

# Eponymous doctors associated with Edinburgh, part 3 – Abraham Colles, Sir William Ferguson, John S Haldane, Argyll Robertson, Thomas Young

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**ABSTRACT** In the first papers in this series,<sup>1,2</sup> it was shown that eponyms were often bestowed on physicians and surgeons who were already famous, had made many discoveries never honoured with eponyms, and were often the leading doctors of their day. Only occasionally was the eponym suggested by a friend or colleague; more usually it was a doctor abroad who wanted to show respect to a great man but the choice of the particular syndrome or discovery was a random one. Eponyms may have had their uses. They were usually much shorter than a detailed description of a medical syndrome or anatomical feature and may sometimes have been used as euphemisms in much the same way as, until recently, bedside teachers protected the patients by speaking of ‘mitotic lesions’ or ‘neoplasms’, ‘Hansen’s Disease’ or ‘acid-fast bacilli’. The conferring and use of eponyms appears to be lessening but, as shown in this final paper, they are still used and possibly useful, and can tell us things of interest about the recipient and the proposer.

**KEYWORDS** Abraham Colles, Sir William Ferguson, John S Haldane, Argyll Robertson, Thomas Young

**LIST OF ABBREVIATIONS** General paralysis of the insane (GPI)

**DECLARATION OF INTERESTS** No conflict of interests declared.

## ARGYLL ROBERTSON, DOUGLAS MORAY COOPER LAMB (1837–1909)

### *Argyll Robertson Pupil/Syndrome*

Though not the first ophthalmic surgeon in Edinburgh, he was the first surgeon to work exclusively on the eye. His father, John Argyll Robertson, worked for many years as a general surgeon with a special interest in ophthalmology eventually spending all his time in ophthalmology. The first ophthalmic surgeon in Edinburgh had been William Walker, appointed in July 1855. Another who had done so, though in Berlin rather than Britain, was Albrecht von Graefe (1828–70) with whom Robertson worked after qualifying at St Andrews in 1857. Only five years later he was appointed lecturer in ophthalmology in Edinburgh, in the same year becoming a Fellow of the Royal College of Surgeons of Edinburgh, and many years later its President.<sup>3</sup>

He first came to prominence in 1863 with a paper in the *Edinburgh Medical Journal* about the Calabar bean.<sup>5</sup> The bean (*Physostigma venenosum*) was used in the South East region of Nigeria for judicial execution or, to be more correct, trial by poisoning. The accused was given an extract of the bean to swallow. If he vomited it back, he was considered innocent, but if he failed to vomit it up, he

was regarded as guilty and as having paid the price for his guilt. Sir Robert Christison<sup>4</sup> (1797–1882), a distinguished Fellow of the RCPEdin did not suggest any ophthalmic use for the drug as Robertson was to do but felt it might be used for humane executions. Argyll Robertson instilled an extract into his own eye, followed a few days later by instillation into both eyes and made the deduction that physostigmine contracts the pupil, and has the opposite action to atropine, rightly predicting it would become ‘an agent that will soon rank as one of the most valuable in the ophthalmic pharmacopoeia’.<sup>5</sup> Soon his former teacher von Graefe was utilising its miotic effect to facilitate iridectomy.<sup>5,6</sup>

In 1894, Calabar again featured in his life. A patient who had lived there for eight years (an unusually long time when it is recalled that so high was the mortality and morbidity there that it was known as ‘the white man’s grave’) said she had an irritation beneath her eye lid, worse in warm surroundings. On examining her Robertson observed a worm ‘moving in a tortuous wriggling manner under the conjunctiva, the surface of which became slightly elevated as it moved along’. After anaesthetising the skin he incised it and removed a filarial loa which presumably she had picked up in

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**FIGURE 1** Argyll Robertson. Courtesy of the Library, Royal College of Physicians of Edinburgh.

contaminated water. It is now known that flies are the vectors and that adult worms migrate through subcutaneous tissues causing 'Calabar swellings'. When they burrow beneath the conjunctiva they are popularly called 'eye worm'.<sup>7</sup>

The name Calabar is perhaps not as well known today as it was in the days of Argyll Robertson, though the Clydesdale Bank has £10 bank notes with a map of Calabar and an image of Mary Slessor on the back. In the second half of the nineteenth century the Church of Scotland began missionary work there but in addition to the appalling health hazards, the local people were constantly feuding, killing, and anarchic, in no mood to accept Christian teaching. Few missionaries stayed long, many dying within a short time of going there but one woman survived to become much respected by the people of the river and up country where few, if any, white people had ever ventured before. She was Mary Slessor (1876–1915) a scarcely educated mill girl from a poor home in Dundee – seemingly an unlikely person to survive and thrive under such conditions. Going there when she was just 28, her accounts of Calabar were avidly read by church members the length and breadth of Scotland, and Robertson will have been amongst them.

