Devil's choice: Ricardo Jorge, the 'Spanish flu' pandemic and the pneumonization of plague, 1899-1933

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SUMARIO: 1.—Introduction. 2.—Early (dis-)encounters with the plague. 3.—The making of an 'influential' Jorge. 4.—Jorge's pneumonization of the plague. 5.—Conclusions.

ABSTRACT: The Portuguese hygienist Ricardo Jorge gained some international recognition for his management of the plague outbreak that struck the city of Porto in 1899. However, it would be his experience of the "Spanish flu" pandemic of 1918-1920 that played a key role in his rejection of the rat-flea model of transmission then in force in favor of the greater relevance of interhuman trans mission. This paper aims to explain the evolution of his medical-epidemiological conception of plague, on one hand by analyzing Jorge's institutional background in Portugal and within international sanitary organizations (Organisation Inter nationale d'Hygiène Publique) and on the other hand by examining his scientific contribution, based on epidemiological and historical data, to the "pneumoni zation" of the disease, especially in relation to emergence mechanisms of epi demic outbreaks (epidemiogenesis). In a series of publications running from 1919 to 1933, Jorge made key contributions to the global redefinition of one of mankind's most dreaded scourges.

KEYWORDS: Ricardo Jorge, Spanish flu, pneumonic plague, Portugal, Organisation Internationale d'Hygiène Publique.

1. Introduction (*)

In March 1919, the Portuguese hygienist Ricardo Jorge (Porto, 1858-Lisbon, 1939) presented a long scientific report to the select audience that attended one of the last meetings of the *Commission Sanitaire des Pays Alliés* (Inter-Allied Sanitary Commission, IASC) in Paris[1]. The IASC was an assembly of military and naval medical representatives of Great Britain, France, Italy, the United States, and twelve other nations and territories fighting or collaborating against Germany and its allies, whose main goal had been, according to Anne Rasmussen, to assess the epidemic risks associated to the war and provide swift responses against them[2]. In this sense, Jorge had been charged with preparing a "preliminary report on influenza in Portugal that brought forward the recent results of epidemic observation among us [the Portuguese]"[3]. He was certainly in a good position for that task since, as higher sanitary authority in Portugal, he had led the fight against the disease. Jorge claimed IASC delegates praised his effort in "sketching the generic features of the 1918 waves"[4], the first, milder wave of "Spanish flu" of June-July and the much more severe "pneumonic influenza" of August-November[5]. At one point in his report, he explained that the latter's massive and fulgurant mortality led many Portuguese to believe that they were facing plague, and, more precisely, the pneumonic form of that disease, which had jumped to international headlines after the Manchuria epidemic of 1910-1911. While criticizing the confusion, Jorge admitted that, in clinical terms, "between pneumonic plague and pneumonic influenza, it is the devil's choice"[6].

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1. Ricardo Jorge, *La grippe* (Lisbonne: Imprimerie Nationale, 1919).
2. Anne Rasmussen, "Documenter la santé en guerre: l'internationale sanitaire interalliée, 1915-1919," *Bulletin de l'Institut Pierre Renovin*, 44, n.º 2 (2016): 103-118, pp. 106-107.
3. Letter from Ricardo Jorge to Portuguese doctors, Lisbon, July 1919, Espolio Ricardo Jorge (ERJ), Biblioteca Nacional de Portugal (BNP), Lisbon, Portugal.
4. Ibídem.
5. Jorge, *La grippe*, 9.
6. Ibíd., 16.

If it was impossible to choose between contracting one of these two diseases, Jorge would not succeed in opting for one of them from a scientific point of view either. This paper will explain why influenza and plague became intertwined in Ricardo Jorge's medical thinking and how this resulted in original contributions to the understanding of the latter's disease. In this way, we will add new perspectives to a history of modern plague that has been thoroughly revisited in the last two decades by authors such as Myron Echenberg, Pratik Chakrabarty, Robert Peckham, Christos Lynteris, Nicholas H. Evans, or Matheus Duarte da Silva, among others[7]. Ours is an eclectic approach that will build, on the one hand, on the well-established notion of "circulation", the consideration of scientific ideas, practices, and objects as products of the combination of elements mobilized from various connected localities and experiencing substantial alterations when relocated to different places[8]. In this article, we will deal with the circulation of the nosological category of "pneumonic plague" and the transformations it underwent during the global expansion of the Third Plague Pandemic from 1894 and, especially, after the Manchurian epidemic of 1910-1911. Ricardo Jorge did not create that concept but played a key role in its relocation and redefinition during the interwar period.

We will, on the other hand, rely on a "constructionist" approach to analyze science as intrinsically influenced by social, political, institutional, as well as

7. Myron Echenberg, *Plague ports: the global urban impact of bubonic plague, 1894-1901* (New York: New York University Press, 2007); Pratik Chakrabarty, *Bacteriology in British India: Laboratory Medicine and the Tropics* (Rochester: University of Rochester Press, 2012); Robert Peckham, *Epidemics in modern Asia* (Cambridge: Cambridge University Press, 2016); Nicholas H. Evans, "Blaming the rat? Accounting for plague in Indian colonial medicine," *Medical Anthropology and Theory*, 3 (2018): 15-42; Christos Lynteris, *Ethnographic plague. Configuring disease on the Chinese-Russian frontier* (London: Palgrave Macmillan, 2016); "*Pestis minor*: the history of a contested plague pathology," *Bulletin of the History of Medicine*, 93 (2019): 55-81; ed., *Plague image and imagination from medieval to modern times* (London: Palgrave Macmillan, 2021); *Visual plague. The emergence of epidemic photography* (Cambridge: MIT Press, 2022); Matheus Duarte da Silva, "Competition, controversies and microbial cultures: the development of the antiplague serum between Paris and India (1894-1899)," *Revue d'histoire des sciences*, 71 (2018): 49-77; "Between deserts and jungles: the emergence and circulation of sylvatic plague, 1920-1950," *Medical Anthropology*, 42, n.º 4 (2023): 325-339; and Shiori Nosaka, "Plague and the global emergence of microbiology, 1894-1920," in Matheus Alves Duarte Da Silva, Thomás A. S. Haddad and Kapil Raj, eds., *Beyond science and empire: circulation of knowledge in an age of global empires, 1750-1945* (New York: Routledge, 2023): 205-225.

8. Bruno Latour, *Pasteur: guerre et paix des microbes* (Paris: La Découverte, 2001); Kapil Raj, "Beyond Postcolonialism . . . and Postpositivism: Circulation and the Global History of Science," *Isis*, 104 (2013): 337-347.

biographical factors. Thus, we will highlight how Jorge's understanding of plague was conditioned by national politics in Portugal and wars in Europe; by the very different experiences of his fight against the plague epidemic in Porto and the influenza pandemic in Lisbon; or by his institutional insertion within the *Organisation Internationale d'Hygiene Publique* (OIHP) rather than in the part-ally, part-rival League of Nations Health Organization (LNHO). This emphasis in construction is nevertheless complemented by a consideration of the particular realities of plague in Portugal, with recurrent outbreaks of plague in the continent between 1899 and 1923, and with the Azores Islands presenting "the worst figures for any European territory" in the 20th century (2.159 cases diagnosed between 1908 and 1950)[9]. Finally, and most importantly, our approach will apply a diachronic frame of analysis. As stated in the introduction to this dossier, we take the influenza pandemic of 1918-1919 as marking the "point of no return" in the global emergence of the new disease landscape that would gradually unfold during the rest of the 20th century. But this change was both reflected and enacted by many other diseases, plague being one of the most important. Jorge's contributions to the "pneumonization of plague" would take over a decade to develop until its crystallization in the mid-1930s.

2. Early (dis-)encounters with the plague

Ricardo Jorge's figure has been revisited in the past two decades, mainly by Portuguese medical historiography. This interest has led to a reassessment of both its activities at the forefront of national public health, as well as those in international organizations and in traditional areas of Portuguese foreign influence such as Brazil[10]. A strong consensus has remained, nevertheless, on

