Culture Unbound
Journal of Current Cultural Research

Beyond the Image of the Pain of Others: Medical Research Experiments at the Colonial Hospital of Lisbon in the Early 20th Century[1*]

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Abstract

This paper discusses the experiments with human subjects in clinical trials related to the investigation of African human trypanosomiasis at Lisbon's Colonial Hospital during the first decades of the twentieth century. The research draws on evidentiary photographs and archival documents produced by leading Portuguese tropical medicine researchers. At the beginning of the 20th century, the first Portuguese medical mission went to Angola and São Tomé to study African trypanosomiasis. Images of ill persons, some of them in near-death condition, illustrated the mission's report. The investigation about sleeping sickness continued in the recently inaugurated School of Tropical Medicine in Lisbon, where instruction and research on exotic pathologies relied on clinical cases brought to the metropole. Since 1903, the colonies' health departments sent patients affected by tropical diseases to the Colonial Hospital in the Portuguese capital. Flies of the Glossina genus, identified as the causes of the illness, were also shipped for medical entomology studies. Ayres Kopke, professor of bacteriology and parasitology at the School of Tropical Medicine, was responsible for the institution's insect collection and was one of the leading "sleeping sickness" researchers. In Kopke's files, kept at the Hospital archive, a few portraits of Africans lay among photographs of flies and protozoa. The portraits of Africans at Lisbon's Colonial Hospital are evidence of life stories that intertwine with the history of tropical medicine in the context of colonial empires.

Keywords: photography; Africans; colonial hospital; tropical medicine.

de Correa, Silvio Marcus "Beyond the Image of the Pain of Others: Medical Research Experiments at the Colonial Hospital of Lisbon in the Early 20th Century", Culture Unbound, Advance Access 2025.
Published by Linköping University Electronic Press:
http://www.cultureunbound.ep.liu.se https://doi.org/10.3384/cu.3689

Photographs of the Others' Sufferings

In *Regarding the Pain of Others,* Susan Sontag claimed that "the more remote or exotic the place, the more likely we are to have full frontal views of the dead and dying." According to her, "a succession of unforgettable photographs of large-eyed victims, starting with figures in the famine lands of Biafra in the late 1960s to the survivors of the genocide of nearly a million Rwandan Tutsis in 1994," represents the Western imaginary of post-colonial Africa (Sontag 2004: 70–71). Sontag saw in photojournalism's tendency of (almost) shamelessly exhibiting images of other peoples' suffering an atavism of the modern tradition of displaying others as zoo animals in the European metropolises until the early twentieth century. For Sontag, photography favored a continuity of such tradition in the "rich world," who watched the others' suffering from a safe distance.

The photographs of men and women with tropical diseases published in scientific journals may contain the same dual message of the war images, distant in time or space: "they show a suffering that is outrageous, unjust, and should be repaired," and confirm that "this is the sort of thing which happens in that place." Additionally, the similar pervasiveness of the photographs showing victims of exotic pathologies corroborates the "belief in the inevitability of tragedy in the benighted or backward – that is poor – parts of the world" (Sontag 2004: 71).

From the end of the nineteenth to the early twentieth centuries, the medical photographs of tropical diseases frequently exhibited colonized and racialized bodies. Photographs of patients suffering from African trypanosomiasis, for instance, were frequent in tropical medicine publications. The disease is caused by the Trypanosoma parasite, transmitted to humans by the bite of infected flies of the *Glossina* genus.[2]

The designation "sleeping sickness" refers to the state of lethargy or "hypnosis" that may affect the patients during the progression of the trypanosomiasis infection. The expression "sleeping sickness" was widely used in the English medical literature to refer to African trypanosomiasis (Manson 1898). Likewise, the Portuguese tropical medicine documents adopted the equivalent expression "doença do sono" to refer to the same illness (Bettencourt et al. 1903, Kopke 1905, Costa et al. 1915).

In 1898, the *British Medical Journal* published the portraits of Eli Mboko and Tendo Makaloo in an article about sleeping sickness. Born in Congo, the two patients had been sent to London for treatment in more favorable conditions and served the disease's study. According to the London School of Tropical Medicine coordinator of the treatment and study, the physician Patrick Manson,

> they were brought to this country partly that they might have the chance of treatment under conditions more favorable than any their

> own homes could supply, partly that they might afford an opportunity for careful study of the deadly disease from which they are suffering (Manson 1898: 1672).

The physician reported the disease's evolution in its final stage and completed experiments with arsenical drugs. Manson inferred that a parasite of the Filarioidea type could cause sleeping sickness.

The publication of the two Africans' portraits sought to depict, with "terrible sharpness," the appearance resulting from a fatal illness, a tropical disease. In October 1902, Patrick Manson reported the first case of sleeping sickness affecting a European woman. She was the wife of a missionary based in Congo and was treated in the "tropical wards of the London School of Tropical Medicine." Nevertheless, her anonymity was preserved, and no photographs were published (Manson 1903: 1461).

For those who had seen Eli Mboko and Tendo Makaloo's photographs published in 1898, the impression was, probably, the same as the experience of seeing the portrait of men sentenced to death. The disease expressed in the photographs of racialized bodies was fatal. A hundred years later, the time interval that separates us from those "ghosts" can create a different sensation when observing such photographs. The images of these men may provoke us. Indeed, "who are the 'we' at whom such shock-pictures are aimed?" (Sontag 2004: 7).

Unlike the past's "we" – the Victorian readers of the *British Medical Journal* – the "we" I refer to henceforth is the current-day community of researchers. To them, or us, such photographs may constitute evidence for the study of past experiments with human subjects in London or Lisbon's hospitals when the widespread "fight against tropical diseases" was part of the ideological discourse of the "peaceful conquest" or "scientific colonization."[3] *We* currently know that tropical medicine was instrumental to colonial imperialism (Arnold 1988, Vaughan 1991, Worboys 1993, Eckart 1997, Amaral 2006, Castro 2013) and that photography can be the colonial empires' eye of history (Vicente 2014).

