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Martine Watrelot, ed., *George Sand et les sciences de la Vie et de la Terre*. Clermont-Ferrand: Presses universitaires Blaise-Pascal, 2020. Tables, illustrations, and bibliography. €25.00 (pb). 368 pp. ISBN 978-2-84516-939-5; €16.00 (eb). ISBN 978-2-84516-940-1.

Review by James Illingworth, Cardiff University.

Martine Watrelot's edited collection explores George Sand's interests in, engagements with, and in more uncertain ways contributions to, the natural sciences. The volume is the latest instalment in the Presses universitaires Blaise-Pascal's series *Collection Révolutions et Romantismes* to emerge from a conference organised under the auspices of the association *Les amis de George Sand*. The conference in question concluded the exhibition *George Sand et l'histoire naturelle* held between September and November of 2016 at the Muséum d'histoire naturelle de Bourges in Sand's native Berry.

Scholarly interest in Sand and science has increased in recent years, but Watrelot's volume is the first that is fully dedicated to the subject. The contributions adopt a diverse range of approaches and the primary materials covered largely eschew the more canonical Sand texts in favour of her less-commonly studied and often more experimental writings, with a welcome focus on her later career (after 1848). Sand's reading of and relationships with scientific figures of her age, her own scientific practices, and the relationship between science and art are among the core concerns of the book. As such, the volume does not proceed chronologically. Instead, it takes Auguste Comte's "Hiérarchie des conceptions humaines" as its organising principle, thematically grouping the essays as geology, biology, and moral philosophy. Each part begins with an introduction by Watrelot, which contextualises Sand's engagement with each section's respective themes and how these are explored in the subsequent contributions. These introductions are particularly valuable, especially the introduction to the third part which offers a detailed reading of Sand's 1872 essay "La Forêt de Fontainebleau," in which Sand joined the campaign calling on the French State to protect the forest as a national monument.

Part one, "le roman de la terre," focuses on Sand's geological interests. These articles also share a chronological focus, since they predominantly consider materials from the 1860s. The first piece, by Simone Bernard-Griffiths, explores Sand's fascination with extinct volcanoes through illuminating readings of Sand's accounts of her travels through Auvergne and the novel *Jean de la roche*. The second article, by Amy Parker, offers a new reading of Sand's interest in crystallography as depicted in her novel *Laura, voyage dans le cristal*. This particular novel has attracted much attention from scholars interested in Sand and science, but Parker convincingly demonstrates the interconnections between Sand's use of crystallography and her vision of social

progress, usefully read alongside the earlier novel, *Teverino*. An examination of Sand's interactions with the largely forgotten geologist and Saint-Simonian Léon Brothier, courtesy of Michelle Perrot, completes this section. Brothier turned to Sand to write a popular history of science, though in the end produced the text himself. This interaction, Perrot notes, may even have introduced Sand to the idea of *dendrites*, the innovative painting technique Sand developed in her later years.

The second and longest part of the volume turns to the biological sciences. In the first essay, Elyssa Rebaï presents a reading of *André* that attends to the gendered dynamics of scientific learning, in particular through a focus on the figure of the pedant. Rebaï is right to present the savant in *André* as a counterpoint to the idealised representation of similar figures elsewhere in Sand's oeuvre, but it would have been useful to note that *André* is by no means the only Sand novel to make this point. Olga Kafanova then fruitfully explores Sand's reading of Johann Lavater. Kafanova suggests that Lavater's method influenced Sand's representational models, citing examples from numerous Sand novels of character descriptions that reflect Lavater's method. Intriguingly, Kafanova states in passing that "le plus souvent, le modèle physiognomonique est utilisé par George Sand dans la caractérisation de personnages masculins" (p. 110). It would have been useful to unpack this statement a little further. Kafanova continues by saying that the predominance of masculine characters depicted in this way reflects Lavater's own practice, since most of his own published examples were analyses of male physiognomy. But a deeper exploration of what it means for Sand to replicate this practice would not have gone amiss.

