to approximately 42,000 tons. From an annual production of 20,000 tons in 1920 butter production has grown to 42,000 tons in 1939. It is estimated that 850,000,000 gallons of milk are produced annually. There is a relatively new condensed milk industry with an output of only 6,000 6 tons. Casein and powdered milk are relatively unimportant.

Poultry farming as an organized industry is concentrated in the Federal District and the states of Sao Paulo, Minas Gerais, and Rio Grande do Sul. It is estimated that there are yearly about 90,000,000 7 head of poultry, mostly hens, in Brazil. Brazil is interested in the development of the egg industry for foreign as well as domestic markets.

Hides constituted the most important early animal production industry. Brazil still holds second place in their export. Brazilian kid leather is universally recognized for its quality, large quantities being shipped to the United States. In addition, cowhide, sheepskins, alligator skins, deerskins, pigskins, jaguar skins, pecari skins, and fish leather have high commercial value.

The fish industry is not yet well developed in Brazil in spite of the fact that there are vast fisheries and, as is natural for tropical seas and rivers, a large variety of fish. Production is relatively low although Brazil is a large consumer of imported codfish and other sea foods.

5 Ibid, 60.
6 Ibid, 61.
7 Ministerio das relações exteriores, Brazil 1940/41, (Rio de Janeiro, 1941), 117.
8 Ibid, 174.
Tropical Foodstuffs

Brazil is the world's greatest producer of coffee. The soil and climate of certain regions of the country form the ideal "habitat" for the economical production of the precious berry. At present the states of São Paulo, Minas Gerais, Espírito Santo, Paraná, and Rio de Janeiro are the most active zones of production. The coffee trees in Brazil are estimated to number 2,511,450,000 and to cover 8,658,076 acres. The estimated world total is 5,047,942,000 trees.

The government extends its protection to this signal national source of wealth, assisting the planters to improve the quality of the crop by proven scientific methods and organizing the distribution of the production so as to maintain prices at an adequate level. The reconciliation of world production and consumption of coffee has always been a perplexing problem for which Brazil has cooperated in seeking a workable solution, limiting her plantations, controlling her exports, and entering into international agreements such as the quota system. In the course of twelve years Brazil has incinerated 76,500,000 bags of Brazilian coffee. The economy of forty nations is tied up in coffee production. The elimination of the European coffee markets during the war was an extremely serious threat to the coffee producers of the world. An international quota agreement was set up in June 1939 to split up the United States' market which was threatened to be swamped by the loss of European markets. Brazil was granted a quota of 58.49% of the total. Coffee shipments constituted around 60% of the national export values at the start of the century while in recent years it has dropped to 30% due to the diversification of Brazilian economy. Under the quota agreements prices were allowed to rise in order to give the

9 Brazil 1943, 250.
10 Ibid., 240.
11 "Industrial Brazil", Commercial Pan America (Washington, August-September 1945), 89.
coffee producers a more favorable balance of trade. The serious droughts and frosts in Sao Paulo in 1942 and 1943 aided in correcting the statistical balance which had been the aim of the economic policy.

The National Brazilian Coffee Department has undertaken research to discover the industrial possibilities of manufacturing a plastic "cafelite" from coffee. In September 1940 the first factory was erected in Sao Paulo to convert 37,000 bags of coffee yearly into plastics. In the future the plastic production may counteract the present super production of coffee.

Another coffee problem, especially during the war, was the lack of shipping space. If coffee concentrates could have been used, the Brazilian quota to the United States could have been transported in eleven instead of one hundred eight 5,000 ton loads. But the Department has always been against concentration as it is likely to impair the popularity of coffee because of differences in taste and methods of preparation.

The United States uses about 1,200,000 pounds of caffeine a year, of which 70% goes to the one thousand or so cola soft drink manufacturers and the rest to pharmaceutical firms. The greatest potential source of caffeine is Brazil's coffee crop. If the coffee plastic process becomes a full-scale commercial operation, no other method could compete economically for caffeine production.

Cacao, which is native to the American continent existed as wild growth throughout the states of Amazonas and Para. After roasting there is obtained from the cacao seeds a number of solid pastes and powders commercially known as chocolate. The cultivation of cacao was ordered by royal charter in 1678. The State of Baia produces 95% to 98% of Brazil's total crop. Brazil is the second largest producer of cacao in the world. Irregular rainfalls account for the oscillations registered in the volume of the crops. The average for the 1937-1941 period (120,936 tons) shows an increase of 15% over the 1932-1936 period.

13 Morris L. Cooke, Brazil on the March (New York, 1944), 116-117.
(105,863 tons). In Baia the government has established the Instituto de Cacao to control its production.

Cacao may be transformed into industrial products besides its use as a nourishing food and a first class stimulant. It contains 50% oleaginous substances. When there is an over supply of cacao the surplus can be converted into industrial cocoa butter. Hence cacao plantations are able to endure economic crises more so than other types of agricultural products. Although raw cacao beans require much more space than finished chocolate, they are not so processed in Brazil.

In 1940 exports to the United States declined to 80,478 metric tons (88,202 metric tons in 1939) while those to Italy, the second largest totalled 7,163 metric tons (in 1939 Germany took 19,228 metric tons).

The initiation of the tea culture in Brazil dates back to 1812 with cultivation in the Botanical Garden in Rio de Janeiro. The cultivation developed to such an extent that in 1878, at the International Exposition of Vienna, the judges awarded Brazilian tea second place. Tea production is still small despite its notable advance in recent years. In 1940, 240 metric tons were produced as compared to 141 tons in 1924.

China, England, Russia, and Arabia are large tea consumers while in the Latin countries coffee is preferred. Brazil has become practically self-sufficient in producing tea for her own uses. Exportation was begun in 1937.

In South America, particularly in Argentina, Paraguay, and Chile, the consumption of yerba mate (Brazilian tea) attains considerable quantities. Since colonial days it has been a favorable beverage in southern Brazil. It is raised principally in the temperate zone of the States of Rio Grande do Sul, Parana, Santa Catarina, and Mato Grosso. There is great demand for yerba mate as a stimulating drink, a regulator of the cardiac, nervous, muscular, and digestive systems and as a blood purifier.

14 Brazil 1943, 241.
16 Brazil 1940/41, 131.
17 Ibid, 132.
For many years Brazil was the world's leading producer of this product but recently Argentina, the largest consumer, surpassed her. In 1929, Brazil produced 127,000 tons but only 96,000 tons in 1939. Besides the native drink from mate it is bottled with carbonated water to make a refreshing drink. Argentina, Uruguay, Paraguay, and Chile are the leading consumers. At present Argentina's imports are for blending purposes. The Instituto Nacional do Mate has been established to study the possibilities of extending the market for this product as a tea substitute and in soft drinks.

Guarana, a native creeping plant limited to the extreme northern part of Brazil near the Amazon River, offers another tropical foodstuff which is used particularly for beverages. Maués in Amazonas is the center of its limited cultivation. The industrialization of guarana is rather primitive. In spite of having been known for more than one hundred years the annual production only exceeded 100,000 kilos in 1941-1942. Sixty per cent is consumed in the State of Mato Grosso. The Amazon Indians use it as a remedy for neuralgic pains and intestinal troubles. No other vegetable presents the same high content of caffeine. Guarana fluid extract is used in the manufacture of refreshing beverages, confections, syrups, drops, etc. In 1941, 2,733 kilos were exported.

From the position of leading sugar producer in 1680-1700 Brazil dropped with the rise of cane sugar in the Antilles and sugar beets in Europe. The production has continued to be significant, however, and today Brazil is the world's second largest sugar cane producer and the sixth largest sugar manufacturer.

The Brazilian sugar export trade revived after the first World War with European beet-sugar mills and crops destroyed. Sugar production advanced steadily until in 1929 the largest crop was harvested. The depression was disastrous to the industry. Exports ceased and prices fell to extremely low levels.

18 Ibid., 132-133.
19 Brazil 1948, 249.
20 Jobim, 49.
During the thirties the government promulgated many protective and restrictive measures to benefit the sugar industry. The Sugar and Alcohol Institute, an autonomous agency, controls the sugar production, assures compensating prices, and stimulates the production of by-products such as alcohol. Cane production is widely distributed from Pernambuco in the north to Minas Gerais in the south central region. In 1942 production was 21,518,560 metric tons valued at 715,220,000 cruzeiros (1 cruzeiro equals 6 cents) at a value index of 167 (1936-21).

Transportation to the mills has always been a problem. The majority of the mills are small ones, known as "engenhos" located on the plantations. By 1943, 325 large central mills, "usinas", equipped with considerable modern machinery, produced better grade sugar. The main output of the small mills is a hard brown sugar.

Since 1937, the output of sugar by Brazilian mills has consistently risen. In 1925, 42.3% of the total was processed in "usinas" plants while in 1943, 70.6% or a volume of 15,255,603 sixty-kilos bags out of a total of 21,599,903. Exports, chiefly to Belgium and France, account for about 4% to 5%.

Sugar is being used as a source of alcohol for fuel and manufacturing. Since Brazil must import practically every drop of gasoline and petroleum, the value of alcohol in a fuel mixture with gasoline can hardly be ignored. Recent experiments denote the possibility of using crushed cane for obtaining cellulose for use in the paper industry. Its outlook in the national economy is bright.

