

# ‘Five Hundred and Forty-Two Copperplates’: Andrew Bell’s Illustrations for the *Encyclopaedia Britannica*, 1771–97

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Andrew Bell (1725/6–1809) is best known as the co-founder and co-publisher with Colin Macfarquhar of the *Encyclopaedia Britannica*. It is less often noted that he was also the sole provider of images for the earliest editions. He was apprenticed to the engraver Richard Cooper and in turn trained other engravers; he has been described as ‘the most influential Scottish engraver after Richard Cooper.’<sup>1</sup> However, most of his output was for book illustration and his work is little known beyond the confines of book scholarship. Examining the sources and production of the plates for the *Encyclopaedia*, this article will highlight Bell’s contribution to the development of printmaking in Scotland in the 18th century.

This paper emerged from a larger project, a research workshop project funded by the Royal Society of Edinburgh, investigating Scottish printmaking in the 18th century. The stimulus for this was frustration at not being able to find information about, or images of, works by Bell when researching the English artist Paul Sandby (1731–1809). Sandby spent four or five formative years in the late 1740s as a draughtsman for the Military Survey of Scotland. While there he made a number of etchings, apparently with a Mr Bell in Edinburgh:

At this time he [Sandby] made very many accurate views of Edinburgh and its vicinity and becoming acquainted with Mr. Bell, an engraver in that city, he got some insight into his mode of etching, and himself etched a number of scenes in the neighbourhood, which were done on the spot, upon the copper.<sup>2</sup>

The reason for this lack of information quickly became apparent. The work of engravers crosses many fields, from map-making to music publishing, medical studies to antiquarianism. Where there has been research on Scottish prints, it appears in the journals of many other disciplines – archives, freemasonry, and particularly the history of the book, but rarely in art history studies. Much scholarship on prints and

engravers is subsumed into research on the development of book publishing, and book scholarship is not a first port of call for an art historian studying images. This problem for historians of printmaking is compounded by the fact that book scholars often ignore illustrations. For example, F.A. Kafker’s 1995 article ‘The achievement of Andrew Bell and Colin Macfarquhar as the first publishers of the *Encyclopaedia Britannica*’ mentions the over five hundred plates engraved by Bell for the third edition, without providing a single illustration.<sup>3</sup> Furthermore, cataloguing systems do not incorporate the finding aids or search terms we need to identify books with important prints in them. One significant outcome from the research workshops is a website with a database of printmakers and other relevant professions, which will hopefully become a starting place for new lines of enquiry relating to 18th-century printmaking.<sup>4</sup>

Discussion about the development of printmaking in Scotland begins with an apology that suggests that in the late 17th-century there were no engravers of any proficiency in the country:

Courteous Reader, You are earnestly desired not to criticise to much upon the cuts which are in this little following treatise, because they could be got no better done in this Kingdom, that kind of employment having so little encouragement that few or none almost follow it; All I can answer for is the Postures, which are as exact as needful, but as for the Work-man-Ship, and casting off of the Cuts, that not being in my Power to help I hope you will not blame me for it.<sup>5</sup>

