

Dr. Evandro Chagas in the Amazon: between the epic and the tragedy

O doutor Evandro Chagas na Amazônia: entre a epopeia e a tragédia

El doctor Evandro Chagas en la Amazonía: entre la epopeya y la tragedia

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It takes time, distance, in some cases, generations to acknowledge what really occurred in a certain era

Jean-Claude Guillebaud

It was the year of 1908, the beginning of the twentieth century. Evandro Serafim Chagas was around three years of age when his father, scientist Carlos Ribeiro Justiniano Chagas, performed his studies along the Central do Brasil Railroad (EFCB). These studies would lead him to the discovery of American trypanosomiasis, which would be named after him – Chagas disease. EFCB, according to its daring planning, was supposed to link the cities of Rio de Janeiro and Belém do Pará – located right in the Amazon Forest⁹.

There is a report by Carlos Chagas Filho, Evandro's brother, about the year of 1908. He said his father was in Lassance, Minas Gerais State, when he was warned by Oswaldo Cruz that one of the marmosets (*Callithrix penicillata*) inoculated with the unknown disease in the Maguinhos Laboratory, Rio de Janeiro State, had become sick. Chagas, overcome by anxiety, took a train back immediately, met his wife and son – Iris, Evandro and her father had been waiting for him – at the train station in the city of Juiz de Fora, and headed to Rio de Janeiro. Evandro and Mrs. Chagas used to stay at her parents' in Juiz de Fora, while Chagas, in the splendor of his youth, accepted the challenge appointed by Oswaldo Cruz: to pave the way for the EFCB⁹.

Different obstacles prevented the Railroad from crossing the borderline of Minas Gerais State, which is understandable due to the complexity of the project. However, it should be mentioned as a first sign of the future relationship of Chagas's work in the Amazon.

A few years later, in 1912, Evandro's father left Rio de Janeiro and started a memorable journey through the rivers of the Amazon with the objective of investigating "the medical and sanitary conditions of the Amazon Valley"² – the boy was about seven years old at that time. During his career, Evandro Chagas would frequently and affectively mention this adventure and his father's narratives about it^{4,5}. Therefore, it is reasonable to assume that Evandro had occasionally read and reread excerpts of his father's notes and reports, from an early age and throughout his medical school years and the beginning of his medical works. The remarks from these excerpts were full of eloquent appeals interspersed with constraints, such as

If the great Amazon, in all of its exceptional aspects as a new and resplendent world with never-ending wonders, has constituted the greatest treasure of wise naturalists, providing them with valuable elements to illustrate the natural history of the Universe; if, for poets or novelists, human life's greatest dramas that occurred in that Forest have inspired an immense epic literature, the most beautiful pages of which glorify the heroism of man in his permanent struggle against the inclemency of nature; if the descriptive studies of observers who are astute and expert in various subjects overwhelm us with all of the majesty of that world unknown to us; finally, if, in the context of these and other several interesting aspects, the great Amazon has been studied and fruitfully unraveled, it is true that, from a medical point of view, the Amazon remains ignored as an object of terrifying myths, distorting the valley of our giant river².

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Afterwards, Chagas would write hopefully:

We will be able to see the economic status of the North as normalized. Its current anarchy is surprising; we will be able to see all of the lands, which constitute one of our nation's greatest assets, inhabited by strong Brazilians who are apt to work².

It was a scientific report by Henrique Penna in 1934, while examining fragments of liver obtained by viscerotomy for research on yellow fever and describing unexpected cases of visceral leishmaniasis (or kala-azar) in several locations in the rural area of Brazil²¹, that drew the attention of Carlos Chagas, who was director of the Instituto Oswaldo Cruz (IOC). Chagas immediately appointed Evandro to study the epidemiology and symptoms of the disease described. The young physician had already become a researcher, a renowned teacher and director of the Hospital Oswaldo Cruz, which belonged to that Institute. Carlos Chagas died suddenly during that year; however, in 1936, IOC's Commission in Charge of the Study of Visceral Leishmaniasis was created. Evandro Chagas retained the role of heading and coordinating the research, and he started working in the beginning of that year by seeking support in different states of the Northeast region of Brazil, to build a regional laboratory that could support the studies. After experiencing his first unsuccessful attempts, he extended his trip to Pará State, and then, in a meeting with Governor José Carneiro da Gama Malcher, his claim was deservedly accepted¹¹.

Indeed, on November 10 of the same year, 1936, the State Law N. 59 was sanctioned. It created the Northern Institution for Experimental Pathology (IPEN), located in Belém, with the objective of investigating rural medical issues to guide actions on prophylaxis and medical care, in accordance with state and federal sanitary services²⁰. In this context, studies on leishmaniasis and other local endemic diseases, such as malaria, tegumentary leishmaniasis, yaws and filariasis were soon implemented. In addition, investigations on some other parasitic diseases of interest to human and animal health were carried out. Less than a year later, in 1937, the first results of the research conducted in Pará by Evandro Chagas and his young, plural and multidisciplinary team were released⁷. figure 1 displays some of the members of this team.

