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# “Dispensers of knowledge”. An initiatory investigation into nineteenth-century popular(ized) science

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In England they've found a plan,  
They call Electric lighting,  
Gas companies are going mad,  
All through this bit of scandall,  
The country's to be lighted up,  
With a half penny Russian candle.

(Anon. 1901. *A New Song on the Electric Light*,  
<http://digital.nls.uk/74892421>)

## ABSTRACT

This article discusses instances of knowledge dissemination in the nineteenth century, a time when vocabulary appears to have expanded more than at any other point in the history of English, mainly on account of the discoveries, inventions and innovations that characterized those decades. My investigation will start from an overview of the most frequently quoted sources of new vocabulary in the *Oxford English Dictionary*. It will then focus on documents addressed to lay audiences, relying in particular on a specially-compiled corpus of articles published in dictionaries, encyclopaedias, and periodicals both in the UK and in the US, and combining quantitative and qualitative approaches. Titles, illustrations (where available), and intertextual references, i.e. the textual features that may be deemed to play a significant role in the maintenance of the readers' interest, will be discussed.

## 1. Introduction

Knowledge dissemination is hardly a new phenomenon. People have communicated their discoveries to each other since prehistoric times, though of course the modes of expert-to-expert and expert-to-non-expert communication have varied considerably as thought-styles have changed

and new scientific approaches have developed over the centuries (see Alonso-Almeida – Marrero-Morales 2011 and Taavitsainen 2011). Within this framework, this article aims to concentrate on the nineteenth century, a time in which – according to the statistics in the website of the *Oxford English Dictionary* (henceforth OED) – more lexical items (or new meanings) were recorded for the first time than at any other point in the history of the English language (Dossena 2012: 888-889). Of course, many of these new dictionary entries referred to the discoveries, inventions and innovations that make Late Modern times so interestingly close to, and yet still so intriguingly distant from, our own times.

Here I intend to outline some research paths for the investigation of the ways in which such novelties were presented to the general public, in order to identify the most significant strategies employed in the texts to elicit the interest of non-experts. The investigation will rely on a specially-compiled corpus of articles published in dictionaries, encyclopaedias, and periodicals both in the UK and in the US, and will combine quantitative and qualitative approaches. After an overview of the most frequent (and significant) sources of new vocabulary in the OED, my analysis will concentrate on documents addressed to lay audiences. Special attention will be given to titles, on account of the multiple functions they may have, and which are summarized by Swales (2003) and Sala (2013); the role of illustrations, where available, will also be considered; finally, intertextual references will be discussed, because of their value as sources of further information and – consequently – as potential links meant to maintain the readers' interest in the topics under discussion, and often employed to reinforce the authors' own views.

### 1.1 Sources of new vocabulary and meanings in the OED

At the time of writing (August 2014), the OED website provides some striking statistics concerning Late Modern times: even more remarkably than in Elizabethan times, the largest number of new lexical acquisitions or new semantic values is recorded in the second half of the nineteenth century, with as many as 42,733 new entries, while the second highest figure (32,509) is recorded in the first half of the same century. This may of course be a function of editorial policies, but it is nonetheless impossible to ignore the importance of the role played by the discoveries, explorations, and innovations that occurred throughout the century. Novelties in life sciences, physical sciences, maths, and medicine recorded an extraordinary 17,617 new entries between 1850 and 1900, almost 7,000 more than in the previous

five decades. Indeed, out of a total of 75,242 new items first recorded in the nineteenth century, as many as 28,658 are in the field of 'sciences', accounting for 38% of the total: a figure that is almost eight times as high as the one concerning the 'arts', a field in which the second highest figure was recorded, with a total number of 3,659 new items.

Admittedly, both 'arts' and 'sciences' are such broad terms that further qualification is in order. In this respect, findings may be shown in terms of more specific categories, such as 'literature', 'film', 'visual', 'performing' and 'decorative' arts, which (in turn) may be qualified in even greater detail: in 'music', for instance, we find the first occurrence of *accordion*, which is quoted in a *Morning Post* article dated 24<sup>th</sup> May 1830. As for 'sciences', distinctions (and more refined investigations) could be carried out in the fields of 'chemistry', 'physics', 'astronomy', 'palaeontology', etc. This, however, is beyond the scope of this paper; what is perhaps more relevant here is that only 484 nineteenth-century entries are labelled "now disused" and ca. 8,000 items or meanings appear to have become obsolete, which stresses the significant contribution given by those decades to current vocabulary<sup>1</sup>.