Fruits and Nuts

Fruits are constantly growing in importance as a food. Only relatively small quantities are exported at the present time, in spite of the fact
that Brazil is one of the largest producers in the world of oranges and bananas. The variety of climates from humid tropical to cool temperate makes possible the production of practically all types. But so far few have been cultivated and some fruits are imported. The difficulty of transportation and the lack of cold storage space prohibit large scale export at present. Fruits are used in the domestic preserve, canning, ice cream, and beverage industries.

Just to give an idea of the types of fruit we find: there are oranges, bananas, pineapples, grapefruits, lemons, limes, grapes, dates, figs, apples, pears, peaches, plums, papaya, strawberries, melons, alligator pears, guava, marmelos, mangoes, "pinha", bacury, caqui, maracuja, abios, jacas, romas, apricot, cherry, "cupuassu", "carambola", "caja-mango", "Mangaba", "genipapo", cashew, and "Pitango". Of these only oranges, bananas, and pineapples are exported.

Turning to nuts, again practically all varieties can be cultivated in Brazil, but Brazil nuts and cashews are the only ones gaining attention at present. Brazil imports large quantities of chestnuts, nuts, and almonds from Europe for its traditional Christmas and New Year celebrations.

Brazil is the only producer of Brazil nuts. The tree grows wild all over the Amazon basin. The main market for the Brazil nut is abroad. Leading importers are the United States, Great Britain, Canada, Argentina, New Zealand, and the Union of South Africa. Brazilian exporters have not been the greatest beneficiary of the Brazil nut trade. United States and British companies buy the nuts early in the year when prices are low and store them until the Christmas season in anticipation of holiday profits. For over twenty years the English have been trying to acclimate the Brazil nuts in their oriental possessions, particularly in the Malay Peninsula.

An enormous quantity of cashew nuts is abandoned as waste each year due to the lack of an organized trade in the interior. Attention has been paid recently to this nut. Cashew trees grow all along the extensive coastline and in some parts of the interior. In 1939, there
was a record export of 400 tons but this quantity is insignificant compared with the vast possibilities.

**Vegetable Oils and Waxes**

No other country in the world is in the position to supercede Brazil in the richness and variety of oleaginous seeds and vegetable oils. The very nature of her flora, place Brazil in a matchless position as an inexhaustible source of raw material to maintain the vegetable oil industry of the world. Some of these oil bearing vegetables are already cultivated for other purposes, like cotton, while others remain wild, nevertheless constituting a great source of industrial wealth. In 1940, 75% of the national production of vegetable oil was accounted for by cotton seed oil. In exports, however, this oil occupies second place as to value, the first place being held by oiticica, followed by castor seed oil.

Brazil is fifth in the world production of cotton seed oil with 1,081,798 tons and is fourth as an exporter. Brazilian exports are relatively small. Purchases by the United States (world's leading producer) after reaching 80.6% of the total Brazilian exports of cotton seed oil in 1938 fell to 20.3% in 1940. In 1940 Canada and Great Britain were the largest importers. Although internal consumption of cotton seed oil has visibly increased, there is still a strong prejudice against its use as a cooking or table oil.

Rio Grande do Sul is the greatest linseed producing center, but until recently the Federal District was the largest producer. Today, Brazil is the largest producer of linseed oil in Latin America, having outstripped Argentina the former leader. In 1926, Brazil imported 5,318 tons of linseed oil while today she no longer imports it.

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23 Brazil 1940/41, 149.
24 Ibid, 187-188.
25 Ibid, 190.
Brazil has developed a forest product known as Babassu, a genuine Brazilian palm, which is an excellent substitute for coconut oil. Besides the oil which can be used as a lubricant and a fuel, in perfume, in soaps, in cooking as a substitute for lard, olive oil, and butter, the entire plant is useful. It is interesting to note its versatility—the leaves are used in the manufacture of straw hats, purses, mats, sieves, and baskets; the nut is burned green to smoke up latex; the kernel is used for fiber, a beverage, a substitute for ivory, in the composition of dynamite, as an insulating material, and from the shell can be obtained calcium acetate, methyl alcohol, acetic acid, vinegar, light and heavy lubricating oils, dyes, carabolic acid, creasol, iron inks, tars, rosins, and a high quality fuel.

At present improved harvesting methods are necessary. The babassu oil industry in Brazil is still in its primary stage in spite of the existence of a few mills, especially in the State of Maranhão. The volume of the oil exported is still small. In 1940 the United States and Germany imported the total of 554 tons. This represents an increase of 226 tons over the previous year.

Tung oil was introduced into Brazil from China in 1930. Brazil is the only producer of oiticica oil which is an excellent substitute for both tung and linseed oils. During World War II the United States imported increased quantities of both these oils since the Far Eastern markets were closed. Oiticica oil is the ideal raw material for varnishes, paints, linoleum, brake-linings, and printer's ink.

Oiticica oil is produced in Brazil's arid northeast section. Increased exports of the product would aid materially in the economic development and stability of that area. Brazil has enforced strict regulations forbidding the exportation of the oiticica seeds. Brazil remembers what happened to her rubber industry! Production from tung plantations, restricted to the south in Sao Paulo, is expected to increase in the near future. In 1935 Brazil exported 1,655 metric tons of oiticica.
oil while in 1939 exports increased to 9,284 metric tons, 92% of the total to the United States.

Castor seed production before 1914-1918 was concentrated almost exclusively in India. Under the influence of the constant demand for castor oil in the international market, the cultivation of this oil bearing plant was begun on a commercial scale in other countries including Brazil.

Castor oil besides its medicinal value, serves in India for illuminating purposes and in China as a food. Recently its chief utility is in industry for lubricating machines and motors. Its use in aviation has greatly increased because of its quality of viscosity.

The whole of Brazil lends itself admirably to the cultivation of the castor tree, which has allowed Brazil to become the largest supplier in the world of castor seed, surpassing India. In 1940 castor seed occupied seventh place in order of value in Brazil's export trade. Leading importers have been the United States, Great Britain, Germany, Italy, and Japan. Italy and Germany were the leading importers of Brazil's castor oil.

Brazil produces on the average 70,000 tons of coconuts, almost entirely for the home markets. Although large areas are suitable to its cultivation it is far from attaining the economic importance it could have. For a long time there reigned a certain pessimism and discouragement regarding coconut planting. Scientific methods have not been practiced and yields are small. Brazil does not export any coconut oil. Here as in other products, however, there are great possibilities.

Morris Llewellyn Cooke, chief of an American technical mission to Brazil during the war, suggests that Brazil's vegetable oils as well as being excellent export material can aid materially in taking the place of fuels and lubricating oils so lacking in that nation.

27 "Brazil Arsenal of Strategic Materials", 7.
28 Brazil 1940/41, 123.
29 Cooke, 112-113.
Brazil occupies an outstanding position in the world production of and trade in waxes since she is the only producer and exporter of carnauba. Carnauba is used in candles, polishes, lubricants, greases, varnishes that will withstand washing, picric acid, floor and automobile waxes, carbon paper, chalk, matches, soaps, salves, phonograph records, and as a protective covering for fruits. Carnauba wax has figured among Brazil's exports for more than a century without any foreign substitutes appearing in international trade. United States is the largest importer, taking 7,385 tons of the 11,476 tons produced in 1939.

While carnauba trees require fertile land with plenty of water the uricuri tree grows in arid lands. The uricuri was in demand during the war because its price is lower than carnauba. The first shipments of uricuri to the United States were made in 1937.

Today bee-keeping is one of the promising and lucrative industries of Brazil. Both the wax and the honey find a ready consumption in the home market. The chief producing centers are in the South, the State of Santa Catarina having 54% of the national total of 6,600 tons. Brazil is a great exporter of beeswax. Again the United States is the largest market, importing 915 tons in 1939. Switzerland, Great Britain, Holland, and Belgium are large importers while Chile is Brazil's principal competitor in Latin America.

**Medicinal and Other Plants**

It is perfectly amazing, the number of types of medicinal plants that abound in Brazil. To go into a study of these would take us too far afield. Of particular interest are quinine, copaiba oil and ipecac. Brazil possesses the second largest forest area in the world, indicating her wealth in these products. At present, Brazil is studying the cul-

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30 Brazil 1940/41, 198-200.
31 Ibid, 200.
Activation and exploitation of these valuable products.

Among her flora, Brazil has hundreds of tannin-bearing plants which are found from the mud-flats along the coast to the plains and mountains of the hinterland. Owing to a lack of rationally organized exploitation of these plants, the tanning industry which has existed in Brazil on an economic basis for about fifty years has always found difficulty in obtaining tannic material.

There is also a group of plants commonly known as timbas whose fruit, leaves, stems, and roots were already used by the Indians before the discovery of America to kill fish. The use of timbas as an insecticide and germicide is of a comparatively recent date. These plants are found throughout most of Brazil. The outstanding varieties, rich in "rotenona" grow wild in Amazonas. It is not poisonous to man or warm-blooded animals although it is dozens of times stronger than the most powerful mineral insecticide. The United States is the leading importer followed by France, Great Britain, Argentina, and Japan.

