

CAPTURING THE *Cut*

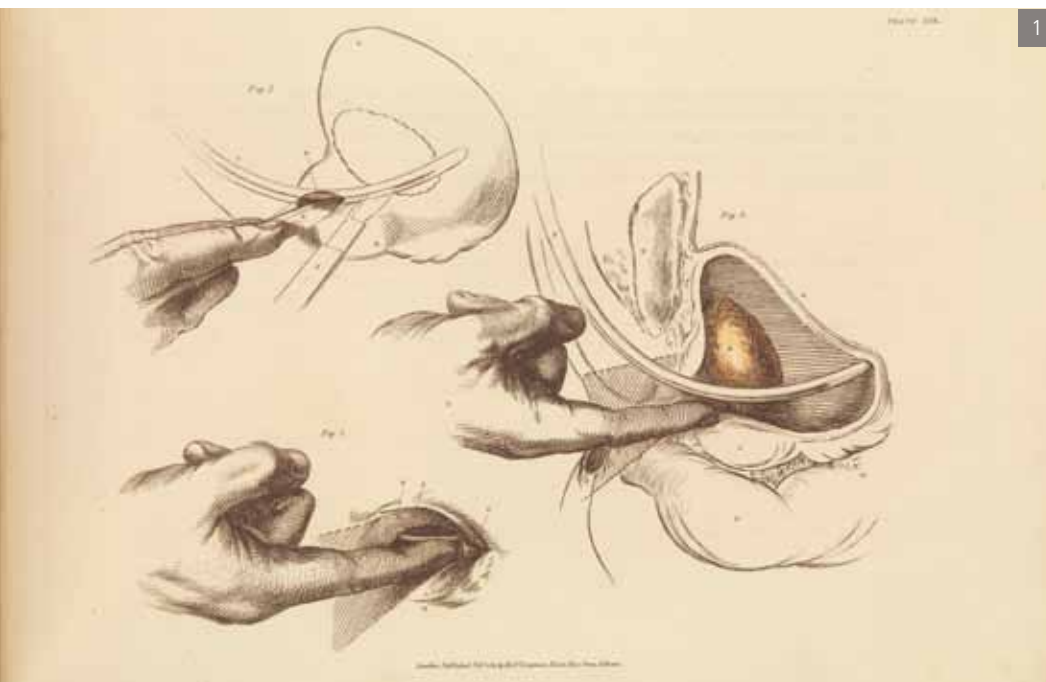
Early surgical illustrations transformed the art of the surgeon, and paved the way for the use of anaesthesia a century later. Here, **Christelle Rabier** explains her fascination.



The modernity of the *Illustrations of the Great Operations of Surgery*, published in 1820–1, is striking (figure 1): the Scottish surgeon and anatomist Charles Bell carefully drew organs and instruments with straight and dotted lines and shadows – all of which painstakingly set out the procedures required for major operations. His work was the culmination of a century of developments in illustrative techniques – techniques that allowed

surgeons to develop, reinvent or refine the cures they practised on their patients' bodies.

My research into early modern surgical images stemmed from my interest in understanding whether the medium of print was an apt means for the dissemination of technological procedures, at a time when practitioners learnt hands on, through apprenticeship and training with a master. In England and on the Continent, surgeons treated fractures, cured wounds or applied healing



ointments to venereal diseases, playing very much the role of ER practitioners in cities or on battlefields.

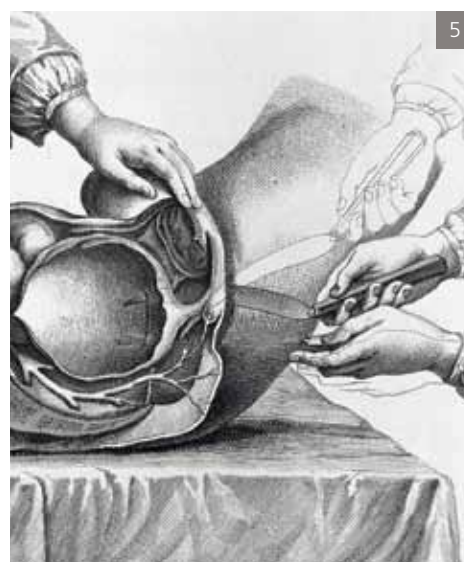
Although early modern surgeons explored various ways to pass on their techniques and treatments – via public courses on dissection, hospital practice or professional libraries – periodicals were increasingly used in the late 18th century as they enabled surgeons to share information more quickly. The images that surgeons used in print proved extremely powerful, and quickly both transformed old techniques and spread new ones.

