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# Pomponio Leto's Lucretius, the Quest for a Classical Technical Lexicon, and the Negative Space of Humanist Latin Knowledge

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## Abstract

Annotations in Pomponio Leto's manuscript of Lucretius (now in Naples) reveal patterns in his engagement with the text, especially a focus on rare grammatical forms, participles, adverbs, time, and technical vocabulary usable for scientific, medical, and ontological discussion. Leto and fellow scholars of the *studia humanitatis* undertook an ambitious linguistic intervention, attempting to create a new classicizing Latin, which rejected simplified Medieval forms and adhered strictly to classical models. This led humanists to seek out everything rare, irregular, and absent from Medieval texts, and often to overshoot their ancient models in complexity, composing hyper-ornamented Latin no native speaker would produce. Thus negative space – all that was unknown, rare, and obscure in rediscovered classics – stands alongside Cicero and Virgil as a major shaper of Renaissance Latin style. The determination of humanists to reject scholastic Latin also meant rejecting the corpus of useful technical vocabulary developed in preceding centuries for discussions of such topics as cognition, perception, ontology, and cosmology. To rival the scholastics, humanists like Leto needed to develop a classical technical lexicon capable of discussing such topics with rigor. Leto's annotations show how, while searching this newly rediscovered text, he was striving to (re)construct a classical Latin technical lexicon which we might say never existed.

## Keywords

Pomponio Leto – Lucretius – studia humanitatis – Lorenzo Valla – philology – Neo-Latin

This is a portrait of negative space, of what one of the greatest Latinists in history, the celebrated Renaissance philologist Pomponio Leto (1428–98), did not know about the Latin language as he sat down to read the newly-rediscovered *De rerum natura*.<sup>1</sup> In the Renaissance, as part of their larger project to regenerate Europe through the revival of antiquity, those scholars of the *studia humanitatis* whom we now call humanists (*umanisti*) undertook an ambitious linguistic intervention, attempting to dismantle the Latin language as it had been used, and to develop a new classicizing Latin, characterized by the elimination of Medieval neologisms and the reintroduction of words and structures which had drifted out of use through the natural evolution of the language. As stylists strove to differentiate their Latin from what they saw as degenerate Medieval Latin, they turned their attentions to their favorite classical models – Cicero, Virgil – but also to what was unknown and unfamiliar, absent from contemporary Latin, and from those classical works which had been available throughout Middle Ages.<sup>2</sup> The quest for classical authenticity

1 This essay expands on material from my book *Reading Lucretius in the Renaissance* (Cambridge MA, 2014), presenting a more detailed analysis of one period of philological practice than the book's study of transformation over two centuries allowed. It is dedicated to Reginald Foster, through whom a new Latin academy now thrives in Rome, sharing so many of the activities of its counterpart five hundred years ago. I was aided in this project by the indispensable help of my friends and colleagues Michael I. Allen, Greti Dinkova-Bruun, Irina Greenman, Craig Kallendorf, Thomas Noriega, Anthony Grafton, and Jo Walton, by the many paleography students who worked on Pomponio Leto's index with me including Amber Ace, Lucia Delaini, Hannah Dorsey, John-Paul Heil, Suzanne Lechner, Filippo Petricca, Brendan Small, and Alice Yeh, and also by 'I. G. I. Hermann', a previous owner of what is now my copy of the 1483 Frankfurt 8° edition of Lambin's annotated Lucretius, who, in 1786, went through the book and wrote in the line numbers. Scholarship is truly a collaboration of many generations. I am also grateful to the editors, especially Mordechai Feingold, for their extraordinary patience as revisions were delayed for several years by my chronic illness – too often we, who live the life of the mind, are silent about the limitations of the flesh, but we should celebrate the scholarly communities of kindness and understanding that let us persevere *ad astra* even when it must be *per aspera*.

2 On the history of which classics were available at which point in the formation of humanist reading practices, see Leighton Durham Reynolds, *Texts and Transmission: A Survey of the Latin Classics* (Oxford, 1983); James Hankins and Ada Palmer, *The Recovery of Ancient Philosophy in the Renaissance: A Brief Guide* (Firenze, 2008); Paul Oskar Kristeller et al., *Catalogus Translationum et Commentariorum* (Washington D.C., 1960-); Leighton Durham Reynolds and Nigel Guy Wilson, *Scribes and Scholars: A Guide to the Transmission of Greek*

also led the *umanisti* to overshoot their ancient models in grammatical complexity, composing hyper-ornamented Latin far more complicated and – in the artistic sense – *grotesque* than anything ancient native speakers had produced. Especially in the beginnings of works, humanists competed to advertise their erudition and breadth of scholarship by packing their sentences with the strangest and rarest words and constructions; if we compare a sentence of Cicero to walking, Renaissance *umanisti* produced elaborate gymnastics routines. Thus negative space – all that was unknown, rare, confusing, and obscure in rediscovered classics – stands alongside Cicero, Virgil and Quintilian as one of the most powerful shapers of Renaissance Neolatin literature and style. And in addition to the style component, the determination of humanists to reject Medieval and especially scholastic Latin style also meant rejecting the vast corpus of useful technical vocabulary developed in preceding centuries, and used by intellectual leaders like Thomas Aquinas or William of Ockham to enable their discussions of such complex topics as cognition, perception, ontology, systemic cosmology, and the mind-body interface. To rival the scholastics, one needed tools capable of discussing everything the scholastics could discuss, and that required reaching beyond the models of Cicero and Virgil, reaching out for more tools, and more sources. The dynamic frontiers where this occurred, where humanists encountered the negative space of their knowledge of Latin, were newly-rediscovered texts.

Humanists' first encounters with Lucretius's *De rerum natura* provide a particularly clear view of their engagement with the negative space of their knowledge of Latin.<sup>3</sup> Praise of Lucretius in Ovid, Quintilian, Cicero and other

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*and Latin Literature* (Oxford, 1991). On the centrality of style to the humanist project, see Patrick Baker, *Italian Renaissance Humanism in the Mirror* (Cambridge, 2015). On the formation of Latin style see Christopher Celenza, *The Intellectual World of the Italian Renaissance* (Cambridge, 2018) esp. ch. 2; Celenza, 'End Game: Humanist Latin in the Late Fifteenth Century', in *Latinitas Perennis Volume II: Appropriation and Latin Literature*, ed. Jan Papy, Wim Verbaal, and Yanick Maes (Leiden, 2009); Maurizio Campanelli, 'Languages', in *The Cambridge Companion to the Italian Renaissance*, ed. Michael Wyatt (Cambridge, 2014). For further studies of humanist Latin philology, its goals and antecedents, see Julia Haig Gaisser, 'Teaching Classics in the Renaissance: Two Case Histories', *Transactions of the American Philological Association* (1974-) 131 (2001), 1–21; Andrea Severi, 'The Golden Ass under the Lens of the 'Bolognese Commentator' Lucius Apuleius and Filippo Beroaldo', in *The Afterlife of Apuleius*, ed. Florence Bistagne, Carole Boidin, and Raphaëlle Mouren (London, 2021); Anthony Grafton, *Joseph Scaliger: Textual Criticism and Exegesis* (Oxford, 1983). On Petrarch's influence on Renaissance Latinity, see Celenza, 'Petrarch and the History of Philosophy', in *Petrarch and Boccaccio*, ed. Igor Candido (Berlin and Boston, 2018); also Celenza, *Intellectual World*, ch. 2.

- 3 On Lucretian reception in the Renaissance, see Alison Brown, *The Return of Lucretius to Renaissance Florence* (Cambridge M.A., 2010); Brown 'Reinterpreting Renaissance

sources led *umanisti* to expect excellent poetry, but nothing prepared them for the poem's extraordinary difficulty.<sup>4</sup> Lucretius was a great innovator of language, and also a great linguistic antiquarian, employing an uncommonly large number of rare and archaic forms, using familiar words in unfamiliar technical senses, and creating numerous neologisms and new constructions to communicate the details of Epicurean physical theory, or to substitute for Greek terms. The content of the poem too, especially in its technical discussions of atomism, is often difficult to understand. For example, the famous Lucretian 'swerve' – the inherent unpredictable factor in atomic movement which accounts for the existence of freewill in Lucretius's materialist universe – is described only once, at II 292, by the phrase *exiguum clinamen principiorum* (the small/meagre swerve of beginnings), a phrase far from transparent, and even more challenging since *clinamen* was a *hapax legomenon* never before encountered by Renaissance scholars. The first Renaissance philologists who struggled – without the aid of guides or dictionaries – to make sense of Lucretius's language after centuries of absence left records of their labors in the margins and flyleaves of physical books. These relics of the reading process show us the first steps by which the new, the obscure, the ambiguous, and the unknown were gradually integrated into the new language that classicizers wanted Latin to become. It also shows us the larger goals of *umanisti* as they read through a text with many hundreds of new words and thousands of rare usages, and chose which among these to make their focus.

I will depict the negative space of humanist Latin knowledge in four stages. First, an analysis of Pomponio Leto's habits in annotating Lucretius demonstrates how much one master Latinist's reading process concentrated

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Humanism: Marcello Adriani and the Recovery of Lucretius', in *Interpretations of Renaissance Humanism*, ed. Angelo Mazzocco (Leiden, 2006); Gerard Passannante, *The Lucretian Renaissance: Philology and the Afterlife of Tradition* (Chicago, 2011); Valentina Prosperi, *Di Soavi Licor Gli Orli Del Vaso: La Fortuna Di Lucrezio Dall'umanesimo Alla Controriforma* (Turin, 2004); Prosperi, 'Lucretius in the Italian Renaissance', in *The Cambridge Companion to Lucretius*, (Cambridge, 2007); and especially Philip R. Hardie, Valentina Prosperi, and Diego Zucca eds. *Lucretius Poet and Philosopher: Background and Fortunes of De Rerum Natura* (Leiden, 2020) and David Norbrook, Stephen Harrison, and Philip Hardie eds. *Lucretius and the Early Modern* (Oxford, 2015). On the significance of the collection *Lucretius and the Early Modern* and its response to Steven Greenblatt, see my review essay, 'Lucretius after *The Swerve*', *Modern Philology*, 115 (2017), 289–97; further on the impact of Greenblatt see 'The Persecution of Renaissance Lucretius Readers Revisited', in *Lucretius Poet and Philosopher*, 167–200.

- 4 Ovid *Amores* 1.15.23–24; Cicero *Epist. ad Q. fr.* 14.2.9; Quintilian X.1.87; on knowledge of Lucretius before his return see David Butterfield, *The Early Textual History of Lucretius' De Rerum Natura* (Cambridge, 2013); Palmer, *Reading Lucretius*, 104–20.

on rare and unfamiliar elements of the Latin language, and how his linguistic notes intersect with notes on the poem's content. Second, a close examination of the index that either Leto or one of his students made upon revisiting the text reveals the priorities his circle had as returning readers, distilling his initial notes down to the most essential.<sup>5</sup> Third, an examination over time of how annotators and editors after Leto commented on two sample passages shows how the negative space of Latin evolved from the late 1400s to 1600. Then fourth, a sample of Leto's own Latin prose shows how strongly his style was shaped by the rare and unfamiliar elements of classical language which were the focus of his annotation. The first two examinations in particular are necessarily very technical, focusing on individual points of grammar and vocabulary, but it is in the details of how Leto navigated Lucretius's jungle of archaic forms and neologisms, syncopated pluperfects and passive periphrastics, that we can see the incremental steps by which *umanisti* explored Latin's uncharted negative space.

### Pomponio Leto and the Legacy of Lorenzo Valla

Pomponio Leto<sup>6</sup> was a professor at the Gymnasium Romanum, who founded and led a celebrated neoclassical academy in Rome.<sup>7</sup> Before it was dissolved by Pope Paul II – who accused the academicians of paganism and anti-papal republican conspiracy – Leto and the members of his academy undertook some of the most conspicuous classicizing activities yet attempted in the Renaissance: adopting classical names and dress, celebrating Roman holidays, staging ancient plays, and undertaking detailed study of Latin texts, including

5 An appendix at the end of this article offers a complete transcription of Leto's index, and an image of the page appears in Palmer, *Reading Lucretius*, fig. 18.

6 On Leto's work on Lucretius see Palmer 'The Use and Defense of the Classical Canon in Pomponio Leto's Biography of Lucretius', *Vitae Pomponianae: Lives of Classical Writers in Fifteenth-Century Roman Humanism. Renaissanceforum* 9 (2015), 87–106; Palmer, *Reading Lucretius*, 73–9.

7 Susanna de Beer, 'The Roman 'Academy' of Pomponio Leto: From an Informal Humanist Network to the Institution of a Literary Society', in *The Reach of the Republic of Letters: Literary and Learned Societies in the Late Medieval and Early Modern Europe*, ed. Arjan Van Dixhoorn and Susie Speakman Sutch (Leiden, 2008) 181–218; Mariantonietta Paladini, 'Tre Codici Lucreziani E Pomponio Leto Copista', *Annali dell'Istituto Universitario Orientale di Napoli* 17 (1995) 181–218; Giuseppe Solaro, 'Venere Doma Marte'. A Proposito Di Uno Sconosciuto Corso Universitario Su Lucrezio Di Pomponio Leto' in *Acta Conventus Neo-Latini Bariensis: Proceedings of the Ninth International Congress of Neo-Latin Studies* (Tempe AZ, 1998), 557–64.

Lucretius.<sup>8</sup> Numerous physical relics of Leto's work on Lucretius survive, including two manuscripts with notes in Leto's hand, one in Rome and one in Naples,<sup>9</sup> a copy of the 1486 print edition of Lucretius also annotated by Leto,<sup>10</sup> two Lucretius manuscripts transcribed by Leto's student Giovanni Sulpizio da Veroli (Verolano; active c. 1470–1490),<sup>11</sup> and manuscripts in Cambridge and Basel which contain marginalia selectively copied from Leto's annotations.<sup>12</sup> The most detailed annotations are in the manuscript now in Naples, which contains a particularly valuable text of the poem itself, assembled from several different sources,<sup>13</sup> as well as Leto's annotations in several shades of ink, documenting several thorough passes through the entire 100,000 word poem.

Even among *umanisti*, Pomponio Leto had unusually close ties to the larger project of transforming Latin style, thanks to the influence of his teacher and predecessor, the ferocious Lorenzo Valla (1407–1457). Valla was one of the most revolutionary figures in early humanism, calling for a fundamental transformation, not just of Latin, but of how the scholars who were working to reform Latin should go about seeking the best Latin style.<sup>14</sup> Valla shocked his peers by praising Quintilian above Cicero as a model of eloquence, and by criticizing, not only the Medieval Latin of jurists and scholastics, but also the efforts of the many humanist scholars who had gone about pursuing Latin excellence by identifying and imitating those authors they considered to be the supreme masters: Cicero for prose and Virgil for poetry. Valla insisted that ideal Latin style could not be found in a few supreme examples. Instead it should be sought by examining many classical authors, identifying the strong

8 On Leto's academy and the accusations of treason levied by Paul III, see Anthony D'Elia, *A Sudden Terror: The Plot to Murder the Pope in Renaissance Rome* (Cambridge MA, 2009).

9 Biblioteca Apostolica Vaticana (BAV) Ottob. Lat. 2834 and Naples Biblioteca Nazionale Vittorio Emanuele III (Naz.) IV E 51.

10 1486, Utrecht Universiteitsbib. Litt. Lat. X fol. 82 rar. See Palmer 2014, 142–6.

11 BAV Ottob. Lat. 1954, and Baltimore Walters W.383 (De Ricci 434).

12 These are Basel, OBU F.VIII.14 – part of the library of Swiss jurist Bonifacius Amerbach (1495–1562) – and Cambridge, Nn.2.40, a manuscript with Aragonese arms, and one of many indicators of interest in Lucretius in Spain and Naples, see Ángel Traver Vera, 'Lucrecio En España' (University of Extremadura, 2009).

13 See Michael Reeve, 'The Italian Tradition of Lucretius Revisited', *Aevum* 79 (2005) 115–64.

14 On Valla see Lodi Nauta, *In Defense of Common Sense: Lorenzo Valla's Humanist Critique of Scholastic Philosophy* (Cambridge, MA, 2009); Salvatore Camporeale, Patrick Baker, and Christopher Celenza eds., *Christianity, Latinity, and Culture: Two Studies on Lorenzo Valla* (Leiden, 2013); Peter Mack, *Renaissance Argument: Valla and Agricola in the Traditions of Rhetoric and Dialectic* (Leiden, 1993); Ann Moss, *Renaissance Truth and the Latin Language Turn* (Oxford, 2003); Lorenzo Valla, *L'arte Della Grammatica*, ed. Paola Casciano ([Milan], 1990). See also Brian Copenhaver's introduction to Lorenzo Valla, *Dialectical Disputations: Book 1* (Cambridge, MA, 2012).

and weak sections of every work (since even Cicero had his inferior moments), and then deriving, from this panorama of excellence and imperfection, the rules of eloquence which structured all good Latin, but which were not completely manifest in any one work, or author. Valla's *Elegantiae linguae Latinae*, which began circulation in the 1440s, provided thousands of examples of words, idioms, phrases and constructions gathered from the breadth of Latin literature, outlining Valla's idea of pure and excellent Latinity. This was not the first such collection of examples, nor the first time anyone had drawn on diverse Latin authors for such a manual, but it was far more programmatic than any previous attempt, voicing with new ferocity the humanist rejection of contemporary Latin style, and arguing that only a purified classical Latinity could enable the restoration of ancient Rome's lost knowledge and virtue, and through them political stability and success.<sup>15</sup>

Pomponio Leto shared his mentor Valla's voracious desire to examine any and all classical Latin, as well as his tendency toward ostentatious display of his own erudition, and his pugnaciously critical attitude toward peers and rivals, which dragged both men into frequent scholarly feuds. Leto also inherited Valla's interest in Epicureanism. In the 1430s Valla had composed a philosophical dialog, *De voluptate*, which centered on an Epicurean interlocutor in dialog with a Stoic and several other theologians and philosophers.<sup>16</sup> In the dialog, Valla explored what ethics might develop around the famous Epicurean principle that pleasure was the highest good, but the philosophy voiced by his Epicurean interlocutor was not classical Epicureanism but Valla's own invention, derived from his speculation about how one might live by that principle, supplemented by a few details from the summaries of Epicureanism available in Cicero.<sup>17</sup> During the 1430s when Valla completed the dialog, manuscripts of Lucretius and Diogenes Laertius – the major first-hand accounts of Epicureanism surviving from antiquity – had just been rediscovered, but both were in Florence, where Valla had made many enemies, primarily through his break with his former friend, the celebrated rediscoverer of Lucretius, Poggio Bracciolini.<sup>18</sup> While Ambrogio Traversari's Latin translation of Diogenes

15 See Moss, 35–43; on the political applications of virtue in the humanist project see Hankins, *Virtue Politics: Soulcraft and Statecraft in Renaissance Italy* (Cambridge MA, 2019).