Tobacco

At one time Brazil was the leading producer of tobacco. Today, the most important are the United States, China, India, Russia, Brazil, and Japan. Brazil is sixth among exporters. Tobacco is also imported for blending purposes. All the states cultivate tobacco, the leaders being Rio Grande do Sul, Bahia, and Minas Gerais.

Rubber

In 1800 Brazil had the only rubber goods company in the world; in fact she enjoyed a world monopoly in the production of rubber until 1876 when Sir Henry Wickham smuggled rubber out of Brazil and began its culture in Malaya. By 1921, the flow of rubber out of Brazil had
dwindled to a trickle, while the flood of British Indies' cultivated rubber was exceeding 100,000 tons, or twice as much as the entire Brazilian production at its height. The Amazon wild rubber industry, centered at Manaus, was ruined. In 1922, the British and Dutch interests staged their own monopoly pegging rubber at $1.22 a pound. The world depression overtook it. The enormous accumulation of rubber was dumped on the market with rubber selling at two and a half cents a pound in 1932.

It remained for Henry Ford to introduce the systematic culture of the rubber tree. Tapping began at Belterra, his second plantation, in 1941. Production on a commercial scale began in 1945. By 1948 it is estimated that Belterra will be able to produce more than 5,400 tons of rubber a year, worth $2,400,000 at the present price of twenty cents a pound. The United States government, taking into account her great need for rubber as the world's leading importer, is cooperating with American republics producing rubber to set up studies to locate areas best suited for the scientific culture of rubber. The tapping and smoking processes for wild rubber are the same as they were centuries ago. In 1939 11,805 tons were exported out of 19,366 tons. Up to 1939 Germany was the leading buyer but the United States took half the production in 1939 and 1940.

There is speculation as to whether Brazil may ever regain her former eminent position as a rubber producer. During the war, with the Eastern sources cut off, the United States and Great Britain experienced great shortages, but with the return of these producers and the competition of synthetic rubber it is difficult to estimate the role Brazil will play. At least she should be able to develop a large home market for rubber goods.
Timber

Among the economic cycles through which Brazil has passed figures that of timber. Soon after Brazil's discovery the Brazil-wood trade was made a monopoly of the Portuguese crown. At present the role played by the Brazil-wood, in timber exportation has passed to pine-wood, although Brazil has an infinite variety suitable for all kinds of uses. The last agricultural census covering but 20.6% of the national territory revealed nearly 50 million hectares (one hectare equals 2,471 acres) of productive land of which 49 million was covered by forests and a little more than two and a half million by plantations of trees or shrubs. Some attest that Brazil's forest area is more than 500 million hectares, equivalent to about 58% of the whole territory.

There exist woods of all kinds from the lightest to the heaviest, representing incalculable economic possibilities. Already there is a small scale plan of reforestation. There are no figures available on national timber production.

Brazil has an enormous variety of timbers for railway sleepers, much demanded in world markets. The exportation of sleepers before the war was irregular, Germany being the largest purchaser.

Prior to World War II Brazil was sixteenth among timber exporters, pine making up 84% of the amount exported in 1940. To stabilize the pine production in the face of curtailed markets during the war the Pine Wood control was established. Pine wood could be a basis for a great paper industry in Brazil. At present she is a large importer of pulp wood. Brazilian exports of timber in general in 1940 were 291,120 tons against 404,787 tons in 1939. The principal markets for pine wood in 1940 were Argentina, Great Britain, Uruguay, the Union of South Africa, and Portugal.

Fibers

A salient feature of the fiber industry is the fact that all commercial fibers are grown in varying amounts in Brazil. Brazil was the world's largest exporter of cotton in 1942. The only producer of silk in America, Brazil does not fill domestic needs. Both wool and flax are produced in insufficient quantities. Hemp and jute are relatively new products. Synthetic fibers such as rayon are also produced in Brazil completing a list of fibers which is exceptional in numbers in world production and probably unequalled.

Cereals, Grains, and Starches

Before the discovery of Brazil, the natives were using corn, manioc, and tara. Later wheat, rice, and bean seeds were imported and cultivated. Today, Brazil is in the throes of a serious wheat problem although she at one time was a fairly important exporting country. European immigrants brought in potatoes, oats, and rye. Despite the progress that has been made the production of temperate zone grains, cereals and starches still presents the greatest obstacles to self-sufficiency.

Brazil has been for some time the world's third largest producer of corn. In 1937 exports of this grain did not surpass 15,000 metric tons but in 1938 she exported 125,490 tons, ranking eighth. In 1940 shipments fell to 28,765. In 1941 a government decree was established setting up standardization of the export crop in order to compete with Argentina's standardized types.

While Brazil stands ninth in the world production of rice, having surpassed the United States among occidental countries in 1937, only 4% of the total output is exported. Sao Paulo, Minas Gerais, and Rio

37 Jobim, 156.
38 Brazil 1940/41, 112.
Grande do Sul are the leading producers. The total crop in 1939 was 1,456,845 tons.

Brazil is the world's fifth largest importer of wheat, importing 80% of her consumption. At the beginning of the nineteenth century Brazil produced sufficient wheat for her own consumption, but the lack of trained technicians permitted wheat diseases to ravage the cultures in Brazil. Particularly during periods of high prices wheat imports have proved to be a burden on the Brazilian economy affecting her gold balances. The theoretical survey made by the Ministry of Agriculture reveals that Brazil is capable of producing three times her national consumption. We may note that Brazilian per capita consumption, 21 kilograms per year, is small as compared with 170 in the United States, 243 in Argentina, and 335 in Canada (the highest per capita in the world).

The production of oats, rye, and barley is concentrated in the southern part of the country due to the favorable climate, the presence of many colonists from cereal producing countries, and livestock centralized there. The government is attempting to stimulate the cheap culture of rye due to the large increases in its consumption. Despite the increased output of oats about 10% of the domestic production is imported. About 2% of the yearly crop of barley is imported.

Only China and the United States produce more beans than Brazil. As an exporter Brazil occupies second place while Chile, twelfth in production, ranks first, and Rumania which produces but one third occupies fourth place as an exporter. This inferior position of Brazil as an exporter is due to the fact that most of her production is consumed domestically. Exports amount to one-tenth of one percent of the production.

As to starches, Brazil possesses manioc, sweet potatoes, and tara. The common potato is not produced in sufficient quantities for domestic needs although imports are decreasing. Brazil is the second largest

39 Brazil 1940/41, 106.
40 Ibid, 110.
41 Ibid, 104-105.
42 Ibid, 105-107.
producer of manioc being superseded only by the Dutch East Indies.
Manioc, beans, and rice are part of the daily diet for nearly all Brazilians. Manioc is a source of alcohol, starch, glucose, mediums for adhesives and sizing textiles, and is used for flour manufacture. Great Britain, Uruguay, Argentina, Portugal, and Bolivia are the principal importers of manioc meal.
Although practically untouched, Brazil's mineral reserves have already been a source of wealth to many and have contributed, to a large extent, to the present day civilization, at least as far as the factors which made it possible, materially, are concerned. Werner Sombart, the German economist, has said that without the discovery of the precious metals in Brazil the existence of the modern economic man would have been impossible.

In fact, the gold produced in Brazil, in the eighteenth century represented the first effective step to the accumulation of the great stocks of this metal in modern times. Between 1700 and 1770, according to Roberto C. Simonsen, Brazilian production of gold was equal to the total production from 1493 to 1850 of all the other American countries taken together, reaching about 50% of the total world output during the XVI, XVII, and XVIII centuries.

Writers studying the mineral resources of Brazil have been struck by the amazing anomaly that proportionately as the incalculable extent and richness of those resources have become known, the mining industry of the country has diminished. During the nineteenth and early part of this century the liberation of the slave-workers, bad legislation, exhorbitant taxation, lack of railway communication, political unrest, financial instability, and the incompetence and dishonesty that have attended the exploitation of the mines and the management of the companies—all these have been disabilities from which mining has suffered. In the past Brazilians, apparently indifferent to this enormous national asset, have devoted their interests in a one product economy.

During the industrialization program prior to World War II mining industries progressed. Brazil became an important supplier of strategic minerals and cooperated closely with the allies. Many new resources

43 Josias Leao, Mines and Minerals in Brazil, (Rio de Janeiro, 1940), 9.
44 Ibid, 9.
were investigated and exploited for the first time. In the future they should form a firm basis for further development. As regards mineral resources the most important states are Minas Gerais, Bahia, Ceará, Rio Grande de Norte, Paraíba, Mato Grosso, and Goiás. During the war Brazil's most important mineral exports were manganese, iron, wolframite, scheelite, bauxite, rutile, tantalite, zirconium, beryl, chromite, and crystals.

In 1943, the total value of all mineral raw material exported from Brazil was 770,000 cruzeiros. This amount was better than eight times the valuation of 1937 exports, although the volume exported was less than twice that shipped in the earlier year. During the period of 1942-1943 especially, mineral development was intensified. The department of mineral production investigations found various new sources.