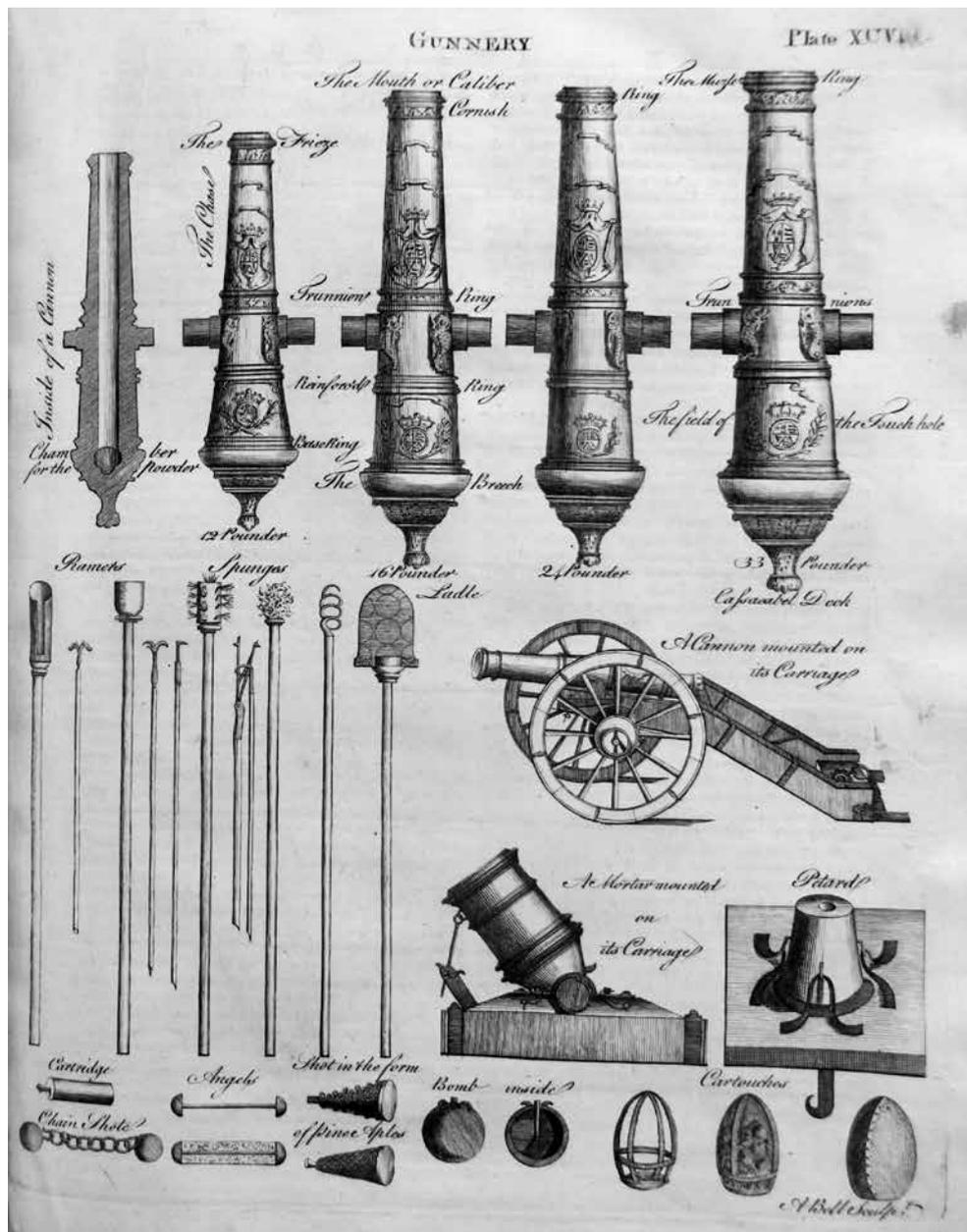
This situation began to improve when Richard Cooper arrived in Edinburgh in 1728.<sup>6</sup> Cooper’s most famous pupil, Sir Robert Strange (1721–97) wrote of Cooper that:

The arrival of such a stranger was no small acquisition to Edinburgh, where the arts had languished, or where, more properly speaking, they had never had been introduced [...] The line which Mr. Cooper pursued was engraving, this art having been almost totally unknown.<sup>7</sup>

article? entry?section? 'treatise' maybe implies a separate work?

1. Andrew Bell, illustration for *treatise* on Gunnery, *Encyclopaedia Britannica* 1771, first edition, Vol. 2, Plate XCV.

University of St Andrews Library, Department of Special Collections; author's photograph



Cooper settled in Scotland, established a large workshop, built a theatre and helped found the Edinburgh Academy of St Luke in 1729, the first such academy for artists in Scotland. He took on a number of apprentices and pupils, the best known of whom is Sir Robert Strange, and amongst whom was Andrew Bell.

Born in 1726, the son of a baker, Bell had little formal education. He was apprenticed to Richard Cooper, c.1741– c.1748, and later taught other engravers, including Hector Gavin, Francis Legat, Alexander Robertson, and Daniel Lizars.<sup>8</sup> As was later written of him:

This enterprising man, joining to tolerable proficiency as an artist, admirable tack as a man of business, had the merit of searching out

and rearing up a host of talented young men as apprentices, some of whom afterwards went to London and adorned the capital with their works [...] while others, whose lot was cast in Edinburgh, were the first to produce engravings at all worthy of the name.<sup>9</sup>

He seems to have been something of a character and well enough known to feature in some of John Kay's caricatures.<sup>10</sup> He was very short with bandy legs and a huge nose. Apparently he rode the tallest horse he could find, using a ladder to mount and dismount.<sup>11</sup>

When we think of encyclopaedias and the 18th century, probably the first to come to mind is the great 17-volume *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers* of Diderot and D'Alembert, published between

1754 and 1772. This immense publication is equally well known for the illustrations, printed separately in 11 portfolios with over 2,500 plates, beautifully engraved, visually coherent, clear and informative.

The *Encyclopaedia Britannica* was rather less extensive in its original ambition. The initial proposal was advertised on 1 August 1767, and the work was to be compiled by the printer and editor William Smellie (1740–95).<sup>12</sup> Bell was to produce all of the copper-plate engravings. The original plan was for a small octavo format with 300 engravings. By 8 June 1768 this had changed to the larger quarto format with 150 illustrations. It would be issued in weekly numbers, to be bound when the whole work was complete. Every number was to contain 24 quarto pages, printed with ‘an elegant new type’, on good demy paper and would cost 6d, or 8d on superfine paper, ‘the whole to be completed in 100 numbers, [...] and will make three handsome volumes.’<sup>13</sup>

There were considerable delays, occasioned in part by this change in format and partly by the concept, described in the preface to the first edition:

