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Matthew Baillie's Specimens and Engravings

Caitlin Spear¹, Maggie Reilly² and Stuart W. McDonald¹ 

¹Laboratory of Human Anatomy, School of Life Sciences, ²Hunterian Museum, University of Glasgow, GLASGOW, G12 8QQ, United Kingdom.

A Glimpse of Our Past

Correspondence to:

Stuart W. McDonald,
Laboratory of Human Anatomy,
University of Glasgow,
GLASGOW, G12 8QQ,
UNITED KINGDOM.

E-mail: Stuart.McDonald@glasgow.ac.uk

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ABSTRACT

In 1799, Matthew Baillie, William Hunter's nephew, published his famous atlas of pathology. It was entitled *A Series of Engravings Accompanied with Explanations which are Intended to Illustrate the Morbid Anatomy of Some of the Most Important Parts of the Human Body*. The present study aims to match the illustrations to extant specimens in the collections of William and John Hunter, preserved at the University of Glasgow and at the Royal College of Surgeons of England respectively.

Baillie's book contains 10 fasciculi, consisting of 73 plates and 206 figures. The specimens Baillie illustrated came from his own collection and those of ten others, including his uncles, William and John Hunter. The book was illustrated by William Clift and engraved by James Basire, William Skelton and James Heath.

Excluding eight illustrations of intestinal worms where the provenance of the specimens is uncertain, a total of 98 specimens from William Hunter's collection were illustrated in 104 figures. Eight of the specimens were calculi impossible to identify specifically. Excluding worms and calculi, 72 of William Hunter's specimens illustrated by Baillie are extant in the Hunterian Collection at the University of Glasgow. All but one of the 20 specimens illustrated that had belonged to John Hunter were identified in the on-line catalogue of the Royal College of Surgeons of England. Baillie's own collection was destroyed when the Royal College of Surgeons of England was bombed in 1941. Baillie is credited with being the first to produce an illustrated systematic textbook of morbid anatomy and probably the first to illustrate emphysema and transposition of the great vessels. His book, however, was not comprehensive. It did not cover a number of topics such as muscles and bones and there is little coverage of the nervous system. Baillie's book, however, was an original concept as an atlas of morbid anatomy and showed his deep insight into pathology.

KEY WORDS pathology; morbid anatomy; Matthew Baillie; William Hunter; John Hunter; William Clift; medical history; medical museum; 18th Century; London

INTRODUCTION

Matthew Baillie (1761 – 1823), nephew of the celebrated anatomists William and John Hunter, is recognised as a father of the discipline of pathology. In 1793, he published a book entitled *The Morbid Anatomy of Some of the Most Important Parts of the Human Body*. The work consisted of text only but, in 1799, Baillie published a further work, *A Series of Engravings Accompanied with Explanations which are Intended to Illustrate the Morbid Anatomy of Some of the Most Important Parts of the Human Body*. Published in London by W. Bulmer and Co., it provided 206 illustrations of specimens showing examples of the types of pathology described in the 1793 work. Baillie stated that the books were compiled so “a person may possess the one work, without being obliged to purchase the other” (Baillie, 1799).

This study aims to determine how many of the specimens illustrated by Baillie are extant and to explore his sources of material and artistic support.

BIOGRAPHY OF MATTHEW BAILLIE

Matthew Baillie (Fig. 1) was brought up in Scotland and became a famous London lecturer and physician who did much to introduce pathology as a scientific discipline.

Baillie’s father, James Baillie (c. 1723 - 1778) served as the Church of Scotland minister of Shotts, Bothwell and Hamilton. In 1757 he married Dorothea (1721 – 1806), sister of William and John Hunter. Matthew Baillie was born in Lanarkshire, at Shotts Manse, on 27th October 1761. An older brother, William, died but Baillie had two sisters, Agnes and Joanna, the latter becoming a famous writer and poet (Jones,

2004). In 1775, James Baillie was appointed Professor of Divinity at the University of Glasgow (Scott, 1915).

Matthew Baillie's education began in Hamilton (1766-1768), and he attended the Grammar School there (1768-1774) before matriculating at the University of Glasgow in 1774 to study mathematics, philosophy and classics (Royal College of Physicians, 2009), subjects often studied before entering the professions. William Hunter's passion for anatomy and medicine seems to have influenced Baillie greatly, swaying him from a career in divinity or law, to one in medicine (Wardrop, 1825). Baillie was awarded a Snell Exhibition scholarship to study medicine at Balliol College, Oxford, in 1779. In late 1780, he joined his uncle and helped with lectures and dissections. Baillie's degrees were from Oxford: Bachelor of Arts (1783), Bachelor of Medicine (1786), and Doctor of Medicine (1789) (Jones, 2004).

After William Hunter's death in 1783, Baillie inherited the premises at Great Windmill Street, about £5000 and Long Calderwood, the Hunters' family farm at East Kilbride, Lanarkshire, but Baillie gave the farm to John Hunter (Keppie, 2007). Hunter's will bequeathed his large collection and £8000 to build a museum to the University of Glasgow with the condition that the collection be left in London for thirty years for use by Matthew Baillie and William Cruikshank, Hunter's partner in the Great Windmill Street medical school (Keppie, 2007). The Hunterian collection was passed to the University of Glasgow by Baillie in 1802 after Cruikshank's death in 1800 (Jones, 2004) and Baillie's retirement from lecturing. The University received the collection upon erecting a suitable museum, accomplished in 1807. The Hunterian bequest forms the nucleus of the museum collections at the University of Glasgow where its museum is known as "The Hunterian".

