

Microbes and Microbiology: towards new stories?

co-organized by

Matheus Alves Duarte da Silva, Postdoctoral Research Fellow, **University of St Andrews**

Mathilde Gallay-Keller, PhD candidate in anthropology, **Écoles des Hautes Études en Sciences Sociales**. (Laboratoire d'Anthropologie Sociale & Laboratoire PALOC, CNRS)

During the last third of the 19th century, the "new science of microbes" became popular thanks to an efficient communication (Latour 1984; Löwy 2015) – microbiologists themselves promoting their discoveries and successes in press articles, or even during Universal Exhibitions. This phenomenon is well illustrated by the famous photographs published in various newspapers of Louis Pasteur surrounded by children saved by his rabies vaccine.

At the beginning of the 20th century, microbiology became the topic of a first type of historical narration, through the literary genre of biography, dedicated to the celebration of major scientists like Louis Pasteur and Robert Koch. At the same time, and until the middle of the 20th century, in France, Germany and many other countries, microbiology was often limited – like other sciences – to a chapter in each national history. Concerning historical epistemology, its seminal works have been focused rather on the study of physiology and biology (in contrast with natural history) than on microbiology as an independent object of study (Canguilhem 1952; Foucault 1966), even though microbiology was a central case for the understanding of technology transfers from the “center” to the “peripheries” (Stepan 1976; Löwy 1990).

From the 1970's, Science Studies have radically changed the whole field of history of science. The initial aim was to stress the social and cultural dimensions of science, to analyze the relationships between the various actors of science (rather than remaining focused on great figures), to devote attention to controversies (rather than established knowledge), to take interest in material aspects of scientific work (rather than only studying scientific literature). More recently, some studies have been even more radical, as they have attempted to prove that the emergence of modern science, including microbiology, is not the exclusive prerogative of European societies, but that it results from exchanges with other societies in the context of imperial and diplomatic practices. Instead of focusing on the influence of Europe over the rest of the world, these studies have underlined the existence and importance of reciprocal connections that have globally modified and shaped scientific work – even in Europe (Raj 2012; Liu 2017; Silva 2018; Velmet 2020).

To what extent has our view of microbes and microbiology benefited (or not) from these new ways of writing the history of science in general? What are the new questions, new objects, new

methods and approaches that are currently shaping our understanding of the emergence of the science of microbes, and of the technical and social changes caused by the development of this science until the present day?

With this webinar, we invite researchers from diverse areas of history and social sciences to confront their point of views on microbiology. Our ambition is to repopulate the history of microbiology with the neglected beings, objects, images, and relations which have shaped this science; to study material or visual sets to which it has often been given too little attention; to shed light on connections and circulations that have been rarely studied , and to explore places and practices that have been often considered as secondary.

- **We welcome contributions from fields such as visual and material studies, or museum studies of microbiology**, which renew its history by giving attention to the materiality of science, or which focus on key elements of historical narratives (Gelson 2014; Meerwijk 2020).

- **Presentations may also deal with circulatory approaches of microbiology** (circulation of knowledge, techniques, controversies, microbes, diseases, people, etc.) which articulate different places and different scales, from laboratory ethnographies to multi-site studies (Liu 2017; Silva 2018; Keck 2020). We also welcome communications which propose a study of the circulation between different scientific cultures, by showing how microbiology has borrowed practices from other sciences, such as physiology or natural history – and vice versa (Mendelshon 2002; Strasser 2019; Gallay-Keller 2020).

- **We are also interested in non-institutional approaches.** Therefore, participants may focus on the tensions or the links between microbiology and non-scientific sources of knowledge. How have vernacular science knowledge about microorganisms or industry interfered with the practices and knowledge of microbiology (Sibum 2015; Paxson & Helmreich 2017)? How has institutional microbiology been challenged in recent years by alternative practices, such as “garage biology” or “biohacking” (Morgan 2015; Wilbanks 2019), and how should we integrate these movements into a renewed, enlarged history of microbiology?

Finally, we point out that, since the aim of this webinar is to encourage researchers in the humanities to present their own ways of exploring the multiple meanings of microbes and microbiology, alternative approaches, not explicitly mentioned here, are equally welcome.

Modalities

Presentations will last 15-20 minutes, in French or English. Proposals may come from several disciplines in the humanities (history, anthropology, sociology, philosophy, etc.). Joint presentations (2 speakers) are possible. Prospective participants are welcome to send an abstract of their presentation (approx. 200 words, in English or in French) and a short biographical note to Matheus Alves Duarte da Silva (madds1@st-andrews.ac.uk) and Mathilde Gallay-Keller (mathilde.gallaykeller@ehess.fr) by March 30, 2020. Please contact us for any question.

