One can understand why Derrin felt the need for a comparative companion in Donne, but Donne simply does not offer as compelling a *sylva* for the questions Derrin's book seeks to address. To give an instance, Bacon's 'Doctrine of the Idols' allows Derrin to put forth a fascinating account of the problem of the familiar through a discussion of the crucial notion of *anticipatio mentis*. Derrin convincingly demonstrates the connection between opinions, memories, and the passions, on the one hand, and *anticipationes* (preconceptions), on the other, as the heart of Bacon's problem with the familiar. This analysis ties in well with other, recent research on Bacon's *cultura animi*, upon which it offers a fresh perspective through the lens of Renaissance rhetorical practices. After examples such as this, one wishes that Derrin had eschewed Donne altogether. The inclusion of Bacon's 1609 *De sapientia veterum* would, for one, have made an excellent replacement, and perhaps even supported his thesis better.

In general, *Rhetoric and the Familiar* is an insightful book with a clear writing style which renders the often difficult concepts throughout accessible. Derrin's reading of Bacon is consistently spot on and penetrating, and even the sections on Donne, though less stimulating, exhibit the great potential of its author. Derrin should be lauded for offering a genuinely unfamiliar perspective on a familiar problem.

James A.T. Lancaster
Royal Holloway, University of London
james.lancaster@rhul.ac.uk

Ronan de Calan, *Généalogie de la sensation. Physique, physiologie et psychologie en Europe, de Fernel à Locke*, Paris : Honoré Champion, 2012, 496 pp.

Ronan de Calan seeks to retrace the genesis of empiricism through the conceptual and terminological appearance of its main concept, namely that of *sensation*. The aim of the book is challenging in that it intends to demonstrate not only that the vocabulary of sensation did not appear before the end of the seventeenth century, but also that there was no such thing as the concept of sensation before the early modern period. To that end, this book combines a twofold approach: a conceptual analysis that aims to determine the distinctive philosophical features of sensation, and a historical study that retraces the context in which it appears. What characterizes sensation as an early modern and empiricist concept, according to de Calan, is that it relies on a unified psychological entity and on a unified explanation of physical processes. The book then examines various authors ranging from Fernel to Locke, sometimes presenting fairly standard analyses (as for Boyle) but with a non-standard overall emphasis. Thus the book is not just a series of monographic studies but follows this specific conceptual analysis applied to the notion of sensation in each author.

De Calan quotes dictionaries and textbooks from the seventeenth and eighteenth centuries to show that *sensatio* suddenly appears on the scene (p. 15), and J.G. Walch in his early eighteenth -century philosophical lexicon explicitly notes that it is a new concept (p. 21). This gives an original and interesting thrust to the book, which is to shift our understanding of a key epistemological term, 'sensation,' towards a different initial context, that of physiology (rather than optics or psychology). Indeed, the status of psychology[3] here would be important, and it is not really discussed, in favour instead of notions such as Gassendi's "chemistry of the mind," but also a "physics of the soul." The author also presents as one of his original scholarly contributions the investigation of the roots of the sensation concept, not just in anatomy or medicine as would be more common, but in physics (with particular attention paid to Isaac Beeckman).

The first general distinction de Calan proposes regarding sensation is that between a model in which all of matter senses, as in Campanella, and a more mechanistic theory, as in Descartes or Hobbes. The emergence of a modern concept of sensation implies its unification (pp. 27, 29), on anti-Aristotelian grounds, with an articulation of a material *spiritus* concept consistent with corpuscularianism (p. 154). One then sees both a tension between and subsequently the synthesis of, a more mechanistic and even materialist account of the senses (as in Beeckman) and a more genetic model of a *historia* of the mind, as in Campanella and Condillac (p. 170); de Calan also discusses the emergence in Beeckman of a sensorimotor feedback loop (p. 225). In the first chapters of the book, Jean Fernel is identified as a first step in the way leading to the physicalization of sensation. Chapter 3 on Campanella and Fracastoro traces the mechanization of sensation back to thinkers that do not belong to the canonical mechanical philosophy, and Campanella is identified as the first philosopher to introduce the word 'sensation' as well as a new concept corresponding to it based on an extension of the model of touch and a three-fold unification of the physical, physiological and psychological realms. Here one can appreciate de Calan's effort to show that the mechanization of nature does not constitute some absolute break with the cognitive models that preceded it. But one would have appreciated more efforts at scientific contextualization, rather than long quotations from primary sources followed by paraphrases.

