The Industrialization of São Paulo
1880-1945

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The industrialization of São Paulo depended from the beginning upon the demand generated by the growing overseas market for coffee. The cultivation of coffee started in that state well after the first plantings in the mountains above Rio de Janeiro in the beginning of the nineteenth century. For fifty years the trade gained ground in Europe and stimulated the establishment of new plantings further and further to the west. By the 1850's the wave of coffee groves had crossed to the Paulista side of the Paraíba Valley and been introduced to the region of Campinas, beyond the provincial capital. As the almost unknown interior of São Paulo came to be penetrated, it was discovered that the future of coffee lay there, for along the highland ridges between the tributaries of the Paraná River, far inland, were to be found the soils most suitable for its cultivation.

Toward the end of the nineteenth century the market for coffee began to expand more quickly. Demand in the United States and Europe was growing as industrialization increased productivity; Brazil's coffee was low-grade, suitable for consumption by the masses. Transport became cheaper and more reliable as iron-hulled steamships entered the South Atlantic sea lanes. The commercial system
became more effective and extensive as undersea cables were laid and as importing houses and overseas banking operations were established. São Paulo began to experience the same euphoric prosperity that was overtaking other parts of Latin America at the same time.

Certain circumstances accelerated still further the sudden growth of the coffee trade. First, in Ceylon, São Paulo's principal rival, a blight was ravaging the coffee groves, drastically cutting output. Second, slavery was abolished in Brazil in 1888, opening the way to a more efficient and more viable labor force of free European immigrants. Third, the overthrow of the senescent emperor by the military in 1889 led to the institution of an extremely decentralized economic and political structure that allowed the state government of São Paulo to encourage the trade without hindrance and to retain all the profit from it within the state.

These external and internal stimuli produced spectacular results: shipments of coffee from Santos, São Paulo's seaport, more than doubled in each decade after 1870. In 1892 Santos exported $40,000,000 worth of coffee; by 1912 its exports totaled $170,000,000. State population grew from 837,000 in 1872, to 2,283,000 in 1900, to almost 4,000,000 by the outbreak of World War I—an increase of more than 14 per cent per year. Meanwhile the capital grew even more rapidly. A village of 23,000 in 1872, its inhabitants numbered 580,000 by 1920.1

Coffee was the basis of domestic industrial growth first of all because it provided the most elementary prerequisite of a factory system—a money economy. Without a crop for export, the landowners of São Paulo had little need for cash or for credit. Before the introduction of coffee, farms were typically devoted to subsistence agriculture, even when they were large enough to require slave labor or sharecropping. The planters prided themselves on self-sufficiency; all they needed from the outside world was "gunpowder and salt." In all of Brazil the circulating currency in the 1870's and 1880's amounted to a mere fifteen to twenty milreis per capita ($7—$15). In São Paulo there were

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1 São Paulo (state), Anuário Estatística de São Paulo (1898), II, 282, and (1940), p. 89. "São Paulo" will invariably be used to refer to the state, "the capital" to refer to the city.

2 L'Empire du Brésil, pp. 477—484; Brazil, Instituto Brasileiro de Geografia e Estatística, Conselho Nacional de Estatística, O Brasil em números, p. 71; Alice P. Canabrava, O desenvolvimento da cultura de algodão na Província de São Paulo, 1861-1875, pp. 282—285. Dollar values that follow quotations in milreis are based on the average exchange rate of the year in question.
aspects of their business; they lived more frequently in the cities and some turned to real estate, banking, railroad promoting, and exporting.

Coffee planting was a kind of matrix that defined the possibilities of the entrepreneur. The structure of the plantation system was quite simple. Land ownership was highly concentrated. A few hundred extended family groups owned vast holdings subdivided into plantations of 100,000 to more than 1,000,000 trees. A freeholding lower class existed in São Paulo before the beginning of the coffee trade, but coffee tended to exterminate it. Coffee required capital and influence to buy slaves, to attract the railroad, to obtain credit, and to validate land claims. Those who did not possess these resources lost their lands to those who did and either began afresh, squatting on land beyond the coffee frontier, or accepted employment on the plantations.