Bibliography

- Benchimol, J. (1999). *Dos micróbios aos mosquitos: febre amarela e a revolução pasteuriana no Brasil*. Rio de Janeiro : Editora FIOCRUZ/Editora UFRJ.
- Brives, C. & Zimmer, A. (à paraître). Un tournant microbien ? *Revus d'anthropologie des connaissances*.
- Canguilhem, G. (1951). *La connaissance de la vie*. Paris: Vrin.
- Chakrabarti, P. (2012). *Bacteriology in British India: laboratory medicine and the tropics*. Rochester: University of Rochester.
- D'Abramo, F. & Neumeyer, S. (2020). A historical and political epistemology of microbes. *Centorus*, 1 (10). <https://doi.org/10.1111/1600-0498.12300>
- Foucault, M. (1966). *Les mots et les choses, une archéologie du savoir*. Paris : Gallimard.
- Gallay-Keller, M. (2020). Des microchampignons modèles pour le “biocontrôle”. Une enquête dans les collections de micro-organismes du Muséum national d'histoire naturelle. *Techniques&Culture* 73 « Biomimétismes », pp. 170-185.
- Geison, G. (2014). *The Private Science of Louis Pasteur*. Princeton: Princeton University Press.
- Grote, M. (2018). Petri dish versus Winogradsky column: a longue durée perspective on purity and diversity in microbiology, 1880s–1980s. *History and Philosophy of the Life Science*, 40 (11). <https://doi.org/10.1007/s40656-017-0175-9>
- Keck, F. (2017). Anthropologie des microbes. L'oubli de l'immunologie et la révolution du microbiome. *Techniques & Culture*, 68 (2) « Mondes infimes », pp. 230-247.
- Keck, F. (2020). *Avian Reservoirs. Virus Hunters and Birdwatchers in Chinese Sentinel Posts*. Durham: Duke University Press.
- Latour, B. (1984). *Les Microbes : guerre et paix, suivi de Irréductions*. Paris: A.M. Métailié.
- Lee, V. (2015). Mold Cultures: Traditional Industry and Microbial Studies in Early Twentieth-Century Japan. In D. Phillips & S. Kingsland (eds.). *New Perspectives on the History of Life Sciences and Agriculture*, pp. 231-252.
- Löwy, I. (1990). Yellow fever in Rio de Janeiro and the Pasteur Institute Mission (1901–1905): The transfer of science to the periphery. *Medical History*, avril 1990, vol. 34, n° 2, pp. 144-163
- Löwy, I. (2015). Les microbes et les humains. Dans Kapil Raj et Otto Sibum (eds.), *Histoire des sciences et des savoirs*, t. 2. Modernité et globalisation, Paris, Éditions du Seuil (coll. « Histoire des sciences et des savoirs »), pp. 222-241.
- Meerwijk, M.B. (2020). Viral Imagery of Dengue Fever in the Age of Bacteriology. *Isis*, vol. 111(2).
- Mendelshon, J. A. (2002). “Like All That Lives”: Biology, Medicine and Bacteria in the Age of Pasteur and Koch. *History and Philosophy of the Life Sciences*, vol. 24, pp. 3-36.
- Meyer, M. (2015). Amateurization and re-materialization in biology: Opening up scientific equipment. In M. Wienroth & E. Rodrigues (dir.). *Knowing New Biotechnologies: Social Aspects of Technological Convergence*. Londres : Routledge.
- Meyer Morgan (2015). Bricoler le vivant dans des garages. Le virus, le génie et le ministère. *Terrain*, n° 64, pp. 68-83.
- Morange, M. (2010). Émile Duclaux : 1840-1904. *Bulletin d'histoire et d'épistémologie des sciences de la vie*, 17 (1), pp. 69-75.

Morange, M. (2006). *À quoi sert l'Histoire des sciences ?* Paris : Éditions Quae.

Myelnikov, D. (2018). An Alternative Cure: The Adoption and Survival of Bacteriophage Therapy in the USSR, 1922–1955. *Journal of the History of Medicine and Allied Sciences*, vol. 73 (4), pp. 385–411.

Paxson, H. & Helmreich, S. (2017). Périls et promesses de l'abondance microbienne. Natures nouvelles et écosystèmes modèles, du fromage artisanal aux mers extraterrestre. *Techniques&Culture*, 68, pp. 248-285.

Raj, K. (2010). *Relocating modern science: circulation and the construction of knowledge in South Asia and Europe, 1650 – 1900*. Basingstoke: Palgrave Macmillan.

Sibum, O. (2015). Les sciences et les savoirs traditionnels, in Kapil Raj et Otto Sibum (eds.), *Histoire des sciences et des savoirs*, t. 2. Modernité et globalisation, Paris, Éditions du Seuil (coll. « Histoire des sciences et des savoirs »), p.285-303.

Silva, MAD. (2018). From Bombay to Rio de Janeiro: the circulation of knowledge and the establishment of the Manguinhos laboratory, 1894-1902. *Hist. cienc. saude-Manguinhos* [online]. 2018, vol.25, n.3, pp.639-657.

Stepan, N. (1976). *Gênese e evolução da ciência brasileira : Oswaldo Cruz e a política de investigação científica e médica*. Rio de Janeiro: Artenova/Fundação Oswaldo Cruz.

Strasser, B. J. (2019). *Collecting Experiments*. Chicago: University of Chicago Press.

Vagneron, F. (2014). Une presse *influenzée* ? Le traitement journalistique de la pandémie de grippe « russe » à Paris (1889-1890). *Le Temps des médias*, 23, pp.78-95.

Velmet, A. (2020). *Pasteur's Empire: Bacteriology and Politics in France, its Colonies and the World*. Oxford: Oxford University Press.

Wilbanks, R. (2019). Phylogénies de la biologie « *do-it-yourself* ». *Techniques & Culture* [on line], Varia, M. Meyer & P. Pitrou (dir.) « Anthropologie de la vie et des nouvelles technologies ». URL : <http://journals.openedition.org/tc/9309>