16 Lorenzo Valla, *On Pleasure = De Voluptate* (New York, 1977).

17 Cicero provides information about Epicureanism primarily in the *Academica*, *De Natura Deorum*, and *Tusculanae quaestiones*, as well as in *De divinatione* and *De fato*, see Palmer, *Reading Lucretius*, 17–20.

18 Hankins and Palmer, *Recovery*, 34–6, 62–3. Giovanni Aurispa (1376–1459) had brought a complete Greek manuscript of Diogenes Laertius back from Constantinople in the 1520s.

Laertius began to circulate soon after its completion in 1433, Lucretius did not leave Florence until after the death of Niccolò Niccoli in 1437, and even then its spread was slowed by the tedious process of hand-copying, and access to the first few copies was still dominated by Valla's intellectual enemies. Valla's *De voluptate* – the most ambitious exploration of Epicureanism since antiquity – had to be completed without access to a single ancient Epicurean voice. When his successor Leto acquired first one Lucretius manuscript, then a second, then a printed version of a third, he threw himself into study of the *De rerum natura* with an intensity rivaled in the late 1400s only by the Greek scholar Michele Tarchaniota Marullo (1458–1500), whose work was cut short by his untimely death less than a decade after Leto's.<sup>19</sup>

Leto's long career continued three decades beyond the tumultuous 1460s to the more tumultuous 1490s, and three popes beyond Paul II. In Rome, each new papacy meant the uprooting of the scholarly world, as a new patronage network displaced the old, inverting who was in and out of favor, jobs, and commissions.<sup>20</sup> The early classicizing Latin taught by Valla transformed much over these decades, shaped by influential new stylists such as Poliziano, and by debates, including debates over the best classical models, over the relative importance of Latin and Greek, over the power and uses of rhetoric and its place in the *trivium*, and the question of form versus substance. Petrarch in particular, as well as latter figures like Alberti, had defined the project of classicizing Latin in opposition to scholasticism, whose practices of rote memorization and elaborate proofs humanists characterized as tedious and devoid of any power to persuade and stir the passions. Yet, over the decades of the 1400s, humanist Latin had developed enough to face similar charges. As Peter Godman observed, the critique voiced by figures like Savonarola – that classical models had become like a prison limiting expression and innovation, and valuing the form of its practice over the substance within – shook figures like Poliziano, triggering an examination of practice and purpose, while classrooms teaching the *studia humanitatis* were indeed as rote as scholastic ones, as shown by Robert Black's analysis of classroom practices.<sup>21</sup>

19 Marullo drowned in the Cecina river riding to battle Cesare Borgia's forces in 1500. His work on Lucretius was much celebrated by his peers, and corrections to the text attributed to Marullo were used by many later scholars, including Machiavelli and Denys Lambin.

20 On this upheaval, see Barry Torch, "Do I have a Book for You?" The friendship of Theodore Gaza, Giovanni Bussi, and a Gifted Book', in *Making Stories in Early Modern Italy and Beyond* (Toronto, 2023).

21 Peter Godman, *From Poliziano to Machiavelli: Florentine Humanism in the High Renaissance* (Princeton, 1998), ch. 2 esp. 31; Robert Black, *Humanism and Education in Medieval and*



Christopher Celenza has taken from Pierre Bourdieu the useful term *habitus* – comprising both the literal practices and the broader often-unspoken set of principles, assumptions, and concerns which unite a community.<sup>22</sup> During the last decades of Leto's career, *umanisti* were challenged to answer whether and how the *habitus* of their *studia humanitatis* transcended mere imitation of classical form to achieve its loftier goals of teaching virtue and improving souls.<sup>23</sup> While most of Leto's work on Lucretius certainly predates Savonarola's 1491 *Apologeticus*, his work is a window on the *habitus* of his circle, one which lets us observe what we might expect to be one of the most rote and form-over-substance aspects of that *habitus*: the philological correction of a text, which focuses, not even line-by-line but word-by-word, on grammar and vocabulary rather than ideas. This window on Leto's *habitus* lets us ask how much intellectual substance and engagement with ideas was genuinely present even in the most meticulous and form-focused of humanist approaches to the negative space of classical Latin. This in turn can help us address the recurring form-over-substance critique of Renaissance classicizing Latin, raised by figures from Savonarola to Black, and, most importantly, by those nineteenth-century historians whose dismissal of Renaissance Latin literature was such a major cause of the exclusion of figures like Leto, Ficino, Poliziano and their peers from histories of philosophy and ideas.<sup>24</sup>

### The Annotations in Leto's *Neapolitanus*

A distillation of Leto's interactions with Lucretius survives in the manuscript now in Naples, which contains extensive annotation and a manuscript index written on one of the front flyleaves.<sup>25</sup> This index moves systematically through the text, listing words and short phrases, organized by the number of the folio

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*Renaissance Italy: Tradition and Innovation in Latin Schools from the Twelfth to the Fifteenth Century* (Cambridge, 2001).

22 Christopher Celenza, *The Lost Italian Renaissance: Humanists, Historians, and Latin's Legacy* (Baltimore, 2004), esp. 14, 77.

23 On the project of humanism, see Hankins, *Virtue Politics*.

24 On this exclusion, see Celenza, *Lost Italian Renaissance*, and my chapter 'The Effects of Authorial Strategies for Transforming Antiquity on the Place of the Renaissance in the Current Philosophical Canon', in *Beyond Reception: Renaissance Humanism and the Transformation of Classical Antiquity*, ed. Patrick Baker, Johannes Helmrath and Craig Kallendorf (Berlin, 2019), 163–94.

25 Naples, Naz. IV E 51, f. 5r, front inner flyleaf, figure 18 in Palmer, *Reading Lucretius*.

on which they appear.<sup>26</sup> The indexed words come, not directly from the text, but from Leto's marginal annotations, so this was a quick-reference list of the notes Leto had made on earlier passes through the poem, indexed either by Leto or one of his students. Leto clearly made several passes through the poem, adding some notes in red ink, and more in several shades of black or brown ink, and the index refers to annotations made in all these inks, showing that it postdates several sessions of annotation. The recto side of the flyleaf contains 235 entries drawn from the first 67 folios of the text, but Leto had only reached Book III line 963 when he filled the sheet; the reverse commences with the heading for folio 68 with three Latin terms beneath, but the remainder is blank, indicating that the indexing project stopped at this point. Only about one eighth of the notes Leto made in the manuscript are reflected in the index, so his selection of which to include out of so many shows us the different kinds of interaction with the text that happened during his reading process, and which kinds of interactions Leto was most eager to revisit.

Several kinds of annotation in the manuscript show the different ways Leto interfaced with the text before the indexing stage.<sup>27</sup> Philological corrections are the most common type of note, sometimes written in above a word, but more often written in the margin and marked by a double slash (/ /), which also appears above the corrected word. These corrections usually appear in the brown ink Leto used most often. Leto's brown comments also frequently address points of grammar, such as a note on III 970, 'alid pro aliud' where he observes Lucretius's use of a contracted form.<sup>28</sup> The brown note 'Hic aliquid deficit' (here something is missing) often appears where the text is defective, as in a place on folio 67<sup>v</sup> where the scribe accidentally wrote the first half of line III 476 twice, replacing the first half of the next line. Leto also used a red rubricator's ink to add marginal summaries, headings and, occasionally, additional corrections. For example, on folio 13<sup>r</sup> (I 177–200), red ink marks Lucretius's arguments that nothing can arise from nothing, numbering them *Arg[umentum]* 4, 5, 6 etc. On the same page, red ink marks Lucretius's discussion of the development of seeds, and transcribes into the margin the somewhat-uncommon verb *grandescere* (to grow). Notes like this, drawing attention to unusual vocabulary,

26 Leto begins his numbering with the first page of the actual text, not with the flyleaves, so his 'C[arta] P[r]im[a]' is the modern f. 9<sup>r-v</sup>. His numbering groups together words on the front and reverse sides of folios, so that words from f. 10<sup>r</sup> and 10<sup>v</sup> appear together under his 'C[arta] ii' etc.

27 Images of the index and appear in Palmer, *Reading Lucretius*, figs. 17–19, and annotations by Leto on other copies of Lucretius in figs. 20–21.

28 Naples, Naz. IV E 51, f. 77<sup>v</sup>.

are common in manuscripts of the period, and *grandescere* is marked at line I 191 in three other fifteenth-century Lucretius manuscripts.<sup>29</sup>

Another common form of annotation in manuscripts of the period is when scholars mark *notabilia*, usually proper names of people or places, as well as descriptions of plants, buildings, clothing, rituals, or other elements which shed light on the ancient world.<sup>30</sup> The names of figures mentioned by Lucretius, from Empedocles to Sisyphus, appear frequently in the margins of Leto's manuscript beside the lines where they are mentioned, and examples of this kind of annotation are present in both red and brown inks, and in many other similar manuscripts. Sometimes Leto also wrote longer comments on the content of lines, usually five to ten words in length; these are almost always in the brown ink, though sometimes headings in red express judgment while adding labels. For example, Leto wrote 'opinio non christiana' beside Lucretius's attack on the immortality of the soul, a heading which his students transcribed into three other manuscripts.<sup>31</sup> Such opinionated comments also appear in brown ink, as when Leto wrote *error* beside Lucretius's rejection of the thesis that the world was designed for humankind (II 180, f. 36<sup>r</sup>).

The two pages containing I 20–64 provide a good cross-section of Leto's page-by-page annotations, revealing his interests, his sources, and his shortcomings.<sup>32</sup> These pages contain sixteen marginal notes, six interlinear comments, and several brackets and underlines in red ink. First, a red summary heading 'Diae horae' (on the goddess of the seasons) labels the couplet I 22–3, where Lucretius praises Venus as source of all things. The page also contains the *capitulum* 'beatum & infinitum' at I 44, one of the subject headings, originating in the first or second century CE, which divided Medieval and Renaissance versions of Lucretius's poem into topical subsections.<sup>33</sup> A marginal note near

29 Laurenziana 35.32. f. 4<sup>v</sup>; Ambrosiana P. 19. Sup., f. 6<sup>r</sup>; Rome BN Vittorio Emanuele II O.85, f. 3<sup>v</sup>.

30 On general patterns in annotation in Renaissance Lucretius manuscripts, see Palmer *Reading Lucretius*, 47–73. On classroom annotation practices more broadly, see Craig Kallendorf, 'Marginalia and the Rise of Early Modern Subjectivity', in *On Renaissance Commentaries*, ed. Marianne Pade (Hildesheim, 2005); John O. Ward et al. ed., *The Classics in the Medieval and Renaissance Classroom: The Role of Ancient Texts in the Arts Curriculum as Revealed by Surviving Manuscripts and Early Printed Books* (Turnhout, 2013); Julia Haig Gaisser, *The Fortunes of Apuleius and the Golden Ass: A Study in Transmission and Reception* (Princeton, 2008). On terms humanists used while annotating, see S. Rizzo, *Il Lessico Filologico Degli Umanisti* (Roma, 1973), esp. 243–300.

31 III 136, marked in Naples, Naz. IV E 51 f. 66<sup>r</sup>, transcribed into Bodleian Can. Lat. 32, f. 54<sup>r</sup>, Berlin Lat. Fol. 544, f. 43<sup>r</sup>; Basel F.VIII.14, f. 48<sup>v</sup>; see *ibid.*, 43–4, 73–9.

32 Naples, Naz. IV E 51, f. 9<sup>v</sup>–10<sup>r</sup>.

33 On the *capitula*, see Butterfield, *Early Textual History*, 136–202; Palmer *Reading Lucretius* Appendix B, 250–57.

the *capitulum* on this page offers a somewhat garbled version of the Greek alternative Τὸ μακάριον καὶ ἀιράτον. Notably, Leto himself was not a Hellenist – his Roman rival Volterrano (Raffaello Maffei) would call him ‘a man ignorant of Greek’ – but his near-exclusive focus on the perfection of Latin did not stop him from carefully annotating Lucretius’s engagements with the Greek language here and elsewhere in the text, showing how much knowledge of Greek was a part of Latin study even for someone who was seen in his own day as strictly a Latinist.<sup>34</sup> Lower down the pages, notes in brown ink draw attention to the word *pa[n]gere* (25) which is rare in this infinitive form, to the agricultural term *pasco* (36) ‘to graze’, which Lucretius employs in an unusual metaphorical sense, and to several other unusual vocabulary terms. The interlinear comment ‘pro ho[mi]nes mortales’ glosses a moment when Lucretius refers to humans as *mortalis* (mortals) in l 32. Two further marginal notes correct errors in the text as written, while a third attempts to correct the extremely garbled line l 50; considering this correction insufficient, Leto also wrote in the entire correct line as a separate marginal note. The name *Memmius* appears in red in the margin to draw attention to a proper name, while a sentence-long comment discusses Lucretius’s references to Memmius. Another sentence-long note draws a comparison to the poetry of Valerius Flaccus, while a third comments on Lucretius’s claim that the gods need nothing from us (*nil indiga nostri*), writing ‘because of this, as Servius said, they thought gods were called *indigites*,

34 Volterrano’s 1506 encyclopedic *Commentariorum Urbanorum* includes entries on many Renaissance scholars, and his entry on Leto – his contemporary in Rome for many years – is the only one which is critical and fierce instead of descriptive or celebratory: ‘Eodem quoque tempore in urbe Pomponius Laetus, Porcellius, & Chalcidius profitebantur. Pomponius natione Calaber Graecorum ignarus, tantum antiquarium sese factitaverat, ac siqua nomina exoleta ac portentosa invenerat, scolis oftentabat. Iuventutem Romanam erudiit, labore alioquin adsiduo, vocibus totis vigilabat, libros ipsemet scriptando, simul & discebat, & proficiebat. Ex salario & discipulorum mercedibus parvum agellum & domunculam in Quirinali sibi paraverat, ubi sodalitatem literatorum, ut ipse appellabat, instituit: in qua urbis natalem ac Romulum coluit, initium quidem abolendae fidei.’ (299v) Volterrano himself was toward the orthodox and pious end of the spectrum of scholars of this period, writing theology, donating extensively to churches and communities of Poor Clares, ultimately retiring to monastic life, and even advanced toward sainthood after death, so Leto’s academy with its paganizing activities were clearly, for him as a competitor for papal employment, uncomfortable neighbors. On Maffei see Alison Frazier, *Possible Lives: Authors and Saints in Renaissance Italy* (New York, 2005); ‘The First Instructions on Writing about Saints: Aurelio Brandolini (c. 1454–1497) and Raffaele Maffei (1455–1522)’, *Memoires of the American Academy in Rome* 48 (2003), 171–202; John d’Amico, ‘Papal History and Curial Reform in the Renaissance: Raffaele Maffei’s “Brevis Historia” of Julius II and Leo X’, *Archivum Historiae Pontificae*, 18 (1980), 157–210; Florio Banfi, ‘Raffaello Maffei in Ungheria’, *L’Europa orientale*, 17 (1937), 462–88.

a term for local or tutelary deities.<sup>35</sup> These comments show the intensity of Leto's engagement with the text and language, but also the primacy he gives to philological concerns. His only comment on Lucretius's infamous attack on the power of prayer – one of Epicureanism's greatest points of conflict with Christianity – does not relate to the idea itself, but on the derivation of the term *indigis*. Similarly, references to Valerius Flaccus and Servius in the annotation demonstrate Leto's encyclopedic knowledge of other classics, and show how – despite the humanist focus on pure classical models – late antique grammarians such as Servius remained indispensable sources even for such hardline Latin purists as Leto. And while comparisons to grammarians are present, comparisons to other philosophers and theologians – to Plato, Aristotle, or the Stoics – are absent. In many ways, these appear to be the notes of a linguist, much more than those of a philosopher, focused on absorbing the new grammar and vocabulary offered by this expansion into the negative space of classical Latinity. The question of whether the activities of a practitioner of the *studia humanitatis* did indeed privilege form over substance requires us to look deeper at the motives of Leto's quest to expand his Latin knowledge.

### The Flyleaf Index

Once these annotations were complete, a later hand – which could be either Leto or one of his students<sup>36</sup> – distilled them down into an index, whose narrowness contrasts with the diversity of annotation in the text, but also aligns with the focus on philology. Almost all the terms in the index relate to vocabulary, that is uncommon words, forms or usages that appear in Lucretius's text, which Leto had earlier glossed in the margins. When transcribing words, the indexer sometimes kept the endings they have in Lucretius's text, but often adopted the familiar practice of making nouns nominative, and verbs infinitive or first person singular. When Leto glossed Lucretius's use of *satiare* (sufficiency/abundance; II 1038, f. 54r) he even wrote 'satias satiatis' in the

35 'Hinc quidam deos indigites putant dici ut ait Servius'. Naples, Naz. iv E 51 f. 10<sup>r</sup>.

36 Leto's students imitated his hand, so even close examination makes it difficult to determine whether the index was created by Leto or a student. I showed the pages to handwriting experts, and to experts on Leto's manuscripts, but there was an even split among those who confidently stated the index and marginal notes are the same hand and others who equally confidently declared them different hands. Either way, the index reflects practices within Leto's immediate circle, taught, if not actually completed, by Leto himself.

margin, including the genitive to remind himself of its declension; the indexer used the nominative *satias*.

