

The art of medicine

Carlos Chagas: science, health, and national debate in Brazil

"Health is the right of all and the duty of the State" reads article 196 of Brazil's 1988 Constitution, a document that reflected the country's enthusiasm over the achievement of redemocratisation after the military dictatorship (1964–85). Admittedly, transforming this statement into reality was a challenge that would take much more than laws to meet, yet these words represented a transformative milestone in the history of a nation that, in 1916, had been labelled an "enormous hospital".

That expression was coined by renowned physician Miguel Pereira during a heated nationalist debate during World War I. The words encapsulated a denunciation doctors were making back then, one that catalysed Brazil's intellectual and political community. The early 20th-century reform and sanitation works in the country's former capital of Rio de Janeiro, in conjunction with countrywide modernisation projects like the building of railways, telegraphs, and hydroelectric power stations, symbolised a grand dream of implanting "civilization in the tropics". According to the physicians who agreed with Pereira, this dream had run into a mighty roadblock: the bulk of the country's population lived in rural areas of the vast Brazilian territory, where they had no access whatsoever to health care or to any other public service. These people were poor

and sick, the victims of endemic diseases that depleted their productive capacity. In the early decades of the 20th century, Brazil was a fledgling republic with an economy structured around the export of primary goods, principally coffee. According to the Republic's first Constitution, dated 1891, health initiatives fell to states ruled by local oligarchies, while the federal government was only responsible for public health matters in the federal capital and at ports. It was against this backdrop that the phrase "enormous hospital" became symbolic of the era's sanitary movement, for it captured the movement's central grievance: the Brazilian Government should expand its public health initiatives and provide sanitary services to its population in the countryside, especially by combating rural endemic diseases.

Internationally recognised for his description of the disease that bears his name (American trypanosomiasis, or Chagas disease) and one of Brazil's most eminent scientists, Carlos Chagas (1878–1934) was directly involved from the outset of this movement. Although there are tremendous differences between the 1980s context of redemocratisation and this early 20th-century movement, both did bring to debate the question of government responsibility for public health and the part health would play in Brazil's nation-building efforts. Chagas's career was emblematic of how Brazilian medicine embraced the international scientific agenda in its advances in microbiology and tropical medicine and of how it forged an institutional identity and won social legitimacy by using this new knowledge to examine and address the country's health-care issues.

Chagas graduated from the Rio de Janeiro Faculty of Medicine in 1903, the same year that bacteriologist Oswaldo Cruz, federal director of public health and head of the Manguinhos Institute (renamed Oswaldo Cruz Institute in 1908), began the fight against yellow fever in Rio, where the disease had for decades scared immigrants and investors away from the federal capital, then also Brazil's key port. Focusing on malaria, Chagas pursued his medical degree during the golden age of European tropical medicine, accompanying Brazilian physicians as they endeavoured to engage actively in this movement. Shortly after graduating, he led major malaria campaigns in the hinterlands of Brazil.

In 1908, he was made a researcher at the Oswaldo Cruz Institute, which soon gained wide recognition for its production of medical and biological products and for its research and teaching in tropical medicine. At that time, Chagas was combating a malaria epidemic in Lassance, rural Minas Gerais, that had brought to a halt works to extend the Central do Brasil railroad. While examining a haematophagous insect popularly called a *barbeiro* (kissing bug), which infested many of rural Brazil's wattle-and-



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Carlos Ribeiro Justiniano Chagas, Rio de Janeiro, Brazil

daub homes, Chagas identified a new species of trypanosome, which he named *Trypanosoma cruzi* in honour of Oswaldo Cruz. In April, 1909, after identifying this parasite in the blood of a young girl from the town of Lassance, Chagas announced his discovery of a new tropical disease caused by this parasite and transmitted by the barbeiro. The news was hailed as a triumph of Brazilian science, and the illness soon became known as Chagas disease. Chagas, who was to dedicate his life to studying this disease, became a member of prestigious medical and scientific associations in Brazil and abroad. He was nominated for the Nobel Prize in Medicine twice, first in 1913 and again in 1921. In 1917, he replaced Cruz as head of the Oswaldo Cruz Institute. He was appointed to the Health Committee of the League of Nations in 1922.