In the early part of his career, Baillie delivered lectures on surgery, medicine and anatomy and introduced topics, in the emerging science of physiology, such as sensory response mechanisms and motor co-ordination (Crochunis, 2003). His style of teaching and dissecting were said to be engaging, simple and lucid with clear and precise demonstrations (Royal College of Physicians, 2009). In 1787, Baillie was appointed Physician to St George's Hospital, London, and in 1788 he expanded his medical knowledge by a four-month tour of France, Germany, Switzerland, Belgium and the Netherlands, visiting hospitals and anatomical schools (Jones, 2004). In 1789, Baillie became a Fellow of the Royal College of Physicians and, in 1790, of the Royal Society (Royal Society, 2007). In 1791, he married Sophia, daughter of Thomas Denman, a well-known obstetrician practising in London (Moscucci, 2004).

Baillie edited and re-published his late Uncle William's work along with material of his own as *An Anatomical Description of the Human Gravid Uterus and its Contents* (Baillie, 1794; Jones, 2004). At St George's Hospital, Baillie collated a large collection of observations to create his famous work published in 1793, *The Morbid Anatomy of Some of the Most Important Parts of the Human Body*. Previous works had tended to be series of case reports. Baillie's innovation was to provide a more general description of the gross structural changes, particularly of the thoracic and abdominal viscera, the reproductive organs of both sexes and of the brain (Crainz, 1982). The publication shows Baillie's ability to explain difficult concepts simply while recognising limitations in science at the time (Fox, 1901). In 1797, Baillie's second edition included pathological symptoms and he subsequently published a further three editions up to 1818 (Crainz, 1982). The book stimulated the curiosity of many into the science of pathology and aided clinicians in discriminating between diseases.

Baillie's *A Series of Engravings Accompanied with Explanations which are Intended to Illustrate the Morbid Anatomy of Some of the Most Important Parts of the Human Body* was published in 1799, with drawings by John Hunter's former assistant, William Clift. The specimens in the engravings came from Baillie's own collection and from those of William and John Hunter, William Cruikshank, John Heaviside and other colleagues. These engravings feature pathologies affecting many body systems and regions, including the cardiovascular, gastrointestinal and urogenital systems, and a little coverage of the brain and cranium.

In 1799, Baillie had expanded his private practice to the extent that he gave up teaching anatomy and resigned from St George's Hospital (Fox, 1901). By 1800 his medical practice was the largest in London (Encyclopaedia Britannica, 2016). In 1810, his annual fee income amounted to £10,000 (Jones, 2004). In 1809, Baillie was elected to Fellowship of the Royal College of Physicians of Edinburgh (Royal College of Physicians, 2009). Baillie served as Physician to Princess Amelia, daughter of George III, and to Princess Charlotte of Wales, daughter of the future George IV. In 1810, he was appointed Physician-Extraordinary to George III, frequently visiting him at Windsor during his illness, and was present at his death in 1820. In addition to royalty, Baillie attended Lord Byron, Sir Walter Scott and Edward Gibbon (Jones, 2004).

In 1823, Baillie contracted a wasting disease, possibly tuberculosis, and retired from practice to his house in Cirencester, where he died later in the year aged 62. He is buried in Duntisbourne Church, Gloucestershire, and is commemorated in a monument in Westminster Abbey (Jones, 2004).

BIOGRAPHY OF WILLIAM CLIFT

The specimens that feature in Matthew Baillie's *A Series of Engravings* were all drawn by John Hunter's former assistant, William Clift (1775-1849) (Fig. 2). He was an artist and anatomist, and devoted his life to John Hunter and his trustees, Matthew Baillie and Everard Home. Clift was brought up at Bodmin and was recommended to John Hunter by a well-connected local gentleman, Walter Raleigh Gilbert, and his wife, Nancy, who was at school with John Hunter's wife, Anne Home (1742/3–1821).

John Hunter accepted Clift as an apprentice to make anatomical drawings, serve as an amanuensis and to assist in the care of his anatomical collections (Sloan, 2004; Moore, 2005). After John Hunter's death in 1793, Clift cared for the collection and copied nearly half of John's unpublished manuscripts, thus saving information that would otherwise have been lost when Home destroyed many of the originals in 1823 (Fitzwilliams, 1949). In 1799, the Company of Surgeons, later created the Royal College of Surgeons of England, was asked by Parliament to take charge of John Hunter's collection and appointed Clift as its conservator (Sloan, 2004). Through Clift's meticulous care, the collection was at this time reported to be in better condition than it was in Hunter's lifetime. Clift's scientific standing that came about through his work with John Hunter and his associates, including Baillie, led him to be elected a Fellow of the Royal Society in 1823.

The drawings that Clift produced for Baillie's *A Series of Engravings* were made into engravings by James Basire, William Skelton and James Heath. Basire (1769 – 1822) was engraver to the Royal Society, making the illustrations for the Society's *Philosophical Transactions* (Peltz, 2004). Skelton (1763 – 1848) was a pupil of Basire's father and produced portraits of famous contemporaries including George III, and Princess Charlotte of Wales, as well as Thomas Denman, Baillie's father-in-law

(O'Donoghue, 2004). Heath (1757 – 1834) was a leading engraver whose many patrons included the Royal Academy and George III (Heath, 2004).

