

**Scientific Traditions in Brazil:
The History of the Instituto de Higiene in Sao Paulo**

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This paper aims to contribute to the history of Brazilian educational and research institutions and at the same time to provide elements for the discussion on the nature of scientific organizations and how they operate. I also will address the larger issues facing research centers in Brazil, particularly the evolution and survival of scientific traditions in a context of institutional problems and scarcity of resources. My research focuses on history of the *Instituto de Higiene*, created in 1918 through a signed agreement between the State of Sao Paulo, the Sao Paulo School of Medicine and Surgery, and the International Health Board (IHB), an affiliate of the Rockefeller Foundation. Emerging in a period of intense institution-building in the field of biomedical science, the Institute of Hygiene is a telling case of the successful merging of state modernization targets and international aid. The work seeks to outline the process of the institutional reorganization of Brazilian science, highlighting the first steps of the scientific traditions that burgeoned in the Instituto de Higiene, as well as its process of consolidation. The organizational challenges have been given special attention. Having established a reputation for serious teaching and research, the institute was nevertheless affected by the crises that shook profoundly the national scientific establishment, such as scarcity of resources, instability and disruption in management, internal conflicts and external pressures.

Relying mainly on primary sources from the Rockefeller Archive Center, this paper works with historical data, covering the years from the creation of the Institute of Hygiene until its consolidation in the 1940s. Some aggregate data on science policies, politics and administration, from Brazilian and foreign historical literature are used to depict the scientific and administrative context of the period.

The contribution of the Rockefeller Foundation (RF) to the development of teaching and research in biomedicine has also been underlined. By the end of the 1930s, the RF was known worldwide for its contributions in promoting studies and research in both medicine and biology, encouraging research on most diverse health problems, providing sanitation instruction to the public and setting up disease control and prevention systems for a great number of illnesses still afflicting mankind, notably ancylostomiasis and malaria, among others. In the medical field, the Sao Paulo School of Medicine and Surgery was the most important outcome of Rockefeller's scientific policy adopted in Brazil. The Rockefeller Foundation thus played a fundamental role in the scientific and academic organization of this school.

The Rockefeller Foundation's involvement in Brazil contributed to making experimental medicine an integral part of the medical school curriculum in the country. Its activities combined with and enhanced initiatives dating from the end of the previous century. In the country's capital, the *Instituto de Manguinhos* (known today as the Oswaldo Cruz Foundation) headed the national advances in biomedical research, and the Rio de Janeiro School of Medicine followed the direction thus set. In Sao Paulo bacteriological research developed under the leadership of the Bacteriological and Butantan Institutes.

The Rockefeller Foundation sponsored a series of initiatives to support medical education and scientific research thus far promoted in these centers. Beginning in 1918 and continuing throughout the next two decades, the RF encouraged medical education in the area of hygiene and biomedical sciences. Out of all the countries of South America, Brazil was the beneficiary of the RF's largest capital outlays. Of the roughly US \$13 million applied in sanitation and education programs in the countries of this continent, US \$7 million were earmarked for the development of medical education, scientific research and sanitation campaigns in Brazil alone. The Sao Paulo School of Medicine and Surgery obtained US \$1 million out of this total. This bias in the RF's investment policy was due, in part, to the foundation's conviction that the development of a modern sanitation science hinged on its being incorporated into the regular curriculum of medical education in a given country. The assistance of the International Health Board was thus initiated in this evolving institutional context. Although all began in Sao Paulo, the impact was felt in other Brazilian states as well. Thus, despite the fact that some of the heads of the Sao Paulo School of Medicine and Surgery were independently concerned with promoting studies in anatomy, histology, physiology and microbiology, medical research received a decisive impetus as a result of IHB's incentives.