American trypanosomiasis has long been studied systematically at the Oswaldo Cruz Institute as a key item on its research agenda. The disease caught the attention not only of scientists but of the Brazilian public health field too, as it moved into the national spotlight. Right from his first conferences and talks, Chagas stated that Brazilian medicine had “discovered” not only a new disease entity but a major social problem, in the form of an endemic disease that caused serious chronic disorders in children and young people across the countryside. According to him, the illness was representative of a Brazil that the elites in the federal capital hardly knew: the hinterlands, abandoned, characterised by poverty, and assailed by trypanosomiasis and other endemic diseases, like malaria and ancylostomiasis. The government needed to turn its eyes to the sanitary and social reality of this Brazil. “Brazil is not just Rio de Janeiro”, proclaimed a major newspaper in the capital, in support of Chagas’s statements.

The Brazilian rural sanitation movement got underway in 1918, with Chagas as an important leader, and it eventually led to the reorganisation of federal health services. In 1920, the National Department of Public Health was established and Chagas was appointed its first director. With the support of the Rockefeller Foundation and under agreements with state governments, the department created a broad network of health-care and sanitation posts throughout rural Brazil.

Despite the acclaim he enjoyed, Chagas was the target of much criticism both for his work as a scientist and as a public figure. Some physicians belonging to the National Academy of Medicine questioned his statements about Chagas disease in a controversy from 1922 to 1923. With Faculty of Medicine professor Afrânio Peixoto at the fore, these doctors rejected some of Chagas’s formulations on the clinical presentation of trypanosomiasis and argued that the disease was being accorded disproportionate medical and social weight. Evincing the distinct political overtones of this medical issue, they condemned the affirmation that Brazil was an “enormous hospital”, deeming the phrase unpatriotic and exaggerated and contending that it would frighten off both immigrants and investors. The notion that tropical medicine should be a specialty within the medical field had been given

life in 1925 when the Faculty of Medicine established a chair in that discipline and named Chagas to fill it, and this idea too was the target of criticism. For Peixoto, the claim that there were “diseases peculiar to the tropics” was grounded in climate determinism, an antiquated and erroneous view that reinforced Europe’s longstanding prejudice about the tropics as unhealthy places. Chagas, by contrast, believed tropical medicine was the road that would allow Brazilian science to keep in step with advances in medical knowledge about vector-borne parasitic diseases and also to effectively research and combat the “diseases of Brazil”.

Chagas died suddenly in November, 1934, aged 56 years. The next decades would be a time of intense urbanisation and industrialisation in Brazil. The advent of “magic bullets” during World War II, such as chloroquine and dichlorodiphenyltrichloroethane (DDT), would play a big part in vital medical victories in the fight against tropical sicknesses, including Chagas disease. The first campaign against Chagas disease was launched in the state of Minas Gerais in 1950, using insecticides to fumigate living spaces. In the 1980s, Brazil’s Ministry of Health introduced its National Program to Control Chagas Disease, and in 2006, WHO granted Brazil a certificate for having interrupted the transmission of the disease by its main vector species, *Triatoma infestans*.

In the 21st century, the topic of neglected or poverty-related diseases has reignited debate about what public medicine can or should do to foster collective health as an inherent citizenship right. This was not the language of Chagas’s day, when physicians who conceived of and sought to enforce the notion of making rural populations the beneficiaries of public health policies saw themselves as “missionaries” possessing superior knowledge and therefore fit to guide the destiny of the nation “from the top down”. In any case, led by doctors like Chagas, these discussions over the social dimension of medicine and the role of health as a public good, with their subsequent initiatives, blazed notable trails that have led us to the present. Beyond the valuable victories of the past, including the control of Chagas disease, the chief legacy of Chagas’s work is the questions that arose during his lifetime. How can Brazilian medicine take an active part in the international scientific community and contribute to the advancement of knowledge while using public policy to meet the country’s concrete health demands? Today, the answers to this question must emerge out of a debate where physicians, public health professionals, intellectuals, and politicians are joined by the very groups targeted by these policies—above all by those for whom disease and poverty are still two sides of the same coin.

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Further reading

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