Many of Leto's entries mark *hapax legomena*, such as *silvifraga* (shattering the woods, I 275, f. 15<sup>r</sup>), *clinamen* (swerve, II 292, f. 38<sup>v</sup>), *fecula* (dregs, II 430, f. 41<sup>v</sup>), *auctific[us]* (one who makes things greater, II 571, f. 44<sup>v</sup>), *filatim* (thread, II 831, f. 49<sup>v</sup>), *formamentum* (conformation, II 819, f. 49<sup>v</sup>), *tardescit* (become slow, III 479, f. 67<sup>r</sup>), *tenerasco* (grow tender, III 765, f. 73<sup>v</sup>), and *cinefactum* (turned to ashes, III 906, f. 76<sup>v</sup>). He also indexes *parvissima* ('tiny/miniscule' I 615 and 621, f. 22<sup>r</sup>) and *pennipotens* ('winged', II 872, f. 50<sup>v</sup>), words unique to Lucretius, used twice each. Other entries index extremely uncommon words which appear fewer than a dozen times even in the modern classical corpus. These include *indugredi* (enter/begin, I 82, f. 10<sup>v</sup>), *pervolgare* (to spread among the multitude, II 164, f. 36<sup>r</sup> and II 346, f. 39<sup>v</sup>), *montivago* (wander over the mountains, II 597, f. 45<sup>r</sup>), *penetralius* (innermost, II 382, f. 40<sup>v</sup>), *hamat[us]* (hooked, II 394, f. 40<sup>v</sup>), and *ob[b]rutesco* (become brutish, III 545, f. 69<sup>r</sup>). Several indexed words, including *scelerosa* (wicked, I 83, f. 10<sup>v</sup>), *tantill[us]* (so small, III 189, f. 61<sup>r</sup>), and *persentiscere* (to perceive deeply, III 249, f. 62<sup>v</sup>) appear only in Lucretius and Apuleius, while other words were known only from early authors, such as Plautus, Terrence, and the fragments of Lucilius's satires. Such words were either completely new or very striking when Leto met them in Lucretius, and many of their meanings were ambiguous and obscure, well worth re-visiting. We can even see Leto's efforts to work out meanings from his encounter with *generascunt* (come to birth, III 745, f. 73<sup>r</sup>). Leto wrote the infinitive 'generasc[ere]' in the right margin and 'Ingene rasco' in the left, breaking the new word down into its roots; then, the indexer added, not the word Lucretius used, but a new creation, *ingenerasco*, derived from Leto's dissection of this unfamiliar compound.

Many of the indexed words are technical or medical terms, selected from Lucretius's discussions of ontology, natural philosophy, or medicine. These include *fragmina* (fragments, I 284, f. 15<sup>r</sup>), *condensere* (to compress, I 392, f. 17<sup>v</sup>), *offensus* (collision, II 223, f. 37<sup>r</sup>), *amaracini* (marjoram, II 847, f. 50<sup>r</sup>), *stactae* (myrrh, II 847, f. 50<sup>r</sup>), *nardus* (oil of spikenard, II 848, f. 50<sup>r</sup>), *gleba turis* (globes of frankincense, III 327, f. 64<sup>r</sup>), *momen* (movement, II 220 f. 37<sup>r</sup> and III 189, f. 61<sup>r</sup>), *pauxillus* (very tiny, III 229, f. 62<sup>r</sup>), *caulae* (pores, III 255, f. 62<sup>v</sup>), *algus* (coldness, III 732, f. 73<sup>r</sup>), *tuditar* ('strike often' III 394, f. 65<sup>v</sup>), *contagium* (contagion, III 471, f. 67<sup>r</sup>), and *seminium* (of seeds, III 742 & 732, f. 73<sup>r</sup>). In a discussion of vision, the indexer included both *simulacrum* (II, 112, f. 35<sup>r</sup>) and *imago* (II 112, f. 35<sup>r</sup>), technical terms which would have been familiar from translations of Aristotle and other discussions of sensation, but which Lucretius uses in slightly different ways. Twice the index includes *putor* (rot; II

872, f. 50<sup>v</sup> and II 929, f. 52<sup>r</sup>), and twice its verb form *putresco* (III 343, 64<sup>v</sup> and III 781, f. 75<sup>v</sup>).

Occasionally, the negative space of Latin was deceptive, and several new words in the index are in fact errors which must have seemed to be new words, such as *inciliare*, faithfully indexed where the text should read *inciletque* (III 963, f.77<sup>v</sup>). When the scribe collapsed the phrase 'a tergo ibus' into the nonsensical 'atergibus' (II 89, f. 34<sup>v</sup>) Leto attempted to make sense of this in the margin by suggesting a verb with the principle parts 'tendo tensu[m] & te[n]tu[m]' and the indexer includes the erroneous *tergibus* – a vivid example of how *umanisti* struggling along with no modern Latin dictionaries might fail to differentiate the unfamiliar from the erroneous. In contrast, sometimes Leto mistook a new word for a familiar one, as with *tuditantia* (buffeting, II 1142, f. 56<sup>v</sup>) which Leto mistook for a form of *trudo*, listed by the indexer as *truditare*. The nonexistent verb *peritare* also made it into the index, thanks to the scribe's nonsensical substitution of *peritat* for *perit* (perish).<sup>37</sup> The extremely rare *siet* (dwell, III 101, f. 59<sup>r</sup>) Leto mistakenly corrected as *sciet*, which was duly indexed. By such means, neologisms or new constructs could enter humanist Latin under the veil of classical authenticity, or at least confuse Leto and his collaborators while they searched other sources to help them tell the difference between a *hapax legomenon* and a mistake.

Sometimes it was uncommon usage which earned a word its place in the index, as in the not-uncommon *pullus* (III 764, f. 73<sup>v</sup>), which usually means a chick. Lucretius uses *equae pullus* (a horse's chick) for a foal, and Leto wrote 'pullus' in the margin in red ink, then expanded this in brown ink to 'pullus pro paruo equo' (*pullus* for a small horse). 'Ignis pro stelli' (fire for stars, I 782, f. 25<sup>v</sup>) is the index entry for a vivid description of the heavens, and 'ros p[ro] aq[ua]' (dew for water, I 771, f. 25<sup>v</sup>) for a discussion of evaporation, where Lucretius uses *ros* (dew) for water generally. These moments are important for our form-over-substance question: poets often employ terms like fire or dew poetically or metaphorically, and Lucretius, like Ovid or Virgil, is full of such usages, but Leto does not tend to annotate such moments, and the index takes no interest in them apart from these few instances, which are do not come from the more poetic and Virgilian sections of the poem, but from the more technical sections. Clearly, the annotations here are not interested in the possibility of using *pullus*, *ignis*, or *ros* poetically, but in technical usage, determining whether Lucretius is employing them in concrete, we would say scientific, senses, as he does *clinamen*. A reader whose reading aimed mainly to borrow Lucretius's beauty and style would show equal, if not more interest

37 Leto glossed this *peti peritar[e] apareo* in the margin.

in poetic usage in those grander, more Virgilian passages where Lucretius's poetic imagery goes all out. In contrast, both Leto's initial notes and the index show less interest in beauty than in technical meaning, an effort to master the vocabulary necessary for discussions of materialism, physics, and ontology. While still focused on vocabulary, and on expanding into ancient Latin's negative space, these notes quest after the tools to understand and express substance, not just the rhetorical and poetic tools of beauty.

Several further examples show this preference for useful, technical vocabulary over poetic ornament. The not-uncommon verb *pascere* (graze) is used by Lucretius in several unusual senses, introducing ambiguity as he pushes the limits of a literal interpretation of the word; Leto glossed three such uses of *pascere* (I 36, f. 9<sup>v</sup>; I 231, f. 14<sup>r</sup>; II 996, f. 53<sup>r</sup>) as well as the variant *depascor* (III 12, f. 57<sup>v</sup>). Leto's attention was also drawn to *vesco* (I 326, f. 16<sup>r</sup>), from the adjective *vescus*, which usually means 'thin', but which Lucretius uses in the phrase *vesco sale*, 'gnawing salt', in the sense of causing something else to become thin, i.e. gnawing, a reversed meaning which Leto glossed in the margin: 'vesco comestibili'.<sup>38</sup> At III 616 (f. 70<sup>v</sup>) the index notes where Lucretius uses *unis* (one) in the plural. At III 111 (f. 59<sup>v</sup>) where the scribe made the nonsensical substitution of *interire* (to perish) for *interea* (meanwhile) Leto added *interire* to his index, either assuming that it must be some unknown new usage, or hoping to return to this puzzle in future.

Sometimes Leto indexed pairs of synonyms which Lucretius uses together, such as *sidus* and *stella* (star, II 209, f. 37<sup>r</sup>), or *felix* and *faustus* (happy/lucky, I 100, f. 11<sup>r</sup>). Moments like these, where classical authors helped to clarify ambiguous terms by using them together, were precious tools for humanists struggling to work out the limits of pure classical usage, especially for terms which had several meanings, and might plausibly have acquired additional meanings during the Middle Ages. The usefulness of such passages is clear at II 771 with the near-synonyms *cadens* and *album* (bright/white); Leto's manuscript erroneously reads 'cadens videatur et album' (f. 48<sup>v</sup>), but Leto was able to correct to *cadens* to *cadens* thanks to the presence of the synonym *album*. The index included both *cadens* and *album*, again words with technical as well as poetic applications.

The index gives extraordinary attention to adverbs, and to ablative phrases acting as adverbs. Adverbs can be challenging to interpret, because they are often subtle and multivalent, and their relationship with the rest of the sentence is often vague or general. Leto indexed *tractim* (in a long, drawn-out way, III 530,

38 The same line is glossed in Laur. 35.25 (f. 7<sup>v</sup>) and in Laur. 35.31 (f. 7<sup>v</sup>) which also supplies *comestibili*.



f. 68<sup>v</sup>), *propritim* (peculiarly, II 975, 52<sup>v</sup>), *puncto tempore* (at a moment in time, II 1006, f. 63<sup>v</sup>), and twice *desubito* (suddenly, II 265, f. 38<sup>r</sup> and III 643 f. 71<sup>r</sup>), as well as *etiam quoque* (and then in addition, III 292, f. 63<sup>v</sup>), *abhinc* (henceforth, III 954, f. 77<sup>v</sup>), *alioqui* (otherwise, III 415, f. 66<sup>r</sup>), and *perquam* (extremely, III 187, f. 61<sup>r</sup>). *Porro* is not a rare word, but the index includes four instances of it (I 325, f. 16<sup>r</sup>; I 426 f. 18<sup>r</sup>; I 461, f. 19<sup>r</sup>; II 105, f. 34<sup>v</sup>), clearly attempting to keep track of the varied uses of this ambiguous adverb, whose meaning – ranging from ‘far off’ or ‘onward’ to ‘formerly’, ‘hereafter’, or ‘again’ – is sometimes physical and sometimes temporal, sometimes with a completed sense and sometimes with a sense of continuation. Leto was also interested in the differences between *porro* and Lucretius’s variant *proporro*, which appears nowhere outside the *De rerum natura*, and which is in the index twice (II 979, f. 53<sup>r</sup>; III 275 and 281, f. 63<sup>r</sup>). Another ten words in the index are adverbs created using the -im suffix, which Lucretius uses with uncommon frequency, creating or employing terms such as *menbratim* (limb by limb, III 527, f. 68<sup>v</sup>), *particulatim* (particle by particle, III 542, f. 68<sup>v</sup>) or *mixtim* (mixedly, III 566, f. 69<sup>r</sup>).<sup>39</sup> Again, the focus is on words with technical applications, especially temporal adverbs which are very important in discussions of questions like time, creation, development, and degeneration, while the index passes over many other words with poetic or rhetorical but not technical usage.

Points of grammar also drew attention. Many index entries mark constructions common in antiquity but rare in Medieval Latin, often involving subjunctives, deponent verbs, or the distinction between participles and substantives derived from verbs. Indexed examples include *suemus* (I 60, f. 10<sup>r</sup>), *cupiret* (I 71, f. 10<sup>r</sup>), *possidat* (I 386, f. 17<sup>v</sup>), *apisci* (I 448, f. 18<sup>v</sup>), *queatur* (I 1045, f. 30<sup>r</sup>), *vietam* (III 385, f. 65<sup>v</sup>), *sentisto* (III 393, f. 65<sup>v</sup>), *potesse* (i.e. *posse*, II 1010, f. 53<sup>r</sup>), *senectis* (III 772, f. 73<sup>v</sup>), and *expergitus* (III 929, f. 77<sup>r</sup>). The first person singular *dono* appears in the index where Lucretius employs *donarat* (I 94, f. 11<sup>r</sup>) a syncopated pluperfect; that the indexer included root verb, not the rare form, in the index suggests that the indexer expected to remember why this word was notable when using the index. Leto’s marginal note ‘exercita hoc ex[er]ce[re]’ draws attention to an unexpected perfect passive participle in a sentence where one would expect the noun *exercitus* (II 120, f. 35<sup>r</sup>). The annotations also show particular interest in gerunds, indexing *restandi* (I 110, f. 11<sup>v</sup>), *causando* (I 398, f. 17<sup>v</sup>), and *habendo* (I 312, f. 15<sup>v</sup>) labeled in the index ‘habendo: pass’ i.e. *habendo* passive – meaning ‘by being held’ instead of ‘by

39 Leto also indexed *insertim* (II 115, f. 35<sup>r</sup>), *turmatim* (II 119, f. 35<sup>r</sup>), *sigillatim* (II 153, 35<sup>v</sup>), *filatim* (II 831, f. 49<sup>v</sup>), *propritim* (II 975, f. 52<sup>v</sup>), *ausim* (II 982, f. 53<sup>r</sup>), and *tractim* (III 530, f. 68<sup>v</sup>).

holding' – a very unusual passive sense for a gerund. Leto also marked *clarare* (III 36, f. 58<sup>v</sup>), a gerundive used in a passive periphrastic. Since Medieval authors generally preferred to use *quod* clauses or prepositional phrases as substitutes for difficult-to-work-out gerunds and gerundives, these would have been among the most classical-feeling of the constructions Leto encountered, and imitating them in prose was a certain way to make one's style feel conspicuously classicizing.

Several entries in the index point to Leto's marginal comments about irregular forms, such as *rancenti* (III 719, f. 72<sup>v</sup>) where he noted in the margin 'rancenti pro rancido a rancere', (*rancenti* for *rancido* from the verb *rancere*). Similarly *ausim* (II 982, f. 53<sup>r</sup>) appears in the index, which Leto glossed 'ut audeas' noting the unusual subjunctive form. The index included the variant *indupedo* for *impedito* (I 240, f. 14<sup>r</sup>), and the rare archaic accusative *vis* which Leto glossed 'vis accusatum casus' (i.e. 'vis in the accusative case', II 586, f. 44<sup>v</sup>). Twice the index included the unusual ablative *mare* (I 161, f. 12<sup>v</sup>; I 326 16<sup>r</sup>), and in the former case Leto glossed it 'mare abl[ativ]o'. Similarly, the index entry 'tenus c[um] g[enativ]o' (I 939, f. 28<sup>v</sup>) marks an uncommon example of a preposition taking the genitive, while the entry 'momen inis' provides the nominative and genitive of a rare noun (II 220, f. 37<sup>r</sup>). Leto's gloss on *obitus*, 'ab oboer obitus', suggests that he might have wondered whether this uncommon verb was deponent (I 135, f. 12<sup>r</sup>). Leto also transcribed the phrase 'vivida tellus' (lively Earth) into the margin at I 178 (f. 13<sup>r</sup>), but only *vivida* appears in the index, suggesting interest, less in the concept of lively earth, than in the -a ending on the adjective demonstrating that *tellus* is a rare -us feminine. At another point, Leto indexed the i-stem ablative noun *parti*, and glossed it 'parti in abl[ativ]o' in the margin. Moments like these, when humanists observed unfamiliar forms and tried to deduce what was scribal error and what was a genuine irregularity in the Latin language, were the foundation blocks of the more advanced Latin grammar books which would make the study of classical Latin an order of magnitude easier for the next generation.

Leto's marginal notes contain more than a hundred short comments on the content of the poem, as well as on its grammar, but only a tiny selection of these made it into the later index. Poetic language is the most common subject of such entries, and here we do see scholarly interest in form and beauty come to the fore. The second index entry, *dedala lingua* (ornate language, I 7, f. 9<sup>r</sup>) refers to the poem's opening image where the Earth is characterized as *dedala*, i.e. like Daedalus, skillful or producing ornamented works, though the addition of *lingua* turns the phrase from a gloss on the word to praise of the language itself. The index also uses *dedal[us]* to mark a particularly ornamented section of verses in I 250–60 on f. 14. *Dieresis* appears in the index and the margin beside

line III 330, a particularly masterful verse in which a natural dieresis separates *omnia* from *dissoluantur* in the phrase 'all is dissolved', making the line itself seem to dissolve away as Lucretius describes the inevitable dissolution of the soul and body at death (f. 64<sup>r</sup>). The note *aranei trisyll* (i.e. *aranei* three syllables) marks a similarly clever poetic line, in which Lucretius describes how spiders' threads are too delicate to feel, and squeezes the final '-ei' of *aranei* (spider thread) into one short syllable, emphasizing the minuteness and fragility of the word and concept (III 383, f. 65<sup>v</sup>).

The index also includes the phrase *egestas linguae* (I 139, f. 12<sup>r</sup>) to help himself return to Lucretius's famous discussion of the poverty of Latin vocabulary in comparison with Greek, a passage which Leto also glossed in the margin 'linguae latinae paupertas'. Lucretius returns to this theme at III 260, and while the index did not include this line, he did underline *patrii sermonis egesta* (the poverty of our native tongue), which Leto recognized as a phrase quoted from Lucretius by Pliny (4.18), writing in red in the margin 'Hunc testu[m] Plinius minor ineptis testat' ('Pliny the younger testified to this claim of weakness', f. 62<sup>v</sup>). The idea that the ancient authors themselves considered their Latin an impoverished and insufficient language was certainly a powerful challenge to Renaissance celebration of classicizing Latin as a literary pinnacle, and Leto's interest in this passage suggests critical willingness to question the perfection of the language to which he had devoted his life.

Several further index entries relate directly to content more than form. Two mark *notabilia*: the phrase *descriptio Siciliae* refers to a point where Lucretius describes but does not name the triangular island homeland of Empedocles (I 717, f. 24<sup>r</sup>), while *Meliboea purpura* indexes a reference to the famous purple dye (II 500, f. 43<sup>r</sup>). The phrase *sanguen viscus* in Leto's index refers to a line where Lucretius uses both *sanguen*, an uncommon term for 'blood', and *viscus*, the rarely-seen singular of *viscera*, 'organ' or 'entrail' – interest in vocabulary alone could justify this entry, but the fact that the annotation paired these words suggests a technical interest in whether blood should be categorized as an organ (I 837, 26<sup>v</sup>). The index also notes Leto's annotation of both instances when Lucretius uses the apparent oxymoron *numerus innumeralis* (II 1086, f. 55<sup>r</sup>, and III 789, f. 73<sup>v</sup>).

