

# The history of ophthalmology: John Argyll Robertson and Douglas Moray Cooper Lamb Argyll Robertson

BY STEVEN KERR

The author shares the story of an extraordinary father and son, two of the major figures in defining the specialty of ophthalmology as we know it today.

The renowned Glasgow Surgeon Peter Lowe described ophthalmic surgery in his legendary surgical textbook *A discourse of the whole art of chirurgery* as far back as 1599 (albeit around 2000 years after Indian Surgeon Sushruta described a form of cataract dislocation in a Sanskrit manuscript). However, it wasn't until the late-18th and early-19th centuries that ophthalmology made significant moves towards specialisation in Scotland. This article looks at the contributions of two major figures in this field, namely John Argyll Robertson, Surgeon in Edinburgh and highly-regarded extra-mural lecturer, and his son Douglas Argyll Robertson – like his father a Fellow of The Royal College of Surgeons of Edinburgh – and one of the first surgeons to dedicate his craft solely to surgery of the eye.

On 15 October 1862, three men were elected to Fellowship of The Royal College of Surgeons of Edinburgh: James Lumsden King of Prestonpans, Robert Beedie Robertson of Ardrossan, and Douglas Moray Cooper Lamb Argyll Robertson of Edinburgh. Although the College had been in existence for over 350 years by this time, this brought the number of surgeons admitted to Fellowship since its 1505 origins to only 559. By way of context, the number now stands at almost 50,000.

It should be noted that it wasn't necessary for these three men to pass an examination to gain Fellowship. A dozen years earlier, the somewhat controversial decision had been taken by the College to discontinue separate examination for Fellowship candidates, requiring them only to have the degree-level College Licentiate ship (LRCSEd) and then allowing eligible candidates to petition for election by vote of Fellows (FRCSed by examination wasn't reinstated until 1885) [1]. Nevertheless, Douglas could be forgiven for feeling pride and no little relief at being elected a Fellow of the world's

oldest surgical college. He was, after all, following in the family footsteps of two uncles – Robert and William – who had done so in 1802 and 1803 respectively – but more importantly those of his father, John, who had obtained Fellowship some 40 years earlier in February 1822.

## John Argyll Robertson

John Argyll Robertson was born in Edinburgh in August 1800. Like his two elder brothers he studied medicine in the capital, writing his thesis for his doctorate 'On Ophthalmia' [2], a work he dedicated to John Henry Wishart, Surgeon at the Royal Infirmary of Edinburgh. Wishart was – as John Argyll Robertson became – a general surgeon with a particular interest in the treatment of the eye. He himself had studied in Vienna under Georg Joseph Beer (the eminent teacher of ophthalmic theory and surgery, and founder of the first ophthalmological school) before taking RCSEd Fellowship in 1805.

There can be no doubt that Wishart would recognise much of himself in John

Argyll Robertson, and 1822 was to prove a pivotal year in their working relationship. That year John became surgical apprentice to Wishart and, more significantly, together they founded the Edinburgh Eye Dispensary in the city's Lawnmarket. The first specialist ophthalmic hospital in Scotland, the Dispensary served as a place to treat the sick poor (a similar eye hospital would later be opened in Dalkeith to treat miners) as well as training future generations of ophthalmic surgeons. Also in 1822, John Argyll Robertson became a Fellow of The Royal College of Surgeons of Edinburgh, of which John Henry Wishart was President.

The College Laws of 1816 state that "fourteen days previous to his first examination [of four], the Candidate shall deliver to the President an Essay in manuscript, of his own composition, on some subject of Surgery or Surgical Anatomy" [3]. If the President and three senior 'Examinators' approved of this essay, multiple copies would be printed and delivered (at the Candidate's expense, of course) to "every residing Fellow of the College" before the examinations could be completed. John Argyll Robertson's probationary essay was 'On the anatomy and physiology of the eye' – it is perhaps worth noting that 17 years earlier the Probationary Essay submitted by John Henry Wishart for Fellowship had been 'On Ophthalmia'.

John Argyll Robertson's interest in treatment of the eye was evident in much of his writing throughout his career, which included titles such as 'Observations on extraction and displacement of the cataract' (1836) – which was regarded at the time as the most comprehensive statistical report produced on outcomes of cataract surgery – and 'Excision of the eyeball in cases of melanosis, medullary carcinoma, and carcinoma' (1844). However, his work in general surgery in the Royal Infirmary



Figure 1: Lithograph of John Argyll Robertson (from The Royal College of Surgeons of Edinburgh President's Book).