Brazilian reserves of manganese ores are among the world's largest. They are located primarily in the State of Minas Gerais which has been accounting for nearly all of the national production. Increasing quantities are being obtained from the States of Bahia and Mato Grosso. Demands of the United States' war industries greatly stimulated production. A wartime agreement was in force between the Brazilian and United States governments for the annual purchase of 500,000 tons of Brazilian manganese by the United States. These manganese requirements, formerly acquired from Russia, the Gold Coast, and India, were obtained from Brazil and Cuba. Brazil is now the fifth ranking producer of this ore, while the United States is the leading consumer.

Improved facilities to the mines would greatly increase the output. Between 1935 and 1941 manganese production rose from 60,000 to 450,000 metric tons. In 1941 97% of the output was exported. In 1945 244,649 tons were exported. Manganese is an indispensable aid in the production of steel and is used directly in making alloy steels. It is also used in chemical and allied industries.

Iron has been a recognized resource of Brazil since the early colo-

45 "Industrial Brazil", 71.
46 Ibid, 71-73.
nial period. Her deposits of this ore are estimated at approximately 15,000,000,000 metric tons, or about 22% of the total world deposits.

Brazil has been slow in developing this natural wealth. The existence of great difficulties in moving iron ore to production centers for domestic manufacture and to the coast for export and the lack of coke supplies at or near the iron deposits are two principle factors. The latter obstacle is being overcome today by use of Santa Catarina and other domestic coal for coking in the smelting of the iron ore.

The "iron mountain" of Itabira in the State of Minas Gerais, classed as the world's largest iron ore deposit, accounts for the greater part of Brazilian iron ore resources. These deposits are now being extensively exploited, aided by a $28,000,000 Export Import Bank credit with a time period of twenty-five years granted in 1942-43. Every state possesses iron deposits.

The construction program of the new Volta Redonda Steel Plant calls for the extensive utilization of the Itabira iron ore. The Victoria Minas Railway, running up to Itabira from the seaboard, is being repaired and modernized. When improvements are completed 1,500,000 tons of ore may be transported each year on this line. In 1940 Brazil produced 255,000 tons or 1% while the United States produced 74,879,000 tons or 35.3% of the world total.

Brazil is a leading world exporter of titanium in the form of rutile and ilmenite. These two titanium ores exist in alluvial deposits. Economically, rutile is the more important ore. The principal rutile mines are located in the States of Minas Gerais and Goias. Deposits of rutile have been discovered in Ceara and Pernambuco.

Rutile exports rose from 766 tons valued at 880,000 cruzeiros in 1937 to 4,557 tons with a valuation of 8,282,000 cruzeiros in 1943. In 1945 exports dropped to 160 tons valued at 439,000 cruzeiros.

Bauxite is the principal ore from which aluminum is produced and

48 "Industrial Brazil", 19.
49 Ibid, 19.
50 Ibid.
52 Informacoes do Brazil, numero 1.
is also the basic raw material for the abrasive, chemical, oil refining, refractory and other industries. The aluminum ore reserves of Brazil, 80 in number, are the largest of any country in the Western Hemisphere, estimated at about 150,000,000 tons. The Pocos de Caldas Plateau in the State of Minas Gerais, source of nearly all of the national production, has the most important reserves. Other main sources are located at Ouro Preto in Minas Gerais and in the State of Espirito Santo.

A special type of phosphorous bauxite exists in the northern State of Maranhao. This deposit reportedly exceeds ten million tons. Additional reserves of this variety are found in the State of Para. Brazilian technicians are working to determine a cheap method of obtaining an assimilable phosphate and alumina, as a by-product. These efforts, if successful, should provide Brazil's entire needs of phosphorous fertilizers.

Brazilian production of bauxite rose from 7,000 tons in 1936 to 18,279 in 1939. After a sharp drop to 82 tons in 1940 the output climbed to approximately 100,000 tons in 1942.

A local aluminum manufacture based on domestic raw materials and power supply, could contribute substantially to the new and growing airplane and airplane motor manufacturing industry of Brazil, and in so doing advance transportation development in the Republic.

Gold has been linked with Brazilian history since its discovery. It is found from the Amazon in the north to Rio Grande do Sul in the far south. The largest Brazilian gold mine is located at Morro Velho in Minas Gerais. This important mining property accounted for 87.3% of the national production. It is doubtful if Brazil will ever regain her past preeminent position as a gold producer, but it is most certain that she will occupy very soon a conspicuous place among the leading world producers.

Silver is being mined in the State of Santa Catarina. The ores
from the Morro Velho and Passagem de Mariana yield substantial quantities of silver. Production in 1943 increased by a third over the 1934 output. Lead is found in combination with silver in fifteen states of Brazil. Reserves of these galena beds are about one million tons.

Chromite occurs in the States of Baia, Minas Gerais, and Goias. At Campo Formoso, Baia, reserves of metallurgical chromium estimated at many tens of thousands of tons, are found as well as ore suitable for refractory materials in smaller quantities.

A number of companies are considering the establishment of a bichromate industry in Brazil to supply South American tanneries with this necessity. Production in 1941 was better than five times that of 1937. Brazil is the second largest chrome exporter in the Western Hemisphere. Practically all of the annual output (from 94% to 100%) has been exported in recent times.

Zirconium ore has been discovered only in Brazil to date. Zirconium oxide is obtained from Pocos de Caldas, Minas Gerais. Other ores appear in Espirito Santo, Rio de Janeiro, and Baia. Zirconium ore, like zinc, chromite, and magnesite, is very suitable for the manufacture of refractory materials and affords an opportunity for building this industry in Brazil. Zirconium is used in ceramics. Exports had reached 17,114 tons in 1942 but fell to 758 tons in 1945.

Deposits of beryllium in the form of beryls are supposed to be among the most important in the world. Other important sources are in Canada, Madagascar, Mexico, and Sweden. Exploitation of the Brazilian ore began quite recently. A high of 2,027 tons was exported in 1943. Figures for 1945 show exports of 510 tons.

The volume of nickel ore in the State of Goias is immense. The total reserves are estimated to reach 10 million tons. Due to the high transportation costs, however, nickel exports from Goias can hardly take place at the present prices of the metal.

54 "Industrial Brazil", 75.
55 Leao, 63.
56 "Industrial Brazil", 76.
57 Ibid, 16.
58 Informacoes do Brazil, numero 1.
59 Ibid.
60 Leao, 75.
Two tons of wolframite and scheelite, tungsten ores, were exported in 1936 while in 1945 exports totaled 2,309 tons. Cassiterite, a tin ore, has been found in association with the tungsten ores. Attempts are being made to evaluate the copper reserves in Rio Grande do Sul. Experts claim that Brazil's diffused copper deposits permit not only exports of copper but also the development of a domestic copper metallurgy. Tantalite ore exports increased from 25 tons in 1933 to 201 tons in 1944.

In the non-metallic group, arsenic is obtained at the gold mines in central Minas Gerais. All present Brazilian production of this mineral comes from this state. The value of the 1943 output almost tripled that of 1937.

Most of Brazil's mica occurs in the State of Minas Gerais. Other producing areas are in Bahia, Rio de Janeiro, Goias, and Sao Paulo. Mica is a strategic raw material of prime necessity to the electrical and radio-transmission industries. Production of Brazilian mica nearly doubled between 1937 and 1941 from 606 to 1,170 tons. From 1941 through 1943 mica exports were valued at from 20,000,000 to 26,000,000 cruzeiros.

Many varieties of quartz are obtainable in Brazil. Green quartzite comes from Bahia, agate from Rio Grande do Sul, amethysts from Minas Gerais, Rio Grande do Sul, Bahia, and the Northeast. Citrine quartz, a crystal, of which Brazil is the largest producer, occurs in Goias and in several regions of Bahia and Minas Gerais.

Transparent quartz, rock crystal, is derived principally from the State of Goias. This crystal is famous for its excellent quality, said to be the best obtainable in the world. Large quantities are mined in Minas Gerais with additional deposits being worked in Bahia.

The industrial uses of rock crystal were largely unexplored a few years prior to the outbreak of World War II. Now the utilization of quartz for industrial purposes raises this crystal to the status of a leading natural resource of Brazil. Because there is no substitute

61 Informacoes do Brasil, numero 1.
62 "Industrial Brazil", 77.
63 Ibid, 76.
for rock crystal, it is highly valued by important industries, especially those in the field of electricity and radio-transmission. Thus quartz represented a substantial contribution to the allied war effort. It was used to locate and detonate mines at extended distances. It is essential to radio-controlled airplanes, employed in cables for telephone wires, determines precise depth in marine-depth sounding equipment, and is utilized in the production of synthetic petroleum. Exports of Brazilian quartz crystals in 1943 exceeded those of 1937 over eight times by volume and better than eighty times in value. The 1943 exports were 2,411 tons valued at 324,721,000 cruzeiros.

The total value of Brazilian exports of precious and semi-precious stones rose to over 200,000,000 cruzeiros in 1943. This amount was nearly eight times the value of such exports in 1937 although the volume was less than three-quarters of that shipped during the earlier year. Emeralds, chrysoberyls, topazes, phenakites, aquamarines, tourmalines, garnets, spinel rubies, sapphires, onyx, and opals are found.