Finally, two other phrases in the index mark topics somewhat closer to the heart of Epicurean thought. The entry *nav[e] i[n] ether[e]*, 'swimming in air/ether' corresponds to a vivid passage in Book III where Lucretius discusses the smoke-like atoms that compose the soul leaking out of the body at death and swimming through the air (III 587, f. 69<sup>v</sup>). Later, *dies primigen[us]*, i.e. first birthday, marks Lucretius's description in Book III of how worlds, seas, and living things all grow to a maximum and then decline again through the natural

properties of atoms (II 1106, f. 55<sup>v</sup>). This phrase may have drawn Leto's attention simply because Lucretius uses a unique construction to express 'birthday', and Leto's other notes on the passage are purely philological,<sup>40</sup> but he does seem to have paid special attention to this key explanation of mechanistic Epicurean physics, which attributes all development and decay to natural forces without divine action. Recall that earlier Leto had written *error* in the margin where Lucretius denies that the world was designed for humankind (II 180, f. 36r), and had also labeled other points of conflict between Epicureanism and Christianity (the index did not note these). Leto does not use *error* for the innumerable scribal mistakes he observed – it appears to be a unique mark for disagreeing with the actual argument. That Leto did not write *error* again at this point here may mean that he failed to understand precisely what Lucretius was saying in this extremely complicated (and, in his copy, error-ridden) passage, or he may simply have interpreted it differently. A different interpretation is certainly possible, since in the middle of this discussion, Lucretius invokes an ambiguous semi-personified creator (*rerum natura creatrix*, II 1117) as the force which judges when growth must give way to diminution, a phrase which makes it possible to read the passage as supporting, rather than denying, divine involvement in ordering the fates of things. Leto's own manuscript annotation on Lucretius's opening invocation of Venus, preserved in two of the other copies of Lucretius he worked on, show that he was keenly interested in Lucretius's ideas about Venus.<sup>41</sup> His discussions focus on what light the *De rerum natura* could shed on the etymology of the name *Venus*, an issue which occupied the majority of his discussion of the invocation of Venus on the flyleaves of the volume in Utrecht, but Leto may also have taken Lucretius's invocations of Venus and a divine *creatrix* to mean that the poet did not fully deny divine action in Fate and Nature, or the power of prayer – if Leto had such a reading of Lucretius's religiosity, he was not alone, as we shall see.

In sum, the index shows that the elements the indexer was most eager to return to were mainly not particular arguments or themes, but elements which

40 Leto's other notes on this passage are 'Appareret penultima b[rev]i' observing that the penultimate 'e' of *appareret* is a short syllable in II 110; *procudo* marking an unusual verb 'to forge' at 115; 'Donicum pro donec & hoc F. Pompeius inquit' observing that his text has *donicum* in error at 116; 'caeli caelor[um]' marking the declension of 'sky', and a few other vocabulary notes.

41 BAV Ottob. Lat. 2834 f. 1<sup>r</sup>, on this manuscript see Palmer, *Reading Lucretius*, 2014, 57–60. 1486, Utrecht Universiteitsbib. Litt. Lat. X fol. 82 rar. On the biography, preserved on the front flyleaf of the Utrecht volume, which discusses Venus, see Palmer, 'The Use and Defense of the Classical Canon'.

could expand knowledge of Latin. Yet within this, there is a focus on useful technical vocabulary, the kinds of words helpful, not just for making Latin beautiful, but for discussing serious philosophical topics. The largest portion of his index by far is devoted to rare words, including neologisms, *hapax legomena*, and archaisms – these in particular challenged a Renaissance reader, not only to learn new words, but to exercise his judgment about which words should be incorporated into one's own Latin, since – as Quintilian and Cicero had taught – not all words used in early and rustic Latin were considered good style. The special attention to technical vocabulary, to familiar words used in unfamiliar senses, and to helpful synonyms paint a vivid picture of the challenges scholars faced in attempting to work out the real meanings of technical vocabulary, as well as which usages were or were not authentic to the 'pure' classical Latin style Leto and his mentor Valla worked so hard to systematize. Adverbs, it seems, such as *porro* and *desubito*, posed particular challenges, and loomed extra-large in the negative space of his knowledge of Latin, but especially in its ability to discuss serious topics, such as debates over Aristotle's opinions about creation in time. Remembering the enormous efforts the scholastics put in to defining technical terms before beginning serious discussions, Leto's interest in Latin shares that rigor, a careful preparation for using Latin to address the most serious of topics. In contrast with other authors that Leto spent time with or could have spent time with, Lucretius's specific contribution to expanding the blank spaces at the edges of the map of Latin knowledge was to provide more words and usages applicable to serious debates about matter, creation, substance, and the soul – precisely the kind of conversation Savonarola, Poliziano, and Pico conducted in their hours in San Marco. By choosing to give so many hours to Lucretius specifically, Leto was preparing himself and his successors to produce exactly the kind of intellectually substantial Latin which practitioners of the *studia humanitatis* would so often be accused of ignoring.

### Lucretius Over Time I: The Elusive *Cluere*

Pomponio Leto was very much a future-builder, hoping to live on through his students, to whom he left his notes, his corrected texts, and his efforts toward a purified and revitalized Latin language. He also left them the palette of questions that had guided his reading, and the next stage of humanism's great philological project, that of turning corrected manuscripts into the first printed editions. Two brief glimpses forward at the notes and editions produced by Leto's successors offer a taste of the long-term effects of his engagement with the negative space of Latin knowledge, and how successive generations

gradually reduced that negative space. I will follow two threads, one a question of vocabulary, the rare verb *cluere*; the other a question of meaning: how to read and grapple with Lucretius's description in Book II of how all things develop and decay, and the ambiguity of whether or not his account denies divine action.

The verb *cluo* or *cluere* appears in the index of Leto's manuscript three times.<sup>42</sup> *Cluere* is tricky to define even today – with a base sense of *being named or called*, it has a passive sense despite its active form, meaning to be spoken of, sometimes with the sense of hearing a call or hearing one's name be called, or in the sense of being spoken of when one is not present, i.e. being esteemed or famed abroad, or simply to be known or recognized. *Cluere* is common in Plautus and Lucretius, and appears in other early authors such as Lucilius, Ennius and the fragments of Pacuvius,<sup>43</sup> but it is extremely rare in other Latin authors. Its meaning is unusually hard to deduce from context, since its root provides few hints as to its senses, which are many and subtle.

Lucretius uses *cluere* first of Ennius, describing how he was named throughout the Italian race: *per gentis Italas hominum quae clara clueret* (I 119). He uses it again in the sense of literal naming, using the phrase *quaecumque cluent* i.e. 'whatever things are named' to mean everything, in his argument that everything, literally 'whatever things have a name', are made of atoms and void (I 449). These two uses together might have led Leto and other readers unfamiliar with *cluere* to associate it strictly with spoken naming, but Lucretius's third use contradicts this when he states that animals and their young are known to each other no less than humans know each other, *nec minus atque homines inter se nota cluere* (II 351) – since animals cannot speak, *cluere* here steps beyond the sense of spoken naming to a greater sense of knowing. Another instance of *cluere* in the simple sense of 'to be said' (I 480) was not glossed or indexed in the manuscript.

Leto was far from the only scholar interested in *cluere*. Fourteen of the fifty-four surviving Renaissance manuscripts of Lucretius mark *cluere* at I 119, and most of these mark later instances as well. Several attempt to define it. In the manuscript in Cambridge, which shares many notes with Leto's, one annotator transcribed *clueret* into the margin by the discussion of the fame of Ennius (I 119 f. 2<sup>v</sup>), which a second annotator defined as *nominat* – a good synonym in this context.<sup>44</sup> At the discussion of animals knowing each other at II 351, the first annotator wrote *cluere [id est] splendescere* (f. 22<sup>r</sup>) and, at I 556 (f. 9<sup>r</sup>)

42 I 119, f. 11<sup>v</sup>; I 449, f. 18<sup>v</sup>; II 351, f. 39<sup>v</sup>.

43 Festus 281m.

44 Cambridge UL Nn.2.40.

the list 'esse constare cluere existere exstare' including *cluere* among a list of verbs Lucretius uses to avoid overuse of *esse*. The annotator of Laurenziana 35.32, whom some have speculated might be Machiavelli's associate Marcello Adriani (1464–1521), offered other synonyms, 'cluo inlustro cerebro' for the Ennius passage at I 119, and 'est esse apparere' at I 480.<sup>45</sup> An early sixteenth-century manuscript on paper now in the Laurenziana offers at I 119 the garbled substitute '[id est] claveret' for *clueret*.<sup>46</sup>

The first few printed editions of Lucretius were produced at the same time as these manuscripts, and used by many of the same scholars, including Leto himself. The editors of the 1486 *editio secundus* and the 1495 edition both included a few printed marginal glosses, repeated from common marginalia, including 'CLUO' at I 119.<sup>47</sup> Users of these early editions continued to grapple with this ambiguous word, and, in his own copy of the 1486 edition, Leto himself glossed *clueret* at I 119 writing 'hic Splendere' i.e. here it means to be distinguished. He also corrected I 480 which had erroneously printed *duere* instead of *cluere*, and wrote *cluere* in the margin where it appears at II 351.<sup>48</sup>

In one copy of the 1495 edition in Venice whose reader wrote *cluere* [*id est*] *nominare* beside I 119.<sup>49</sup> Since Leto died only three years after the publication of the 1495 edition, this annotator, working on Lucretius at the end of Leto's life, can be taken as a sample of the practices of those who carried Leto's scholarship forward into the sixteenth century. The annotator of this 1495 edition shared many of Leto's interests. He or she marked several of the same *hapax legomena* that Leto did (*clinamen*, *glomeramen*), identified parallels to Virgil and Catullus, commented similarly on the 'dedalam terram' line at I 5, and cited Priscian as an authority on ablatives when Lucretius uses *igni* at I 490, writing 'Pris[cianus] lib vii Ignis abl[ativ]o igne vel igni'. The same annotator made several more substantive observations, similar to those Leto made but did not index, writing 'exempla ergegia' (outstanding example) next to Lucretius's description of the cruel sacrifice of Iphigenia at I 85, 'Ignem non esse primum' (that fire is not the primary element) next to Lucretius's refutation

45 Laurenziana 35.32, I 119 f. 3<sup>r</sup>; and I 480 f. 10<sup>r</sup>, which also contains a comment on the Trojan Horse. The same annotator makes many comments on grammar similar to Leto's, for example 'nominativus pro vocativo more graeco' beside I 50, f. 1<sup>v</sup>; see Sergio Bertelli and Franco Gaeta, 'Noterelle Machiavelliane: Un Codice Di Lucrezia E Di Terenzio', *Rivista storica italiana* 73 (1961): 551–2; for more work on Adriani and Lucretius see Brown *Return of Lucretius*.

46 Laurenziana 35.31 f. 4<sup>r</sup>.

47 Lucretius 1495; f. aiiii<sup>r</sup> of the 1495 edition appears as Figure 4 in Palmer, *Reading Lucretius*.

48 Utrecht Universiteitsbib. Litt. Lat. X fol. 82 rar f. aiiii<sup>v</sup>, aviii<sup>r</sup>, and ciiii<sup>v</sup>.

49 Marciana Incun. Ven.702.

of Heraclitus at I 635, 'Comparatio lepida' (charming comparison) next to the famous comparison at I 936 of Lucretius's project framing Epicureanism in verse to a doctor smearing honey around the lip of a cup of bitter wormwood in order to trick a child into drinking it, and drawing comparisons to Democritus at I 1051, and to Pliny's accounts of sensation at II 860. Another copy of the 1495 edition now in Paris was certainly annotated by a successor of Leto, since the reader inserted corrections and attributed them in the margins, sometimes to Pomp (i.e. Pomponio Leto), and sometimes to Marullo; this reader successfully corrected the text's erroneous *edure* to the correct *cluere* at I 480 (f. B2<sup>r</sup>).<sup>50</sup>

The next stage of scholarly engagement with Lucretius came in the editorial paratexts composed for corrected and annotated editions, commencing with the 1511 Bologna annotated edition edited by Giovan Battista Pio (1460–1540). Pio's gloss on *cluere* at I 119 begins with a simple definition 'Clueret. Appareret, fulgeret'.<sup>51</sup> The gloss then unpacks the word in detail, including examples from Pliny, Plautus, Terrence, and Ennius, citing a popular commentary on Plautus, and suggesting Greek cognates, κλέος which he defines *gloriam significat* and κλήζω *significat nomino & voco*.<sup>52</sup> He also suggests *nominari* – the same synonym suggested by the annotator of a copy of the 1495 edition now in Venice – and cites as his authority Nonius Marcellus. Pio's unpacking of *cluere* synthesizes the kind of work Leto and his peers had undertaken, noting unusual vocabulary in order to draw comparisons and work out definitions. Yet, despite the thoroughness of Pio's gloss, humanist exploration was far from over, and the annotator of one copy of this very edition added 'cluere signum' to explain how animals can *cluere* without words at II 351, where Pio provides no gloss, since he had glossed the word earlier, and clearly expected his reader to remember.<sup>53</sup>

50 Paris M YC 397, V95; on this edition see Palmer, *Reading Lucretius*, 88–91.

51 Lucretius 1511 (Bologna) f. bv<sup>r</sup>.

52 'Cluere auctore Plinio togatorum eruditissimo libro vigesimo quinto antiqui pignare diceba[n]tunde grammatici clypeum detorquebant. Ex qua etymologia venere[m] qua[m] coleba[n]t armata[m] cluacin[a]m dicitaru[n]t Hic splendere interpretare. In co[m]mentariis plautinis affatim refutavimus Veneti Hermolai opinionem: qui cluere pro esse cupit. Cluere Marcellus pro nominari exponit. [quidam] si probam[us] in Lucretio calra clueret pro nominaretur & haberetur expone. Hoc enim verbu[m] cluet vim passivam habet. Plautus saepe utitur in hoc significatu. & Terrentianus. & Ennius per gentes cluebat omniu[m] miserrimus, hoc est vocabatur. His vero qui cluere pro splendere & apparere nobilem & gloriosum volu[n]t interpretari non repugno: a dictione κλέος [quae] gloriam significat: & si κλήζω significat nomino & voco: ut prima significatione verbum clueo significet sple[n]deo: sed co[n]seque[re]ter appareo. unde cluebat miserrimus cum dixit Ennius interpretare apparebat'. *ibid.*

53 1511 BAV R.I.II 1991 p. LX.



After Pio's lavish 1511 annotated quarto, the preferred format for classics changed to smaller, cleaner octavo editions in the style pioneered in Venice by Aldus Manutius (1449–1515), whose polished, authoritative texts were overseen by major scholars, such as, in the case of his 1415 Lucretius, Andrea Navagero (1483–1529). The prestige of these editions and the practicality of smaller, less expensive volumes meant that the next several decades simply reprinted the same reputable text without change. The next new commentary was undertaken only in the 1560s by the Parisian Latin poet and Aristotelian scholar Denys Lambin (1520–1572). Lambin began with Nonius Marcellus's interpretation of *cluere* as *nominaretur*, and cited Lucillius and several examples from Ennius, before stating that Plautus uses the word in several places.<sup>54</sup> Lambin's explication is shorter than Pio's, summary rather than encyclopedic, aimed at a new generation of readers less interested in cross-referencing every possible example in order to work on piecing together Latin usage, and more interested in straightforward comprehension. Unlike Pio, Lambin also included short repeated glosses when *cluere* appears again later, as at I 449, which he glosses '*Cluent*] videntur, nominantur, sunt, aut dicuntur esse praeter corpus & inane'.<sup>55</sup> Lambin in 1563 did not expect his readers to commit *cluere* to memory the first time, as their predecessors in 1511 would have. The negative space Lambin expected his readers to explore in the 1560s lay less in the words, than in the content. Of course, this does not mean Lambin or his readers had no interest in vocabulary. Indeed, Lambin's most famous reader Montaigne (1533–1592) created his own index of his annotations on the flyleaf of his copy of the 1563 edition, and included *cluere*.<sup>56</sup> Yet in Montaigne's index, points of vocabulary constitute the minority and topical references the majority of entries – Lucretius's late-sixteenth-century readers were not so concerned with acquiring the fundamental linguistic building blocks

54 '*Clueret*] id est nominaretur: & ita Nonius. Citat & illum Lucillii versum: Cuia opera Troginu' calix per castra cluebat: Et illud Ennii, -per genteis esse cluebat omnium miserimus. Valet etiam cluere interdum idem, quod videri, insignem esse, haberi, excellere, esse: ut infra eodem libro: Nec ratione cluere eadem, qua constat inane ibidem: Quae nondum clueant ullo tentata periclo. & libr. 2. Nec minus, atque homines, inter se nota cluere. ibid. -primordia rerum, Inter se simili quae sunt perfecta figura, Infinita cluere. & lib. 3. Utilis inuenietur, & opportuna cluebit. lib. 4. Cuiuscunque cluet de corpore fusa vagari. utitur hoc verbo & Plautus non uno loco'. Lucretius (Frankfurt) 27.

55 Ibid, 71.

56 Flyleaf b, allusion to I 449 (1563 pp. 46–47); see Michael A. Screech, *Montaigne's Annotated Copy of Lucretius: A Transcription and Study of the Manuscript, Notes and Pen-Marks* (Geneva, 1998), 54.

necessary for technical discussions, since these were provided by glosses and dictionaries, so they could focus more of their energy on the direct ideas.

The next step in the transformation of Lucretius came in the removal of *cluere* entirely from the commentary to a separate supplement. In 1564–5 Hubert van Giffen (1534–1604) produced a practical 8° Lucretius, half the size and half the word-count of Lambin's, which reduced its commentary to small marginal comments, either briefly unpacking the meaning of passages, or supplying alternate readings. The same edition added extensive supplements, including the letters of Epicurus from Diogenes Laertius in Greek, excerpts from Cicero treating Epicureanism, and Thucydides in Greek describing the Athenian plague. It also included, for the first time, an index, separate from the commentary, with simple explanations of philological points which the editor expected to be unfamiliar. The index provides definitions for rare words such as 'CLINAMEN, declinatio, ut alibi clinare', explains points of grammar such as the familiar 'MARE in sexto casu pro mari. Sosip. lib. 1. ita saepe Plautus', and, for *cluere*, 'CLUERE, esse apud Prud. cluere positum semper est, ut fervere, & fervere &c'.<sup>57</sup> This curt equation of *cluere* with *esse* offers none of the breadth and subtlety of earlier commentaries, just a minimum definition sufficient to help a reader make sense of the lines, while most of the note is devoted to meter. This shows the rift between Leto or Pio's interests and these of van Giffen and his intended audience, as does the fact that the sources van Giffen cites – Prudentius (348–413) and Charisius (4th c., Sosip. for Sospiater) – are no longer the pure classical authors privileged by Leto and his peers, but later figures, Prudentius in particular who had been celebrated alongside Horace and Statius in the Middle Ages but decidedly sidelined in the 1400s by proponents of a strict classical purity.<sup>58</sup>

The year after van Giffen issued his edition, Lambin produced his first 16°. This too stripped away the massive commentary, but did not strip it to the bare text like the Aldine. Instead, Lambin included two very brief indexes, one of variant readings from manuscripts, and the other of a bare minimum of terms in need of explanation. Lambin included *cluere*, and his readers clearly welcomed the aid, since one reader underlined Lambin's definition of *cluere* in the glossary<sup>60</sup> while two users of later reprints, the 1597<sup>61</sup> and 1606,<sup>62</sup> transcribed

57 1595 (Antwerp), 316, 373.