Robertson's eponym was awarded for his observations on the pupils of patients with tertiary syphilis – neurosyphilis and tabes dorsalis. He described the

small pupil, responding poorly, if at all, to light but reacting to accommodation as normal. Complete dilatation of the pupils was possible only with atropine.<sup>6</sup> The association of tabes dorsalis and 'paralysie générale' as the French called it, or GPI, had been known since the end of the eighteenth century but the combination of pupils unreactive to light, but still reacting to accommodation, was new.

Some have claimed that Robertson's observations on the pupil in neuro-syphilis were in fact described years before by the French ophthalmologist Armand Trousseau (1856–1910) the grandson of Trousseau, the famous and very generous Frenchman who suggested the eponyms of Addison's Disease, Grave's Disease and Hodgkins Disease.<sup>1</sup>

When Robertson's papers appeared, debate still raged about the association of tabes and GPI with syphilis. Two people who had no doubt about the aetiology and association were Jean Alfred Fournier (1832–1915) and Sir Jonathon Hutchison (1828–1913). Only in the early years of the twentieth century was the association with *Treponema pallidum* proved by Schaudinn and Hoffman in 1905 and the eponymous serology test published in 1906 by August van Wasserman (1866–1925). It is perhaps worthy of note that Fournier had three eponyms (the one best known Fournier's Gangrene of the scrotum) and Hutchison, thirteen (probably a record, the best known probably being Hutchison's Pupil), and that Robertson made much use of the ophthalmoscope invented by Hermann von Helmholtz (1821–1894) who shared the next eponym discussed in this paper.

Robertson was possibly helped in his delicate eye operations by being ambidextrous and myopic in one eye. It is said that he freed up both hands by holding his scalpel between his lips when it was not in use. An operation which he pioneered was trephining of the sclera for glaucoma

A tall, handsome man with natural charm Robertson published many papers and received many honours for his contribution to ophthalmic surgery and for his research. He was honorary eye physician to Queen Victoria and King Edward VII, and Chairman of the Ophthalmic Society of England. Sportsmen honoured him as a skilled curler and golfer, one of the few men ever to win the medal of the Royal and Ancient at St Andrews no fewer than five times.

He died in 1908 on holiday in Bombay and was cremated on a funeral pyre on the banks of the River Gandli, India, the fire lit by his maharaja friend in Western-style mourning, the service conducted by an English missionary, his many obituaries attesting to his fame and popularity.<sup>8</sup>

## YOUNG, THOMAS (1778–1829)

### *Young–Helmholtz Theory of Colour Vision*

#### *Young's Modulus*

A man who deserved his eponyms and could rightly be called both a polyglot and a polymath (able to read at age two and had read the Bible twice before he was four) Young is remembered as a brilliant linguist, physician, physiologist, natural philosopher and, as if that was not enough, as an Egyptologist and world authority on hieroglyphics.

Born in Milverton, Somerset, he was soon regarded as a child prodigy for his linguistic skills and remarkable memory. He studied medicine at Barts, London, then at Edinburgh (1792–1794), physics at Göttingen (1795–97), then was a fellow commoner at Emmanuel College Cambridge (1787–1789). Even as a medical student he had found how the lens of the eye changes shape to focus on objects at different distances from the eye.

Whilst practising as a physician in London he researched vision, identifying the cause of astigmatism (1801) and formulating a three-colour theory of perception. He was appointed Professor of Natural Philosophy of the Royal Institution (1801–1803) and elected to the Royal Society when only 21, for a paper on the action of the ciliary muscles in accommodation. He also served as its Foreign Secretary from 1802–1829.<sup>9</sup>

There were two current theories on the nature of light – Newton's corpuscular or particle theory, and the undulatory or wave theory of the Dutch physicist Christiaan Huygens. Having demonstrated the interference of light, and that Huygens' theory was the correct one, Young related colour to wave lengths and calculated the approximate wavelengths of the seven colours recognised by Newton. In 1817, he showed that light waves were transverse (vibrating at right angles to the direction of travel) and not longitudinal as had been thought. In those days it took courage to disagree with Newton's theories.<sup>10,11</sup>

Studying colour perception in the eye, Young found that there is no separate mechanism for each colour but only for blue, green and red. It was in recognition of Young's pioneering work, and subsequent work by the German physicist Hermann von Helmholtz, that their shared eponym was created, though who first did so is not known.<sup>12</sup>

His involvement in Egyptology started in 1814, the year when he 'retired', and when work started on trying to decipher the Rosetta Stone hieroglyphics. He obtained copies of other hieroglyphics and within a few years had all but solved the mysteries of the Rosetta Stone and the ancient language. Some of his communications with his rival Champollion are available for students.<sup>12</sup> In 1819, he



**FIGURE 2** Engraving of Thomas Young, by Henry Adlard from a portrait by Thomas Lawrence (Wh.3560). Reproduced by kind permission of the Whipple Museum of the History of Science, University of Cambridge.

founded an Egyptian Society to publish hieroglyphic inscriptions.<sup>9,12</sup>

Finally Young studied the size of molecules and surface tension in liquids, was the first to use the word 'energy' and devised an equation for describing elasticity, hence his second eponym.<sup>13,14</sup> He died in 1829.