Clift drew many of the illustrations for Home's papers on anatomical subjects and also published papers of his own. Clift retired in 1842 and both he and his wife, Caroline Harriet Pope, whom he had married in 1801, died in 1849 and were interred in Highgate Cemetery.

MATERIALS AND METHODS

A list was made of all the figures in Baillie's *A Series of Engravings Accompanied with Explanations which are Intended to Illustrate the Morbid Anatomy of Some of the Most Important Parts of the Human Body* (1799), along with the source of the specimen stated in the legend for each figure. An inventory was next compiled of specimens documented to feature in Matthew Baillie's *A Series of Engravings* in the catalogue of William Hunter's pathological specimens produced by Marshall and Burton (1962). A search was made in the Hunterian Collection at the University of Glasgow for specimens quoted as belonging to Baillie's *A Series of Engravings* by Marshall and Burton (1962). A list was then compiled of those specimens which had belonged to William Hunter and which were illustrated by Baillie but which had still to be located. A second search was then made of the Museum cabinets and store to identify these. The Surgicat on-line catalogue of the Royal College of Surgeons of England (<http://surgicat.rcseng.ac.uk/>) was searched for extant specimens from the collections of John Hunter and Matthew Baillie. *A Catalogue of the Museum of John Heaviside Esq. Comprising Human Anatomy, Natural and Morbid; Comparative Anatomy; and Natural History* (Heaviside, 1818) was searched for reference to Baillie's engravings. Subject headings in Muir's Textbook of Pathology (MacSween

and Whaley, 1992) were mapped against Baillie's book to give a broad picture of how much pathology Baillie covered. Again, using Google, search was made for biographical information on individuals who had made contributions to Baillie's book. A literature review was also carried out using the Medline database for articles on Matthew Baillie and his work.

RESULTS

Matthew Baillie's *A Series of Engravings Accompanied with Explanations which are Intended to Illustrate the Morbid Anatomy of Some of the Most Important Parts of the Human Body* (Baillie, 1799) is organised into 10 fasciculi, groups of illustrations, each covering a regional or systematic topic. Each plate has from one to thirteen figures with an accompanying explanation. The book has 73 plates with 206 figures. Thirteen of the figures, all in Fasc. IV Pl. IX, depict intestinal worms: five of these are copies of illustrations in a treatise by Paulus Christian Fredrich Werner of Leipzig *Vermium intestinalium praesertim taeniae humanae brevis exposition* (1782), the other eight are drawings of small worms or fragments of tapeworms from the collections of Baillie and of William Hunter. The legends to the eight figures, however, do not specify which example belonged to whom and the nature of these drawings is such as to preclude recognition of corresponding specimens. The worm specimens were therefore excluded from the numerical analysis described below. Eight figures in Fasc. V Pl. III show four bladder calculi from William Hunter's collection; for each, the external morphology and a transected surface are shown in separate figures. It is not possible to be certain that these correspond to calculi currently in the collection. Similarly, Fasc. V contains illustrations of two gall stones

and two pancreatic calculi from William Hunter's collection: Pl. VI Fig. 5 and 6 and Pl. VII Fig. 3 and 4 respectively.

Excluding the worms, 72 of the 98 specimens from William's collection that were illustrated in Baillie's book were able to be matched to extant specimens in the Hunterian Museum at Glasgow. William Hunter's specimens contribute almost half of the figures in the book. Excluding the worms, the number of figures that are based on William's specimens is 104 as specimens 18.39 (Fasc. II Pl. V Fig. 1 and 2) and 41.47 (Fasc. VI Pl. VII Fig. 1 and 2) each feature in two figures, and the external and transected surfaces of four bladder stones form separate figures (Fasc. VII Pl. III Fig. 1-8). Specimen 45.42 (Fig. 3) is illustrated as an example of the extant preparations. It is a spectacular specimen showing a large uterine polyp that has extended through the cervical canal into the vagina and reflects William Hunter's gynaecological interest (Fig. 3).

We were unable to locate 26 of the specimens from William Hunter's collection that were illustrated by Baillie. Eight of these were pancreatic and bladder calculi and gallstones. One was specimen 34.1 shown in Fasc. III Pl. I Fig. 1, an oesophagus with a half crown of William III lodged in it, a very regrettable loss (Fig. 4). Others were those shown in:

Fasc. II Pl. I Fig. 2 and 3 (two goitres),
Fasc. IV Pl. V Fig. 1 and 2 (anal fistula and haemorrhoids),
Fasc. V Pl. V Fig. 2 (hydatid cyst),
Fasc. VI Pl. VIII Fig. 1, (cystic kidney),
Fasc. VIII Pl. I Fig. 2 (fused seminal vesicles),
Fasc. VIII Pl. III Fig. 2 and Fasc. VIII Pl. IV Fig. 1 (urethral strictures),
Fasc. VIII Pl. VI Fig. 1 and 3 (hydroceles),
Fasc. VIII Pl. VII Fig. 2 (testicular tumour),
Fasc. IX Pl. IV Fig. 3 (sloughing myoma of uterus),
Fasc. IX Pl. VI Fig. 1 (ovarian cyst),
Fasc. X Pl. III Fig. 2 (skull vault in hydrocephaly),
Fasc. X Pl. V Fig. 1 (meningioma),
Fasc. X Pl. VII Fig. 2 (nodular lesions of brain).

