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Marco Beretta. *La rivoluzione culturale di Lucrezio: Filosofia e scienza nell'antica Roma.* 311 pp., figs., index. Rome: Carocci Editore, 2016. €32 (cloth).

Lucrezio. *De rerum natura: Editio princeps (1472–73).* Edited by **Marco Beretta.** 271 pp., figs. Bologna: Bononia University Press, 2016. €150 (paper).

After 1850, Lucretius's *De rerum natura* came to be associated with an ever-increasing number of groundbreaking scientific ideas: besides the obvious atom, scientists believed that they found in it the principle of the conservation of matter, the kinetic theory of gases, spontaneous beta decay, Heisenberg's uncertainty principle, the biological theory of evolution, and the structure of DNA. Irrespective of the value of such backward projections of recent scientific ideas, one wonders why they should have been attributed specifically to Lucretius. Hadn't this Roman poet simply translated and versified the ideas of the Greek philosopher Epicurus: "O thee I follow, glory of the Greeks" (*De rerum natura* 3.4)? Had the early modern readers been wrong when speaking of Aristotelianism, Platonism, Pythagoreanism, Stoicism, or Epicureanism but never of Lucretianism?

But even if we consider Lucretius an "Epicurean," it remains impossible to define the exact relation of his teaching to Epicurus. Apart from a few letters and fragments, the works of the latter are lost. Incidentally, the determination of Epicurus's debt to the Presocratic atomist Democritus, none of whose works is extant, is even more difficult. The most elusive relation is that of Democritus to Leucippus, whom doxographers consider the father of atomism but of whom we know next to nothing. In sum, when seeking the ancient precursor of atomistic intuitions, to whom should we point: Lucretius, Epicurus, Democritus, or Leucippus?

Marco Beretta has for two decades published on Lucretius and his followers, and he is more qualified than anyone else to tell the story of the fortunes of that Roman poet from antiquity to the present. While the emphasis of his new book is on ancient Rome, he sketches a panorama that reaches from Greek Epicureanism to contemporary science. His narrative is subdivided into eight exquisitely readable chapters. Chapter 1 sketches Lucretius's century, the first century A.D., which witnessed a massive increase in scientific and technical activity in the Roman world, with up to 140 known scientific authors active at the end of the century. Much of this activity was engaged in appropriating Greek knowledge. Public libraries were set up, new professions developed, and most Greek schools of thought found self-professing adherents in Rome. Strikingly, many eminent politicians of that transitional period from the Republic to the Empire studied for some time in Greece, were scientifically informed, and wrote theoretical or applied treatises, including Cicero and Caesar. As Chapter 2 narrates, by the time Lucretius wrote his didactic poem, the cult of Epicurus and of his philosophy had taken root in Rome, not least because of the active proselytizing of the leaders of Epicurus's Athenian school on Italian soil. What this implied for politics (Epicurus's ideal of withdrawal conflicted with the Roman ideal of the active *civis Romanus*) and for the sciences (Cicero and others accused Epicurus of scientific ignorance) are much-disputed issues. Unfortunately, Epicurus's thirty-seven-book treatise "On Nature" is lost, as are the treatises of his followers who engaged with mathematics and medicine. Beretta does his best to patch together the various pieces of evidence regarding the impact of Epicureanism on Roman life and the sciences, but the resulting picture must needs remain sketchy and conjectural. Did the Roman nobility add gardens to their city houses in imitation of Epicurus's garden? Should the popular and highly innovative physician Asclepiades of Bithynia be seen as an Epicurean? There is, of course, the famous "Villa of the Papyri" in Herculaneum, which possibly belonged to Caesar's father-in-law and contained a rich collection of Epicurean works and—as some fragments suggest—also an exemplar of Lucretius's didactic poem. But how representative—or unique—is this piece of evidence? There is no obvious answer, as Chapter 3 tells us, because

we know almost nothing about Lucretius himself. His dates of birth and death are as unclear as are his family circumstances, education, profession, and career. The much later stories, which speak of a love potion, madness, and suicide, are just legends. Beretta, who has carefully collected the scarce available bibliographical evidence in an appendix (pp. 265–275), weighs various conjectures, including one that connects Lucretius to the Greek philosopher Philodemus of Gadara and to the latter's stay in Rome and possibly Herculaneum.

Although Beretta considers it unlikely that there existed “a more authoritative work than *De rerum natura* presenting the principles of Epicurus' philosophy” (p. 100), this, too, must remain a conjecture. Writing Latin surveys of Greek philosophical thought was à la mode in the first century B.C., and several others of these (lost) treatises, including Sallustius's *Empedoclea*, equally addressed the principles of natural philosophy. Moreover, we know little about the diffusion and impact of Lucretius's unfinished poem, and despite the fact that a few subsequent poets cited a number of his verses, the silence of contemporaries contrasts uncomfortably with the idea of Lucretius's eminence.

