

# Itabira Iron and the Export of Brazil's Iron Ore

## 1. The Run on Brazil's Iron Ore

In 1908 President Theodore Roosevelt promoted a Congress in Stockholm for research on the industrial uses and conservation of world natural resources. The first subject of discussion of the Congress was the evaluation of world reserves of iron ore.<sup>1</sup> Many countries which were not able to

<sup>80</sup> JOINT Brazil-United States Economic Development Commission. *The Development of Brazil*. Washington, U.S.G.P.O., 1953, p. 30.

<sup>1</sup> OLIVEIRA, Clodomiro de. *A Concessão Itabira Iron*. Belo Horizonte, Imprensa Oficial do Estado de Minas Gerais, 1934, p. 33; AMARAL, Afrânio de. *Siderurgia e Planejamento Econômico do Brasil*. São Paulo, Editora Brasiliense Limitada, 1940, p. 272-3.

send delegates contributed monographs on their respective reserves of iron ore. Through these monographs the Congress evaluated world ore deposits.

Before this Congress the richness and abundance of the iron ores of Brazil had been largely unknown in the industrial countries. An 1879 graduate of the School of Mines of Ouro Prêto, L. F. Gonzaga de Campos, had at various times evaluated the deposits of ore in Brazil's state of Minas Gerais. Orville Berby, Brazil's representative at the Congress, introduced Campos' monograph on ore deposits. According to this monograph Brazil had an actual reserve of 3,000 million tons.<sup>2</sup> Because of the possibility of an eventual drain of ore reserves in the industrial countries, Campos monograph aroused great interest on Brazil's deposits. Shortly after the congress a large number of representatives of important syndicates in the industrial countries – notably the United States, Great Britain, Germany, France and Belgium – travelled to Brazil in order to acquire options on ore deposits. A virtual run on Brazilian ore deposits took place after the Congress of Stockholm.

Table 1 shows the mines acquired by the different national groups and the selling price. It has been estimated that one million tons of iron ores were bought on the average for one thousand *mil réis*. Thus a ton of iron ore was bought for one *real*, a monetary unit so small that it soon disappeared.<sup>3</sup> This low price of acquisition has been sharply criticized by Brazilian scholars and government officials.<sup>4</sup> It should be remembered, however, that these mines were located in the interior of Brazil which was separated from the coast, and export possibilities, by a mountain ridge. At the time when the deposits were acquired there was

<sup>2</sup> COSTA SENA, Joaquim Cândido de. *Minérios de Ferro no Brasil, Principalmente no Estado de Minas Gerais*. In: *Anais da Escola de Minas de Ouro Prêto*, 1908, n.º 10, p. 19-34; ANDERSON, George S. *Iron and Manganese Ore in Brazil*. *Engineering and Mining Journal V*, July, 1909, 88; DERBY, Orville A. *Os Minérios de Ferro no Brasil*. *Jornal do Commercio*, Rio de Janeiro, August, 25, 1909; DERBY. *The Iron Ore Resources of Brazil*. In: *The Iron Resources of the World*, Stockholm, 1909; DERBY. *The Iron Ores of Brazil*. *The Times*, London, December 28, 1909, p. 56; VIANNA, José. *Minérios de Ferro e Manganês (Analysed)*, *Anais da Escola de Minas de Ouro Prêto*, 1912, n.º 14; VIARD, Agostinho José Paulo. *Minérios de Ferro e Manganês*. *Anais da Escola de Minas de Ouro Prêto*, 1912, n.º 14; GONZAGA DE CAMPOS, L. F. *Indústria Siderúrgica*. *Boletim do Ministério da Agricultura, Indústria e Comércio*, ano V, January-March, 1916.

<sup>3</sup> GUINLE, Guilherme. *Statement*. In: CONSELHO TÉCNICO DE ECONOMIA E FINANÇAS DO MINISTÉRIO DA FAZENDA. *A Grande Siderurgia e a Exportação de Minério de Ferro Brasileiro em Larga Escala*. Rio de Janeiro, Ministério da Fazenda, 1936, p. 32.

<sup>4</sup> *Ibid.*; OLIVEIRA. *Op. cit.*; and PIMENTA, Dermeval José. *O Minério de Ferro na Economia Nacional: O Vale do Rio Doce*. Rio de Janeiro, Gráfica Editora Aurora, 1950.

no suitable means of transportation between the mines and the coast. A resource is not a resource unless it is readily available and the actual value of Brazilian iron ores at that time — separated by a considerable physical barrier from the consuming centers in the industrial countries — was limited.

The most favored locality in the state of Minas Gerais was the Rio Doce Valley. Both the American and English groups concentrated their efforts on this region for three reasons. First, the monograph submitted at the Congress underscored the richness of the Itabira do Mato-Dentro region, an estimated 528 million tons of ores.<sup>5</sup> Secondly, that vast amount of iron ore was located in a reduced space having advantageous mining characteristics. Thirdly, Itabira could be made the terminal station of an existing railroad, Estrada de Ferro Vitória—Minas, connecting the coast and the interior through a break in the mountain ridge.

## 2. The English Group

The English group was originally composed of Baring Brothers, Cecil Rhodes, Ernest Cassel (owner of the larger part of Swedish iron ore deposits), and O. Rothschild. This group subsequently organized the Itabira Iron Ore Company Ltd., transferring to it the options to buy the ore deposits. The company was established in 1910 with a capital of 2,800 thousand *mil réis*.

Before exercising the options, Itabira Iron carefully analyzed the feasibility of exporting iron ores through the Rio Doce Valley. The port of Vitória, at the other end of the existing railroad, was found relatively suitable for the twenty-thousand ton ships required for the export of large quantities of iron ore. The existing railroad, Estrada de Ferro Vitória—Minas, could be equipped for the transportation of three million tons of iron ore by improving facilities and carrying out the electrification of the line. The initial survey of Itabira Iron led to the conclusion that the Rio Doce Valley, as transversed by the Vitória—Minas railroad, was the more efficient route to the coast for the export of ores. The next step for Itabira Iron was to acquire control of the Vitória—Minas railroad.

