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A Brief History from a Frustrated Seeker after Knowledge: or Scientific Lexis in Earlier Monolingual English Dictionaries

Abstract

The success of scientific lexis in a dictionary is essentially dependent on the competence and extent of knowledge of the compiler and, perhaps obviously, on the recognition and understanding of the context on the part of the reader. In this paper I would like to pay some attention to problems encountered in assessing the results and consequences of earlier lexicographical decisions in the definitions of a selection of scientific/technical terms signalled by the OED as first occurring in a technical sense, or as a new word, in the late seventeenth century or after.

1. Preamble

The success of scientific lexis in a dictionary is essentially dependent on the competence and extent of knowledge of the compiler – and, I might add, perhaps superfluously, on the recognition and understanding of the context on the part of the reader. Such considerations should be taken into account in defining technical and scientific terms: end of paper. Nevertheless I would like to continue by paying some attention to some problems encountered in assessing the results and consequences of lexicographical decisions in the definitions of a selection of scientific/ technical terms signalled by the OED as first occurring in a technical sense, or as a new word, in the late seventeenth century or after.

My original motivation for this research was a combination of a recognition of my reluctance to interrupt my own reading by consulting a dictionary and my frustration that, when I did, I very often could not immediately access the information I was seeking. The frustration of initially not being able to interpret or work with, for instance, such simple computer notions as *default, download, redline, outline*, or *syntax*, even though I could usually find definitions for the words, led me to want to see whether I could investigate how earlier lexicographical decisions on definition might cause present-day definitions to be more concealing than revealing. I was promptly confronted by a set of problems which need to be resolved.

Decisions concerning the inclusion of specialist vocabulary in general dictionaries have always been vexed. The problem is perhaps most clearly stated by J.A.H. Murray, the first effective editor, in his General Explanations to the New English Dictionary:

> ... a Dictionary has definite limits: the lexicographer must, like the naturalist, 'draw the line somewhere' in each diverging direction. He must include all the 'Common Words' of literature and conversation, and such of the scientific, technical, slang, dialectal and foreign words as are passing into common use,... well knowing that the line which he draws will not satisfy all his critics.

Yet the uptake of scientific and technical vocabulary is important for monolingual dictionaries if only because it is the occasional use of precisely these words that will prompt a native speaker to consult a dictionary and to consider that dictionary to be found wanting if the word is not there, especially if he is deprived of an appropriate context to interpret it in. The most influential British lexicographer of them all has apparently made for us the perfectly reasonable, commercially viable decision for us that words from the scientific and technical worlds are only to be found if they have been accepted by and appear in the literature of the humanities. His main priorities, after all, were to provide a record and a history of the words of the English language.

2. Which words should be sought and where?

The OED was chosen mainly because it is essentially a nineteenth century compilation, but also because CD ROM version meant that it was possible to find words with a date of first attestation in a scientific meaning.

Let me expand on two points: first the significance of the nineteenth century and then the acquistion of scientific meaning.

The search was made for vocabulary primarily from the eighteenth century? Why? If the lexicographer waits to see some indication that a word has been accepted into the common language there is a considerable delay before the word is recorded. In England, scientific writing was being published in English for the first time from the middle of the seventeenth century on. But the mid-eighteenth century marks a hiatus in mainstream science in England which should help to keep the corpus of manageable size: after the flurry of activity and advances made by Robert Boyle (1627–91) and his laws of gaseous mass, Isaac Newton (1642–1727) and gravity, Harvey (1578–1657) and the circulation of the blood in the seventeenth century, English scientists were pretty much

content to rest on their laurels. Chemistry didn't really get off the mark until the second half of the eighteenth century when Priestley (1733–1804) isolated and identified the properties of several gases, and Cavendish (1731–1810) ascertained the composition of the earth's atmosphere. Benjamin Franklin's (1706–1790) C18 experiments with electricity were of course American, not English. But the English would not have been able to afford to be too xenophobic about the acceptance of scientific discovery at the end of the century with scientists as close at hand as the Scots, James Watt (1728–99) applying the principles of Physics to build his steam engine or James Hutton (1726–97) inventing his theory of geological evolution or Joseph Black (1728–1809) promoting the contacts between pure and applied science while he himself had been the first to isolate and identify a 'pure' gas: fixed air (carbon dioxide).