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is also apparent – he wrote, for instance, on rupture of the carotid artery and an extensive treatise on cholera.

John also dedicated himself to the service of The Royal College of Surgeons of Edinburgh. He served as Curator of the Museum through the 1840s, only leaving that role when elected College President in 1848. Sadly, ill-health meant his Presidency was to be a short one, and he was succeeded after less than a year by the legendary James Syme.

Having been a widower for four years, John Argyll Robertson died on 7 January 1855. That month an obituary for him was published in the Association Medical Journal, forerunner to the BMJ. In its entirety it reads:

“ROBERTSON, John Argyll. M.D., F.R.C.S.Edin., at St Andrews, North Britain, recently. Dr Robertson’s health broke down some years ago, and obliged him to retire from active life. Up to that time he was well known as a good lecturer, a well employed practitioner, and though last not least as a great adept in Edinburgh professional polemics.” [4]

It is a shame that the tribute makes no mention of John’s three sons, all of whom practised medicine, and one of whom was to become the first surgeon in Edinburgh to work exclusively on the eye.

### **Douglas Argyll Robertson**

Douglas Moray Cooper Lamb Argyll Robertson was born in Edinburgh in 1837, and studied in Edinburgh and St Andrews, graduating MD from the latter in 1857 [5]. To further his education – and being fluent in French and German – he undertook a tour of major ophthalmic centres of learning in Europe, most significantly in Berlin and Prague. In these cities he learned from ophthalmic pioneers Friedrich Wilhelm Ernst Albrecht von Gräfe of Prussia and Austrian Professor Carl Ferdinand Ritter von Arlt.

Returning to Edinburgh, Douglas commenced work at his father’s Edinburgh Eye Dispensary, although John had sadly passed away before he and his son were able to practise side by side. In addition to his MD, Douglas was to obtain Licentiate of The Royal College of Surgeons of Edinburgh in 1857, thus ensuring he was duly qualified to practice surgery according to the



Figure 2: Lithograph of Douglas Argyll Robertson (from The Royal College of Surgeons of Edinburgh President’s Book).

standards of the new “General Council of Medical Education and Registration of the United Kingdom” after the 1858 Medical Act, but also setting him on a footing to eventually become an FRCSEd like his father and uncles.

In 1863, a year after obtaining RCSEd Fellowship, Douglas was appointed Ophthalmic Surgeon to the Royal Infirmary, and became the first Lecturer on Diseases of the Eye at Edinburgh University. The same year, he was to gain even wider prominence thanks to an extraordinary article he wrote on the ocular effects of the Calabar bean (*physostigma venenosum*). Native to tropical Africa, the bean had a certain notoriety in some regions of that continent due to its use in judicial execution, with a theory not unlike the apocryphal ‘drowning test’ torture of women accused of being witches in 16th century England. The accused was given a Calabar bean to

swallow, and if it were vomited back up he was innocent. If not, he was regarded as guilty and the subsequent death by poisoning was considered just punishment [6].

Potential health benefits of the bean were investigated shortly after its introduction to the UK in 1841 – revered physician Sir Robert Christison did not believe it held any ophthalmic effect, but did consider it a potentially humane method of execution (for criminals who had been genuinely proven of their guilt, of course). Douglas Argyll Robertson however, felt that the extract of the bean may be of use in his field, and decided to test the theory on himself. In his work, ‘On the Calabar bean as a new agent in ophthalmic medicine’, published in the *Edinburgh Medical Journal*, he described three experiments in which he introduced drops of Calabar bean extract into his

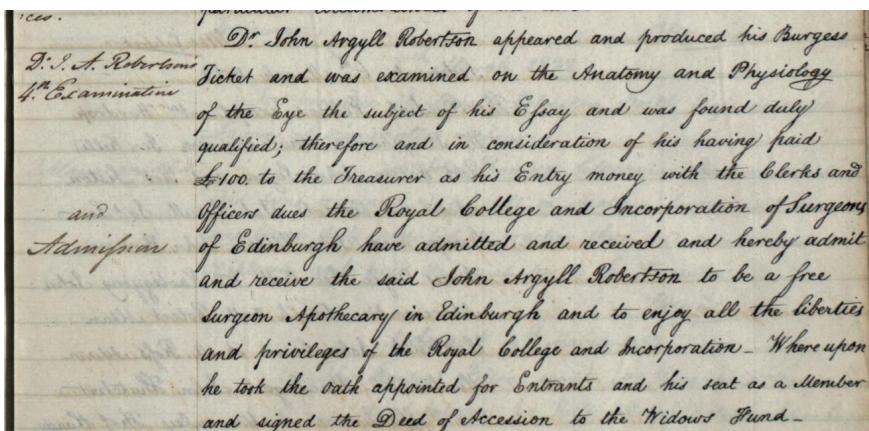


Figure 3: Entry into the handwritten RCSEd Records of 26 February 1822 denoting John Argyll Robertson's election as a Fellow.

eye. In doing so he found that the alkaloid physostigmine found naturally in the bean contracted the pupils, and that the Calabar bean could overcome the ocular effects of atropine. Thus, Argyll Robertson ended the article with:

“...there can be little doubt that in the Calabar bean we possess that will soon rank as one of the most valuable in the ophthalmic pharmacopoeia” [7].