The *Laboratorio de Higiene*, subordinated to the Department of Hygiene of the Sao Paulo School of Medicine and Surgery (founded in 1912), was the original core of the *Instituto de Higiene*. The agreement signed on 22 May 1917 inaugurated the *Laboratorio*, which was to be headed by two young Rockefeller scientists, Samuel Taylor Darling and Wilson George Smillie. In addition to the course in hygiene, the *Laboratorio* was in charge of carrying out research on infectious diseases and hence the enhanced scope was reflected in its name. Darling and Smillie came to Brazil and worked for several years, funded by the RF, until they were replaced by Brazilian specialists. Dr. Geraldo Horacio de Paula

Souza and Dr. Francisco Borges Vieira (as an interim director) took over the directorship of the lab.

The institute functioned as an important instrument for training professionals on the basis of a specialized body of knowledge in sanitation and medicine. The high quality of teaching and research made available by the institution was essential in providing competent researchers and technicians to carry out research in the Sao Paulo School of Medicine and other state health organs.

Among the Institute's main activities were instruction -- particularly public health education -- research and public health activities. The courses on public health covered sanitary administration, aimed at helping the organization of sanitation services; bacteriology and immunology; epidemiology; and the prevention of various infectious diseases, such as pneumonia, influenza, tuberculosis, diphtheria, smallpox, typhoid fever, cholera, yellow fever, dengue, filariasis, the plague, typhus, Chagas' disease, trypanosomiasis and rabies.

In the area of research, the Rural Hygiene and the Epidemiology departments, directed by the sanitarian and researcher Samuel Pessoa and the epidemiologist Borges Vieira, respectively (both had studied in the U.S. under RF fellowships), undertook various studies on the use of chenopodium oil in treating ancylostomiasis, in addition to research on malaria prevention, the prevention of typhoid fever and of other diseases specific to the rural conditions of Brazil. Furthermore, the departments provided assistance to initiatives in the area of rural hygiene undertaken by the Federal Government in various Brazilian states.

As to scientific production, Paula Souza, Samuel Pessoa, Borges Vieira, and others were responsible for carrying out and publishing important works at the *Instituto de Higiene*. In fact, the scientific output of its researchers was a key factor in the recognition of the institution. In addition to intense publication in national and foreign scientific journals and magazines, these professionals trained and advised many undergraduate and graduate students, and organized and coordinated important courses in their particular areas of expertise. A significant part of the scientific production of the institution was published in the *Boletim do Instituto de Higiene* throughout the period from 1919 to 1946.

The *Instituto de Higiene* maintained close contact with the Sanitation Services of Sao Paulo. The research implemented in the Institute was in accord with the measures adopted by the Sanitation Service for the prevention of infectious diseases, smallpox and typhus in particular. The two institutions carried out joint work in this area and employed all efforts to meet the needs of public hygiene in Sao Paulo and in other Brazilian states. (However, the relations between the two agencies were not always cordial, since they operated under different principles and were affected differently by political pressures and financial constraints.) Another important contribution of the *Instituto* was the sanitary propaganda aimed at informing the public as to the nature and causes of infections, their mode of transmission, and the proper methods for controlling disease. The *Instituto* also had a dispensary for treating syphilis and other venereal diseases.

In December 1924, the State Congress approved Law #2018, which officially transferred the *Laboratorio de Higiene* to the State Government. The State Government henceforth assumed all of the expenses of the lab, which then acquired autonomy, ceasing to function as a division of the Medical School. As a distinct and independent institution, it was renamed as the Instituto de Higiene of Sao Paulo.

