[Compte rendu de :] Marc J. Ratcliff. Genèse d'une découverte: La division des infusoires (1765–1766). 751 pp., illus., bibl., index. Paris: Muséum National d'Histoire Naturelle, 2017. €45 (paper)

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William Blake’s verse “To see a world in a grain of sand and a heaven in a wild flower” may poetically summarize the historical journey that Marc J. Ratcliff leads us on in *Genèse d’une découverte* as he explores the quest for the invisible that inspired Enlightenment naturalists to work on microscopic organisms. Taking Horace-Bénédict de Saussure’s discovery of division in infusoria as his starting point, the author invites us to observe eighteenth-century natural history under the microscope, in order to challenge previous interpretations that have condemned this period as one of decline in research on animalcules, a term that was used to describe all those organisms that could be seen only with the assistance of a microscope.

As the author suggests, by changing our lenses it becomes possible to write a different history of eighteenth-century microscopy, including an exciting range of instruments, innovative observation practices, and unexpected discoveries concerning that which is too small to be perceived with the naked eye. Thus Saussure’s eight months of intense experimental activity, which started “in a room of his apartment warmed by the heat of the 1765 late summer in Geneva” (p. 151), provide Ratcliff with a paradigmatic case from which to draw broader considerations about the process that led somebody “to see what we have not learnt to know” (p. 19).

This is why the author considers his book a work of “epistemological microhistory” (p. 10) that establishes a close dialogue with psychology through a microgenetic approach: Saussure’s scientific path can tell us something about what it meant to discover a new fact in the history of science. Beyond essentialism and relativism, Ratcliff develops an original model to understand the production of scientific innovation that stresses the active participation of the savant by defining two spaces—confinement and relation; these in turn make up the two main parts of the book. While the dynamics of confinement refer primarily to the context in which Saussure takes on the world alone, enjoying the pleasures of his intimate involvement with his animalcules, the dynamics of relation concern the communication of his experimental observations within European scientific networks.

Indeed, Ratcliff offers a colorful picture of these networks by reviewing “the war of the trenches” (p. 77) confronting Georges-Louis Leclerc, comte de Buffon, and John Needham, who supported spontaneous generation against its rivals, Abraham Trembley, Lorenzo Spallanzani, and Charles Bonnet, who defied the idea that animalcules could appear from nonliving matter. Bonnet’s microscopy research on aphids and that of Trembley on the freshwater polyp led Ratcliff to highlight the relevance of this Genevan circle of naturalists in the development of an experimentalist method. In particular, Bonnet, Saussure’s uncle, became the main advocate of a mechanical interpretation of life, as well as the most influential figure in Saussure’s scientific career, conveying his passion for natural history from the moment he gave the younger man a Nollet microscope.

By carefully reading Saussure’s laboratory journals and his correspondence, Ratcliff interprets the discovery of the division of infusoria as the result of a three-pronged effort, which he terms “a triplet” (p. 11). This means that Saussure’s scientific practices cannot be reduced to the act of preparing and observing his infusoria in the laboratory; rather, they also involved the discipline of writing down his experimental observations in his journals, rewriting his notes in order to reorganize knowledge, and thinking about experiments that he had previously conducted.

Here lies the most innovative aspect of Ratcliff’s book: he defines the interactions established between Saussure’s empirical, textual, and cognitive experiences in order to explain the birth of a new phenomenon in the laboratory. Particularly groundbreaking is Ratcliff’s consideration of Saussure’s linguistic relation with discovery, when the text itself became an object in which novelty appears as the result of a linguistic interaction. This is how Saussure became the author of his discovery: while annotating his daily observations, recorded in his journals. This focus on writing, thus, allows us to understand Saussure’s discovery of the division of infusoria as a cognitive process through which the scientific self is transformed, when trying to formulate what still remains unknown.
Nevertheless, Saussure was not merely the author of his discovery; he also became an actor when he came out of the laboratory and was expected to behave as a sort of impresario, circulating his invention through eighteenth-century scientific networks. The dialectical movement from confinement to relation, finally, sheds light on Saussure’s research on animalcules as a collective work. Saussure was little concerned about publishing his results; their communication was more the result of his colleagues’ efforts than his own. This explains why his contribution has been largely ignored in the history of life sciences. Ratcliff’s book comes to fill this gap by providing a brilliant example of how microhistory can become a philosophical tool enabling us to perceive what is too small to be seen by the human eye.

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Anya Zilberstein. A Temperate Empire: Making Climate Change in Early America. xii + 264 pp., figs., bibl., index. Oxford: Oxford University Press, 2016.

In 1862, the English medical geographer William Scoresby Jackson wrote that climate is “the sum of all those physical forces which by their operation upon the constitutions of organized beings prohibit their permanent migration from one region of the earth’s surface to another” (Medical Climatology [London, 1862], p. 2). Without the stability of climate, the world would see no settlements, agriculture, or political order, as random weather would drive the human tribe to wander in search of short-term opportunity, without the benefit of planning and foresight. Early American settlers faced a similar difficulty in their repeated, if often thwarted, attempts to understand the “reliability” of climates in which they were hoping to settle. For, as Anya Zilberstein’s compelling monograph shows, these new climates were only partly about the challenges of weathers and seasons, clothing and shelter, comfort and disease. In reality they were about the political economy of an early modern colonial “state” seeking to ensure its expansion through diverse exercises of environmental “risk assessment.” Zilberstein astutely recognizes the significant—and often unacknowledged—extent to which colonial interest in the American climate was an expression of the economic logic involving the imponderables of resources, labor, and trade in places unknown to the European experience.

In five chapters replete with incisive analysis of new archival finds, A Temperate Climate explores a variety of intellectual and social developments linking climatic beliefs with early colonial projects in the American Northeast and Nova Scotia. The discussion on the recurring question about the region’s temperateness—or, alternatively, its advantageous uniqueness—gives an opportunity to revisit political events and actors that shaped the transatlantic reasoning on colonial settlement, slavery, natural history, and agroeconomy while further raising questions about our current readings of traditional (and modern) theories on the role of climate in cultural and socioeconomic affairs. The book, for example, gives life to early modern genres of chorography and local natural history to bolster claims about the overlapping of climatic and political spaces, examining patterns of thought shared by eighteenth-century writers, politicians, adventurers, and mercantilists who all placed climate within the rhetorical repertoire of colonial boosterism, agriculture, military expansion, cultural identity, and—perhaps more than is conventionally recognized—the logic of economic “improvement.”

Zilberstein achieves this coverage through a finely quilted series of biographical, historical, and contextual narratives in the book’s two main parts: “Climate and Geography” and “Climate and Colonialism.” In the first part, the opening chapter discusses the neoclassical theory of the “Golden Mean” as part of the geographical and natural history traditions in which the conventional identification of climate with latitude sets