58 Helen Waddell, *The Wandering Scholars* (Boston, 1929), 141–42.

59 On the rivalry between Lambin and van Giffen, see Palmer *Reading Lucretius*, 165–87.

60 Oxford 8o L 34 Art.Seld. This glossary appears in several pocket editions of Lambin's text; in the 1565 edition it begins on f. Vii; *cluere* appears on its first page.

61 Rome Biblioteca Casanatense VOL.MISC.2410.1.

62 Paris Bib. Ste Genievève 8 Y 273 1377 (formerly 273); this is the copy erroneously listed by Gordonas the sole exemplar 1596 edition, based on testimony from Baudrier; the

into the margins of their texts the definition of *cluere*, 'clueret: nominaretur, esset, excelleret, insignis esset' offered by Lambin in his glossary, in order to have it more easily at hand. This definition, concise but far more helpful than van Giffen's, was still valuable to readers of the early seventeenth century, who might not feel the need to memorize *cluere* in all its usages, but did still want to understand it. Why the lack of interest in learning and using *cluere*? Perhaps because technical and scientific Latin had developed substantially between the mid-1400s and 1600. Rather than searching the blank edges of the map for any tool useful for technical discussion, readers of 1600 had a more complete Latin which already supplied many technical terms sufficient for composing books about matter, medicine, ontology and so on, and were content to use the tools they had, rather than seeking new ones, as Leto did.

### Lucretius Over Time II: Atoms With or Without Providence?

Comments on the subject matter of the poem underwent a parallel transformation between the late 1400s and 1600. Book II 1090–1143 contains Lucretius's account of how Nature acts without the gods, and all worlds and all things in them grow and then eventually decay again due the natural gain and loss of atoms. This is the discussion Leto had indexed in his manuscript with *dies primigen[us]* (first birthday, II 1106, f. 55<sup>v</sup>). Leto also included in red in the margin beside II 1090 a fascinating heading, present in several other manuscripts and continued in the print tradition: 'Nihil agit natura/ sine diis'.<sup>63</sup> In this deeply ambiguous sentence *natura* could be either nominative or ablative. If one reads *natura* as nominative, a more likely reading, then the gloss states 'Nature accomplishes nothing without the gods', a criticism of Lucretius's model, affirming Leto's earlier note 'error' by the line where Lucretius rejected a planned, human-centered creation (II 180, f. 36r). But in a less likely, though still possible reading, if *natura* is the object of *agit* (a verb which can take the ablative), then the gloss, with the line break Leto introduces between *natura* and *sine*, would read 'Nothing drives nature, [she acts] without the gods', a reading which perfectly matches the modern interpretation of this verse, in which Lucretius states that nature 'does everything of herself by her own choice without gods', (*ipsa sua per se sponte omnia dis agere expers*). Leto's further notes do not help resolve this ambiguity. His only other comments at

1596 edition is likely a ghost, see Cosmo A. Gordon, *Bibliography of Lucretius* (London, 1962), 206.

63 Naples Naz. IV E 51, f. 55<sup>r</sup>.

this point in the Naples manuscript are philological. In his copy of the 1483 print edition, Leto again wrote *Dies primigenus* in the margin, made diverse corrections and notes on vocabulary, and glossed the uncertainty about whether the adverb beginning line 1116 should be *denique*, *donique*, or *donicum*. He also transcribed the phrase ‘Ad sua secla recedunt’ i.e. all things return to their own elements,<sup>64</sup> and glossed what his text has as ‘perfice finem’ (roughly ‘reach the limit’) commenting on whether it should be *finem* or *fine* (1 116).<sup>65</sup> Line 1092, the critical claim that nature acts without the gods, Leto simply corrected, since it is garbled in the print edition.<sup>66</sup>

Whether Leto’s note in the Naples manuscript affirms or contradicts Lucretius’s infamous rejection of Providence remains infuriatingly obscured by Latin’s natural ambiguity. In fact, our own experience struggling to interpret the note gives us a taste of how hard Leto himself had to work to puzzle out Lucretius’s lines, and the apparent contradictions between Lucretius’s starting invocation of Venus and his later materialist rejection of divine action. Here, as elsewhere in the text, we feel value of, and the acute need for, clearly defined technical vocabulary of the kind that Aristotle and the scholastics used, and that the Cartesian movement would call for as essential in the 1600s, but which was frustratingly difficult to achieve with Petrarchan classicizing Latin modeled on Cicero and Virgil – authors who made great artistic and rhetorical use of Latin’s ambiguities and double meanings, and were *not* models of technical clarity. One recalls here Cicero’s complaint in *Academica* 1.5 – familiar to Leto and all his peers – that Latin lacked the technical vocabulary necessary for discussing philosophy and scientific systems. One also recalls Leto’s teacher Valla and his preference for the more concrete Quintilian over the more rhetorically ornamented Cicero, and Leto’s own celebration of Marcus Terrentius Varro, whom he hailed as the ‘father of Roman letters’ in his *vita* of Lucretius, in preference to more traditional choices.<sup>67</sup> Leto’s struggles both understanding and expressing his thoughts about such technical aspects of Lucretian physics, in combination with the manuscript index’s focus on technical vocabulary, shows Leto and his circle striving to gather, from purely classical sources, terms sufficient to have the kinds of complex discussions of science and philosophy common in scholastic Latin while still conforming to the humanist preference for purely ancient models. The kinds of intellectually substantial discussions Savonarola challenged humanists to have were difficult

64 Utrecht Universiteitsbib. Litt. Lat. X fol. 82 rar, f. dvi’.

65 Ibid. Modern texts have *perfica finem*.

66 The 1483 edition printed the line as ‘Ipsa se sponte omnia disagere experts’.

67 See Palmer *Reading Lucretius*, 143; for the full text of the *vita* see Giuseppe Solaro, *Lucrezio: Biografie Umanistiche* (Bari, 2000). More on Leto and Varro below.

when one was limited to terms and usage from Cicero, Virgil, Ovid, Seneca, Horace and other favorites, so the arrival of Lucretius and similar new ancients – like Varro's *De lingua Latina* – excited Leto and his peers, who hoped that by reaching into the negative space of ancient Latin they might find the tools they needed to rival the scholastics in clarity and rigor while still surpassing them in beauty.

Moving forward in time, Pio's commentary is the first Renaissance work to weigh in on this passage about atoms and Providence in detail.<sup>68</sup> Pio made his reading of II 1092 crystal clear, glossing almost every component of Lucretius's *ipsa sua per se sponte omnia dis agere expers*, beginning with the vital, 'Per se: by herself not the direction or support of the gods. Lacking all rules from the gods. Who is not acquainted with the rules of the universe. But without divinely-infused experience rules through herself and is led by chance: but not the ministration and will of the gods.'<sup>69</sup> Pio then devotes two-and-a-half dense quarto pages to unpacking the following description of how different substances increase and decrease, and to reviewing criticisms of Epicurean theory:

The Platonists attacked, mocked and ridiculed Epicurus, Democritus and Lucretius for positing an infinity of worlds, and indivisible atoms, by which Epicurus said the world is sustained; since for [Platonists] function and motion lies not in bodies, but in virtue, and this virtue utterly surpasses the visible corporal surface: nor is there agreement about body, since for them body does not bring about action by its own nature, but impedes it.<sup>70</sup>

68 For an excellent broader examination of Pio's commentary, see Elena Nicoli, 'Il Giudizio au Epicuro nel Commento di Giovan Battista Pio a Lucrezio', *Il Culto Di Epicuro. Testi, Iconografia E Paesaggio*, ed. Marco Beretta, F. Citti, and A. Iannucci (Florence, 2015); for more analysis see Elena Nicoli, 'The Earliest Renaissance Commentaries on Lucretius and the Issue of Atomism', (Ph.D. thesis) Radboud University Nijmegen, 2017.

69 'Per se. suo no[n] deorum regimine aut adminiculo. Expers regere omne a diis. Quae non didicit regeres universas. sed vacans experientia infusa a deo per se regit et casu ducitur: non autem ministerio et nutu deorum. Tan[quam] dicere velit naturam non regia deo: sed casu. Expers dicitur sine experientia. Expers regere vocatur qui regere nescit et consequenter non regit'. Lucretius 1511, f. LXX<sup>r</sup>.

70 'Platonici Epicurum Democritum, Lucretiumque impugnant infinitatem mundorum ponentes: & corpuscula insectilia, quibus aiunt Epicurei mundum esse coalitum, substanna[n]t ac irrident: quippe cum ita functio ac motus non sit in corporibus: sed in virtute ac specie corpori superaddita prasetantissima est ista virtus: nec corpori conveniens: quippe cum suapte natura corpus actionem non praestet: sed impediat'. Ibid.

Pio's descriptions neither directly criticize nor endorse atomism, but unpack it, setting out for the first time in easy prose the full physical system outlined in Lucretius's dense and challenging verses. He also includes comparisons to other poets – Tibullus, Horace, Virgil – but the majority of the commentary, in this passage at least, is devoted to technical understanding of Epicureanism itself.<sup>71</sup>

Fifty years later, in the 1560s, the new generation of commentators offered opinions of a very different kind. Denys Lambin treating II 1092 (*ipsa sua per se sponte ...*) merely discusses the use of the term *expers*, giving examples from Catullus and Plautus. On the next line, where Lucretius repeats his claim that the tranquil gods live in ignorance, free of any concern or care for nature or human affairs, Lambin comments, 'Again [Lucretius] exclaims, not without some choler, as if is not possible that any will, or even any providence guides the plan of this world. But Epicurus errs, and with Epicurus Lucretius'.<sup>72</sup> Lambin's tone is similar throughout his commentary, which both explicates and criticizes the *De rerum natura*, offering Lambin's Aristotelian alternatives whenever the Epicurean author 'errs', as Lambin puts it in his preface. Lambin himself characterized Epicurus and Lucretius as *impii* (impious men) in his introduction, but argued that the poem should be read nonetheless, for its beautiful language and Lucretius's good Roman virtues.<sup>73</sup> In that same decade, Hubert Van Giffen's commentary offers no note at all on the passage. Van Giffen's index and supplemental extracts from Cicero and Diogenes Laertius make the details of Epicureanism somewhat clearer, not nearly as robustly explicated as in Pio's commentary, but more even-handed than the dismissals and Aristotelian corrections of Lambin.

While neither Lambin nor van Giffen speaks for the interests of all late-1500s readers, a shift is clear. For Leto the most immediate negative space of Latin knowledge was Latin itself, the meanings and uses of words, especially terms with technical applications. For Pio, the negative space was the poem's word-by-word meaning, and the purpose of a commentary was to paraphrase every line in easier Latin, and to help readers understand the ambiguous

71 Tibullus is cited toward the bottom of f. f. LXIX<sup>v</sup> and Horace and Virgil toward the top of f. LXX<sup>r</sup>.

72 'Iterum exclamat non sine stomacho, quasi fieri non possit, ut ulla vis, ullave providentia hanc mundi fabricam regat. Sed errat Epicurus, & cum Epicuro Lucretius'. Lucretius 1683, 276.

73 'At Epicurus & Lucretius impii fuerunt.'. Lucretius 1563 (Paris), fol. ã3v. See Tatiana Tsakirovou-Summers, 'Lambin's Edition of Lucretius: Using Plato and Aristotle in Defense of *De Rerum Natura*', *Classical and Modern Literature* 21 (2001), 45–70; Palmer, *Reading Lucretius*, 176–87, 210–12.

and unexpected. For Lambin and van Giffen, the negative space is still partly the Latin language, and the commentator retains a duty of to supply choice cross-references to Plautus and others, but the focus has shifted onto situating Epicurean theory within the broader context of ancient thinkers from Aristotle to Cicero.

### Negative Space in Leto's Latin Style: Form and Substance

The opening lines of Leto's short biography of Lucretius offers a sample, both of how the negative space of classical Latin affected Renaissance *style*, and of how Leto's philological efforts strove to enable more *substance* to be examined within the classicizing form. Leto's *vita*, brief, unpublished in the period, and possibly intended as the beginning of a commentary or set of lectures, begins:

M. Varro, Romanae linguae parens, tria observanda rebus omnibus tradit: origo, dignitas et ars. In praesenti opere, quum de philosophia nobis dicendum esset, necessarium videri potuit de singulis disserere; et quoniam unde coepit sapientia veteres ignoraverunt, et qui apud Graecos et qui apud nos scribunt, historice de ea re loqui, ut auctoritas illorum vel nostrorum poscit, non possumus.

Marcus [Terentius] Varro, father of Roman letters, taught that three things must be treated for all subjects: origins/ancestry, merit and skill. In the present work, since we must discuss philosophy, it may seem necessary to treat each of these topics; yet since the ancients, both Greek authors and our authors, did not know whence understanding began, we cannot address these issues historically, as their authority and ours demands.<sup>74</sup>

Considering style first, Leto's prose here is saturated with calculated hyperclassicism and intentional difficulty. Complexly nested indirect statements, and forms like *observanda* and *discendum*, used in proximity to *necessarium videri*, advertise his mastery of the gerunds, gerundives, passive periphrastics and other constructions that Medieval Latin had avoided, preferring to express the same ideas with simpler constructions, such as prepositional phrases. This opening, like the opening lines of many works of fifteenth-century humanists, has a gatekeeping function, intimidating and excluding those Latinists untrained in the new classicizing style, while advertising the eloquence of the author.

74 For a full text and translation, see Palmer in *Vitae Pomponiane*.

First, it was neither common nor expected to choose Varro as the ‘father of Roman letters’, a move which concisely reaffirms Lorenzo Valla’s argument that Cicero and Virgil should not be venerated as the sole princes of Latinity.<sup>75</sup> But Varro is also a much better fit as a personal role model for Renaissance practitioners of the *studia humanitatis*. His *De lingua Latina* – which survives only in part – is a lexicon and analysis of grammar, much closer to what Valla and Leto worked on than most classical works, and Leto himself corrected the text at length and oversaw the celebrated 1471 printed edition. When contrasted with Cicero and Virgil, Varro’s career was also closer to those of Leto and his peers: Cicero was a major career politician, Virgil no politician at all, while Varro fell in between, writing many books on diverse topics while occupying mid-importance political offices such as praetor and pro-quaestor, much as Renaissance *umanisti* were often rewarded by patrons with mid-status offices in city or Church administration, or as envoys. Varro was also appointed librarian by Julius Caesar – the kind of position humanists competed for – and Varro dedicated his *Antiquitates rerum humanarum et divinarum* to Julius, just as Renaissance scholars dedicated works to their patron-employers. Varro also faced familiar slings and arrows of Fortune, moving in and out of favor in Rome under the first and second triumvirates, just as Leto had under successive papacies, alternately kind and cruel. Augustine’s engagement with Varro in his *City of God* also lends a stamp of approval, that Varro is appropriate reading for antiquity’s greatest Christian scholar.<sup>76</sup> To crown all this, Varro is also an author known mainly through negative space, since the Renaissance had the *Res rustica* and part of *De lingua Latina*, but knew Varro more as author of more than seventy lost works on diverse topics, whose surviving titles and fragments sketched a faint outline which could be filled in with an imagined ancient role model more perfect for Renaissance admiration than any real Roman’s work. Varro’s life is not a blank slate, but sketched out just enough by surviving fragments to create a space Leto and his peers could fill in with something that resembled them and their experience more ideally than any well-known classical figure could.

The quotation itself – that one must treat the *origo*, *dignitas* and *ars* of a subject – is doubly telling. The same Leto whom we have seen search the

75 On Varro reception see Seth G. Bernard, ‘Varro and the Development of Roman Topography from Antiquity to the Quattrocento’, *Memoirs of the American Academy in Rome*, 59/60 (2014/2015), 161–179; Victoria Kahn, ‘Allegory, Poetic Theology, and Enlightenment Aesthetics’, *The Insistence of Art: Aesthetic Philosophy After Early Modernity* (New York, 2017), 31–54.

76 See Kahn in *Insistence of Art*, 32–4, 39.



*De rerum natura* on the quest for technical vocabulary has extracted from Varro a set of three technical terms for subdividing the essential topics to be covered in an introduction – precisely the kinds of tools *umanisti* needed to compete with scholastics in rigor and substantive clarity. Leto is practicing what he sought. But there is also a layer of gatekeeping involved in Leto's invocation of Varro. Leto introduces Varro's *origo, dignitas et ars* rather teasingly, setting it out as an outline before immediately saying he cannot follow it. The reader may naturally assume, seeing Leto hail Varro as a father of letters, that this quotation must come from the *De lingua Latina*, a text everyone in the period associated with Leto, who had published it. In an age when scholars strove to commit everything of importance to memory, a reader failing to recognize *origo, dignitas et ars* would naturally feel shame at having forgotten what looks like an important precept of good writing laid out by Varro. What Leto does not tell his reader is that this quotation actually comes from the *Re rustica*, from a passage in which Varro proposes to discuss the *origo, dignitas et ars* of practices in animal husbandry. The passage is, in fact, wholly irrelevant to questions of language and history, intentionally taken out of context in a way which can trick and intimidate an unwary reader, while perhaps bringing smiles to the faces of Leto's students and the others whose knowledge of Varro was extensive enough to let them get the joke.