Due to their prized brilliance and size, Brazilian diamonds have always been in great demand in the world markets. Brazil is placed as the sixth diamond producing region in the world. The chief beds are in Bahia, Goias, Mato Grosso, and Parana. At Lencoes, Bahia, there occurs a black diamond named carbonado. Brazil enjoys a world monopoly in its production. In 1943 Brazilian diamond exports were valued at 182,274,000 cruzeiros.

A very important source of asbestos has been discovered in Bahia. According to reports it is quite similar to the type imported from Canada, the fiber being of high quality and also good for spinning.

The poor quality of Brazilian coals compels Brazil to import nearly two-thirds of the total consumed in the country. Much investigation is being made for expanded exploitation of coal deposits. At present, coal is one of Brazil's greatest weaknesses.

64 "Industrial Brazil", 78-79.
65 Ibid, 79.
66 Albert F. Calvert, Mineral Resources of Minas Gerais (Brazil), (London, New York, 1915), 78.
67 "Industrial Brazil", 80.
68 Leao, 121.
On January 23, 1939, petroleum was discovered at the government borings in Labatô near the capital of the State of Bahia. The government had been carrying on prospecting for oil in various parts of the country for nearly twenty years, but this was the first time that flowing oil had been encountered. Petroleum is a monopoly of the state in Brazil. As of January 15, 1947, the President of the National Petroleum Council reported successful operation of well #C27 whose drilling was finished December 3, 1946. On December 6, it began gushing at the rate of 944 barrels daily. Well #C27 is now producing 1500 barrels per day. It is expected that nearby oil deposits will soon be developed. The engineer Pedro de Moura has shown that while Brazil in the last seven years has spent only 13,000,000 cruzeiros with such excellent results, Venezuela spent 970,000,000 cruzeiros in research before producing a drop of oil while Iraq spent 1,000,240,000 cruzeiros in her first drillings. Gasoline, kerosene, oil for fuel and diesel oil will soon be produced by an oil distilling machine to be installed nearby in Bahia.
General Features

Early in the last century Brazilian industrial development was slight due to the free trade policy under which embryonic industries were unprotected allowing cheap British manufactures, especially, to ruin the markets. Following the abolition of slavery in 1888, there was a rising tide of immigration from Europe into the temperate regions in the south. Overproduction of coffee, by that time a leading export, released workers for industry. Later, the continued depreciation of Brazilian exchange made imports very expensive for local purchases, thus accentuating the demand for domestic industrial products. An influx of foreign capital and profits from coffee in the Parahyba Valley and higher Sao Paulo plateau were available.

During this period we find the construction of electric power plants and railroad and highway building. By 1915 there were more than one hundred electric power plants (capacity of 397,000 horsepower) as compared with two plants with 10,000 horsepower in 1890. There was an increase of 10,000 miles of railroads during this same period. Modern machinery was available at moderate cost, hence between 1890 and 1914 nearly 7,000 new enterprises were established. At the same time a diversified agricultural production arose beside the coffee plantations in the south to support the new industrial population.

It was during World War I and subsequent years that Brazil's outstanding industries were developed: frozen and preserved meats, jerked beef, vegetable oils, ceramics, wool, flour, sugar, lard, beverages, cotton, wool, and other textiles. After 1916, 21% of the national consumption of manufactures came from abroad as compared with 52% in 1906. Industry continued to advance steadily obtaining a production value index of 861 in 1925, 1,002 in 1929 as compared with 316 in 1919. The progressive decline in the value of Brazilian currency caused high import costs thus giving local companies a competitive advantage. A great increase
in the index represents depreciation of milreis value as well as an increase in value and volume of production.

With cheap foreign goods after war reorganization Brazil again turned to agriculture and grazing with marked increases in both until the drop in 1929 again stimulated the transfer of capital to industry. Brazil decided during the depression that if she wanted a more stable economy in the future she would have to industrialize. The Vargas government by means of currency control and other nationalistic devices worked toward this goal. It is significant that from 1934, the year Brazil began to come out of the depression, the value of industrial production rose from 6,434,000,000 cruzeiros to 20,013,425,000 cruzeiros in 1938 up to 25,154,000,000 in 1940. Again this rise is partly due to currency depreciation.

We can also see a marked increase in the variety of manufactured articles, from 37 in 1913 to 63 in 1919 to 201 in 1938 up to 322 in 1940. Another interesting comparison is the effect of diversification on Brazil's export trade. In 1916 manufactures comprised 6% of the exports while the seven agricultural staples: coffee, cotton, rubber, cacao, hides and skins, tobacco, and yerba mate, contributed 85%. Manufactures rose to 29% in 1918 as compared with 57% in staples. Following the 1918 peak, manufactures again fell off until 1942 when manufactures again reached 14.7% and in 1943, 19.2% while staple exports decreased to an all time low of 32.1% in 1943. This increase is partly due to decreased raw material exports to Europe and indicates greater exports of manufactures to other Latin American countries.

Another indication of the gain in industry can be obtained by a study of the number of industrial workers. In 1907 there were 136,420 workers while in 1943 there was a total of 1,500,000 workers, making a rise in the index to 1,039.5 (1907--100).

The states leading in industrial population in 1942 were Sao Paulo.

1 Sidney Zink, "Brazil's Industry—War's Emergencies Spur Unprecedented Activity", Foreign Commerce Weekly (Washington, September 11, 1943), 5.
2 "Industrial Brazil", 12.
3 Ibid, 8.
with 355,813 workers or 39.6%, the Federal District 134,385 or 15.9%, Pernambuco 71,379 or 8.4%, Minas Gerais 66,391 or 7.8%, and Rio de Janeiro with 64,811 or 7.6%. Taking the percentage of workers by industrial groups we find textiles leading with 26.2%, foodstuffs 16.6%, extracting and processing of metals, manufacture of machines, apparatus, and instruments 11.3%. In 1940 on the other hand, third place was taken by the construction industry, but because of the war, it dropped to fifth place.

In modern times outstanding Brazilian factory-produced goods have been foodstuffs, textiles, clothing, toilet goods, and chemical products. In 1889 textiles accounted for 60% of the production while in 1943 they had dropped to second place, accounting for 19.8%.

From 1850 to 1943 the number of factories increased from 50 to 100,000. A census of 8,000 plants in Sao Paulo in 1938 showed that only 29% employed more than 12 workers. Hence, we can see that the industrial system is still primarily one of small workshops. Corporations are relatively rare. On the security exchange in Rio only 221 companies were listed for trading in 1941.

Industrialization was well underway before Brazil entered the war. In fact, the war substantially checked the growth of industry despite the general stimulus of curtailed imports and special projects that had been put into operation. Continued expansion has been slowed due to inadequate imports of machinery and equipment, fuel, and raw materials. In addition, the nation's domestic economy was geared for wartime production.

Brazil experienced three outstanding economic changes from World War II:

1. Increased exports of and higher prices for strategic materials
2. Decreased imports of all commodities
3. Increased industrial production stimulated by domestic and foreign demands.

5 Ibid, 10-11.
6 Ibid, 5.
7 Cooke, 41.
8 Ibid, 42.
9 Zink, 8.
Foreign trade trends indicate this position. The volume of imports in 1942 was 3,003,000 metric tons lower than at any time during twenty years. The value of imports, 4,644,000,000 cruzeiros, did not rise in the phenomenal manner of exports. The tonnage value of imports in 1942 over 1941 only 13.6% whereas that of exports rose 48.1%. Brazil had the highest export balance in her history in 1942 amounting to 7,495,000,000 cruzeiros and 2,559,000 metric tons. Coffee, which had represented 40% of 1939's export value, was only 13% of the 1942 value. This may be accounted for partly in the lack of shipping space.

Different areas of Brazil felt the impact of war to different degrees. Vast isolated areas of the interior were virtually unaffected. In the Northeast the impact was more serious. Shipping priorities destroyed the exportation of such crops as cacao and sugar. A financial crisis was averted by an increased demand for wartime necessities such as vegetable oils and by the action of the United States government in buying surplus export crops. The most serious effect upon the Northeast was the reduction of food supplies available for the regions not agriculturally self-sustaining.

The war's most dramatic impact was felt in the industrial South. The cutting off of foreign fuel supplies threatened the nation with industrial paralysis. In mining, the demand for war supplies created minor booms. The shipping shortage threatened the stability of the whole economy. The United States government sent a technical mission Brazil under the direction of Morris Cooke to study along with Brazilian investigators the disorganization of Brazil's industry and its part in the war.

Industrial Examples

Just prior to the war the construction business accounted for a substantial part of Brazil's economy in Sao Paulo and Rio de Janeiro.

10 Zink, 6.
It is estimated that the construction industries employ directly 50,000 workers with an estimated 500,000 workers in supplying industries. Under the unprecedented building program of 1939 in Sao Paulo, 10,183 buildings were constructed including two outstanding projects: the state bank building, Brazil's tallest with 38 stories, and the 24 story Bank of Brazil. Beginning in 1940 there was a lag due to the war but it proved to be short-lived although construction costs rose 20 to 40%. In 1941 on the average of 33 new buildings were started daily.