Instead of dismembering the Sciences, by attempting to treat them intelligibly under a multitude of technical terms, they [the editors] have digested the principles of every science in the form of systems or distinct treatises, and explained the terms as they occur in the order of the alphabet, with references to the sciences to which they belong.<sup>14</sup>

Having accused other encyclopaedias of ‘attempting to communicate science under the various technical terms arranged in alphabetical order. Such an attempt [being] repugnant to the very idea of science’, the editors, ‘venture to affirm, that any man of ordinary parts, may, if he chuses, learn the principles of Agriculture, of Astronomy, of Botany, of Chemistry, &c. &c. from the ENCYCLOPAEDIA BRITANNICA.’<sup>15</sup>

A wide variety of broad subjects were covered in the treatises, including amongst others, Canal Building, Fortifications, Gunnery, Optics, and less picturesquely, Shorthand, Book-keeping, Music and Trigonometry. Each section was illustrated with a number of full plates dedicated to that topic, for example, Gunnery (Fig.1).

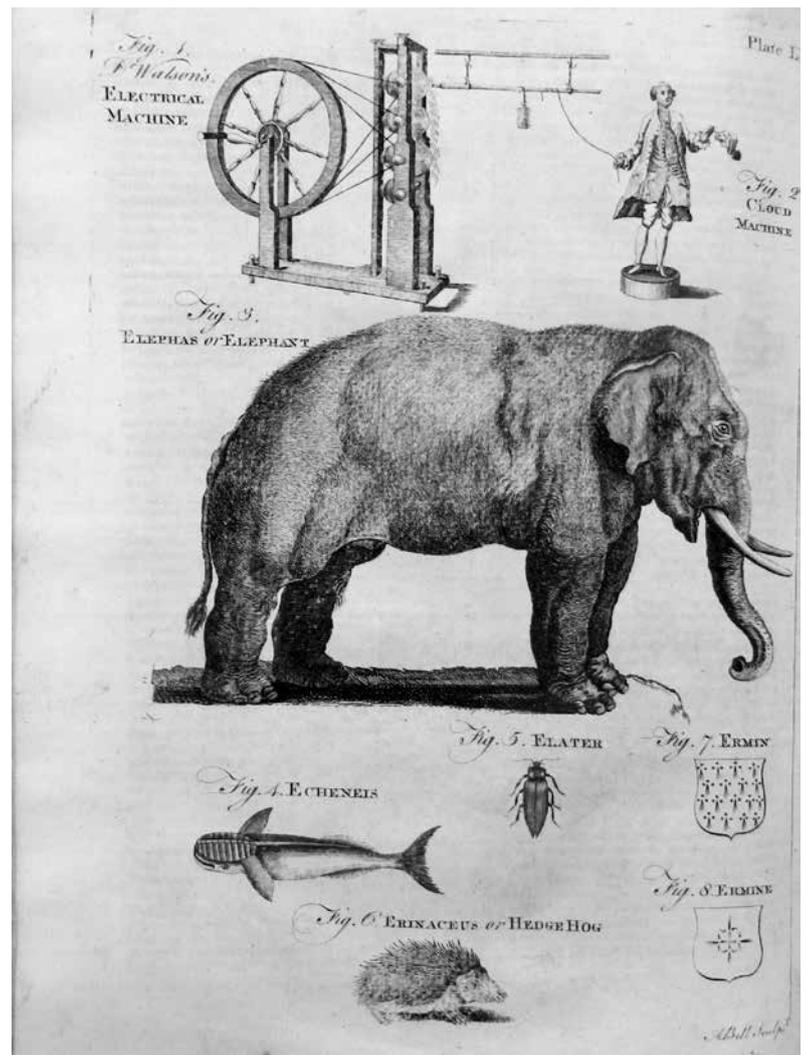
Individual topics and terms then appeared alphabetically, and some were illustrated: for example the entry for *Fitchée*, ‘a term applied to a cross, when the lower end of it is sharpened into a point’, was cross-referenced to an image in Plate XXX; or the entry for *Mus*, ‘a genus of quadruped’ of which there are 21 species including *Mus Porcellinus* or ‘guiney-pig’, was illustrated in Plate CXIV (Fig.2). In order to include as many images as possible, these plates incorporated an interesting mix of subjects, such as in the E section (Fig.3), which includes an electrical machine, an elephant, an insect, a fish, a hedgehog and some heraldry; or in the L section, which includes a salamander, a ship’s log for measuring speed, logarithms,

2. Andrew Bell, *Mus Porcellinus* or ‘guiney-pig’, *Encyclopaedia Britannica*, 1771 first edition, Vol. 2, Plate CXIV.

University of St Andrews Library, Department of Special Collections; author’s photograph