As for the items that continued to be used in later decades, a few examples are given below, with their first quotations<sup>2</sup>:

- (1) **hypothermia**, n. [...] The condition of having a body temperature substantially below the normal, either as a result of natural causes or artificially induced (e.g. for cardiac surgery).

1886 in *New Sydenham Soc. Lexicon*

- (2) **metabolism**, n. [...] b. *Biol.* and *Biochem.* The chemical processes that occur within a living organism in order to maintain life; the interconnected sequences of mostly enzyme-catalysed chemical reactions by which a cell, tissue, organ, etc., sustains energy production, and synthesizes and breaks down complex molecules; anabolism and catabolism considered together; the overall rate at which these processes occur. Also: the chemical changes undergone in an organism by any particular substance. [...]

1878 M. Foster *Text Bk. Physiol.* (ed. 2) Introd. 2 The protoplasm is continually undergoing chemical change (metabolism).

<sup>1</sup> Among obsolete entries we find *abdominoscopy*, *paramnesia* in the sense of "loss of memory for the meaning of words", and *rheometer*, "an instrument for detecting and measuring electric currents", replaced with *galvanometer* at the beginning of the twentieth century.

<sup>2</sup> It may be worth noting, however, that future research might antedate entries.

- (3) **voltage**, n.<sup>2</sup> [...] a. Electromotive force reckoned or expressed in volts. Also *fig.*

1890 *Pall Mall Gaz.* 8 Aug. 4/3 The voltage varied between 700 and 1,300 volts.

Manufacturing and industry also recorded nearly 1,800 new entries between 1800 and 1900; similarly, philosophy recorded 700, again a much higher figure than at other times in the history of English. Entries in these fields include the following:

- (4) **Davy**, n.<sup>1</sup> The miner's safety-lamp invented by Sir Humphry Davy, in which the flame is surrounded with wire-gauze, so as to prevent its communication to explosive gases outside the lamp.

1817 Faraday in B. Jones *Life* I. 214 The great desideratum of a lamp to afford light with safety: ... merely to refer to that which alone has been found efficacious, the Davy.

- (5) **gold-digger**, n. 1. One who digs for gold. Also *fig.*

1830 *Cherokee Phoenix (New Echota, Georgia)* 24 Mar. 3/3 There are tipping shops on every hill where these gold diggers are collected.

- (6) **agnostic**, n. and adj. 1. A person who believes that nothing is known or can be known of immaterial things, especially of the existence or nature of God. Distinguished from atheist n.

1869 *Spectator* 29 May 642/1 All these considerations, and the great controversies which suggest them, are in the highest degree cultivating, and will be admitted to be so even by those Agnostics who think them profitless of any practical result.

- (7) **epistemological**, adj. Of or relating to knowledge, understanding, or epistemology.

1854 J.F. Ferrier *Inst. Metaphysic* 202 The epistemological generalisation is altogether different.

- (8) **modalize**, v. *trans.* To make modal.

1857 A.B. Wilson in *Oxf. Ess.* 115 All dogmatic statements must be held to be modalized by greater or less probability.

As for sources, the OED lists the following as the ten most frequently occurring authors or publications in which items are first cited – see Tables 1a and 1b and 2a and 2b for the first and the second half of the century respectively.

Table 1a. Sources of first citation in periodicals, encyclopaedias and dictionaries (1800-1849)

Source	No. of entries	OED ranking
<i>Blackwood's Magazine</i>	569	The 21 <sup>st</sup> most frequently quoted source: 7808 quotations, ca. 0.25% of all OED quotations.
<i>The Penny Cyclopaedia of the Society for the Diffusion of Useful Knowledge</i>	445	The 71 <sup>st</sup> most frequently quoted source: 4098 quotations, ca. 0.13% of all OED quotations.
<i>Todd's Cyclopaedia of Anatomy and Physiology</i>	444	The 162 <sup>nd</sup> most frequently quoted source: 2248 quotations, ca. 0.07% of all OED quotations.
<i>Fraser's Magazine for Town and Country</i>	295	The 105 <sup>th</sup> most frequently quoted source: 3124 quotations, ca. 0.1% of all OED quotations.
Total no. of entries	1753	