9. Echenberg, *Plague ports*, 128; Henrique Ribeiro, "Pulgas e peste na Ilha Terceira. Um pequeno contributo para o seu melhor conhecimento" (Master diss., Universidade Nova de Lisboa, 1996).
10. Isabel Amaral, coord., *Percursos da Saúde Pública nos séculos XIX e XX – a propósito de Ricardo Jorge* (Lisboa: CELOM, 2010); Jaime Larry Benchimol, "Ricardo Jorge e as relações entre Portugal, Brasil e África: o caso da febre amarela," in Carlos Fiolhais, Décio Martins, Carlota Simoes, orgs., História da Ciência Luso-Brasileira: Coimbra entre Portugal e o Brasil (Coimbra: Imprensa da Universidade de Coimbra, 2013), 229-249; María de Fátima Nunes, "Ricardo Jorge and the construction of a medico-sanitary public discourse. Portugal and international sanitary networks", in María Isabel Porras Gallo, Ryan A. Davis, eds., *The Spanish Influenza Pandemic of 1918-1919. Perspectives from the Iberian Peninsula and the Americas* (Rochester: Rochester University Press, 2014), 56-71; Rui Manuel Pinto Costa, *Ricardo Jorge. Ciência, humanismo e modernidade*

the plague epidemic of 1899 in Porto being the key event in Jorge's biography, both personal and professional. The return of this old foe to Western Europe after nearly a hundred years of absence caused widespread fear throughout the continent. As head of the municipal health service, Jorge successfully identified the Yersin bacillus in the laboratory and implemented rat-killing, disinfection and vaccination measures in affected neighborhoods[11]. Several international scientific commissions endorsed his findings and measures —with fragments of his work *A peste bubónica no Porto* (1899) reproduced in their official reports— putting him on the international map of epidemic expertise. However, a shadow was cast by Porto authorities over Jorge following the decease of his close colleague Luís da Câmara Pestana, head of Lisbon's *Real Instituto Bacteriológico*, after taking samples from patients[12]. His support to the central government's decision to impose a strict sanitary cordon around Porto, which would last several months, sparked the outrage of its commercial elite, media, and general population, obliging Jorge to leave the city before the epidemic was even over. As soon as he arrived in Lisbon, he was nevertheless appointed *Inspector Geral dos Serviços Sanitarios* (from 1901, *Director Geral de Saúde Pública e Beneficencia, DGSPB*; from 1911, *Director Geral de Saúde Pública, DGSP*)[13], the highest post of the country's public health administration, which he occupied until 1928.

The first (dis-)encounter with plague was thus traumatic and paradoxical for Jorge, and we believe that, contrary to the above-mentioned widespread consensus, it impaired his relationship with the disease rather than encouraging it. His main original contributions, articulated around the notions of "sylvatic plague" and "pneumonic plague", would not arrive until the 1920s

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(Coimbra: Imprensa da Universidade de Coimbra, 2018); José Manuel Sobral, Maria Luísa Lima, "A epidemia da pneumónica em Portugal no seu tempo histórico", *Ler História*, 73 (2018), 45-66; Rui Mateus Pereira, "Ricardo Jorge, o mal-amado. Os serviços de saúde militar no quadro da Grande Guerra e da Gripe Pneumónica", in Helena da Silva, Rui Mateus Pereia, Francisco Bandeira, eds., *Centenário da Gripe Pneumónica: A Pandemia em Retrospetiva, Portugal 1918-1919* (Lisboa: Inspecção Geral das Actividades em Saúde, 2019): 55-84.

11. Ricardo Jorge, *A peste no Porto, 1899. Seu descobrimento. Primeiros trabalhos* (Porto: Typ. a vapor de Arthur José de Souza e Irmaos, 1899).
12. José Pedro Sousa Dias, "Medicina, ciência e laboratório," in Sérgio Campos Matos, Jorge Ramos do Ó, eds., *A Universidade de Lisboa nos Séculos XIX e XX* (Lisboa: Tinta da China, 2013): 651-717.
13. Jorge Fernandes Alves, Marinha Carneiro, "Saúde pública e política: do 'Codigo Sanitario' ao Regulamento Geral de 1901," *Cultura, Espaço e Memória*, 5 (2014): 27-43, p. 35.

and 1930s[14]. Before that, he remained longtime stuck to a conception of plague understood as essentially "bubonic plague" from a clinical point of view, caused by the bacillus identified by Alexandre Yersin in 1894, and transmitted from rats to humans through fleas as argued by Paul-Louis Simond in 1898, a general picture endorsed by the Advisory committee for the Investigations of Plague in India, as well as the International Sanitary Conference (ISC) of Venice (1897) and that of Paris (1903)[15]. This standpoint went right back to his experience in Porto. The turmoil that led to his hurried exit from the city prevented him from grasping the relevance of pneumonic forms and airborne transmission in the outbreak[16]. Pneumonic or pulmonary plague, whose clinical features had been long described, was by contrast highlighted by foreign commissioners such as the Spaniard Federico Montaldo. Montaldo believed it to have been the clinical form "causing the highest mortality [...]"[17] in proportion to the number of cases and the one causing the death of Câmara Pestana[18], whose case reminded him of the one famously occurred to the Austrian Plague Commission doctor Hermann Franz Müller in his laboratory of the Vienna Academy of Sciences in 1898[19].

Besides, if Jorge's management of the outbreak was praised by foreign colleagues, journals and media, it failed to grant him access to the select realm of international public health[20]. Expectations to convey a new ISC in short time did not materialize and the eleventh conference had to wait until 1903,

14. A recent study by Matheus Duarte da Silva has shown, for example, that the influential concept of "sylvatic plague" was not coined by Jorge until 1926. Silva, "Between deserts and jungles".
15. Eli Chernin, "Richard Pearson Strong and the Manchurian Epidemic of Pneumonic Plague, 1910-1911," *Journal of the History of Medicine and Allied Sciences*, 44 (1989): 296-319, p. 305.
16. *A peste bubonica no Porto* was published right after his exit from the city and before the outbreak was over. For those reasons, it contains no data about the most severe phase of the epidemic in October-November 1899, nor the total figures of sick and dead. David Manuel Guedes Pontes, "O cerco da peste no Porto - Cidade, imprensa e saúde pública na crise sanitária de 1899" (PhD diss., Universidade do Porto, 2020).
17. Federico Montaldo, *La peste bubónica en Oporto, 1899-1900* (Madrid: Establecimiento Tipográfico de Fortanet, 1900), 114.
18. Ibíd., 110.
19. Ibíd., 30-31.
20. Jorge's innovative bacteriological work and sanitary measures may have been discredited by his support to the sanitary cordon, which countered the international trend but continued a long national policy, as can be seen in Laurinda Abreu, "O último lazareto terrestre de fronteira: Vila Real de Santo António na 'segunda temporada colérica'" (1885/1886)", *Revista Portuguesa de Història*, LV (2024): 135-160.

with the Italian Rocco Santoliquido featuring then as rising young star in the hygiene firmament[21], with French support[22]. Jorge did not act as Portuguese representative[23] and he even publicly criticized its conclusions during the 15th International Congress of Medicine held in Lisbon in April 1906, where he deplored that, despite Simond's findings, "the [international] prophylaxis [still] rests entirely on the wrong idea of inter-human contagion"[24]. This statement also showed his continuing reluctance to give non-bubonic plague more weight in this period. Plague in general became a very minor issue for him, with no scientific presentation or publication on that topic until the end of WWI. As head of Portuguese public health, he could not of course ignore the outbreaks that periodically struck the continental territory and the Madeira and (especially) Azores islands between 1902 and 1916. The one affecting Porto in late 1904 and early 1905 caused some commotion —barely a month-long "it caused, in that short time, 31 victims of pneumonia" with a 90% mortality rate[25]— which probably stood behind his talk in the Lisbon congress. But his efforts towards health reform in the final years of the Monarchy[26] were not built upon the occasional threat of epidemics, but upon the constant damage infringed by tuberculosis, malaria, or typhoid fever[27]. Jorge and Portugal would again be absent from the meeting convened in Rome in 1907 to set up the OIPH, the first permanent international organization to fight "infectious diseases, notably cholera, plague and yellow fever"[28]. Santoliquido became the first president of the new organization[29].

21. Norman Howard-Jones, *The scientific background of the International Sanitary Conferences, 1851-1938* (Geneva: World Health Organization, 1975), 82.
22. Céline Paillette, "Épidémies, santé et ordre mondial. Le rôle des organisations sanitaires internationales, 1903-1923," *Monde(s)*, 2, n.º 2 (2012): 235-256, p. 242.
23. The representative may have been Thomas de Melo Breyner, the king's physician, who had already acted as member of the Portuguese delegation in the Venice conference of 1897. Maria Rita Lino Garnel, "Portugal e as Confêrencias Sanitárias Internacionais," *Revista da História da Sociedade e da Cultura*, 9 (2009): 229-251, p. 249.
24. Jorge's intervention was not published in the congress proceedings, but he alluded to it in a later publication: Ricardo Jorge, *Les bacilliféres de la Zaire et le système défensif contre le choléra par le contrôle bacteriologique* (Lisboa: Tipografia Mendonça, 1911).
25. Jorge, *Les pestilences*, 67-68.
26. Costa, *Ricardo Jorge*, 207.
27. "Bibliografia Ricardiana", accessed August 14, 2024, https://www.insa.min-saude.pt/wp-content/uploads/2016/12/Bibliografia_RJ.pdf
28. Howard-Jones, *Scientific background*, 86.
29. Paillette, "Épidémies", 246.