This quotation, like Leto's ostentatious overuse of difficult grammar, is a clever exercise in intimidation and self-promotion, but the use of *origo, dignitas et ars* also shows Leto attempting to assemble what was lost of Varro (and antiquity) from what remains. Patrick Baker has observed how *umanisti* convinced themselves that classical historians had a formal theory of history writing, and attempted to reconstruct this hypothetical lost rubric from patterns in the histories which survived.<sup>77</sup> So, despite Cicero's warning that ancient Latin lacked a rigorous technical vocabulary suitable for discussing philosophical systems, Leto was striving to (re)construct one, gathering terms from unlikely corners such as the *Res rusticus* and the ornate verses of the *De rerum natura* to make up for those he and his peers imagined must have been used in lost works, such as Varro's *Logistoricon*, *De sermone Latino*, his encyclopedia *Disciplinarum* on the liberal arts, and his *De philosophia* which Augustine addressed. Knowing that Varro had analyzed philosophy, education, and the Latin language itself with far greater technical rigor than Cicero, Leto expected to find a rigorous technical lexicon at work in Varro's other writings, and if the book on farming was the best sample he had of that imagined lexicon

77 A theme recurring throughout Baker, *Humanism in the Mirror*.

at work then to the book on farming he would turn, guessing that *origo, dignitas et ars* might have been employed as an outline formula by Varro elsewhere in his vast, lost corpus. In the late 1400s, when when architects were describing and reconstructing Roman monuments and edifices from a few stones or the line of a foundation, and artists were creating frescoes modeled on a few surviving shapes and lines on ancient palace walls, so *umanisti* were not just imitating but even replacing the missing bricks of the edifice of ancient Latin, as Leto's rival in Rome Raffaello Maffei Volterrano was attempting with his encyclopedic *Commentariorum Urbanorum*, positioned by its title and topic to replace Varro's lost *De rebus urbanis*. In style, the opening of Leto's *Lucretius vita* is designed to make the reader feel that Leto has reached out farther we into the unknown edges of Latinity, and that he has brought back from that journey technical tools capable of enabling the substantive conversations Savonarola demanded, and that even Cicero had found so challenging to conduct within the limits of classical Latin.

In fact, Varro's use a term like *origo* or *dignitas*, like Lucretius's use of *clinamen* or *pullus*, or *ros*, very likely did not have any rigorous and widely-recognized technical meaning in antiquity, not in the way scholastic Latin gave technical senses to so many terms. Rather, both Lucretius and Varro were, like Cicero, using the best words they had, improvising and making do in a way very unlike the kind of rigor Medieval Aristotelians expected language to have. But that did not prevent a scholar like Leto from imagining a technical usage and trying to work it out from context, projecting onto the blankness of ancient Latin the expectation that it must have had – or at minimum must have been able to have – the same rigor scholastic Latin was so optimized for. Here linguistic archaeology becomes linguistic innovation, as scholars like Leto – and we shall see even more of this soon in Pio's commentary – projected onto ancient terms new meanings optimized for a kind of conversation necessary in the Renaissance if one aimed to rival the scholastics, and even more necessary in the late Renaissance as the spheres of intellectual inquiry moved more and more to new frontiers like natural science.

The stylistic side of this – displaying one's acumen through performing grammatical cartwheels – was not unique to Leto. If one selects any fifteenth- or early-sixteenth-century humanist work, the first few sentences are almost invariably hyper-ornamented, in contrast with later paragraphs which are crafted more to communicate than to intimidate. But, looking forward, by the later 1500s, when Lambin and van Giffen drafted their Lucretian paratexts, the negative space of Latin had shifted. The arena of scholarly competition no longer lay in whether one could construct a passive periphrastic, but in how many manuscripts one had consulted, how many improvements to the text

one could make, and how many dozens of authorities – ancient and recent – one could reference in one's paratexts. Prose – even among classicizing *umanisti* – became more transparent. The reasons for this change in style are manifold, many linked to the shift of scholarly centers out of Italy, and the advance of printing as a competitive commercial space aiming to sell to students and lay readers, not just master philologists. But another part was that the missing middle of the damaged fresco had been filled in, not with an exact reconstruction but with something semi-new. Lambin and van Giffen lived in a world full of lexicons shaped by practitioners of the *studia humanitatis* who had spent 100 years facing the charge that their works were form not substance, and responded by collecting terms and narrowing down definitions, producing a new Renaissance Latin still classicizing in form but prepared to discuss technical topics as the scholastics had, and as Descartes, Bacon and many others shortly would. The reconstructed fresco was *not* the same as the original, and Varro himself might have been baffled by the specific uses for *origo*, *dignitas*, and *ars* which Leto arrived at and which successors imitated. Yet the lexicon was usable, facilitating philosophical discussions which could combine rigor with sustaining their rejection of scholasticism, and celebrating of the impulse to aspire to golden antiquity.

### Conclusion

Renaissance scholars' knowledge of classical Latin evolved very much like Renaissance world maps. In the center lay the well-known coasts of Virgil, Ovid, and Boethius, charted out in intricate detail. The mid-distance contained the vague, semi-understood shapes of linguistic elements imperfectly described by late antique grammarians, whose quotations from lost works provided a few points of clarity, like famous distant cities marked amid seas of blankness. Here and there an author like Varro offered details about one particular metropolis or coast from which one could make guesses about the dozen other cities that he also visited but, alas, his accounts do not survive. At the edges, where maps of the period gave way to legend and imagination, Renaissance knowledge of Latinity too gave way to a larger-than-life golden dream of antiquity, which gave humanists deeply distorted expectations of what they would find as they searched distant monastic libraries, or sailed to the Greek-reading scholarly world of Constantinople. And just as the mythologized edges of European maps balanced promises of exotic treasures with the warning *hic sunt dracones*, so humanists expected the lost classics to contain treasures and monsters: the monsters were pagan error and idolatry, which Church Fathers

warned could swallow many souls; the gold, rubies and sapphires were ancient Roman virtue and eloquence, whose excavation from the dusty mines of fading manuscripts could – humanists hoped – make them as persuasive as Cicero, so they could teach Europe's fractious elites to embrace the classical virtues which had produced Caesar and Seneca, and usher in a golden age of peace to match the Pax Romana.<sup>78</sup>

Competition was also core to both mapmaking and humanism. Renaissance mapmakers competed to display their knowledge by offering new details about the unknown sections of the world, even if those details were mostly speculation,<sup>79</sup> and similarly, humanists advertised their allegiance to the classicizing project, and the size of their libraries, by incorporating the strangest and the rarest. And, just as world maps transformed over the fifteenth and sixteenth centuries, shedding some errors and legends, and suffering shocks like the discovery of the New World, so the edges of Latinity suffered shocks like the true content of Lucretius, whose attacks on core Christian principles were vastly different from the world-healing, pious antiquity which Petrarch had imagined. At each stage of this transformation, Latin style, Latin study, Latin teaching, and Latin itself took on new forms, shaped, not only by the texts and models scholars had in hand, but by the ways they went about using those models, seeking new models, and, above all, how they tried to grapple with the omnipresent yet ever-changing blank edge of our Latin knowledge.<sup>80</sup>

As for the question of form versus substance, Leto's notes show how easily this stage in the quest for substance could be mistaken for an obsession with

78 On the centrality of virtue to the Humanist project see Hankins, *Virtue Politics*.

79 Discussed by Greg Prickman, 'The Discovery of the New World in Venetian Print Culture', in *Renaissance Print Culture: An Aldine Quincentennial Symposium* (Chicago, 7 February 2015).

80 Many great Latin academies have thrived in the five centuries since the dissolution of Pomponio Leto's Roman Academy, but it is hard to imagine one more directly in Leto's spirit than that of Reginald Foster, to whom this article is dedicated. Like Leto, Reggie has sought to revive a dynamic, human Latinity, in close touch with the lived Latin past, instead of the dry world of textbooks and memorization. And like Leto he has left his greatest gift to the world, not in his writings, but in his students. Our knowledge of Latin still has negative space, even with our comprehensive lexicons and databases, a fact felt more in the field of Renaissance Latin, I think, than in any other, since Leto and his humanist peers left us literally millions of pages of exquisite Latin which have sat untouched and unread for at least ten generations. But they will not sit unread through an eleventh, not with our new millennium filling this world with translations, collaborations, indexes, libraries material and digital. Not with our world filling with the students of the students of Reginald Foster. For that gift – on behalf of myself and my students, on behalf of Leto and his students, and on behalf of the many generations of students between us and to come – I thank him.

form. *Umanisti* were ferociously loyal to classical Latin and convinced that the best discussions could thrive best and disseminate best if conducted in the best language. Those humanists who saw themselves as doctors of the soul, and doctors to a flawed and fevered Europe, had as their model medical practice which believed that beautiful exteriors matched beautiful interiors, and that beautiful substances like gold, gemstones, and sunlight made the best medicaments, especially for high-status patients such as princes and courtiers, the primary targets of humanist efforts to influence and persuade. Leto was rigorously interested in the content of Lucretius, but to discuss it, lecture on it, comment on it, one needed, as Cicero had warned, a rigorous vocabulary Cicero himself lacked. To pursue such forms, to gather these terms and create a humanist technical lexicon, was not pure pursuit of style, nor insular antiquarianism, but the first stage of pursuing substance, the necessary foundation without which the cure would not be worthy of the patient. The radical philosophical content of Lucretius was exciting to Leto and similar scholars, but in this stage of the project the *De rerum natura* was in many ways no more valuable than Varro's farming-focused *Res rustica*. Both could equally be excavated, seeking traces of that technical language Leto and his peers felt must be there, half lost, half hiding. Assembling that technical language might take as many hands and years as mapping out the globe, or refilling the empty heart of Rome with marble edifices modeled on the ruins, but with teamwork and patience it could be done, one compass point, one brick, one adverb at a time. And like those new maps, and the new Renaissance palaces rising all over Leto's Rome, the conversations which would thrive in coming centuries in humanist Latin – once efforts like Leto's gave it the terms and tools needed to talk of atoms, vectors, optics, souls, and gravity – would not replicate what we think was in that blank space back in ancient days. Rather – as when Renaissance sculptors added new faces and limbs to *repair* ancient statues, often wholly transforming the subject from one god or hero to another – humanist reconstructions of *technical* Latin yielded both words and conversations neither solely old nor solely new, but powerful.

## Appendix

Here follows a full transcription of the index on the flyleaf of Leto's *Neapolitanus* (Naples Naz. IV E 51), with the modern line numbers, period folio numbers, and analysis of what drew Leto's attention to each term. As a whole, the document provides a snapshot of humanist scholarly practice in the late-1400s:

Index has	line	fol	
<b>C[arta] p[rima]</b>			
<i>concelebra[re]</i>	I 4	9 <sup>r</sup>	'to gather together' uncommon; Leto glossed this as 'commove[re]' in the page margin.
<i>dedala lingua</i>	I 7	9 <sup>r</sup>	Leto glossed Lucretius's famous description of the 'Daedalus-like' i.e. wonder-making Earth, adding: 'd[a]edala[m] terram apud lucretiu[m] dictam e[ss]e avarietiu[m] rer[um] artificiorumq[ue]'.
<i>initum</i>	I 13	9 <sup>r</sup>	'beginning' Leto glossed this 'initum pro initium', so his interest is in this supine verb substituting for the noun. Leto glossed this again at I 383 f. 17 <sup>r</sup> , II 269 f. 38 <sup>r</sup> , and III 271 f. 63 <sup>r</sup>
<i>pangere</i>	I 25	9 <sup>v</sup>	'to compose' uncommon
<i>pasco</i>	I 36	9 <sup>v</sup>	'to graze' glossed by Leto with 'pascor & pasco' marks the unusual metaphorical use of this agricultural term; The index also includes <i>pasco</i> at I 231 f. 14 <sup>r</sup> , II 996 53 <sup>r</sup> , and <i>depascor</i> at III 12 f. 57 <sup>v</sup>
<b>C[arta] ii</b>			
<i>aucto</i>	I 48?	10 <sup>r</sup>	'abundance'. Unusually, this word does not appear in Leto's annotations or the text, but it is a synonym for 'opibus' which appears in I 48
<i>indig[us]</i>	I 48	10 <sup>r</sup>	'needy' or 'lacking' uncommon ablative use
<i>suem[us]</i>	I 60	10 <sup>r</sup>	'we are accustomed' rare, usually <i>consuemus</i>
<i>cupiret</i>	I 71	10 <sup>r</sup>	unique form of <i>cupere</i> , 'to desire'

Index has	line	fol	
<i>indug[r]edi</i>	I 82	10 <sup>v</sup>	'advance along/proceed' appears only in Lucretius
<i>sceleros[us]</i>	I 83	10 <sup>v</sup>	'steeped in crime' very rare variant of <i>scelestus</i> . Leto seems to have written <i>sceloros[us]</i> and then corrected it.
<b>C[arta] iii</b>			
<i>infula</i>	I 87	11 <sup>r</sup>	'ribbon/headband', uncommon
<i>dono</i>	I 94	11 <sup>r</sup>	'give' line contains syncopated pluperfect 'donarat'
<i>felix faustus</i> <sup>a</sup>	I 100	11 <sup>r</sup>	'happy/lucky' line defines synonyms 'felix faustusque'
<i>restandi</i>	I 110	11 <sup>v</sup>	<i>resto</i> 'to resist', gerund
<i>cluo:</i>	I 119	11 <sup>v</sup>	<i>cluere</i> 'be called, named, esteemed' very rare, marked three times by Leto, here, I 449 and II 531
<b>C[arta] iv</b>			
<i>obitus</i>	I 135	12 <sup>r</sup>	'fallen in the way' Leto glossed this 'ab obeor obitus', perhaps wondering whether this uncommon verb is deponent
<i>egestas li[n] guae</i>	I 139	12 <sup>r</sup>	'the poverty of the language', which Leto glossed in the margin 'linguae latinae paupertas'
<b>[Carta] v</b>			
<i>mare</i>	I 161	12 <sup>v</sup>	'the sea' irregular ablative
<i>vivida</i>	L 178	13 <sup>r</sup>	He glossed this line 'vivida tellus' but only 'vivida' appears in the index; <i>tellus</i> is an uncommon term for the Earth, and <i>vivida</i> shows him that it is a rare -us feminine
<b>C[arta] vi</b>			
<i>pasco</i>	I 231	14 <sup>r</sup>	'to graze', unusual metaphorical usage; the index also includes <i>pasco</i> at I 36 f. 9 <sup>v</sup> , II 996 53 <sup>r</sup> , and <i>depascor</i> at III 12 f. 57 <sup>v</sup>

Index has	line	fol	
<i>indupedo</i>	I 240	14 <sup>r</sup>	'hindered' unusual alternate form of <i>impeditus</i> , glossed by Leto 'indupedita pro impedita'
<i>dedal[us]</i>		14	'ornamented'. This word does not appear in the marginalia or the text, but seems to praise a particularly ornamented section of verses in I 250–60.
<i>alid:</i>	I 263	14 <sup>v</sup>	'another', contracted form of <i>aliud</i> , glossed by Leto as 'alid pro aliud'
<b>C[arta] vii</b>			
<i>ruit</i>	I 272	15 <sup>r</sup>	'ruin', Leto glossed this 'ruit pro eruit'
<i>silvifraga</i>	I 275	15 <sup>r</sup>	'shattering the woods' <i>hapax legomenon</i>
<i>fragmina</i>	I 284	15 <sup>r</sup>	'fragments' rare
<i>habendo: pass</i>	I 312	15 <sup>v</sup>	'by being held' gerund with an unusual passive sense
<b>C[arta] viii</b>			
<i>vesco:</i>	I 326	16 <sup>r</sup>	'thin/hungry' Leto glossed this 'vesco comes-tibili' noting its unusual sense 'gnawing' instead of the more common sense of 'thin/attenuated'
<i>porro</i>	I 325	16 <sup>r</sup>	'far off/onward/hereafter/again' ambiguous adverb; Leto frequently glossed <i>porro</i> , possibly because of its ambiguous meanings; <i>porro</i> is glossed and indexed at I 325 f. 16 <sup>r</sup> , I 426 f. 16 <sup>r</sup> , I 461 f. 19 <sup>r</sup> , II 105 f. 34 <sup>v</sup> , and <i>proporo</i> at II 976 f. 52 <sup>v</sup> and II 979 f. 52 <sup>v</sup>
<i>mare</i>	I 326	16 <sup>r</sup>	'the sea' second instance of this irregular ablative
<i>uber</i>	I 349	16 <sup>v</sup>	glossed by Leto 'uber adiect', pointing out that it is the adjective 'copious' not the noun 'breast'
<i>sublimus</i>	I 340	16 <sup>v</sup>	'sublime' uncommon



Index has	line	fol	
<b>C[arta] viiii</b>			
<i>Initu</i> [m]	I 383	17 <sup>r</sup>	'beginning', supine verbal noun, Leto glossed this at I 13 f. 9 <sup>r</sup> above, and at I 383 f. 17 <sup>r</sup> , II 269 f. 38 <sup>r</sup> , and III 271 f. 63 <sup>r</sup> below.
<i>possidat</i>	I 386	17 <sup>v</sup>	'possess' glossed by Leto as 'possidat credo per sincoperi'. Unique instance of this synco-pated form in the Latin corpus.
<i>causando</i>	I 386	17 <sup>v</sup>	'pleading your case'. Leto unpacks the text's abbreviation 'cañdo' to the gerund 'causando'
<i>condenser</i> [e]	I 392	17 <sup>v</sup>	'compress' uncommon verb, unique in this form
<b>COLUMN 2: C[arta] x</b>			
<i>pigror</i>	I 410	18 <sup>r</sup>	'to do nothing' unusual as a verb
<i>o</i> [mn]ino	I 426	18 <sup>r</sup>	'entirely/altogether' present in Lucretius's text though not in Leto's marginalia; perhaps indexed because of interest in spatiotempo-ral adverbs.
<i>porro</i>	I 426	18 <sup>r</sup>	'far off/onward/hereafter/again' ambiguous adverb; the index also noted <i>porro</i> at I 325 f. 16 <sup>r</sup> , I 461 f. 19 <sup>r</sup> , II 105 f. 34 <sup>v</sup> , and <i>proporo</i> at II 976 f. 52 <sup>v</sup> and II 979 f. 52 <sup>v</sup>
<i>apisci</i>	I 448	18 <sup>v</sup>	'obtain', uncommon deponent verb <i>apiscor</i> , which is more common as <i>adipiscor</i>
<i>clu</i> o	I 449	18 <sup>v</sup>	<i>cluere</i> 'be called, named, esteemed' very rare; also marked at I 119 and II 531
<b>C[arta] xi</b>			
<i>porro</i>	I 461	19 <sup>r</sup>	'far off/onward/hereafter/again' ambiguous adverb; the index also notes <i>porro</i> at I 325 f. 16 <sup>r</sup> , I 426 f. 16 <sup>r</sup> , II 105 f. 34 <sup>v</sup> , and <i>proporo</i> at II 976 f. 52 <sup>v</sup> and II 979 f. 52 <sup>v</sup>
<i>eventa</i>	I 467	19 <sup>r</sup>	'happening/accident' Lucretius uses <i>eventa</i> four times in rapid succession in lines I 450–81 and never again.