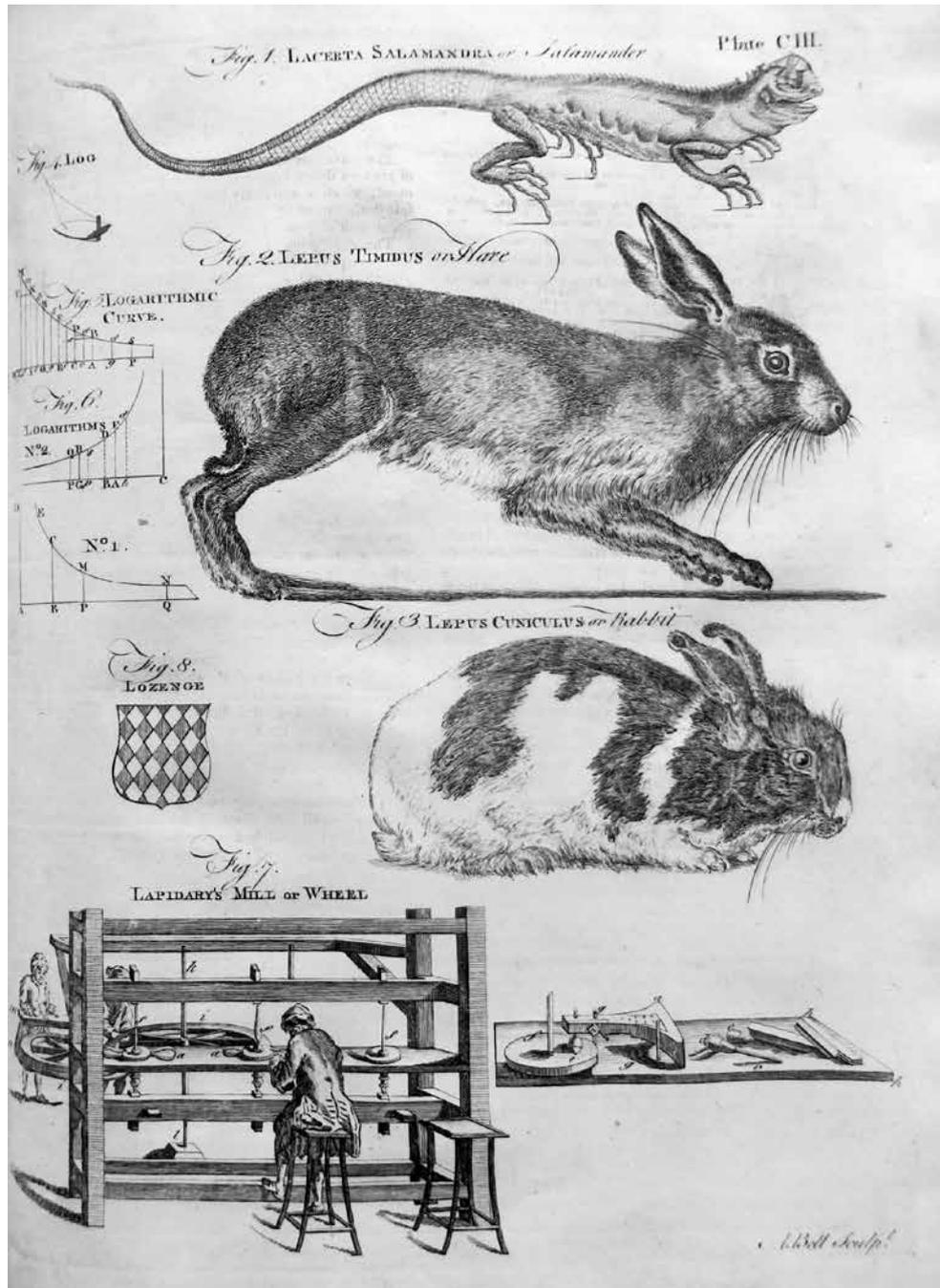
3. Andrew Bell, The E section, *Encyclopaedia Britannica* first edition, 1771, Vol.2, Plate LXXIV. The elephant is copied from Buffon’s *Histoire Naturelle*, Vol.11, 1764, Plate I, p.142.

University of St Andrews Library, Department of Special Collections; author’s photograph



4. Andrew Bell, The L section, *Encyclopaedia Britannica* 1771, first edition, Vol.2, Plate CIII.

University of St Andrews Library, Department of Special Collections; author's photograph



rabbits, more heraldry and a lapidary mill or wheel (Fig.4). Unlike the treatise illustrations, and even less like the plates for the French *Encyclopédie*, these plates tend to be somewhat visually incoherent. All available space has been used, incorporating a strangely miscellaneous assortment of images and suggesting the lack of an eye for overall design. The plates have not been designed as attractive works of art, but purely as a means to communicate facts visually. And the necessity for clarity is what led to the change of format and the delay in producing the *Encyclopaedia*.