Table 1b. Sources of first citation in the works of specific authors (1800-1849)

Source	No. of entries	OED ranking
Samuel Taylor Coleridge	542	The 56 <sup>th</sup> most frequently quoted source: 4578 quotations, ca. 0.14% of all OED quotations.
Walter Scott	455	The 3 <sup>rd</sup> most frequently quoted source: 17059 quotations, ca. 0.55% of all OED quotations.
John Lindley	449	The 93 <sup>rd</sup> most frequently quoted source: 3368 quotations, ca. 0.1% of all OED quotations.
William Kirby	445	The 207 <sup>th</sup> most frequently quoted source: 1919 quotations, ca. 0.06% of all OED quotations.
Thomas Carlyle	411	The 25 <sup>th</sup> most frequently quoted source: 6822 quotations, ca. 0.22% of all OED quotations.
Robert Southey	333	The 54 <sup>th</sup> most frequently quoted source: 4776 quotations, ca. 0.15% of all OED quotations.
Total no. of entries	2635	

Table 2a. Sources of first citation in periodicals, encyclopaedias and dictionaries (1850-1899)

Source	No. of entries	OED ranking
<i>Century Dictionary</i>	996	The 49 <sup>th</sup> most frequently quoted source: 4894 quotations, ca. 0.15% of all OED quotations.
<i>The New Sydenham Society's Lexicon of Medicine and the Allied Sciences</i>	572	The 146 <sup>th</sup> most frequently quoted source: 2381 quotations, ca. 0.07% of all OED quotations.
<i>Journal of the Chemical Society</i>	516	The 209 <sup>th</sup> most frequently quoted source: 1907 quotations, ca. 0.06% of all OED quotations.
<i>The Times</i>	505	The most frequently quoted source: 39506 quotations, ca. 1.27% of all OED quotations.
<i>The Daily News</i>	417	The 12 <sup>th</sup> most frequently quoted source: 10027 quotations, ca. 0.32% of all OED quotations.
<i>Encyclopaedia Britannica</i>	359	The 5 <sup>th</sup> most frequently quoted source: 14189 quotations, ca. 0.45% of all OED quotations.
<i>Webster's American Dictionary of the English Language</i>	357	The 292 <sup>nd</sup> most frequently quoted source: 1451 quotations, ca. 0.04% of all OED quotations.
Total no. of entries	3722	

Table 2b. Sources of first citation in the works of specific authors (1850-1899)

Source	No. of entries	OED ranking
Robert Mayne	763	The 194 <sup>th</sup> most frequently quoted source: 2027 quotations, ca. 0.06% of all OED quotations.
James Dwight Dana	499	The 166 <sup>th</sup> most frequently quoted source: 2217 quotations, ca. 0.07% of all OED quotations.
Henry Watts	491	The 149 <sup>th</sup> most frequently quoted source: 2359 quotations, ca. 0.07% of all OED quotations.
Total no. of entries	1753	

These data indicate that in the second half of the nineteenth century there appears to have been an increase in first quotations derived from periodicals, dictionaries and magazines: indeed, proportions are more than reversed: while in the first half of the century 60% of new entries are first recorded in the works of individual authors, in the second half this percentage nearly halves and falls to only 32%; on the other hand, periodicals, dictionaries and encyclopaedias, which had contributed far less than half the number of new entries between 1800 and 1849, are seen to contribute 68% of new entries in the second half of the century.

Nor can this be attributed to the fact that the inclusion of some authors or periodicals may skew data: as shown in the tables, in both halves of the century we have extremely prominent sources. In the first half we find Sir Walter Scott, the third most frequently quoted source in the OED<sup>3</sup>; in this case quotations mostly come from Scott's 1818 novel *The Heart of Midlothian*, and refer to lexical items ranging from geographically-marked items, such as *doodle* and *Glaswegian*, to literary labels that are still in current use, such as *fabliau*:

- (9) **doodle**, v.<sup>2</sup> *trans.* To play (the bagpipes).

1816 Scott *Old Mortality* iv, in *Tales of my Landlord* 1<sup>st</sup> Ser. II. 72, I am wearied wi' doudling the bag o' wind a' day.

- (10) **Glaswegian**, n. and adj. A native or inhabitant of Glasgow.