To integrate the housing industry in consequence of the industrial boom the Industrial Workmen's Retirement and Pensions Institute, one of Brazil's social security authorities serving 3,000,000 industrial workers, in 1943 completed many large low cost housing projects in the cities of Rio de Janeiro, Sao Paulo, Porto Alegre, Recife, and Baia. This was in line with President Vargas's social program to relieve housing shortages and improve standards of living in the neediest elements of population.

In an article "Building Brazil", Mr. Lee Ross cites as an example of the housing project Dr. Plinio Contanhide's model city on the wastelands at Realengo, formerly a breeding place for mosquitos which in the evening were blown into Rio. The site is thirty minutes by train from Rio. Besides the 14,000 dwelling units, social and recreational facilities are included for the workers.

Mass production is the key note of these projects. For the most part concrete blocks are the basic material. According to the 1942 rate of development, 10% of the entire population would benefit from these projects by 1943 and 30% by 1946.

The shortage of cement during the war slowed the building pace. The cement industry, begun in Sao Paulo in 1897, produced in 1926 less than 3% of the total cement consumed. From this small beginning, production increased until in 1943 the output was adequate for most national

12 Ibid, 9.
13 Ibid.
requirements. The growth of the cement industry ran hand in hand with hydroelectric power development. Approximately 3,000 workers were employed in the industry with 170,000,000 cruzeiros invested. In 1943 annual output reached 747,409 metric tons while the apparent domestic consumption was 760,750 tons.

Fuel and transport problems, accentuated by the severe shortages and other restrictions of the war years, checked the expansion of Brazilian cement production since 1941. It was estimated that the present cement factories (1943) have an annual production capacity of nearly 900,000 metric tons. It is expected that with the passing of wartime impediments there will be even greater expansion. The production of cement is typical of the industries which could be founded in Brazil.

The construction of the Volta Redonda Steel Plant is held by all Brazilians to be something more than a milestone in the nation's march industrialization and a reasonable degree of technical self-sufficiency. The Companhia Siderurgia Nacional (National Steel Company) founded in 1941, is conducting the work on Volta Redonda. The working of iron dates from the earliest colonial days, but it was long held up by lack of fuel and of technicians.

Volta Redonda in the State of Rio de Janeiro near the Minas Gerais border is 90 miles from Rio de Janeiro and 220 miles from Sao Paulo. The raw materials will include the iron ore of Itabira, manganese from Minas Gerais, and the coal of the Santa Catarina fields. Volta Redonda is strategically located in the heart of the raw material and transportation systems on which its operations depend. It is expected to produce about one half of Brazil's past steel requirements.

When the plant is in full production, it will be capable of manufacturing from domestic raw materials such elaborate articles as: merchant and naval ships, steel structures, armaments, naval guns and explosives, internal combustion engines, automobiles, airplanes and parts, and heavy industrial goods. In addition it will produce by-products such as sulfate.
of ammonia, toluol, benzol, heavy and light oils, tars, and basic products for chemical industries.

The Volta Redonda project is an example of Brazilian—United States cooperation. The difference between the estimated cost of the project (about $70,000) and the authorized capitalization of $25,000 was provided by the Export Import Bank, repayable in semiannual installments over the period up to 1965. This loan is designed to cover the major portion of the dollar cost of materials, equipment and services supplied from the United States. All stock is in Brazilian hands; two-thirds is held by the government.

A permanent town of some 25,000 inhabitants has been erected on the site. The engineering work in connection with the construction is being done by a well-known American firm. The plant will be operated by Technical Director Lieutenant Colonel Edmundo de Macedo Soares who is both a cultured Brazilian and a competent engineer.

Obstacles

In order to industrialize further Brazil will have to overcome great obstacles. In the first place Brazil's population of 45,300,000 (1945 estimate) is too small to develop so large a nation. It has been estimated that it could support a population of 900,000,000 inhabitants. The population is for the most part clustered in two main groups along the vast coastline.

The great mass of people is under-nourished, under-paid, under-clothed, and half-ill. The Vargas government attempted to improve the diet of laborers by establishing model cafeterias in industries. But for the mass of the people, meals are composed almost entirely of starches.

The population of Brazil is quite mixed: 51% whites, 34% mestizos, 2% Indians, and 13% Negroes and other races. In the industrial South 15 "Industrial Brazil", 28. 16 Cooke, 236. 17 Ibid, 226. 18 Departamento nacional de propaganda, 5. 19 See map inside front cover for population distribution. 20 Alexander Stanley, Approach to Latin American Markets (N.Y. 1945), 16.
we find a great many European immigrants especially from Germany and Italy. In 1941 the adult literacy was set at 50%.

Brazil's most desperate need is for all types of engineers. The present engineering profession is inadequate in size and in the variety and intensity of training to meet new problems. Although the mass of the people exhibit native intelligence, they seem to possess little mechanical adaptibility. The reason probably is that the majority have not been exposed to machinery. Most agricultural workers need basic training in health, sanitation, and cultivation.

Increased immigration would give Brazil a larger labor market but prior to the war immigration was severely restricted.

Brazil lacks an adequate coordinated transportation system. Looking at statistics we find Brazil has 21,296 miles of railroad tracks ranking third in the Americas. But—Brazil is the largest nation, there is no uniform gauge, most of the rails are in poor condition, and the rolling stock is outmoded. The highways are in poor condition.

Although there is an extensive network of waterways, these have not been improved. Brazil has 45 ports. Brazil's need for an internal system can be shown by the fact that during the years of the German submarine menace, communications between the north and south was almost nil. This had a crippling effect particularly on the economy of the Northeast.

Aviation is promising in improving the transportation problem. There are already 181 airports and 33,460 route miles in Brazil. With airplane traffic Brazil would not have so much the problem of outmoded equipment and capital outlay in tracks, and would avoid many of the technical difficulties of railroad building.

Fuel has always been a serious problem to Brazil but she has high hopes for petroleum in the future. This plus her vegetable oils, charcoal, alcohol, low grade coal, and hydroelectric power should be adequate.

21 Ibid, 24.
22 Ibid, 39.
23 Ibid, 40.
According to statistics compiled by the World Power Conference, Brazil ranks fourth in potential hydraulic, estimated at over 14,000,000 kilowatts of which only about 739,000 are utilized.

Much of Brazil's machinery is obsolete and her productive units are too small. In the future Brazil will require large quantities of capital. Brazil will have to adopt a favorable policy towards investors to attract the necessary foreign capital.

Conclusion

As far as industrialization is concerned, Brazil still has far to go. The per capita value of industrial production in 1938 was only the equivalent in value of about $24. Some of the rise witnessed in production is due to inflationary prices. Land values and staple prices increased 300% since the outbreak of the war while wages increased but 30% (1943).

A report of the Sao Paulo Industrial Worker's Pension Institute shows that out of 1,311,746 contributing members 1,007,746 receive monthly wages of less than 331 cruzeiros (about $17). Sao Paulo is the most prosperous district. In order to raise the average standard of living to the level existing in Sao Paulo the value of national industrial output would have to triple the 1938 figure.

The present industrial plant is far too small to supply properly the requirements of her population of forty-odd million. The United States per capita consumption of iron and steel products is 880 pounds as compared with Brazil's 22 pounds. Nine times as many people are engaged in agriculture as in industry. The amount of industry's contribution to national wealth is disproportionate to the number of people it supports. It was wise for Brazil to adopt her policy of industrialization and diversification. A stable economy can not be based on exports.

24"Brazil, Arsenal of Strategic Materials", 17.
25 Zink, 10.
26 Ibid.
27 Ross, Part 11, 11.
of one staple crop—past history shows that only too well:

"The experience of the modern world proves that a high and constantly expanding standard of living can not be supported either on an agricultural economy or by the extraction of subsurface resources or by any combination of the two."

Agriculture is still all important to Brazil. As Sidney Zink has said:

"Without industry Brazil might continue to get along in some fashion; without agriculture it would, of course, not survive."\(^{29}\)

With an intelligent government program in the future the odds are certainly in favor of much greater industrialization. Brazil will no longer be satisfied with inefficiency—standardization in raw materials and manufacturing will be necessary to compete in the world markets.

Resources are wealth only when they are converted into goods. Only then can standards of living be raised. Efficient production is the key to this standard of living. It is only a question of Time, I believe, before Brazil will emerge a Great Power. Brazil went into the war with waking eyes—industrial Brazil is in sight!

\(^{28}\) Cooke, 268.

\(^{29}\) Zink, 25.
UNITED STATES-BRAZILIAN RELATIONS

Relations up to 1929

After having made a brief survey of Brazil's vast resources and industrialization program, we may well ask what this has to do with us in the United States. At present we are her largest importer and exporter. Friendship and cooperation between nations is manifest by their exchange of products for mutual benefit. We hear people speak freely of Pan Americanism, the Monroe Doctrine, and the bonds tying Brazil, the "Sleeping Giant" and the "Colossus of the North". But will the future friendship based on trade be as glowing as our politicians would have us believe?

