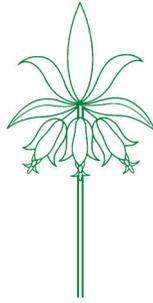


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Hunt Institute for Botanical Documentation
Carnegie Mellon University
5th Floor, Hunt Library
4909 Frew Street
Pittsburgh, PA 15213-3890
Telephone: 412-268-2434
Email: huntinst@andrew.cmu.edu
Web site: <https://www.huntbotanical.org>
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Editor, Emeritus	Robert W. Kiger
Associate Editors	Donald W. Brown T. D. Jacobsen Charlotte A. Tancin J. Dustin Williams

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How poisonous plants link materia medica, botanical artists, publishers, education, legislation and pharmacy in Victorian Britain

R. B. Williams

Abstract

The discovery of an extremely rare, possibly unique set of 14 hand-coloured lithographic plates of British poisonous plants prompted efforts to trace its origin, publishing history and purpose. Such sets, enclosed in a printed, scrim-lined paper envelope, were presented to purchasers of materia medica cabinets assembled by Evans, Lescher, and Evans, drug wholesalers of Liverpool, England. A fascinating Victorian social network, linking artistically talented naturalists, authors and publishers with the legislative regulation of the British pharmaceutical industry has been revealed. The plates originated from the work of James Sowerby (1757–1822), the illustrator of James E. Smith's *English Botany*; James de Carle Sowerby (1787–1871); and John Edward Sowerby (1825–1870), the illustrator of Charles Johnson's *British Poisonous Plants*. Copper engravings, up to 76 years old, were transferred to stones for the materia medica plates and printed by the lithographer William West (1828–1870). Copyright holders and publishers of interim editions included the Sowerby family, the London publisher John Van Voorst (1804–1898) and the firm of Evans, Lescher, and Evans. Published shortly before May 1869, the plates were intended to enhance the usefulness of materia medica cabinets manufactured in response to the *Pharmacy Act, 1868* to assist British pharmaceutical students in preparing for legally required professional examinations. The plates, to facilitate comparison of images of living plants with the dried specimens, and the cabinets together served as practical teaching aids to supplement the instructional textbooks written by Frank Harwood Lescher (1842–1918). A further directive of the *Pharmacy Act, 1868* was the mandatory recording of all retail sales of poisons by pharmacists and druggists; this was facilitated by the production of pre-printed forms in so-called “poison books” by Evans, Lescher, and Evans, among other firms. The contributions of Evans, Lescher, and Evans to the British pharmaceutical industry are described in the context of Victorian teaching of botany and pharmacy and of the contemporary legislation

introduced to regulate the British pharmaceutical profession. Searches of printed and digital catalogues of specialist museums, archives, libraries and the antiques trade worldwide failed to detect any other example of the presently described assemblage of plates, now attributed to James Sowerby, John Edward Sowerby and James de Carle Sowerby (1869), which supplements Ronald Cleeveley's 1974 bibliographies of the Sowerby family.

Introduction

The discovery of an extremely rare, perhaps unique, set of Victorian hand-coloured lithographic plates of British poisonous plants prompted investigations into its origin, publishing history and purpose. It has thus been established that such sets of plates had been presented to purchasers, from 1869 onwards, of certain materia medica cabinets assembled by the firm of Evans, Lescher, and Evans, wholesale druggists of Liverpool, England. This paper explores the artistic origins and attributions of the plates and how they enhanced the usefulness of materia medica cabinets designed for educating British pharmaceutical apprentices. Other interrelated aspects that emerged include the production of botanical illustrations by three generations of the Sowerby family of natural-history artists and their working relationships with authors, copyright holders and printers; the business connection and shared interests in scientific education between the publisher John Van Voorst and the firm of Evans, Lescher, and Evans; and the legislative regulation in Great Britain of professional chemists, druggists and pharmacists during the late Victorian period.

Norfolk House, Western Road, Tring,
Hertfordshire, HP23 4BN, United Kingdom.
Email: raybw66@gmail.com

A presentation set of materia medica plates

During 45 years of bibliographical research, I have encountered only this single example, described herein, of a presentation set of hand-coloured lithographs of British poisonous plants. No other sets are recorded in printed or digital catalogues of any specialist museums, libraries,

archives or antique dealers worldwide that I have been able to consult; this published assemblage of plates is thus an extremely rare, perhaps unique, survival. The 14 lithographs, loosely held within a single fold of plain paper, are in a white (now very dirty), scrim-lined paper envelope (205 × 142 mm), with black printing on the recto (Fig. 1). For clarity the most significant wording is reproduced here in quasi-facsimile:

Fourteen Illustrations of Medicinal Poisonous Plants,

FROM THE "BRITISH POISONOUS PLANTS," *

BY PERMISSION OF MR. VANVOORST,

PRESENTED TO.....

WITH

EVANS, LESCHER, & EVANS' MATERIA MEDICA CABINETS.

LIVERPOOL AND LONDON.

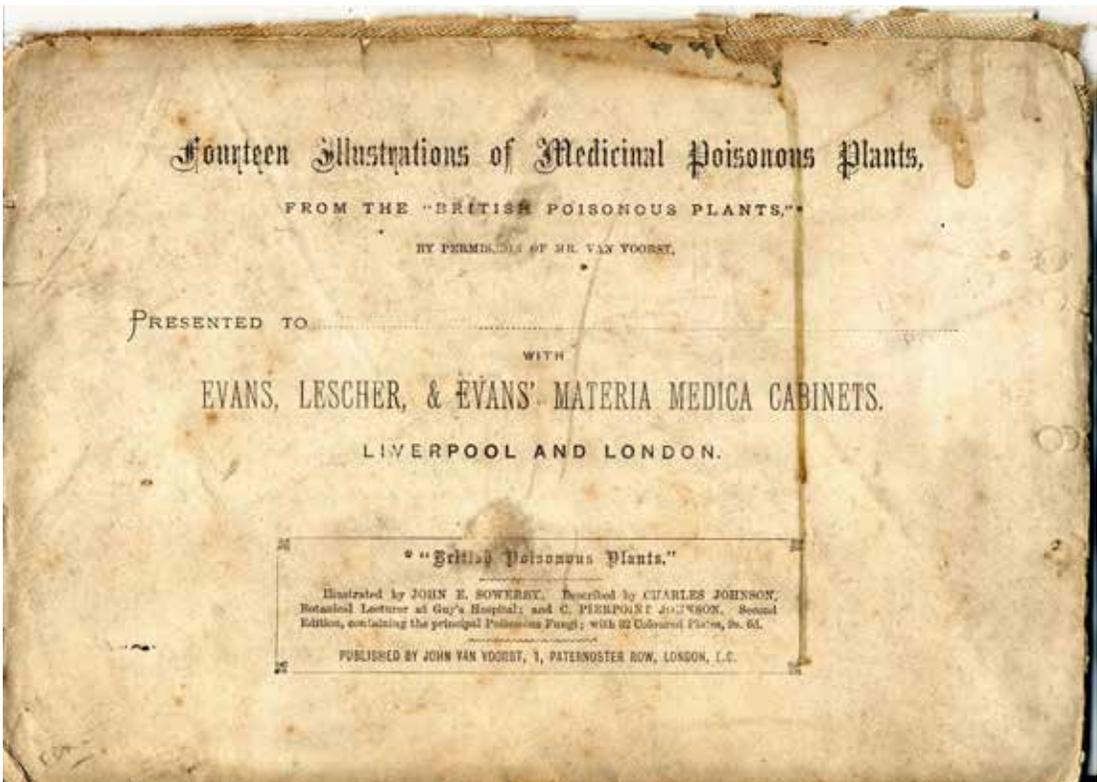


Figure 1. Protective envelope of *Fourteen Illustrations of Medicinal Poisonous Plants*, published by Evans, Lescher, & Evans (photo by R. B. Williams, personal collection).

Disappointingly, neither name nor address of the recipient is inserted. The asterisk after “BRITISH POISONOUS PLANTS” directs one to an advertisement placed below it for the second edition of the book of that title (Fig. 2), published by John Van Voorst of 1, Paternoster Row, London. That edition (Johnson and Johnson 1861) includes a total of 32 plates. The presentation set of 14 lithographs in their envelope, constituting a later, discrete publication, will hereinafter be referred to as the “materia medica plates”.

The *dramatis personae*

The history of the materia medica plates involves a complex social network of people who played important parts. For convenience the chief protagonists are introduced here:

1. The original authors of the editions of *British Poisonous Plants*, Charles Johnson (1791–1880) and Charles Pierpoint Johnson (1827–1893).¹
2. The original artists for the materia medica plates, James Sowerby (1757–1822), John Edward Sowerby (1825–1870) and James de Carle Sowerby (1787–1871).
3. The lithographer and printer of the materia medica plates, William West (1828–1870).²
4. The interim publishers and/or holders of copyright of the plates, James Sowerby, John Edward Sowerby, James de Carle Sowerby and John Van Voorst (1804–1898).
5. The author of *An Introduction to the Elements of Pharmacy* and related books, Frank Harwood Lescher (1842–1918).
6. The corporate publishers of the materia medica plates, the Liverpool pharmaceutical firm of Evans, Lescher, and Evans.³

Many crucial questions arise. What were the origins of the plates; what was the connection between their publication and materia medica cabinets; and how was all this influenced by the contemporaneous legislation of pharmacy