The labor system was based on the European immigrant. Those who went to the plantation were invariably of peasant origin. They worked the coffee groves for money wages, as tenants on yearly contracts. There was some small hope of eventually owning land, because older estates whose trees were beginning to lose their fertility were occasionally subdivided. It was more common, however, for the colonos to change employers frequently and to return to his homeland either when he had accumulated some savings or after he had lost all hope of doing so. The scale of consumption in the rural areas was limited by the low wages offered by the planter, who managed to retain a very large share of the coffee income as profits; one informed report mentioned an 80 per cent return on capital even in the bad years of the mid-1890's. (The coffee workers never organized, but there were many rural strikes.) It was also limited by the high propensity of the colonos to hoard their earnings in order one day to return to their homeland.

Remittances to Italy via the São Paulo branch of the Bank of Naples averaged $1,000,000 a year in the first decade of this century. In years when coffee prices fell, the discouraged peasants left in such numbers, either for their homeland or for Argentina, that net immigration was close to zero. From 1902 to 1910 more than 350,000 Europeans arrived in Santos, but so many re-emigrated that the net gain was only 16,667 for the entire nine years.

The demand of so depressed a mass market was restricted in volume and narrow in range. Travelers have described the furnishings of the colonos' one-bedroom houses: a frame bed with coarse cotton sheets, chairs and a table, pots and pans, candles, a santo, and religious or patriotic chromos. The immigrant and his family wore cotton drill, felt or straw hats, and leather shoes or canvas clogs. They produced their corn and beans and most of their meat and bought wheat flour, lard, salt, cod, soap, pasta, and sometimes beer, canned meat, and kerosene. All else was lacking, and all else, it may be presumed, was consumed only in the cities, as part of a luxury trade, and hence principally satisfied by imports: printed matter, medical and optical goods, drugs, printed textiles, linoleum and oilcloth, plumbing fixtures, electrical hardware, and many other objects already commonplace in industrialized Europe and America.

It appears that productivity in coffee culture did not improve through the entire period of its geographical expansion except in three respects: transport, processing, and commercial organization. Domestic manufacture contributed in some degree to the first two improvements. For the rest, new investment in coffee was applied to the opening of new land rather than to the intensification of production on existing estates. This practice meant that productivity would at best merely remain stable and that the real wages of the rural laborers would increase only if the selling price of coffee improved in the international market.

The structure of the coffee-producing system, with its extreme polarity of planter and colonos, and the general stagnation in technique,

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5 Pierre Monbég, La croissance de la ville de São Paulo, pp. 27–31.
7 Jornal do Commercio, Retrospecto Comercial (1896), pp. 4–5; Salvatore Pisani, Lo stato di San Paolo nel cinquantenario dell'immigrazione, p. 1076; Anuario estatistico de São Paulo (1914), I, 108.
which resulted in unchanging factor proportions, influenced manufacturing in many ways. It depressed aggregate demand, which was condemned to rise no faster than the increase in population. The pattern of demand also remained the same. The great mass of the population was able to buy only basic necessities of low quality and of a sort they were accustomed to consume in Europe. The agricultural worker required only the simplest of tools: hoes, the picturesque coffee sieves, cotton sacks, and little else.

The coffee trade not only generated a demand for industrial production, but it also paid for much of the economic and social overhead necessary to make domestic manufacturing profitable. Railroad construction was entirely a function of the coffee expansion. The lines were built either by planters with their profits or by foreigners with the expectation of hauling coffee. The port of Santos, so important to early manufacturing because of the need for imported raw materials such as jute and wheat, was likewise a coffee venture. The earliest factories were powered by steam engines fueled with charcoal or imported coal, but later machine production depended on the installation of urban hydroelectric power systems. The electric companies were often organized by planters eager to adorn their inland towns with modern devices. The plants that provided the greatest share of power, those at São Paulo and Sorocaba, were built by European and American interests whose hope of profit was founded at least indirectly on coffee, that is, on the urban growth functionally dependent on the coffee trade. The largest of these infusions of capital was that of the São Paulo Tramway, Light and Power Company, incorporated in 1899 with $10,000,000 in capital to provide an electric trolley system. Gradually, as a subsidiary of the Canadian-incorporated Brazilian Traction, Light and Power Company, it absorbed other local power, telephone, and gas companies and installed the thermal and hydroelectric capacity needed to power industry as well as utilities.7

The first factories also benefited incalculably from the social transformation already wrought by coffee, most notably from the presence

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of a work force, both immigrant and native, already inured to the
necessity of steady labor, but also of a cadre of technicians and fore-
men hired in Europe to tend plantations or build railroads or trained
in São Paulo's new institutes of higher learning. Besides the law school
founded in the 1830's, new schools of engineering, commerce, medi-
cine, and biology were created before World War I.