Therefore, the first Amazonian works to show the technical and scientific effort of Evandro's team were related to the Commission in Charge of the Study of American Leishmaniasis. Among the researchers directly or indirectly involved with that Commission were Aristides Marques da Cunha, Magarinos Torres, Gustavo de Oliveira Castro, Leoberto de Castro Ferreira, Cecílio Romaña, Octavio Mangabeira Filho, Madureira Pará, Geth Jansen e Wladimir Lobato Paraense, from IOC; and Jayme Aben-Athar, Gladstone Deane, Leônidas Deane, Felipe Nery Guimarães, Maria José Von Paumgarten, Benedito de Abreu Sá and Reinaldo Damasceno, from IPEN. Evandro, in his introduction to the 1937 Report, described that special moment and thanked the ones directly responsible for it:



Font: Collection Tatiana Chagas Memória.

Figure 1 – Pioneer researchers of the Northern Institution for Experimental Pathology. From left to right – first to fourth: Leônidas Deane, Felipe Nery Guimarães, Evandro Chagas and Maria José Von Paumgarten. Abaeté, Pará State, Brazil, 1937.

The support and prestige given by the General Director of Instituto Oswaldo Cruz, the significant interest in the subject provided by the Government of Pará State, and, above all, the philanthropic character of Dr. Guilherme Guinle, who paid for most of the laboratory investigations and for all of the fieldwork⁸.

It is also important to highlight the words of Leônidas Deane about this preliminary context:

Before describing IPEN's first activities, I want to highlight the importance, for the future of the Institute, of having been mentored and initially directed by Evandro Chagas. Evandro was an unusual person. With a privileged intelligence and a remarkable capacity for explanation and argumentation in several languages, he also had great physical strength and an evident gift of leadership. He told the group of youngsters in his team about the mystique of being a pioneer and about his desire to take part in the investigative work of elucidating the transmission of diseases in our rural populations¹¹.

Evandro Chagas states that these were the first studies on American visceral leishmaniasis to be effectively developed in Brazil and that covered clinical, therapeutic and epidemiological studies, pathogenic processes, and research on the parasite⁷. Although we acknowledge the relevance of the focus of these historical studies on that theme, despite the circumstantial time constraints, it is neither our purpose nor our responsibility to reinforce the defense of the autochthonous aspect of the disease or taxonomy of the agent, issues that are still under discussion by the scientific community. Since these subjects are still the focus of many research studies, we can conclude that the original proposal, which will only be definitely dealt with by the future of science or its conventions, was deserving of all the effort and concern.

It is true that many other discoveries of IPEN's researchers between 1937 and 1938 were disclosed much later. Meanwhile, some original findings underwent more immediate disclosure, such as those related to the new wild hosts of *Trypanosoma (Schizotrypanum) cruzi*^{14,10}. In fact, these findings deserve a deep reverence this year, 2009, during the celebrations of the centenary of the discovery of Chagas disease. The entomological studies headed by Deane, Mangabeira Filho, Ferreira, Damascus and others were also very remarkable in those early times^{12,13,15,24}. From 1937 to 1940, at least¹⁹ scientific papers were published, and this feat is still recognized to date, considering the difficulties imposed by the unusual nature of that enterprise¹⁶.

From a certain perspective, it can be inferred that since 1934, when fate led Carlos Chagas to appoint his firstborn son to investigate kala-azar throughout Brazil as far as the Amazon, a mission in that place had been postponed and would be finally fulfilled. Evandro would always repeat that

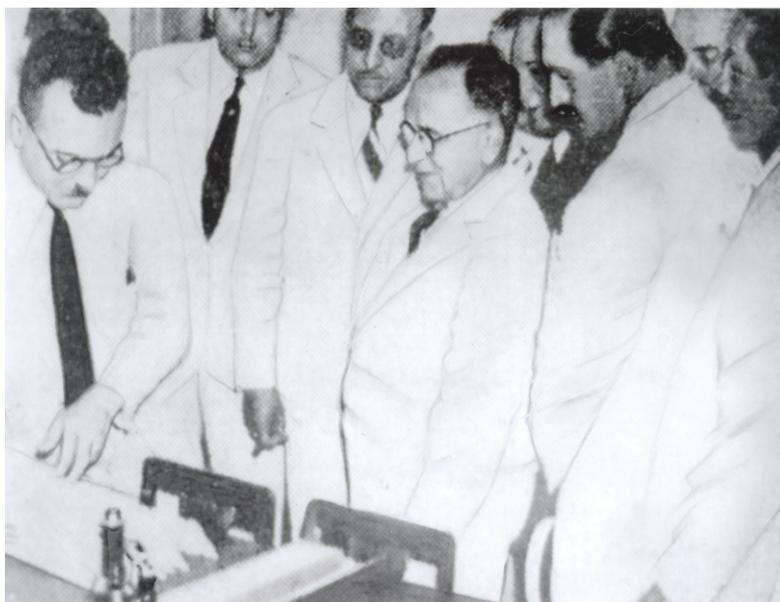
these studies, as well as the Sanitation Project, were an extension of his father's journey⁵.