The next trio of essays in the second part of the volume function as a kind of triptych, with each probing Sand's engagement with evolutionary theories. Mariette Delamaire begins with Sand's readings of theories of species change before Darwin, providing a useful examination of Sand's evolving views on the subject and how they manifest themselves in her works. However, the essay does cover similar ground to an earlier article by Manon Mathias, drawing similar conclusions and analysing the same material (*Le Poème de Myrza*, "Soi pour soi. La science," and *Évenor et Leucippe*).<sup>[1]</sup> Some engagement by Delamaire with Mathias's essay would have been welcome. Delamaire's text is followed by an invaluable pair of articles by Martine Watrelot. The first presents in full, and for the first time, the complete letters sent to Sand between 1837 and 1838 by the celebrated naturalist Étienne Geoffroy Saint-Hilaire. These letters had only previously been published in fragments in the edition of Sand's correspondence in twenty-six volumes produced by Georges Lubin. Watrelot helpfully also includes three annexes to these letters: a list of readings Saint-Hilaire suggested to Sand, a list of objects Saint-Hilaire offered to Sand, and a timeline of Sand and Saint-Hilaire's epistolary exchanges and meetings. In her article that follows, Watrelot then discusses this correspondence in detail to establish the ways Saint-Hilaire influenced Sand, emphasising too the Saint-Simonian undercurrent of their exchange. The second part closes with Françoise Genevray's authoritative and well-documented excavation of Sand's engagement with Darwin, noting that Sand's first reference to Darwin's theories appeared in 1860, before the first French translation of *On the Origin of Species* in 1862. Genevray's article also includes an invaluable appendix listing the items pertaining to Darwin's theories that Sand read or was likely to have read.

At the end of the second part of the volume, Watrelot provides an abridged version of the catalogue of the 2016 exhibition "George Sand et l'histoire naturelle" held at the Muséum d'histoire naturelle de Bourges. The conference this volume emerged from served to conclude

that exhibition. The full catalogue is available online through the website of Les amis de George Sand, though only for subscribers. The excerpts included here provide brief overviews of the key figures in Sand's life who offered instruction in various scientific fields: François Étienne Ajasson de Grandsagne, Jules Néraud, Saint-Hilaire, Gustave Tourangin, and Auguste Aymard. It also includes one of the few surviving specimens from Sand's herbarium, her famous *dendrites*, and other paintings and items collected by Sand and loaned for the exhibition by the Maison George Sand at Nohant or from the collections at Gargilesse, as well as items from the wider collection of the museum at Bourges. The provision of colour illustrations from the catalogue is extremely helpful. These excerpts give a flavour of the broader exhibition and amply reflect Sand's rich and diverse scientific interests which are, of course, at the heart of the book. Watrelot has helpfully also included at the end of the catalogue a discussion of which of the book's essays refer to aspects of the exhibition in the catalogue, which helps to further justify its inclusion. Nevertheless, despite its value, the location of this catalogue within the wider volume seems somewhat peculiar, appearing as it does at the end of the second section, rather than one of the more logical positions either at the start or end of the book (not least as Watrelot's helpful list includes *all* essays in the book, not just those in the first and second parts).

The book's third part turns to philosophy, with a particular interest in the ecological. Pascale Auraix-Jonchière gives a fascinating and compelling reading of Sand's *Contes d'une grand-mère*, which she argues can be considered ecofictions *avant la lettre*. In her approach she is inspired by Annie K. Smart's 2015 article which offers the first formally ecocritical reading of Sand, taking *Le Meunier d'Angibault* as a case study to expose what she calls a "réalisme vert" that underpins Sand's ecologically-minded aesthetic.<sup>[2]</sup> Yet Smart has also since published a reading of the very tale that Auraix-Jonchière privileges in her essay, "La Reine Coax," in which Smart identifies a "proto-environmentalist stance in teaching how humans should interact with the non-human living world."<sup>[3]</sup> Auraix-Jonchière extends these reflections beyond "La Reine Coax" to the other *contes* that make up Sand's collection, focusing in particular on the role of animals in these tales as protectors of nature and that suggest a fundamental "écocivisme" (p. 257), but engagement with Smart's later essay would have been fruitful. Claudine Grossir then traces the representation of applied sciences in Sand's novels, from agricultural practices to industrial innovation, to argue persuasively that Sand promotes an urban environment in which agriculture and industry exist "en synergie et en harmonie" (p. 274). The subsequent essay by Naoko Takaoka covers similar ground to Grossir, but intriguingly connects the utopian worker communities Sand depicts in *Le Péché de Monsieur Antoine*, *Narcisse* and especially *La Ville noire* as experiments whose principles anticipate Ebenezer Howard's 1898 proposal of the garden city.

