

Greek and Latin for Scientists

Andrew Dunning

Abstract

Studying Greek and Latin through the eyes of scientists reveals not only the extent of the influence of classical languages, but also the urgency of the need for more accessible historical and linguistic material. Open publication is gradually making available more dictionaries, primary sources, and explanations of basic concepts suitable for a general audience, which is gradually allowing scientists to better understand specialized nomenclature based on Greek and Latin.

When one considers the most prominent users of Greek and Latin, it is easy to forget that these languages have shaped the technical vocabulary used every day in scientific disciplines across the world. A recent estimate pegs the portion of English anatomical terminology originating with these languages at eighty-nine per cent (Turmezei 2012: 65% Latin, 24% Greek; cf. Marečková, Šimon, and Červený 2002). Even so, terminology based on classical languages is not always used consistently, and it has become almost a commonplace remark among specialists to note the inconsistent application of the standard reference Latin tool for anatomical nomenclature, the *Terminologia Anatomica* (Martin et al. 2014); it is also frequently abused as a means of obfuscation (Díez Arroyo 2013). Many universities offer a course enabling undergraduates to engage with just enough Greek and Latin to whet their interest in the subject and speed their terminological studies, and for some students such study is mandatory, as in Slovak medical faculties (Bujalková 2013; for Turkey, see Özkadif, Kılıç, and Eken 2014). Relatively few resources have been dedicated to the area, but the increased availability of materials has greatly improved the accessibility of classical learning to scientists.

'Latin and Greek in Scientific Terminology' is a highly popular offering among life sciences students at the University of Toronto, and also draws students from many other disciplines, filling at least four large classes each year. In teaching this course, I have aimed to provide both a summary of the most critical information about Greek and Latin necessary to communicate intelligently in a scientific context and a basic grounding in classical and medieval science. The course is also an excellent way of improving one's general communication skills. For those teaching a course on medical terminology specifically (a situation discussed by Dean-Jones 1998), there are many texts available, though most focus on anatomical terminology; among these, the book updated by Walker-Esbaugh, McCarthy, and Sparks (2004) is perhaps most in touch with the classical world. There are also recently updated works available for teaching non-specialized English etymology (Dunmore and Fleischer 2008; Green 2014). Students seem to respond best when they are analysing material primarily from their own field, and the easy availability of scientific articles online provides ample material for acquainting students with the practical skill of being able to decipher material from scientific literature, the teaching of which is exemplified by Karenberg (2011). No university-level textbook addressing the general use of Greek and Latin in the sciences, however, has been written since those of Nybakken (1959) and Ayers (1972), requiring instructors to assemble many more disparate resources if they wish to take current usage into account, a need filled by scientific articles on the history of terminology; there are also a number of useful works dealing with the development of scientific words and classical science (e.g. Leven 2005; Haubrich 2003; Scarborough 1992). When one is in such

a situation, it quickly becomes apparent how little material is easily available that explains relevant historical and grammatical concepts accessibly, yet accurately.

The use of Latin and Greek among scientists has been greatly eased by the availability of online dictionaries. Where once students might have worked for the most part with nothing but a book listing scientific word roots (e.g. Brooks 2007) and a medical dictionary, the wide availability of scholarly classical dictionaries means that it is entirely feasible for them to use these works as well. Thanks to the [Perseus Word Study Tool](#) and [Logeion](#), offering a single interface for both Latin and Greek dictionaries, instructors can expect students to make use of classical dictionaries every class. These works, and even the *Oxford English Dictionary*, requires learning the Greek alphabet, generally omitted from terminology textbooks, but this is not (to judge from test results) a difficulty for the vast majority of students. On the other hand, online publication paradoxically preserves the status quo, since students end up eschewing newer works in favour of older but more accessible public-domain dictionaries: Lewis and Short (1879) easily win out over Glare (2012). Even for those works online, many could still be made easier for generalists; one might compare what [AnatomicalTerms.info](#) does for the *Terminologia Anatomica* (Gobée, Jansma, and DeRuiter 2011).

We are still lacking a clear notion of which parts of Greek and Latin scientists really need to know. The core of most terminology courses is a vocabulary list composed of around a thousand word roots, prefixes, and suffixes, which seems to be attainable for most students. Within fields such as anatomy, it is relatively straightforward to determine which terms need to be learned, and some areas even have something akin to Swanson (2014) as a specific guide. To truly have a solid grounding for a course on Latin and Greek in all of scientific terminology, one could in theory find the most common stems in a corpus of current scientific literature and base students' learning on this collection, rather like the [DCC Core Vocabulary lists](#).

For almost all scientists, Latin and Greek can be at the very least a method of learning technical nomenclature more efficiently. But with only a little extra work on the part of classicists and medievalists, it can be something more than this. The current inaccessible state of historical material in translation is a serious cause for concern in teaching the material to scientists; for example, mythology is quite influential in the history of science (as shown vividly in Karenberg 2005; Karenberg 2012–2013), but it is difficult to find solid translations in a modern language which one can easily excerpt and modify for teaching purposes. Students are almost always surprised to learn that by its etymology *science* refers to all knowledge, and not only the physical and natural world as we typically use the word. Eisenstein (2005) brilliantly demonstrates the ways in which the early modern scientific revolution was so closely aligned with the change from manuscript to print culture, as well as with the humanities. As we go through a similar shift, we must not miss our opportunity to continue this tradition.