Index has	line	fol	
<b>C[arta] xii</b>			
<i>navit[er]</i>	I 525	20 <sup>r</sup>	'diligently' uncommon adverb; its inverse <i>ignaviter</i> is more common
<b>C[arta] xiii (nothing on what would be C[arta] xiii, i.e. f. 21<sup>r-v</sup>, is indexed)</b>			
<i>p[er]vissim[us]</i>	I 615, 621	22 <sup>r</sup>	'tiny/miniscule' used three times by Lucretius, never by any other author; the first two instances are misspelled <i>pervissima</i> in Leto's copy, presenting a particular philological challenge; he successfully corrected the first of the two likely based on the third, at III 199, f. 61 <sup>r</sup> .
<b>C[arta] xv</b>			
<i>potesse</i>	I 665	23 <sup>r</sup>	'to be able' archaic form found only in early authors such as Plautus, Lucilius, and once by Cicero in poetry; also indexed at II 1010 f. 53 <sup>v</sup> and III 321f. 64 <sup>r</sup> .
<i>stingui</i>	I 666	23 <sup>r</sup>	'extinguish' uncommon, usually found as <i>extingui</i>
<b>C[arta] xvi</b>			
<i>descriptio sicilie</i>	I 717	24 <sup>r</sup>	'description of Sicily'. Lucretius describes but does not name the triangular island homeland of Empedocles.
<i>vociferor</i>	I 732	24 <sup>v</sup>	'cry out' very rare deponent verb
<b>C[arta] xvii</b>			
<i>pausa</i>	I 747	25 <sup>r</sup>	'pause' colloquial, mostly found in comedy and graffiti; the index also noted this word at II 119 f. 35 <sup>r</sup>
<i>ros p[ro] aq[ua]</i>	I 771	25 <sup>v</sup>	'dew as water' glossing this unusually specific term for water in a discussion of evaporation
<i>ignis p[ro] stellis</i>	I 782	25 <sup>v</sup>	'fires for stars' on Lucretius's metaphorical usage

Index has	line	fol	
<b>C[arta] xviii</b>			
<i>sanguen viscus</i>	I 837	26 <sup>v</sup>	Leto glossed this 'hoc sanguen: viscus'. Here <i>sanguen</i> (blood) is used in an unusual (but classically attested) accusative form, not the usual <i>sanguinem</i> while <i>viscus</i> is the rarely-seen singular of <i>viscera</i> , i.e. an 'organ' or 'entail', singular. Leto's gloss seems to suggest reading blood as an organ, or in the category of organs.
<b>C[arta] xix</b>			
<i>alienigene</i>	I 865	27 <sup>r</sup>	'foreign-born people' uncommon, and striking in the ablative, since <i>genus</i> is third declension but this adjectival compound is first/second declension. In the margin Leto wrote <i>alienigenae</i> with a diphthong, but collapsed it here.
<i>sanguen</i>	I 853	27 <sup>r</sup>	again the index notes this unusual accusative form
<b>C[arta] xx</b>			
<i>cachin[n]o</i>	I 919	28 <sup>v</sup>	'cackle' an onomatopoetic verb used mostly in poetry also marked at II 976
<i>humecto</i>	I 920	28 <sup>v</sup>	'become wet' very rare, more common as <i>umecto</i> , which is how it appears in the modern Lucretius text
<i>mi</i>	I 924	28 <sup>v</sup>	'to me' Leto glossed this syncopation 'mi pro mihi'
<i>tenus c[um]g[enitiv]o</i>	I 939	28 <sup>v</sup>	'up to the point of', uncommon for a preposition to take the genitive
<b>C[arta] xxi</b>			
<i>careo</i>	I 964	29 <sup>v</sup>	'abstain from', used with ablative of separation

Index has	line	fol	
<i>effugiu[m]</i>	I 975	29 <sup>v</sup>	Leto's text has <i>effugii</i> which he corrects to <i>effugium</i> .
<i>voluim[us]</i>	I 954	29 <sup>r</sup>	Leto's text has <i>voluimus</i> 'we wanted' where it should have <i>evolvamus</i> 'we revolve', making the line nonsensical.
<b>C[arta] xxiii (nothing on what would be C[arta] xxii, i.e. f. 21<sup>r-v</sup>, is indexed)</b>			
<i>queatur</i>	I 1045	30 <sup>r</sup>	'one is able' unique use of an impersonal passive for a verb that cannot normally be passive
<i>paulis</i>	I 1067	31 <sup>v</sup>	Leto's text has <i>paulis</i> 'little bits' where it should have <i>parilis</i> 'equal', making the line nonsensical. Leto glossed <i>parilis</i> when it appears correctly at I 374.
<i>opella</i>	I 1114	32 <sup>v</sup>	'small effort/duty' very rare diminutive of <i>opus</i>
<b>COLUMN 3: C[arta] xxv</b>			
<i>ferver[e]</i>	II 41	33 <sup>v</sup>	'to be hot' poetic usage, indexed again at II 928 f. 52 <sup>r</sup>
S	II 52	33 <sup>v</sup>	Leto uses this 'S' mark several times throughout the manuscript. Possibly here he is marking that Lucretius repeats this comparison of people without philosophy to children afraid of the dark; Leto drew another similar 'S' on VI 35–41 on f. 139 <sup>v</sup> where these lines repeat.
<b>C[arta] xxvi</b>			
<i>augescunt</i>	II 77	34 <sup>r</sup>	'to grow greater' rare
<i>tergibus</i>	II 89	34 <sup>v</sup>	Leto is attempting to parse a defective line, where 'a tergo ibus' appears as 'atergibus' which he glossed as 'tergibus atergus tergo -us'. The non-existent 'tergibus' appears in the index.

Index has	line	fol	
<i>tendo</i>	II 100	34 <sup>v</sup>	instead of 'condenso' Leto's manuscript has 'contenso' and Leto attempts to make sense of it in his gloss by writing out the principle parts 'tendo tensu[m] & te[n]tu[m]'
<i>porro</i>	II 105	34 <sup>v</sup>	'far off/onward/hereafter/again' ambiguous adverb; index also notes <i>porro</i> at I 325 f. 16 <sup>r</sup> , I 426 f. 16 <sup>r</sup> , I 461 f. 19 <sup>r</sup> , and <i>proporo</i> at II 976 f. 52 <sup>v</sup> and II 979 f. 52 <sup>v</sup>
<b>C[arta] xxvii</b>			
<i>rei</i>	II 112	35 <sup>r</sup>	'thing/matter' here <i>rei</i> anchors what would otherwise be an ambiguous phrase, making clear that Lucretius is discussing matter in the literal sense, rather than using <i>cuius</i> as a simple connecting relative
<i>sim[u]</i> <i>lachru[m]</i>	II 112	35 <sup>r</sup>	'simulacrum' technical term; the fact that Lucretius equates <i>simulachrum</i> with <i>imago</i> is interesting for comparing Epicurean models of vision with other schools
<i>imago</i>	II 112	35 <sup>r</sup>	'image' technical term
<i>ins[er]tim</i>	II 115	35 <sup>r</sup>	error, what should be <i>inserti</i> is written <i>insertim</i> , making Leto believe this is a new, unknown adverb
<i>pausa</i>	II 119	35 <sup>r</sup>	'pause' colloquial, also indexed at I 747, f. 25 <sup>r</sup>
<i>turmati[m]</i>	II 119	35 <sup>r</sup>	'by squadrons' rare adverb, found almost exclusively in Livy and a few other accounts of military activity
<i>exercita</i> <i>hoc ex[ercita]</i> <i>re</i>	II 120	35 <sup>r</sup>	'having been drilled' Leto draws attention to this perfect passive participle, appearing where one might expect the more common noun <i>exercitus</i>
<i>vestio</i>	II 148	35 <sup>v</sup>	'dress' very rare, Leto's text has the more common <i>convestire</i> , but the index has extracted the root <i>vestio</i>

Index has	line	fol	
<i>sigillati[m]</i>	II 153	35 <sup>v</sup>	Leto strives to correct an error, 'sigillatu[m]' in his text, which he corrects to 'sigillatim' while modern editions have <i>singillatim</i> .
<b>C[arta] xxviii</b>			
<i>remoravit</i>	II 158	36 <sup>r</sup>	'delay' very rare, usually found in its more common deponent form; Leto glossed it 'nec res remoravit'
<i>p[er]volga[n]t</i>	II 164	36 <sup>r</sup>	'spread around' very rare, this form appears only here
<i>dux.</i>	II 172	36 <sup>r</sup>	'leader' normally masculine word used in the feminine
<i>S. bla[n]ditu[m]</i>	II 173	36 <sup>r</sup>	'flatter' Leto's manuscript erroneously has a supine, which he marks, where the modern has <i>blanditur</i> . Another of Leto's capital 'S' marks appears here in the margin, but its meaning is unclear.
<b>Two extra words squeezed in between xxviii &amp; xxix after the indexer had written xxix</b>			
<i>momen: rei</i>	II 220	37 <sup>r</sup>	'movement/impulse' the index includes the nominative and genitive of this unusual word, and Leto glossed it in the margin 'Momen: mome[en]tu[m] [est]:'
<i>offensus</i>	II 223	37 <sup>r</sup>	'collision' very rare technical term
<b>C[arta] xxix</b>			
<i>sid[us] stella</i>	II 209	37 <sup>r</sup>	two terms for 'star/stars' marked as synonyms
<i>mom[entum]</i>	II 220	37 <sup>r</sup>	Leto repeats 'momen' because it was squeezed in rather illegibly and out-of-order above
<b>30 (numbering switches to Arabic numerals at this point)</b>			
<i>desubito</i>	II 265	38 <sup>r</sup>	'suddenly' another word with temporal adverbial sense; the index also includes <i>desubito</i> at III 643 f. 71 <sup>r</sup>

Index has	line	fol	
<i>initum</i>	II 269	38 <sup>r</sup>	'beginning' a supine verb; Leto glossed this at I 13 f. 9 <sup>r</sup> and I 383 f. 17 <sup>r</sup> above, II 269 f. 38 <sup>r</sup> , and at III 271 f. 63 <sup>r</sup> below.
<i>extim[us]</i>	II 277	38 <sup>v</sup>	Leto's text has 'extima' i.e. 'outermost' (the antonym of <i>entimos</i> ) instead of <i>extera</i> as in the modern edition; glossed again at III 219, f. 61 <sup>v</sup>
<i>clinam[en]</i>	II 292	38 <sup>v</sup>	'swerve' technical term and <i>hapax legomenon</i>
<b>31</b>			
<i>concelib[ro]</i>	II 345	39 <sup>v</sup>	'gather together' uncommon; the index also marked this at I 4
<i>pervolgar[e]</i>	II 346	39 <sup>v</sup>	'spread among the multitude' very rare
<i>pecus</i>	II 343	39 <sup>v</sup>	'flocks' Leto glossed this 'pecudes pro piscibus' (flocks for fish) noting Lucretius's unusual use of <i>pecus</i> , since Latin lacks a collective noun for fish. Leto also writes 'piscis non emitit vocem' (fish emit no voice) where Lucretius discusses the 'mutae natantes ... pecudes'
<i>cluo</i>	II 351	39 <sup>v</sup>	<i>cluere</i> 'be called, named, esteemed' very rare; also marked at I 119 and I 449
<b>32</b>			
<i>petulc[us]</i>	II 368	40 <sup>r</sup>	'butting' rare
<i>thuricrem[as]</i>	II 353	40 <sup>r</sup>	'burning incense' very rare; in the margin Leto writes 'thurichremas' with dots under both h'es, indicating his uncertainty about including them.
<i>parilis</i>	II 374	40 <sup>r</sup>	'equal' uncommon, sufficiently so that the scribe who wrote out Leto's manuscript garbled it at I 1067
<i>penetrali[us]</i>	II 382	40 <sup>v</sup>	'innermost' uncommon
<i>colum</i>	II 392	40 <sup>v</sup>	'colander' uncommon usage, Leto also corrects his text, which had merged two words into 'columnvina'

Index has	line	fol	
[...]	II 393?	40 <sup>v</sup>	The mark in the index is difficult to make out, and corresponds to no marginal annotation, but may be 'Nimi[rum]' which appears in II 393 or possibly <i>alimus</i> 'sustenance' which appears in the margin here. Modern readings have <i>ni mirum</i> .
<i>hamat[us]</i>	II 394	40 <sup>v</sup>	'hooked' rare, technical
<b>34</b>			
<i>fecula</i>	II 430	41 <sup>v</sup>	'dregs', <i>hapax legomenon</i>
<i>titillo</i>	II 429	41 <sup>v</sup>	'tittilate' rare, technical
<i>dentat[us]</i>	II 432	41 <sup>v</sup>	'toothed' uncommon, technical
<i>exterus</i>	II 435	41 <sup>v</sup>	'external/foreign' uncommon as an adjective
<i>sa[nius]</i> or <i>salu[m]</i>			Uncertain. Probably <i>sanius</i> 'healthier', going with <i>virus</i> below, making salt water healthier to drink. Alternatively it could read <i>salum</i> meaning 'open sea'.
<i>virus</i>	II 476	42 <sup>v</sup>	'acid component' technical usage
<i>Melibea</i> <i>purpura</i>	II 500	43 <sup>r</sup>	'Meliboean purple' dye made from the <i>ostium</i> fish, a cultural <i>notabilium</i>
<i>Mucroni</i>	II 520	43 <sup>v</sup>	'points' unusual metaphorical usage
<b>COLUMN 4: C[arta] 35</b>			
<i>pellatia</i>	II 560	44 <sup>r</sup>	Modern readings have <i>pellacia</i> meaning 'seductive' rare.
<i>auctific[us]</i>	II 571	44 <sup>v</sup>	'one who makes things greater' <i>hapax legomenon</i>
<i>.vis.</i>	II 586	44 <sup>v</sup>	'powers' Leto glossed this 'vis accusatum casus' ( <i>vis</i> in the accusative case), rare archaic form; <i>vires</i> is standard.
<b>36</b>			
<i>montivag[us]</i>	II 597	45 <sup>r</sup>	'wandering the mountains' very rare
<i>munifico</i>	II 625	45 <sup>v</sup>	'bestow a blessing' rare
<b>37</b>			



Index has	line	fol	
<i>vocam[en]</i>	II 657	46 <sup>r</sup>	'designation/name', form unique to Lucretius
<i>indig[us]</i>	II 650	46 <sup>r</sup>	'lacking'. Leto observes that this uncommon adjective can take two different cases. Here 'indigus nostri' takes the genitive, while at v 223 (f. 112 <sup>v</sup> ) Leto glossed 'indigus omni' with the note 'indig[us] cum abla[tivo]':
<i>glomeram[en]</i>	II 686	46 <sup>v</sup>	'round mass' a word unique to Lucretius
<i>buceri[a]e</i>	II 663	46 <sup>v</sup>	'ox-horned' very rare
<i>[parentum creatorum]</i>	II 665	46 <sup>v</sup>	Difficult to make out, two words inserted in faint ink. Possibly 'parentum creatorum' a gloss on <i>parentum</i> 'of parents, of creators'
<b>38</b>			
<i>nigreo</i>	II 733	47 <sup>r</sup>	'darken' Leto glossed the text's 'nigrant' from <i>nigrare</i> with the alternative <i>nigrere</i> , observing two variant forms.
<i>o[mn]ipare[n]s</i>	II 706	47 <sup>r</sup>	'all-parent', usually used for Jupiter, used here for Terra, an uncommon usage
<i>ni</i>	II 734	47 <sup>v</sup>	'whether not this/ or not that' usually appears twice, or with <i>sive</i> ; it is very uncommon to find one alone
<b>39</b>			
<i>cecigeni</i>	II 741	48 <sup>r</sup>	'born blind' glossed by Leto 'cecigeni qui sunt nati ceci' ( <i>cecigeni</i> , those who are born blind). Rare compound.
<i>candens albu[m]</i>	II 771	48 <sup>v</sup>	'bright/white' and 'white', noting a pair of synonyms
<b>40</b>			
<i>for[m]am[en] tu[m]</i>	II 819	49 <sup>v</sup>	'conformation' Very rare, used only here and in Amobius
<i>pupula</i>	II 811	49 <sup>v</sup>	'pupil of the eye' technical term, also indexed at III 408, f. 66 <sup>r</sup>
<i>filatim</i>	II 831	49 <sup>v</sup>	'thread by thread' adverb, <i>hapax legomenon</i>

Index has	line	fol	
<b>41</b>			
<i>virus</i>	II 853	50 <sup>r</sup>	'acid component' technical, also marked at II 476; also unusual for being a second declension -us neuter noun
<i>amaricini</i>	II 847	50 <sup>r</sup>	'marjoram' technical herbalist term
<i>stacte</i>	II 847	50 <sup>r</sup>	'myrrh' technical herbalist term
<i>nardus</i>	II 848	50 <sup>r</sup>	'oil of spikenard' technical herbalist term
<i>putor</i>	II 872	50 <sup>v</sup>	'stinking/rotting' uncommon, also marked at II 872 50 <sup>v</sup> and II 929 f. 52 <sup>r</sup> , and its verb form at
<i>pen[n]ipotens</i>	II 878	50 <sup>v</sup>	'winged' used twice by Lucretius, no other authors
<b>42</b>			
<i>vulgu[m]</i>	II 920	51 <sup>v</sup>	'common people' syncopated genitive plural; this is another rare second declension -us neuter noun
<b>43</b>			
<i>fervere</i>	II 928	52 <sup>r</sup>	'to seethe' text contains <i>effervere</i> which Leto glossed 'fervere', extracting the root; this is an unusual metaphorical use of a word usually used for literal boiling; the index also includes <i>fervere</i> at II 41 f. 33 <sup>v</sup>
<i>puto[r]</i>	II 929	52 <sup>r</sup>	'stinking/rotting' uncommon, also marked at II 872 50 <sup>v</sup> and II 929 f. 52 <sup>r</sup> , and its verb form at
<i>[con]ciliat[us]</i>	II 936	52 <sup>r</sup>	'union' supine used in an unusual ablative construction
<i>propritim</i>	II 975	52 <sup>v</sup>	'lesser/peculiar' very rare
<i>cachin[n]o</i>	II 976	52 <sup>v</sup>	'cackle' rare, also marked at I 919
<b>44</b>			
<i>propor[r]o</i>	II 979	53 <sup>r</sup>	'moreover/further' used only by Lucretius; Leto also indexed <i>porro</i> at I 325 f. 16 <sup>r</sup> , I 426 f. 16 <sup>r</sup> , I 461 f. 19 <sup>r</sup> , II 105 f. 34 <sup>v</sup> , and <i>proporo</i> at 281, f. 63 <sup>r</sup>