Specimen 45.51 bears a very close resemblance to the specimen illustrated in Fasc. IX Pl. IV Fig. 3 (sloughing myoma of uterus) but some differences in detail and proportions made us doubtful that it was the same specimen. Marshall and Burton (1962) reported Specimen 45.38 to be missing but it is located amongst a small group of pathological specimens, for many years displayed amongst the anatomical specimens on the Anatomy Museum Gallery at Glasgow. It corresponds to Fasc. IX Pl. III Fig. 2 and shows a myoma of the uterus (Fig. 5).

John Hunter's specimens are illustrated in 21 figures. Baillie illustrated 20 of his Uncle John's specimens; Fasc. VII Pl. VI Fig. 1 and 2 are different views of a bladder cyst. All but one are extant at the Royal College of Surgeons of England at Lincoln's Inn Fields. We were unable to trace Fasc. VII Pl. IV Fig. I which shows an inflamed bladder.

Again excluding the worms for which some of the specimens Baillie illustrated were from his own collection and some from William Hunter's, Baillie's other specimens feature in 50 figures. Forty-eight specimens were illustrated; Fasc. I Pl. VI Fig. 1 and 2 and Fasc. IX Pl. VIII Fig. 2 and 3 are different views of the same specimen. None of them has survived. Baillie donated his collection to the Royal College of Physicians which held them for more than a century before transferring them to the Royal College of Surgeons of England in 1938. They were destroyed when an incendiary bomb fell on the College three years later on 11th May 1941 (Parker, 2011; Surgicat, 2015).

Of the other specimens, eight came from the collection of John Heaviside. Heaviside died in 1828 and his large collection was sold and dispersed. Four of these specimens were mentioned in Heaviside's catalogue of his collection (Heaviside, 1818) as

having been illustrated in Baillie's book. Another specimen is also mentioned in the catalogue, a child's trachea that resembles Fasc. II Pl. II Fig. 1. Baillie wrote that it was from Mr Cline's collection and presumably Heaviside would have remembered if Baillie had used his specimen. Heaviside seems to have composed his own catalogue as many of the specimens are accompanied by notes in the first person, often "given me by ...". It is of course possible that Heaviside had acquired the specimen from Cline after Clift had drawn it. Heaviside's specimens are used intermittently through Baillie's book. They illustrate pathology of the heart, intestinal hernia, liver abscess, multinodular liver disease, splenic abscess, bladder with calculi, diseased testis, and calcified dura mater. Note that there is no suggestion of specialisation amongst these specimens. They demonstrate different body systems and pathological processes, but matched with concepts that Baillie wished to convey. The Royal College of Surgeons of England possesses a few specimens from the Heaviside Collection, but none that was used in Baillie's publication.

William Cruikshank served as a partner to William Hunter and to Matthew Baillie in running the Great Windmill Street School of Anatomy. Four of Cruikshank's specimens were illustrated by Baillie. They showed an ulcerated bladder, a tumour of the bladder, calcification of the dura mater, and a tubercle of the fourth ventricle of the brain. Like the Heaviside material, they do not provide evidence of any specialisation by Cruikshank but are more suggestive of his broad range of interest. Following Cruikshank's death in 1800, his collection was purchased by the Russian Government for the Medico-Chirurgical Academy in St Petersburg (Aminoff, 2017). We have been unable to ascertain if the specimens used by Baillie remain in that collection.

Charles Combe contributed two specimens, both showing uterine prolapse. These specimens relate to Combe's interest in midwifery. The fate of these specimens is unknown.

Henry Cline, Alexander Monro and John Pearson each contributed one specimen. The fate of these three specimens is unknown. Alexander Monro (1733 – 1817) was Professor of Anatomy at the University of Edinburgh where some of his specimens remain in the University Collection.

In the text accompanying Fasc. X Pl. VIII Fig. 1, Baillie reported that this was a very fine preparation showing cerebral haemorrhage which had been presented to him by Dr Hooper (Fig. 6). It is presumed to have been destroyed along with Baillie's other specimens when the bomb fell on the Royal College of Surgeons of England in 1941.

DISCUSSION

Contributors of Specimens for Baillie's Illustrations

Baillie's book contains 206 figures. Excluding the illustrations showing intestinal worms, there are 193 figures illustrating 184 specimens. Fifty figures illustrate 48 of Baillie's own specimens. William Hunter's collection was used for 104 figures illustrating 98 of the specimens, 72 of which are extant. Twenty of John Hunter's specimens illustrate 21 figures, with 19 of the specimens extant.

It is well known that William and John Hunter were Baillie's uncles and that William Cruikshank had been William Hunter's assistant at Great Windmill Street. It was natural that Baillie would use their material. The relationships with the other contributors are less obvious.