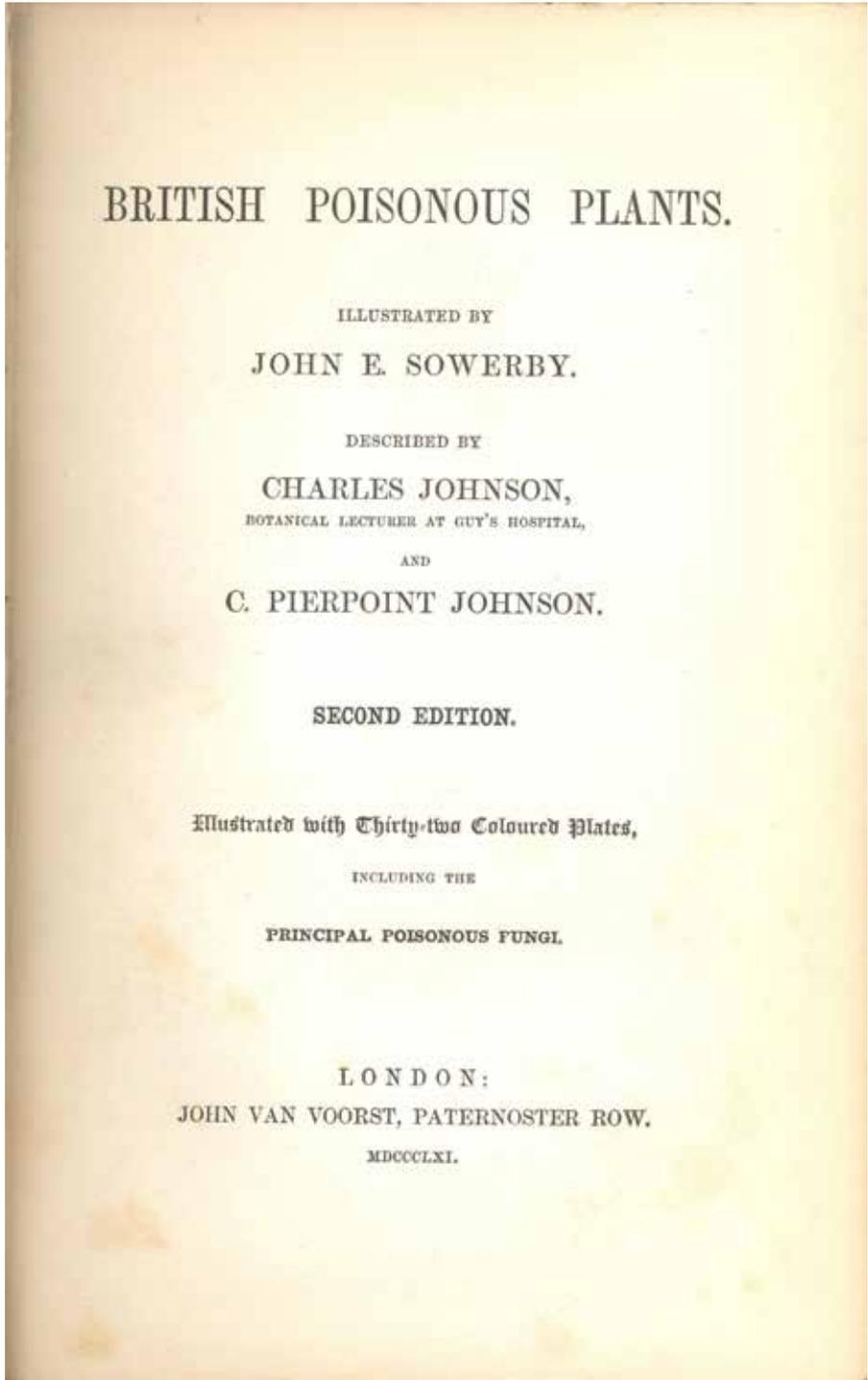
in Victorian Britain? Each link in the complex network of actors will be addressed herein.

Origins of the materia medica plates

The 14 unnumbered plates have far more complex origins than is apparent from the deceptively simple statement on their envelope, that they were directly derived from the second edition of *British Poisonous Plants*. In fact all the lithographs of both the first and second editions (Johnson 1856; Johnson and Johnson 1861) are stated on the title-pages to have been transferred from *English Botany* (Smith and Sowerby 1790–1814);⁴ the plates of that monumental work are actually copperplate engravings. More explicitly, however, the preface of *British Poisonous Plants* (identical in both editions) reveals that “The illustrations consist of twenty-eight figures of the principal species described, which have been transferred to stone from the original plates of the ‘English Botany’.” The preface of the second edition further adds “This Second Edition contains Four additional Plates and descriptive Text of the principal poisonous Fungi of Britain”; the first 28 plates are, however, of the same phanerogamous species, in the same order, as those in the first edition.

Nevertheless, some of the plates in the second edition of *British Poisonous Plants* differ from those in the first edition. The lithographs of the second edition are demonstrably not derived directly from the *English Botany* engravings as claimed but have been amended from the transferred lithographs of the first edition of *British Poisonous Plants*. Moreover, some of the materia medica plates have been amended yet again from the second edition. In addition some others of those 14 plates are from sources other than *English Botany*, of which three lithographs are entirely new and so were not copied from either edition of *British Poisonous Plants* (despite the wording on

Figure 2. Title-page of second edition of *British Poisonous Plants* published by John Van Voorst (photo by R. B. Williams, personal collection).



their envelope). Finally, the lithographs of all the materia medica plates that have previously been published either as copper engravings or lithographs are mirror images of the originals.

These complexities give rise to the question of how the materia medica plates should be treated in bibliographical terms. Are they states, issues or editions? To whom should they be attributed? And should each be regarded as a separate entity, or should they be considered as a set? It seems best in the circumstances firstly to trace the histories of the plates individually by analogy with general letterpress terminology. The key factor is that each time a plate was published the medium of reproduction, be it a copperplate or stone, was materially altered in some way; this is analogous with resetting moveable type in letterpress printing, which is the fundamental criterion of a new edition. Moreover, the publisher of each collective edition was demonstrably different. Thus, in tracing the publishing history of each of the plates from their first versions, it is demonstrable that most of them were printed from different physical sources. However, since each plate was published together with others, either with (in books) or without (in an envelope) any accompanying letterpress, on each occasion they logically form part of a collective edition by a named publisher.

Hence, some of the materia medica plates are the fourth editions (via lithographs in the first and second editions of *British Poisonous Plants*) of the original copperplate engravings made by James Sowerby for *English Botany* (Tab. 1). As an example, Figures 3–6 demonstrate the progressive amendments of his original plate of hemlock (*Conium maculatum* Linnaeus): from *English Botany* to first edition of *British Poisonous Plants* to second edition of *British Poisonous Plants* to materia medica plates. The remaining lithographs came into existence via other routes, some directly from

English Botany (therefore second editions) and others as original lithographs (Tab. 1).

Production processes

As explained above, the origins of ten of the set of fourteen materia medica plates can be traced directly or indirectly back to the work of James Sowerby, the illustrator, proprietor and publisher of *English Botany* (Smith and Sowerby 1790–1814).⁴ Stafleu and Cowan (1976–1988, 5:682) described the plates of *English Botany* as copper engravings, which is corroborated in Sowerby's obituary (Anonymous 1822), but MacDonald (1974, p. 387) averred that they are etchings. An eleventh plate originated from an engraving by J. de C. Sowerby in the *Supplement to the English Botany* (Hooker et al. 1829–1835). The remaining three are new lithographs, apparently drawings made specially for the materia medica plates by John E. Sowerby (see later).

All the numerals and lettering on the 28 plates of phanerogams in both editions of *British Poisonous Plants*, transferred from original copper engravings, were re-marked on the new stones. Although J. E. Sowerby was responsible for organizing availability of the new and amended illustrations, it is extremely unlikely that he personally would have possessed the skills or owned the sophisticated equipment necessary to transfer the copperplate images by James and J. de Carle Sowerby to lithographic stones, which is a highly technical process. Unfortunately, in neither edition of *British Poisonous Plants* are the artists or lithographic printers of the phanerogam plates identified, either in the letterpress or on the images. However, all of the 14 materia medica plates bear the rubric "W.West lith." It therefore seems most probable that this lithographer transferred the images from the second edition of *British*

Table 1. Comparisons of successive editions of the 14 plates of British poisonous plants.
EB = *English Botany* (ed. 1; volume:plate numbers); *EBS* = *Supplement to English Botany* (volume:plate numbers);
BPP1 = *British Poisonous Plants* (ed. 1); *BPP2* = *British Poisonous Plants* (ed. 2); *IEP4* = *Introduction to the Elements of
 Pharmacy* (ed. 4, with figure number); *ELE* = Evans, Lescher, and Evans's *materia medica* plates; *mi* = mirror image.

Plate order in <i>IEP4</i>	Species	Originals in <i>EB</i> or <i>EBS</i>	<i>BPP1</i> cf. <i>EB</i> or <i>EBS</i>	<i>BPP2</i> cf. <i>BPP1</i>	<i>ELE</i> cf. <i>BPP2</i>
187	<i>Helleborus niger</i> Linnaeus	Not in <i>EB</i> or <i>EBS</i>	Not in <i>BPP1</i>	Not in <i>BPP2</i>	New plate
188	<i>Aconitum napellus</i> Linnaeus	<i>EBS</i> 2:2730	Plate 1, terminal flowers and leaf nodes slightly modified	Plate 1, top leaf node restored	<i>mi</i> , terminal flower redrawn
189	<i>Digitalis purpurea</i> Linnaeus	<i>EB</i> 19:1297	Plate 17, identical	Plate 17, identical	identical <i>mi</i>
190	<i>Verbasum thapsus</i> Linnaeus	<i>EB</i> 8:549	Not in <i>BPP1</i>	Not in <i>BPP2</i>	<i>mi</i> of <i>EB</i> , separate branched hair erased
191	<i>Hyoscyamus niger</i> Linnaeus	<i>EB</i> 9:591	Plate 15, lower parts of separate fruit, stamen and flower erased	Plate 15, lower part of stamen restored	identical <i>mi</i>
192	<i>Atropa belladonna</i> Linnaeus	<i>EB</i> 9:592	Plate 12, identical	Plate 12, identical, some accidental scratches	identical <i>mi</i> , accidental scratches erased
193	<i>Datura stramonium</i> Linnaeus	<i>EB</i> 18:1288	Plate 16, separate flower badly erased; separate fruit moved	Plate 16; remains of bad flower erasure removed	identical <i>mi</i>
194	<i>Solanum dulcamara</i> Linnaeus	<i>EB</i> 8:565	Plate 13, identical	Plate 13, identical	identical <i>mi</i>
195	<i>Aethusa cynapium</i> Linnaeus	<i>EB</i> 17:1192	Plate 8, identical	Plate 8, identical	<i>mi</i> , floret modified
196	<i>Conium maculatum</i> Linnaeus	<i>EB</i> 17:1191	Plate 7, lower stem shape altered, lower part of root erased, separate floret moved, fruit moved and enlarged	Plate 7 (indexed as plate 17), more of lower root erased, separate fruit moved again (same size)	<i>mi</i> with separate fruit and floret moved again, and lower part of root partly restored
197	<i>Juniperus sabina</i> Linnaeus	Not in <i>EB</i> or <i>EBS</i>	Not in <i>BPP1</i>	Not in <i>BPP2</i>	New plate
198	<i>Capressus sempervirens</i> Linnaeus	Not in <i>EB</i> or <i>EBS</i>	Not in <i>BPP1</i>	Not in <i>BPP2</i>	New plate
199	<i>Colchicum autumnale</i> Linnaeus	<i>EB</i> 2:133	Plate 27, identical	Plate 27 (indexed as plate 37), identical	identical <i>mi</i>
200	<i>Crocus sativus</i> Linnaeus	<i>EB</i> 5:343	Not in <i>BPP1</i>	Not in <i>BPP2</i>	Identical <i>mi</i> of <i>EB</i>



Figure 3. Plate 1191 (*Conium maculatum*) of vol. 17 of *English Botany* = first edition of materia medica plate 196 (reproduced courtesy of the Wellcome Library under a Creative Commons Attribution 4.0 International Licence).