1817 Scott *Rob Roy* II. ix. 195 The Glaswegian took him by the hand.

- (11) **fabliau**, n. A metrical tale, belonging to the early period of French poetry.

1804 Scott *Introd. Sir Tristrem* 48 The interesting *fabliaux* of the Anglo-Norman *trouveurs*.

In the second half of the century, instead, *The Times* is the fourth most frequently quoted source of new vocabulary, and – in time – this will become the most frequently quoted source in the OED. Instances of first quotations from this newspaper are given below:

<sup>3</sup> Interestingly, Scott follows William Shakespeare, the second most frequently quoted source in the OED, to whom a total of 33,130 quotations (about 1.06% of all OED quotations) are due.



- (12) **fancy bread**, n. Bread not of the ordinary texture, size, and weight of the standard 'household' and 'cottage' loaves.

1801 *Times* 9 Mar., Germans, who make what they call French or fancy bread, particularly to please the appetites of foreigners.

- (13) **Marxist**, n.<sup>1</sup> [...] A proponent of Karl Marx's theories concerning the historical development of economic systems and their influence on politics; *esp.* a supporter of a political movement with international affiliations, based on an ideology derived from these theories.

1873 *Times* 5 Sept. 6 At the Congress of Bologna a cotery of Marxists had tried to impede all progress, but in vain.

- (14) **Pax Britannica**, n. [...] A state or period of relative peace in the countries of the former British Empire, seen as resulting from the British presence and administration.

1880 *Times* 10 Nov. 9/4 The multiplication of the means of sustaining life will act, like the Pax Britannica itself, only as a cause of the further multiplication of life.

As for journals and dictionaries, many significant innovations that were introduced in medicine appear to have been first recorded in the *New Sydenham Society's Lexicon of Medicine and the Allied Sciences*, based on Mayne's *An Expository Lexicon of the Terms, Ancient and Modern, in Medical and General Science* (1853). In addition to *hypothermia*, which we saw above, we also find the following instances (among others):

- (15) **hyperthermia**, n. [...] The condition of having a body temperature substantially above the normal either as a result of natural causes or artificially induced (e.g. for therapeutic purposes).

1886 *New Sydenham Soc. Lexicon*, Hyperthermy.

- (16) **laryngectomy**, n. [...] The excision of the larynx.

1888 in *New Sydenham Soc. Lexicon*

- (17) **myelopathy**, n. [...] 1. Disease, degeneration, or dysfunction of the spinal cord; an instance of this.

1891 *New Sydenham Soc. Lexicon*, Myelopathy.

Important sources are also found in the field of chemistry, with the *Journal of the Chemical Society* and the *Journal of the American Chemical Society*; while entries from the latter are more numerous in the twentieth century than

in the nineteenth century, we are indebted to the former for early uses of *aspirin* and *cholesterol*:

- (18) **aspirin**, n. [...] A white crystalline compound, acetylsalicylic acid, used esp. as an analgesic and antipyretic; with *an* and *pl.*, a dose of this in tablet form. Also *attrib.*

1899 *Jrnl. Chem. Soc.* 76 ii. 605 Physiological Action of Aspirin (Acetylsalicylic Acid).

- (19) **cholesterol**, n. [...] 1. Chem. A steroid alcohol that is a major constituent of the lipid bilayer of cell membranes in humans and other vertebrates, and which serves other important cellular and metabolic functions, esp. as a precursor of other steroid compounds. [...]

1894 *Jrnl. Chem. Soc.* 66 i. 486 A great number of analytical results obtained by the authors with cholesterol and its derivatives, seem to show that the composition of cholesterol is expressed by the formula  $C_{27}H_{44}O$ .

Only two scientists feature among the ten most frequently occurring sources in the first half of the nineteenth century: a botanist, John Lindley, and an entomologist, William Kirby; however, this also changes in the second half of the century, when the presence of scientists among the most frequently quoted sources is more prominent: in addition to Robert Mayne, already cited above, we find Henry Watts, a chemist, and James Dwight Dana, a geologist, zoologist, and teacher (see Dossena, forthcoming).

What is perhaps even more interesting is the fact that most of these quotations appear in dictionaries, manuals, and introductory texts, i.e. in genres meant to disseminate knowledge among both learners and interested readers. As is well-known, Late Modern times were characterized by the so-called ideology of (self-)improvement, and indeed the acquisition of 'useful knowledge' was encouraged in many circles and publications (see Secord 2014).