It is a fact that after his father's death in 1934 and deep academic disappointments in 1935, Evandro Chagas left a good financial and academic status and great prospects in the south and southeast regions of Brazil to prioritize the role he had finally decided to play: the scientist and sanitarian with the mission of planning the sanitary conditions of the northern region of Brazil, without refuting the concept of a national network of Institutions of Experimental Pathology. When he was finally officially appointed, in 1940, he had the primary goal of starting a malaria control program, as he had already shown his unique background: a youth that allowed him to meet the challenges of the Great Forest, and a solid background built on his performance as a manager, professor and one of the most active researchers in laboratory and field works at IOC Manguinhos. Scientific papers like "Visceral Leishmaniasis in Brazil", published in Science Magazine in 1936, contributed to the consolidation of his reputation nationally and internationally⁶. He had developed a great work as Professor Assistant of Carlos Chagas in the subject Clínica de Doenças Tropicais e Infecciosas at the Faculdade de Medicina of the Universidade do Rio de Janeiro, besides working as a Tenured Professor of Clínica de Doenças Tropicais e Infecciosas at the Escola de Medicina e Cirurgia of the Instituto Hahnemanniano do Rio de Janeiro. He had followed a path that could lead him to the fulfillment of his dream of heading forward.

In 1935, to create a collection of notes to use in his devoted labor as a Professor, Evandro organized a remarkable "Guidebook on Tropical and Infectious Diseases" by gathering material from his late father's classes and his own contributions. It must be emphasized here that Chapter 4 of the General Section of this manual was about "Climatological Influences on Human Pathology and Concepts on Brazilian Nosology"³. This allusion is made to reinforce his high teaching qualifications at that time, so that he could work in such a diverse and complex tropical environment: the Amazon. Furthermore, as a significant proof of his skills as a competent manager, he developed a great work both as the scientific manager of IPEN and as a superintendent of the Serviço de Estudo das Grandes Endemias (SEGE) since 1936.

It was under these circumstances, time and space that Evandro Chagas headed IPEN's early works, adapting them to his own peculiar idealism:

Fate did not allow Chagas to see the start of the grand work, which had been his lifetime dream. However, providence wanted his voice to be heard by the men in charge of our people's destiny. Today, we can see the dawning of a stupendous era in which the sane and strong man will be raised⁵.



Font: Collection Tatiana Chagas Memória.

Figure 2 – Evandro Chagas and Getúlio Vargas in a meeting at the Northern Institution for Experimental Pathology, during an official visit of the President of Brazil to the city of Belém, Pará State, in October 1940.

Focusing on the medical and scientific character of Evandro Chagas's beginning in the Amazonian matters, his Clinic Professor in Manguinhos stated that:

His academic mission in the North of Brazil, in 1936, [...] clearly marks the second phase of his activities. The sanitary investigations are dealt with in the foreground, but the clinical and experimental studies are never abandoned – on the contrary, they are faced as a constituent of those studies²⁴.

He learned from his own and his father's experiences that "sanitarism" is not managed without "governability", even though he aimed to defend inflexibly the autonomy of the states during the whole process. Thus, after convincing the Federal Government to grant him the right to coordinate his Sanitation Project for the Amazon, Evandro would embrace this mission - to quote Villela once again - "with the aforementioned qualities of a researcher, supporter, organizer, served by an energetic will and by a restless activity"³. Andrade and Hochman, referring to Evandro's determined performance in an attempt to convince the Federal Government (Figure 2), in 1940, say that:

During his trip to the Amazon, from October 6 to 14, Getúlio Vargas visited IPEN and supported the sanitation Project for the Amazon, which was yet to be implemented by the National Ministry of Health and Education, together with IOC's professionals. Vargas announced a sanitation plan for the region during a ceremony in Belém's 8th Military Base. According to reports, the President became very interested in the Project headed by Sege's superintendent⁹.