Figure 4. Plate 7 (*Conium maculatum*) of first edition of *British Poisonous Plants* = second edition of *materia medica* plate 196 (photo by R. B. Williams, personal collection).



Figure 5. Plate 7 (*Conium maculatum*) of second edition of *British Poisonous Plants* = third edition of *materia medica* plate 196 (photo by R. B. Williams, personal collection).



Figure 6. Plate 196 (*Conium maculatum*) of *Fourteen Illustrations of Medicinal Poisonous Plants* = fourth edition of *materia medica* plate 196 (photo by R. B. Williams, personal collection).

Poisonous Plants and also printed them. The signature “J.E.S. Fecit” on the additional four lithographs of fungi in the second edition appears to confirm that J. E. Sowerby was not directly involved in the lithographic printing, although he most likely retained quality control over his original drawings.

“W. West”, the printer of the plates, was apparently the artist and lithographer William West, younger brother of the rather better known Tuffen West (1823–1891; see Paisley 2017). Paisley (2017) suggested that William routinely converted his brother’s wood engravings to lithographs and was, during the 1850s and 1860s, also carrying out most of the printing at their Hatton Garden office (Paisley 2016). This implies that William might have worked closely with J. E. Sowerby to transfer the *British Poisonous Plants* images for the materia medica plates. Since the plates had been transferred from originally unsigned stones, West must have signed them afterwards.

Although there is no direct evidence that West had worked with John Edward on either edition of *British Poisonous Plants*, such co-operation is certainly possible, since they had previously co-operated on the lithographs in *Rust, Smut, Mildew, & Mould* (Cooke 1865), which bear the rubrics “J. E. Sowerby sc.” and “W. West imp.”. West had also previously worked with the publisher Van Voorst, printing the plates for *A History of the British Hydroid Zoophytes* (Hincks 1868[1869]), another Van Voorst undertaking. Significantly, Hincks’s monograph also included lithographs demonstrably transferred (though not, in that case, as mirror images) from intaglio plates (Williams 2018). There is therefore no doubt that West had the requisite skills for transferring and printing the materia medica plates, which coincidentally were published in the same year as *A History of the British Hydroid Zoophytes*.

The most curious feature of those materia medica plates that were not newly drawn is that

they are mirror-image transfers of previous editions. Although this might possibly suggest that they were produced by photolithography, I express no opinion on this question because photolithographs made at that time are virtually impossible to distinguish from common lithographs (Wakeman 1973, p. 94; Gascoigne 2004, p. 41b). Hence, further research is necessary to explore this matter, particularly since William West has not hitherto been identified as a practitioner of photolithography.

In summary the consistent features of the materia medica lithographs are

1. They are printed on non-watermarked paper, measuring ca. 195 × 130 mm.
2. Most of them are mirror images of previous editions (nine lithographs in *British Poisonous Plants* and two copper engravings in *English Botany*).
3. Although the depicted species are named, the plates are not numbered, whereas their previous editions, whatever the source, are numbered.
4. They are signed by the lithographer, whereas their previous lithographic editions are not.

Whilst the hand colouring is essentially the same in the last two editions, the tones typically differ slightly (cf. Figs. 7 and 8); however, the tones in any case vary to a similar degree in different copies of the second edition of *British Poisonous Plants*. The colourists are not known. However, Cleavelly (1974a, p. 456) drew attention regarding the Sowerbys to “the complete family involvement in the preparation of material for publication”, and the plates may have been coloured “in-house” by various Sowerby relatives. Indeed, in Victorian times it was not uncommon for commercial artists’ family members, especially daughters, to colour their engravings or lithographs (see Williams 2017, p. 466 and Finney 2018 for various examples).



Figure 7. Plate 1 (*Aconitum napellus* Linnaeus) of second edition of *British Poisonous Plants* = third edition of *materia medica* plate 188 (photo by R. B. Williams, personal collection).



Figure 8. Plate 188 (*Aconitum napellus*) of *Fourteen Illustrations of Medicinal Poisonous Plants* = fourth edition of materia medica plate 188 (photo by R. B. Williams, personal collection).

Copyright ownership

John Edward Sowerby, a paternal grandson of James Sowerby, was identified, on the title-pages of *British Poisonous Plants* as the “proprietor” (publisher) of the first edition, and the “illustrator” of the second edition. Therefore, he apparently not only arranged for the provision of all the illustrations of both editions but also presumably exerted control over any artistic amendments of the images at each stage. Copyright of some images originally belonged to members of his family, those in *English Botany* to his grandfather James’s executor; and one engraved specifically for the *Supplement to the English Botany* (Hooker et al. 1829–1835) to his paternal uncle, James de Carle Sowerby, who must have granted permission for it to be transferred from copper to stone at least for the first edition of *British Poisonous Plants*. Hence, John Edward presumably had the approbation of his family of artists, the celebrated Sowerbys (see Wheeler 1974), to use all of those images.

Since Evans, Lescher, and Evans published the materia medica plates “by permission of Mr. Van Voorst” (see Fig. 1), it appears that John Edward, as “proprietor” of the first edition of *British Poisonous Plants*, had assigned or perhaps sold the copyright to John Van Voorst, who published the second edition (see Fig. 2). However, it seems unlikely that Van Voorst reassigned copyright of the nine materia medica plates from the second edition of *British Poisonous Plants* to Evans, Lescher, and Evans, otherwise no statement of permission would have been required for their publishing them.

Regarding the other five plates, however, Messrs. Evans presumably came to some separate agreement with John Edward to arrange for the two additional engravings from *English Botany* to be transferred directly, as well as his probably making drawings for the three entirely new lithographs (see later).

Who retained the copyright on those, it is impossible at present to tell.

John Van Voorst

All of the materia medica plates having originated from within the Sowerby family, it might be wondered how John Van Voorst of Paternoster Row, London, became the publisher of the second edition of *British Poisonous Plants* (Johnson and Johnson 1861), apparently thus retaining ownership of copyright on all of the materia medica plates. It is especially difficult to understand how the five that were not published by him in the second edition of *British Poisonous Plants* could have been included among his copyrights, if indeed that were the case, but perhaps he commissioned J. E. Sowerby and William West to draw and print them and therefore might legitimately have claimed the copyright.

Van Voorst was one of the best-known publishers of scientific and natural-history works in Great Britain during Victorian times and perhaps the most highly respected of all (Williams 1988, 2004). One of the strategies of this acute and innovative businessman was to open out the market for fine illustrations in his books beyond the original bounds. For instance, in 1834 he produced a cabinet issue of the Oxford University Press printing of the *Holy Bible*, having embellished it with high-quality steel engravings by eminent Royal Academy artists. Capitalizing on these desirable illustrations in their own right, he also issued them in a portfolio separately from the Bible. Later he published the *Flora of Surrey* (Brewer 1863), which included separate maps of the botanical divisions and the geology of the county; the existence of individual copies of the geological map that have no indication of ever having been folded suggests that this map was also sold separately.

The present example, hitherto apparently unnoticed, of Van Voorst's licensing of a set of illustrations from his edition of *British Poisonous Plants* for the marketing purposes of a wholesale druggist provides a further instance of this practice. Hence, it is of interest to speculate upon the nature of Van Voorst's and Messrs. Evans' possible agreement. Whether the idea of presenting the coloured plates to purchasers of materia medica cabinets was proposed by Messrs. Evans or by Van Voorst, it is impossible to tell. However, it may well have been the Evanses' initiative, since they cannot have failed to notice that Van Voorst's chemistry books had a very high profile in *The Chemist and Druggist* in the 1860s and 1870s. Four of them were among the fifteen standard prizes offered to students successful in the popular monthly competition in pharmacy and chemistry that ran in the "Corner for Students". These notable Van Voorst titles were *An Introduction to Pharmaceutical Chemistry* (Atfield 1867); *A Manual of Inorganic Chemistry* (Eliot and Storer 1867); *A Manual of Qualitative Chemical Analysis* (Northcote and Church 1858); and *The Laboratory Guide for Students of Agricultural Chemistry* (Church 1864).

Attributions of the plates

Since the illustrations of *English Botany*, each signed and dated by their originator and publisher James Sowerby, are copperplate engravings, their transference to lithographic stones for the first edition of *British Poisonous Plants* resulted in an entirely different printing process and therefore must be regarded as a second edition, even if the resulting images might be more or less identical with the originals; the new publisher, as previously explained, was John Edward Sowerby. Likewise, further alterations were made to some of the plates for the second edition of *British Poisonous Plants*, the publisher this time

being John Van Voorst. Finally, with regard to production of the materia medica set, the eleven plates that are not new drawings are all mirror images of James or J. de Carle Sowerby's original illustrations (some of them amended in the interim by John Edward); the whole assemblage in an envelope (Fig. 1) therefore constitutes another new edition. As previously explained, the successive alterations of the production process have therefore given rise to four editions.

There is no letterpress accompanying the materia medica plates, which therefore must be attributed solely to the original Sowerby-family artists, regardless of any subsequent amendments. Those drawn by James (for *English Botany*) or James de Carle (for *Supplement to the English Botany*) are clearly identifiable, although some or all of them were amended at different stages by John Edward Sowerby. The three original plates in the materia medica set seem most likely to have been drawn by John Edward, but that attribution is made with caution, since they are unsigned and, thus far, no direct evidence is available. Hence, the Sowerbys' contributions of original plates to the materia medica assemblage comprise ten by James, three (provisionally) by John Edward, and one by James de Carle. The final publication of all 14 plates was by Evans, Lescher, and Evans. This hitherto unrecorded set of plates therefore supplements the bibliographies of James Sowerby (Cleevely 1974b, pp. 484–492), John Edward Sowerby (Cleevely 1974b, pp. 535–536) and James de Carle Sowerby (Cleevely 1974b, pp. 493–509).