The 1768 advertisement makes it absolutely explicit that the plates were equally as

important to the whole concept as the text, and getting them right justified a considerable delay in publication:

This work was formerly proposed to be printed in octavo. But the Editors have found it necessary to alter their design, as the smallness of that size has been generally objected to. 1. Because it would occasion the book to be divided into an inconvenient number of volumes; and it is a capital advantage in a Dictionary to consist of as few as possible. 2. Because the copper-plates, which behoved to be of the same size with the book would be too small to give satisfactory views, or convey adequate ideas, of the objects they are intended to represent. In order to obviate these

material objections, it is resolved, as in the forgoing conditions, to print the work in Quarto, that being the handsomest as well as most convenient size, and better adapted to allow a proper display, in the Copperplates, of the many natural and artificial objects with which the work will be illustrated.

The advertisement continued:

This alteration, however, both upon account of the delay it occasions, and the expense of engraving a-new all the copperplates, which were done for the former size, will be very prejudicial to the Editors. But this they cheerfully [*sic*] submit to, being persuaded, that every endeavour to please the Public and render the work more perfect, will conduce both to their honour and advantage in the end.<sup>16</sup>

Images were very often essential to the understanding of the text where they complemented the written descriptions and definitions: for example, the description of the rolling press, used for printing copper plate engravings is very technical:

The rolling press AL may be divided into two parts, the body and carriages. The body consists of two wooden cheeks PP placed perpendicularly on a stand or foot. LM which sustains the whole press c, c, c, c, joined by other cross or horizontal ones d, d, d, which serve to sustain a smooth even plank or table HIK etc [...]<sup>17</sup>

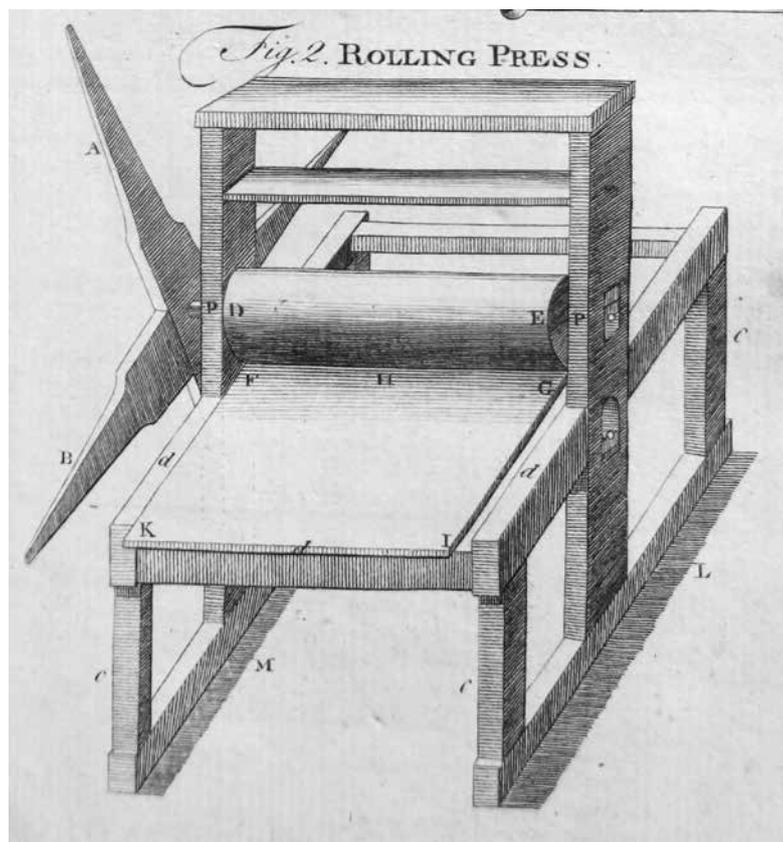
It is clear that the copperplate illustrating this (Plate CXLVII) is necessary to give any idea about what the equipment looks like or how it works (Fig.5).

Turning from the concept to the logistics, Bell made 160 plates for the first edition, replacing at least some of the 300 plates originally projected for the octavo version. He went on to provide all the illustrations for the second and third editions (340 and 542 plates respectively), a prodigious amount of work as it is; it would have been even more so had the images been originals. However, both images and texts derived from other sources. The preface to the first edition concluded with this acknowledgement: 'In order to give some idea of the materials of which this Dictionary is composed, we shall conclude the preface with a list of the principal authors made use of in the compilation.'<sup>18</sup> Nearly 120 sources were listed, from 'Albini tabulæ anatomicae' to 'Young on Composition' by way of 'Byrom's short-handwriting', 'Dickson's Agriculture', 'Franklin on Electricity &c.', 'Jack's Conic

Sections', 'Pennant's British Zoology', 'Sharp's surgery', 'Swan's architecture', and 'Voltaire's essay on taste', amongst many others. Not only were these works ransacked for the content, but they also provided the sources for most of the illustrations. Diderot's publication ran into trouble with accusations of plagiarism – perhaps this list of authorities was meant to circumvent that kind of criticism. Bell did not identify or acknowledge the sources of the plates but tracing them from the list is relatively simple.