An immensely prolific author in his field with over 50 published works, it was in February 1869 that Douglas first wrote on a condition for which he became best known – the eponymous ‘Argyll Robertson Pupil’ – defined as a pupil that is small and constricts poorly to direct light, but briskly when a target within reading distance is viewed (‘light-near dissociation’) [8]. His first article on the subject was published in the *Edinburgh Medical Journal*, with the title ‘On an interesting series of eye-symptoms in a case of spinal disease, with remarks on the action of belladonna on the iris’, describing the symptom in a 59-year-old “carver, a spare anaemic man” with central nervous system syphilis. Argyll Robertson continued in the article:

“On examining the eyes, I found both pupils contracted to little more than pin-points, the right rather the smaller of the two. The irides were light-coloured, and

apparently healthy in structure. I could not observe any contraction of either pupil under the influence of light, but, on accommodating the eyes for a near object, both pupils contracted.” [9]

Later that year he published accounts of four similar cases (although he himself had only treated one of these).

As with many 19th-century medical identifications, there has been subsequent debate as to whether Douglas Argyll Robertson made the first significant observation on the pupil in neuro-syphilis. Certainly, the Italian psychiatrist Vincenzo Chiarugi (1759–1820) had mentioned similar instances the previous century, and the aforementioned Albrecht von Gräfe (1828–1870) is also reported to have done so during the decade before Argyll Robertson’s articles. Nevertheless, the Argyll Robertson Pupil is the term that has entered ophthalmic nomenclature, although today it is recognised as a symptom prevalent in several other disorders as well as neuro-syphilis.

By the 1870s, Douglas Argyll Robertson was a full Ophthalmic Surgeon to the Royal Infirmary in Edinburgh and – although many today would no doubt balk at his alleged habit of holding surgical instruments between his teeth during operations – was recognised as a hugely gifted technical operator, helped by his being ambidextrous.

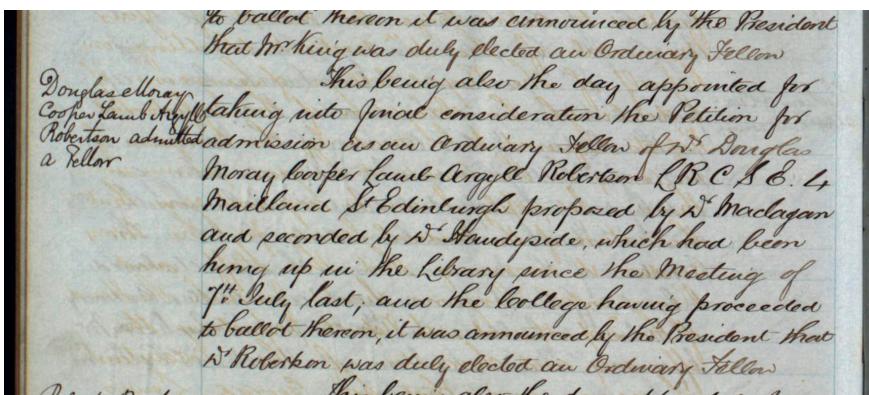


Figure 4: Entry into the handwritten RCSEd Records of 15 October 1826 denoting Douglas Argyll Robertson's election as a Fellow.



Figure 5: RCSEd Portrait of Douglas Argyll Robertson by Sir George Reid (RCSEd art collection).

The following decade he achieved what his father had four decades prior, and was appointed President of The Royal College of Surgeons of Edinburgh. Fortunately, he held the role longer than John Argyll Robertson was able, serving from 1885 to 1887. It’s worth pointing out that – like his father with James Syme – Douglas was also succeeded as College President by another legendary Surgeon, Joseph Bell, who would in time become famous across the globe as Arthur Conan Doyle’s inspiration for Sherlock Holmes.