These sudden developments in the São Paulo region in the 1880's
and 1890's, if they are considered all together, as a whole, were in a
more profound sense the cause of industrialization. For the coffee
boom provided that movement "along a broad front" that Gershen-
kron believes is necessary if industrialization is to take hold, and if
resistances inherent in stagnant economies are to be overcome.\(^8\)

A rapidly expanding and buoyant export trade does not necessarily
lead to a domestic industrial plant of any consequence, however. In-
deed, surveying the other instances of export-oriented economies in
Latin America before World War I, it seems that São Paulo's devel-

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Aleya Alexander, Economic Backwardness in Historical Perspec-
\(^8\) Alexander Gerschenkron, Economic Backwardness in Historical Perspec-
tive, pp. 10-11.
nonmetallic minerals, especially clay, sand, lime, and stone. The lack of significant iron deposits, on the other hand, meant that the metallurgical industry was to remain a small-scale operation, producing spare parts, specialized machines, or equipment made to order.\(^9\)

Even so rudimentary a stage of industrialization as that of São Paulo before the 1920's involved a wide range of goods. It is impossible to conceive of an export product so lucrative that it would pay for the importation of bricks. Along with bricks, almost every kind of construction material was domestically produced by 1920: tiles, cement, nails, ceramic pipes, lumber, and even plate glass and plumbing fixtures. Other obvious examples are beer and soft drinks (and bottles to put them in), shoes, boilers, coarse textiles, furniture, stonework, flour, pots and pans, and hats.

It should be pointed out that at this early stage the industrial sector was quite marginal within the export-oriented economy. As long as the only customers of Paulista manufacturers were the planters and their tenants, manufacturing remained a venture even more speculative than planting. The manufacturers and the planters were equally dependent on coffee prices to cover their production costs, but the planter was far less dependent on foreign exchange for his survival. He needed very little imported machinery and no imported raw materials at all. Indeed, when coffee prices fell, the planter was indifferent to the consequent decline in the value of the milreis, because he could pay almost all of his expenses without resort to foreign currencies.

Furthermore, industrialization did not enjoy the support of an operational ideology of development that seems to be so often a motivating force behind the growth of manufacturing in undeveloped areas, and which was, indeed, a force behind the expansion of the agricultural sector. The spread of coffee cultivation was held to be intrinsically worthwhile, the key to material progress, and effective state support was mobilized in its behalf. Until the late 1930's, however, the replacement of imports by domestic manufactures was not the result of sympathetic or even conscious official encouragement, except in very special cases. The identity of political and plantation elites only partly explains this aspect of marginalism. To some degree it was the result of a general lack of acceptance of the products the manufacturers were offering. The Paulista entrepreneur produced, in the beginning, the simplest and cheapest of consumer goods. This was necessary, even inevitable, because the new manufacturer had to acquire technique gradually. At the same time he found more profit in goods whose weight-to-cost ratio afforded him the greatest advantage over imports. The result of this strategy was an unavoidable association, on the part of the consumer, between low-quality goods and domestic manufacture.\(^10\)

The merchant, furthermore, had either to offer domestic goods for sale at a price lower than the comparable foreign items or disguise the origin of the domestic product. This he sometimes did, as a kind of reverse contraband, since the margin of a product made in São Paulo could be much higher than that of an imported article on which the tariff had been paid, once its origin was falsified with a borrowed label or container. The costs of this perhaps inevitable prejudice against local manufactures were high. Paulista industrialists insisted with reason that tariffs, in order to protect them, must be set high enough not merely to permit equality of prices, but to give them an advantage of 10 per cent or more, since an import with the same price tag would always be preferred. The Brazilian economy has paid dearly in royalties for labels that often had no relation to contents, but guaranteed consumer acceptance.\(^11\)

Some of these obstacles were present in the unusual case of the Engelberg coffee huller. This was a highly efficient machine invented in São Paulo by a mechanic named Evaristo Conrado Engelberg sometime in the 1880's. Realizing that the world market for such a machine was very large and that the possibility of producing it in quantity in Brazil or of distributing it from there was unpromising, Engelberg

\(^9\) The products made by Paulista shops have been culled from newspaper and magazine advertising, especially O Estado de São Paulo and the Jornal do Commercio (São Paulo).