John Heaviside (Bap. 1748 – 1828) John Heaviside spent four years' surgical apprenticeship with Percival Pott. Heaviside inherited his father's fortune in 1787 and bought a large house at George Street, Hanover Square, and formed an extensive

anatomical museum. When Henry Watson of Rathbone Place, Soho, surgeon to the Westminster Infirmary (Foot, 1794), died in 1793, Heaviside bought his collection of specimens but much of Heaviside's anatomical and pathological material was prepared from autopsies on his own patients. Heaviside's Museum contained many curiosities, even a testis of the Chevalier d'Eon, a noted 18th Century cross-dresser, at whose post mortem examination he had been present. In 1803, Heaviside was briefly incarcerated in Newgate Prison, having served as a medical attendant at a duel and being arrested for assisting a murder. He was released after a week when the case was abandoned. Emma, Lady Hamilton was one of his patients and he was appointed as Surgeon-Extraordinary to George III in 1790 (Kell, 2004).

Charles Combe (1743 – 1817) was a friend of William Hunter and one of the trustees of his will (Keppie, 2007). Combe had been educated at Harrow School and in 1768 had succeeded to his father's apothecary's business. He made the acquaintance of Hunter around 1773. Like Hunter, he collected coins but also authored learned numismatic works. In 1777, he sold his better examples to Hunter. He ceased collecting himself, instead assisting in cataloguing and developing William Hunter's coin collection. In common with William Hunter, Combe was a specialist in midwifery, and in 1784 was awarded an MD from the University of Glasgow (Cheesman, 2004).

Robert Hooper (1773 – 1835) The specimen of intracerebral haemorrhage shown in Fasc. X Pl. VIII Fig. 1 (Fig. 6), was given to Baillie by Dr Hooper. Robert Hooper made an extensive collection of specimens during his time as apothecary to the infirmary of the Marylebone Workhouse. Later, he lived at Savile Row and for many years was a popular lecturer on the practice of medicine. He was also a prolific writer on medical subjects (Bettany, 2004).

Henry Cline (1750 – 1827) was born and educated in London. He served a surgical apprenticeship with Thomas Smith at St Thomas's Hospital and frequently lectured for Joseph Else, its lecturer in anatomy. In 1774, Cline attended a course of John Hunter's lectures and thus became a strong supporter of Hunter. When Else died in 1781, Cline purchased his specimens and was appointed to lecture on anatomy. In 1784, he succeeded Thomas Smith as surgeon to St Thomas's. In 1823, Cline served as President of the College of Surgeons (Bevan, 2004a).

John Pearson (1758 – 1826) was brought up in York and served surgical apprenticeships at Morpeth and Leeds. In 1780, he moved to St George's Hospital, London, and worked with John Hunter. In the 1780s, he was appointed to surgical posts at the Lock Hospital, Grosvenor Place, and at the Public Dispensary, Carey Street (Bevan, 2004b).

Specimens with Illustrations Unrecorded in the Catalogue

We identified three specimens at Glasgow University that match figures in Baillie's book but which were not recorded as doing so by Marshall and Burton's (1962) catalogue.

Fasc. V Pl. VI Fig. 1 shows an enlarged gall bladder due to a stone. Specimen 38.5 "Large Solitary Gall Stone" is the specimen illustrated and as the figure legend states, it is "the size of a pullet's (hen's) egg" (Fig. 7).

Specimen 45.34 showing a subserous myoma of the uterus is illustrated in Fasc. IX Pl. III Fig 1. Despite the myoma being bisected since illustration, its location on the posterior surface of the uterus and other morphological features correspond between the specimen and the illustration.

Fasc. X Pl. III Fig. 1 illustrates the skull of a child with hydrocephalus and a large anterior fontanelle. Specimen 50.107 (Fig. 8) is almost certainly this specimen with a similar shaped fontanelle to its illustration despite the illustrated left second lower molar not being on the specimen and the lower teeth and mandible being under-represented in the book. The deciduous second molars were not yet erupted, suggesting the child was less than 2 years old.

Corrections to the Catalogue

On comparing specimens to illustrations in Baillie's book, four errors were found in Marshall and Burton's catalogue (Marshall and Burton, 1962). Specimen 16.4 is represented in Fasc. VI Pl. I Fig. 2, not Fig. 1. Specimen 34.17, a gastric tumour near the pylorus, was found to correspond to Fasc. III Pl. VI Fig. 1 and not Fasc. III Pl. IV Fig. 1. Specimen 43.60 was reported to correspond to Fasc. VIII Pl. VIII Fig. 1, a "scirrhus testicle." Comparing the specimen pathology to the illustration revealed that it is Specimen 43.61 that is illustrated in Baillie's book. Specimen 45.113 is a parovarium cyst with an intact uterine tube, ovary and uterus with a distinctive lesion in the anterior part. The specimen relates to Fasc. IX Pl. VIII Fig. 1, not Plate VII as stated in the catalogue. As noted above, Specimen 45.38 reported as missing by Marshall and Burton (1962) has been found. Marshall and Burton did not report the figure to which it corresponds which is Fasc. IX Pl. III Fig. 2.