At the dawn of the twentieth century, the newly created institutions for instruction and research on tropical medicine undertook many scientific expeditions in Africa. Liverpool and London's schools of tropical medicine were founded in 1898 and 1899, respectively. Between 1901 and 1903, fifteen medical-scientific missions, eight of which British, took place in different parts of the African continent (Headrick 2014: 2). Lisbon's school of tropical medicine was established in 1902, and Portuguese physicians conducted two medical missions to their African colonies between 1901 and 1905.[4]

After the 1890 British Ultimatum, the Portuguese crown needed to reform its colonial policy. The creation of Lisbon's School of Tropical Medicine [*Escola*

de Medicina Tropical de Lisboa], and the Portuguese medical-scientific missions reflect a new relationship between the metropole and its colonies. Following the trend of other colonial empires, prominent Portuguese physicians ideologically embraced the conquest of Africa. It is worth noting that the Portuguese School of Tropical Medicine statute, chapter 13, article 46, anticipated the organization of scientific missions to the overseas provinces and the foreign colonies (Escola de Medicina Tropical 1903).

The First Medical Mission to Portuguese West Africa happened in 1901. Under the leadership of physician Aníbal Bettencourt, director of the Portuguese Royal Bacteriological Institute, the team formed by the physicians Ayres Kopke, Gomes de Rezende, and Correia Mendes published a report written in French (Bettencourt et al. 1903). The report included the photographs of the sick Africans Thomaz and Esperança, similarly to Eli Mboko and Tendo Makaloo's portraits published some years earlier - as visual representations of the disease's effects.

After the report of the First Medical Mission to Portuguese West Africa, several papers were published in Portuguese scientific journals. The physicians Moraes Sarmento and Carlos França published a paper in the *Revista portuguesa de medicina e cirurgia práticas* about a case of sleeping sickness in an individual deceased in the Hospital of São José, in Lisbon (Carvalho 1906: 25). Carvalho (1906) does not provide information about the patient's origin. Correia Mendes, director of Luanda's Bacteriological Institute, had published a paper in the journal *Medicina Contemporânea* of May 8, 1904, about a case of sleeping sickness in a European individual. An additional couple of articles published in the editions of January and February 1905 of the journal *Porto Médico*, respectively authored by physicians Carlos França and Dias de Sá, discussed two cases of Europeans suffering from "sleeping sickness" (Carvalho 1906: 44). Unlike the publications that discussed the cases of African patients and included their photographs, such as Bettencourt's report and Manson's study, none of the papers about European patients published any photographs of "sleepy whites."[5]

At the time, cases of Portuguese nationals affected by African trypanosomiasis were rare, but many African colonial subjects were brought from Angola and other colonies to the Colonial Hospital of Lisbon. The finding of a small envelope among physician and professor Ayres Kopke's papers containing images of African patients taken to the Colonial Hospital sheds light on the experiments with human subjects in the early days of Portuguese tropical medicine and its therapeutical trials related to Human African trypanosomiasis.

"Photographs of the Blacks"

Ayres Kopke had organized and traveled with scientific missions overseas. The Portuguese physician was an active member of the European community of sleeping sickness researchers. By the eve of the twentieth century, Kopke had become a leading Portuguese bacteriologist and epidemiologist.

In a collection of Ayres Kopke's papers held at the library of Lisbon's Institute of Hygiene and Tropical Medicine [*Instituto de Higiene e Medicina Tropical*], there is a small envelope with the stamp of the School of Tropical Medicine. Its back records the following: "*Photographias dos Pretos*," that is, "Photographs of the Blacks." The envelope contains 11 portraits of African patients of Lisbon's Colonial Hospital. Two anonymous patients, and Francisco Pereira, Manuel Tavares, Manuel Vaz Cabral, Paulo Borges, Francisco Fernandes, Evaristo Nunes, Aureliano Lopes, José Borges, and Joaquim, all male names, posed for the photographer in the winter of 1914.

Portraits of the African male patients found among Professor Ayres Kopke's papers. (Archive of Lisbon's Institute of Hygiene and Tropical Medicine)

Although the portraits do not indicate the photographer's name, it is likely that J. A. Cruz, photographer of the School of Tropical Medicine, had captured the images. Cruz's name and institution affiliation are credited in the photograph of an African patient featured in the annex of a paper about sleeping sickness published in the *Arquivos de Higiene e Patologias Exóticas* journal (Kopke 1907b).

The portraits of the eleven Africans found in the envelope were probably taken a few days after they arrived in the infirmary of the Colonial Hospital of Lisbon. The eleven patients possibly arrived in two groups during the winter of 1914. Four photographs are dated January 14, while five of them indicate March 4,

1914. Besides the date, these nine photographs include the patient's name, bed and case number.

The remaining two of the eleven photographs do not include any information about the depicted patient. The only portrait of a female face is one of the anonymous portraits. Her portrait contrasts with the other ten patients, who all wear the same cotton shirt and tweed coat.[6] She looks straight at the camera, wearing a white dress, necklace, and earrings. According to the Lisbon Colonial Hospital regulations, the patients' belongings were collected, stored, and returned to the patients in case of discharge. Therefore, the young African woman's portrait may have been taken before the hospital check-in.

Portrait of the anonymous female patient found among Professor Ayres Kopke's papers. (Archive of Lisbon's Institute of Hygiene and Tropical Medicine)

As all photography registers a moment extracted from a continuity, the portrait also refers to the unseen (Berger 2017:39). The anonymous African woman's portrait shows a face of the lesser-known history of experiments with human subjects in the Colonial Hospital of Lisbon. The portraits of the African patients remit to a moment that acquires meaning, when photographed, if the length of its duration may be intelligible to those who see the image "fixed" between a past and a future (Berger 2017:91).

The portraits record ill persons sent from the colonies to the metropole. For many of them, that was the only portrait of their lifetime. Such photographed moment entails a before and an after. The patients' portraits lie between their African past and their future of confinement in a metropolitan hospital, where they were subjected to medical exams and drug trials. In most cases, they faced the fatal outcome of human African trypanosomiasis. Since photography contains a quantum of truth (Berger 2017: 40), the portraits prove that those persons had been in the Colonial Hospital, while the Portuguese physicians' reports and scientific papers indicate those patients were subjects of clinical trials.