The establishment of a Republican regime in Portugal signaled the beginning of Jorge's return to epidemics. In a private letter written shortly after the revolutionary events of October 1910, he confessed that "revolution, cholera, plague [...] tear me away from the peace of books. Now I am just microbes and reforms"[30]. Cholera, however, stood out over plague both at the national and international level, the last expression of its 19th century prominence. In Portugal, the cases detected in Funchal, Madeira's capital, and onboard the *Zaire*, a Navy cruise sent to check the island's public order, more altered by revolution than by the disease, were however "merely bacteriological cases"[31]. The "*Zaire* bacillus" having "merely an attenuated or extinct virulence for humans"[32] in line with the El-Tor vibrio isolated in 1905[33], the main risk for the country's "sanitary defense"[34] were asymptomatic carriers, who could no longer be controlled with "the prophylactic measures contained in conventions and regulations" but required a new system of bacteriological surveillance. At the international level, outbreaks in several Eastern and Southern European countries led to a new ISC in Paris in November 1911. This time, Jorge was the Portuguese representative. Although he fell ill and could not attend in person, he stood "in constant contact by telegraph and letter" with his substitute Augusto Gonçalvez Braga, the sanitary officer of the port of Lisbon[35]. Jorge criticized Santoliquido for his resistance to acknowledge that "the detection of carriers by bacteriological control" should become the main prophylactic measure against cholera[36], but after the meeting, Portugal joined the OIHP[37] and he began to attend its semi-annual meetings in Paris until their interruption by WWI[38]. It was the start of a 25-year-long presence.

30. The letter was dated on November 28, 1910. Maria Manuela Gouveia Delille, Isabel João Ramires, *Correspondência. Carolina Michaëlis de Vasconcelos e Ricardo Jorge* (Coimbra: Universidade de Coimbra, 2021): 108.
31. Jorge, *Les bacilliféres*, 5.
32. Ibíd., 7.
33. John P. Davis, *Russia in the time of cholera. Disease under Romanovs and Soviets* (London: I.B. Tauris, 2018), 235.
34. Jorge, *Les bacilliféres*, 1.
35. António Augusto Gonçalves Braga, "A conferência sanitária internacional de París de 1911-12", *Arquivos do Instituto Central de Higiene*, II, fasc. 1 (1916): 17-65, p. 22.
36. Howard-Jones, *Scientific background*, 90.
37. "Siégeant à l'Office International d'Hygiène Publique depuis 1912 […]". Jorge, *Les pestilences*, V.
38. Costa, *Ricardo Jorge*, 86.

Meanwhile, plague remained in the background. In Portugal, the Madeira cholera was closely followed in October 1910[39] by a plague episode in Lisbon known as "the Alfama epidemic" because of its onset in that neglected neighborhood adjacent to the port. The disease arrived from the Azores —where it had become endemic— and caused a certain public alarm because a few people died of sudden pneumonic forms. Despite causing the deaths that cholera had not, this new encounter with plague did not alter Jorge's attachment to the bubonic identity of the disease. To the classic measures of isolation and disinfection, he just added a "rat and flea examination service at the Bacteriological Institute [of Lisbon] under direction of Prof. Annibal Bettencourt"[40] which performed over 8.000 rat autopsies during the epidemic[41]. Though only five showed signs of plague, providing scant evidence in favor of Simond's theory, Jorge kept the new service in function for a total of 52.206 exams in 1911[42].

At the international level, the onset of a big epidemic in Manchuria in December 1910-March 1911, with a toll of 60.000 dead, began to shatter prevailing assumptions. Autopsies by the American doctor Richard P. Strong showed pneumonic lesions without bubonic affectation, while research by the Russian Danylo Zabolotny or the Chinese Wu Lien-Tieh suggested that "rats and their fleas were not involved" in the origin and diffusion of the disease[43]. Debates erupted between those defending airborne transmission and those who, as Paul Simond, claimed that plague had been passed "person-to-person by human fleas, and that the epidemic subsided because the flea population declined"[44]. If not before, Jorge must have heard of these discussions during the 11th ISC of Paris, where, in the plague subcommittee presided over by Santoliquido, interventions by Zabolotny or the Chinese delegate Lin Boon Keng dealt with the Manchurian epidemic[45]. But the subcommittee remained focused upon deratization measures and their role

39. Jorge, *Les pestilences*, 27-28.
40. Ricardo Jorge, *Rongeurs et puces dans la conservation et la transmission de la peste* (Paris: Office Internationale d'Hygiène Publique, 1928): 89-90, p. 89.
41. "Peste en Lisboa", *Boletín oficial de la Secretaría de Estado de la República de Cuba*, 12 (1915): 185.
42. Jorge, "Rongeurs et puces", 89.
43. Chernin, "Manchurian epidemic", 299, 305.
44. Ibíd., 305.
45. Ministère des Affaires Étrangers, *Conférence Sanitaire Internationale de Paris, 7 novembre 1911-17 janvier 1912. Procès*-verbaux (Paris: Imprimerie Nationale, 1912): 479-534.

in preventing the international spread of the disease. The only Portuguese intervention followed the same path, with Braga reporting in Jorge's name to the other delegates that:

> In Portugal, an order by the General Health Directorate, dated October 21, 1910, establishes the examination of rats periodically captured in the magazines and harbors and the deratization of ships arriving from contaminated ports [...] The destruction of rats in cities is today carried out in Lisbon, Angra do Heroísmo [Azores] and Porto, and a ministerial decree of this year has extended its benefits to other ports in Portugal[46].

Plague would again strike Lisbon in October 1914, probably imported from Casablanca, in French Morocco, with 5 pneumonic cases in the Ajuda district[47], all of them dead, and 100 bubonic cases isolated at the Hospital do Rego[48]. New, sporadic cases and deaths occurred in 1915, 1916 and 1917[49]. They may have attracted more attention from Jorge, but were soon displaced by more urgent problems derived from Portugal's full involvement in WWI.

3. The making of an 'influential' Jorge

In a recent book published after the Covid-19 pandemic, David Arnold argued that "there are perhaps four or five ways in which one can structure an epidemic or pandemic narrative"[50]. One of them would be to locate that narrative "within a history of concepts and ideas —how certain ideas about disease have come into being, gained social traction and scientific authority, become hegemonic or reshaped the theoretical underpinnings of society and governance"[51]. This is a more complex formulation of what three decades earlier Paul Slack called the "shock effect" of pandemics, by which he meant

46. Ibíd., 513.
47. "En Lisboa. La peste bubónica", *El Mundo*, October 8, 1914; Ricardo Marques, *1914. Portugal no ano da Grande Guerra* (Alfragide: Oficina do Livro, 2014): 37.
48. "La peste bubónica", *España Médica*, October 20, 1914: 8, quoting a report published at the Lisbon journal *Medicina contemporánea*.
49. José Alberto de Faria, "Casos de peste en Lisboa en 1920", *Salubridad y asistencia social*, 27 (1922): 449.
50. David Arnold, *Pandemic India. From cholera to Covid-19* (Oxford: Oxford University Press, 2022), 5.
51. Ibídem.

their "wide intellectual repercussions" on previous conceptions of health and disease[52]. The "Spanish flu", with its huge morbidity and mortality and the social, economic, and sanitary responses that tried to check them, shocked early 20th century medicine and health. However, as Frederic Vagneron has shown, the question has not been explored until the last two decades[53]. Among recent contributions, Michael Bresalier has criticized the widespread "historical anachronism" of taking viruses "as an explanatory resource" for the pandemic —ignoring that knowledge about those biological entities was virtually non-existent in that period. Instead, he has shown how the "Spanish flu" was only re-defined as a "viral disease" after more than a decade of basic research carried out in pathology departments of large UK and US institutions. It was only then that viruses were detached from the realm of bacteria, that the influenza virus was isolated, and that the explosive diffusion, clinical multiplicity, and aerial transmission of the disease began to be understood[54].

The Spanish flu had also a strong impact on Ricardo Jorge's medical conceptions. In our opinion, that pandemic, and not the 1899 Porto plague, became the real turning point in his trajectory and the ultimate source of his contributions to the redefinition of the latter disease. Without grasping influenza's footprint, this is what Maria de Fátima Nunes hinted at when she argued that, "although Jorge's epidemiological experience began as early as the Oporto plague outbreak, it was the *peste pneumónica* that gave him greater international visibility"[55]. Jorge's experience of influenza was consubstantial with changes in his professional status and in his insertion in international health organizations. Those changes actually began two years before the pandemic. On 9 March 1916 Portugal abandoned its (undesired) WWI neutrality to join the Entente in the fight against the Central powers and, as a result, a "national concentration" government was immediately formed[56]. In this context, the task fell on the DGSP of "defending" the country against the

52. Paul Slack, "Introduction", in Terence Ranger, Paul Slack, eds. *Epidemics and ideas. Essays on the historical perception of pestilence* (Cambridge: Cambridge University Press, 1992): 1-20, p. 3.
53. Frederick Vagneron, "La grippe espagnole: une historiographie centenaire revisitée", *Ler História*, 73 (2018): 21-43.
54. Michael Bresalier, "Uses of a Pandemic: Forging the Identities of Influenza and Virus Research in Interwar Britain", *Social History of Medicine*, 25, 2 (2011): 400-424.
55. Nunes, "Ricardo Jorge", 65.
56. Ministério dos Negócios Estrangeiros, *Portugal na Primeira Guerra Mundial (1914-1918)*, 3 vols. (Lisboa: Ministério dos Negócios Estrangeiros, 1995).

importation of typhus, cholera and other diseases whose epidemic emergence was feared within the ranks of belligerent armies[57]. This role was eased by Portugal's admission at the IASC in June 1916, which gave Jorge access again to the kind of information that the OIHP had provided until the start of the conflict. As the war moved on, both trends consolidated. In December 1917, a military insurrection established an authoritarian regime in Portugal that would last barely one year. During that interval, the first two waves of pandemic influenza struck the country, but, contrary to what occurred in Porto in 1899, Jorge's position was reassured: the DGSP was "temporarily granted autonomy" from the Home Office, with larger funds and stronger executive powers to fight the disease[58]. Within the IASC, Portugal's vicinity to Spain (one of the few countries in which news about influenza's ravages had been made public) or the main Entente countries' secrecy about the domestic impact of influenza may explain Jorge's election as official expert on the disease. The IASC president, Santoliquido again, overlooked previous disagreements with Jorge and charged him with preparing the report on influenza that he presented in March 1919. Additionally, a questionnaire Jorge drafted and sent to Portuguese doctors for an investigation on the second wave of the pandemic in Portugal[59] was taken as a model by the re-activated OIHP for an international enquiry[60].