Publication date of the plates

None of the materia medica plates, nor their envelope, is dated. Since they must have been published after *British Poisonous Plants* (Johnson and Johnson 1861), I searched the post-1861

issues of the most relevant contemporary British periodicals, namely *The Chemist and Druggist* and the *Pharmaceutical Journal and Transactions*, for clues. Fortuitously, in the issue of 15 June 1869 of the latter, a general account of a conversazione of the *Pharmaceutical Society of Great Britain* (Anonymous 1869a) included detailed descriptions of the exhibits (Anonymous 1869b, p. 427):

Messrs. Evans and Lescher had on view two of their Materia Medica Cabinets, which were much admired for their completeness and compactness. The larger cabinet, got up by Messrs. Evans and Co., is a model of order and neatness, and provides excellent and characteristic specimens of the various articles of the Materia Medica, and, in addition, a number of pharmaceutical specimens, everything being, of course, fully labelled, according to the scientific and general names. Several dried plants are also given, and a useful set of coloured plates, representing medicinal plants, and certain others likely to be confounded with them ... These Materia Medica cabinets must be an immense assistance to all students of medicine, though even with them it is still necessary to employ all the sense and energy with which one may be endowed. But surely a student may avail himself of every means to lighten and systematise his labour, and where museums are not readily available, I think the possession of one of these cabinets must be invaluable. Messrs. Evans and Co. have just got ready a most complete and useful microscope to accompany their cabinets, and with this a field of study is opened, the interest and charm of which only microscopists can tell.

The “useful set of coloured plates, representing medicinal plants, and certain others likely to be confounded with them” must surely be the materia medica plates investigated herein, thus establishing a publication date not later than 18 May 1869, the day of the conversazione. The exhibition of an example on 18 May is corroborated by an advertisement in *An Introduction to the Elements of Pharmacy* (Lescher 1869a). Lescher’s timely textbook appeared between 16 and 30 June 1869 (see *The Publishers’ Circular*, vol. 32 for 1869, no. 763, 1 July, p. 387).

Having now established the artists and the date of publication of these previously unrecorded materia medica plates, a correct citation may be proposed. Although not explicit on the plates or envelope, it should be “[James Sowerby, John Edward Sowerby and James de Carle Sowerby] [1869]”, reflecting the artists’ proportional contributions.

The purpose of the plates

It has, during the present research, become apparent that the purpose of the materia medica plates is inextricably linked with the manufacture of materia medica cabinets by Messrs. Evans and also with the publication of guides to professional examinations for pharmacists. Whilst the major objective of a commercial undertaking must always be to generate financial profits, it does not preclude philanthropic or educational activities. That was particularly true of many Victorian firms, including the businesses of Messrs. Evans, who, like others, managed to establish a finely balanced combination of those aims.

The firm of Evans, Lescher, and Evans³ was a premier manufacturing and wholesale chemists and druggists; accounts of its history and changes in the names of the company and partners have been well documented (Anonymous 1870a, 1884, 1891, 1905, 1959; Richmond et al. 2003). While the core trade of the firm was as a drug wholesaler, an ancillary business for educational purposes was the manufacture of materia medica cabinets that contained samples illustrative of associated pharmaceutical textbooks intended to prepare candidates for the various professional examinations that pharmacists were required to pass to comply with new legislation in the *Pharmacy Act, 1868*.

The author of those textbooks was Frank Harwood Lescher, a son of one of the firm’s partners, Joseph Sidney Lescher (1803–1893),

and a scholarly, qualified pharmacist who, following the death of the founder John Evans in 1865, was himself admitted as a partner in 1866 (Anonymous 1866). Amongst others (Lescher 1869b, 1869c, 1884), his most important work was *An Introduction to the Elements of Pharmacy*, which went into several editions; the crucial one here is the third (Lescher 1869a), which was the first edition published after the *Pharmacy Act, 1868* came into force (see later). That edition, and later ones (Lescher 1873, 1876), included advertisements for Messrs. Evans's materia medica cabinets "Arranged for Medical and Pharmaceutical Examinations". The more expensive cabinets were assembled specifically to "accompany" or "illustrate" Lescher's book; the most comprehensive one included "Botanical Examples and Plates", those plates being the subject of the present paper.

This association of the materia medica plates and cabinets has thus been corroborated in several ways: (a) The most obvious is the explicit statement on the envelope containing the plates (Fig. 1); (b) The trade periodical literature records Messrs. Evans's cabinets containing coloured plates (see previously); (c) Since Frank H. Lescher's textbooks for apprentice pharmacists, some specifically to prepare candidates for the mandatory professional examinations after the *Pharmacy Act, 1868* (Lescher 1869b, 1869c), advertise both the plates and the cabinets, the purpose of the coloured lithographs of poisonous plants is established beyond doubt, to illustrate the appearance of the living plants for comparison with the dried specimens.

Introduction of students' materia medica cabinets

Clearly, the purpose of the materia medica presentation plates must be considered in the context of professional pharmacy in general

and of materia medica cabinets in particular. Medical botany has an extremely long history, rooted in the folk medicine of the ancients from Dioscorides and Theophrastus onwards, formalized in illustrated mediaeval herbals, and cultivated in the physic gardens of monasteries. By the 19th century, standard textbooks in Britain and America had progressed from herbals to more rational presentations of materia medica (Stearns 1801; Barton and Castle 1845).

The links between botany and medicine had become even stronger in the Victorian era as a result of the realization that accidental poisoning, associated not only with unwise self-medication but also with culinary blunders, was quite common. Charles Johnson, a botanical lecturer at Guy's Hospital, wrote in his *British Poisonous Plants* (Johnson 1856),

The occurrence from year to year of cases of accidental poisoning, by substitution of a deleterious for a wholesome vegetable, has led to the idea, that a small work, illustrative of the poisonous plants indigenous to this country, might be useful in rendering the subject one of more general interest than it has previously been; and, by directing attention to the dangerous results of such mistakes, originating in the correspondence of form which some of them present to well-known articles of food or condiment, render such casualties less frequent in future.

The importance of the illustrations in Johnson's book is self-evident, but it was to take somewhat longer for plant specimens, reliably identified, to become readily available and affordable for ownership by apprentice pharmacists and physicians.

Contents of early materia medica cabinets, as distinct from medicine chests, were typically accumulated by qualified medical men primarily for demonstrating in lectures but sometimes by dilettantes merely as curiosities (Peck 1953).⁵ Not until the mid-19th century did practical materia medica cabinets become

available to impecunious students; until then they had to depend on their tutors' demonstration materials or museum exhibits. It is interesting to note the veritable flood of reports in the very late 1860s of students' cabinets donated to various associations and colleges in Great Britain. Furthermore, it is of particular interest to establish exactly when and why this trend began.

The following editorial notice (Anonymous 1868a) in *The Chemist and Druggist* of 15 October 1868 is a very early mention, if not the original concept, of a British student's materia medica cabinet:

Messrs. Southall, Son, and Dymond, of Birmingham [England], have hit on a good idea, and one which will be appreciated by those who aspire to be well acquainted with their business. They announce that they have prepared a case containing a number of characteristic specimens of *Materia Medica*... We are so confident of the value of the idea, and at the same time so satisfied of Messrs. Southall's ability to carry it out carefully and thoroughly, that we are willing to risk our own reputation by recommending this collection to the notice of students, and, indeed, of all connected with Pharmacy.

Six months later, the Manchester Chemists' and Druggists' Association, at its first annual social meeting on 20 April 1869, was treated to an exhibition of "Superior collections of drugs and *Materia Medica* specimens shown by Messrs. Hodgkinson, Stead and Treacher, and Messrs. Horner and Son, of London" and also benefited from the donation of a cabinet by Evans, Sons, and Co. of Liverpool (Anonymous 1869c). Then at the annual general meeting of the same association on 6 October 1869, it was further recorded that a valuable donation of materia medica specimens had been received from Messrs. Evans and Lescher, as well as from Messrs. Hodgkinson, Stead and Treacher, and Messrs. Southall, Son, and Dymond (Anonymous 1869d). Previously, British students could only avail themselves of

the collections held in museums, such as that of the Pharmaceutical Society of Great Britain (Hudson and Boylan 2013, p. 79).

The availability of materia medica cabinets to individual students in the United States around that time is rather uncertain but was probably no better than it had been in Great Britain. Gould (1874) reported examining "the large and beautiful collection of drugs in the cabinet of materia medica of Dr. Tufts, of Dover, one of the finest in the country", which was clearly the personal property of an established professional. Likewise, it seems likely that the Evans, Lescher, and Evans cabinet presented to the Chicago College of Pharmacy at the Chicago meeting of the American Pharmaceutical Association in 1869 (Anonymous 1869e, p. 765) was destined for the museum:

a fine exhibition of drugs, chemicals, sundries, etc., was held at Chicago during the meeting of the Association, chiefly supported by American exhibitors. The following English goods were, however, prominent... Waters and Ricksecker, New York, exhibited a cabinet of *Materia Medica*, made by Evans, Lescher, and Evans, of London, and which was presented to the Chicago College of Pharmacy by Waters and Ricksecker.

At a concurrent meeting in England on 8 September 1869 of the Halifax and District Chemists' and Druggists' Association it was resolved that "The absolute necessity of taking some steps to enable their *employés* to attain a higher status of scientific knowledge, and to thoroughly qualify them for the passing of their examinations, was a desideratum patent to them all." Perhaps emboldened by the knowledge that Evans, Lescher, and Evans, and other commercial firms, were currently donating cabinets to various bodies, the secretary was prevailed upon to "write to Messrs. Evans, of Liverpool, asking them to favour the Association with the gift of a *Materia Medica Cabinet*" (Anonymous 1869f).

It certainly seems that Messrs. Evans, of the several British wholesale druggists, were at the forefront of disseminating students' materia medica cabinets. Again, at an annual general meeting on 24 September 1869 of the Association of Chemists and Druggists for Plymouth, Stonehouse, Devonport, and Neighbourhood, "the liberal gift of a handsome case of specimens of drugs and chemicals, presented by Messrs. Evans and Lescher" was acknowledged (Anonymous 1869g). However, it will probably never be possible to ascertain which firm first produced materia medica cabinets on a commercial scale. It may be noted, though, that cabinets of reagents and apparatus for chemical experiments, such as R. B. Ede's series of "Youth's Laboratory", "Chemical Portable Laboratory", "Chemical Cabinet or Amateur Laboratory" and "Mineralogical Box" had been sold for at least 30 years (Ede 1837).