Looking back over the history of diplomatic relations between the two nations, we find that things were not so rosy as we may be led to believe. With the arrival of Regent Dom John in Brazil in 1808, Jefferson extended the prince a cordial welcome through an American merchant, Henry Hill, alluding to the friendly relations which had always prevailed and to the prospect of establishing "a system of intercourse between different regions of this hemisphere" based on the principles of the peace and happiness of mankind. Although the ports were opened to free trade, United States' traders were unable to meet the competition of the firmly established Britishers. According to studies that have been made, Monroe's famous doctrine, delivered to the United States Congress, December 2, 1823, was prompted by the growing interest in commercial relations of the United States with Hispanic America, especially Brazil.

Under the able leadership of the United States' charge, William Tudor, the first commercial treaty with Brazil became effective in 1821. It was not too satisfactory to the United States since European powers

1 Lawrence Francis Hill, Diplomatic Relations Between the United States and Brazil, (Durham, N.C. 1932), 4.
had been granted more favorable provisions in similar treaties. In fact, all during the nineteenth century United States commerce operated on an unsatisfactory basis in Brazil. In 1870 it was reported that the United States was purchasing Brazilian goods to the extent of $25,000,000 annually while Brazil was buying slightly less than one-fourth as much. A suggested remedy was improved communications between the two nations. Seventy-five per cent of Brazilian-American trade was carried on European vessels, operated by government subsidies. Partridge, United States consul to Brazil, proposed government subsidies but it availed nothing in improving the status of American commerce in Brazil. At the time of the overthrow of the empire, Brazil took less than 6 1/2 % of her imports from the United States. On the other hand, United States purchased 61% of Brazil's exports. England, France, and Germany were the recipients of a favorable balance of trade at the expense of the United States. Following the establishment of the republic with a new feeling of friendship between the two nations as a consequence, Secretary of State Blaine attempted a reciprocity agreement with Brazil. Although it was in effect from 1891-1895, it was a failure due to Brazilian opposition and Brazil's liking for European products. After passage of the Dingley Act in 1897 negotiations were again made for reciprocity. Brazil was reminded that the United States was purchasing more than $60,000,000 worth of her products, 95% of which were admitted duty free, whereas Brazil was buying but $13,000,000 worth, 87% of which were subject to heavy duties plus high freight rates. This inequality made little impression on Brazil, and the United States president was unable to exercise his authority of levying countervailing duties because of the opposition of the United States' coffee drinkers.

The Brazilian government was continually bombarded by United States' representatives with a result that for two years some duties were lowered until British capital interests caused the repeal of the act. But the United States persisted. Finally in 1906 20% preferential agreements
were entered and renewed until 1911 when the preferential on flour was increased to 30%. This aroused fears from Argentina which threatened to retaliate on United States imports. As a result Argentina was to receive six months notice on changes in preferential treatment. Difficulty over the valorization of coffee caused the Brazilian government to suspend the tariff agreements in 1912. An early adjustment of diplomatic differences brought a restoration of the policy so that at the outbreak of World War I the total value of American trade with Brazil ($153,852,605) was considerably larger than that of its closest rivals, though Brazil still held a 2 to 1 balance. With the elimination of European competition during the war, American-Brazilian trade increased 300% and the unfavorable balance against the United States was greatly reduced. Following the war, old commercial channels were reopened, though United States' traders held the advantages they had gained remarkably well. In 1929, the annual trade between Brazil and the United States was still at the one-third billion mark.

Currency Control as a Depression Measure

Brazil has always had the problem of maintaining a stable currency. On top of a long series of heavy budget deficits and large foreign loans and investments that placed a heavy strain upon Brazil's foreign exchange reserves, came the collapse of Brazilian coffee prices toward the end of the twenties and the onslaught of the world economic depression in 1929. Foreign loans were cut off and the increasing budget deficits were met by loans from the Bank of Brazil and the issuance of government obligations. The exchange value of the milreis declined to an average of 10.71 cents for 1930 and to 5.62 cents in October 1931. The country's gold stock fluctuated severely from 7,250,000 fine ounces in 1929 to 500,000 in 1930. Exchange control was set up in October 1931 and a

4 Hill, 297.
A three year moratorium was placed on payments on all foreign indebtedness of the government units. In April 1934, partial payments were resumed. In May 1934 exporters were obliged to sell a certain percentage of export bills to the Bank of Brazil at the official rate. The remainder could be sold on free markets. The situation became worse in November 1937.

All payments on foreign debts were suspended. Beginning in December all foreign exchange had to be sold to the Bank of Brazil and a 3% tax was levied on all purchases of foreign exchange. The tax was increased to 6% in June 1938. With the outbreak of the war in September 1939 there were no changes in the control system. In March 1940 there was a renewal of partial payment on foreign debts. On July 26, 1946, the official exchange rate was abolished. During the war Brazil substantially improved her gold position.

Reciprocal Trade Agreement

Proof of Brazilian-American friendship during the 1930's was evidenced by the signing of the Reciprocal Trade Agreement between Brazil and the United States at Washington on February 2, 1935. Becoming effective January 1, 1936 it provided for reductions in the existing duties of each country on certain products of which the other has been an important supplier, and the assurance against the imposition or increase of duties on certain other products. In addition it contained a reciprocal assurance of unconditional most-favored nation treatment of each other's commerce in all respects, and special safeguards against the impairment of the benefits of this agreement through import quotas, new internal taxes, or exchange control.

"Under the agreement Brazil grants duty reductions on a broad range of distinctive United States export products, industrial and agricultural, covering 67 tariff classifications, and assurance against the imposition or increase of import duties into Brazil on an additional list of commodities, covering 39 tariff classifications. The United

8 World Almanac for 1947, 404.
9 The Statesman's Yearbook 1946, 760.
States granted duty-free admission of Brazilian coffee and a number of other products, plus reductions in the duties on manganese ore, Brazil nuts, castor beans, copaiba balsam, ipecac, and yerba mate. The agreement applied to Continental United States and the non-contiguous territories of Alaska, Hawaii, and Puerto Rico (excepting the coffee imported into Puerto Rico), with special reservations for the historical preferential tariff relations between the United States and Cuba.  

Treaties of this sort were necessary during the thirties. As a result of the depression, nations went off gold and restricted trade to balance their internal economies. These agreements were to aid in freeing trade between a few nations at least. Turning to trade statistics we can see that the treaty accomplished this purpose. The United States exports to Brazil during the pre-agreement period of 1934 and 1935 averaged $42,000,000 while from July 1937 to June 1938 the exports were valued at $70,400,000, a percent increase of 67.6. Brazilian exports did not witness such a phenomenal rise. For the pre-agreement period 1934 and 1935 the annual average was $95,600,000. The 1937-1938 total of $106,000,000 was a rise of but 10.9%. Reciprocal trade agreements proved to be a step in the direction of greater world trade in this era of more and more planned economies.

Brazil's Contribution to World War II

Brazil joined the allied cause soon after the United States. The war period was marked by great cooperation between the two nations. The United States supported Brazil's economy by subsidizing unexportable export crops and by extending loans for war industries. In return the United States used strategically located Brazilian air and sea bases and received essential war materials.

Benjamin H. Harnn sums up Brazil's share in the war:

"let us examine an American Air Force plane in action in Europe or in the South Pacific, or over China. Some of the aluminum in her wings probably comes from Brazilian bauxite. Her gun metal undoubtedly is better because of tantalum and columbium mined in Brazil.

10 Letter from American Republics Division, Office of International Trade, Department of Commerce, April 15, 1947.
mined in Brazil. Her radio is kept tuned to its proper frequency with a Brazilian quartz crystal and Brazilian mica insulates her sparkplugs. The control wires are stronger because of Brazilian tungsten. Spring steel in the motor is springier and more durable because of Brazilian nickel, cobalt and chrome went into the metal pot.

Gun barrels, armor plate and armour piercing cannon shells and other parts made of steel get extra strength from the States of Santa Catarina, Ceara, Baia, Mato-Grosso, Sao Paulo, Maranhao and Minas Gerais, sources of the most of Brazil's valuable manganese. Castro oil to lubricate the motors, rubber to clothe the airmen, and fish oils to keep them healthy—all come from Brazil. If the reached Europe by air it might have been ferried across the South Atlantic via Brazilian air bases; if by sea, the convoy probably was guarded by Brazilian sailors and by anti-submarine patrols flying out of Brazilian airbases. "12

Post War Possibilities

Now that the war is over will our trade relations continue to improve?

There are those who feel that if Brazil continues to industrialize we will lose our markets in Brazil. That is not true. In the first place it will be many years before Brazil will be fully industrialized.

Secondly, as nations attain higher standards of living they are better able to trade with their neighbors consistently. The policy of producing raw materials for foreign markets results in an unstable economy—when times are bad they are the hardest hit being unable to import even the barest necessities. When nations are highly industrialized they are not only able to take care of home needs but they can specialize in certain products in which they have an advantage. In this way all can produce and trade to their best advantage. "Experience has shown that our largest trade has been with those countries which are advanced industrially and have high standards of living." "There can exist no incompatibility between Brazil's industrial growth and the economic interests of the United States."

We need not, therefore, fear Brazil's industrialization. True we may lose markets for simple manufactures but we will make up for it

12 Mendonca, 10.
14 Roberto C. Simonsen, Brazil's Industrial Evolution, (Sao Paulo, 1939), 61.
with high quality industrial and consumer goods which their present standard of living can not afford.