Jorge's rise in domestic and international authority both rested on and contributed to his scientific understanding of influenza. His evolving ideas on the disease were essentially contained in two reports: *A influenza. Nova incursao peninsular* (1918) and *La grippe* (1919). The first one, written in Portuguese, was presented to the *Conselho Supérior de Higiene* on 18 June 1918, though the final text contained data until early July. It was a 13-page report dealing with an early stage of the first, milder wave of the pandemic in Portugal. Because of this, it contains few novelties, essentially subscribing influenza's new identity as constructed in the decades that followed the "Russian flu" of 1889. According to Michael Bresalier, this transformation

57. Jorge's concern about the impact of war in medicine and public health can be found in his lecture at the Medical Society of Lisbon in December 1914. There, Jorge referred to the classical idea that "*são mais os soldados tombados pela acometida das pestilencias do que pelo arremesso dos inimigos*". Ricardo Jorge, *A guerra e o pensamento medico* (Lisboa: Sociedade das Ciências Médicas, 1915), 14.
58. Ricardo Jorge, *A influenza. Nova incursao peninsular* (Lisboa: Imprensa Nacional, 1918), 35.
59. Addenda ao questionario de 1 de fevereiro, Lisboa 1919, Exp. 7, ERJ, BNP, Lisbon, Portugal.
60. Jorge, *A grippe*, 5.

had been done "principally with the ideas and tools of bacteriology and their integration into epidemiological and clinical knowledge and practice"[61]. The key had been the bacillus identified by the German physician Richard Pfeiffer in 1892, which

> [...] in clinical medicine [...] was a resource for explaining the pathogenesis of the disease; in public health, it was used to make visible and to target the routes of influenza transmission. Pfeiffer's bacillus thus played an important role in aligning epidemiological, clinical, and bacteriological knowledge around a new definition of influenza[62].

Two decades later, the cracks that had appeared in this model were enlarged by the new pandemic. Thus, Jorge's report criticized that "little or nothing has been done, since 1882, to assess the validity of Pfeiffer's doctrine", joining the chorus that questioned the etiological role of the bacillus[63]. He also warned that, despite influenza's apparent mildness, "in no time, it begins to show real malignancy", to the point that "no other epidemic tips the mortality balance so much"[64]. Finally, he argued that its extreme contagiousness ("the highest known") made either isolation of the sick or confinement of the healthy useless "due to the impetus of a virus that almost instantaneously spreads throughout a whole city and jumps over all barriers"[65].

Jorge's report owed its relevance for his professional and scientific trajectory to two other reasons. On the one hand, it allowed him to reboot his troubled relationship with epidemics by taking the 1896 Porto flu outbreak, instead of 1899 plague, as his primal and successful experience[66]. He recalled himself dismissing the confusion of the disease with other syndromes and grasping the deceitfully mild nature of the disease by reporting to the city council "that, in effect, the city's total mortality raised; the dead from January to February 1895 were 693, while during the same period of 1896, they were 947"[67]. He also identified the Pfeiffer bacillus in the city's laboratory he

61. Michael Bresalier, "'A most protean disease': aligning medical knowledge of modern influenza, 1890-1914," *Medical History*, 56, 4 (2012): 481-510, p. 482.
62. Bresalier, "Aligning medical knowledge", 510.
63. Jorge, *A influenza*, 9.
64. Ibíd., 11.
65. Ibíd., 12.
66. Ibíd., 10-11.
67. Ibíd., 11. This was later confirmed in his volume *Demografia e higiene da cidade do Porto* (1899) and in the DGSP's periodical bulletin *Tabelas do movimento fisiológico da populaçao*.

directed since 1891, the first milestone of his early conversion to bacteriology inspired by José Tomas de Sousa Martins —promoter of the fight against tuberculosis and of the national bacteriological institute, who had acted as Portuguese representative in the ISCs of Vienna (1874) and Venice (1892)[68].

The second relevant feature of Jorge's *A influenza* was his use of history as a biomedical research tool. A passionate and expert of the humanities and the arts,[69] he had applied historical epidemiology in his work *Origens e desenvolvimento da populaçao do Porto* (1897), but when it came to dealing with present-day malaria or tuberculosis, his use of past data had remained ornamental. This would change with influenza. In his 1918 report, Jorge elaborated a long-term account of the Portuguese outbreaks of the disease, which he consistently attributed to arrivals from Spain, such as the one in 1580 (coinciding with the Spanish takeover of the Portuguese throne) or others in the 18th and 19th centuries[70]. On the other hand, he exploited the different naming of the disease as "*influenza*" in Porto and "*grippe*" in Lisbon during the 1889 "Russian flu"[71] to argue in favor of the existence of "a generic group of flu infections, among which influenza would stand out as the leader"[72]. Jorge further elaborated on this idea by using 19th century cholera as intellectual model, in particular, the distinction that had often been made between "Asiatic cholera" and the so-called "*cholera nostras*":

> The *influenza vera* would have reigned shortly as [Asiatic] cholera did; while the *gripe*, a traditional, domestic nuisance, lacking diffusion power, would be a similar, though not identical, infection, a sort of *influenza-nostras*[73].

Compared with that first report, Jorge's *La grippe* reflected an emerging new vision of the disease. This second text, written in French, was substantially longer (35 pages) and was published after the second, deadly pandemic wave

68. Jorge published a homage discourse after Sousa Martins' decease. Ricardo Jorge, *Souza Martins* (Porto: Gazeta Médica do Porto, 1897).
69. The Portuguese hygienist had actually devoted his MD dissertation to the history of neurology. Later, he published biographies of Portuguese doctors such as Amato Lusitano and Ribeiro Sanches, art essays on *El Greco* and *La Celestina*, and a medical history of the baths of Geres, in north-east Portugal. "Bibliografia Ricardiana", accessed August 14, 2024, https://www.insa.min-saude.pt/wp-content/uploads/2016/12/Bibliografia_RJ.pdf
70. Jorge, *A influenza*, 4.
71. Ibíd., 10.
72. Ibídem.
73. Ibídem.

had wreaked unprecedented havoc upon Portugal. Although certain aspects of the identity of influenza were merely confirmed, developed or completed, others were radically new. The most important feature was, in our opinion, Jorge's use of pneumonic plague as interpretative frame for influenza in all dimensions (clinical, epidemiological, etiological). But why was Jorge using this frame if he had so long clung to the bubonic model of plague? The Manchuria epidemic and the late episodes of plague in Lisbon in 1914-1917 may have begun to shatter his views, as well as those of other doctors and society in general. This would explain that, according to Jorge, the second influenza wave had brought about a revival of "the specter of plague". It was in Porto where first "became spread the idea and the panic of pneumonic plague, which the city knew well [...] after the serious strike of 1904 [-1905]"[74], and "as soon as the epidemic hit the capital [Lisbon], that version gained ground"[75], to the point that many doctors could not "get themselves to think that the disease was not plague"[76]. However, Jorge's conversion to a pneumonic interpretation of influenza may have also occurred at the IASC sessions, where some of the 16 delegates[77] may have highlighted influenza's similarities with that form of plague. For example, the United States, after entering WWI in April 1917, were represented in that organization by the above-mentioned Major Richard P. Strong, probably the world's most renowned expert in pneumonic plague owing to his key intervention in the Manchuria epidemic and subsequent Mukden International Conference. The Chinese delegate, Major S. T. Lee, a medical graduate in Paris[78], also showed a keen interest in the parallels between what he referred to as "the two epidemics prevalent in China"[79]. Within the IASC, pneumonic influenza

74. Ibíd., 13.
75. Ibíd., 15.
76. Ibídem.
77. Martin David Rubin, "The League of Nations Health Organisation," in Paul Weindling, ed., *International Health Organisations and Movements, 1918-1939* (Cambridge: Cambridge University Press, 1995), 56-80, p. 57-58. By February 1918, the commission counted on members from France, Belgium, UK (including delegates from India, Canada, New Zealand, Australia, and South Africa), Italy, Serbia, Portugal, Russia, Japan, Romania, China and the USA.
78. S.T. Lee, "Some of the different aspects between influenza, pneumonia and pneumonic plague," *International Record of Medicine and General Practice Clinics*, 10 (Sept. 1919): 401-402, p. 401.
79. Lee argued that plague had reappeared in December 1917 in central China causing 15.000 dead, while "*une forte épidémie d'influenza a sévi en Chine dans presque toutes les provinces de la côte, dès le mois de mars 1918*". "Épidémies en Chine", *Revue de Genève*, 5 (1924), 709.

must have also been framed as a security threat to the belligerent armies, in line with the organization's original goal of assessing and confronting the "epidemic risks" associated to the war.