In four subsequent chapters, Beretta analyzes the contents of Lucretius's work, examining his “science of the seeds” (Ch. 4), epistemology (Ch. 5), cosmology (Ch. 6), and notions of “evolution and progress” (Ch. 7). Regarding these chapters, a few general observations must suffice. There exists a curious tension between the main title of the book, “Lucretius's Cultural Revolution,” and the title of Chapter 2, “Epicureanism in Rome: A Cultural Revolution.” (Incidentally, “revolution” sounds as hyperbolic as the title of Stephen Greenblatt's recent homage to Lucretian Epicureanism in the Renaissance, *The Swerve: How the World Became Modern* [Norton, 2011]). Beretta's two titles point again to that unclear relation between Lucretius's thought and Epicurus. Consider, for example, that while Cicero proposed various Latin terms to render the Greek word “*atomos*”—“*corpusculum*,” “*individuum*,” or indeed just “*atomus*” (p. 139)—Lucretius eschewed all these terms in favor of a more vitalistic vocabulary of “*semina*” (“seeds”) and “*principia*” (“principles”), which lies, as Beretta poignantly states, “half-way between mechanics and biology” (p. 139). Does this choice imply anything about his faithfulness to Epicurus's philosophy? And what about his nonreductionist emphasis on the molecular level of clusters of atoms and on the *vitalia rerum* (p. 161)? To what extent does it deviate from Epicurus's doctrine of mixtures as summarized by Alexander of Aphrodisias? In fact, rejecting the image of Lucretius as Epicurus's Latin-versed parrot, Beretta insists repeatedly on Lucretius's originality, on his “investigative spirit” (p. 177) and experimental interests, on the points where he prefers Democritus or Empedocles to Epicurus. Beretta is particularly taken by Lucretius's notion of human progress. Rather than deploring the cultural decay after the Golden Age, Lucretius told an unheard story of “discoveries” (*reperta*), of the gradual improvement of circumstances by technological and social means, the latter by leaving a state of primeval violence by “bending willingly to laws and tight justice” (V:1147). All in all, Beretta concludes, Lucretius taught a “philosophy of emancipation” (p. 218).

The last chapter (Ch. 8) summarizes the *fortuna* of Lucretius's poem since the 1417 rediscovery, by Poggio Bracciolino, of a manuscript copy of it. *Pace* Beretta, to my mind the new life of *De rerum natura* looks much more prominent and emancipatory than its first life in ancient Rome. With bold brushstrokes, Beretta takes us from the Tuscan diffusion of the manuscript to the increasing association of the Epicurean dualism of atoms-cum-void with the new sciences, which was helped by the seventeenth-century invention of vacuum pumps. Even though Epicurus's antiprovidentialist framework was forsaken in the early modern period for the view that God had created and specifically programmed the atoms, the strong revival of Epicureanism was combated in various quarters. In fact, in 1717, precisely three hundred years after Bracciolini's manuscript discovery, Lucretius's poem was placed on the Roman Index of Forbidden Books. It was only in the nineteenth century, with the second scientific revival of physical and chemical atomism and the emergence of materialism as a genuine philosophical option, that the above-mentioned notion of Lucretius as the precursor of numerous modern scientific truths could take hold.

Beretta's book is carefully crafted, brings together much scholarship covering more than two thousand years of science, and is written with elegance, verve, and conviction. It lies in the nature of the patchy textual evidence from Greek and Roman antiquity that the narrative must in many respects remain con-

jectural. But his conjectures are well pondered and well argued. *La rivoluzione culturale di Lucrezio: Filosofia e scienza nell'antica Roma* deserves to be translated and diffused.

The other book under review is a facsimile edition, with commentary, of the *editio princeps* of Lucretius's *De rerum natura* (Brescia, 1472–1473). Beretta has decided to produce this costly volume for a number of reasons. To begin with, the first edition is extremely rare, as only four copies (kept in Florence, Chantilly, Manchester, and Prague) are currently known. Its rarity may in part be due to the unlikely place where the book was printed. After all, the early reception of Lucretius was almost entirely a Florentine affair, and the names of both the humanist-publisher Tommaro Ferrando and of the printing place, Brescia, call for an explanation. Furthermore, the edition is much better than most other fifteenth-century editions, prior to the Aldine of 1500. Even though the manuscript on which it is based is unknown, this edition merits, according to Beretta (pp. 46–47), additional attention on the part of philologists. In his instructive fifty-page introduction to the volume, Beretta provides the reader with what is known about Lucretius's life, discusses the chief concept of his poem, and tells us about the consequences of Bracciolini's rediscovery. In greater detail than in *La rivoluzione culturale di Lucrezio*, he tells us about the circulation of Lucretius's ideas in Florentine circles, the first so-called *imitatores* of his didactic verse style, and its presumed influence on Florentine painters such as Botticelli and Piero di Cosimo. The narrative then moves to Tommaso Ferrando, a minor humanist and Latin master who turned to printing, suffering repeated setbacks in this business, and to the history of the specific Florentine copy of the book that served Beretta for his facsimile edition. The introduction ends with a short note on the Bologna context in which the first commentaries on and paraphrases of Lucretius's poem were produced and printed, just before a Florentine synod in 1517, following upon the Lateran Council, prohibited the reading of Lucretius at schools and universities. Thereafter, the printing of Lucretius moved north, to France and elsewhere. The first subsequent edition to be published on Italian soil would appear only in 1647, but in 1717, as noted, Lucretius was placed on the Index of Forbidden Books, the first Latin poet to suffer this fate. This very costly facsimile edition will largely be of interest to philologists and bibliophiles.

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Middle Ages & Renaissance

Moses Maimonides. *Medical Aphorisms, Treatises 16–21: A Parallel Arabic-English Edition.* Edited, translated, and annotated by **Gerrit Bos.** (Medical Works of Moses Maimonides.) xxix + 204 pp., bibl., indexes. Provo, Utah: Brigham Young University Press, 2015. \$89.95 (cloth).

Medical Aphorisms, Treatises 16–21, a volume in the series of the medical works of Moses Maimonides (1135–1204), edited by Gerrit Bos, constitutes an impressive project. The prospect of eventually having all of these medical works available to us is very welcome. The publisher is to be commended for taking it on, and all the volumes are nicely done. It is very helpful to have parallel texts, and anyone interested in the history of medicine—or of course in the thought of Maimonides—will benefit from access to the whole series.

These aphorisms are generally taken from Galen, but not all of them are; and some are based on other ancient thinkers, often with references to texts that are no longer extant. Maimonides also brings in some medical thinkers who are nearer to him in time and place, and there is a long list of medicines and drugs,