The set of "photographs of the Blacks" reveals that Kopke collected the human faces of his clinical trials. He used photographs to document the various stages in the progression of sleeping sickness and to illustrate scientific papers, classes, and conferences. The eleven portraits were likely part of Kopke's archive of dozens of clinical cases of sleeping sickness he studied in the early twentieth century.

At that time, only on infrequent occasions were patients cured of sleeping sickness or "hypnosis." What were those people doing in the metropole if the chances of cure were minimal? The gloomy fate of those 11 individuals seems to have been the same as many of the other Africans treated at Lisbon's Colonial Hospital in the early decades of the twentieth century: To die in hospital.

There is a common ground to the 11 photographs of Africans: their subjects would likely not leave the hospital alive.[7] Each of those 11 Africans is the image of a *Spectrum,* in Roland Barthes' definition (1981: 9). The photographs suggest each subject's disappearance while simultaneously withholding the image of the deceased, alluding to the "return of the dead." The gaze of those Africans disturbs the researcher as spectator.

> As for the viewer, […] even many years after the picture was taken ... well, one can gaze at these faces for a long time and not come to the end of the mystery, and the indecency, of such co-spectatorship. […] More upsetting is the opportunity to look at people who know they have been condemned to die (Sontag 2004: 60).

What else can we know about the 11 Africans that posed for the photographer in the winter of 1914? What about their life stories? How do they intersect with the Colonial Hospital's social history and, therefore, with the history of tropical medicine in Portugal? Finally, why were people affected by certain exotic pathologies sent to the Colonial Hospital? The hospital's documents held at the Overseas Historical Archive [*Arquivo Histórico Ultramarino*] and Professor Kopke's papers and reports available at the library of the Institute of Hygiene and Tropical Medicine [*Instituto de Higiene e Medicina Tropical*], in Lisbon, will help to answer to these questions.

In a recent article about photographs of an anomaly, I alluded to a possible "anthology of existences" of people who have never conflicted with the law but had vestiges of their lives preserved in the archives because the anomaly of their bodies attracted scientific curiosity (Correa 2021:12). This is also true of those 11 Africans whose photographs, basic information, and records of chemotherapy treatments were kept by Ayres Kopke due to scientific interest.

The portraits of the 11 Africans in Kopke's archives exemplify the appropriation of the image of the Black body as data or scientific record, which may reify these people as study objects. Nevertheless, the set of photographs of the 11 Africans differs significantly from the images of the pain of others shown, for instance, in photographs of war victims (Sontag 2004). Additionally, the 11 portraits contrast with the photograph depicting a sleeping sickness patient in a terminal state, as a squalid body laying in bed, published in the *La Maladie du Sommeil* report (Bettencourt et al. 1903).

The portraits found in an envelope among copies of Ayres Kopke's papers at the library of Lisbon's Institute of Hygiene and Tropical Medicine depict patients showing facial expressions and dressed according to the existing aesthetical norms of portraits. The patients do not grin nor show pain or joy. It is possible to have the impression that the patients are well-cared for.[8] However, as Temi Odumosu (2020) suggested in a discussion about the digitalization and availability of sensitive visual material of the colonial archive, the atrocity of the image is not always tied to the hideous or disgusting. Therefore, thinking beyond the photograph is necessary. If the 11 portraits are not evidence of the patients' suffering, other documents such as medical reports and Ayres Kopke's published papers allow for a more complex approach to the others' suffering.

Colonial Empires and Tropical Medicine

The development of tropical medicine in Portugal contributed to the elaboration of the colonial policy during the fierce competition for the African territories (Amaral 2008: 03). Portuguese physicians considered tropical medicine

indispensable to the colonizing efforts (Carvalho 1906: 11) and expressed the conviction that a "scientifically organized colonization would certainly constitute one of the best elements for the good future of our homeland" (Kopke 1915: 41).

The internal regulations of Lisbon's School of Tropical Medicine demonstrate how the newly established institution was intertwined with the colonial project. Tuned by the pitch of other empires' tropical medicine, the regulations defended a "scientifically organized colonization" (Escola de Medicina Tropical 1903).

In the early twentieth century, Ayres Kopke was the sole Portuguese delegate in the two international conferences about sleeping sickness held in London in 1907 and 1908. Since the first meeting, the Portuguese physician had been a member of the International Committee for Scientific Investigation of Sleeping Sickness, leading the efforts in applied therapeutics.

However, Kopke could not count on research resources on par with his foreign colleagues. Some of them, such as the German physicians Robert Koch and Paul Ehrlich, and the French Alphonse Laveran, had received the Nobel Prize in medicine in 1905, 1908, and 1907 respectively. The Portuguese physician himself had visited and recognized the superior resources available at the foreign tropical medicine institutions and their laboratories. Nevertheless, Kopke built on the work of his peers and relied on the international network of tropical medicine to advance his research on sleeping sickness. However, Kopke's research needed clinical cases, and it was necessary to bring patients to the metropole.

Sending Patients to the Colonial Metropole

At the beginning of the twentieth century, the physician Alberto de Souza Maia Leitão (1901) claimed that the causes of sleeping sickness were mostly unknown. The First Medical Mission to Portuguese West Africa did not identify the disease's etiological agent, speculating instead that a streptococcus might cause the illness (Kopke 1915: 16). To continue studying sleeping sickness, Ayres Kopke relied on the arrival of patients affected by the illness to the Colonial Hospital of Lisbon, created in tandem with the School of Tropical Medicine on April 24, 1902. According to the royal legislation that established the Colonial Hospital, the overseas provinces' municipal chambers had to provide an annual subsidy of 1% of their revenue for the School and the Hospital (*Carta de lei de 24 de abril de 1902)*. The Colonial Hospital's wards were considered dependencies of the School of Tropical Medicine (Escola de Medicina Tropical 1903: 9). Since 1904 the tropical medicine classes had been held in the Colonial Hospital's facilities (Azevedo 1958).

The Overseas Directorate General [*Direção Geral do Ultramar – DGU*] official letter number 567, September 11, 1903, ordered Angola's health teams to "collect samples" of certain tropical diseases. The DGU required human cases of sleeping sickness, filariasis, and ancylostomiasis, among other diseases, to "serve for study in Lisbon's School of Tropical Medicine." However, it was difficult to find subjects who were willing to travel to the metropole. Documents available at the Overseas Historical Archive in Lisbon reveal the obstacles the colonial health officers faced to fulfill the metropolitan orders to obtain the "samples" for the Colonial Hospital.