In a moment in which the concepts of virus, aerosol or genetic mutation still played no role in the understanding of influenza, pneumonic plague provided Jorge with a model to explain key features of the pandemic. He argued that "pneumonicity, it we may use that word, is the cornerstone of influenza", in the sense that "its preference for locations in the respiratory system results in all kinds of pneumonia, from the ephemeral and short-lived to the severe and fatal"[80]. That is why Jorge coined the term *influenza pneumonica* or simply *pneumonica*, to denote the aggressive form of flu. This was not just capable of producing primary pulmonary damage (instead of facilitating secondary lesions in the lungs by bacteria) which was responsible for 70% of the deaths[81], it could do so right from the start of an outbreak, in the very first diagnosed cases, not because of an aggravation of the virulence of the germ after passing through large numbers of human bodies[82].

Regarding epidemiology, although Jorge assumed the lack of "positive and neat data" concerning transmission, it was clear for him that what "counts is inter-human contact"[83], be it exclusively with the sick, or also with healthy carriers. The speed of diffusion of *influenza pneumonica* was slower than the milder *grippe*: while the pandemic's milder first wave had spread throughout Portugal in just 15 days, the deadly second had needed two months to move from the north to the southern regions of Alentejo and Algarve[84]. If the series of successive contagions had not been so slow as to allow the identification of a "chain" of cases as happened with pneumonic plague outbreaks, the march of severe influenza could nevertheless be associated with distinctive group displacements. Jorge identified the following: "*la migration militaire* [army conscription], *la populaire* [religious pilgrimages, commercial fairs], *l'agricole* [grape harvest], *la balnéaire* [bath and spa season] *et la navale* [Azores naval base activity]"[85]. Finally, the analogy between both diseases reached its highest point in relation to their clinical expression. In Jorge's

80. Jorge, *La grippe*, 9.
81. Ibíd., 28.
82. Ibíd., 19.
83. Ibíd., 24.
84. Ibíd., 19.
85. Ibíd., 21-24.

words, owing to the severity of their symptoms, "between pneumonic plague and pneumonic influenza, it is the devil's choice"[86].

4. Jorge's pneumonization of the plague

After a third, short, minor wave hit the country in April 1919, the influenza pandemic was officially over in Portugal. As elsewhere, the disease quickly vanished not just from the medical records, but also from political discourses, scientific journals, and the media. In some countries with modern and well-funded biomedical institutions, such as the USA, Great Britain or France, research on influenza's multiple puzzles slowly developed during the 1920s[87]. But this was not the case of Portugal. Despite his intense involvement with the pandemic, Ricardo Jorge would never again publish a report or study about influenza. Instead, he turned his attention to plague as he had not done for the previous twenty years. In June 1919, only three months after his IASC intervention, Jorge presented his views on the relation between pneumonic and bubonic plague at the first post-war session of the OIHP in Paris[88]. That would be the first of the many writings, reports, articles, and books on plague that would follow in the two decades until his decease. As one of his biographers put it, "his investigations on plague continued until his last gasp"[89] and became "the constant concern of his life as a biologist". The perception of his colleagues at the OIHP that he had become the organization's "official plague epidemiologist"[90] is consistent with his first fundamental volume *Les pestilences et la Convention Sanitaire Internationale* (1926) being a collection of his main interventions there, and with two other key texts, *Summa epidemiologica de la peste* (1933) and *La peste africaine* (1935), being published by that organization[91].

86. Ibíd., 16.
87. Bresalier, "Uses of a pandemic".
88. Jorge, *Les pestilences*. 1-2; Paillette, "Épidémies", 251.
89. Eduardo Coelho. *Ricardo Jorge. O médico e o humanista* (Lisboa-Barcelona-Rio de Janeiro: Livraria Luso-Espanhola, 1961): 26.
90. Ricardo Jorge, *Les 'Rodentia' domestiques et sauvages dans l'évolution séculaire et mondiale de la peste* (Lisboa: Casa Portuguesa, 1937), 2113.
91. Jorge's studies in relation to sylvatic plague were also published by the OIHP, but they are not related to the issue of pneumonic plague on which we are focusing in this paper.

Jorge's solid institutional placement during the interwar period favored this renewed interest. It also explains that he took his policy of "*defense sanitaire*" to a new level, in such a way that "after the New State [*Estado Novo*] period of 1926, Jorge worked to legitimate the new political power and promote the idea of [health] security in national and international public circles"[92]. In Portugal, the chronic political, social and economic instability that finally led to the dictatorial regime of António de Oliveira Salazar (1926-1974) did not affect Jorge's solid position at the top of the sanitary administration. He continued as head of the DGSP until 1928, when he was appointed president of the *Conselho Técnico Superior de Higiene*, the higher consultative board for public health, a post from where he supervised his successor Jose Alberto Faria[93]. In Europe, where the fragile postwar balance would crumble after the 1929 financial crisis, Jorge continued to act as Portuguese representative at the OIHP until 1938, well beyond his domestic retirement. He also joined the new organization promoted by WWI winners: the LNHO. Provisionally in operation since November 1920 and officially from May 1923, the LNHO's Hygiene Committee counted with 9 OIHP representatives among its 16 members[94]. Jorge was one of them until the 1930s.

Paradoxically, Jorge's institutional prominence contrasted with the ailing state of Portuguese public health and the country's modest relevance in international sanitary organizations. Plague embodied such paradox. In Portugal, the disease became one of the main keys for Jorge's above-mentioned "health security" approach. As it was similarly argued in the Iberian neighbor's parallel dictatorship of General Miguel Primo de Rivera, "something as bad and dangerous as endemic plague may turn out to be a source of [health] progress"[95]. The "holy fear of plague" succeeded in mobilizing resources that were otherwise denied and legitimized the enforcement of stringent measures. However, this short-term, emergency-oriented system diverted much-needed resources for the sanitation of towns, villages and environment, for the fight against non-epidemic infectious diseases, and for the development of primary-care schemes. In international organizations, Jorge's focus on plague revealed the unwanted familiarity of metropolitan Portugal with a disease that the

92. Nunes, "Ricardo Jorge", 65.
93. Costa, *Ricardo Jorge*, 156.
94. Paillette, "Épidémies", 254.
95. José Alberto Palanca, "Prólogo", in Eduardo Delgado. *El peligro de la peste en España* (Madrid: Imprenta del Asilo de Huérfanos del S.C. de Jesús, 1924): 5-10, pp. 6-7.

great powers associated exclusively with "colonies" and "tropics". After WWI plague regularly struck the continental and especially the insular Portuguese territory, showing an increase in terms of the frequency of episodes and the number of cases and deaths in comparison with the war years (see Table 1). In international meetings, though shown intellectual and personal respect by prominent figures such as George Buchanan, Theodore Madsen, Josephus Jitta and others, plague brought Jorge closer to colonial officials such as Jules Colombani and Maurice Gaud, heads of the hygiene service of the French Protectorate in Morocco.

Table 1
Main plague outbreaks in Portugal, 1920-1932, with cases and deaths

DATES	*FOCI*	*TYPE*	*CASES*	*DEATHS: TOTAL/ PNEUMONIC*
1920	Azores: Pico	Pneumonic		15/15
October 1920-February 1921	Lisbon: Alfama	Bubonic and Pneumonic	112-114	32-33/4
August-September 1921	Lisbon: Alcochete	Pneumonic	11	4/4
1922	Lisbon			35/unknown
1923	Azores	Bubonic and Pneumonic	200	
1923	Lisbon: Alcochete	Pneumonic	15	4/4
January 1924	Azores: São Miguel	Pneumonic	8	8/8
1924	Lisbon			4/unknown
1928	Lisbon			
1931-1932	Azores	Bubonic and Pneumonic	> 600	253-265/unknown

Sources: Faria "Casos de peste"; Ribeiro "Pulgas e pestes"; Echenberg, *Plague ports*.