So, for instance as regards chemistry the reader can be puzzled by grand claims such as, "the chemical model of the Royal Society elaborated the only independent and coherent concept of sensation that has survived down to us" (p. 29); and indeed, for half the book (until p. 269) "chemical" is used in a vague manner, with no scientific context, except for one single experiment of Gassendi's discussed by Bernier, concerning the dissolution of salts (cited at p. 301). De Calan also speaks rather generally of Gassendi's physics as being a

[3] Or the "naturalization of the soul," in Husserl's expression (cit. p. 12n).

chemistry, because qualities are explainable in terms of the molecular composition of atoms (p. 296[4]). Perhaps de Calan means the idea of a chemistry of the mind (Gassendi sometimes denies he sought to "put the mind in a distillation still"[5])? Yet, following Olivier Bloch, de Calan also refers—a bit confusingly—to Gassendi's chemistry as "mechanistic" (p. 303) since, he says, it is a chemistry of qualities. But elsewhere he refers to the "mechanization of physiology" (p. 157) or the "mechanistic reconfiguration of physiology, understood as the geometrization of motion" (p. 202n.), including a nice analysis of Beeckman's physiology of acoustics and optics, models of animal spirits, hydrodynamics, and chemical theory of sensation.

Descartes comprises the central part of this book (chapter 5), both chronologically and conceptually. For Descartes' philosophy fulfills the required condition for the emergence of the concept of sensation, namely that of the unification of the psychological entity and of the explanation of physical processes, but at the same time paradoxically provides, according to the author, a theory of the sensible which excludes the concept of sensation itself. This is due to the semiotic model Descartes employs to explain why a particular figure imprinted on the pineal gland produces a determinate perception. This institution of nature would constitute a hindrance to a further analysis of the relation between physiology and psychology at an elementary level. True and striking as this interpretation might be, it becomes nevertheless a bit problematic when it leads the author to claim that overall, Descartes contests the epistemic value of sense perception. The notion of a natural geometry of vision in the *Dioptrique* that the author does not take into account might have led to a different conclusion.

In chapter 6, the author presents two divergent forms of empiricism based on two different notions of sensation. For Gassendi, sensation designates the action of the soul orientated toward the molecular components in which the qualities of bodies consist. But, as Calan rightly shows, sensation is only one of the functions assumed by imagination and is therefore eclipsed by the latter. The same thing happens in Hobbes who however considers sensation not according to a *chemical* model but as a *mechanical* reaction to the motion of bodies producing phantasms (pp. 342, 345); the author usefully quotes Hobbes arguing in *De Corpore* against the view held, e.g., by Campanella, that sensation is a property of all of matter (p. 349).

Provocatively, he writes that "it's from Gassendi that the Royal Society derives its concept of sensation" (p. 285)—which may not work so well with Hooke's analysis of the senses, and seems like an odd erasure of Bacon from the historical

[4] De Calan yet more boldly states that Digby and Gassendi founded a new science, modern chemistry, in their rejection of a Cartesian approach to aggregates and complex combinations (pp. 378-379). One wonders what Van Helmont or Stahl would say.

[5] Gassendi, *Disquisito metaphysica*, II, viii, 1, cit. p. 275, n153.