Materia medica cabinets and the *Pharmacy Act, 1868*

It is surely no mere coincidence that the years 1868 and 1869 have repeatedly emerged as significant dates associated with materia medica cabinets, instructional plates of poisonous plants and textbooks. But why was there such marked activity around that time? It is posited that the sudden appearance in 1869 of materia medica cabinets in commerce was a direct result of the passing in the British Parliament of the *Pharmacy Bill, 1868* on 31 July 1868, which was enacted as the *Pharmacy Act, 1868* on 31 December 1868 (Anonymous 1868b). When the Act came into force, superseding the old *Pharmacy Act, 1852*, it became the responsibility of the Pharmaceutical Society of Great Britain to implement it.

Notably, Henry Sugden Evans (1830–1886) of Messrs. Evans, Liverpool, the youngest

son of the founder John Evans (who died in 1865), must have had considerable influence in the administration of the Act, having been elected to the vice-presidency in 1868 and to the presidency in 1869 of the Pharmaceutical Society (Anonymous 1870a). In view of his professed enthusiasm for the natural sciences and education in general, it would be surprising if he had not taken the lead in his firm's decision to manufacture materia medica cabinets, which coincided with publication of the coloured plates and Frank Harwood Lescher's related textbooks (Lescher 1869a, 1869b, 1869c, 1873, 1876).

Immediately after Parliamentary approval of the *Pharmacy Bill, 1868*, reports of meetings of pharmaceutical professionals in relevant trade journals addressed the new legal requirements for compulsory examinations of chemists, druggists and "pharmaceutists", and the pressing need to educate young men coming into the profession. Such meetings led to the foundation of many professional associations of chemists, druggists and pharmacists throughout the nation. For instance, in Manchester, England, on 6 November 1868 (Anonymous 1868c),

there was a public meeting of chemists, druggists and their assistants to take into consideration the provisions of the new Pharmacy Act, and to form an association having for its objects educational facilities for assistants and apprentices, the mutual improvement of its members by the formation of a library, museum, and school of pharmacy ... by law, no one could, after December, sell any poison or dispense any medicine containing poison unless registered under the new law, and that the privilege of registration was accorded to all who were in business on their own account at the time of the passing of the Act, but not to assistants and apprentices, who were now required to educate themselves and pass an examination previous to commencing business ...

Pharmaceutical manufacturers and wholesale druggists responded with alacrity to this significant business opportunity. Before the end of December 1868, Southall, Son, and Dymond had marketed a “Collection of organic materia medica for the Minor and Modified Examinations of the Pharmaceutical Society” (Anonymous 1868d); according to an advertorial in the *Pharmaceutical Journal and Transactions*,

We believe that this collection, which may be purchased at the moderate price of thirty shillings, will prove a real boon to students, more particularly at the present time, and especially to those who live beyond the reach of places where facilities for study are afforded. We trust that the time is not far distant when collections of the more important officinal plants will be also as readily obtainable by students in this country as is now the case in Germany.

Currently available evidence indicates that Southall’s were probably the first firm to market students’ materia medica cabinets

(Anonymous 1868a, 1868d). Nevertheless, the question arises, why most of the examples, though admittedly rather few, of materia medica cabinets now in British museums were manufactured by Evans, Lescher, and Evans, as, moreover, were most of those that have occasionally appeared in the antiques trade and auctions in recent years. Perhaps it was because, although Messrs. Evans were a little slower off the mark than Southall, Son, and Dymond, they rapidly established such a wide choice of cabinets suited to particular circumstances. They advertised Nos. 1 and 2, arranged for medical and pharmaceutical examinations, priced 26s. and 34s.; No. 3. a cabinet of materia medica, botany, and chemistry, to accompany the “Elements of Pharmacy” comprising 200 specimens, priced 50s.; and No. 4. a cabinet of materia medica, botany, chemistry and pharmacy, to illustrate the “Elements of Pharmacy”, with seven drawers of large and selected specimens, botanical examples and



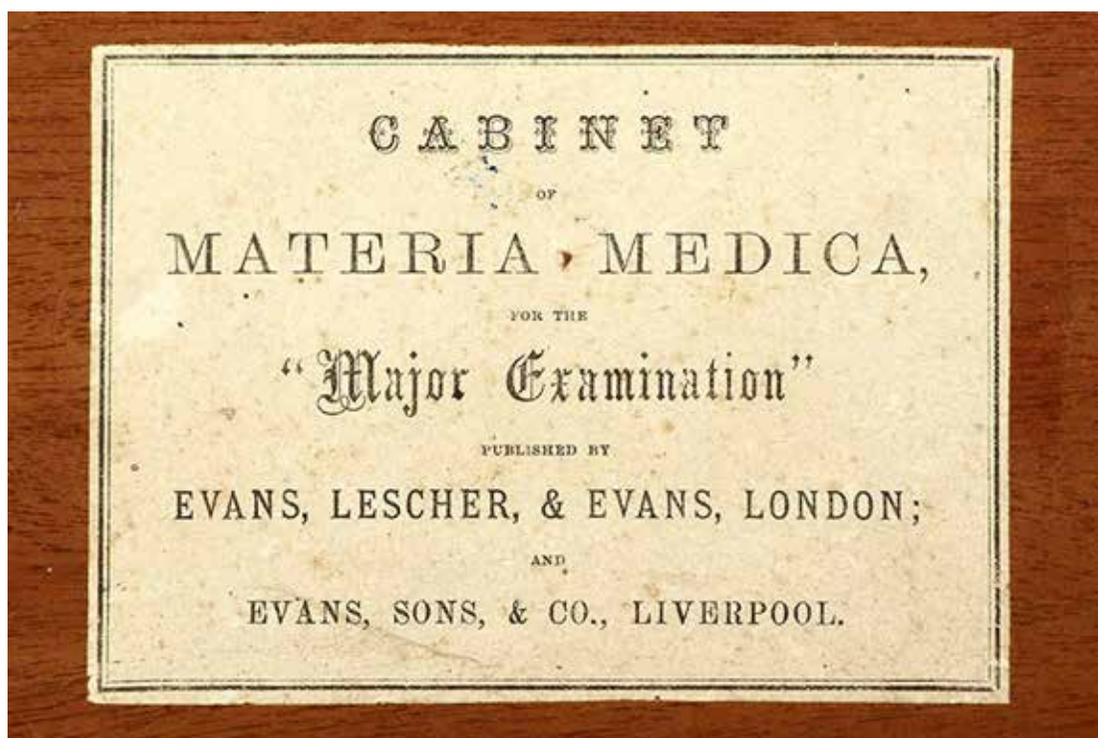


Figure 9. *Left, A*, A mahogany materia medica cabinet (overall dimensions in inches when closed: $4\frac{1}{4}$ high, 15 wide, $10\frac{3}{4}$ deep) by Evans, Lescher, and Evans, designed for candidates for the Major Examination of the Pharmaceutical Society of Great Britain, with three trays containing 129 specimens; *above, B*, Trade label of Messrs. Evans on the internal cover (photos by kind permission of Finch & Co. of London, UK).

plates, a herbarium of medicinal plants and examples of adulterations of drugs, priced £5 5s. (Lescher 1869a). Notable for the inclusion of botanical plates is No. 4; and the price of No. 1 undercut that of Messrs. Southall's 30s. cabinet. Figure 9 (*A, B*) shows an example of a Messrs. Evans's cabinet, apparently model No. 1 or 2, with three trays containing 129 specimens; the label indicates that it was manufactured to prepare candidates for the Major Examination of the Pharmaceutical Society after 1868.⁶ Seven years later Messrs. Evans apparently supplied only cabinet Nos. 3 and 4 (although no longer so numbered); the price of the former had been increased to £4 4s., but the latter remained at £7 7s. and

still included the instructional botanical plates (Lescher 1876).

Curiously, the following advertorial (Anonymous 1869h) for Evans, Lescher, and Evans's cabinets for the new examination system was presumably penned by the same person as that for Southall's (Anonymous 1868d):

CABINET OF MATERIA MEDICA FOR
THE "MODIFIED EXAMINATION."
Published by Evans, Lescher, and Evans,
London; and Evans, Sons, and Co., Liverpool.

This Cabinet, which has been specially arranged for students preparing to pass the "Modified Examination" of the Pharmaceutical Society, contains sixty-seven specimens of the principal drugs and chemicals of the British Pharmacopœia, and the several plants required by the Board of Examiners.

When we state that the specimens are the best commonly found in commerce, that they are compactly arranged in a well-made cabinet, that each specimen has a descriptive label, and that the whole may be purchased for fifteen shillings, surely no one can now have any excuse for presenting himself at the “Modified Examination,” and pleading ignorance of having had no opportunity of inspecting the principal drugs, etc., of the British Pharmacopœia.

That advertorial was published in January 1869, just one month after the one for Messrs. Southall (Anonymous 1868d). The description of the cabinet’s being “published” suggests that Messrs. Evans considered it, similarly to the materia medica plates, to be something more than just a commercial commodity. At a price of 15s. this cabinet for the Modified Examination was less well stocked than those later advertised as cabinet Nos. 1 to 4, and it did not include the set of coloured plates provided with No. 4. A contemporaneous advertisement was inserted into the guide for potential candidates for the examinations of the Pharmaceutical Society of Great Britain, prepared by Lescher (1869b, 1869c):

CABINET OF MATERIA MEDICA,
Arranged for Students intending to pass
the “Modified” Examination, containing
specimens of Drugs, Chemicals, the several
Plants required by the Examiners, &c. PRICE
15s.

CABINET OF MATERIA MEDICA,
Arranged for the Minor and Major
Examinations. About 140 specimens. It
contains examples of those Drugs and
Chemicals likely to be confounded, articles
of the Materia Medica seldom met with, &c.
PRICE 25s. With 200 Specimens, including
Pharmaceutical Preparations, 32s. 6d.
EVANS, LESCHER, & EVANS, 60,
BARTHOLOMEW CLOSE, LONDON.
EVANS, SONS, & CO., 56, HANOVER
STREET, LIVERPOOL.

Professional examinations for pharmacists

The regulations of the Pharmaceutical Society of Great Britain covering the Modified Examinations for qualification of assistants as “chemists and druggists”, announced in January 1869, included the requirement for candidates to be examined in “Materia medica and quality of specimens” (Anonymous 1869i):

To recognize the Pharmacopœia Chemicals in frequent demand, and specimens of Roots, Bark, Leaves, Fruits, Resins, and Gums in ordinary use; the following Plants, either in a fresh or dried state, or from plates:—Belladonna, Stramonium, Hyoscyamus, Conium, Aconitum, Digitalis, and Sabina; also to estimate the quality of each specimen and its freedom from adulteration.