In fact, if plague ensured Jorge a relevant stand as international expert, it did so within the older, more conservative OIHP, not the newer, more progressive LNHO[96]. As Martin David Rubin has claimed, infectious diseases

96. Contrary to Maria Fatima de Nunes' claim that the LNHO was Jorge's main "forum for expressing his views on matters of public health". Nunes, "Ricardo Jorge", 65.

such as plague, cholera, yellow fever, smallpox, malaria, typhus, leprosy or tuberculosis "became common targets of international action but the order of preference, the approaches and the goals differed significantly depending on the particular organization involved"[97]. The LNHO, under Anglo-Saxon leadership, with a majority of representatives from sovereign countries and a global mindset, put its focus on the development of national health administrations that tackled so-called "social diseases"[98]. Meanwhile, the OIHP, essentially under French control, kept its dominant imperial orientation (representatives of the European imperial powers and of their colonial territories, plus those of "Latin" countries[99]) and targeted the serious, albeit discontinuous epidemic threats of plague, cholera and yellow fever. This split was not solved during the interwar period despite attempts at subsuming the OIHP within the LNHO[100]. Jorge's attachment to the OIHP distanced Portugal from the more progressive health models and interventions promoted by the LNHO, bringing it under stronger influence of French health policies.

It was from this double institutional background that Ricardo Jorge made his remarkable contributions on plague during the interwar period. There he constructed an approach to plague as a sort of "security hazard" that risked compromising domestic authoritarian rule or colonial imperialism. More precisely, he became interested in a very specific issue, epidemiogenesis, how a limited outbreak spiraled into a serious epidemic, because it was this acceleration which threatened political and sanitary stability. The paradox was, however, that plague seemed to have actually lost that ability to turn epidemic. Since its comeback on a global scale in the last decade of the 19th century, most of the episodes (except for some in British India[101]) had been fairly restricted, with a limited number of cases and low mortality

97. Rubin, "League of Nations", 78.
98. A third major actor was the Rockefeller Foundation, which provided financial support to the LNHO and whose health agenda essentially (but not completely) matched the latter's. John Farley, *To cast out disease. A history of the International Health Division of the Rockefeller Foundation* (Oxford: Oxford University Press, 2004); Josep Lluís Barona, *The Rockefeller Foundation, Public Health and International Diplomacy, 1920-1945* (London: Pickering & Chatto, 2015).
99. In the early 20th century, France's "*latinisme*" underpinned its influence in Latin America, which was very strong in cultural matters and specifically both in the field of medicine and public health. Jacques Chonchol, Guy Martinière, *L'Amérique latine et le latino-américanisme en France* (Paris: Éditions de l'IHEAL/L'Harmattan, 1985).
100. Paillette, "Épidémies", 254.
101. Arnold, "Pandemic India", 91.

rates[102]. Only very occasionally did "modern" plague present itself in the form of violent deadly outbreaks, these being characteristically marked by the predominance of the pneumonic form of the disease, rather than the bubonic. The most striking example had been the Manchurian epidemic, in which the dominance of pneumonic cases was such that it called into question the validity of the rat-flea model.

Ricardo Jorge was not the only expert interested in solving this puzzle, but his points of view elaborated between 1919 and the beginning of the 1930s would end up being widely accepted at the international level. This occurred despite being based in a country regarded as "peripheral" with respect to the major scientific centers; despite belonging to an organization that was being displaced from the leadership of international health; and despite employing old-fashioned methodologies such as epidemiology and medical history. In his first works after WWI, collected in the volume *Les pestilences et la Convention Sanitaire Internationale* (1926), Jorge built on the consideration of pneumonic plague as a primary clinical syndrome, not merely a secondary complication of bubonic plague. From that standpoint, he postulated a "duality" of plague, that is, the idea that bubonic and pneumonic plague could be considered as two distinct diseases from a clinical point of view[103]. This was an analogy of the difference that he had pointed out between "grippe" and "influenza". His "dualistic" stance differed, however, from the view of other experts such as Frederick Norman White. Familiar with plague in India, where he had briefly served on the Plague Research Commission and faced a serious outbreak of the disease in 1917-1918 as Sanitary Commissioner (highest public health authority), Norman White, after joining the LNHO, would travel to China in 1923 to examine the new epidemic of pneumonic plague in Manchuria[104]. On his return, he presented a report to the LNHO's Hygiene Committee in February 1924 in which he defended a "separatist" theory of the plague, according to which pneumonic plague would have been a completely different disease from "common" plague, not only clinically, but also in its epidemiology and etiology. Jorge, who attended that meeting, expressed his reservations as follows:

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102. Jorge, *Les pestilences*, 90.
103. Ibíd., 74.
104. "Obituary. Frederick Norman White, 1877-1964", *Transactions of The Royal Society of Tropical Medicine and Hygiene*, 58, 4 (1964): 367-368, p. 367.

> Dr. Norman White thought that in pneumonic plague there was [microbial] symbiosis; but symbiosis has never yet been observed, and is a mere hypothesis not based on any concrete facts. A careful study of Dr. Norman White's report leads one to suppose that the writer distinguishes between the great pneumonic plague of Manchuria and the lesser outbreaks observed elsewhere. Apparently, he considers the former to be an entirely new disease, whereas, in point of fact, the pneumonic outbreaks are entirely similar, show the same picture, the same form of transmission and the same death rate. The only differences are statistical and have absolutely no bearing on the nature of the disease. During the pandemic of 1348, for instance, pneumonic plague was very common. Dr Norman White's hypothesis is therefore open to contestation, and must be contested[105].

To defend the epidemiological unity of all plague outbreaks, Jorge relied firstly on Portuguese data, such as those of the episode in Alcochete, a town near Lisbon, which he had presented at the OIHP in October 1923[106]. He thought that "sometimes little epidemics give us the most useful lessons"[107], for those "discrete plague eruptions, circumscribed to specific neighborhoods", those *"pestis minor"*[108] made it possible to observe more clearly the mechanisms by which a small outbreak could become a major epidemic. Combining again plague and influenza, he argued that "as occurs with plague, there is no serious epidemic of influenza without pneumonic cases [...]"[109]. In other words, both clinical forms of plague were present in all outbreaks, the only difference being the proportion between them. Normally, bubonic cases dominated, and only very exceptionally (as in influenza), the pneumonic form was predominant, a form which "has unexpectedly prevailed

105. Procès-verbal de la première session du Comité d'Hygiène tenu à Gèneve du 11 au 21 fèvrier 1924, 765992, Registry Files (1919-1927), Health and Social Questions Section, League of Nations Secretariat, League of Nations Archives, Geneva, Switzerland.
106. Ibídem; Ricardo Jorge, "Sur la peste pneumonique. A propôs de l'épidémie d'Alcochete", *Bulletin de l'OIHP*, 15 (1923): 1431-1439.
107. Jorge, *Les pestilences*, 64.
108. Ibídem. The latter term, as Chrystos Lynteris has shown, had been in circulation since at least 1896 and managed "to persist and remain useful in spite of evidence contrary to its existence into the early twentieth century". Jorge used it in a colloquial way, to denote unfrightening, tiny episodes of plague, in contrast with other researchers that had used it to describe an attenuated form of the disease capable to become aggressive again and trigger a real epidemic. Chrystos Lynteris, "Pestis minor: the history of a contested plague pathology". *Bulletin of the History of Medicine*, 93 (2019): 55-81, p. 57, 77.
109. Jorge, *Les pestilences*, 71.

in the last [influenza] pandemic of 1918, which can be taken for influenza as the equivalent of the 1911 Manchurian epidemic for plague"[110].

On the other hand, in his later work *Summa epidemiologica de la peste* (1933), Jorge completed his view on plague epidemiogenesis by relying on data taken from the history of medicine, which he dared to combine with "epidemiological observations and experimental results" to produce "an analytic and synthetic compendium"[111]. On this basis, Jorge questioned the general belief in the existence of an historical break between the "old plague" that had reigned in the Middle Ages and Renaissance in Europe and the "new plague [...] devoid of the expansibility that had made it, in distant times, the nightmare of the world"[112]. According to this belief, the old plague could only be found outside Europe, where "plague has flared up, from India to Manchuria, in the old fashion, reviving medieval tragedies"[113]. For Jorge, medical history belied that duality, showing that the old descriptions of plague epidemics coincided with the new, even in the identification of pneumonic cases, as for example Guy de Chauliac had done during the Black Death[114]. There would thus be no essential difference in relation to the "virulence" of plague's clinic or causal agent between the old plague and the one Jorge had known in Porto in 1899[115]. No essential difference would exist either between the "pestis minor" episodes that regularly struck Portugal and the big epidemics in Manchuria, for "this 'little plague' has the same stature as the big one"[116].