## 2. Tools of knowledge dissemination

As discussed elsewhere (Dossena, in preparation), I agree with Myers (2003) in finding that 'popularization' may be an inappropriate label for the circulation of scientific knowledge among non-experts. This term implies vertical, downwards communication from experts to lay audiences, typically involving simplification, if not actual oversimplification, of concepts and

notions. However, this is not necessarily the case in all circumstances: in many cases, experience, presented in personal narratives, takes on a very significant value even when the source is not assumed to be intrinsically authoritative on account of education. In addition, important information may circulate by means of texts which are not compiled by fully qualified experts, but which are written by informed mediators, such as teachers, who are not researchers themselves, but who know how to convey contents, so that they can be accessible to broad audiences. For this reason, 'knowledge dissemination' is a much better term, as it assumes no intrinsic hierarchy, but may expect to find authoritativeness in a wide range of sources.

Significant among such sources are popular dictionaries, such as Lindley and Moore's 1866 *The Treasury of Botany. A Popular Dictionary of the Vegetable Kingdom*, in which an item like *sequoia* is found to occur for the first time. Popular dictionaries were very important for readers wishing to educate themselves, and such publications 'for popular use' were issued in relation to a broad range of topics – see for instance the following titles:

- *A Dictionary of Medicine Designed for Popular Use*, by Alexander Macaulay, Edinburgh, 1845 (8<sup>th</sup> edn).
- *Popular Dictionary of Architecture and the Allied Arts*, by William Audsley, London, 1879 (2<sup>nd</sup> edn).
- *Haydn's Dictionary of Popular Medicine and Hygiene; Comprising All Possible Self-aids in Accidents and Disease [...]* edited by Edwin Lankester, etc. London, 1880.
- *A Popular Technical Dictionary of Commercial and General Information*, by Edward T. Blakely, London, 1885 (2<sup>nd</sup> edn).
- *The Standard Electrical Dictionary. A Popular Dictionary of Words and Terms Used in [...] Electrical-engineering*, by Thomas O'Connor Sloane, London, 1893.

Nor were such dictionaries mere sources of specialized vocabulary; many of them were encyclopaedic, such as we may glean from the following titles:

- *The London Encyclopaedia; or, Universal Dictionary of Science, Art, Literature and Practical Mechanics: Comprising a Popular View of the Present State of Knowledge*. Illustrated by [...] engravings, a general atlas, and [...] diagrams, by the original editor of the *Encyclopaedia Metropolitana* [Thomas Curtis], assisted by eminent professional and other gentlemen. London, 1829.

- *The Popular Encyclopedia; or, “Conversations Lexicon;” Being a General Dictionary of Arts, Sciences, Literature, Biography, and History.* London, 1874.

Self-education could also rely on the role played by periodicals, many of which associated ‘instruction’ and ‘amusement’ in their mastheads – see for instance *The Mirror of Literature, Amusement, and Instruction*, which began publication in 1822, and *The Family Herald: A Domestic Magazine of Useful Information & Amusement* (1843–1940).

Thanks to the growing importance of the periodical press<sup>4</sup>, journals also proved significant sources of new vocabulary: the OED lists the following, together with *magazines* and *reviews*, among its Late Modern English sources – see Tables 3a, 3b, and 3c respectively, which summarize how many entries include quotations from these sources, and in how many cases they provide the first evidence of a word or a new sense.

Table 3a. OED sources including the word *magazine* in their title

Name	Dates	Total number of quotations	First evidence for word	First evidence for sense
<i>Blackwood’s Magazine</i>	1817–1980	7716	936	2366
<i>Harper’s Magazine</i>	1850–	6315	294	1332
<i>Gentleman’s Magazine</i>	1731–1922	3577	279	950
<i>Fraser’s Magazine for Town and Country</i>	1830–1882	3077	517	1206
<i>Century Magazine</i>	1881–	2726	97	451
<i>Sporting Magazine</i>	1793–1870	2094	182	793
<i>New Monthly Magazine</i>	1821–1859	1631	264	698
<i>Tait’s Magazine</i>	1832–1861	1455	157	484
<i>Cornhill Magazine</i>	1860–1975	1360	106	367
<i>Macmillan’s Magazine</i>	1859–1907	1304	86	305
<i>Monthly Magazine</i>	1796–1825	1276	208	451
<i>New York Times Magazine</i>	1896–	1264	42	151
<i>London Magazine</i>	1732–	1040	99	351

<sup>4</sup> The nineteenth century witnessed a tremendous increase in periodical publications, with over 100,000 titles calculated to have been circulating (see [www.victorianperiodicals.com/series2/TourOverview.asp](http://www.victorianperiodicals.com/series2/TourOverview.asp), accessed September 2014).