record. Confirming that it is not an oversight, de Calan adds later that "much more than Bacon, […] Digby, Charleton, Boyle, Willis, Locke […] are readers of [sc. in the sense of 'influenced by'] Gassendi as a critic of Descartes" (p. 358). It's not entirely clear why de Calan thinks Descartes can have no real theory of sensation (p. 230); he also states rather opaquely that the modern concept of sensation requires an atomistic interpretation of Cartesian mechanism *and* an integration of psychology into the way of ideas (p. 254). The Hobbes-Gassendi distinction is also presented in a different way, as demarcating two traditions, that of "chemical analysis" in Gassendi and that of "logical analysis" in Hobbes, and he suggests that the former leads to a "genetic theory" of the faculties while the latter leads to a "constitutive theory of the sciences" along with a "pure phenomenology" (p. 284); the genetic tradition "rests on Gassendi's atomistic physics" (p. 353). De Calan, borrowing a distinction—which might have required itself more elucidation—from André Charrak (*Empirisme et théorie de la connaissance*, Paris: Vrin, 2009) between an "empirisme de la genèse" and an "empirisme de la constitution" (pp. 284, 353, 391), declares that by the seventeenth century the problem will be how to reconcile a genetic account of the mind with an account of the constitution of the sciences. According to the author, the genetic tradition emphasizes a phenomenalist conception of sensation, while the constitutive and mechanistic tradition is founded on imagination. But it would have been helpful to the reader if he had made more explicit what this has to do with empiricist philosophy; or with the experimental approach of the "natural history of the mind."

Chapter 7 presents several figures from the Royal Society who are situated in the wake of Gassendi's chemical analysis of sensation: it is particularly the case with Digby, Willis, and Boyle. Calan also traces Locke's notion of simple idea back to this chemical approach to sensation. Throughout all these authors, the conceptual analysis is heavily guided by Charrak's rather top-down distinction. Actually the history of the tentative articulation or distinction between the two constitutes, for de Calan, the core of the history of sensation. Therefore, the book intends to provide the prehistory of a distinction that belongs to the period of the Enlightenment. De Calan shows that the distinction as such clearly appears only in Boyle who adopts a clear-cut genetic empiricism and is considered to present the only independent and coherent concept of sensation for the period. For that very reason, he represents a kind of *terminus ad quem* for the whole book (it might have been interesting for de Calan to have confronted his analysis with work such as Shapin's, on Boyle). This amounts to saying that the previous chapters of the book are devoted, to a great extent, to an absent concept.

It might be precisely because this concept is not fully present that, until half of the book, the author does not explicitly defines what he understands by a modern concept of sensation, that is to say an atomic element of experience or representation corresponding to a determinate physiological excitation.

This maintains a certain kind of suspense, even if it might make the conceptual thread a bit more difficult to follow.[6]

What makes this book particularly valuable is the combination of a conceptual analysis of sensation with a broad time scope. The latter might from time to time lead to a few inaccuracies (e.g., light being described as a motion instead of a tendency to motion in Descartes; Descartes being said to have met Campanella; the anachronistic use of such words as "neuronal" or "gestaltist," including "Descartes produced a Gestaltist analysis of feelings," p. 317; attributing to Willis, who doesn't engage in metaphysics, "a materialist theory of the soul" (p. 391), etc.) and one could wonder about the absence of figures like Mersenne or Bacon. But on the whole, the book provides, both at the conceptual and at the historical level, a rich and original analysis of sensation. Yet some problems remain regarding empiricism.

Sometimes empiricism is presented as coeval with physicalism, as in Hobbes (pp. 27, 29) or Kenelm Digby, whom de Calan presents as coeval with "the entire British empiricist tradition,"[7] with a quotation from Digby (indeed, referring to Descartes) saying that motion is the source of all our sensations (p. 366). This may correspond to the nineteenth-century understanding of empiricism, as in Mach, which the author cites, but works badly as a historical analysis. De Calan generally fails to do justice to Locke's bracketing-off of "physical considerations" concerning the mind (*Essay* I.i.2), but he notes an interesting exception, when Locke writes at *Essay* II.viii.22 that he has "in what just goes before, been engaged in Physical Enquiries a little farther than, perhaps, I intended" (cit. p. 403). Indeed de Calan adds below that he thinks the tradition of the history of philosophy has missed the chemical and psychological foundation of Locke's empiricism. It could not exist without Gassendi's emendations of Cartesianism (pp. 408-409). De Calan also quotes Digby's detailed account of animal spirits carrying information to the brain: something Locke *almost* never says (just once, at *Essay* II.xxxiii.6). Again, de Calan speaks of Willis' work on the brain (and soul) as "contributing to the nervous physiology of the empiricists" (p. 395): but who? Neither Locke nor Hume have a nervous physiology, indeed they avoid it. Nor does the analysis in *Généalogie de la sensation* make any effort to accommodate the rather strong presence of a 'practical' or 'moral' reading of the entire empiricist project.[8]

From the early sections of the book and recurrently onwards, the author opposes the pertinence of the concept of sensation to what he calls the "insig-

[6] Many thanks to Delphine Bellis for this and other points raised in discussing this book, and for sharing her overall analysis with me.