The Value of Baillie's Book

Although Baillie's publication of 1799 covers many body systems, it was not comprehensive even in its own day. In particular, Baillie's *A Series of Engravings* has very little on bones and the musculoskeletal system. The only osteological observations are on the cranium and there is no mention of long bones. This is also

true of his lectures (Baillie, 1825). Diseases of bone, such as infection, arthritis and neoplasia, are covered extensively in William Hunter's collection. Although Baillie had excellent opportunities to study the skeletal system, he seems not to have wished to do so. The lymphoreticular organs other than the spleen are not mentioned. Despite scrofula (tuberculosis of lymph nodes of the neck) being well-known and there being specimens in the Hunterian Collections, there is nothing in Baillie's book about lymph node involvement by infection or malignancy. Conditions of the skin, muscles, spinal cord and peripheral nerves are not mentioned at all. Baillie, however, discussed nerves in his lectures (Baillie, 1825) and spoke of their function in transmitting sensation and of interruption of signalling by tumours or axotomy. Notes of Baillie's lectures (Baillie, 1825), however, acknowledge that, without an understanding of microscopical structure of nerves, the anatomical basis of many neurological disorders could not be properly appreciated.

Comparison of Baillie's *A Series of Engravings* with a contemporary book, *Muir's Textbook of Pathology* (MacSween and Whaley, 1992), shows Baillie had reasonable coverage of the pathology of most anatomical systems. Baillie's book, however, lacks coverage of diseases and pathologies that require microscopical examination, blood tests and other modern technologies for diagnosis. For example, he provides one example for the pancreas (a tumour) neglecting pathologies such as pancreatitis and diabetes mellitus. For most of the conditions described by Baillie there is much greater understanding today. For example, Fasc. VI Pl. VII Fig. 1 and 2 (Specimen 41.47), hydatid takeover of the kidney, is probably polycystic kidney disease and Fasc. II Pl. I Fig. 1 –3 show goitres but no insight into their clinical significance. Progress in understanding many of these conditions advanced through the 19th Century with the development of improved microscopes, the discovery of the

endocrine system, deeper insights into physiological and biochemical function of the tissues and organs, and expansion of the discipline of microbiology following the discovery of bacteria. Interestingly, Baillie covered pathologies now seen only rarely in Britain, such as tuberculosis, diphtheria, dysentery and tertiary syphilis.

Despite many illustrated anatomical textbooks, prior to Matthew Baillie's *A Series of Engravings* (1799) there were no illustrated textbooks of systematic pathology. Baillie provided clinicians with intimate views of the pathology of internal organs and appraisal of their relation to symptoms. Baillie has been cited several times in the last 40 years with authors praising his succinct descriptions of pathological appearances and his recognition of associations between disease states. A recent article (Goldberg, 2011), noted that Matthew Baillie was the first to describe transposition of the great arteries in Fasc. I Pl. VI Fig. 2, "a dark coloured blood must have been circulating between the right ventricle and general mass of the body" (Fig. 9). Baillie is credited with the first illustration of pulmonary emphysema (DeRose and Steinglass, 2002), "lungs do not collapse but that they fill up the cavity completely." The specimen of emphysematous lung, illustrated in Fasc. II Pl. VI Fig. 1 and from Baillie's own collection (Fig. 10), has been said to have been taken from the lung of the great lexicographer, Dr Samuel Johnson (1709 – 1784). This has been disputed very capably by Attwood (1985). There is also no evidence that Baillie was at the post mortem, although it was carried out by James Wilson, William Cruikshank's assistant at Great Windmill Street, in the presence of Cruikshank and other colleagues (McDonald, 2015).

Science has moved on since Baillie's book was published in 1799 but many still give credit to Baillie's book and its originality in illustrating pathology. Baillie's book has

been criticised on the basis that, like many others in his time, he did not illustrate any microscopical appearances, not appreciating the value of the light microscope (Hajdu, 2002). Microscopy, of course, only really progressed with the improvement of microscope lenses and histological techniques of the 19th century (Coleman, 1971), the realisation of the concept of the cell, and the consequent increasing appreciation of what was being visualised. Despite its deficiencies, Baillie's book of illustrations was a breakthrough for pathology. Being the first of its kind, it was a huge leap forward, allowing physicians to envisage pathology of internal organs and to appreciate that morbid anatomy was not the cause, but the result of the disease. As William Hunter once wrote, an illustration *which is a close representation of nature ... as it represents what was actually seen, it carries the mark of truth, and becomes almost as infallible as the object itself* (Hunter, 1774).

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LEGENDS

Fig. 1. Matthew Baillie (1761 -1823) by Sir Martin Archer Shee, c. 1825-26. By kind permission of the Hunterian, University of Glasgow. © The Hunterian, University of Glasgow 2017

Fig. 2. William Clift (1775-1849). Lithograph by W. Bosley, 1849. Courtesy of the Hunterian Museum at the Royal College of Surgeons of England.

Fig. 3. Specimen 45.42 and Fasc. IX Pl. IV Fig. 1, a large uterine polyp extruding from the cervical canal into the vagina. Marshall and Burton's catalogue (1962) describes its size, "as large as a child's head at birth".

Fig. 4. Fasc. III Pl. I Fig. 1. A William III half crown lodged in an oesophagus.

Fig. 5. Specimen 45.38 corresponding to Fasc. IX Pl. III Fig. 2 showing a myoma of the uterus, previously believed lost.