The only and real difference between old and new, minor and major, European and non-European plague would be "epidemicity", that is, the power of diffusion of the disease's outbreaks[117]. In this sense, Jorge assumed that, despite the valuable contributions of modern science, "the validity of the plague-genetic formula [rat-flea model], which, it must be acknowledged, does not explain many epidemizations, has been overestimated"[118]. In

110. Ibídem.
111. Ricardo Jorge, *Summa epidemiológica de la peste, épidémies anciennes et modernes* (Paris: OIHP, 1933), 1.
112. Jorge, *Summa epidemiologica*, 2.
113. Ibídem.
114. Ibíd., 6-7.
115. Ibíd., 7.
116. Ibídem.
117. Ibíd., 8.
118. Ibíd., 14.

old plagues, doctors as well as writers had overlooked the role of rats, an impossible thing "if epidemization had really taken place in relation with a rat epizootic"[119]. In modern times, the India Plague Commission, to uphold the claim that every human case derived from a rat case, had incurred in a simplification by

> [...] leaving aside, as insignificant, pneumonic plague, because it was rare in India, although it was nevertheless responsible for hecatombs in Manchuria and followed like a shadow the bubonic incursions; and furthermore, [by] relegating to oblivion the string of successive cases due exclusively to interhuman transmission, the epidemic outbreaks following the transport of the plague at a distance without any intervention of rodents[120].

The key to a plague epidemic, as had occurred with the "Spanish flu", would be the very interhuman transmission that Jorge himself had resisted for two decades. Independently from its start as bubonic or pneumonic plague, the spiraling from a limited outbreak to an epidemic always required, in his opinion, that the disease begins to pass from person to person directly. It was thus proved that "our ancestors were not wrong and that, in old epidemizations, inter-human convection played a considerable role, if not a dominant one, often exclusive"[121]. This would happen either by aerial transmission, as in pneumonic plague, or through the human flea (*Pulex irritans*), in bubonic plague. For the latter, Jorge relied on the analysis of Moroccan epidemics that his colleagues Colombani and Gaud had presented at the OIHP and which he knew firsthand after a recent travel to the French Protectorate in 1932[122]. For example,

> [...] the Moroccan epidemic of Settat (1929-1930), carefully studied, provides one of the most indisputable proofs. A native, leaving the town of Settat, where the infection showed the classic rat-human form, and travelling to his family home in a *douar* [village], brings and sows plague, through successive lineages, in his relatives, allies, neighbors, in the end, in those people who, after attending the funerals, take it to their douars, upon their return; a chain by all means

119. Ibíd., 21.
120. Ibíd., 22.
121. Ibíd., 24.
122. Francisco Javier Martínez, "Al servicio de las colonias (de otros): la peste y el viaje del doctor Ricardo Jorge al Marruecos francés en 1932", in Youssef Akmir, ed. *Marrocos-Portugal. História, memória, património* (Agadir: Université d'Agadir, 2024): 167-191.

> similar to those, so well-known, of pneumonic plague and which has made it possible, as for them, to trace the genealogy of cases[123].

Once the dynamic of the acceleration of plague outbreaks had been decrypted, it was clear that the mildness of the ones that had struck Europe in the first decades of the 20th century was exclusively due to external factors, "the environmental and collective conditions that have been so much transformed in today's individual and social life"[124]. On the one hand, the population did not live in the conditions of overcrowding and lack of hygiene that had so much favored both respiratory contagion and in which "all individuals, even those of higher social status, were surrounded and eaten by ecto-parasites"[125]. On the other hand, plague outbreaks, even those with predominant pneumonic forms, "let themselves be easily controlled and tamed by our means of surveillance and fight"[126], that is, by means of the quick identification of the causal agent in the laboratory and by breaking the chain of interhuman transmission through the compulsory isolation of cases in the hospital and the establishment of a strict sanitary cordon around the foci. In this way, Jorge sanctioned a true inversion of the plague paradigm, putting humans at the center of epidemiogenesis. This vision suited well a "security" approach that justified coercive measures being imposed upon specific groups of people, if necessary, with the force of an authoritarian or colonial state.

5. Conclusions

The "Spanish flu" pandemic marked the "point of no return" in the process of emergence of new disease conceptions that crystallized during the 20th century. Influenza itself acquired a new identity, but the understanding of many other diseases was also transformed. In this paper we have reconstructed the contribution of the Portuguese hygienist Ricardo Jorge to what we have called "the pneumonization of plague". The notion of pneumonic plague circulated internationally for decades before Jorge gave it the key role in the

123. Jorge, *Summa epidemiologica*, 22-23.
124. Ibíd., 25.
125. Ibíd., 24.
126. Ibíd., 25.

acceleration of plague outbreaks to epidemics. The "Spanish flu" was more decisive for this contribution than his initial encounter with plague in Porto in 1899. Faced with a "devil's choice" between influenza and pneumonic plague, he combined both diseases in his medical thinking with a methodology based on epidemiological observation and medical history. Jorge's reformulation of plague epidemiogenesis matched his policy approach —developed during his years as head of Portuguese public health under an increasingly authoritarian regime and as a prominent member of the IASC and the imperial powers-controlled OIHP— towards that disease as a "security" hazard whose spiraling could be best checked by interrupting the chain of pneumonic cases through coercive measures imposed upon individuals and foci.

Regarding the two main goals of this special issue, we have tried to show on the one hand that the evolution of Jorge's conceptions on plague was inserted into a larger dramaturgy of change signaled by the 1918-1920 influenza pandemic. In this sense, for example, it took him over a decade after the "Spanish flu" to develop his novel vision of plague epidemiogenesis. On the other hand, in truly de-centered fashion, Jorge's contributions were made from Portugal and from the declining OIHP. Experts in other "peripheral" locations and institutions defended similar views, which brought them all more or less close together. Colombani and Gaud, for example, had many points in common with Jorge, whose visit to French Morocco in 1932 had a lasting influence in its health administration's and also in the Pasteur Institute of Casablanca's approach to plague. The latter's director, Georges Blanc, and his assistant, Marcel Baltazard, devoted many years to prove "the value of the hypothesis of the inter-human transmission [of plague] by man's ectoparasites, a hypothesis [...] admitted by plague experts such as Ricardo Jorge"[127]. Lacking direct links, the Chinese Wu Lien-Tieh wrote nevertheless Jorge a letter in 1928 telling him that "I look upon you as an old friend, though I do not remember having come across you personally [...], through the personal reading of your articles, from which I gather that in most respects our viewpoints on pneumonic and wild rodent plague harmonise"[128]. ▮

127. Francisco Javier Martínez, "Al servicio de las colonias (de otros): la peste y el viaje del doctor Ricardo Jorge al Marruecos francés en 1932," in Youssef Akmir, ed., *Marrocos-Portugal. História, memória, patrimonio* (Agadir: Université d'Agadir, in press).
128. Letter from Wu Lien-Tieh to Ricardo Jorge. Harbin (China), September 15, 1928, Exp. 33, ERJ, BNP, Lisbon Portugal.

Bibliography

Abreu, Laurinda, "O último lazareto terrestre de fronteira: Vila Real de Santo António na 'segunda temporada colérica' (1885/1886)", *Revista Portuguesa de Hist*òria, LV (2024): 135-160.

Amaral, Isabel, coord., *Percursos da Saúde Pública nos séculos XIX e XX – a propósito de Ricardo Jorge*. Lisboa: CELOM, 2010.

Arnold, David. *Pandemic India. From cholera to Covid-19*. Oxford: Oxford University Press, 2022.

Barona, Josep Lluís. *The Rockefeller Foundation, Public Health and International Diplomacy, 1920-1945*. London: Pickering & Chatto, 2015.

"Bibliografia Ricardiana". Accessed August 14, 2024. https://www.insa.min-saude.pt/wp-content/uploads/2016/12/Bibliografia_RJ.pdf

Braga, António Augusto Gonçalves, "A conferência sanitária internacional de París de 1911-12," *Arquivos do Instituto Central de Higiene*, II, fasc. 1 (1916): 17-65.

Bresalier, Michael, "Uses of a Pandemic: Forging the Identities of Influenza and Virus Research in Interwar Britain," *Social History of Medicine*, 25, 2 (2011): 400-424.

Bresalier, Michael. "'A Most Protean Disease': Aligning Medical Knowledge of Modern Influenza, 1890-1914," *Medical History*, 56, 4 (2012): 481-510.

Chakrabarty, Pratik. *Bacteriology in British India: Laboratory Medicine and the Tropics*. Rochester: University of Rochester Press, 2012.

Chernin, Eli. "Richard Pearson Strong and the Manchurian Epidemic of Pneumonic Plague, 1910-1911," *Journal of the History of Medicine and Allied Sciences*, 44 (1989): 296-319.

Coelho, Eduardo, *Ricardo Jorge. O médico e o humanista*. Lisboa-Barcelona-Rio de Janeiro: Livraria Luso-Espanhola, 1961.

Costa, Rui Manuel Pinto. *Ricardo Jorge. Ciência, humanismo e modernidade*. Coimbra: Imprensa da Universidade de Coimbra, 2018.

Davis, John P. *Russia in the time of cholera. Disease under Romanovs and Soviets*. London: I.B. Tauris, 2018.

Delille, Maria Manuela Gouveia; Ramires, Isabel João. *Correspondência. Carolina Michaëlis de Vasconcelos e Ricardo Jorge*. Coimbra: Universidade de Coimbra, 2021.