The health officer of Pungo-Andongo, José Maria da Silveira Montenegro, claimed several factors prevented the African patients' travel to Portugal. Some were contract workers, and their employers opposed their travel; others did not want to leave their families and land. Additionally, Montenegro highlighted that the "indigenous" individuals were suspicious of the officers' intentions (*Do delegado de Saúde de Pungo-Andongo* 1903).

In an official notice from November 2, 1903, the health officer of Alto Dande, Sérgio Moreira da Fonseca, communicated the following:

> That the ill-affected persons in conditions to serve as samples in the hospital of tropical medicine flatly refused to abandon their native land and to surrender willingly to the administrative authority; - That the refusal was reinforced by their employers who recalled the inviolability of their contracts; - That the Blacks are not in the custody of this office because they farm the land and their families oppose emigration to the hospital of colonial medicine (*Do delegado de Saúde do Alto Dande* 1903).

In his turn, the health officer of Ambaca claimed to have sent a few patients in compliance with the order of October 12, 1903, of the Health Department [*Repartição de Saúde*] of Angola, São Tomé, and Príncipe. Nevertheless, he added that:

> If more clinical cases have not yet been sent than those which are necessary for the Colonial Hospital, it is because I have not been able to find them in the official health clinic and because the sick in the private clinic do not wish [to go], and I suppose I cannot force them to abandon their lands and families to receive treatment in Lisbon (*Do delegado de Saúde de Ambaca* 1903).

Antônio da Cruz Rodrigues dos Santos, health officer of Dondo, sent a letter to Luanda's office informing he would soon hand over two persons affected by "hypnosis" for the chief of Dondo's Council to send them to the hospital in Luanda (*Do delegado de Saúde do Dondo* 1903). In turn, the health officer of Benguela informed that "the patients referred to in the official letter of the DGU have not been sent because it was impossible to obtain them" (*Do delegado de Saúde de Benguela* 1903).

In July 1904, Ayres Kopke had arrived in Luanda as a member of a medical-scientific mission. The physicians Correia Mendes, Damas Mora, Silva Monteiro, and Bruto da Costa also integrated the mission to Angola and the islands of São Tomé and Príncipe to research beriberi and sleeping sickness. The medical doctors concluded the mission in September, and by mid-October Kopke had returned to Lisbon.

During the stay, Kopke observed many patients suffering from different stages of sleeping sickness and some suspected cases (Kopke 1905). However, he also had difficulties obtaining "samples" to send to the Colonial Hospital in Lisbon. About a seven-year-old ill boy, Kopke wrote: "I tried to make this ill [boy] get to Lisbon, but I could not; his condition worsened during the trip, he died in 09/27/1904, before reaching Santiago de Cabo Verde, his body thrown at the sea, therefore without autopsy" (Kopke 1905: 19).

Eight-year-old Antónia's condition worsened after the lumbar puncture performed in Luanda, and Professor Kopke could not board her onto the ship to Lisbon.[9] She died on September 22, 1904. Corrêa Mendes, the physician director of the Bacteriological Laboratory of Luanda, performed an autopsy in Antónia's body and shipped a sample of her brain to Lisbon. Additionally, Mendes likely was the sender of Beatriz's brain samples, another patient who had died on October 19, 1904 (Kopke, 1905). There are no records of any consent or authorization provided by the patients or the "donor" families regarding the samples sent to Portugal.

Like Correia Mendes, Damas Mora was a physician based in Angola who sent blood and other samples from African patients to Kopke in Lisbon. The shipment of human bodily material, without any genuinely informed consent of the patients or their relatives, was fundamental for the progress of Professor Kopke's etiological research on sleeping sickness, who recognized the valuable collaboration of the overseas physicians to the research (Kopke 1905: 40-41).

During the 1904 mission, Ayres Kopke observed six patients on Príncipe Island, four showing evident symptoms and two suspected cases. In Luanda, at the Maria Pia General Hospital, Kopke examined 30 "hypnotics" or "sleepy," as physicians referred to the patients of African trypanosomiasis due to the symptom of somnolence, coming from different parts of Angola (Kopke 1905: 26). Of the 30 cases, 15 were 18-year-old or younger. Among them, there was 11-year-old Maria,

who was sent to the Portuguese capital and remained hospitalized for a few weeks in the Colonial Hospital of Lisbon, where she died in November 1904. Luiza, eight years of age, passed away in the same hospital two months after arrival. In Luanda, Luiza was already incapable of responding to fellow patients' conversations due to the advanced stage of the disease. Still, she was sent to Lisbon and spent her two final months away from home in silent suffering and morbidity. There is no record of the parents' authorization regarding the underaged children sent to the Maria Pia Hospital in Luanda or the Colonial Hospital in Lisbon.

Kopke's notes are unclear about how many patients were embarked from the colonies to Portugal following the 1904 medical mission. Nevertheless, according to the physician's report (Kopke 1905), the voyage to Lisbon was challenging. Bartolomeu's situation, for instance, worsened significantly during the trip, and he died in the Colonial Hospital of Lisbon on October 25, 1904. A few of the patients held on well through the journey to Portugal; that was João Bernardo and Domingos's cases. The two adult men remained in relatively good health in their first weeks in the metropole after their arrival on October 8, 1904. Nevertheless, João Bernardo succumbed in early November and Domingos in February. 13-year-old Deolinda had also completed the journey to Lisbon but passed away on January 10, 1905. Kopke still performed a lumbar puncture in Deolinda's corpse to detect the presence of trypanosomes in the cerebrospinal fluid (Kopke 1905: 19).

Other patients transported to Lisbon on the same voyage faced similar fatal endings. João Francisco completed the journey in stable conditions, but the illness continued its fatal progression. He died on November 28, 1904. Joaquim, an elder, and veteran of the Bailundo campaign (1902), also survived the trip without significant health issues. However, after a few lumbar punctures during the therapy at the Colonial Hospital in Lisbon, the former combatant Joaquim, already unable to stand out of bed, refused further treatment. He died on January 21, 1905. Before performing the autopsy, Kopke completed the last lumbar puncture on the cadaver to analyze the spinal fluid. The analysis did not detect trypanosomes but rare diplococci (Kopke 1905: 18–21).