The consolidation of the *Instituto de Higiene* had to overcome some snags and opposition. The first years were rather stormy. The initiative to create an autonomous institution of this type came under attack, which went so far as to seek the re-subordination of the institution to the Sao Paulo School of Medicine. Paula Souza, throughout his term as head of the institute, had to fight constantly in order to keep it functioning in full gear. His success was due to the combination of favorable political connections, professional alliances, and the help of the Rockefeller Foundation, particularly from Drs. Lewis Hackett and Fred Soper, the regional directors in Brazil. The reasons for the difficulties encountered by the *Instituto de Higiene* were manifold, having their origin, for the most part, in internal conflicts and external pressures. Law #2018 was ratified after much opposition. Some politicians who opposed the autonomy objected that the law appeared to attribute to the institute powers and functions which hitherto were the exclusive prerogatives of the Sanitation Services and, further, that Paula Souza was granted powers which trespassed the Sanitation Services' jurisdiction. Many state politicians were opposed also to the institute's monitoring of serums and vaccines, a prerogative which they saw as constituting a direct interference with the activities of the *Butantan* and *Bacteriologico* institutes.

Freed from its association with the School of Medicine, the young *Instituto de Higiene de Sao Paulo* implemented a program of independent research. In the years that followed it continued to enjoy the technical and financial support of the Rockefeller Foundation. Thus, new courses were offered and new scholarships were granted to the Institute's graduates to continue their education in the U.S.

In 1925, the first Health Center in the country was established, annexed to the *Instituto de Higiene*, as a model center for training personnel in the area of public health and the treatment of ancylostomiasis. This section undertook various sanitary inspections in the rural areas of the capital. In that same year, the institute offered its first course for training health educators and sanitation inspectors. In 1926, the Institute officially attended the Third Brazilian Congress on Hygiene, held in Sao Paulo, and presented work on typhoid fever and malaria epidemiology. The institution also was responsible for the implementation of a course for training nurses, and the first nurse instructors were also trained abroad under Rockefeller support. The specialized courses to train medical doctors to become sanitation experts were inaugurated in 1928, during a "Health Week" celebration in Sao Paulo. The "Hygiene and Public Health Specialization Course" aimed at training medical doctors in the area of sanitation, thus providing the specialized personnel capable of staffing the technical positions in this field. Beginning in 1929, in response to a request on the part of the League of Nations, the institute undertook surveys on child mortality in the State of Sao Paulo.

In 1938, the Instituto de Higiene was incorporated with the University of Sao Paulo as one of its adjoined institutions and in June 1945, by edict #14857, the Instituto de Higiene became one of the autonomous units for graduate studies of the University of Sao Paulo, henceforth known as School of Hygiene and Public Health.

In 1947, in the municipality of Araraquara, in the State of Sao Paulo, a Special Health Services center was inaugurated. It was to constitute the rural nucleus for professional training sponsored by the institution. Two years later, a specialized course for training sanitary engineers was initiated. In 1951 the institution launched the very first course in hospital administration in the country. Finally, in 1969, the institution's name was shortened to the School of Public Health. Currently, the School prepares trained specialists in the areas of health planning and administration, epidemiology, maternal-infant education, environmental health, demography, sociology of health, public health nursing, social odontology, public health veterinary medicine and nutrition.

This essay shows that, partly under the influence of the Rockefeller model for the medical and health sciences, and partly under the influence of a century-old tradition of medical studies in Brazil, the Instituto de Higiene was a sound experiment in laboratory life and public health education. By the turn of the nineteenth century Brazilian scientists had been developing their careers as fully trained bacteriologists in France and Germany, or trained in Brazil, in the medical schools of Rio de Janeiro and Bahia. The coming of the RF public health scientists to Sao Paulo produced a shift in the teaching of the health sciences and in the adoption of professional standards towards an "American" model, as exemplified by the adoption of full-time research careers in the Instituto and the importance given to public health nursing and the education of professionals for the sanitary services in the state of Sao Paulo. This model also influenced another important biomedical institution in Brazil, the Oswaldo Cruz Institute of Rio de Janeiro, especially through the close relationship that developed between Carlos Chagas, a Brazilian scientist and public health reformer, and the Rockefeller Foundation's International Health Board. The Instituto de Higiene faced organizational and political obstacles, due particularly to professional rivalries between the Sanitary Service and the Medical School in Sao Paulo, both trying to gain (or expand) control over the Hygiene Institute.

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