<i>Scribner's Magazine</i>	1887–1939	858	40	210
<i>Vanity Fair Magazine</i>	1913–	828	6	40
<i>Burlington Magazine</i>	1903–	757	20	98
<i>Longman's Magazine</i>	1883–1906	724	33	147
<i>Scots Magazine</i>	1739–	711	28	129
<i>Farmer's Magazine</i>	1800–1825	528	27	124
<i>Mechanics' Magazine</i>	1823–1871	517	68	286

Table 3b. OED sources including the word *review* in their title

Name	Dates	Total number of quotations	First evidence for word	First evidence for sense
<i>Edinburgh Review</i>	1802–1929	2495	271	739
<i>Quarterly Review</i>	1809–1967	2158	183	602
<i>Contemporary Review</i>	1866–	2051	156	469
<i>North American Review</i>	1815–	1693	134	491
<i>Monthly Review</i>	1749–1845	1128	208	416
<i>English Historical Review</i>	1886–	963	51	146
<i>Westminster Review</i>	1824–1914	913	85	265
<i>Fortnightly Review</i>	1865–1954	853	72	210
<i>American Historical Review</i>	1895–	842	22	59
<i>Architectural Review</i>	1896–	688	20	108
<i>Philosophical Review</i>	1892–	678	62	158
<i>Physical Review</i>	1893–	600	79	294
<i>Annual Review</i>	1803–1809	529	96	185

Table 3c. OED sources including the word *journal* in their title

Name	Dates	Total number of quotations	First evidence for word	First evidence for sense
<i>Chambers's Journal</i>	1854–	2489	167	631
<i>British Medical Journal</i>	1857–	2061	197	507
<i>Journal of the Chemical Society</i>	1862–1965	1893	798	1259

<i>Medical and Physical Journal</i>	1799–1820*	1666	107	301
<i>Journal of the Royal Agricultural Society</i>	1840–	1287	67	311
<i>Geographical Journal</i>	1893–	1115	80	239
<i>Journal of the Am. Chemical Society</i>	1879–	1020	220	477
<i>Wall Street Journal</i>	1889–	1013	38	151
<i>Journal of the Royal Anthropological Institute</i>	1871–	1010	102	259
<i>Civil Engineer and Architect's Journal</i>	1837–1868	929	66	384
<i>American Journal of Science</i>	1818–	915	373	569
<i>American Journal of Sociology</i>	1895–	756	60	217
<i>American Journal of Botany</i>	1914–	744	31	95
<i>Journal of the Royal Statistical Society</i>	1838–	737	62	241
<i>Journal of the Am. Medical Association</i>	1883–	657	147	274
<i>Trade Marks Journal</i>	1876–	596	265	313
<i>Appletons' Journal</i>	1869–1881	562	47	151
<i>Quarterly Journal of the Geological Society</i>	1845–1971	548	134	282
<i>Journal of the Royal Geographical Society</i>	1831–1880	531	67	165
<i>Journal of Ecology</i>	1913–	516	33	88
<i>American Journal of Psychology</i>	1887–	505	76	219
<i>Journal of Philosophy</i>	1904–	504	39	112
<i>Spirit of the Public Journals</i>	1797–1825	497	72	184

To these we may add periodicals, the mastheads of which indicate their scientific interest, such as *Scientific American*, or the profile of the envisaged reader, who may be a naturalist, a mineralogist, or an anthropologist, thus showing that the phenomena under discussion did not concern only the so-called hard sciences (see Table 4).

