Latin America's natural riches in suitable raw materials and some isolated successful attempts at producing iron and steel encouraged early plans to create heavy industries in the countries of the subcontinent. It was realised right from the start how important it would be for these countries to have heavy industries of their own. But the decisive impulse to develop these sectors in Brazil, Argentina, Mexico, Chile and Colombia emanated from the renewed import difficulties these countries experienced during World War II. All these new iron and steel enterprises were financed either entirely out of public funds or the authorities had at least a controlling interest in them.

**Pace-maker In Latin America**

The pace-maker along this road was Brazil, being the country with the largest and most valuable iron-ore deposits (35 to 50 billion tons, of which 2 to 4 billion tons with an Fe-content of more than 55 per cent). It was in 1940 that the Companhia Siderúrgica Nacional (CSN) was founded with public funds, and this concern built with North-American help in Volta Redonda (in the Federal State of Rio de Janeiro) the largest heavy industrial plant of Latin America. The company started to produce pig-iron, crude steel, rolling-mill products and coking-plant by-products in 1946. The initial crude-steel capacity was assessed at 730,000 tons, the raw material coming from deposits owned by the works. The distance from the production plant to the ore deposits is roughly 250 miles and the coal deposits are about 480 miles away, but rail and road connexion are good. On the other hand, the quality of the local coal is such that it must be mixed with double the quantity of North American coking coal.

The locations of some of the new plants in the other countries were considerably more favourable: The Huachipato Works in Chile for instance is situated in the immediate vicinity of valuable ore and coal deposits and also of the efficient port of Concepción; In Argentina, the plant at San Nicolás on the river Plate is well served with transport facilities by rail, internal waterways and ocean-going ships, but it is far from any iron and coal deposits; in Mexico, the centre of heavy industry at Monterrey is between 60 and 240 miles south of its iron and coal deposits, but disposes of good road and rail connexions; in Colombia, the steel works at Paz del Rio is located in the high mountains in the immediate vicinity of ore, coal and lime-stone deposits and disposes of good rail and road facilities. The output potential of all these works is smaller than that of the Brazilian enterprise, but enlargements have either already taken place or are planned for the future.

These first new foundations encouraged the creation of further iron and steel works in Latin America with Brazil taking the lead; the already existing larger enterprises such as the "Mineração Geral do Brasil" and the "Companhia Siderúrgica Belgo-Mineira" extended and modernised their plants. Apart from several smaller undertakings, a number of large enterprises were founded with or without state participation with the result that Brazil's output of pig iron and crude steel has since multiplied. Two newly founded enterprises deserve special mention inasmuch as they were financed by foreign capital and have become rather important; they are the "Companhia Siderúrgica Mannesmann", which was founded in 1952 in Belo Horizonte (Minas Gerais) as a subsidiary of the German firm of Mannesmann, and the "Usinas Siderúrgicas de Minas Gerais" (Usiminas) in Ipatinga (Minas Gerais), which has been in existence since 1956 with Japanese participation. Both works are sited in the midst of Brazil's largest and most valuable ore deposits.

True, the fact that Brazil's iron and steel output has multiplied is by itself not yet sufficient to satisfy the demand which as the result of progressive industrialisation has enormously increased (since 1958 Brazil has been building motorcars, tractors and ships). On the other hand, thanks to the much larger output Brazil has now moved into first place among the steel-producing countries of Latin America. In 1966 Brazil produced 3.7 mn tons of steel, Mexico 2.65 mn, Argentina 1.25 mn, Chile 540,000, Colombia 216,000 and Venezuela—a new-comer—537,000 tons. Within twenty years steel consumption per head of population has more than trebled in Brazil, rising from just under 28 pounds in 1945 to nearly 100 pounds in 1965, and this despite the fact that the country's population has shown an increase which is much above average.

**Building up a Heavy Industry**

The massive development of a heavy industry in Brazil got under way only as a result of the economic difficulties experienced after 1955. Once the
Admittedly, genuine competition between local and foreign products was eliminated through a policy of substitution which further strengthened the traditional reluctance on the part of Brazilian firms to face competition. Then there was the inflation which, though no uncommon occurrence in Brazil, progressed at an ever more rapid pace with the result that the financing of new projects was planned on a more generous scale than in times of stable money. Even so the estimated capital requirements for projects that took longer to mature were often so far overtaken by the soaring prices that new capital for the building of enterprises became necessary. In two cases where new firms were to be started in the heavy industry sector the foreign investors concerned had to come to the conclusion that their original calculations were too low and that more capital would have to be invested. But as they were not prepared to increase their shares in the capital and as there were no other private investors willing to participate, the Brazilian Government finally became the biggest shareholder in these already far advanced projects. In this manner the Government's share in the heavy industry was willy-nilly increased further, reaching as early as 1964 70 per cent in the country's crude steel output.

Those works which were already in production had, on the other hand, hardly any difficulties during the development phase. Local industry could expand without any risk as long as the fast pace of development guaranteed an ever increasing demand for iron and steel products, as long as the home market remained closed to any genuine foreign competition and, finally, as long as the inflationist foreign competition and, finally, as long as the inflationist attitude of Government and economy permitted them to escape into higher prices.

**Neglect of Efficiency**

A policy of industrialisation, the closing of the home market to foreign competition and inflation, however, brought in their wake other problems which in the long run proved important to the heavy industry and those other branches of industry which depend on it. As the substitution of imports was the main purpose of all new industrial enterprises, it became the practice to put up with any defects, provided that the main purpose was served. The criterion of economic efficiency was frequently neglected in planning new enterprises. There were, particularly in the public sector, a number of enterprises which operated with so little efficiency that they had to be subsidised for years to be able to exist at all. The economic nationalism, which after all prevailed not only in Brazil, and the enthusiasm for industrialisation clouded the view and prevented a proper appreciation of the requirements of a rational economic policy. One was inclined to overlook that the situation of an industry that was created in such circumstances was liable to worsen considerably as soon as one or several of three preconditions—high partial growth rates, import embargoes and inflation—ceased to exist.

During the development phase there was much discussion of whether the Government's share in the iron and steel production would continue to grow. The state had already attained a prominent position in the heavy industry when the Volta Redonda Works was founded—a position which became dominating when it was forced to support the above-mentioned two projects in that sector. Evidently, the state did not plan to monopolise the entire industry as it had done for instance in the case of the petroleum industry through the government-operated "Petrobras". On the other hand, the Government did not seem averse from exercising that greater influence which it had acquired with its greater stake in the industry's output.