In other words, by the time of compilation of the OED even in its earliest phases, one might expect the vocabulary or turn of phrase used by these early scientists to have settled down; either to have been adopted into the common language, to have become specialised or to have become obsolete. The nineteenth-century editor could be expected to know whether the C18 buzz words were likely to last or likely to join the vast cloud of linguistic ephemera; he would not have the impossible task, constantly faced by modern editors, of predicting their likely shelf-life. Hence the OED, started midway through the nineteenth century, seemed about right to pick up words first used technically before the end of the C18 and adopted into the language as familiar technical terms.

3. Practicalities of the search

I should perhaps emphasize here that it is not my intention to criticise the techniques and values of any dictionary, but an attempt to represent something of the effect of the decisions made and how they in turn affect the recording of one particular kind of lexis and the use a reader can make of it.

For the acquisition of scientific words there were some practical snags in collecting data, or rather in narrowing down the data collected. Using the CD ROM has made the identification of new coinages a simple matter and after a few disputes with an unwilling computer it was easy to call up the amazing number of words of which the OED has a first quotation from the eighteenth century.

It was however either not possible – or a measure of my incapacity to work with Boolean functions – to extract a subset of these words which

had a particular semantic field marker such as Chemistry, Physiology, Medicine, Physics etc.[1] In any case, to do so would be surprisingly misleading. A number of such markers have been added to the head word in OED2 and even if I had been able to ascertain the original classification I realised that such semantic fields are naturally inconsistent, being dependent on the perception of the editor and, indeed, perhaps only relevant for one particular sense of that word – which again may or may not have acquired its technical colouring in the eighteenth century.

It was also not possible to use the date filter to collect those words already in existence which acquired a scientific meaning in the eighteenth century – the filter works for lemmata as a whole not for senses acquired subsequently.

This last means that I have not yet discovered how I am going to find those old words which have acquired new technical meanings. (Suggestions more than welcome). These are significant because historically, the efforts of the Royal Society in the later seventeenth century encouraged its members to write Plain English and this must inevitably have led to new meanings for old words in addition to any new coinages for new concepts.

4. Historical context

The Royal Society, founded in 1660 and very much the arbiter of scientific endeavour in England, argued that the "English prose of scientists should be stripped of ornamentation and emotive language". Language was to be "plain, precise and clear", as indeed the writings of Boyle and Priestley are, but this is an essentially anti-literary policy not geared to encouraging the importation of new words into the literature on which the OED, the Philological Society's dictionary, was to be based.

At the same time as the implementation of the Royal Society's plain English policy, the first general monolingual English dictionaries with their desire to explain only the hard words of the language started to appear.

The Philological Society was, on the other hand, essentially anti-scientific. In his address to the Society in 1857, Richard Chenevix Trench (1857), the influential Dean of Westminster said,

> ...of scientific words none are to find a place in a dictionary but those, first, which have passed out of their peculiar province into more or less general use and secondly such technical and scientific words as, although they have not thus past into more or less general use, or at least general understanding, scattered up and down our literature; ...

One may wonder too what editor Murray made of the address to the Society given by Bucher (1858:42)

> Medicine, Mathematics, Natural Philosophy in its various branches, have taken by far the greatest number of their terms from the dead languages unintelligible to the bulk of the community, and require a continual supply of new words to designate notions that had not existed, or phenomena that had not been observed before.

5. A case in point

Perhaps we should pause here to consider an apparently simple example, the case of *bason* – a common eighteenth-century spelling variant of *basin* which by 1727 had acquired the meaning 'a bench with a plate of iron or stone flag fitted in it and a little fire underneath on which (before the introduction of machinery) the first part of the felting process was performed'. The OED gives derivations to *bason, basoned, basoning* the last of which is documented for 1885 '(a hat maker writes) basoning is the first part of the felting process for making sheep's wool or a mixture of sheep's wool and rabbit fur'. This last is scarcely helpful as a description of the process, though probably sufficient for a reader who doesn't need to know how to do it, especially since, at the time of writing, machinery was available to take over the task. Incidentally, although the verbal usage was first signalled in Chambers (1727), neither Bailey (23rd edn 1773) nor Johnson (1755) recorded them, but Johnson does have several specifically scientific applications for the noun *basin* including

> 8, A round shell or case of iron placed over a furnace, in which hatters mould the matter of a hat into form' which provides a clear idea of the process. The experience and perception of the OED editor has, I believe, modified the information he feels is required.