The two articles that comprise the fourth and final part of the volume, "Conserver les vestiges de la Vie sur Terre," adopt a very different approach to those of the previous sections. Claudine Dheurle's piece first details the emergence of George and Maurice Sand's lepidopterological collection before taking the reader on an archival scavenger hunt to trace its afterlives, determining that it has most likely been incorporated into the collections of the Natural History Museum in London. The second article, by Jean Marie Guégan, details Sand's interest in palaeontology and provides a description of Sand's collection of fossils, accompanied by colour photographs of the collection and its catalogue.

My critique of the exhibition catalogue appearing at the end of the second part of the book applies to the very final piece in the text, the curious "Florilège sandien" that closes the volume. This piece comprises excerpts from five chapters of the *Nouvelles lettres d'un voyageur* in addition to one

from *Promenade autour d'un village* in which Sand discusses aspects of the natural sciences. These excerpts receive no introduction, however, nor are they placed in their context. The introduction to the overall volume states that these are included to give a sense of Sand's thoughts on "le rôle du naturaliste, ou encore le devenir d'une Humanité ayant à repenser sa place dans la Création et dans un ordre social avide de possession et d'argent" (p. 14), but as the array of primary sources addressed across the volume's contributions demonstrate, Sand discusses these themes across her oeuvre, so some form of presentation of these extracts explaining the choice and their significance would have been useful. Given the rich interconnections between the essays both within and across the volume's internal sections as well as the wide range of individuals and sources considered, it is surprising that the volume does not include an index. Watrelot's excellent introductions to each discrete part go some way toward remedying this lack, but again this seems to expect much of the more casual reader.

Despite these reservations, the volume Watrelot has compiled is rich and thought-provoking, giving a full and lively account of Sand's wide-ranging scientific interests. As the contributions to this volume show, Sand's fascination with the natural sciences went far beyond that of an amateur, and the book serves therefore as an important reminder that Sand was actively engaged in the most vital questions of her day. In this, Watrelot and the contributors are to be commended, and the volume certainly represents an extremely valuable addition to the growing body of work on Sand and science. "George Sand pouvait-elle être un *homme* de science?" This is the question posed by the book's blurb, and Watrelot suggests that the frequency with which prefaces of scientific works were confided to Sand indicates that she can be seen as "une autorité intellectuelle reconnue dans le monde des sciences" (p. 291). Yet the italicisation of *homme* suggests the reader should expect some privileging of the gendered dynamics of the relationship between women and science in the period, a period which, as Watrelot points out in the introduction, "ne reconnaît guère aux femmes d'aptitudes à la pensée rationnelle et scientifique" (p. 19). While several essays touch on this issue (especially those that feature in the first part), it is seldom the focus. Nevertheless, the volume is essential reading for those studying Sand, but surely also for those interested in the history of science more broadly, and especially the rich connections between science and literature in the nineteenth century.

## LIST OF ESSAYS

Martine Watrelot, Introduction.

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Simone Bernard-Griffiths, Sciences naturelles et imaginaire: des *Journaux de voyage en Auvergne et en Velay* au roman *Jean de la Roche*.

Amy Parker, Cristallographie et vision sociale dans *Laura, voyage dans le cristal* et *Teverino*

Michelle Perrot, La beauté des pierres: George Sand et Léon Brothier.

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Olga Kafanova, 'Un des plus beaux livres qui soient sortis de l'esprit humain': *La Physiognomonie* de J. K. Lavater dans l'œuvre de George Sand

Mariette Delamaire, George Sand et les théories françaises de l'Évolution avant Darwin (1859)

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Part three: Philosophie politique et morale

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Naoko Takaoka, La nature et l'urbanisation utopique dans le monde Romanesque de George Sand

Part four: Conserver les vestiges de la Vie sur Terre

Claudine Dheurle, La famille Sand et les papillons

Jean Marie Guégan, George Sand et la paléontologie

Florilège sandien

## NOTES

[1] Manon Mathias, "Pre-Darwinian Species Change: Reincarnation and Transformism in George Sand's *Évenor et Leucippe*," *Journal of Literature and Science* 11 (2018): 33-49.

[2] Annie K. Smart, "George Sand's *réalisme vert*: Toward an Ecocritical Reading of *Le Meunier d'Angibault*," in Douglas L. Boudreau and Marnie M. Sullivan, eds., *Ecocritical Approaches to Literature in French* (Lanham, Md.: Lexington Books, 2015), pp. 41-63.

[3] Annie K. Smart, "Water Worlds: An Ecocritical Approach to 'La Reine Coax'," in Françoise Ghillebaert and Madeleine Vala, eds., *Water Imagery in George Sand's Works* (Newcastle-upon-Tyne: Cambridge Scholars, 2018), p. 112.

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