It therefore seems certain that Messrs. Evans’s presentation set of the Van Voorst plates in May 1869 was a direct response to the requirement for examinees to identify specimens “from plates” during examinations, as noted above. It is notable that every one of the specific medicinal specimens stipulated by the Pharmaceutical Society was included among those illustrated by the materia medica plates. The particular plants specified in the regulation, “Belladonna, Stramonium, Hyoscyamus, Conium, Aconitum, Digitalis, and Sabina”, comprise an exclusive group termed by Lescher (1869a) “Medicinal Plants”, with “active principles so powerful, and properties so likely, when employed in excessive doses, to produce dangerous consequences, that it is absolutely necessary that their appearance should be familiar to every dispenser of medicine”.

A detailed analysis of the contents of Lescher’s *An Introduction to the Elements of Pharmacy* (Lescher 1869a) in the context of the *Pharmacy Act, 1868* revealed a number of cogent facts. The crucial footnote (Lescher 1869a, p. [vii]; and later editions) states,

The figures in parentheses in the sections of Materia Medica, Botany, Chemistry, and Pharmacy refer to the several numbered Specimens in the Cabinets published by MESSRS. EVANS & CO., 60, Bartholomew Close, London, and by MESSRS. EVANS, SONS, & CO., Liverpool, to accompany this Work.

Furthermore, collation of the images on the materia medica plates with the descriptions in Lescher's book corroborates the association between the two. All 14 of the plant species depicted on plates are included in the book, and their enumeration runs, among "the several numbered Specimens in the Cabinets", from 187 to 200 inclusive. Hence, the crucial poisonous plants stipulated in the examination syllabus are clearly identifiable as those illustrated on plate numbers 192, 193, 191, 196, 188, 189 and 197, respectively. There can, therefore, be no possible doubt not only about the purpose of the materia medica plates but also about their association with Messrs. Evans's cabinets.

Messrs. Evans might have indirectly gained a further advantage over their commercial competitors by the publication by Lescher (1869b, 1869c) of two guides to the now legally mandatory examinations of the Pharmaceutical Society.⁷ They were anticipated in *The Chemist and Druggist* on 14 November 1868 (Anonymous 1868e):

The number of those who have inscribed themselves for the examinations of the Pharmaceutical Society is already very large, and is daily increasing. For the convenience of pharmaceutical students, Messrs. Evans, Lescher, and Evans, of London, are publishing two guides to the examinations of the Pharmaceutical Society, one for the "modified," and one for the minor and major examinations. These two works show the amount of knowledge required in the various subjects, and are intended to serve as a *resumé* of the several text-books used in reading up for these examinations. Two cabinets of materia medica are also being prepared by this firm to accompany these guides, and to ensure

the more certain acquisition of the requisite knowledge; the smaller one will contain about fifty specimens, the larger about 140 specimens of drugs, plants, chemicals, etc., with name and geographical source.

By 1870 the educational benefits of materia medica cabinets for training apprentices and assistants had been widely embraced. For instance, at the Nottingham and Notts Chemists' Association meeting on 27 May 1870, donations were noted of "a cabinet, containing materia medica specimens, from Messrs. Evans, Son, and Co., and a second one from Southall, Son, and Dymond. These cabinets are of great service to the students, and the Council have consented that they should circulate amongst the members for the use of the Associates, under certain restrictions" (Anonymous 1870b). Hence, the initially fierce commercial competitiveness appears to have died down, and the personal benefit to students seems to have become the greater concern.

Thus a report of the British Pharmaceutical Conference in Liverpool in September 1870 recorded that Evans, Lescher, and Evans exhibited "a most interesting collection of tropical medicinal plants in growth", and "an excellent collection of drugs and pharmaceutical preparations, and a supply of Montserrat lime juice cordial for refreshment purposes [!]" . Meanwhile, Southall, Son, and Dymond showed "a rare and unique collection of the Indian materia medica, non-officinal in our Pharmacopœia." It is particularly notable that neither firm publicized their students' materia medica cabinets on that occasion (Anonymous 1870c, p. 295).

Ultimately, Messrs. Evans's made "many hundreds" of cabinets in the 19th century, principally for use in training pharmacists to identify crude drugs (Anonymous 1959). They remained of educational value well into the 20th century. Materia medica formed a key part of the course, along with

botany, taught at the School of Pharmacy, University of London, where pharmacognosy (the study of crude drugs) continued to be developed. The introduction of microscopical studies allegedly gave it a new lease of life from the 1890s (Hudson and Boylan 2013), although Messrs. Evans were publicizing their pharmacy microscopes at a much earlier date (Lescher 1869a). According to Kendall (2002) and Shellard (2002), cabinets were still available from Messrs. Evans in the 1930s, but production had ceased by 1940, although at that time Evans, Sons, Lescher and Webb still supplied samples of British Pharmacopoeia drugs labelled with name, source, natural order and habitat (Kendall 2002).

Evans, Lescher, and Evans's cabinets and associated books

Unusually for a pharmaceutical company, Evans, Lescher, and Evans published a number of medical works (besides trade catalogues), mostly in the first half of the 20th century. However, those published in the Victorian era were students' textbooks. The first was *The Dispenser's Vade-Mecum* (Britten 1857), a dictionary of Latin abbreviations used by physicians in prescribing medicines. There was then a gap of twelve years before further books were produced by Frank H. Lescher, which were inextricably linked with materia medica cabinets, as already seen, since they refer to the enumerated specimens and coloured plates to be found in the cabinets.

Although a selection of Messrs. Evans's materia medica cabinets was widely available about that time (Fig. 10), the fact that only the most expensive model no. 4 included the coloured plates might explain their present extreme rarity. Cabinets were advertised in all of the books associated with Evans, Lescher, and Evans; *An Introduction to the Elements of Pharmacy* (Lescher 1869a), and guides to

the various qualifying examinations for the Pharmaceutical Society (Lescher 1869b, 1869c). The same four kinds of cabinet were advertised in the third (Lescher 1869a), fourth (Lescher 1873) and fifth (Lescher 1876) editions of *An Introduction to the Elements of Pharmacy*. Their prices had been raised considerably during this period; in particular, cabinet 4 had been increased from £5 5s. (Fig. 10) to £7 7s. in four years (Lescher 1873), although it remained at £7 7s. three more years later (Lescher 1876).

Incidentally, the microscope (Fig. 10) exhibited at the conversazione of the Pharmaceutical Society (Anonymous 1869b) was equally expensive, initially costing £5 5s. (Lescher 1869a), later increased to £5 15s. 6d. (Lescher 1873), but slightly reduced by 1876 to £5 15s. (Lescher 1876). However, a polariscope with diaphragm cost an additional £1 5s., which remained constant during that period (Lescher 1869a, 1873, 1876).

Following the passing of the *Poisons and Pharmacy Act, 1908*, Lescher's books had inevitably become outdated and were no longer recommended in students' manuals (for instance, Humphrey 1910, p. 356), nor did they feature in trade advertisements.

Descriptions of the plates

Although the plates are not themselves numbered, they are listed here in the order of their reference numbers in the materia medica cabinets (as IEP4 187–200), deduced from the fourth edition of *An Introduction to the Elements of Pharmacy* (Lescher 1873), although that is not the order in which I found them in their original envelope. I have added some alternative English vernacular names and notes on their pharmacologically active constituents, poisonous properties and medicinal uses, as well as some references to *English Botany* and *British Flora Medica* (Barton and Castle 1845) and *Medicinal Plants in Folk Tradition* (Allen

CABINETS OF MATERIA MEDICA.

Nos. 1 and 2.

Arranged for Medical and Pharmaceutical Examinations. They contain examples of those Drugs and Chemicals likely to be confounded; Articles of Materia Medica seldom met with, &c., &c. *Price, 26s. and 34s.*

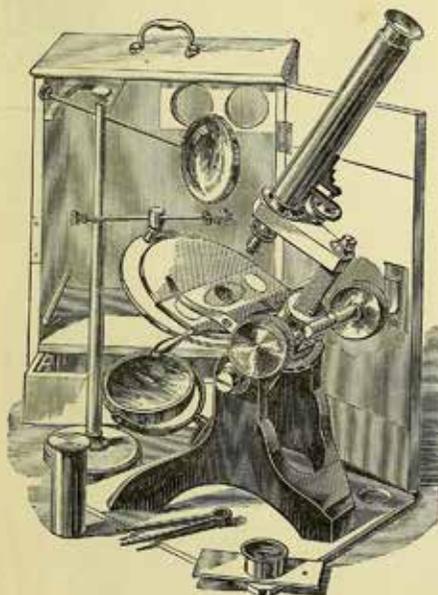
No. 3.

Cabinet of Materia Medica, Botany, and Chemistry, to accompany the "Elements of Pharmacy;" 200 specimens, &c., &c. *Price, packed, 50s.*

No. 4.

Cabinet of Materia Medica, Botany, Chemistry, and Pharmacy, specially designed to illustrate the "Elements of Pharmacy," and to afford a complete course of Materia Medica, Botany, &c. Seven Drawers; large and selected Specimens; Botanical Examples and Plates; Herbarium of Medicinal Plants; Examples of the Adulterations of Drugs, &c., &c. *Price, complete, in outer case, £5 5s.*

THE "PHARMACY" MICROSCOPE.



This Instrument is of great power and definition, specially designed and adapted to use in the Laboratory or Pharmacy, and suitable for all purposes of microscopic investigation.

The Stand is well constructed, firm, and of a new pattern. The Stage is circular in form, and the object can be moved in any direction with a smooth easy motion. The Rackwork Adjustment for focussing is long, and capable of taking in a 4-inch Object Glass. It has a fine Adjustment; a $\frac{1}{4}$ -inch Achromatic Object Glass, and a 1 and 2 inch combined Achromatic Object Glass of great angular aperture, for viewing large objects, fitted with the Universal Screw; Stand Condenser for opaque objects; Life-box; Stage and Dissecting Forceps; the whole in Mahogany Cabinet. *Price £5 5s.*

Polariscope and Diaphragm, 25s., and other Apparatus can be fitted to the above.

EVANS, LESCHER, & EVANS,

60, BARTHOLOMEW CLOSE, LONDON.