6. Kinds of scientific lexis

But for the words themselves, one might then expect the dictionary to contain 3 kinds of scientific lexis: (1) new coinages provided these had been absorbed into the language of literature, (2) old words already in the literature which had aquired new scientific meanings from native and foreign language sources and kept them, and (3) old words which had acquired scientific meanings and lost them again but which still remain in the literature.

7. What is meant by scientific lexis?

Finally, I was forced to consider what it was I meant by scientific lexis. Early monolingual English dictionaries contain large numbers of botanical terms, legal terms and terms to do with seafaring all either copied or translated solemnly from one dictionary to the next or imported from Latin-English dictionaries, given a English equivalent and glossed 'a plant', 'a herb' etc. I therefore tried to restrict my attention to Physics, Chemistry, Medicine and, since the industrial revolution fell within the period, to manufacturing terms.

8. A dictionary deficiency

Now that I have delimited the target vocabulary it is necessary to draw your attention to another variable that must diffuse any result this research can have. Several scholars, including Osselton (1995), Tieken (1987) and De Vries (1994) have drawn attention the the eighteenth-century gap in the OED. This, it seems, was due to the system of slip collection and the fact that some of it went missing. Murray was enthusiastic about the help he was receiving from the Americans who had been entrusted with scanning eighteenth-century literature, but apparently large numbers of slips simply never materialised.

9. Editorial expertise

The most influential problem is the competence of the compiler, or perhaps I should say expertise. It is one thing to find literary quotations for relevant vocabulary, it is another to be in a position to define it. What, after all, do gentle schoolmasters and academics know of the world? The ideal of the medieval Everyman is unattainable, as Samuel Johnson acknowledges while making no apologies for the limitations of his own dictionary of the English language. The efforts to remedy this situation may be shown by the fact that there are disproportionately many scientific vocabulary items in the letter A in the OED edited by Murray when compared with, say L, N or Y edited by Bradley, Craigie and Onions respectively. This could be because there just are more scientific words begining with A, but it could also have been influenced by the fact that Murray deliberately developed his knowledge of scientific matters in that on being appointed editor he took the trouble to learn about Chemistry in order to be able to cope with it (with the incidental result

that his definitions of nineteenth-century chemical terms bristle with formulae only intelligible to specialists!). But even editors with expertise can be led astray. Murray himself was dissuaded from including the anatomical meaning of *appendix* since it would never descend to general use even though it had appeared in Johnson (1755) and later editions of Bailey's Dictionarium Britannicum.

10. Conclusion

The difficulties encountered in investigating even such a limited area of scientific lexis have been signalled rather than solved. I am no nearer being able to read scientific articles or technical guides or correctly interpreting scientific words in literary contexts. However, I hope to have provided a framework for a fruitful consideration of the theory of definition of scientific lexis in general monolingual dictionaries and propose to spend any time available in the consideration of items on the handout to be provided.

Endnotes

1. Such syntax as 'select entry qd = (1755) and df = (Chemistry) into X.ent' indeed yields a nine item list, but outputting (puting?) to text yields empty files. 'select entry df = (Chem) into X.def' yields zero entries as does the substitution of (Chem.) even though both items occur in the definitions list.
2. De Vries (1994) has proposed that quotations and sources for specialist vocabulary are more likely to be found in earlier dictionaries rather than in the literature as a means of filling that gap. Indeed if you look at specialised vocabulary with eighteenth-century first attestations a very great deal of it comes from Chambers' Cyclopaedia (1727–38), Harris' Lexicon Technicum (1704), Sharp's Surgery and the general monolingual dictionaries like Kersey's revision of Philips (1706) and the various editions of Bailey's and Johnson's dictionaries. Otherwise reference tends to be made to the Philosophical Transactions or to travellers tales – hardly works of literature.

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