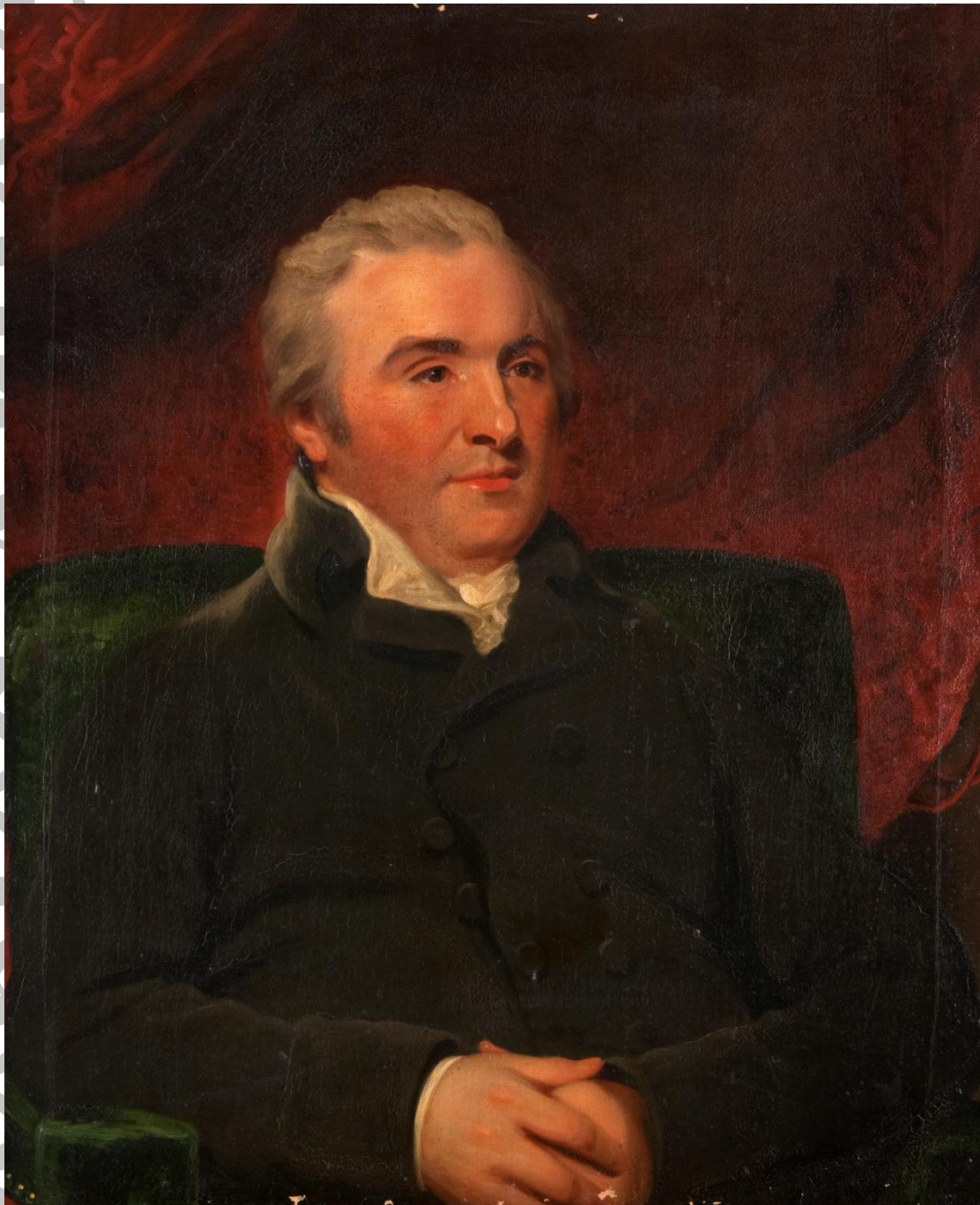
Fig. 6. Fasc. X Pl. VIII Fig. 1. A specimen showing cerebral haemorrhage which Baillie regarded as a fine specimen given to him by Robert Hooper.

Fig. 7. Specimen 38.5 "Large Solitary Gall Stone" is the specimen illustrated in Fasc. V Pl. VI, Fig. 1. It shows an enlarged gall bladder due to a stone "the size of a pullet's egg".