<sup>5</sup> OLIVEIRA. *Op. cit.*, p. 37. OLIVEIRA was also a graduate of the School of Minas of Ouro Preto. He was the chief adviser to the State of Minas Gerais during the crucial years of the Itabira controversy.

Table 1

## Price of Acquisition of Brazil's Iron Ore Deposits by National Groups

Deposits	Buyer	Price (1000 mil réis)
<b>AMERICAN GROUP</b>		
1. Alegria e Cota	Brazilian Steel Co.	150
2. Morro Agudo	The Brazilian Iron and Steel	80
3. Caué e Sant'Ana	The Brazilian Iron and Steel	300
<b>ENGLISH GROUP</b>		
1. Conceição e Esmeril	Itabira Iron Ore Ltd.	400
<b>GERMAN GROUP</b>		
1. Córrego do Meio	Phel Hartenback (representig a German syndicate)	450
2. Córrego do Feijão	Deutch Luxemburgische-Bergswerks Aktiengeselschaf	100
<b>FRENCH GROUP</b>		
1. Candonga	Societé Franco Brésilienne and Bernard Goudechaux & Cia.	200
2. Serra do Mascate	Brauhy Fall Co.	70
3. Jangada	Soc. Civile des Mines de Fer de Jangada	10
4. Nhotin	Brachy Fall Co. (French-Belgian)	100
<b>BELGIAN GROUP</b>		
1. Gaia	Companhia Siderúrgica Belgo Mineira (Acieries Reunies de Deuback-Eich-Deudelange S.A.	n. a.

Source: GUINLE. *Op. cit.*, p. 32;  
OLIVEIRA. *Op. cit.*, p. 35.

Once Itabira Iron concluded that the Vitória—Minas railroad could be equipped for the transportation of ores it obtained an option to purchase the majority of the stock of the railroad. The options on the railroad and the deposits, however, were not immediately exercised. A number of legal problems had to be cleared in order to assure the uninterrupted export of ores. The operations of the Vitória—Minas railroad had been regulated by Federal contract in 1902.<sup>6</sup> The railroad had

<sup>6</sup> Decree N. 4,337 of February 1, 1902. *Coleção Leis do Brasil 1902, I*. Rio de Janeiro, Imprensa Nacional, 1903, p. 67-83. By contracts of February 1 and 3 of 1902 and February 3, 1903 a number of privileges were granted to the Vitória—Minas railroad by the Brazilian government. These included a concession to construct the railroad and operate it for a period of 60 years, 6 percent guaranteed profits during thirty years on capital invested in the construction of the railroad which did not exceed 30,000 mil réis per kilometer, the required lands free of any charges, exemption from import duties, expropriation rights, and privileges for the mining of ore in the region.

obtained a concession to build tracks between Vitória and Diamantina, but excluding Itabira which was the locality closest to the deposits. A new contract allowing the extension of the line to Itabira was required.

A second important legal technicality was the system of guaranteed profits. In order to foster railroad construction in Brazil, the Imperial Government had decreed at various times that high returns to capital invested in railroad construction in Brazil would be guaranteed by the National Treasury. In the 1902 contract Vitória—Minas had been guaranteed profits of 6 per cent over a thirty year period. Since the transportation of iron ore through the railroad required a substantial investment in the improvement of existing facilities, Itabira Iron sought guaranteed profits. A commitment by the Federal Government to maintain profits for the railroad at a minimum six percent could be advantageously used in the raising of capital in the industrial countries. The plans were submitted to the Ministry of Transportation which offered no opposition but seized the opportunity to demand from Itabira Iron the construction of an integrated steel plant with a minimum monthly capacity of one thousand tons.<sup>7</sup> In December of 1909 the Federal Government approved the request of Itabira Iron for a modification of the contract to extend the tracks to Itabira and to guarantee profits on new investments in the improvement of the railroad.<sup>8</sup>

Once the English group cleared the legal problems, it exercised the options to buy the more important deposits in the Itabira region as well as a controlling interest in the Vitória—Minas railroad by acquiring 73.3 percent of the stock. The Brazilian government had provided further incentives to Itabira Iron by eliminating the limit of capital whose returns would be guaranteed by the National Treasury. Based on this solid backing, Itabira Iron issued 5 percent debentures in Amsterdam and Paris. This issue amounted to 190,000 debentures with a total value of 33,535,000 *mil réis*.<sup>9</sup> The proposals for the electrification of the railroad were completed and approved in 1909.<sup>10</sup> Approximately fifty-two million

<sup>7</sup> PIMENTA. *Op. cit.*, p. 55-6.

<sup>8</sup> Decree N. 7,773 of December 30, 1909. *Coleção Leis do Brasil 1909, VII*. Rio de Janeiro, Imprensa Nacional, 1913, p. 1261-63.

<sup>9</sup> PIMENTA. *Op. cit.*, p. 59. Pimenta was president of Companhia Vale do Rio Doce which received the properties of expropriated Itabira Iron and Vitória—Minas. He therefore had access to the balance sheets and documents of Vitória—Minas.

<sup>10</sup> Decree N. 8,188 of January 9, 1910, *Coleção Leis do Brasil 1910, VII*. Rio de Janeiro, Imprensa Nacional, 1915, p. 409.