Far from their relatives and friends, the patients faced a new diet, a diverse climate, and stringent hospital regulations. The hospital's statute envisaged punishment, including social isolation and meal suspension, due to unruly behavior from the patients. Furthermore, the hospital routine forced patients to adapt to a schedule that included a quiet time at the end of the day, when social life usually intensifies in tropical regions. Such social and cultural constraints stemming from hospital internment may have affected the patients' immunity, worsening the health condition of the "hypnotics." Besides the lethargy caused by the disease, there was the melancholy derived from exile.

Experimentation on Human Beings

In 1905, the German pharmaceutical company Bayer initiated the commercialization of Atoxyl (p-aminophenyl arsenic acid), an organoarsenic compound employed to treat skin diseases, syphilis, and malaria. Kopke tried Atoxyl on the Colonial Hospital's patients in mid-1905. He had pioneered the drug's use in humans, with the results publicized in the International Congress of Medicine, held in Lisbon in April 1906. As he stated, it was the "School of Tropical Medicine the first to use Atoxyl to treat the patients and publish the experiment's notes regarding the therapeutic for sleeping sickness" (Kopke 1911: 9).

In addition to malaria, beriberi, and other tropical pathologies, sleeping sickness was Kopke's preferred subject and the one to whose therapy he dedicated his entire medical research career (Amaral 2012: 1281). In his synthesis of the progress in the studies of the etiology, treatment, and prophylaxis of sleeping sickness, Kopke claimed that the mark "of a true progress in the therapeutics of human trypanosomiasis was the use of Atoxyl" (Kopke 1911: 9). In Kopke's probing for the optimal drug combination to cure sleeping sickness, the Portuguese physician experimented with Atoxyl and derived drugs' posology and employed experimental treatments in human beings.

In 1907, two years after pioneering the use of Atoxyl, Kopke tried Atoxyl-based compounds to treat trypanosomiasis, attempting to prevent the parasite from adapting to the harming agents (Kopke 1907a: 51). To avoid trypanosomes developing resistance to the Atoxyl-based treatment, Kopke searched for the "optimal combination" (Ehrlich 1907), that is, a chemotherapeutic cocktail comprised of a variety of medicated substances. The treatment with the organic arsenical drug, he continued, was advantageous from a prophylactic perspective because eliminating the trypanosomes from the bloodstream prevented the infection of more tsetse flies. Kopke agreed with Patrick Manson's observation about the coincidence between the geographic distribution of human African trypanosomiasis cases and the occurrence of *Glossina* flies. One of the objectives of the 1904 mission to Angola and São Tomé and Príncipe Islands was to study such geographic coincidence (Kopke 1905:5). Following developments in tropical medicine in other European empires, Portuguese physicians defended prophylactic campaigns against *Glossina* flies, such as deforesting and mass administration of Atoxyl ("atoxylization") of the population in areas where *Glossina* flies were endemic.

In 1907, Lisbon's School of Tropical Medicine's journal published the portrait of a patient treated with Atoxyl. His name was Joaquim Semedo, born in Santiago de Cabo Verde (Kopke 1907: 427). J. A. Cruz, the School of Tropical Medicine's photographer, took Joaquim's portrait. In the session of June 18, 1907, of the International Conference on Sleeping Sickness, London, Kopke warned

the attendees about visual perturbations occurring in patients treated with Atoxyl. However, Alphonse Laveran and Paul Ehrlich relativized their Portuguese colleague's warning and highlighted the drug's efficacy, particularly for prophylactic purposes (Neill 2012: 175–176). In 1906, Alphonse Laveran had participated in a mission to investigate sleeping sickness in the French Congo. In the following year, he was awarded the Nobel Prize in Medicine. The Nobel Prize granted Laveran relevant funding to improve his tropical diseases laboratory, associated with the Pasteur Institute, and establish the Exotic Pathologies Society of Paris, which he chaired until 1920. Laveran (1905, 1906, 1908) was then a leading authority regarding clinical drug trials for treating human African trypanosomiasis, and French tropical medicine relied on a robust network of laboratories and medical missions to the colonies. Additionally, French tropical medicine could count on the multiplication of branches of the Pasteur Institute in the colonies: Tunis (1893), Argel (1894), Tananarive (1898), Brazzaville (1908), Kindia (1922), and Dakar (1923).

By the 1907 International Conference on Sleeping Sickness, the German physician Robert Koch had also employed Atoxyl in patients in East Africa. Although some serious effects occurred, such as sight impairment in dozens of patients, the 1905 Nobel Prize in medicine awardee continued to administer different dosages of Atoxyl in African patients suffering from sleeping sickness (Neill 2012: 115). In German East Africa, colonial authorities reported many cases of blindness following Atoxyl-based treatment (Eckart 1997: 162). In the Independent State of Congo, Belgian authorities debated the adoption of Atoxyl in the prophylaxis or treatment of sleeping sickness following visual impairment problems due to the substance's use (Lyons 1988: 111). For Joseph Barona (2019), "the colonies were an open and unrestricted field for research with human beings." Nevertheless, this was not only a matter of the colonies' territories, as many clinical trials with arsenic compounds were performed in colonial subjects at the Colonial Hospital of Lisbon.

Likewise, the experiments with Atoxyl in Lisbon had not indicated a correct posology, and often incurred relevant side effects, notably severe visual impairment (Magalhães 1909, Gama 1910). The improvement of sleeping sickness therapies depended on scientific research on each of the disease's phases of symptomatology and a better understanding of the disease's etiology. However, new clinical cases were necessary for the progression of the research. Despite disposing of fewer resources than the other scientists from the leading colonial empires to conduct research in Africa, Professor Kopke could study dozens of cases just a few meters from Lisbon's School of Tropical Medicine, at the Colonial Hospital. Most of the clinical cases were African patients.