\(^10\) Brasil Econômico (September 1, 1928), p. 5.

and his partners sold the world rights in 1888 to a group of Americans who formed a company to manufacture it. This firm, located in Syracuse, New York, and named after Engelberg, was extremely successful in marketing the machine in coffee-producing areas all over the world.12

Although the original agreement with the American group seems to have excluded rights to sell in Brazil, by 1904 the huller was being imported into São Paulo by F. Upton and Company with the help of some of Engelberg's original backers. By this time there were several other Paulista companies producing hullers, one of them managed by Engelberg, but the American-made machine was competitive and sold well in São Paulo for many years. Apparently neither local inventiveness nor local resources were sufficient to exclude foreign incursions in a market that was both in fact and psychologically dependent on Europe and North America.13

The first factory in São Paulo, it appears, was the iron works at Ipanema, founded in 1810 with a royal subsidy. In 1811 the first cotton textile mill was built, in the capital, employing water power and slave labor. In 1836 the first plant to use steam power, a sugar refinery, began operations in Santos. The official report of the provincial president in 1852 mentions only five factories: a cotton mill in Sorocaba, a potash plant in Bananal, a foundry, a glassworks (in decline), and a candle factory. A hat factory was built the next year. In the 1870's more textile mills and a few sawmills were established. At the time of a parliamentary inquiry in 1885 concerning tariffs, there were thirteen cotton mills and a woolen mill, at least four foundries, a match factory, and an unknown number of sawmills. The earliest count of industrial firms that pretended to completeness, a government report dated 1895 which included only the capital of the state, reported 121 firms using mechanical power. Of these, only fifty-two were really industrial firms. Eleven employed more than a hundred workers: three textile mills, a

13 F. Upton e Cia., "Catalog A."
14 Eugênio Egas, Galeria dos presidentes de São Paulo, I, 204; Antônio de Toledo Piza, Relatório Apresentado ao senhor Dr. Alfredo Pujaí, Appendix.
15 Antônio Francisco Bandeira, Jr., A industria de São Paulo em 1901; Centro Industrial do Brasil, Comissaão d'Expansao Econômica do Brasil, O Brasil, vol. III.
growth of industry. In what terms, then, can its continuation be explained? The following chapters consider this question mainly from the point of view of the industrialists themselves. Their decisions may be said to have caused industrialization in the most direct sense of the word "cause," whether or not one accepts the centrality of the entrepreneur in Joseph Schumpeter’s writings.

This study will try to deal with three related and sequential aspects of the entrepreneurial role. Part One considers the origins of the entrepreneurs; what they did before they turned to industry, what social groups they came from, how they amassed their capital, and what kinds of production they first attempted. The cadre of entrepreneurs with which this study is concerned for the most part emerged before World War I; therefore Part One covers the period 1880 to 1914.

In Part Two growth of industry is related to historical circumstance and to business structure. In particular industrial growth is compared with the growth of the export sector in order to test the theory that manufacturing grew because the export trade declined. Part Two deals with the years 1914 to 1929, but also overlaps the 1930’s somewhat.

In both parts One and Two the industrialists are discussed as a group, first as a bourgeoisie arising out of existing and nouveau elites, then as a new elite beginning to make its own demands upon society and inevitably coming into conflict with other economic sectors. In Part Three of this study, this conflict becomes the central concern. As domestic industry came to employ more workers and to supply a larger share of the market, the manufacturers began to reveal in words and behavior an outlook on society, conditioned by their origins and by objective conditions, which was a significant determinant of the next phase of industrialization. The manufacturers’ attitude toward their workers, toward the middle class who were potential technicians and shareholders, and toward consumers in general are discussed for the period between the wars. With the onset of depression and the collapse of the old political structure in 1930, government began to take upon itself the solution of social conflicts and economic stagnation. Increasingly through the 1930’s and into the period of World War II, therefore, the government reorganized the environment in which trade and manufacturing operated. The last part of the study concludes in 1945, when the government’s role suddenly contracted.16

The historical perspective of this study is thus essentially sociological. The macroeconomic aspects of the economy are discussed as causes of industrial development, but it is assumed that they are not the only causes. No matter how suitable for industrialization the circumstances are, the decision to commit resources to that purpose will not be taken unless the perceptions and interests of the elite are favorably engaged. This condition is in turn the consequence of the composition of the elite and its relations with the society it manages. From this perspective the entrepreneur is not a cultural hero, the cause uncaused, but merely the representative of a new group that is groping its way to an arrangement with the other men of power within the society. That the industrialist has the power to restructure society utterly may be something even he does not understand.