"The Trade Partners of Brazil need not fear the effect of this industrialization, but instead should anticipate expanded markets for their goods in the Republic. It is a proven fact that the higher the degree of Industrialization attained by a nation, the better customer she becomes."15

It has been estimated by the former Office of Inter-American Affairs of the United States government that in the first ten post-war years Brazil expects to purchase annually on the average of $202,600,000 worth of industrial equipment and materials from us. Previously the highest value that she imported was $59,677,000 in 1941.

In this connection I should like to mention a recent development in Brazil. President Dutra is clamping controls on imports of nonessentials in an attempt to force overseas buying into necessities and capital goods. This is designed to check mounting inflation brought about by war and the chronic failure to balance the national budget. Brazil's main import need is for capital goods to step up production. But deliveries from the United States are slow and Great Britain can not export sufficient goods. Meanwhile the necessary exchange was being spent on undesirable goods from the standpoint of future development. Brazil continues to enjoy a favorable balance of trade although the United States has stopped buying most strategic materials. We should attempt to supply her with as much equipment as we can to support her internal economy and to strengthen relations.

Aside from markets for goods, there should be excellent advantages in the future for investments in Brazil. From a total of $193,606,000 in 1929, United States private investments in Brazilian industries rose to $337,242,028 in 1943. Great Britain had investments of about four times this amount. Here we can see that while the United States has gained the number one spot in trade, Great Britain still holds the pre-eminent position in capital investments. Since Great Britain is now experiencing economic difficulties at home the United States may take

15 "Industrial Brazil", 2.
16 Ibid, 16.
17 "Brazil Cuts Imports of Nonessentials", World Report, (Washington April 22, 1947), 43.
18 "Industrial Brazil", 16.
over—if Brazil continues to follow a policy favorable to foreign investors. Aside from a few general restrictions, the foreign investor in Brazil is treated on an equal basis with Brazilian citizens. The rate of return in 1940 was approximately 3.3%. Of the total capital invested in industrial concerns, 49% was foreign owned in 1944.

**Obstacles**

Brazil by all counts can become our "closest economic partner in the future". But there are several factors we must not overlook in our dealings with Brazil or with any nation for that matter. During the war necessity forced close collaboration. This pressure is not present in peacetime. We may lose our favorable position by our psychological or diplomatic dealings. In the past as Mr. Hill has pointed out, our diplomats and businessmen have not always done too good a job of fostering goodwill.

We must remember above all that the Brazilian people have a complex makeup. They are not all whites—their blood is predominantly Portuguese, Negro, and Indian, and they are proud of it! We in the United States speak highly of our "democracy" and yet do not accept our black neighbors. Brazil is primarily a Catholic nation. How do we act abroad? Are we tolerant? Actions speak louder than words.

We are apt to laugh and look down upon customs and ritual in a foreign country, we do not bother to learn their language, we do not enter their social life, our movies give a wrong impression of our life, our diplomats are not always diplomatic. Each and every United States citizen who has dealings in Brazil is a representative of our way of life. We must prove that our intentions are democratic.

Mr. Herman Tavares de Sa in his article "Camouflage in Harmony" indicates the sort of thing that I mean. He spent two years in the

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20 Statesman's Yearbook 1946, 758.
21 Phillips, 195.
22 Hill, Diplomatic Relations Between the United States and Brazil.
23 Herman Tavares de Sa, "Camouflage in Harmony", Inter American, (Washington, August 1944), 10-13.
United States during the war in which he heard nothing but glorious reports of "Good Neighborliness". Upon returning to Brazil he was amazed to find that his countrymen were growing less and less pro-United States. This was caused partly by the fear that the United States would not give up naval and air bases in Brazil after the war. This fear was rather widespread throughout Latin America. Another factor was the economic disruption brought about by the war. This was felt especially in the hard hit Northeast where the invasion of United States troops took place at the same time. The average Brazilian had to blame someone for the shortages, high prices, etc.—and so it was the high paid (by Brazilian standards) United States troops. The third factor was psychological, based on hundreds of small incidents, tactless faux pas by well meaning Americans. But Mr. Tavares de Sa says the fundamental friendliness and adaptability of both peoples should overcome such misunderstandings.

Another factor which may mar the future relations of the two nations is possible United States intervention in Brazilian politics. As I have already said Brazil is leaning more and more towards a centralized state. Of course we may not favor their internal policies but let us not interfere. "Why not take and accept the Brazilians, first, last, and always, for whom and what they really are?—and let their politics and other personal affairs, severely alone. Fancy any Brazilian or other friend or foe, questioning the character or sincerity of our politics, especially if they happen to be our guests." Revolutions are rather prevalent in Latin America. Beyond protecting our property in those countries, we should keep our hands off. It is their way. Perhaps they do not care for our "mud-slinging" presidential campaigns, either—so what? We can still be good neighbors.

The United States has another difficulty to surmount. "Our government, American style, is one in which the right hand of Policy does not always know—-and is in opposition to—what the left hand of Business

24 Tavares de Sa, 13.
is doing!" This acts as a disadvantage to both, especially where third parties are concerned. In Great Britain foreign trade is coordinated through the Crown. In Russia, trade is a state monopoly. What chance has a United States businessman if our State and Commerce Departments are counteracting what he is attempting to do. I do not want state control but a more coordinated foreign trade policy.

Our future with Brazil depends upon the actions of every other nation. We can discount none of them. Prior to World War II Germany was an important power in Latin America. Will Russia take her place? The Communist Party has just been abolished in Brazil, but conditions change rapidly in politics. Russia's state-controlled trade could undermine our Brazilian markets. How about Great Britain—long a dominant factor in Brazil?

"Brazil's complete cooperation and collaboration cannot be counted upon until United States' breach with Argentina is healed....While fundamentally Latin Americans may not approve of the Buenos Aires military clique, they have a latent fear that the United States may revert to 'Big Stick' diplomacy, and this leads them to applaud Argentina's successful resistance to pressure from the United States ..... It is no secret that Britain and the United States have been unable to agree on their Argentine policy—their failure is closely related to their respective trade aims in South America.....Argentina is the pivot of Pan American Peace' as well as the 'open, Sesame' to unrestricted Brazilian Trade."27

We will have to watch our price level so that our goods will sell in the world markets. It is all well and good to attempt to stimulate business by maintaining high prices, but then we can not expect to trade. Controlled economies always set up barriers to trade. If we intend to trade we must allow our prices to remain at the world levels.

The Future is in Our Hands

"How we complement each other; need each other! Nature and the Machine both demand our collaboration. Our Ally in War will become our Partner in Peace. But there is only one way on earth to give substance, solidity, and permanence to this bond...Trade is the only binder. Profitable exchange of things we want from each other. Give and take. Live and let live."28

26 Phillips, 184.
In 1944 the United States was taking 53% of Brazil's exports, Great Britain 12.6%, and Argentina 13% while Brazil imported 61% from the United States, 21% from Argentina, and 3% from Great Britain. Through 1946 the United States remained Brazil's chief trader. Total Brazilian imports in 1945 were $442,069,000 while those from the United States were $243,620,000. The export total was $661,105,000 of which $326,277,000 was to the United States. In 1946 imports from the United States rose to $353,276,806. Exports also increased to $408,004,434.

The trend toward greater inter-Latin American trade has continued. Both imports and exports have remained at high levels—this is partly due to higher prices. At present conditions in Europe are still too chaotic to anticipate the future of these trends.

No one can foretell the future. Certainly the products of the two nations complement each other. With a clear understanding of all the problems involved, the assets outweigh the liabilities in the future of our trade. At any rate some trade will exist. How much will depend on the world situation, the degree of trade controls, the internal economies of both, and the intelligence and understanding displayed by both businessmen and governments. Trade can do much to improve the positions of both nations.

If we jump the hurdles standing in the way of continued cooperation, this relationship can lead to greater hemispheric cooperation—the goal of the Pan American Union. Brazil is the "Bulwark of Inter American Relations". If the "Waking Giant", Brazil, and the "Colossus of the North", shorn of a "big stick" policy can depend on each other, this may stimulate trust not only in the Americas but throughout the world. Free trade, based on trust, is after all the key to world peace. When strategic materials are traded, possession of source is relatively unimportant and "have-not" nations need not fear. Brazilian-United States relations can act as radar guiding the ships of state into the ports of

29 The Statesman's Yearbook 1946, 758.
32 "United States General Import of Merchandise", U.S. Dept. of Comm. 1946.
33 Phillips, 220.
peace and plenty.

This is an idealistic pattern of things to come. If on the other hand, nations decide against free trade and form blocks (as they probably will), an alliance with Brazil will prove to be very advantageous. Americans are very apt to think that our nation possesses insuperable resources—that we can do anything. But when we review the war and remember how important Brazilian raw materials were to us, we can not be so complacent. To protect our future, we must cultivate this friendship. Someday we may have to depend on Brazil more than she has to rely on our technical "know-how" now. It looms as a ticklish problem but this friendship is essential as insurance for our future and Brazil's. It is vital to us all. It is up to us—each and every one!
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