Portuguese physicians had observed ophthalmic perturbations since the start of Atoxyl-based treatment at the Colonial Hospital in 1905 (Kopke 1907a, 1907b; Magalhães 1909; Pinto 1910). The patient José Mendes checked into the Colonial Hospital of Lisbon on January 9, 1906. After a few months of therapy, having received 13 injections totalizing 23g of Atoxyl, the patient became blind (Kopke 1907a: 12). Bartolomeu, born in Príncipe Island, had his right eye's optical nerves severely atrophied. He had received 22g of Atoxyl in seven months of treatment (Kopke 1907a: 14, 1924: 11), despite never having presented "muscle tremors nor somnolence, being able to walk easily and speak correctly" (Kopke 1924: 10). Another patient, Quilundo, lost her sight after four months, during which she received 17 injections equivalent to 20.5g of the drug (Kopke 1916: 78). Between 1905 and 1907, 20% of the patients treated with Atoxyl at the Colonial Hospital of Lisbon developed ocular lesions (Kopke 1907a: 49).

Ayres Kopke thought the ocular problems were not directly related to the drug dosage because some patients had their sight impaired despite having received lower dosages than others treated with Atoxyl in higher dosages. In fact, Kopke seemed to agree with his colleagues Gama Pinto and José de Magalhães in believing that "the pathologic alterations, caused in some patients by trypanosomiasis itself, may constitute a cause that promotes Atoxyl's noxious action" (Kopke 1911: 11). Members of Kopke's medical team, Gama Pinto and José de Magalhães, had published papers about optic lesions in "hypnotics" treated with Atoxyl (Magalhães 1909, Pinto 1910). Likewise, in the French Congo, the observed side effects of Atoxyl treatment were many, but physicians believed the overall health conditions of the "Atoxylized" rather than the drug itself caused the problems (Martin, Leboeuf and Roubaud 1909).

Sight problems were not the only severe side effects of Atoxyl or Atoxyl-derived drugs. Cainga, a female laborer born in Ganguella and brought to Lisbon from the Príncipe Island, arrived at the Colonial Hospital on October 6, 1906. She received Atoxyl injections between October 1906 and March 1907. Cainga's health conditions "improved significantly" after March (Kopke 1907a: 32), but she got pregnant during the treatment and suffered a miscarriage in May 1907. After it, her health worsened, with fevers, trembling, walking difficulty, and persistent somnolence. Atoxyl treatment was resumed on July 13, and reduced dosages were administered on July 20 and 29 (Kopke 1907a: 32-33).

Some of Kopke's experiments were fatal. Patients died soon after receiving injections of Beurmann, Monwyrat, and Tanon's Galyl, an organoarsenic compound derived from Atoxyl. The reported cases suggest the cause of death of some of the patients was the Galyl therapy rather than sleeping sickness itself. Doctor Kopke recognized at least one of such cases: "I believe the subarachnoid injection caused the death of patient CXXVII" (Kopke 1916: 111).

Among the patients to whom Kopke prescribed the new therapy, a woman infected in Príncipe Island died on February 13, 1914, four days after receiving a Galyl injection. The woman showed "violent delirium; she thought herself threatened by a Black man who wanted to burn her with a red-hot piece of iron, screamed intensely and sought to jump out of bed all the time" (Kopke 1916: 109).

A small group of Kopke's hundreds of sleeping sickness patients in the early twentieth century have their portraits preserved in the archives. Three of the 11 patients whose portraits were found in the envelope among Kopke's papers left additional traces in the physician's notes: Paulo Borges and José Borges, photographed on January 14, 1914, and Francisco Fernandes, portrayed on March 4, the same year. Paulo and José Borges were from Santiago de Cabo Verde, probably agricultural laborers, but infected on Príncipe Island. Both received Galyl injections during their hospital stay. José Borges left the Colonial Hospital on February 16, 1914, and returned to his homeland after refusing another lumbar puncture. Paulo Borges also rejected a lumbar puncture and wanted to leave the hospital. He was discharged on February 22, 1914, and returned home.[10] Francisco Fernandes, on the other hand, passed away in the 24 hours post-injection. Professor Kopke was unable to undoubtedly attribute the cause of death to the Galyl injection (Kopke 1916: 109–111).

The Portuguese professor and physician recognized the limitations of some of the drug trials: "Evidently, the results were not encouraging at all. What is the reason for the failure? Is the Galyl dose too high?" (Kopke 1916: 112). The extent to which Kopke's experiments threatened the lives of those who already had few chances of cure is noticeable.

In 1910, Bayer introduced Salvarsan - the commercial designation of Arsphenamine – in the pharmaceutical market (Swann 1985, Riethmiller 2005). Derived from Atoxyl, Salvarsan was developed in Germany by Paul Ehrlich and employed to treat syphilis (Jeanselme 1913) and for human African trypanosomiasis prophylaxis (Aubert, Heckenroth and Blanchard 1913). In 1911, Kopke tried Salvarsan in 15 patients of the Colonial Hospital. Four survived. The survivors returned to Santiago de Cabo Verde on a subsidized voyage. One of the deceased died soon after an intravenous injection, "the only one [and last] the patient received" (Kopke 1916: 105).

Later, Paul Ehrlich improved the drug and called it Neosalvarsan. After Neosalvarsan's promising results in syphilis treatment in 1912, Kopke tried the drug on sleeping sickness patients between 1913 and 1914. In Kopke's evaluation, "the cases I treated with Neosalvarsan, subarachnoid injections, subarachnoid injections followed by intravenous injections, and only intravenous injections, did not improve; instead, the use of the drug may have been harmful" (Kopke 1916: 108).

Ayres Kopke had applied intravenous injections of Neosalvarsan to treat a patient since late November 1912. By mid-February 1913, the patient began demonstrating psychological disturbances and "soon after, turned completely mad" (Kopke 1916: 108). The patient was transferred to a sanatorium, where he died on March 25, 1913. Again, the Kopke recognized that some of the therapeutical procedures he had followed did not yield satisfactory results: "The mercuric drugs I employed in frictions and by gastric means (the intravenous injections had not been disseminated as common practice yet) did not provide good results, and it seems to me that they may have caused harm in some cases" (Kopke 1924: 3).