Copies from Buffon's *Histoire Naturelle* featured prominently.<sup>19</sup> As did Diderot's *Encyclopédie* and *A Sett of Anatomical*

5. Andrew Bell, Rolling press, *Encyclopaedia Britannica*, 1771, first edition, Vol.3, Plate CXLVII. University of St Andrews Library, Department of Special Collections; author's photograph



*Tables, [...] of the Practice of Midwifery* by the obstetrician William Smellie (1697–1763).<sup>20</sup> King George III was so appalled by the images of dissected female pelvises and of fetuses in the womb that he ordered these pages should be removed from every copy. Clearly this did not happen, but this does demonstrate that the *Encyclopaedia* could disseminate information to an audience that would not normally be consulting books on midwifery.

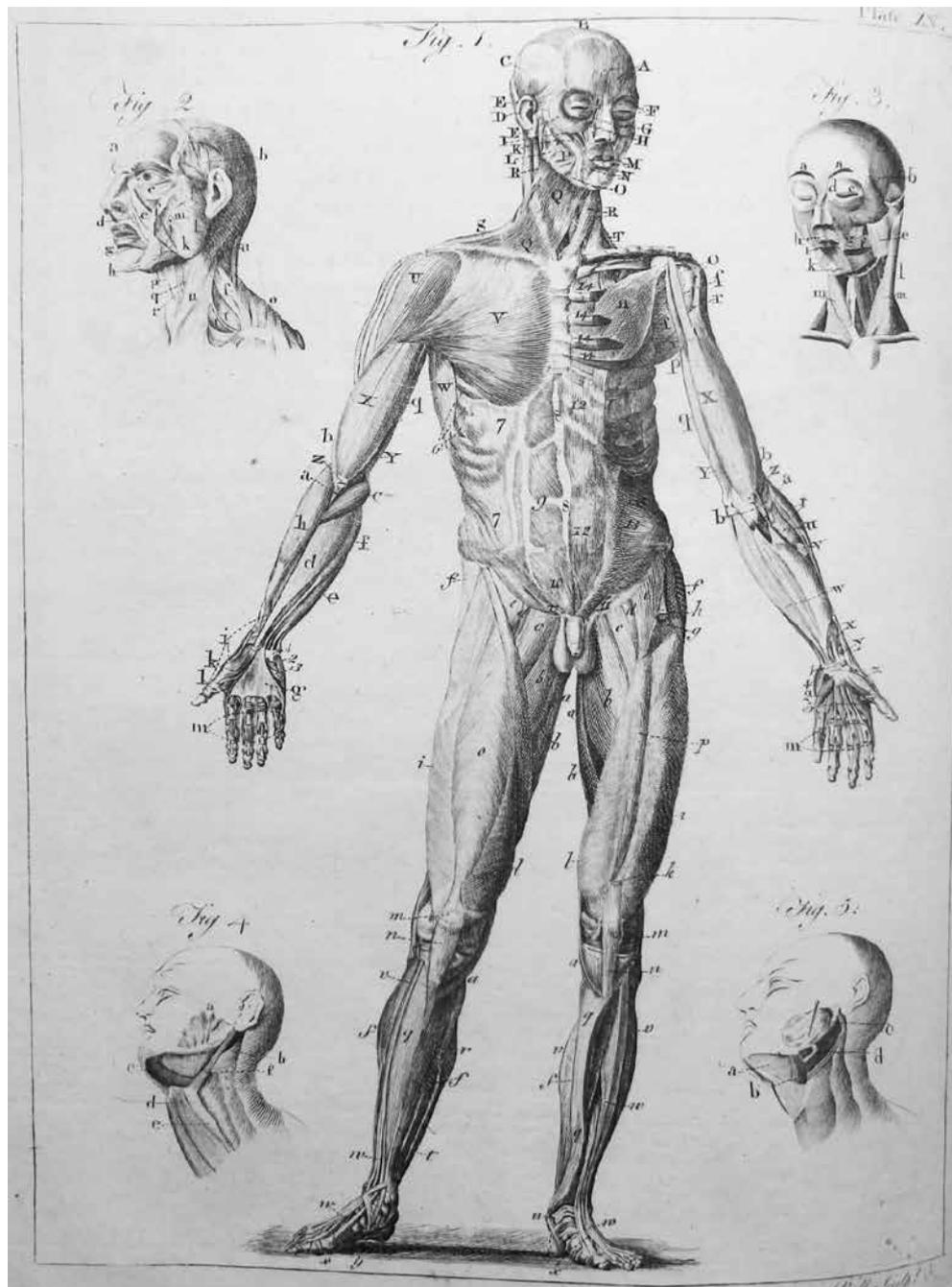
Anatomical illustrations can also be traced from the monumental plates made by Jan Wandelaar (1690–1759) for Bernhard Siegfried Albinus's *Tabulae sceleti et musculorum corporis humani* to Bell's plates

for the *Encyclopaedia* via the copies made by Bell's master Richard Cooper for a project begun in the 1740s.<sup>21</sup> Cooper amalgamated images from Albinus, putting two stages of the dissection into one image to incorporate more information. He also altered the postures, lowering an outstretched arm so the figure fitted the page better. Bell's plates for the *Encyclopaedia* are an exact copy of Cooper's (Fig.6). He later copied Albinus again for his *Anatomia Britannica* published in 1798.<sup>22</sup> These prints also demonstrate that Bell was a gifted copyist but had developed a different style of engraving from that of his teacher. For his work he needed a clean clear line; Cooper's work was more expressive and nuanced.