Table 4. Periodicals indicating scientific profile of readership

Name	Dates	Total number of quotations	First evidence for word	First evidence for sense
<i>Scientific American</i>	1845–	5604	202	993
<i>American Naturalist</i>	1867–	2821	462	1078
<i>American Anthropologist</i>	1888–	677	72	183
<i>American Midland Naturalist</i>	1909–	629	21	45
<i>American Mineralogist</i>	1916–	556	123	149

Indeed, several periodicals identified their envisaged readership in their mastheads – see for instance the following cases:

- *The Tradesman; or, Commercial magazine* (1808–1812)
- *The Gardeners' Chronicle* (1841–)
- *The Builder* (1843–)
- *The Economist* (1843–)
- *Spirit of Freedom, and Working Man's Vindicator* (1849–1850)
- *Photographic Journal. The Journal of the Photographic Society / Journal of the Photographic Society* (1853–)
- *British Journal of Photography / British Journal of Photography* (1854–)
- *Photographic News / Photographic News* (1858–)
- *The Engineer* (1856–)
- *The Bookseller* (1858–)
- *The Grocer* (1862–)
- *The English Mechanic and World of Science* (1865–1926)

Nor were women excluded: many periodicals catered specifically for a female audience, in the latter decades also dealing with work and union issues:

- *Lady's Monthly Museum; Or, Polite Repository of Amusement and Instruction* (1814–1830)
- *British Lady's Magazine* (1815–1818)
- *British Mothers' Magazine* (1845–64)
- *Lady's Newspaper and Pictorial Times* (1847–1863)
- *English Women's Journal* (1858–1864)
- *Women and Work* (1874–1876)
- *Women's Union Journal* (1876–1890; continued 1891 as *Quarterly Report and Review*; 1891–1919 as *Women's Trade Union Review*)

It may therefore be of some interest to investigate how such materials addressed their audiences and facilitated content access. For the purposes of this investigation, a sample of 100 articles has been randomly selected from nineteenth-century editions of the above-mentioned dictionaries, encyclopaedias, and periodicals. A quantitative investigation of such a corpus would be of interest in itself; this paper, however, aims instead to indicate potentially useful approaches to general research questions. Among these, the role of titles, illustrations, and intertextual references as attention-seeking and validity-boosting strategies may feature in a preliminary approach to these documents.

## 2.1 Titles

In the articles collected for this study, titles are typically short and function as ‘anticipatory devices’ (Swales 2003: 179) in the sense that they provide basic information about the contents of the articles themselves, almost to the point of consisting only of keywords. A few examples are given below:

*Appleton’s Popular Science Monthly* 55 (May-Oct. 1899)

- Public charity and private vigilance
- Recent legislation against the drink evil
- Teachers’ school of science
- Do animals reason?
- Some practical phases of mental fatigue
- Best methods of taxation

*The North American Review* 1.1 (May 1815)

- Honorary titles
- Modern manners
- Western antiquities
- Steam engines

*The New York Scientific American, The Advocate of Industry and Journal of Scientific, Mechanical and Other Improvements* 2.1 (Sept. 26, 1846)

- Nature’s image of Washington
- The viol Seraphine
- An eclipse in Arabia
- Giving credit
- The Bowie knife and its inventor



- Forests and streams
- Prussian music
- Philosophy
- Polite preaching
- Pure air

Only in one case are readers involved by means of a direct question – as in “Do animals reason?”, seen above – and with the use of second-person pronouns; see the following example:

*The Manufacturer and Builder* 1.1 (Jan. 1869)

- Have you ever looked through a Microscope?

In most cases titles come across as factual, merely representative of subject matter. A few instances of evaluation are recorded in titles stressing the novelty of the contents: in such cases, in addition to *new*, we find instances of vocabulary relating to improvement – see the examples below:

*The New York Scientific American, The Advocate of Industry and Journal of Scientific, Mechanical and Other Improvements* 2.1 (Sept. 26, 1846)

- Improvement in boats
- New shingle machine
- Improvement in blacksmiths forges
- Improved fire engine
- The new and wonderful pavement
- To render shingles durable
- Best plan of a barn

## 2.2 Illustrations

In periodicals the relative quantity of illustrations was of course dependent on the impact that their inclusion could have on printing costs: it is true that, as technology improved, it afforded greater means for image reproduction, but the general marketing and business conditions of the periodicals themselves could also guide decisions in relation to how many illustrations could be included. As far as the current collection of texts is concerned, some images are seen to be present in more technically oriented titles, such as the following:

*The New York Scientific American, The Advocate of Industry and Journal of Scientific, Mechanical and Other Improvements* 2.1 (Sept. 26, 1846)

- A simple cheese-press
- The conical windlass

In this same issue of the *New York Scientific American* other "new inventions" are described, but not illustrated; for instance, in the case of the sewing machine, patented by Elias Howe on 10<sup>th</sup> September 1846, the novelty was such that the journal admitted they could not describe the machine in detail, but provided information on what was patented:

We have heretofore noticed the extraordinary invention by Mr. Elias Howe, Jr., of Cambridge, Mass. – a machine that sews beautiful and strong seams in cloth as rapid as nine tailors. We are not yet prepared to furnish a full description of this machine, but the following claims, in the words of the patentee, may give some idea of the various parts in combination. This machine was patented September 10<sup>th</sup>.