*mil réis* were required for the electrification of the line. The government, however, refused to guarantee profits on this investment. The company subsequently attempted to raise the required capital by offering as a guarantee the proceeds from the export of three million tons of ore per year. European investors, however, were reluctant to provide funds for the construction of the railroad on the basis of this guarantee. A bitter press campaign against the export of iron ores also contributed to the mounting problems of raising capital. The works on the railroad and the electrification of the line were interrupted in 1913. The advent of World War I prevented the raising of capital for the railroad and the project for the export of Brazil's iron ores was temporarily abandoned during the war.<sup>11</sup>

### 3. The Farquhar Plan

In 1918 the original English group sold the control of Itabira to a group of British iron masters and bankers. This group invited an American entrepreneur, Percival Farquhar, to represent their interests in Brazil and solve the technical and legal problems of the export of iron ore.<sup>12</sup> In 1919 Farquhar introduced a new proposal for the export of iron ore. According to this proposal, Itabira Iron would construct a railroad between the town of Itabira and the port of Santa Cruz, that is, between the ore deposits and a prospective exporting port in the state of Espírito Santo. This new railroad would have a joint section with the older Vitória—Minas railroad. After construction of the railroad Itabira would build an integra-

<sup>11</sup> A discussion of the operations of the rival American group can be obtained in OLIVEIRA. *Op. cit.*, p. 39-40. OLIVEIRA, a high government official in the state of Minas Gerais, opposed the Itabira project on the emotional argument that it would deplete the reserves of the country, preventing the development of a metallurgic industry in Brazil. His views were challenged with sound data and compelling arguments by a distinguished scholar of the time. LABORIAU, F. *Curso Abreviado de Siderurgia*. Rio de Janeiro, Edição da Biblioteca Científica Brasileira, 1928. See also A Companhia Vale do Rio Doce. In: *Observador Econômico e Financeiro*, October, 1943, p. 62 and. GAULD, Charles A. *The Fast Titan: Percival Farquhar*. Institute of Hispanic American and Luso Brazilian Studies, Stanford University, 1964, p. 286.

<sup>12</sup> FARQUHAR was a colorful American engineer who had accumulated an impressive record in Latin America. An 1884 Yale graduate, he built the Havana Electric Railway, the Cuba railroad, the Guatemala Railway, the Rio de Janeiro Tramway, Light and Power Company, the Brazilian Railway Company, the port of Rio Grande do Sul, the port of Pará, and the famous Madeira—Mamoré railroad (in the middle of the Amazon jungle). Since the export of Brazilian ores was fundamentally a transportation problem, FARQUHAR was the most adequate choice for the top management of Itabira Iron. A partisan biography of this entrepreneur can be found in GAULD. *Op. cit.*; some brief comments in JAMES, Preston E. Itabira Iron. *The Quarterly Journal of Inter-American Relations*, April, 1939, p. 38-40; and also BASTOS, Humberto. *A Conquista Siderúrgica no Brasil*. Rio de Janeiro, Livraria Martins, 1959 and 1960, a number of pages in the Index.

ted steel plant. This plant would use the ores from the company-owned deposits and coal imported in the returning trips of the company ships used for the export of iron ores.<sup>13</sup>

To a certain extent some parts of the Farquhar plan had been forced by the state of Minas Gerais. Although the Ministry of Transportation originally required that Itabira construct an integrated steel plant in order to clear its application for a railroad concession, a subsequent contract transformed this requirement into a privilege rather than a commitment.<sup>14</sup> Since the larger part of ore deposits were in the state of Minas Gerais, state politicians devised a way of forcing Itabira Iron to construct the steel plant within the borders of Minas Gerais. In 1919 the state government raised the tax on exports of iron ore to a prohibitive three *mil réis* while at the same time reducing it by over ninety percent for exporters who established steel plants within the borders of the state.<sup>15</sup> Thus the construction of the plant was partly forced on Itabira Iron by state legislation; what legislators did not foresee, however, was that their provisions could actually foster a monopoly of both the export of iron and the domestic steel market.<sup>16</sup> The originality of the Farquhar Plan rested on the use in metallurgy of imported coal obtained in exchange for iron ores, one of the more promising proposals ever devised for the establishment of an efficient iron and steel industry in Brazil.<sup>17</sup> A weakness

<sup>13</sup> The plan is discussed in CONSELHO TÉCNICO DE ECONOMIA E FINANÇAS DO MINISTÉRIO DA FAZENDA. Síntese das Discussões em Torno do Contrato com a Itabira. In: *A Grande Siderurgia e a Exportação de Minério de Ferro Brasileiro em Larga Escala*. Rio de Janeiro, Ministério da Fazenda, 1938. This council was an important consulting branch of the Ministry of Finance and it conducted the largest inquiry on the Brazilian iron and steel industry and the export of iron ore during the first four decades of this century. See also PIMENTA. *Op. cit.*, p. 63.

<sup>14</sup> Decree N. 12,094 of June 7, 1916, *Coleção Leis do Brasil 1916 V, II*. Rio de Janeiro, Imprensa Nacional, 1917. Clause III, p. 812, 834.

<sup>15</sup> State of Minas Gerais, Lei Estadual n.º 750, September 23, 1919.

<sup>16</sup> The legislation of the state of Minas was suggested by intellectual CLODOMIRO DE OLIVEIRA and implemented by state President ARTHUR BERNARDES (1918-1922). A critique of those policies is found in MINISTÉRIO DA VIAÇÃO (Brasil). *Revisão do Contrato da Itabira Iron*. Rio de Janeiro, Imprensa Nacional, 1934, p. 40: "This policy of creating a domestic metallurgic industry... did not succeed. It prevented the export of ores and did not foster the the development of metallurgy." That same legislation also impeded the development of iron and steel plants outside the state of Minas Gerais due to fears that the tax would be applied also to intra-state exports. Partly because of these discriminative taxes the construction of an electric steel plant by the Anglo Brazilian Iron and Steel Syndicate was discontinued; see FONSECA, Ernesto Lopes da. *Notas em Torno do Problema Siderúrgico Nacional*. Rio de Janeiro, Typ. do Jornal do Commercio, 1935, p. 13.