Index has	line	fol	
<i>ausim</i>	II 982	53 <sup>r</sup>	Leto seems to have made a transcription error. Both the text and his marginal gloss have <i>ausis</i> , 'dare' which Leto glossed 'ut audeas' interlineally, but it appears in the index as <i>ausim</i> .
<i>pasco</i>	II 996	53 <sup>r</sup>	'graze' unusual usage; also glossed at I 231 f. 14 <sup>r</sup>
<i>puncto t[em]</i> <i>p[o]r[e]</i>	II 1006	53 <sup>v</sup>	'a moment in time' uncommon way to express time
<i>potesse</i>	II 1010	53 <sup>v</sup>	'to be able' archaic form; also indexed at I 665 f. 23 <sup>r</sup> and III 321f. 64 <sup>r</sup> .
<hr/>			
45			
<i>satias</i>	II 1038	54 <sup>r</sup>	'sufficiency/abundance' glossed by Leto 'satias satiatis' uncommon word
<i>inn[umerali]s</i> <i>nu[meru]s</i>	II 1086	55 <sup>r</sup>	'of innumerable number' Leto has accidentally written this phrase from f. 55 before #47, and repeats it after; Leto also indexed this oxymoronic phrase at III 789 f. 73 <sup>v</sup>
<hr/>			
46			
<i>nu[meru]s</i> <i>inn[umera]lis</i>	II 1086	55 <sup>r</sup>	'of innumerable number' Leto marks this oxymoronic phrase both times Lucretius uses it
<i>indumanus</i>	II 1096	55 <sup>v</sup>	Leto has mistaken an error for a new word, since his text merges 'indu manus' into what seems to be a compound.
<i>suffirre</i>	II 1098	55 <sup>v</sup>	'to perfume/scent' Leto glossed this 'suffire: as[cript]io [est] Virg[ili]: suffir[e] teras' referring to the parallel phrase in Georgics 4
<i>dies p[r]</i> <i>imigen[us]</i>	II 1106	55 <sup>v</sup>	'first birthday' unique expression
<i>celi</i>	II 1097	55 <sup>v</sup>	'sky' Leto glossed this 'caeli caelor[um]'

Index has	line	fol	
<i>donicum</i>	II 1116	55 <sup>v</sup>	Here the modern edition has <i>donique</i> , a form used only by Lucretius. Leto's manuscript has 'donicum' but Leto writes 'per denique' interlinearly above it, then glossed this 'donicum pro donec & hoc F. Pompeius inquit'.

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COLUMN 5: C[arta] 47

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<i>alescer[e]</i>	II 1130	56 <sup>r</sup>	'increase' very rare
<i>hilu[m]</i>	II 1133	56 <sup>r</sup>	'trifle' uncommon, also indexed at III 220 f. 61 <sup>v</sup>
<i>defit</i>	II 1141	56 <sup>r</sup>	'fail' unusual form of <i>deficio</i> which makes a compound out of the verb <i>fito, fieri</i>
<i>truditar[e]</i>	II 1142	56 <sup>v</sup>	'buffeting' Leto's text has <i>tuditantia</i> which Leto attempts to correct to <i>truditantia</i> , mistaking it for a form of <i>trudo</i>
<i>i[n]tegrar[e]</i>	II 1146	56 <sup>v</sup>	'renew/integrate/repair' rare, technical

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<i>tabesco</i>	II 1173	57 <sup>r</sup>	'melt' uncommon, technical, also noted at III 581 f. 59 <sup>v</sup>
<i>i[n]nubil[us]</i>	III 21	57 <sup>v</sup>	'unclouded' rare
<i>depascor</i>	III 12	57 <sup>v</sup>	'graze upon' Lucretius uses this metaphorically, describing people feasting on Epicurus's golden words, which Leto glossed in the margin 'repastio dictionis'; the index also notes <i>pasco</i> at I 36 f. 9 <sup>v</sup> , I 231 f. 14 <sup>r</sup> , and II 996 53 <sup>r</sup>

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<i>parento</i>	III 51	58 <sup>r</sup>	'offer a sacrifice in honor of one's parents' <i>notabilium</i> of an interesting cultural practice
<i>clarare</i>	III 36	58 <sup>v</sup>	'to brighten', the form in the text is <i>claranda</i> , a gerundive in a passive periphrastic
<i>i[n]ferie</i>	III 53	58 <sup>v</sup>	'offerings to the dead' also a cultural <i>notabilium</i>
[con]scisco	III 81	58 <sup>v</sup>	'decide/devise/decreet' uncommon

Index has	line	fol	
<i>avarities</i>	III 59	58 <sup>v</sup>	'greed' unique example of this ending on this word, and a very unusual ending for an abstract noun
<b>L</b>			
<i>int[er]inire</i>	III 111	59 <sup>v</sup>	'to perish' <i>interire</i> or the nonexistent verb <i>interinire</i> 'to enter into' is an error which makes no sense in this line, which should have <i>interea</i> 'meanwhile'
<i>harmonia</i>	III 100	59 <sup>v</sup>	'harmony' uncommon, and Lucretius specifies here that it is a Greek word, an interesting etymological claim
<i>sciet</i>	III 101	59 <sup>r</sup>	text has <i>siet</i> ('dwell'), a very rare form which Leto has erroneously corrected in the margin to <i>sciet</i>
<b>L1 (Leto begins to combine Roman and Arabic numerals here)</b>			
<i>sono</i>	III 156	60 <sup>v</sup>	Lucretius uses <i>sonere</i> instead of the more common <i>sonare</i> as the infinitive of this verb 'to resound'; indexed again at III 873, f. 75. <sup>v</sup>
<i>petit[us]</i>	III 172	60 <sup>v</sup>	'aim at' supine
<b>L2</b>			
<i>tantill[us]</i>	III 189	61 <sup>r</sup>	'so small' very rare, diminutive
<i>p[ar]vi[ssi]ma</i>	III 199	61 <sup>r</sup>	'tiny/miniscule' used only by Lucretius; marked earlier at I 615, 621 f. 22 <sup>r</sup>
<i>p[ro]qua[m]</i>	III 187	61 <sup>r</sup>	'just as' adverb
<i>mom[en]</i>	III 189	61 <sup>r</sup>	'movement' technical, also glossed above at II 220
<i>extim[us]</i>	III 219	61 <sup>v</sup>	'farthest' rare, also indexed at II 277, f. 38 <sup>v</sup>
<i>hilum</i>	III 220	61 <sup>v</sup>	'trifle' rare, also indexed at II 1133, f. 56 <sup>r</sup>
<b>L3</b>			
<i>paukill[us]</i>	III 229	62 <sup>r</sup>	'very tiny' used only by Lucretius
<i>intereverso</i>	III 236	62 <sup>v</sup>	Difficult to make out, likely a gloss on 'interitu'

Index has	line	fol	
<i>p[er]sentisce[re]</i>	III 249	62 <sup>v</sup>	'to perceive deeply' very rare
<i>caule</i>	III 255	62 <sup>v</sup>	'pores' very rare, technical
<b>L4</b>			
<i>propor[r]o</i>	III 275 & 281	63 <sup>r</sup>	'moreover/further' used only by Lucretius; Leto also indexed <i>porro</i> at I 325 f. 16 <sup>r</sup> , I 426 f. 16 <sup>r</sup> , I 461 f. 19 <sup>r</sup> , II 105 f. 34 <sup>v</sup> and <i>proporro</i> at II 979, f. 53 <sup>r</sup>
<i>initu[m]</i>	III 271	63 <sup>r</sup>	'beginning' supine, Leto glossed this at I 13 f. 9 <sup>r</sup> I 383 f. 17 <sup>r</sup> , and II 269 f. 38 <sup>r</sup> , above.
<i>p[er]cit</i>	III 303	63 <sup>v</sup>	'set in motion' technical
<i>etia[m] q[u]oq[ue]</i>	III 292	63 <sup>v</sup>	'and then in addition', this adverbial combination is rare
<b>L5</b>			
<i>potesse</i>	III 321	64 <sup>r</sup>	'to be able' archaic form, also indexed at I 665 f. 23 <sup>r</sup> and II 1010 f. 53 <sup>v</sup> .
<i>gleba turis</i>	III 327	64 <sup>r</sup>	'globes of frankincense' rare combination
<i>dieresis</i>	III 330	64 <sup>r</sup>	Leto observes Lucretius's poetic skill in this line where a natural dieresis separates <i>omnia</i> from <i>dissoluantur</i> (all ... is dissolved) in a line describing the inevitable dissolution of the soul and body at death.
<i>no[mini]to</i>	III 352	64 <sup>v</sup>	'name/term' rare word, which Leto glossed in the margin 'nominato nominitas' giving its nominative and genitive
<i>putrescu[n]t</i>	III 343	64 <sup>v</sup>	'to be rotting away' rare, also indexed at III 781, f. 75 <sup>v</sup> ; the noun <i>putor</i> is indexed at II 872 50 <sup>v</sup> and II 929 f. 52 <sup>r</sup> .
<b>vi L6</b> (Leto began by writing 'vi' then crossed it out to return to his L6 method)			
<i>vieta</i>	III 385	65 <sup>v</sup>	'wrinkled' very rare, unique in this form

Index has	line	fol	
<i>priva</i>	III 389	65 <sup>v</sup>	'individual' uncommon usage of common word; Leto later glossed <i>privus</i> at III 723, f. 72 <sup>v</sup>
<i>sensisto</i>	III 393	65 <sup>v</sup>	'begin to realize' rare and an unusual use of the subjunctive; Leto glossed this <i>sentisto</i>
<i>tuditar</i>	III 394	65 <sup>v</sup>	'strike often' very rare, technical
<i>puppula</i>	III 408	66 <sup>r</sup>	'pupil of the eye' uncommon, technical term, also indexed at II 811, f. 49 <sup>v</sup>
<i>aranei</i> <i>trisyll[abus]</i>	III 383	65 <sup>v</sup>	'spider threads, three syllables' noting the fact that <i>aranei</i> is scanned '– u u' in the verse, squeezing -ei into one short beat, emphasizing the minuteness of the threads

COLUMN 6: L7 (The numerator accidentally numbered two leaves 'Lxii', so the annotator included terms from both in this section of the index; these pages contain Lucretius's attacks on the afterlife, marked by Leto *opinio non christiana*, and numbered, *primum argumentum*, *secundum argumentum*, etc.)

<i>vivatus</i>	III 409	66 <sup>r</sup>	'animated', very rare, also indexed at III 611 f. 69 <sup>r</sup> and III 680 f. 71 <sup>v</sup>
<i>fatisci</i>	III 458	67 <sup>r</sup>	'worn out, exhausted' deponent infinitive
<i>potis</i>	III 468	67 <sup>r</sup>	line contains <i>potis est</i> , 'it is possible', an uncommon early uncontracted form of <i>potest</i>
[ <i>con</i> ]tagiu[m]	III 471	67 <sup>r</sup>	'contagion' uncommon, technical
<i>tardesco</i>	III 479	67 <sup>v</sup>	'become slow' <i>hapax legomenon</i>
p[re]pedio	III 478	67 <sup>v</sup>	'shackle the feet' uncommon
<i>alioqui</i>	III 415	66 <sup>r</sup>	'otherwise' another clarifying adverb

#### L8

<i>menbrati[m]</i>	III 527	68 <sup>v</sup>	'limb-by-limb' adverb, uncommon
<i>particulati[m]</i>	III 542	68 <sup>v</sup>	'particle-by-particle/in pieces' adverb, uncommon
<i>tractim</i>	III 530	68 <sup>v</sup>	'in a long, drawn-out manner' adverb, rare

Index has	line	fol	
<b>L9</b>			
<i>obrutesco</i>	III 545	69 <sup>r</sup>	'become brutish' very rare
<i>cassum</i>	III 545	69 <sup>r</sup>	'void of' adverb, uncommon
<i>mixtim</i>	III 566	69 <sup>r</sup>	'mixedly' adverb, uncommon
<i>tabesco</i>	III 581	69 <sup>v</sup>	'melt/dwindle away' uncommon, technical, also noted at II 1173 f. 57 <sup>r</sup>
<i>vivatus</i>	III 611	69 <sup>r</sup>	'animated', very rare, also indexed at III 409 f. 66 <sup>r</sup> and III 680 f. 71 <sup>v</sup>
<i>na[ve] i[n]</i> <i>ether[e]:</i>	III 616	69 <sup>v</sup>	'swim in air/ether' Lucretius's description of the atoms of the soul swimming away through the air at death
<b>60</b>			
<i>parti</i>	III 611	70 <sup>r</sup>	'section/region' Leto glossed this 'parti in abl[ativ]o, marking the fact that it is an -i stem noun
<i>unis</i>	III 616	70 <sup>v</sup>	'one' is rarely seen in the plural, but Lucretius uses <i>unis sedibus</i> in the sense of 'in their sole/proper seats' Leto glossed this 'unis pro solis'
<b>61</b>			
<i>desubito</i>	III 643	71 <sup>r</sup>	'suddenly' uncommon temporal adverb; the index also includes <i>desubito</i> at II 265, f. 38 <sup>r</sup>
<i>petessere</i>	III 648	71 <sup>r</sup>	'strive after' very rare
<i>vivata</i>	III 680	71 <sup>v</sup>	'animated', very rare, also indexed at III 409 f. 66 <sup>r</sup> and III 611 f. 69 <sup>r</sup>
<b>62</b>			
<i>p[er]itar[e]</i>	III 710	72 <sup>v</sup>	Leto struggled to make sense of his text, which has the nonsensical <i>peritat</i> instead of <i>perit</i> (perished); he glossed it <i>peti peritare apereo</i> , guessing at the principal parts of this non-existent verb.
<i>privus</i>	III 723	72 <sup>v</sup>	'individual' rare; Leto glossed <i>priva</i> earlier at III 389, f. 65 <sup>v</sup>



Index has	line	fol	
<i>rancenti</i>	III 719	72 <sup>v</sup>	'putrid' participial, uncommon in comparison with the adjective <i>rancidus</i> ; Leto makes exactly this observation in his marginal gloss: <i>rancenti pro rancido a rancere</i>
<b>63</b>			
<i>ing[e]n[e]rasco</i>	III 745	73 <sup>r</sup>	'be produced' The text contains <i>generascunt</i> , a <i>hapax legomenon</i> , but Leto has glossed it in the margin 'Ingene rasto' and the index includes his innovation <i>ingenerasco</i>
<i>seminiu[m]</i>	III 742	73 <sup>r</sup>	'of seeds' unusual form of the genitive plural, which is usually <i>semonum</i> ; technical usage
<i>algum</i>	III 732	73 <sup>r</sup>	'coldness' rare, technical
<i>tenerasco</i>	III 765	73 <sup>v</sup>	'to grow tender' <i>hapax legomenon</i>
<i>pullus</i>	III 764	73 <sup>v</sup>	'chick/baby animal' Leto glossed this 'pullus pro paruo equo' i.e. 'chick for a small horse' noting unusual usage
<i>In[umer]us n[umer]us</i>	III 789	73 <sup>v</sup>	'of innumerable number'; he also indexed this at II 1085 f. 55 <sup>r</sup>
<i>senectus</i>	III 772	73 <sup>v</sup>	'grown old' uncommon
<b>64</b> (Leto indexed nothing on f. 74 <sup>r-v</sup> , so skipped to f. 75 and omitted '65' from his index)			
<i>putresco</i>	III 781	75 <sup>v</sup>	'to be rotting away' rare, and rare in the passive; also indexed at III 343, f. 64 <sup>v</sup> ; the noun <i>putor</i> is indexed at II 872 50 <sup>v</sup> and II 929 f. 52 <sup>r</sup> .
<i>sono</i>	III 873	75 <sup>v</sup>	Lucretius uses <i>sonere</i> instead of the more common <i>sonare</i> as the infinitive 'to resound'; indexed above at III 156 f. 60 <sup>v</sup> .
<b>66</b>			
<i>obrutu[m]</i>	III 893	76 <sup>r</sup>	'crushed' rare
<i>cin fract[us]</i>	III 906	76 <sup>v</sup>	'reduced to ashes' <i>hapax legomenon</i> , Leto unpacks it in the margin as 'cine factus cinis'
<i>homullus</i>	III 914	76 <sup>v</sup>	'manikin' very rare

Index has	line	fol	
<b>67</b>			
<i>exp[er]git[us]</i>	III 929	77 <sup>r</sup>	'awaken' a nonstandard form of <i>experrectus</i> , from <i>expergiscor</i>
<i>fruct[us]</i>	III 940	77 <sup>r</sup>	'enjoy' participle from <i>fruor</i>
<i>abhinc</i>	III 594	77 <sup>v</sup>	'henceforth' temporal adverb
<i>inciliare</i>	III 963	77 <sup>v</sup>	Leto's text has <i>incilare</i> 'scold' but he erroneously inserts an 'i' creating <i>inciliare</i> .
<i>inciliare</i>	III 963	77 <sup>v</sup>	repeated, likely due to blotch on the first instance
<b>68 (first and sole entry on the reverse side of the flyleaf)</b>			
<i>nixari</i>	III 1000	78 <sup>v</sup>	Lucretius uses <i>nixantem</i> from <i>nixari</i> , 'to exert oneself' uncommon and Leto clarifies the verb stem.
<i>Luella</i>	III 1015	78 <sup>v</sup>	'atonement' or 'punishment' extremely rare
<i>potestur</i>	III 1010	78 <sup>v</sup>	rare passive form

a "For those curious, yes, this gloss examined during my dissertation, and not the DC comic villain of the same name, is the origin of the character name Felix Faust in my novel *Too Like the Lightning* (New York: Tor Books, 2016)."