The Human Trials' Mitigated Results

Ayres Kopke's reports, papers, and research results demonstrate his obstinate search for a curative therapy for sleeping sickness. However, his medical experiments with Lisbon's Colonial Hospital patients depended on a foreign chemical arsenal, mainly from Germany, because Portugal's pharmaceutical industry was still incipient. Kopke's scientific agenda had to adapt to a series of contingencies, such as the reduced number of clinical cases in the Colonial Hospital, the lack of resources for importing supplies, poor laboratory infrastructure, and participation in several administrative functions.

The advances in therapeutics and prophylaxis in other countries' tropical medicine allowed Kopke to fine-tune his research on sleeping sickness. The professor's participation in the international scientific community, correspondence with foreign peers, and the constant evaluation of the results published in scientific journals and international events contributed to adjusting the therapies experimented in the Colonial Hospital's patients. The results of Nicolle and Mesnil (1906a, 1906b) and Ehrlich's (1907), for instance, contributed to the execution of new clinical trials in the School of Tropical Medicine's laboratories and the treatment of the Colonial Hospital patients (Kopke 1907b, 1907a). By then, professor Kopke was aware of his chemotherapy experiments' poor results: "All patients have already died, except one whose future, despite some recent improvement, will likely be as lugubrious as the others'" (Kopke 1905: 64). Notwithstanding the physician's fatalist prediction, experiments with human subjects, treated as human guinea pigs, continued in Lisbon's Colonial Hospital.

During the first Congress of Tropical Medicine of West Africa, held in Luanda, 1923, professor Kopke synthesized the most important results he obtained in two decades of research. The evaluation of his clinical experiments demonstrates that he sought to obtain an effective chemotherapeutic against sleeping sickness. The colonial power ordered the health officers to send patients to the Colonial Hospital to support Kopke, allowing him to perform experiments on human

beings (*Ofícios para todas as províncias ultramarinas* 1903). Still, experimental medicine's bioethical principles seemed not applicable to all human groups, even more at a time when the Africans sent to Lisbon's Colonial Hospital were neither voluntary nor professional human subjects.[11]

Apart from prophylactic methods, the isolation of patients yielded controversial results in many colonies. In São Tomé, some of the patients discharged from Lisbon's Colonial Hospital were kept in isolation. After treatment with Atoxyl through hypodermic injections, some of the patients returned to the Islands to be sheltered from reinfections and placed under medical surveillance to monitor the drug treatment result. However, little information about them reached back Kopke and his team until mid-1912. Then, Kopke informed he would send the portraits of all the patients to the colony to obtain information about those discharged from the Colonial Hospital sent back to Santiago de Cabo Verde.

In addition to the Africans who had returned to their lands, a small number of Portuguese patients left the Colonial Hospital, abandoning treatment, and Kopke was unable to determine whether they had been cured. Since Kopke could not identify the outcome of those patients' treatment, he chose to ignore their cases in the evaluation of Atoxyl-based therapy. Of the 74 remaining cases that based Kopke's verdict about Atoxyl, only seven survived. Kopke concluded that the drug and other arsenical compounds had limited efficacy against advanced stages of the disease when trypanosomes were present in the cerebrospinal fluid (Kopke 1907b: 50–51).

In 1923, professor Kopke expected to start trials with a brand-new drug. It was Bayer 205, the commercial designation for Suramin. The medicine had been tested in laboratory guinea pigs and humans to treat patients in the earlier stages of the disease (Mayer & Zeiss 1920, 1921a, 1921b; Low & Manson-Bahr 1923). Responding to Kopke's request, the German pharmaceutical company promised to send him samples of the new drug. The Portuguese physician hoped to test the drug in patients who had recently arrived from the Island of Fernando Pó, in the Gulf of Guinea. Since Suramin seemed to have a more substantial parasiticide effect on the trypanosomes than Atoxyl and other arsenicals, Ayres Kopke expected to obtain more favorable results in the patients whose central nervous system contained trypanosomes (Correa 2020: 1140).

Medical Photography and Portrait as Evidence

The experiments with human beings at the Colonial Hospital of Lisbon indicate that many from them were Africans sent to the metropole in response to the School of Tropical Medicine's demand for clinical cases. Depicting the ill,

colonized, and racialized bodies, the portraits of the Africans reveal the human faces of an early twentieth-century experimental medicine whose human subject research ethics was flawed. Additionally, the Africans of the Colonial Hospital of Lisbon's photographs are evidence of a history of tropical medicine that suggests correlated experiments in other imperial capitals.

At the end of the nineteenth century, physician Albert Neisser, professor at the University of Breslau, inoculated women with a serum, without their consent, in a clinical trial for the treatment of syphilis. The German press treated the case as a scandal. The controversy among physicians, legal experts, and German politicians resulted in the first regulations about scientific experiments with human beings (Benedek 2014). The Prussian decree of December 29, 1900, has been referred to as the first legislation about informed consent in clinical trials (Reuland 2017, Araújo 2017, Benedek 2014, McNeill 1998).

By then, medical research with human beings was most often conducted in lower-class individuals, such as the indigent, prostitutes, prisoners, and proletarians. According to Renata Soares Santos:

> Most drug and vaccine trials happened in prisons, orphanages, nursing homes, and psychiatric institutions. In Pasteur's research, vaccines were administered to individuals sentenced to death (Benchimol 2005: 63). Another important target for research with human beings were hospitals, which contained in the same space the human and microbiological material required (Santos 2019: 229).

Like the prisons, nursing homes, and orphanages in the metropoles, the colonies were an immense living laboratory (Tilley 2011). Historian Jürgen Zimmerer (2020) claims that the bacteriologist Robert Koch, aware of the risks of elevated doses of Atoxyl to human health, still tested the drug in African subjects. In 1902, the publication of the book *Medical Ethics* [*Ärztliche Ethik*], of the Berliner psychiatrist Albert Moll, fostered additional debate on the issue of consent and included reference to the Albert Neisser case and the 1900 Prussian decree (Reuland 2017: 18). Therefore, experiments with human beings were already debated in books, pamphlets, petitions, and articles in the press, even though a consensus on clinical trials with human beings had not been achieved yet. Nevertheless, there was little progress in the debate about the ethics of research with human beings in Germany's Republic of Weiner (Reuland 2017), Brazil's First Republic (Santos 2019), or in early twentieth-century Portugal (Castro 2013).