<sup>17</sup> This compelling plan triggered a bitter, xenophobic campaign in the Brazilian press. The details of this campaign are beyond the scope of this essay. See the bibliography in GONÇALVES, Alpheu Diniz et. al. *O Ferro na Economia Nacional*. Rio de Janeiro, Ministério da Agricultura, Diretoria de Estatística da Produção, Seção Publicidade, 1937, Bibliography.

of the plan, however, was to emphasize the construction of the steel plant in the interior rather than in the coast. The location of the plant was, of course, influenced by the policy of state authorities and the requirement of a state contract in order to export ore.

#### 4. The Contract of Itabira Iron

In May, 1920 the contract between Itabira Iron and the Federal Government was finally initialed.<sup>18</sup> The contract found bitter opposition within the Federal Government, in the state of Minas Gerais, and in the Brazilian press. The judiciary authority (Tribunal de Contas) refused to register the contract and the National Congress did not approve it. The more important aspect of the debate was a clause by which Itabira Iron allegedly obtained a monopoly for the export of iron ore. According to this clause, Itabira Iron could deny services in its railroad for competing exporters of ore, passengers, and other freight.<sup>19</sup> In addition, the contract had to be approved by both the federal and state government. The state of Minas Gerais also refused to approve the Itabira contract.

A change in this situation took place during the second half of the 1920's partly due to the policies of the new administration of the state of Minas Gerais. This new administration contended that the export of iron ore was not merely a state problem but also a national issue.<sup>20</sup> The state made it clear that it was favorably disposed toward approval of the Farquhar Plan as long as Itabira Iron agreed to provide service on its railroad for other exporters, freight and passengers. Accordingly, in December, 1927 the state of Minas and Itabira Iron signed a contract on the export of iron ore and the establishment of an iron and steel plant; the state government eliminated the provision on the steel plant in September, 1930.<sup>21</sup>

In November, 1928 Itabira Iron signed an agreement with the Federal Government excluding the clause that provided for the privilege of transportation in the company's railroad. The agreement had a favorable impact

<sup>18</sup> Decree N. 14,160 of May 11, 1920, *Coleção Leis do Brasil 1920*, II, 1040-1048. On this point see OLIVEIRA. *Op. cit.*, p. 5, 40; PIMENTA. *Op. cit.*, 64 65; and CONSELHO TÉCNICO. *Op. cit.*, p. 212.

<sup>19</sup> The famous Clause VII reprinted together with the revised contract in MINISTÉRIO DA VIAÇÃO (Brasil). *Op. cit.*, p. 74.

<sup>20</sup> These points were elaborated in a speech by the state governor ANTÔNIO CARLOS at the Chamber of Deputies on November 5, 1927. This statesman agreed in principle with the Farquhar Plan but sought the elimination of the clause (Clause VII) in the contract granting Itabira a monopoly of transportation in the Rio Doce Valley. See CONSELHO TÉCNICO..., p. 216.

<sup>21</sup> *Ibid.*, p. 217-8.



on the national congress which two days later finally approved the Itabira contract.<sup>22</sup> Less than a month later Itabira obtained the concession from the state of Minas Gerais. It took almost twenty years of negotiation to solve the legal problems involved in the export of Brazil's iron ore. World War I, the monopolistic ambitions of Itabira Iron, and state authorities contributed to this delay.

The next problem of Itabira Iron was to raise the capital for the construction of the railroad, the improvement of the port and the building of the required facilities at the ore deposits. American bankers suggested that Itabira should conduct a major inquiry on the facilities to be constructed in order to make sound calculations of the required capital. It was estimated that the construction of the railroad alone would require sixty million dollars.<sup>23</sup> In addition, Itabira Iron should negotiate contracts with American and German metallurgists for the sale of the iron ore; these foreign metallurgists would also acquire stock in the enterprise. In January, 1929, four teams of engineers began the research on the construction of the railroad between Itabira and Santa Cruz. In August of that year the federal government approved the project proposed by these engineers. But again a major world crisis and erratic domestic policies stopped the Itabira project when it seemed assured of success.

##### 5. Itabira and the Revolutionary Government

The Great Depression prevented the raising of capital in the industrial countries for the Itabira plans. At a time in which output of iron and steel was declining sharply in the industrial countries, the import of Brazilian iron ore for the metallurgic industry lost significance. The depressed conditions of capital markets in the industrial countries, coupled with the deterioration in the quality of foreign bond issues, further complicated Itabira Iron's capitalization problems.<sup>24</sup> Once again, Itabira directors and Brazil had to momentarily forego the plans for the export of iron ore.

In October of 1930 a revolutionary movement toppled the administration of Brazil. Many of the new government officials were highly nationalistic and frankly opposed the Itabira project. In the original

<sup>22</sup> Decree-Law N. 5,568 of November 12, 1928, *Coleção Leis do Brasil 1928, I*. Rio de Janeiro, Imprensa Nacional, 1929, p. 183.

<sup>23</sup> CONSELHO TÉCNICO... *Op. cit.*, p. 219.

<sup>24</sup> GAULD. *Op. cit.*, p. 289.

confusion of the revolution, the Itabira affair was largely ignored. In May, 1931, however, the revolutionary government decreed that the world crisis was not a sufficient cause for the interruption of activities by Itabira Iron, that the company had not met the deadline for the initiation of works, and that Itabira must pay a corresponding fine of 50 thousand *mil réis* per month.<sup>25</sup> After twelve more months of inactivity on the part of Itabira the government would cancel the contract. Percival Farquhar was sent to Brazil and the company agreed to pay the fine for a period of ten months. The contract was not cancelled, for the government created a chain of commissions to amend the more controversial clauses.