EVANS, SONS, & CO.,
56, HANOVER STREET, LIVERPOOL.

EVANS, MERCER, & CO.,
MONTREAL, CANADA.

Figure 10. Advertisement in F. H. Lescher's third edition (1869a) of *An Introduction to the Elements of Pharmacy* (reproduced courtesy of the Wellcome Library under a Creative Commons Attribution 4.0 International Licence).

and Hatfield 2004). The term “indigenous” is used relatively to Great Britain. *BPP1* = *British Poisonous Plants* (ed. 1); *BPP2* = *British Poisonous Plants* (ed. 2); *EB* = *English Botany* (with volume:plate number); *EBS* = *Supplement to English Botany* (with volume:plate number); *BFM* = *British Flora Medica* (with volume:page number); *IEP4* = *Introduction to the Elements of Pharmacy* (ed. 4, with figure number); *MPFT* = *Medicinal Plants in Folk Tradition* (with page numbers). Table 1 summarizes the sources and successive amendments of each plate, compared with previous editions; I was not able to trace any previously published versions of the three new plates apparently by J. E. Sowerby (*IEP4/187*, *IEP4/197* and *IEP4/198*). For each plate, first the lettering is shown in quasi-facsimile within quotation marks and then the notes:

IEP4/187. “HELLEBORUS NIGER. — WINTER ROSE. | *W. West lith.*” Not illustrated in *BPP1* or *BPP2*, but mentioned on p. 11 of *BPP2*. *BFM/1:379*; not in *EB*, *EBS* or *MPFT*. Apparently an original plate drawn probably by J. E. Sowerby specifically for the materia medica set. Christmas rose or black hellebore is not indigenous. It has been used as a febrifuge, a purgative, an anthelmintic, and for epilepsy, gout and rheumatism (*BFM/1:382–384*). The pharmacologically active principles are cardiac glycosides, primarily hellebrin, a potentially lethal cathartic and narcotic.

IEP4/188. “MONKSHOOD. — ACONITUM NAPELLUS. | *W. West lith.*” Mirror image of plate 1 (frontispiece) of *BPP2*; described on pp. 8–10. *EBS/2:2730*; *BFM/1:1*; not in *EB* or *MPFT*. Originally drawn by James de Carle Sowerby for *EBS*⁸ and amended probably by John Edward Sowerby. Monkshood or wolfbane is not indigenous; it has occasionally been involved in cases of accidental poisoning due to misidentification of the leaves as

parsley, used for salads; or of the root as horseradish. Prolonged boiling or drying inactivates the toxins (*BFM 1:6*). It contains various diterpenoid alkaloids, mainly aconitine, used by herbalists for gout and rheumatism, but potentially lethal at higher doses. Although “Tincture of Aconite” was available from shops, Robinson (1863, p. 14) advised that “No one should take it inwardly except under the direction of a skilful physician.”

IEP4/189. “FOXGLOVE. — DIGITALIS PURPUREA. | *W. West lith.*” Mirror image of plate 17 of *BPP2*; described on pp. 31–34. *EB/19:1297*; *BFM/1:332*; *MPFT/254–257*. The foxglove (fairy fingers or floppy dock) contains cardiac glycosides, mainly digitoxin, a dangerously powerful cardiac stimulant, recognized long ago by William Withering (1741–1799) as a nevertheless valuable diuretic in cases of dropsy (Withering 1785). Withering’s research, including dose titrations, earned for him a reputation as the founder of clinical pharmacology (Allen and Hatfield 2004, p. 254).

IEP4/190. “*W. West lith.* | VERBASCUM THAPSUS — GREAT MULLEIN.” Not illustrated or described in *BPP1* or *BPP2*; transferred directly from *EB*. *EB/8:549*; *BFM/2:155*; *MPFT/250–251*. The flowers of great mullein yield dyes; traditionally used in herbal medicine for coughs, colds, and lung and chest complaints (Allen and Hatfield 2004, p. 250), but has no current medicinal use. Included perhaps because mullein leaves were sometimes gathered in error for those of foxglove (Withering 1785, p. [xi]), or vice versa (Withering 1785, p. xv).

IEP4/191. “HENBANE. — HYOSCYAMUS NIGER. | *W. West lith.*” Mirror image of plate 15 of *BPP2*; described on pp. 28–29. *EB/9:591*; *BFM/1:395*; *MPFT/197–198*. Henbane is used in the form of henbane

- oil by herbalists for medicinal massage, but orally it is also an analgesic, a sedative and a hallucinogen owing to the constituent alkaloids hyoscyamine and scopolomine.
- IEP4/192.* “*W. West lith.* | DEADLY NIGHTSHADE. — ATROPA BELLADONNA.” Mirror image of plate 12 of *BPP2*; described on pp. 25–27. *EB/9:592*; *BFM/2:170*; *MPFT/197*. Deadly nightshade or dwale contains potentially lethal anticholinergic alkaloids, including atropine, hyoscyamine and scopolomine, used by herbalists as a sedative. Accidental fatal poisoning of children has occurred by their eating the attractive-looking berries.
- IEP4/193.* “THORN APPLE. — DATURA STRAMONIUM. | *W. West lith.*” Mirror image of plate 16 of *BPP2*; described on pp. 29–30. *EB/18:1288*; *BFM/2:345*; *MPFT/199*. The thorn apple contains the same analgesics as deadly nightshade, which produce sometimes fatal hallucinogenic effects. Used in various folk medicine preparations to treat burns, scalds and asthma (Allen and Hatfield 2004, p. 199).
- IEP4/194.* “WOODY NIGHTSHADE. — SOLANUM DULCAMARA. | *W. West lith.*” Mirror image of plate 13 of *BPP2*; described on p. 27. *EB/8:565*; *BFM/1:76*; *MPFT/198–199*. The mildly narcotic sedative woody nightshade or bittersweet contains the antibacterial and antidermatophytic alkaloids solanine and solasodine; sometimes, but rarely, lethal. Used topically in herbal medicine to treat chilblains and bruising.
- IEP4/195.* “FOOLS’ PARSLEY — ÆTHUSA CYNAPIUM. | *W. West lith.*” Mirror image of plate 8 of *BPP2*; described on pp. 20–21. *EB/17:1192*; *BFM/1:320*; not in *MPFT*. Fool’s parsley is used in folk medicine as a sedative and stomachic; it may be lethal but is not as toxic as hemlock.
- IEP4/196.* “HEMLOCK. — CONIUM MACULATUM. | *W. West lith.*” Mirror image of plate 7 (erroneously indexed as plate 17) of *BPP2*; described on pp. 19–20. *EB/17:1191*; *BFM/1:385*; *MPFT/187–188*. This plate was extensively modified in its last three editions (see Figs. 3–6). The fruit of hemlock contains alkaloids, chiefly coniine, closely similar to nicotine. In folk medicine it has been used mainly for poulticing sores, swellings and even cancer (Allen and Hatfield 2004, p. 188). However, it is particularly potent when administered orally, so much so that it was used to execute condemned prisoners in ancient Greece.
- IEP4/197.* “JUNIPERUS SABINA — SAVINE. | *W. West lith.*” Not illustrated in *BPP1* or *BPP2*, but mentioned on p. 48 of *BPP2*. *BFM/2:54*; not in *EB* or *EBS*. Apparently an original plate drawn probably by J. E. Sowerby specifically for the materia medica set. The unspecified use of sabina or savin by “irregular practitioners” is warned against in *British Poisonous Plants* (ed. 2), most probably because it was well known as an abortifacient, widely advertised by druggists in the 19th century as a “female remedy”. Robinson (1863, p. 245) explicitly stated that “Those who take it for the purpose of abortion greatly endanger their lives.” Allen and Hatfield (2004, p. 65–66) note that the less potent *Juniperus communis* Linnaeus was widely used in England and Scotland for the same purpose, as well as for dropsy and kidney ailments. Nevertheless, juniper had also been long used to ameliorate the unpleasant taste of other decoctions (Withering 1785, p. 6). The English drug merchants Potter and Clarke Ltd offered it in their 1872 wholesale catalogue and were still selling pills containing juniper oil in 1898 (Potts et al. 1977, pp. 170–172).

IEP4/198. “CUPRESSUS SEMPERVIRENS — CYPRESS. | *W. West lith.*” Not illustrated or described in *BPP2*. Not in *EB*, *EBS*, *BFM* or *MPFT*. Apparently an original plate drawn probably by J. E. Sowerby specifically for the materia medica set. Since cypress has no medicinal use or marked toxicity, its inclusion is difficult to understand, unless for its cosmetic properties as a fragrant astringent and antiseborrheic. A copious pollen producer, it is highly allergenic, however.

IEP4/199. “MEADOW SAFFRON. — COLCHICUM AUTUMNALE. | *W. West lith.*” Mirror image of plate 27 (erroneously indexed as plate 37) of *BPP2*; described on p. 45. *EB/2:133* and *20:1432* (a serotinous-flowering form); *BFM/1:187*. This is the true autumn crocus, which contains colchicine, and has long been used for gouty and rheumatic affections (Robinson 1863, p. 174). It is still used with extreme caution to treat gout in modern medicine but is potentially lethal.

IEP4/200. “CROCUS SATIVUS — SAFFRON. | *W. West lith.*” Not illustrated or described in *BPP1* or *BPP2*; transferred directly from *EB*. *EB/5:343*; *BFM/2:276*. The saffron crocus or autumn crocus provides the coloured spice saffron but is not poisonous. Perhaps included in the materia medica plates to avoid confusion with the true autumn crocus *Colchicum autumnale* Linnaeus (see *IEP4/199*). According to Robinson (1863, pp. 237–238), “Saffron is sold by druggists ... It is used as medicine, and as colouring matter ... at one time a favourite stimulant and antispasmodic ... now given when scarlatina, or the measles are suspected, as an expulsive, to hasten the eruption.”

A corollary: Poisons books

In addition to the introduction of compulsory qualifications by examination of intending “pharmacutists”, the new *Pharmacy Act, 1868* specified in Schedule F the layout of a form, bound in a book, to be completed for every sale of a poison, signed by the purchaser and the person who introduced the purchaser if previously unknown to the vendor. Within six weeks of the passing of the Act, this requirement had produced a surge of books containing pre-printed forms for recording sales of poisons. Produced variously by label-printing houses, individual pharmacists and wholesale druggists, they were published with considerable alacrity in readiness for the Act’s becoming effective on 31 December 1868. The law prescribed no mandatory title, resulting in such pompous examples as *Silverlock’s Pharmaceutical Chemists’ Sale of Poisons Register Book* and *The Poison Books as Required by the Sale of Poisons and Pharmacy Act Amendment* (Anonymous 1868f); and more prosaic ones such as *Sale of Poisons Book, Register of Poisons Sales* and *Sale of Poisons Register Book* (Anonymous 1868g). Again, Evans, Lescher, and Evans were among the vanguard of what *The Chemist and Druggist* facetiously referred to as the “Poison Book race” (Anonymous 1868h); perhaps it was as a result of that offhand reference that such registers became popularly known, right up to recent times, as “Poisons books”.