Cecílio Romaña, who developed studies on the wild type of American trypanosomiasis in the Amazon at that time, was in IPEN's facilities when the Institution welcomed

Getulio Vargas. Romaña points out his workmate's knowledge and motivation towards the challenge, and contributes significantly to the register of that great moment:

Looking at the map of America is enough to understand the grandiosity of the project. The first reaction after doing so is a feeling of surprise and incredulity before the enterprise. However, after listening to [Evandro] Chagas' clear and convincing explanation of the plans and the project yet to be developed, as well as learning about the works already developed in detail, there is a change of thought, and the project acquires a vivid reality. I saw how President Vargas was drawn to the realization of the project by Chagas' words. We found out some time ago that the first result of the presidential visit to the Amazon was the appointment of the Committee for the sanitation of this extraordinary region, headed by Chagas²².

It is quite clear that this resolute young man did not come to the Amazon in search of "scientific production" only; he wanted much more. The son, disciple and collaborator of Carlos Chagas aimed to contribute to the diagnosis, treatment and control of endemic diseases in the region – he embodied the noble spirit of the great sanitarians. Evandro formulated and defended a Sanitation Project grounded in Experimental Medical Science, whose path he had walked on so selflessly. Besides going into forests and sertões (backlands), he sought sponsorship and got to know health services in other countries to collect suggestions that could be adapted to his plan for the Amazon. The creation of IPEN itself reflects the materialization of this desire. When, in a plane crash, death overtook him at 35, at the end of 1940, all of this work was interrupted.

If Evandro had survived the accident, the course of this mission would naturally result in scientific publications of

great originality to the world and that focused on the biosciences and on sanitation in the Amazon. As for the actual results concerning regional health, only time would tell – even though it might sound tempting to discuss this subject. Although the health plan designed and painstakingly defended by Evandro Chagas for the Brazilian Amazon was mischaracterized after his death – and would be abandoned due to lack of resources or leadership in 1942 – some good legacies were inherited by programs that followed, such as Brazil's National Public Health Department (DNS) and the Special Service of Public Health (SESP), in addition to the Amazonian Institute – formerly known as IPEN – which was named Instituto Evandro Chagas in 1940.

Grounded in a large collection of documents from that time, Andrade and Hochman confirm and complement, in a reflexive way, the decline that would soon take place:

Tragic events such as the death of Evandro Chagas, the weakening of the legitimacy of the regime, and the engagement of Brazil in the War with the Allies, completely changed the position of the Amazon in the national and international scene from 1942 to 1945. Consequently, the Sanitation Plan, which had been managed since 1940, became impossible to implement. This story is an example of the combination of national and international political contexts that changed very fast, associated with severe and persistent sanitary problems, such as the living conditions and health statuses of the populations of the Amazon⁹.

In our view, aside from all of this misfortune and much more, the tragedy that befell Evandro Chagas was not necessarily his early, violent and tragic death, but that fate denied this "Ariel of Medicine", as described by Pedro Nava, the fair struggle that lay before him as a sanitarian. That challenge would certainly lead to progress in his studies and, perhaps, to his leadership of the utopian mission of sanitizing the Amazon. The men who dare and dream are potentially prone to errors – Evandro would not be the exception. However, with regard to his work in the Amazon, although the characteristic modesty of people of his rank had led him to say publicly that "mostly due to the contingencies than to the qualities we do not have [...] we had the honor to execute the official decisions and lead the work of the first two scientific institutions in northern Brazil"⁵, History – our history, and not "any other" history – exists and does him justice. Learning about this History can save us from detrimental tautological mistakes, including those that present high rhetoric.

Without restraints, we believe it legitimate to recommend that any person who plans to create a research institution on public health in the Amazon read Evandro's original draft for IPEN. Any person who plans to compose a good research report should read the reports on leishmaniasis written by Evandro and his team. These recommendations will certainly lead to the quality training of human resources and a worthy scientific production.

Evandro Chagas's vast and eclectic academic background can be seen through the descriptions of his biographers^{24,23,19}. Concerning his "pre-Amazonian" phase, a good source is his "Memorial apresentado à Comissão Julgadora do concurso para a cadeira de doenças tropicais e infectuosas da Faculdade de Medicina do Rio de Janeiro em 1935"²⁴.

We acknowledge, however, that his production during the "Amazonian" phase needs to be restored. As a good example, we have been recently informed that there are two scientific documentaries co-directed by Evandro and filmmaker Humberto Mauro, during the time of Instituto Nacional do Cinema Educativo. We obtained copies of these films, provided by Centro Técnico Audiovisual/Audiovisual Secretariat/Brazil's Ministry of Culture. These brilliant documentaries (Study of Great Endemics – Brazilian regional aspects; American visceral leishmaniasis) were presented by Evandro, as Brazil's representative, in the famous New York World's Fair, 1939¹⁷. Excerpts of these films, which show the beginning of the activities of IPEN in the Amazon, are available in the digital version of this issue (<http://revista.iec.pa.gov.br/htm/en/index.htm>). An innovative attitude like this – a presentation at a scientific event using the only technological resource available for moving documentation (cinema) – fully demonstrates the commitment of this researcher to Medical Sciences and their avant-garde dissemination.

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