

SCIENCE AND DEPENDENT DEVELOPMENT

J. LEITE LOPES

SUMMARY

The author examines the connection between the development of scientific research in Latin America and the process of economic growth which has taken place in most of the nations of this region of the world. He argues that the role of the multinational corporations in this process influences the character of scientific research in these countries.

It is stated that the scientific and technological research work needed for the ultimate production of industrial goods by the multinational firms is carried out in the great laboratories of the mother firm and of universities in advanced countries. Multinational corporations—and the economic system which they dominate—do not therefore need the services of national scientists and national universities in the less developed countries where they settle.

Grants and contracts awarded to research teams in universities belonging to these countries will rather orient the work of their institutions toward the interests and programs of universities and official agencies in the center of the capitalist system which in turn are associated to multinational corporations.

The author considers that science is in this way not an instrument of defense of the national identity, independent development and the national interests of the peoples of the Third World. Like the system of dependent development established in these countries there exists then a system of dependent science and technology based on imported knowledge, for the benefit of a small elite, not of the whole population.

In recent years, with the implantation of authoritarian regimes in several developing nations the multinational societies have moved some of their plants to these countries where they find cheap labor, raw materials and facilities such as the absence of labor strikes and demands, forbidden and repressed by these dictatorial governments. Under these conditions, working mainly for exportation and with imported know-how, the transplanted industrial system is not affected if universities and research institutes are submitted to political purges leading to the exclusion of several of their scientists and professors.

An example is finally given of a text-book in physics where pictures of big machines and laboratories might induce students in the less developed countries to imagine that the understanding of the laws of nature would be possible only through such expensive equipment by the scientists of the rich nations.

It is urged that scientists of the less developed countries be aware of these questions; that they contribute to the elimination of dependence and domination of their countries; and that science cease being a tool of domination in the hands of oppressive forces.

For a long time the process of economic development has been regarded as a kind of free competition where the most intelligent men, the most capable and dynamic peoples of the Earth have been, and are, successful. Peoples of backward countries¹ and regions of the globe were, and are, according to this view, less capable, less intelligent, less attracted by hard work. What one omits to say is that during the colonial period, in Latin America, in Africa, in Asia, Europeans first, Americans later, intervened almost always by force in order to modify the local cultures and civilizations, reorganize the economies of these countries and dominate them in such a way as to ensure the supply of mineral and living resources, the tropical products necessary to the metropolitan economy.

Slowly, propaganda was invented in order to create the habit of comparing the achievements of all communities everywhere to the values developed by the capitalist industrial system and it has been regarded as natural to consider primitive all cultures and civilizations which differ from those of this system.

It was during the XIXth century and in the first half of the XXth century that the industrial capitalist system, which was set up in Europe after the Industrial Revolution, organized a world economic structure according to which the elaboration of goods, successfully improved by technology, was concentrated in the metropolitan areas. The rest of the world, the colonies, the dominated countries, the periphery of the capitalist system, was supposed to supply the raw materials needed by the center of the system. One has thus seen the occurrence of production cycles in underdeveloped countries: sugar, rubber, gold, coffee, iron ore in Brazil, tin in Bolivia, copper in Chile, in Peru, bananas in Ecuador and Central America, petroleum in Venezuela as well as in the Middle East countries.

At the same time, political and economic institutions were established in these countries, which still exist, and the transformation of which constitutes the past and present history of the liberation struggle of dominated peoples.

A first change in the system of international economic relations took place during the years between

the First and the Second World Wars and was stimulated by the world economic crisis in 1929. These events led to the abolition of pacts and conditions against the installation of industries in Latin America. It became clear to businessmen in the largest countries of this region that it was essential to produce locally some of the goods which were imported from Europe and the United States and which could not be brought over during international crises. Thus, the formation of an industrial system the so-called import—substitution industrialization—started in these countries in the 1940's.

However, at the same time that this process took place in Latin America, the United States, changed after the Second World War, into the most powerful center of the capitalist world. With Roosevelt's "New Deal", the industrial production for war and the growing intervention of the U.S. Government in the American economy, conditions were created in the U.S. for an extraordinary growth of the industrial complex as well as of science and technology. New big industrial societies, which now took a new name—the multinational or transnational or

J. Leite Lopes, is Director of the Division of High Energies at the Center for Nuclear Research and Professor of Particle Physics Theory at the University of Strasbourg, France. Formerly he was President of the Brazilian Physical Society, Scientific Director of the Brazilian Center for Research in Physics (CBPF) and Professor of Theoretical Physics at the Federal University of Rio de Janeiro. He was dismissed from the latter positions in 1969 by the Military Junta of Brazil. Address: Centre de Recherches Nucléaires, Division des Hautes Energies, 67037 Strasbourg-CEDEX, France.