## COLLES, ABRAHAM (1773–1843)

### *Colles Fracture*

### *Colles Fascia*

### *Colles Law*

### *Colles Ligament*

Colles Fracture<sup>15</sup> will be familiar to most readers. It first appeared as an eponymous form in surgical textbooks in the early twentieth century<sup>16</sup> but the law, ligament and fascia associated with his name may not be so well-known.

Colles Law stated (though it has long since been proved wrong) that a child born to a mother who has no signs of venereal symptoms, and presents with this disease at the age of a few weeks, will infect the healthiest nursemaid, but not its mother.<sup>17</sup> Enunciated before much was known of the disease, and before the days of Wasserman, Colles was not to know that the mother had the disease when she gave birth.

Colles Ligament is the triangular fibrous band extending from the eponeurosis of the external oblique muscle of

the abdomen to the pubic tubercle of the opposite side. Colles Fascia is the inner layer of superficial fascia of the abdominal wall sometimes known as Scarpa's Fascia.<sup>18, 19</sup> (Scarpa, 1752–1832, was professor of anatomy and surgery in the University of Modena, Italy. He collected no fewer than ten eponyms but, so it is said, more enemies than he ever had friends.)

Colles was born in Kilkenny, Ireland, one of a family of five, and his father ran a family-owned stone quarry but died when Abraham was only six. The story goes that when he was at grammar school a flood washed away the house and contents belonging to a Dr Butler, with only a textbook of anatomy being found. When Abraham took it back to him the doctor told him to keep it and from then on his ambition was to become a doctor.

In 1790, he enrolled for an Arts course at Trinity College, Dublin, and an apprenticeship with a surgeon Paul Woodruffe. In 1795, he graduated BA, received his diploma from the Royal College of Surgeons in Ireland and went to Edinburgh to complete his medical studies, eventually graduating MD (Edin) in June 1797 with a thesis on venesection.<sup>20</sup>

## FERGUSON, SIR WILLIAM (1808–1877)

### *Ferguson's Lion-Jaw Bone-holding Forceps*

Lochmaben in Dumfriesshire, Scotland, is rightly famous for the doctors it has produced.<sup>21, 22</sup> They include John Rogerson, James Mounsey (though there is some doubt whether or not he ever qualified), Matthew Halliday, Christopher Clayson and the one we shall now meet, Sir William Ferguson. Several books say he was a son of the Laird of Lochmaben but, in fact, his father was an excise-man who had a modest plot of land.<sup>23</sup>

Born in Prestonpans, he went to school first in Lochmaben, then at Edinburgh's Royal High School before studying medicine at Edinburgh University. He then became a surgeon apprentice to Dr Knox of Burke and Hare fame, responsible for procuring the bodies for dissection, demonstrating and teaching anatomy. When the murderous activities of Burke and Hare became known, not only was Burke hanged in 1828 and Hare fled to London, but the shocked public vented their anger on Knox though he was never charged. How Ferguson, who had after all negotiated and paid for the purchase of a supply of bodies, managed to escape public attention remains a mystery. Two of his meticulous dissections are today exhibited in the Royal College of Surgeons in Edinburgh. In 1836, at the age of 28, he was appointed surgeon to the Royal Infirmary. Several reports attest to his skill and speed as a surgeon, particularly after he began to focus almost exclusively on maxillo-facial surgery. It is said that he demanded absolute silence as he operated and even when general anaesthesia became available still

operated without it because his field was the mouth and nose. He did not get on well with Syme, much his senior, and when the opportunity arose left Edinburgh to work in King's College Hospital, London where eventually he became Professor of Surgery.

In 1859, he was President of the Pathological Society, in 1866 he was knighted, and in 1873 elected President of the British Medical Association. In that same year, having been consulted some years before by David Livingstone, the explorer and missionary doctor, about his poorly united fracture of humerus sustained when attacked by a lion, he was called upon to identify his body when, after an 11-month journey from Chitambo in today's Zambia (where his heart is buried), it reached London, to be buried in Westminster Abbey.<sup>23</sup>

His eponym describes massive forceps, appropriately termed 'lion-jaw bone-holding forceps' designed by Ferguson for use when operating on the mandible or maxilla, not to be confused with Haig–Ferguson forceps used in obstetrics. It has proved impossible to trace when he first used them or patented them.