"I claim the lifting of the thread that passes through the needle eye by the lifting rod, for the purpose of forming a loop of loose thread that is to be subsequently drawn in by the passage of the shuttle; said lifting rod being furnished with a lifting pin, and governed in its motions by the guide pieces and other devices.

"I claim the holding of the thread that is given out by the shuttle, so as to prevent its unwinding from the shuttle bobbin, after the shuttle has passed through the loop, said thread being held by means of the lever, or clipping piece.

"I claim the manner of arranging and combining the small lever, with the sliding box in combination with the spring piece, for the purpose of tightening the stitch as the needle is retracted.

"I claim the holding of the cloth to be sewn, by the use of a baster plate, furnished with points for that purpose, and with holes enabling it to operate as a rack, thereby carrying the cloth forward, and dispensing altogether with the necessity of basting the parts together".

As illustrations were meant to facilitate comprehension, they occurred in encyclopaedias and specialized dictionaries. However, illustrations may also occur in informative books, such as travelogues; Campbell (1876), for instance, supplemented his text with drawings and sketches of the native

people he met while travelling west from Missouri to Oregon (Dossena 2013), thus aiming to facilitate his readers' understanding of otherwise totally unfamiliar information.

### 2.3 Intertextual references

Like in present-day texts, intertextual references could play a very important role as validating devices. Sources were quoted to emphasize points and support views; indeed, the author's own evaluations of the sources themselves could guide the readers' appreciation. A few examples of this strategy are provided below from the *Penny Cyclopaedia* (emphasis added):

- (20) CROMLECH, a large stone placed in the manner of a table, but in an inclined position, upon other stones set up on end. [...] Borlase, in his 'Natural History of Cornwall', suggests that they were sepulchral. But Rowlands, in his 'Mona Antiqua', King, Toland, and numerous other of **our best antiquaries**, consider them the remains of altars used for idolatrous sacrifices.
- (21) CROMWELL, [...] 'Cromwell's general policy', says Sir Walter Scott (*Tales of a Grandfather*, vol. iii.), 'was to balance parties against each other, and to make each desirous of the subsistence of his authority rather than run the risk of seeing it changed for some other than their own.' [...] 'It is just to say', observes Mr. Hallam (*Const. Hist.*, vol. ii.), 'that the maritime glory of England may first be traced from the era of the Commonwealth in a track of continuous light.' [...] Of the numerous characters of Oliver Cromwell that have been drawn by various historians, **none appears to us as a whole to be more faithful than that of Dr. Smollet.** (*Hist. of England*) It should nevertheless be recollected that the bias of the writer was strongly in favour of the high prerogative of the crown.
- (22) CULLODEN, [...] This, the last charge of the Highlanders under their patriarchal discipline, and with their peculiar arms, is **videly** described in Chambers's 'History of the Rebellion', a small work **replete with interest.**

In these examples the entries provide both information on the topic and suggestions for further reading, thus encouraging readers to look up other texts and find out more, while providing more or less explicit opinions on the supplementary sources themselves.

### 3. Concluding remarks

An overview of OED sources in the nineteenth century has shown the growing importance of scientific publications, especially as far as sources addressing less specialized audiences are concerned. A preliminary study of these has enabled the outline of potentially fruitful research paths in relation to attention-seeking and -maintaining devices. Among these, titles have been observed to be mostly factual, only including evaluative elements when stressing novelty and improvement. Illustrations are provided when their value as comprehension facilitators makes them cost-effective. Finally, intertextual references are seen to function as valuable tools for the reinforcement of concepts. These kinds of Late Modern English materials may thus prove useful in studying the roots of present-day knowledge dissemination strategies, unveiling another facet of the history of English.

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