A second edition of the *Encyclopaedia* was published in 1778 with 'Above two hundred copperplates' and a third edition comprising 18 volumes was published in 1797 with 542 plates. Many of the plates were the same, but some new images were borrowed to expand the subjects, from sources such as William Chambers's *Treatise on Civil Architecture* of 1759, which had not featured in the first edition. Some old plates were altered and this was clearly an editorial decision. For example in the first edition, images illustrating heraldry had been scattered on plates throughout all three volumes. For the second edition, the various heraldic symbols were burnished out from all these plates and new images were inserted.

article?

6. Andrew Bell, illustration for the *treatise* on Anatomy, 1771 after Richard Cooper, *Encyclopaedia Britannica* first edition, Vol.1, Plate XV. University of St Andrews Library, Department of Special Collections; author's photograph



All the heraldic material was then gathered together on six new plates to give a coherent overview. Even so, there was not quite enough room for everything and there was a bit of spillage over to the next plate, where heraldic signs once more had to share space with some harps and a hippopotamus.

Though the proposal for the first edition had promised 'an elegant frontispiece', this was not forthcoming until the third edition. For this, Bell made use of an image also appropriated by other encyclopaedists, Sebastien Le Clerc's print of 1698, *L'Académie des Sciences et des Beaux-Arts*. Le Clerc (1637–1714) had been engraver to the Académie des sciences, and Professor of Perspective at the Académie de peinture et de sculpture in Paris. His print includes the whole range of subjects that might be covered in the two academies and is particularly apt as a frontispiece for an encyclopaedia. Bell was not the first to use the print for such a purpose. For example, it first appeared in Chambers's *Cyclopaedia* in 1728, engraved by John Sturt. In 1788, vignettes from the engraving were used in the frontispiece of the three-volume *New Royal Encyclopaedia* compiled by George Selby Howard. For once, Bell credits his source in the plate with the inscription 'Le Clerc invenit', but he also made some changes. The format is page-shaped rather than in landscape format, stretching the image vertically upwards and removing parts of the middle section. He added some Old Testament imagery in the background, but he also brought it right up to date with something thoroughly contemporary – a hot air balloon, indicating that aeronautics was to be added to the information in the text. Ballooning was both a new kind of exploration and a fashionable craze in the early 1780s and Bell not only included it in the frontispiece, but also borrowed very new material for the section on ballooning, copying images from *Airopaidia: containing the narrative of a balloon excursion from Chester, the eighth of September, 1785, taken from minutes made during the voyage*, by Thomas Baldwin, published in 1786.

So at this point, what can we say both about the production of the *Encyclopaedia* and about Bell himself? We can state that the quality of plates and the clarity of the images were so important and integral to the publication that production of the first edition was held up for over a year, and a year's worth of Bell's work on the smaller plates was sacrificed. This at least should

encourage book historians to think more about the significance of the illustrations and not just the text.

One reason why Bell has perhaps not featured in discussions about Scottish art history may be that he was not a natural artist. His name is not included with those who studied at the Academy of St Luke, so he does not seem to have received any artistic training. The description of him as an artist of 'tolerable proficiency' quoted above maybe damns him with faint praise.<sup>23</sup> But an examination of images from the *Encyclopaedia Britannica* rather supports this evaluation. For a figure illustrating the Order of the Garter, we might expect Bell to have consulted Elias Ashmole's book on the subject, and copied illustrations by Wenceslas Hollar, but he did not.<sup>24</sup> Perhaps among the many sources used for the publication this one was not available in Edinburgh, and he had to produce his own image, a strangely proportioned body with apparently boneless legs of different lengths.<sup>25</sup> Perhaps copying the anatomical drawings of experts did not automatically enable him to construct an anatomically convincing figure.

On the other hand we can see from these plates that Bell was a very accomplished copyist, reproducing the work of others very faithfully. We can trace the mark of the etching needle in the fluidity of line, subsequently strengthened with the engraver's burin. He developed a lovely touch in his engravings, not expressive perhaps, painstaking maybe, but clean and clear, and beautifully detailed. As a book illustrator he was keenly aware that the size and format of the plates, and therefore the books, was of paramount importance. In 1798 in the preface to his *Anatomia Britannica*, based once again on the work of Albinus, he wrote:

The former editions of Albinus are of such enormous size, that they can neither be easily arranged in a library, nor read without standing and stooping. To obviate this inconveniency, after perceiving that all the parts and characters could be expressed with equal distinctness, the present size [quarto] was adopted.