During his career Douglas Argyll Robertson also served as Honorary Oculist to Queen Victoria and King Edward VII, President of the ophthalmology section of the British Medical Association, and was the first President of the Ophthalmic Society of Great Britain from outside London [10]. His skill was further acknowledged across the Atlantic, with appointments as Corresponding Fellow of the New York Academy of Medicine, and Honorary Member of the Neurological Society of New York.

His patients too recognised a man worthy of their respect, and when he strongly suggested that their smoking would only bring them harm, or that bread poultices should be placed in the stomach rather than on the eye, his advice was invariably heeded. Despite his clinical excellence however, it

would be remiss of any analysis of Douglas Argyll Robertson not to mention perhaps his greatest passion – one shared by many surgeons throughout the centuries – the game of golf. Although he excelled in many athletic pursuits (he was a distinguished curler, angler and marksman) it was said he was happiest on the links. A member of the Royal and Ancient at St Andrews, he won that club's gold medal on five occasions between 1865 and 1873 [11]. In his home city he was also a member of the Honourable Company of Edinburgh Golfers, the oldest golf club in the world. As with his clinical ability, his golfing skill did not go unnoticed. The story is told of a gentleman who had watched Douglas play golf, and immediately decided to take his daughter to him for a consultation on her strabismus, explaining to the doctor that any man who was able to play golf of such quality as he had witnessed must be possessed of steady hands, calm nerve and perfect sight [12].

In the winter of 1908, four years after he retired on health grounds, Douglas Argyll Robertson travelled with his wife, Carey, to India to visit the Thakur of India, whose son had studied under him. It was a trip they had undertaken on two previous occasions, but sadly this was to be their last. Douglas took ill and died in Gondal, on 3 January 1909. Such was the esteem that he was held in the area, the Thakur took the almost unprecedented step of wearing mourning dress and even lighting the funeral pyre when his friend was cremated on the river Gondli. Thus, among the many compliments that had been paid to Douglas Argyll Robertson throughout his life, perhaps the finest tribute was made in death.

#### References

1. Dingwall H: *A famous and flourishing society: the history of The Royal College of Surgeons of Edinburgh 1505-2005*. Edinburgh University Press: Edinburgh, UK; 2005.
2. Macintyre I, MacLaren I (eds): *Surgeons Lives, Royal College of Surgeons of Edinburgh. An anthology of College Fellows over 500 years*. The Royal College of Surgeons of Edinburgh: Edinburgh, UK; 2005.
3. Anonymous. 1816 Laws of The Royal College of Surgeons of Edinburgh. The Royal College of Surgeons of Edinburgh: Edinburgh, UK; 1816.
4. Anonymous. News and topics of the day: obituary. *Association Medical Journal* 1855; **(107)**:62.
5. Masson AHB: *Portraits, paintings and busts in The Royal College of Surgeons of Edinburgh*. The Royal College of Surgeons of Edinburgh: Edinburgh, UK; 1995.
6. Doyle D. Eponymous doctors associated with Edinburgh, part 3 – Abraham Colles, Sir William Ferguson, John S Haldane, Argyll Robertson, Thomas Young. *JR Coll Physicians Edinb* 2007; **37**(1):85-90.
7. Robertson DA. On the Calabar Bean as a New Agent in Ophthalmic Medicine. *Edinb Med J* 1863; **8**(9):815-20.
8. Thompson HS, Kardon RH. The Argyll Robertson pupil. *J Neuroophthalmol* 2006; **26**(2):134-8.
9. Robertson DA. On an Interesting Series of Eye-Symptoms in a Case of Spinal Disease, with Remarks on the Action of Belladonna on the Iris, Etc. *Edinb Med J* 1869; **14**(8):696-708.
10. Grzybowski A, Sak J. Douglas Moray Cooper Lamb Argyll Robertson (1837-1909). *J Neurol* 2016; **263**(4):838-40.
11. Bennett JD. Argyll Robertson – a breadth of vision. *J Med Biogr* 1993; **1**(3):186-8.
12. Ravin JG. Argyll Robertson: 'twas better to be his pupil than to have his pupil. *Ophthalmology* 1998; **105**(5):867-70.

#### SUMMARY

- John Argyll Robertson was a significant figure in ophthalmic surgery in 19th century Edinburgh and Scotland.
- John was taught by and worked closely with John Henry Wishart, and together they founded the Edinburgh Eye Dispensary.
- John's son, Douglas Argyll Robertson, emulated and perhaps even surpassed his father in the field of ophthalmic surgery, becoming a well-known and hugely respected figure across the globe.
- Both John and Douglas held close links with and served as President of The Royal College of Surgeons of Edinburgh.

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