Another important change in the situation was a decree forbidding the transfer of properties containing mineral resources.<sup>26</sup> Subsequently, the Constitution of 1934 introduced a new set of principle on the ownership of mines. First, the ownership of the soil was separated from the ownership and exploitation of the subsoil. Secondly, the industrial exploitation of mineral resources could only be carried out under government licenses. Thirdly, those licenses would only be extended to Brazilians or firms organized in Brazil. Another section provided that mines already exploited before the new constitution were not affected by the new provisions. The crucial problem here was that Itabira Iron had not begun exploitation of the mines.<sup>27</sup>

Two important commissions revising the Itabira contract during the first half of the thirties were the Comissão Nacional de Siderurgia (National Metallurgic Commission) at the Ministry of War, and the Comissão Revisora do Contrato (Commission for the Revision of the Contract) at the Ministry of Transportation. The Comissão Nacional first set forth a principle which was later used by the Vargas regime in the establishment of the coke steel industry. The logic of the principle was relatively sound but it was misused in the 1940's for the protection of inefficient domestic coal producers. This principle was simply the separation of the export of iron ore from the development of domestic metallurgy. The important problem at hand, according to the Comissão Nacional, was to facilitate the export of iron ore which in turn would result in a number of benefits for the development of metallurgy. One

<sup>25</sup> Decree N. 20,046 of May 27, 1931, *Coleção Leis do Brasil 1931, II*. Rio de Janeiro, Imprensa Nacional, 1932, p. 360-1.

<sup>26</sup> GUINLE. *Op. cit.*, p. 34.

<sup>27</sup> For the legal technicalities see GUINLE. *Op. cit.*, p. 34.

important benefit was the solution of Brazil's fuel problem through the importation of coal. But the artificial burden imposed on the contracts of iron ore exports would neither develop metallurgy nor result in the export of ore. The development of metallurgy, in the Commission's view, depended on a number of other factors such as the growth of the domestic market and the improvement of technical skills in Brazil.<sup>28</sup>

The second important commission at the Ministry of Transportation followed closely the principles developed by the Comissão Nacional. In the revised contract proposed by this new commission the construction of an iron and steel plant was recognized as a privilege of Itabira, not as a requirement enforced by the government. In the opinion of the commission the artificial creation of a metallurgic industry would have unfavorable repercussions on the Brazilian economy. It sanctioned the old-established principle that Itabira should provide service on its railroad for other exporters and the public in general. On the principle of separation of the export of iron ore from the development of metallurgy the commission stated that an important benefit of the Itabira project was the establishment of adequate means of transportation for coal imports in the returning ships of the company. That was a decisive factor in the future development of the iron and steel industry. The development of that industry, argued the commission, should come naturally rather than as an artificial burden in the contract of iron ore exporters.<sup>29</sup>

After the works of these two commissions the Itabira contract was examined and re-examined by a series of government agencies and ad hoc commissions: Comissão dos Onze, Comissão de Obras Públicas e Transportes, Comissão de Segurança Nacional, Comissão de Transportes e Comunicações, Comissão de Finanças e Orçamentos da Câmara dos Deputados, and others. Finally, in March, 1938 the President entrusted the Conselho Técnico de Economia e Finanças of the Ministry of Finance

<sup>28</sup> The Commission's report is reprinted in MINISTÉRIO DA VIAÇÃO (Brasil). *Op. cit.*, p. 40-3. The lucid view of this commission show that although on certain bureaucratic, legislative and state aspects Itabira Iron was one of the worst mistakes of the government of Brazil with respect to the development of the iron and steel industry, there was sound thought in many government circles at the time, a possibility that has been partly denied by other authors such interest against Itabira cannot be easily excused.

<sup>29</sup> MINISTÉRIO DA VIAÇÃO (Brasil). *Op. cit.*, p. 9. This report also illustrates sound thought in government circles at the time, a possibility that has been partly denied by others authors such as GAULD. *Op. cit.*

with the detailed revision of the Itabira project and two alternative proposals.<sup>30</sup>

The two alternative proposals were the Raul Ribeiro and Paulo Denizot plans.<sup>31</sup> The Raul Ribeiro Plan consisted of the formation of a mixed government-private firm with a total stock of 500 million *mil réis* of which 40 percent would be offered free of charges to the Federal Government.<sup>32</sup> A number of concessions were in turn requested by the prospective exporters. The most important concession was the expropriation of the iron ore deposits.<sup>33</sup> Another important feature of the project was that the iron ore would be transported from Itabira to the port of Rio de Janeiro through the Central do Brasil railroad, an entirely different route than of the Itabira project.<sup>34</sup> As a solution to the metallurgic problems of Brazil, the Ribeiro Plan proposed the construction of an integrated steel mill in an island of the Port of Rio de Janeiro, Ilha do Governador.<sup>35</sup> This mill would use coke imported in the returning trip of the ships used for the export of iron ore. The long-run planned capacity was one million tons of steel although a mill with a capacity of only 300,000 tons per year would be initially established.

The Paulo Denizot project also proposed the expropriation of the deposits but contemplated the creation of a department for the export of iron ore at the Ministry of Transportation. The source of capital for the required works was simply issue of notes by the government.<sup>36</sup> The means of transportation was also the government-owned Central do Brasil railroad. Although the final opinion of the Council was favorable to the

<sup>30</sup> CONSELHO TÉCNICO DE ECONOMIA E FINANÇAS DO MINISTÉRIO DA FAZENDA. *A Grande Siderurgia e a Exportação de Minério de Ferro Brasileiro em Larga Escala*. Rio de Janeiro, Ministério da Fazenda, 1938.