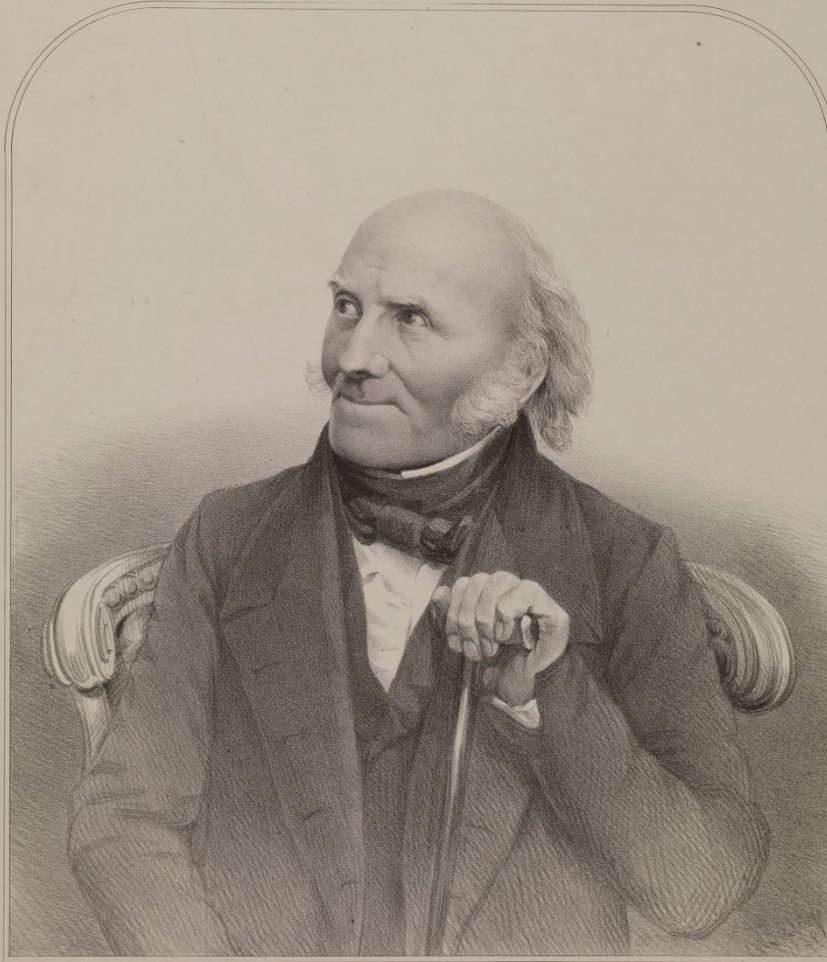
Fig. 8. Fasc. X Pl. III Fig. 1 illustrates the skull of a child with hydrocephalus. It appears to match Specimen 50.107.

Fig. 9. Fasc. I Pl. VI Fig. II. The heart of a child of two months showing transposition of the aorta and pulmonary trunk.

Fig. 10. Fasc. II Pl. VI Fig. 1 shows a piece of lung showing enlarged air cells, emphysema, reputed to have come from the post mortem examination of Dr Samuel Johnston.



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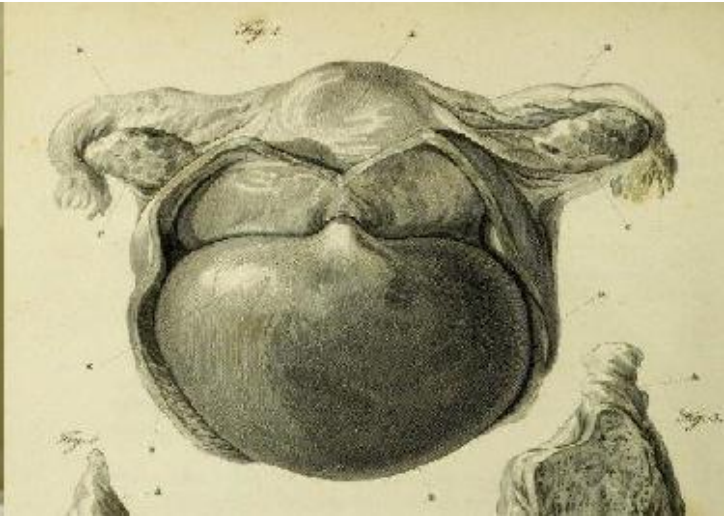


Claudet, Daguer.

On Stone by Bosley.

Wm. Cleft.

Accepted Article



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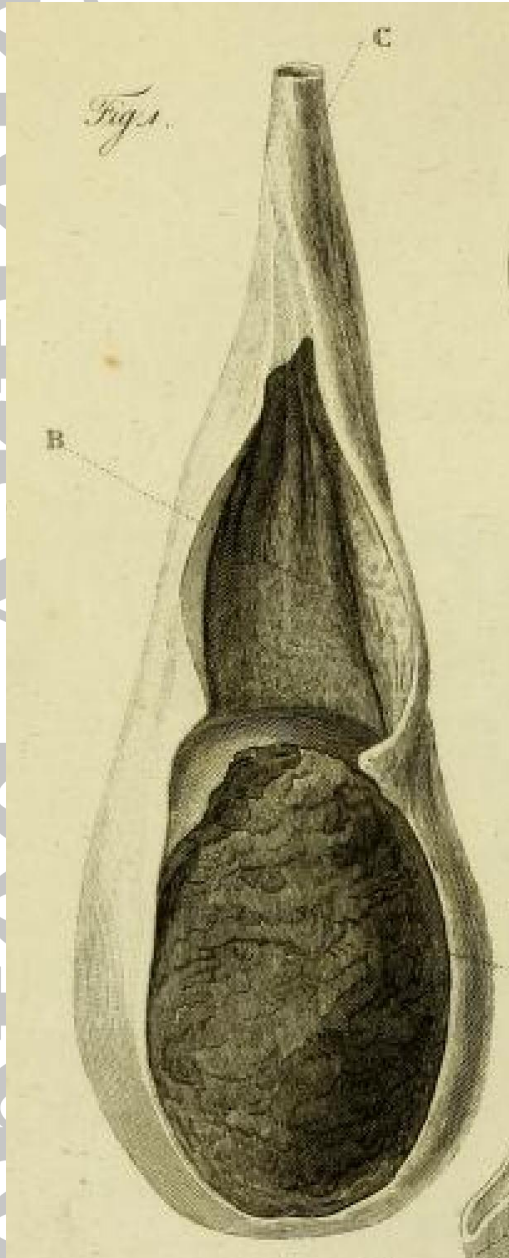




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