REFERENCES

The syllabus for the course discussed is [available through its website](#), which includes a [bibliography of the many works dealing with the history of Greek and Latin in scientific terminology](#). For a recent overview of literature on technical uses of Latin, see Fögen (2011).

Ayers, Donald M. 1972. *Bioscientific Terminology: Words from Latin and Greek Stems*. Tucson: University of Arizona Press.

Brooks, Katie, ed. 2007. *Classical Roots for Medics*. Edinburgh: Chambers.

Bujalková, Mária. 2013. 'Are the Methods to Use Historical Lexicology (Etymology) in Contemporary Medical Terminology Teaching Reasonable?' *JHR* 4 (7): 469–78. <http://hrcak.srce.hr/110365>.

Dean-Jones, Lesley A. 1998. 'Teaching Medical Terminology as a Classics Course.' *The Classical Journal* 93 (3): 290–96. <http://www.jstor.org/stable/3298183>.

- Díez Arroyo, Marisa. 2013. 'Scientific Language in Skin-Care Advertising: Persuading Through Opacity'. *Revista española de lingüística aplicada* 26: 197–213. <http://dialnet.unirioja.es/descarga/articulo/4597577.pdf>.
- Dunmore, Charles W., and Rita M. Fleischer. 2008. *Studies in Etymology*. 2nd ed. Newburyport, MA: Focus.
- Eisenstein, Elizabeth L. 2005. 'The Book of Nature Transformed: Printing and the Rise of Modern Science'. In *The Printing Revolution in Early Modern Europe*, 2nd ed., 209–85. Cambridge: Cambridge University Press. doi:10.1017/CBO9781139197038.010.
- Fögen, Thorsten. 2011. 'Latin as a Technical and Scientific Language'. In *A Companion to the Latin Language*, edited by James Clackson, 445–63. Chichester, West Sussex: Wiley-Blackwell. doi:10.1002/9781444343397.ch25.
- Glare, P.G.W., ed. 2012. *Oxford Latin Dictionary*. 2nd ed. 2 vols. Oxford: Oxford University Press.
- Gobée, O. Paul, Daniël Jansma, and Marco C. DeRuiter. 2011. 'AnatomicalTerms.info: Heading for an Online Solution to the Anatomical Synonym Problem. Hurdles in Data-Reuse from the *Terminologia Anatomica* and the Foundational Model of Anatomy and Potentials for Future Development'. *Clinical Anatomy* 24 (7): 817–30. doi:10.1002/ca.21185.
- Green, Tamara M. 2014. *The Greek and Latin Roots of English*. 5th ed. Lanham, MD: Rowman & Littlefield.
- Haubrich, William S. 2003. *Medical Meanings: A Glossary of Word Origins*. 2nd ed. Philadelphia: American College of Physicians.
- Karenberg, Axel. 2005. *Amor, Äskulap & Co.: Klassische Mythologie in der Sprache der modernen Medizin*. Stuttgart: Schattauer.
- . 2011. *Fachsprache Medizin im Schnellkurs: Für Studium und Berufspraxis*. 3rd ed. Stuttgart: Schattauer.
- . 2012–2013. 'The World of Gods and the Body of Man: Mythological Origins of Modern Anatomical Terms'. *Anatomy* 6–7: 7–22. doi:10.2399/ana.11.142.
- Leven, Karl-Heinz, ed. 2005. *Antike Medizin: Ein Lexikon*. Munich: Beck.
- Lewis, Charlton T., and Charles Short, eds. 1879. *A Latin Dictionary: Founded on Andrews' Edition of Freund's Latin Dictionary*. Oxford: Clarendon Press.
- Marečková, Elena, František Šimon, and Ladislav Červený. 2002. 'Latin as the Language of Medical Terminology: Some Remarks on Its Role and Prospects'. *Swiss Medical Weekly* 132 (41–42): 581–87. http://www.smw.ch/dfe/set_archiv.asp?target=2002/41/smw-10027.
- Martin, Bradford D., Donna Thorpe, Vanessa DeLuna, Trish Howard, Josh Hagemeyer, and Nicholas Wilkins. 2014. 'Frequency in Usage of *Terminologia Anatomica* Terms by Clinical Anatomists'. *Journal of Biomedical Education*, September. doi:10.1155/2014/950898.
- Nybakken, Oscar Edward. 1959. *Greek and Latin in Scientific Terminology*. Ames: Iowa State College Press.
- Özkadif, Sema, Selda Kılıç, and Emrullah Eken. 2014. 'How Much Latin Terminology Education Is Enough? The Views of Students'. *World Applied Sciences Journal* 29 (2): 239–46. [http://www.idosi.org/wasj/wasj29\(2\)14/15.pdf](http://www.idosi.org/wasj/wasj29(2)14/15.pdf).
- Scarborough, John. 1992. *Medical Terminologies: Classical Origins*. Oklahoma Series in Classical Culture 13. Norman: University of Oklahoma Press.
- Swanson, Larry. 2014. *Neuroanatomical Terminology: A Lexicon of Classical Origins and Historical Foundations*. Oxford: Oxford University Press.
- Turmezei, Tom D. 2012. 'The Linguistic Roots of Modern English Anatomical Terminology'. *Clinical Anatomy* 25 (8): 1015–22. doi:10.1002/ca.22062.
- Walker-Esbaugh, Cheryl, Laine H. McCarthy, and Rhonda A. Sparks. 2004. *Dunmore and Fleischer's Medical Terminology: Exercises in Etymology*. 3rd ed. Philadelphia: Davis.