Let us take one example: lithotomy, or extraction of bladder stones. A painful condition, bladder stones affected young children as well as elderly men in particular, and could be fatal. Cutting out the stone developed as a cure and was practised by a few itinerant operators for money, or else by court practitioners, such as the Colot family at the court of King Louis XIV. When the French surgeon François Tolet published his *Traité de la Lithotomie* in 1701, he hoped that his work would entice individual surgeons to take up the operation and, accordingly, let poorer patients access it, by reading his careful descriptions. His images (figure 2) portrayed the assisting staff and instruments required, but could not depict the gestures beneath the skin.

However, his work triggered further developments. The following years saw a great deal of experimentation in the techniques underpinning these illustrations and in the illustrations themselves. Different approaches to reaching the bladder and new instruments were tried out. In the 1720s, for instance, William Cheselden, surgeon at Chelsea Hospital, developed a procedure that saw surgeons trying to reach the stone from above

the pubic symphysis. Drawing on dissection of corpses, his illustrations reflected the protusion of the bladder from the dead body (figure 3): his drawing carefully outlined the organ, made visible by being inflated with water. Although the technique was soon abandoned, surgeons adopted his use of close-ups of body parts to be operated on, later called the “operative field”.

Surgeons borrowed. First, they borrowed from one another: images passed the European borders with ease, and were eagerly and carefully copied, although their meaning could be adapted by slight details or distinctive lettering. Second, some surgeons used occupational draughtsmen to complete their work,



and these artists resorted to classical representation of antique male bodies for the drawing of opened corpses in sequences. Others borrowed from mechanical design: familiar with instrument delineation, which they used for patenting their own inventions, surgeons imported sections, adding hatching or dotted lines to anatomical figures. Increasingly, the mechanistic tradition of drawing contributed to change bodily depictions.

This can be seen as illustrations moved from one reference book to another. The first volume of the *Mémoires of the Académie Royale de Chirurgie*, for example, published in 1743, contained a series of etchings capturing the critical moments in a procedure (figure 4). The *Encyclopédie*, when it reproduced the series, fused two stages on one plate, by means of dotted lines, thus introducing time in a fixed image, much in the way of a thought experiment (figure 5). Rather than presenting a corpse classically drawn cut open, surgeons and illustrators innovated in representing forms and actions.

Surgical authors cared for their illustrations in print. When they did not draw themselves, they frequently referred to the fact that they had directed the drawing: from drawing to printing, every stage could impact on the surgeon's reputation. Most of all, a few surgeons, including William Hunter or Charles Bell, endowed images with huge significance. As Charles Bell stated, students, if they did not draw themselves, ought to learn to read and understand images: “for there is much professional knowledge, which [they] cannot easily attain by any other means”.

By the early 19th century, a European consensus had emerged: surgeons had tamed anatomical illustrations into their representations of surgical procedures. Inheriting and interpreting several traditions of illustration, ranging from anatomy to mechanics, they carved in brass, by means of hatching, dotted lines and sections, knowledge that had at one time belonged to a few by touch. Printed images critically contributed to opening human bodies to treatment – and paved the way for modern invasive techniques and the use of anaesthetics. ■



Christelle Rabier is a Wellcome Trust fellow at LSE. A short film on the invention of medical illustration is available at <http://tinyurl.com/5sdugq9>

1 C Bell, *Illustrations of the Great Operations of Surgery* (London, 1820–1), pl XIX “Holding the knife”; **2** F Tolet, *Traité de la Lithotomie* (Paris, 1708), pl V; **3** W Cheselden, *A Treatise on the High Operation for the Stone* (London, 1723), pl IV; **4** *Mémoires de l'Académie Royale de Chirurgie*, volume 1 (Paris, 1743), pl VII; **5** *Encyclopédie, Recueil des Planches* (Paris, 1757) seconde pl XIV. All pictures © Wellcome Library