Issued in the mid-twentieth century, the Code of Nuremberg (1949) represents a milestone in the issue of clinical trials because it determines a set of ethical

principles to guide research and experiments with human beings (Santos 2019: 229, Araújo 2017: 13; McNeill 1998: 372). Nevertheless, the difficulty of obtaining genuinely informed consent persists. As shown by anthropologist Roberto Abadie (2010), the protection of the participants in medical research experiments remains a challenge to the deontology of medical research. This challenge of the present time is – perhaps even more due to the new coronavirus pandemic – what makes us more sensitive in the face of the "human guinea pigs'" portraits because they remain evidence of the experiments with human beings at the Colonial Hospital of Lisbon.

While discussing the evidential paradigm, Carlo Ginzburg (1989) approximated history's method compared to that of medicine. Clinical studies have featured medical photographs from the beginnings of photography in the nineteenth century. The photographs may constitute evidence not only of an illness or anomaly but also of practices and experiments with human beings. To a historian, the photograph may become an element of conviction, a document.

Among Kopke's papers and reports, the portraits of 11 Africans reminded me of Roland Barthes' classic essay, more precisely of the "return of the dead," "that rather terrible thing" that all photographs contain (Barthes 1981: 9). Professor Kopke could count on human beings for his clinical trials to fulfill his program, whose main objective was to eradicate the trypanosome and obtain the complete cure of sleeping sickness. The School of Tropical Medicine's professor tested drugs, different dosages, and innovative methods in the ill bodies.

Based on the information available about Lisbon's Colonial Hospital patients, it is possible to trace the outcome of three patients out of the 11 portraits found in the envelope labeled "*Photographias dos pretos*" or "photographs of the Blacks." Paulo Borges and José Medeiros returned to their homeland. Francisco Fernandes died 24 hours after receiving an injection. The portraits of the 11 Africans are like ghosts, like shadows of themselves. The spectrum is nothing more than an image, the "return of the dead," in Roland Barthes' words. The lugubrious fate the patients would not escape from seems reflected in their retinas. They look at the spectators who, facing the others' suffering (Sontag, 2004), ask themselves if the portrayed persons knew they had been condemned to death in the name of science. Their portraits remain to us as evidence of histories interwoven in the colonial empire's structure and as traces of what is beyond the image of the pain of others.

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Funding Acknowledgment

The author thanks the National Council for Scientific and Technological Development (CNPq) for the research productivity grant (Process No. 305090/2023-2).

Endnotes

1 [*] This work was supported by Brazil's *Conselho Nacional de Desenvolvimento Científico e Tecnológico* (CNPq), grant code 303543/2020-5 and *Coordenação de Aperfeiçoamento do Pessoal de Nível Superior* (CAPES), under grant agreement 88881.171249/2018-01. Special thanks are due to the anonymous reviewers for their helpful suggestions for the text.

2 According to Daniel R. Headrick (2014), "Sleeping sickness is a parasitic disease transmitted by tsetse flies. An infected person has joint pain, headaches, and a fever, then becomes drowsy. The infection also causes a swelling of the lymph nodes at the back of the neck. Once the pathogen crosses the blood-brain barrier and infects the central nervous system, the patient becomes lethargic or insane, then goes into a coma, and finally dies. There are two varieties of sleeping sickness, and they affect their victims very differently. One, caused by the protozoan *Trypanosoma brucei gambiense*, is a chronic disease that can persist for months or even years with occasional mild symptoms before it enters the central nervous system. The other, caused by *T. b. rhodesiense*, is acute and can cause death within three to 12 months of infection."

3 By the end of the nineteenth century, the *British Medical Journal* readers were mostly physicians and other similar Victorian society professionals. Although spreading the ideology of the "white men's burden" was not the objective of the publication of ill bodies' images, the tropical medicine journals contributed to the ideology's consolidation.

4 See Castro (2013) for a thorough discussion of the medical missions of the Lisbon School of Tropical Medicine and their role in the projection of Portuguese authority in the African colonies.

5 In an article published in *Medicina Contemporânea* about experimental chemotherapies for Human Trypanosomiasis, Professor Ayres Kopke kept anonymous a Portuguese man showing clinical signs of sleeping sickness: "J. F. (case n. LXXXVI, my series), white man, born in Alcaçoba (Portugal), 28 years of age, left in August for São Tomé, where he stayed for ten consecutive months, in the fields of Ribeira Peixe and Santa Cecília" (Kopke 1909: 3).

6 According to the regulations of the Colonial Hospital of Lisbon, before arriving at the infirmaries, the patients were bathed and received hospital clothing (Hospital Colonial de Lisboa 1903: 104).

7 In his essay about photography, Roland Barthes referred to the *punctum* in the young death convict Lewis Payne's portrait. Alexander Gardner photographed the youngster, sentenced to death by hanging, in his prison cell in 1865.

8 Doctors believed hospitalization in the metropole, rather than staying in their homeland, was always better for the Africans with serious illnesses. Patrick Manson, a leading doctor of the tropical medicine establishment and a professor at the London School of Tropical Medicine, for instance, believed that hospital care in the metropole was favorable even for the treatment of sleeping sickness (Manson 1898: 1672).

9 Lumbar punctures were performed in sleeping sickness patients to detect the presence of the trypanosome in the cerebrospinal fluid. Based on the cerebrospinal fluid analysis, blood and ganglion fluid tests, physicians could better estimate the stage of the disease and adjust the drug treatment accordingly.

10 A patient's refusal of a lumbar puncture does not imply they had not been submitted to the chemotherapy. In case of refusing a lumbar puncture, a patient might be discharged from the hospital, but that does not imply he or she had been cured from sleeping sickness.

11 In his study about professional human subjects in the pharmaceutical industry's clinical trials, anthropologist Roberto Abadie (2010) discussed the related legislation and bioethics. After the 1978 restrictions the use of prison inmates in clinical tests in the United States, pharmaceutical companies needed an alternative to the lack of volunteers for testing new drugs. Companies began recruiting people in exchange for payment, favoring the emergence of professional human subjects.

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