<sup>31</sup> RIBEIRO DA SILVA, Raul. *Indústria Siderúrgica e Exportação de Minério de Ferro*. Rio de Janeiro, Private Printing, 1938; RIBEIRO DA SILVA, Raul. *O Problema da Siderurgia no Brasil e o Contrato da Itabira Iron Company United*. Rio de Janeiro, 1922 [Mimeographed]; RACHE, Pedro. Statement. In: CONSELHO TÉCNICO DE ECONOMIA E FINANÇAS DO MINISTÉRIO DA FAZENDA. *Op. cit.*, p. 10-11. The Conselho also considered other minor projects such as that proposed by the Sociedade Mineira de Engenheiros on July 17, 1938; this was a proposal to continue the development of Brazil's metallurgy on the basis of charcoal and electricity. See AMARAL. *Op. cit.*, p. 306.

<sup>32</sup> RIBEIRO DA SILVA, Raul. *Indústria...*, p. 27.

<sup>33</sup> RACHE. *Op. cit.*, p. 11.

<sup>34</sup> RIBEIRO DA SILVA, Raul. *Indústria...*, p. 27.

<sup>35</sup> *Ibid.*, p. 27. The Ribeiro project was not free of political overtones. Part of the proceeds from the export iron ore would be used for the re-equipment of the Brazilian army! See p. 97 of *Indústria...*

<sup>36</sup> RACHE. *Op. cit.*, p. 10.

Itabira project, the Brazilian government finally cancelled the contract in 1939.<sup>37</sup>

## 6. Evaluation of the Farquhar Plan

One of the more general criticisms of the Farquhar Plan is that Itabira Iron never invested funds in the export of Brazil's ore. The only investment by the company consisted of funds obtained from the issue of five percent debentures which were backed by a guarantee of six percent profits by the Brazilian government. Thus, it is argued that the National Treasury and not Itabira was the true investor.<sup>38</sup> This criticism is unfair for a number of reasons. The war and the depression prevented Itabira from raising the large sums required for the profitable export of iron ore. The legal objections of the Brazilian government and the bitter press campaign also discouraged foreign investment in Brazil's iron ore exports.<sup>39</sup>

The report of the Conselho Técnico de Economia e Finanças concluded that the Itabira project would solve the problem of exporting Brazilian iron ore. The three more important benefits of the Farquhar Plan for the export of iron ore were the solution of the transportation of the ore from the hinterland to the coast, the diversification of exports and a growing source of foreign exchange, and the possibility of developing domestic metallurgy on the basis of imported coal.<sup>40</sup> The coal and transportation issues were not only crucial to the Itabira project, but also most important for the development of Brazil's iron and steel industry.

The coal issues regarding Itabira were of two types. The first issue was the use of domestic versus foreign coal in the development of metallurgy.<sup>41</sup> It was unfeasible to develop metallurgy in Brazil solely on the basis of poor and scarce domestic coal, which was also located too far from the ore deposits and consuming centers. The alternative to the Itabira project was the use of a coking mixture composed of two thirds

<sup>37</sup> Decree-Law N. 1,507, August 13, 1939, *Coleção Leis do Brasil 1939, VI*. Rio de Janeiro, Imprensa Nacional, 1939, p. 229-30.

<sup>38</sup> PIMENTA. *Op. cit.*, p. 70-1.

<sup>39</sup> Alternative means of financing iron ore exports are pessimistically discussed in VERGUEIRO CESAR, Avelardo. Voto. In: CONSELHO TÉCNICO DE ECONOMIA E FINANÇAS DO MINISTÉRIO DA FAZENDA. *A Grande Siderurgia...*; the government guarantee can be interpreted simply as a subsidy for the development of a competitive export.

<sup>40</sup> RACHE. *Op. cit.*, p. 13-7.

<sup>41</sup> The policies of the Brazilian government toward the coal industry and their impact on the development of the coke steel industry cannot be discussed here. This section is simply a brief exposition of the coal issues underlying the Itabira project.

of Brazilian coal and one third of imported coal.<sup>42</sup> Eventually, a similar solution was adopted by the Brazilian government for the development of the iron and steel industry:<sup>43</sup> for a period of twenty years, 1945-1965, Brazil's steel industry was forced to use a fixed proportion of domestic coal. In 1965, however, the government finally abolished this provision, thus giving official recognition to the failures of such a policy.

The second part of the fuels issue was the use of charcoal versus coke. It was widely believed that the development of a steel industry based on imported coke would result in the elimination of the existing steel industry based on charcoal.<sup>44</sup> The fact is that the prospects for the large-scale development of Brazilian metallurgy on the basis of charcoal were limited at that time,<sup>45</sup> and in recent periods development has taken place largely on the basis of coke. Due to government policies, and also partly because of the relative efficiency of the charcoal industry in certain products, the charcoal and coke steel industries have been able to coexist. This argument of charcoal producers, as well as that of domestic coal producers, was political instead of economic. All too often in Latin America, unfortunately, fundamentally economic problems are given a political solution.

## 7. Railroads and the Export of Iron Ore

The iron ore deposits, the consuming centers, and fuel deposits were separated from each other by an impressive physical barrier (even if fuels were to be imported, for the necessary railroad junctions did not exist). The export of iron ore on a competitive basis depended on the transportation from the deposits to the coast at a minimum rate, since the distance was approximately 500 kilometers. In addition, ore had to be shipped to the industrial countries at a competitive price; the deposits in Europe and the United States, with the possible exception of Sweden, were closer to the coast and to consuming centers.