He also knew what was required of the plates to be useful. 'The outlines are likewise engraved in a bolder manner than in the original, in order to make the expression of the different parts more distinct and apparent.'<sup>26</sup>

Andrew Bell was a prolific printmaker, but if indeed he is to be considered ‘the most influential Scottish engraver after Richard Cooper’, more research is needed to identify his pupils and also other works from his hand, in particular those not intended for reference books, in order to begin to assess that influence.

## NOTES

- 1 Joe Rock, [https://sites.google.com/site/richardcooperengraver/students-and-associates-of-cooper-senior#\\_edn2](https://sites.google.com/site/richardcooperengraver/students-and-associates-of-cooper-senior#_edn2) [accessed 14 September 2015].
- 2 T.P. Sandby, ‘Memoirs of the Late Paul Sandby Esq. R.A.’, *Monthly Magazine*, Vol.31, June 1811, pp.437-41; reprinted by Paul Oppé, ‘The Memoir of Paul Sandby by His Son’, *Burlington Magazine*, Vol.80, 1946, pp.143-7.
- 3 F.A. Kafker, ‘The achievement of Andrew Bell and Colin Macfarquhar as the first publishers of the Encyclopaedia Britannica’, *Journal for Eighteenth-Century Studies*, Vol.18.2, 1995, pp.139-52.
- 4 [www.18thcprintmakingscotland.org/](http://www.18thcprintmakingscotland.org/)
- 5 Sir William Hope, *The Scots Fencing Master or Compleat Small-sword-man*, Edinburgh 1687, preface.
- 6 For Richard Cooper see <https://sites.google.com/site/richardcooperengraver/home>
- 7 James Dennistoun, *Memoirs of Sir Robert Strange, Knt.*, London 1855, pp.24-5.
- 8 *Oxford Dictionary of National Biography*, ‘Andrew Bell’ <http://www.oxforddnb.com/view/article/1994?docPos=1> [accessed 14 September 2015].
- 9 *The New Statistical Account of Scotland*, Edinburgh 1845, p.740.
- 10 See for example works by John Kay in the National Portrait Gallery: *Andrew Bell and William Smellie*, 1787, NPG D16879; and *William Richardson; Andrew Bell; Mr Knipe; Lord Monboddo; Charles Byrne; Mr Knipe; Baillie Kyd*, 1784, NPG D14755.
- 11 Herman Kogan, *The Great EB: The Story of the Encyclopaedia Britannica*, Chicago 1958, p.8.
- 12 *Oxford Dictionary of National Biography*, ‘William Smellie’, <http://www.oxforddnb.com/view/article/25753?docPos=2> [accessed 14 September 2015].
- 13 *Proposals for printing, by subscription, a work, intitled, Encyclopædia Britannica; or, A new and complete dictionary of arts and sciences*, Edinburgh 1768.
- 14 *Encyclopaedia Britannica*, preface to the first edition, Edinburgh 1771, p.v.
- 15 *Encyclopaedia Britannica* (n.14).
- 16 *Proposal* (n.13).
- 17 *Encyclopaedia Britannica*, first edition 1771, Vol.3, p.512.
- 18 *Encyclopaedia Britannica* (n.14), pp.vii-viii. The introduction to the third edition contains a more comprehensive list of acknowledgements for the content. The text and list of sources can also be found online at [https://en.wikisource.org/wiki/Preface\\_to\\_the\\_1st\\_edition\\_of\\_the\\_Encyclop%C3%A6dia\\_Britannica](https://en.wikisource.org/wiki/Preface_to_the_1st_edition_of_the_Encyclop%C3%A6dia_Britannica).
- 19 Georges-Louis Leclerc, Comte de Buffon (1707–88), His *Histoire Naturelle, Générale et Particulière, avec la description du Cabinet du Roi* was published between 1749 and 1804, and contained about 2000 plates. Bell later made the illustrations for William Smellie’s translation of Buffon, *Natural History, General and Particular by the Count de Buffon; translated into English; illustrated with above three hundred copper-plates, and occasional notes and observations*, London 1785. For example the elephant in Fig.3 is copied from *Histoire Naturelle* Vol.3, Plate I.
- 20 William Smellie, *A Sett of Anatomical Tables, with Explanations, and an Abridgement, of the Practice of Midwifery*, London 1754.
- 21 See Joe Rock, <https://sites.google.com/site/richardcooperengraver/home/richard-cooper-and-anatomical-illustration> [accessed 14 September 2015].
- 22 Andrew Bell, *Anatomia Britannica a System of Anatomy. Comprising the Whole of Albinus’s Tables, with Selections from Cowper, and Other Eminent Anatomists; illustrated by one hundred and nine copper plates, [...] In three parts.*, Edinburgh 1798.
- 23 *New Statistical Account of Scotland* (n.9), p.740.
- 24 Elias Ashmole, *The Institution, Laws and Ceremonies of the Most Noble Order of the Garter*, London 1672, with illustrations by Wenceslaus Hollar.
- 25 *Encyclopaedia Britannica*, first edition, 1771, Vol.2, Plate LXXXVI.
- 26 Bell (n.22).