



## Henrique da Rocha Lima\*

Fred Bernardes Filho<sup>1</sup>

João Carlos Regazzi Avelleira<sup>1</sup>

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**Abstract:** Brazilian physician and researcher Henrique da Rocha Lima was born in 1879 in the city of Rio de Janeiro, where he studied medicine and obtained the degree of M.D. in 1901. He specialized in Clinical Medicine in Germany and was the ambassador in European countries of the scientific medicine that emerged from the Oswaldo Cruz Institute in the early twentieth century. Rocha Lima has discovered the causative agent of typhus and had a major contribution to the studies of yellow fever, Chagas disease, Carrión's disease and histoplasmosis. His genius, his research and his discoveries projected his name, and, with it, the image of Brazil in the international scientific scene.

**Keywords:** Bartonella infections; Brazil; Chagas disease; Germany; Histoplasmosis; History of medicine; Rickettsia prowazekii; World War I; Yellow fever

Brazilian physician and researcher Henrique da Rocha Lima was born in 1879 in the city of Rio de Janeiro. The son of renowned clinician Carlos Henrique da Rocha Lima and Hermizilia Cassia da Rocha Lima obtained his degree of M.D. in 1901 from the National Medical School and travelled to Germany to specialize in Clinical Medicine.<sup>1</sup>

During his studies at medical school, he met Oswaldo Cruz, who shortly after arriving from the Pasteur Institute, Paris, invited Rocha Lima to work at the Serum Therapy Institute of Manguinhos.<sup>2</sup> While Oswaldo Cruz took the responsibility for the conduction of the health campaign in Rio de Janeiro, Rocha Lima was responsible for creating and structuring courses for medical students, who came in great number to the Institute to work on their doctoral projects on the role played by microbes and animals in the etiology and transmission of diseases.<sup>2,3</sup>

In 1906, Rocha Lima returned to Germany to complete his expertise in pathological anatomy at the Institute of Pathology, annexed to the Hospital of Munich. He was one of those responsible for Brazil's

scientific success in the XIV International Congress of Hygiene and Demography, and in the Hygiene Expo, which took place in Berlin in 1907. Brazil won the gold medal and the Manguinhos Institute became worldwide known.<sup>3</sup> The participation in the Expo in Berlin strengthened the ties between Brazilian and German scientists. This closeness was evidenced by the publication of the first issue of the journal *Memories of the Oswaldo Cruz Institute* in 1909, in Portuguese and German.<sup>3,4</sup>

In the same year, Rocha Lima went back to Germany to take the position of chief assistant at the Pathology Institute of the University of Jena. Eight months later, he was invited by Prowazek to transfer to the Institute of Maritime and Tropical Diseases of Hamburg (*Tropeninstitut*). The Institute had been created to prevent the introduction of diseases into Germany.<sup>3,5</sup>

Rocha Lima worked at the Tropeninstitut until 1927. This period constituted the most prolific phase of his scientific production.<sup>6</sup> He continued his studies on yellow fever, completing the characterization of the

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<sup>1</sup> Instituto de Dermatology Prof. Rubem David Azulay - Santa Casa da Misericórdia do Rio de Janeiro (IDPRDA-SCMRJ) - Rio de Janeiro (RJ), Brazil.

histopathological features of the disease and did further research on Chagas disease. He also performed studies on Carrión's disease and was able to demonstrate the intracellular origin of the pathogen and to characterize typical structures which today are named after him. He investigated the causative agent of histoplasmosis, proving it to be a pathogen of fungal nature.<sup>3,6,7</sup>

In 1914 he was transferred to study the typhus epidemic that had broken out in Constantinople together with Prowazek. Surprised by the outbreak of World War I, the two were appointed to fight typhus in a Russian prison camp in Cottbus, about a hundred

kilometers from Berlin.<sup>3</sup> The two researchers soon got contaminated and Prowazek died in February 1915. After recovering from the disease, Rocha Lima continued his research on typhus. In 1916, in Hamburg, he announced that he had discovered the cause of typhus: a new group of bacteria, which he names 'Rickettsia Prowazek' in honor of two researchers who had been victims of the disease (the American researcher Ricketts and his colleague Prowazek).<sup>7</sup>

A great injustice, and perhaps the greatest frustration of Rocha Lima's life was the non-recognition of the pathogenic role of Rickettsia Prowazek by the Swedish Nobel Foundation. In 1928, the North-Amer-