<sup>42</sup> RACHE, Pedro. Relatório Final e Conclusões. In: CONSELHO TÉCNICO DE ECONOMIA E FINANÇAS DO MINISTÉRIO DA FAZENDA. *A Grande Siderurgia...*, p. 136. The important domestic coal interests were behind the bitter opposition to the Itabira project. See on this point JAMES, Preston. *Op. cit.*, p. 46-7, and CONSELHO TÉCNICO DE ECONOMIA E FINANÇAS. *Op. cit.*, p. 216. There were other military and foreign pressure groups opposing Itabira for a large number of reasons. See JAMES. *Op. cit.*, p. 47.

<sup>43</sup> An clearly view of the development of metallurgy on the basis of imported coke, the ideal avenue for growth of Brazil's iron and steel industry, can be found in LABORIAU. *Op. cit.*, p. 377.

<sup>44</sup> Again charcoal producers and metallurgists were able to influence government policy on their favor and opposed the Itabira project.

<sup>45</sup> RACHE. *Op. cit.*, Statement, p. 18.

The problem of inland transportation of ore can best be understood by an analysis of cost data. In 1938, for instance, the price of one ton of iron ore in the United States was approximately five dollars. Shipping expenses for one ton between Brazil and the United States amounted to approximately \$2.50. The cost of bringing one ton of ore from the deposits to the ship was as follows:

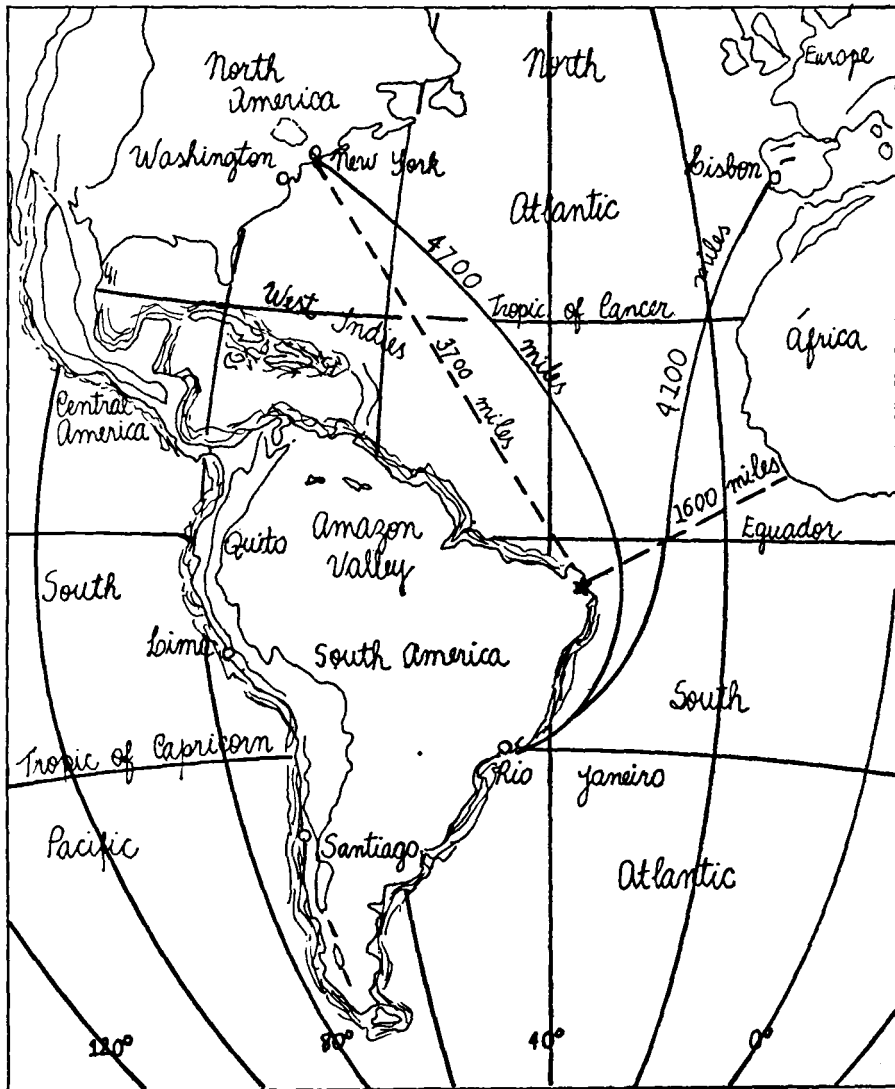
	<i>Mil réis</i>
Mining	4.00
Transport and railroad station	3.00
Railroad freight rate	44.00
Administrative expenses	1.00
Port and handling expenses	1.00
	53.00

Assuming that the government levied a small export tax, the total cost of one ton at the exporting port would have been 58.50 *mil réis*. At that time the dollar was quoted at 12.50 *mil réis*. The ton of iron ore would then sell for \$2.50 or 31.25 *mil réis*, a less of 22.25 *mil réis* per ton. The costs of shipping ore were more or less fixed at that time. At home the major element of costs was the railroad rate which accounted for over 80 percent of total costs. The only solution barring an increase in the price of ore (which fluctuated widely with wars and recessions), was the reduction of railroad rates. Obviously, none of the existing railroads was well equipped for the massive export of ore and the problem reduced simply to choosing the more appropriate route to the coast.