Dias, José Pedro Sousa. "Medicina, ciência e laboratório," in Sérgio Campos Matos, Jorge Ramos do Ó, eds., *A Universidade de Lisboa nos Séculos XIX e XX*. Lisboa: Tinta da China, 2013: 651-717.

Echenberg, Myron. *Plague ports: the global urban impact of bubonic plague, 1894-1901*. New York: New York University Press, 2007.

Evans, Nicholas H. "Blaming the rat? Accounting for plague in Indian colonial medicine," *Medical Anthropology and Theory*, 3 (2018): 15-42.

Faria, José Alberto de. "Casos de peste en Lisboa en 1920," *Salubridad y asistencia social*, 27 (1922): 449.

Farley, John. *To cast out disease. A history of the International Health Division of the Rockefeller Foundation*. Oxford: Oxford University Press, 2004.

Fernandes Alves, Jorge; Carneiro, Marinha. "Saúde pública e política: do 'Codigo Sanitario' ao Regulamento Geral de 1901," *Cultura, Espaço e Memória*, 5 (2014): 27-43.

Garnel, Maria Rita Lino. "Portugal e as Conferências Sanitárias Internacionais," *Revista da História da Sociedade e da Cultura*, 9 (2009): 229-251.

Greig, E. D. W. "Observations on the Pathology and Bacteriology of Influenza," *Indian Journal of Medical Research*, 8, 2 (1920): 326-355.

Howard-Jones, Norman. *The scientific background of the International Sanitary Conferences, 1851-1938*. Geneva: World Health Organization, 1975.

Jorge, Ricardo. *Souza Martins*. Porto: Gazeta Médica do Porto, 1897.

Jorge, Ricardo. *A peste no Porto, 1899. Seu descobrimento. Primeiros trabalhos*. Porto: Typ. a vapor de Arthur José de Souza e Irmaos, 1899.

Jorge, Ricardo. *Le bacilliféres de la Zaire et le système défensif contre le choléra par le contrôle bacteriologique*. Lisboa: Tipografia Mendonça, 1911.

Jorge, Ricardo, *A guerra e o pensamento medico*. Lisboa: Sociedade das Ciências Médicas, 1915.

Jorge, Ricardo, *A influenza. Nova incursão peninsular*. Lisboa: Imprensa Nacional, 1918.

Jorge, Ricardo. *La grippe*. Lisbonne: Imprimerie Nationale, 1919.

Jorge, Ricardo, "Sur la peste pneumonique. A propôs de l'épidémie d'Alcochete", *Bulletin de l'OIHP*, 15 (1923): 1431-1439.

Jorge, Ricardo. *Rongeurs et puces dans la conservation et la transmission de la peste*. Paris: OIHP, 1928.

Jorge, Ricardo. *Summa epidemiologica de la peste, épidémies anciennes et modernes*. Paris: OIHP, 1933.

Jorge, Ricardo. *Les Rodentia domestiques et sauvages dans l'évolution séculaire et mondiale de la peste*. Lisboa: Casa Portuguesa, 1937.

Latour, Bruno. *Pasteur: guerre et paix des microbes.* Paris: La Découverte, 2001.

Lee, S.T. "Some of the different aspects between influenza, pneumonia and pneumonic plague," *International Record of Medicine and General Practice Clinics*, 10, 9 (1919): 401-402.

Lousada, Manuel Pires. *O Exército e a ruptura da ordem política em Portugal, 1820-1974*. Lisboa: Prefácio, 2007.

Lynteris, Christos. *Ethnographic plague. Configuring disease on the Chinese-Russian frontier*. London: Palgrave Macmillan, 2016.

Lynteris, Christos. "*Pestis minor*: the history of a contested plague pathology," *Bulletin of the History of Medicine*, 93 (2019): 55-81.

Lynteris, Christos (ed.) *Plague image and imagination from medieval to modern times*. London: Palgrave Macmillan, 2021.

Lynteris, Christos. *Visual plague. The emergence of epidemic photography*. Cambridge: MIT Press, 2022.

Lynteris, Christos; Evans, Nicholas H. *Histories of post-mortem contagion: infectious corpses and contested burials*. London: Palgrave Macmillan, 2018.

Marques, Alexandra. O tratamento anti-rábico e a criaçao do Instituto Bacteriológico em Lisboa. MA thesis, Universidade de Lisboa, 2010.

Marques, Ricardo. *1914. Portugal no ano da Grande Guerra*. Alfragide: Oficina do Livro, 2014.

Martínez, Francisco Javier, "Al servicio de las colonias (de otros): la peste y el viaje del doctor Ricardo Jorge al Marruecos francés en 1932", in Youssef Akmir, ed. *Marrocos-Portugal. História, memória, patrimonio*. Agadir: Université d'Agadir, in press.

Ministère des Affaires Étrangers. *Conférence sanitaire internationale de Paris: 7 novembre 1911-17 janvier 1912. Procès-verbaux*. Paris: Imprimerie Nationale, 1912.

Ministério dos Negócios Estrangeiros, *Portugal na Primeira Guerra Mundial (1914-1918)*, 3 vols. Lisboa: Ministério dos Negócios Estrangeiros, 1995.

Montaldo, Federico. *La peste bubónica en Oporto, 1899-1900*. Madrid: Establecimiento Tipográfico de Fortanet, 1900.

Nunes, Maria de Fátima. "Ricardo Jorge and the construction of a medico-sanitary public discourse. Portugal and international sanitary networks", in María Isabel Porras Gallo, Ryan A. Davis, eds., *The Spanish Influenza Pandemic of 1918-1919. Perspectives from the Iberian Peninsula and the Americas*. Rochester: Rochester University Press, 2014, 56-71.

Paillette, Céline, "Épidémies, santé et ordre mondial. Le rôle des organisations sanitaires internationales, 1903-1923", *Monde(s)*, 2, n.º 2 (2012): 235-256.

Palanca, José Alberto "Prólogo", in Eduardo Delgado. *El peligro de la peste en España*. Madrid: Imprenta del Asilo de Huérfanos del S.C. de Jesús, 1924: 5-10.

Peckham, Robert. *Epidemics in modern Asia*. Cambridge: Cambridge University Press, 2016.

Pereira, Rui Mateus, "Ricardo Jorge, o mal-amado. Os serviços de saúde militar no quadro da Grande Guerra e da Gripe Pneumónica", in Helena da Silva, Rui Mateus Pereia, Francisco Bandeira, eds., *Centenário da Gripe Pneumónica.: A Pandemia em Retrospetiva, Portugal 1918-1919*. Lisboa: Inspecção Geral das Actividades em Saúde, 2019: 55-84.

Pontes, David Manuel Guedes, "O cerco da peste no Porto - Cidade, imprensa e saúde pública na crise sanitária de 1899". PhD diss., Universidade do Porto, 2020.

Raj, Kapil "Beyond Postcolonialism . . . and Postpositivism: Circulation and the Global History of Science," *Isis*, 104 (2013): 337-347.

Rasmussen, Anne. "Documenter la santé en guerre: l'internationale sanitaire interalliée, 1915-1919". *Bulletin de l'Institut Pierre Renovin*, 44, 2 (2016), 103-118.

Ribeiro, Henrique, "Pulgas e peste na Ilha Terceira. Um pequeno contributo para o seu melhor conhecimento". Master diss., Universidade Nova de Lisboa, 1996.

Rubin, Martin David. "The League of Nations Health Organisation", in Paul Weindling, ed., *International Health Organisations and Movements, 1918-1939*. Cambridge: Cambridge University Press, 1995, 56-80.

Silva, Matheus Duarte da. "Competition, controversies and microbial cultures: The development of the antiplague serum between Paris and India (1894-1899)". *Revue d'histoire des sciences*, 71 (2018), 49-77.

Silva, Matheus Duarte da. "Between deserts and jungles: the emergence and circulation of sylvatic plague, 1920-1950". *Medical Anthropology*, 42, 4 (2023), 325-339.

Silva, Matheus Duarte da; Nosaka, Shiori. Plague and the global emergence of microbiology, 1894-1920. In: Matheus Alves Duarte Da Silva, Thomás A. S. Haddad & Kapil Raj (eds.) *Beyond science and empire: circulation of knowledge in an age of global empires, 1750-1945*. New York, Routledge, 2023: 205-225.

Simon, Zoltán Boldizsár, "Historicism and Constructionism: Rival Ideas of Historical Change," *History of European Ideas*, 45, n.º 8 (2019): 1171-1190.

Slack, Paul. "Introduction". In Terence Ranger, Paul Slack (eds.) *Epidemics and ideas. Essays on the historical perception of pestilence*. Cambridge, Cambridge University Press, 1992, pp. 1-20.

Sobral, José Manuel Sobral; and Lima, Maria Luísa, "A epidemia da pneumónica em Portugal no seu tempo histórico", *Ler História*, 73 (2018): 45-66.

Vagneron, Frederick, "La grippe espagnole: une historiographie centenaire revisitée", *Ler História*, 73 (2018): 21-43. ▮