[7] Cf. also the rather sweeping claim that "from Digby onwards, the modern theory of sensation which all of empiricism inherited, is in place" (p. 368).

[8] See, e.g., Sorana Corneanu, *Regimens of the Mind: Boyle, Locke, and the Early Modern* Cultura Animi *Tradition*, Chicago: University of Chicago Press, 2011.

nificant maxim" (p. 11) *nihil est in intellectu quod non fuerit in sensu* (also p. 15). One could respond to de Calan that many authors who discuss the maxim, whether to criticize or to defend it, are significantly posing the question of the mind and its contents/furniture, whereas de Calan wants to focus on the concept of sensation. As a side remark, the analysis deals mainly with vision and, to a lesser extent, with hearing, but not with touching as such, which is a bit surprising in view of the general perspective which aims to trace the genealogy of sensation as an empiricist concept. Similarly, for a work which seeks to fundamentally reevaluate our concept and our historiography with regard to 'British Empiricism,' it is not philosophically very careful in handling the latter—including as concerns the status of sensation or understanding in Locke.

In a number of respects, this is a difficult book to evaluate, because it contains many useful long textual citations and paraphrases on everything from the medieval notion of intellectual species to animal spirits, the meanings of 'physiology' and of course the semantic shifts around the vocabulary of 'sensation,' with an Appendix reprinting various entries from lexica and dictionaries on the subject. But the argument doesn't always perfectly reflect this textual material. It's not that the argument is lacking a systematic statement; on the contrary, the distinction between two kinds of empiricism is repeated regularly throughout the book, together with more general claims about the genesis of the modern concept of sensation. But there is a disconnect between the two. The occasionally inflated rhetoric is sometimes closer to the 2008 doctoral thesis that was at the basis of the book: it tends to over-explain many elements to the reader, such as basic facts about Vesalius and Copernicus (p. 31) or long citations of Descartes on Galileo and on Kepler, in order to make the point of Descartes' debt to the *novatores* in physiology (p. 160), remarks on mereology (p. 38, with the puzzling assertion that Fernel is a major reference for mereology, p. 69), or revolutions: "Fernel creates the new using the old, but doesn't every scientific revolution, like every symbolic revolution, imply a more or less significant dimension of preservation?" (p. 69). There also seems to be an overabundance not only of Latin original citations (in addition to translations) but also of German texts as well. An easy target for criticism would be the methodological looseness, as when the author writes that Campanella's physiology "evokes" that of Helmholtz (p. 148) or of Condillac (p. 151), or the usage of the synthetic a priori (which the author then immediately says is an anachronism, p. 389).

But de Calan's study is an enormous resource on the concept of sensation and its cognates, and provides a different and challenging sort of perspective on a cross-section of early modern philosophers and naturalists. Overall, this work touches on some under-studied figures, such as Campanella, Fernel and Beeckman as well as on canonical figures such as Descartes, Gassendi and Locke. It is not overwhelmed with current interpretive debates on any of these authors, although it applies Charrak's distinctions regarding empiricism as a rather blunt instrument.

It is well written and for specialists of 'rationalism' and/or 'empiricism,' it has the obvious merit of forcing them to take seriously the interrelations between the traditions they study. The Conclusion takes us forward to Brentano's analysis of sensation and usage of the model of chemistry. The book opens with Cassirer and closes with Helmholtz and Brentano, which gives a curious flavour to its approach to early modernity. Ironically, given this 'psychologistic,' mid- to-late nineteenth-century flavour, the author doesn't address the relation of this new analysis of sensation to the (possible) emergence of a science of psychology.[9]

Charles T. Wolfe
Ghent University
Charles.Wolfe@UGent.be

[9] See on this aspect, Fernando Vidal, *The Sciences of the Soul: The Early Modern Origins of Psychology*, Chicago: University of Chicago Press, 2011.