Conclusions

1. Only one example, hitherto unrecorded, is known to have survived, of the sets of 14 hand-coloured lithographs in printed envelopes that were presented with the largest size of materia medica cabinet sold for apprentice pharmacists by the wholesalers and druggists, Evans, Lescher, and Evans of Liverpool, England, from 1869 onwards.

2. The coloured plates were published to heighten the educational impact of materia medica cabinets designed, in response to the *Pharmacy Act, 1868*, specifically to aid British apprentice pharmacists in preparing for mandatory qualifying examinations in materia medica. Hence the manufacture and publication of coloured plates, materia medica cabinets and instructional books were inextricably linked in the business dealings of Evans, Lescher, and Evans.
3. The assemblage of plates is attributable to James Sowerby, James de Carle Sowerby and John Edward Sowerby and was published shortly before 18 May 1869. This publication supplements Ronald Cleevely's bibliographies of three generations of the celebrated Sowerby family of natural-history artists (Cleevely 1974b).
4. Ten of the figures are from Smith and Sowerby's *English Botany* (illustrated by James Sowerby), and one is from Hooker's *Supplement to the English Botany* (illustrated by James de Carle Sowerby), originally printed between 37 and 76 years before 1869. Nine of the plates were republished in the interim, in two editions of *British Poisonous Plants* (1856 and 1861), and are therefore fourth editions. Two other plates are second editions, having been transferred directly from *English Botany*. Three plates, probably by John Edward Sowerby, were new in 1869.
5. Production processes for most figures employed transfer paper for initial conversions of the Sowerbys' original copperplates to lithographs. In most cases interim editions involving further lithographic transferences with occasional amendments were made at each stage, culminating in the 1869 materia medica plates by Evans, Lescher, and Evans. The three new figures in 1869 are original lithographs.
6. A further legal requirement of the *Pharmacy Act, 1868* was the keeping of written records of retail sales of poisons by pharmacists and druggists. In the rapid response of the pharmaceutical industry to publish so-called "poisons books", Evans, Lescher, and Evans were again in the forefront.

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Notes

1. Some previous citations of the authorship of the second edition of *British Poisonous Plants* may be somewhat confusing, as is the case of *English Botany* (for which, see note 4). The reason is that, contrary to the usual convention, the illustrator's name, John Edward Sowerby, is prominently shown on the title-page, preceding the names of the authors of the text. Even setting aside that source of confusion, Stafleu and Cowan (1976–1988, 2:448–449) attribute both editions of *British Poisonous Plants* to Charles Johnson; his son Charles Pierpoint Johnson is mentioned only in passing for his co-authorship of the second edition and is not credited for it under his own name. Furthermore, Freeman (1980, p. 192) explicitly attributes both editions to Charles Johnson alone, despite the co-authorship of his son being clearly stated on the title-page of the second edition; again the son is not credited under his own name. The correct attributions of the first and second editions are, in fact, Johnson (1856) and Johnson and Johnson (1861), respectively, because Sowerby was, strictly speaking, not an author.
2. The Wests of Hatton Garden, London, are not to be confused with another family of artists and printers with the same surname, living and working in the city of Bath (see Williams 2020).
3. Several companies involving the Evans family existed at various times and places, some of them simultaneously. Company names that may be encountered, associated with London, Liverpool, New York or Montreal, include Evans and Lescher; Evans, Lescher, and Evans; Evans, Lescher, and Webb; Evans, Sons, Lescher, and Webb Ltd; Evans, Sons, and Co.; Evans, Mercer, and Co.; and most recently, in the 20th century,

- Evans Medical. Their individual histories do not fall within the scope of the present paper, but readers who may be interested are referred to Anonymous (1870a, 1884, 1891, 1905, 1959). Unfortunately the early company records were destroyed by wartime bombing of England during the 1940s.
4. Almost all of the text of *English Botany* (1790–1814) was written by James Edward Smith (1759–1828). However, as noted by Freeman (1980, p. 318), it is frequently attributed to James Sowerby (1757–1822). Walker (1988, p. 19) noted that “In the Preface to *English Flora* [his final book], Smith commented rather sourly that people talked of Sowerby’s *English Botany* and this lead him to the mortifying conclusion that all he had done was of little avail, and that people merely turned over the pages of coloured figures and did not read the information.” Sowerby had clearly considered that his being the initiator, artist, engraver, proprietor and publisher of *English Botany* was more than sufficient for him to be regarded as the author, in its broadest sense, of the work. However, all he actually wrote were the dedication, the unsigned preface for volume I and the general indexes (Sowerby 1814). The title–pages of all 36 volumes state that *English Botany* was published in London and sold at No. 2, Mead Place, Sowerby’s home (MacDonald 1974, p. 387), as well as by other booksellers.
 5. The cabinet of the first Professor of Chemistry (1703) in the University of Cambridge, Giovanni Francisco Viganì (ca.1650–1712), contains, as well as *materia medica*, certain precious stones; and that of the physician and Cambridge benefactor John Addenbroke (1680–1719) also includes fossils and a piece of human skull. In Addenbroke’s cabinet, Peck (1953) observed that “There is a fine specimen of coffee berries in the chest. This drug had but recently been introduced, and was coming into fashion as a beverage, and was described in 1680 as being ‘most useless’, since it serves neither for nourishment nor debauchery.” The cabinet of the physician William Heberden (1710–1801) contains a wide range of medicinal, culinary and horticultural seeds; flowers, nuts, fruits and roots; specimens of wood; and numerous samples in bottles; all of which served to illustrate his *materia medica* lectures at Cambridge. According to Peck, all three cabinets include almost identical substances, mostly mentioned in Culpeper’s *Herbal* and the contemporaneous *London Pharmacopoeia*.
 6. The “pharmacists’ chest” described by Mackonochie and Heinrich (2019) is clearly the same Evans, Lescher, and Evans model of a *materia medica* cabinet as that illustrated herein (Fig. 9A, B); those features in common ascertainable from their paper comprise the overall cabinet size, its internal structure, the specific contents of one of the trays, and the total number of 129 specimens. The *materia medica* plates described herein could not have been included because they represent specimen numbers 187–200 of a larger model; moreover, this one includes only seven of the fourteen species illustrated on the plates (see Mackonochie and Heinrich 2019, Tab. 1). Those authors state, rather ambiguously, that “The pharmacists’ chest was likely to be in use between 1852, when the major examination became compulsory to become a Pharmaceutical Chemist, and sometime from 1908 to 1911 ...”. However, it must be cautioned that the terms Minor Examination and Major Examination changed in significance over time. When these two examinations were first established by the Pharmaceutical Society of Great Britain soon after its foundation in 1841, passing them entitled successful candidates to be registered by the society as a Chemist and Druggist (an assistant) or a Pharmaceutical Chemist (business owner), respectively, although a traditional apprenticeship still continued to suffice for legal ownership or management of a retail pharmacy (Kurzer 2007). When the *Pharmacy Act, 1852* was passed, although the title of Pharmaceutical Chemist could not be assumed without examination, the qualification was still not mandatory for a practising pharmacist (Earles 2005, p. 101). Thus, even after 1852, the examinations of the Pharmaceutical Society remained voluntary, and unexamined and unregistered persons could still, without calling themselves Pharmaceutical Chemists, legally practise as such until the passing of the *Pharmacy Act, 1868* (Kurzer 2007; Robinson 2016). The situation then changed, when the more stringent Minor and Major Examinations became mandatory qualifications for legally practising as a Chemist and Druggist or a Pharmaceutical Chemist (Anonymous 1869i). The speculated earliest date of 1852 proposed by Mackonochie and Heinrich (2019) for use of an Evans, Lescher, and Evans cabinet for the Major Examination therefore cannot be accepted, since, as demonstrated herein, such specifically designed cabinets were in fact manufactured in immediate response to the statutory requirements of the *Pharmacy Act, 1868* (see also note 7). The provisions of the 1852 and 1868 *Pharmacy Acts*

may be viewed in the Pharmaceutical Society's Calendar (Pharmaceutical Society of Great Britain 1912).

7. When the *Pharmacy Bill* was approved on 31 July 1868, passing a Modified Examination (Anonymous 1869i) became a requirement for registration as "Chemists and Druggists" of those assistants having achieved the age of majority (21 years) and already having service of at least three years, as long as they applied to be candidates before the bill became law on 31 December 1868 (Anonymous 1868i). Applicants for registration legally required to practise as "Chemists and Druggists" after that date had to pass the mandatory Minor Examination, whilst registration as a "Pharmaceutical Chemist" required a pass at the Major Examination (Anonymous 1869j). Supplementary knowledge of botany was still considered to be important as background preparation for those preparing for these examinations. Thus, each year, a silver Council Medal was offered by the Pharmaceutical Society of Great Britain for the best herbarium collected in any part of the United Kingdom; candidates were required to be an Associate, Registered Apprentice or a Student of the Society, under the age of 21 years; "The collector to follow some work on British Botany (such as that of Babington or Bentham)" (Anonymous 1869k). This prize was still awarded as late as 1908 (see Humphrey 1910, pp. 367–368).
8. It must be explained that in ed. 3 of *English Botany* (Syme and Lankester 1863), in a footnote (vol. 1, p. 64) regarding plate XLVIII (*A. napellus*), it is stated that "The plate given is E. B. 2730, with the figure of the root added by Mr. J. E. Sowerby." Because the 36 volumes of *English Botany* (ed. 1) contain only 2592 plates, this was initially puzzling, until it was realized that the plate numbers of a *Supplement to the English Botany* run on consecutively from those in *English Botany* (ed. 1). The additional root of *A. napellus* on plate XLVIII of ed. 3 of *English Botany* (Syme and Lankester 1863) was added too late for inclusion in either edition of *British Poisonous Plants* and so did not appear on the materia medica presentation plate. However, other amendments were made in both editions of *British Poisonous Plants*, and so the materia medica plate is still a fourth edition.
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