## HALDANE, JOHN SCOTT (1860–1936)

### *Haldane Apparatus (1892)*

Haldane was born into a famous Edinburgh family, his brother being Richard Burdon Haldane, Viscount Haldane of Cloan (1856–1928), and his sister author Elizabeth Haldane (1862–1937). He was the father of biologist JBS Haldane (1892–1964) and the author Naomi Mitchison (1897–1999).

Haldane studied medicine at the University of Edinburgh, graduating in 1884, then spent some time at the University of St Andrews and in Berlin as a demonstrator in physiology before moving in 1887 to Oxford, where his uncle, JS Burdon-Sanderson was Professor of Physiology, electing to focus his research on respiration. (Burdon-Sanderson is said to have observed the anti-microbial effects of penicillium 58 years before Fleming but diligent research has failed to find evidence for this claim.)

Haldane established that it was the concentration of carbon dioxide in the blood, not that of oxygen, which regulated the breathing rate, and he demonstrated the effects of altitude and water pressures on respiration.<sup>24</sup> Using his technique and equipment for decompression of deep-sea divers, permitting their safe return to the surface avoiding 'the bends', a valuable cargo of gold was recovered from the wreck of the Lusitania between 1917 and 1924.<sup>26</sup>

He became an authority on the effects of pulmonary diseases on industrial workers and demonstrated the toxic effects of carbon monoxide and the use of rescue

equipment, his expertise leading to his appointment as Director of the Mining Research Laboratory in Doncaster in 1912. During the 1914–1918 war he invented a gas-mask. He founded the *Journal of Hygiene*, in which the first set of diving decompression tables were published in 1908.<sup>26</sup>

His eponym, though seldom used today, describes the equipment for blood gas estimations. Occasionally it was used for the decompression chamber he designed and used. No record can be found of who first coined the eponym or when, but so pioneering was Haldane's work on blood gases it can easily be understood how his name became eponymous.

Like so many eponymous doctors, his eponym honoured one important aspect of his work, but not the many others for which he was justly famous. He was Gifford Lecturer in the University of Glasgow, Fellow of New College, Oxford, and Honorary Professor of the University of Birmingham, holding the degrees of Master of Arts from Edinburgh and Oxford, Doctor of Law (*honoris causa*) from the universities of Edinburgh and Birmingham, and Doctor of Medicine (*honoris causa*) from the University of Edinburgh. He was President of the Institution of Mining Engineers, a Companion of Honour, a Fellow of the Royal Society, and a Fellow of the Royal College of Physicians of London and Founding Editor of the *Journal of Hygiene*. In his Hepsa Ely Silliman lectures, later published by Yale University Press, he declares his personal faith and his belief that one can find God through Science,<sup>24</sup> something that would have pleased his uncles, both famous evangelists of the nineteenth century. He repeats this theme in his Gifford Lectures of 1927<sup>27</sup> and his final book *The Philosophy of a Biologist*, published in 1936.<sup>28</sup> In 1936, he went to Persia (today's Iran) to investigate heat stroke in oil workers, but died shortly after his return to Oxford.

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## DISCUSSION

Eponyms usually tell us little about the condition they commemorate, but it can be claimed that they added colour to the medical profession before that role was taken over by today's media and cinema. They may have confused the occasional student expected to remember them, but they remind us that the honoured recipients were all distinguished men who, even if they had never become associated with an eponym, would still have been famous and worthy of our attention and respect. None of the eponyms discussed in these three papers appear to have affected the character or personality of the recipients or advanced their careers. So far as can be found, none were sought by the recipients or used for self-aggrandisement. Perhaps in conclusion, it might be suggested that not only did eponyms add colour to our profession, but those who received them were, with few exceptions, themselves colourful characters – fascinating to watch at work, charismatic in their teaching and with characteristics that set them apart from most people around them. This has been demonstrated with Bruce the quintessential senior army officer, Hodgkin dedicating his life to the less fortunate, Addison – brilliant but tragically suicidally depressed (or had he always been bipolar?)

Most of the great men into whose lives we have peered in these papers would today be described as 'characters', or 'larger than life'. Perhaps some such as Corrigan were flamboyant, others modest in bearing but dauntingly brilliant. Almost all were linguists. Does the medical profession of the twenty-first century have such characters in its members or are we less interesting until we face the cameras or the press? Will any of today's students remember us and our mannerisms and inspired teaching and wish that the practice of conferring eponyms had not died out?

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