FIGURE 1 : (a) Heads of Departments around 1920. Last row, left to right: Henrique da Rocha Lima (pathology & anatomy), Peter Mühlens (epidemic tropical infectious diseases), Erich Martini (medical entomology), Eduard Reichenow (protozoology), Martin Mayer (bacteriology). First row, left to right: Friedrich Fülleborn (tropical medicine & tropical hygiene), Bernhard Nocht (Director und chief medical officer), Gustav Giemsa (chemistry). (b) First row, right to left: Martin Mayer, Gustav Giemsa, Bernhard Nocht and Rocha Lima. (c) Rocha Lima welcoming fellow researchers at his office in the Biological Institute. (d) Rocha Lima speaking at the Brazilian Rural Society. Sources: Historical Archive of the Bernhard Nocht Institute for Tropical Medicine and the Center for Memory of the Biological Institute of São Paulo



FIGURE 2: (a) Prowazek and Rocha Lima in military uniforms during research on typhus. (b, c) Rocha Lima recovering from typhus at his home in Hamburg. (d) Rocha Lima at the 'Mato Dentro' farm, in Campinas. (e) Rocha Lima's portrait, late 1930s. Sources: Historical Archive of the Bernhard Nocht Institute for Tropical Medicine and the Center for Memory of the Biological Institute of São Paulo

ican researcher Nicolle received the Nobel Prize for proving the role of lice in the transmission of typhus, without even mentioning the works of Prowazec and Rocha Lima.<sup>3,7</sup>

Still during the war, Rocha Lima studied the five-days' fever or trench fever epidemic in Poland. The similarity of the etiologic agent of this disease with the agent that caused typhus made possible the description of a series of similar germs, justifying the creation of a new category of microorganisms, the rickettsiae. These contributions brought him prestige and recognition in the German and international academic scenario.<sup>6</sup>

Rocha Lima was part of the body of contributors of the Medical Journal of Hamburg and entered the editorial board of the journal in 1923. He was responsible for facilitating the participation of Brazilian researchers as well as the publication of articles in Portuguese and reviews of local medical journals.<sup>2,4</sup>

He returned to Brazil in 1928 and decided to remain permanently in the country after being invited to join the Biological Institute of São Paulo. In 1933 Rocha Lima took the general direction of the institu-

tion, and dedicated himself to the consolidation of the Biological Institute in the Brazilian and international scientific scene, following Oswaldo Cruz's strategy in Manguinhos, i.e., the application of scientific knowledge to social demands.<sup>3,5</sup>

Besides participating in the initiatives that resulted in the creation of the University of São Paulo (USP), in 1934, Rocha Lima influenced the appointment of German professors to compose the teaching staff of the university. In 1937 Rocha Lima traveled to Germany, where he was warmly welcomed by the Nazi authorities. In January 1938, he got the Order of the German Eagle award from Adolf Hitler. The Order of the German Eagle was an award given to prominent foreigners, who were considered to have contributed to the "German greatness." This fact created assumptions about his political beliefs, in a time when the world was greatly divided and on the brink of World War II.<sup>2,4,5</sup>

In 1949, when he turned 70 years old, he left the direction of the Biological Institute and took the position of scientific director of the Pinheiros Institute, a private institution dedicated to the manufacture of

biological products. In 1950, Rocha Lima brokered the participation of the German delegation in the International Congress of Microbiology, the first congress in which the Germans were able to participate after the end of the war. In 1952, he was awarded the title of Doctor Honoris Causa of the University of Hamburg and in 1954, he helped bring the 'Tropeninstitut

Ernst Nauck' to Brazil (Figures 1, 2). Rocha Lima died in 1956 in São Paulo. On his nightstand lied the book "The old man and the sea" by Ernest Hemingway.<sup>3,4</sup>

The Academic Center of the important and traditional School of Medicine of the University of São Paulo (USP) in Ribeirão Preto is named in honor of Rocha Lima. □

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## MAILING ADDRESS:

João Carlos Regazzi Avelleira  
Rua Diamantina, 20. - Jardim Botânico.  
22461-050 - Rio de Janeiro - RJ  
Brazil  
E-mail: [avelleira@uol.com.br](mailto:avelleira@uol.com.br)

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