The peculiar geography of Brazil complicated transportation from the interior to the coast. Two mountain ridges begin in the south of Brazil and slope northward between the coast and the hinterland. In order to connect the coast and the interior, Brazilian railroads had to run over heavy grades. Existing lines through this route were inadequate for the large-scale export of ores. Maps 1 and 2 are essential for an understanding of this issue. The first map shows the geographical barrier separating Rio de Janeiro and the hinterland. The second map is full of most interesting detail on the location of Brazil's iron and steel industry. The iron ore deposits of the state of Minas Gerais are principally located

<sup>46</sup> This analysis is based on official cost estimates. See RACHE. *Op. cit.*, p. 6.

in the Doce River Valley. The map also shows the break in the mountain ridge through which the Vitória–Minas railroad was constructed. Why then had this route been ignored for such a long time? <sup>47</sup>



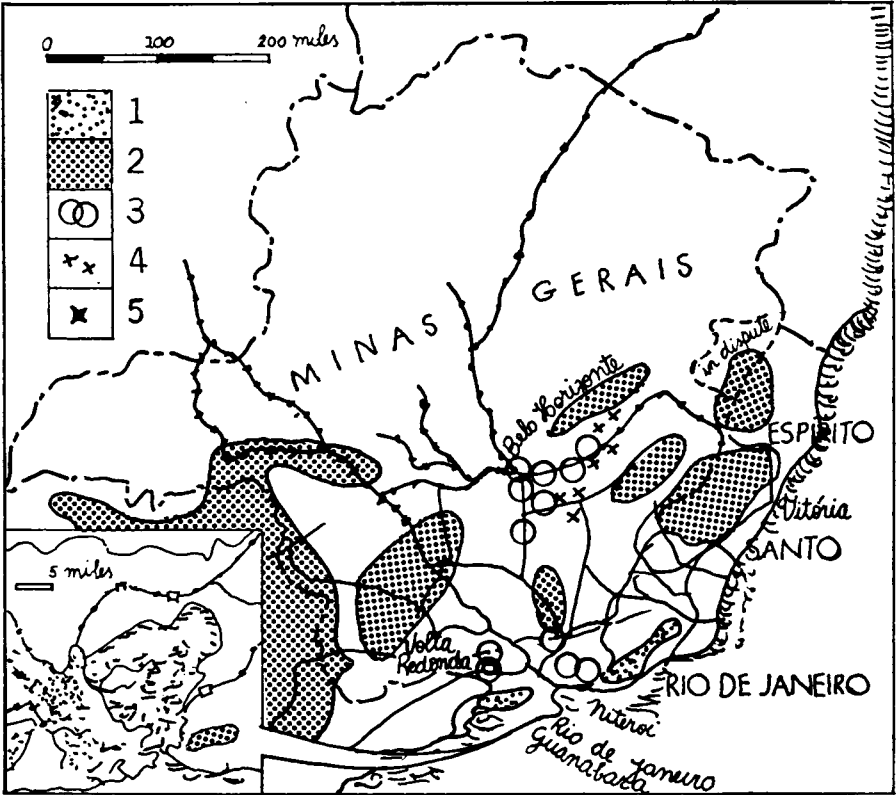
Source: SCHNEIDER, Ronald M. KINGSBURY, Robert C. *An Atlas of Latin American Affairs*. New York, F. A. Praeger, 1965, p. 3.

<sup>47</sup> JAMES. *Op. cit.*, p. 40-1.



The answer is that the history of Rio Doce resembles that of the Mohawk Valley in New York. During the colonial period when gold was being exploited on the uplands, warlike Indians made passage through the Doce Region a hazardous undertaking. These people played an important part in determining the early growth of Rio de Janeiro rather than Vitoria...

Once the Indians had been eliminated, this route became the most efficient avenue from the interior to the coast.<sup>48</sup>



SOURCE: SCHNEIDER, RONALD M. KINGSBURY, ROBERT C. *An Atlas of Latin American Affairs*. New York, Frederick A. Praeger, 1965, p. 115.

A great part of the opposition to this project was based on a failure to separate the export of iron ore from the development of metallurgy.

<sup>48</sup> A Companhia Vale do Rio Doce. *Observador Econômico e Financeiro*, October, 1943, p. 65-6, for an interesting discussion of the Rio Doce Valley.

The economic problem at hand was the successful development of a competitive export.<sup>49</sup> The exchange proceeds from that operation could then be used to import coal and develop domestic metallurgy or any other industry in which Brazil could develop a competitive advantage. Obviously, it was simpler to transport 10 million tons of ores through the Victoria—Minas railroad, and import the required coal in the returning ships. That coal could then be used, together with the ores from the mines, in the manufacturing of iron and steel. The finished products at that time would have never amounted to more than one million tons; as consumption of iron and steel increased, the transportation between the deposits and the consuming centers could have been improved. It was totally irrational to carry ten million tons of iron ores over a mountainous territory to derive the side benefit of using part of the ores in a metallurgic industry to be established in Rio de Janeiro. In addition, there would be a freight for the returning trips to the deposits.

The Farquhar Plan — excluding the construction of the steel plant — was a sound scheme minimizing one of the more important problems in the export of Brazil's iron ores: railroad transportation. Indeed...

... It is undeniable that failure to take advantage of the possibilities of attracting large-scale foreign financing into iron ore development in the 1920's delayed satisfactory export volume, depriving the country of foreign exchange and of the possibility of developing a large-scale two-way foreign trade in iron ore and coal which would also have implied a considerable saving in freight payments and other foreign exchange outlays.<sup>50</sup>

Emotional nationalism and ignorance on the part of authorities, vested interest behind a xenophobic press campaign, the initial monopolistic ambitions of the Itabira group, and exogenous factors such as the wars and the depression all contributed to retard the export of Brazilian ore. The only result of the Itabira affair was three decades of bureaucratic and emotional discussions. Itabira Iron was one of the major development frustrations in Latin America's economic history.

<sup>49</sup> The notorious critics of the Itabira project favoring a plan based on the government owned Central do Brasil railroad — a route over the mountain — were made by GUINLE. *Op. cit.*, p. 41 and RIBEIRO DA SILVA, Raul. *Op. cit.*, GUINLE subsequently became chairman of the National Metallurgic Plan which implemented the policy of separating metallurgy and ore exports.

<sup>50</sup> JOINT Brazil—United States Economic Development Commission. *The Development of Brazil*. Washington, U.S.G.P.O., 1953, p. 30.