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To cite this article: Mrittika Sen & Mohammad Javed Ali (2024) Lacrimonal History – Part II: Doyens of Dacryology Series – Sir William Bowman, Seminars in Ophthalmology, 39:4, 249-250, DOI: [10.1080/08820538.2023.2287286](https://doi.org/10.1080/08820538.2023.2287286)

To link to this article: <https://doi.org/10.1080/08820538.2023.2287286>



Published online: 24 Nov 2023.



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EDITORIAL

Lacrimal History – Part II: Doyens of Dacryology Series – Sir William Bowman

The Father of General Anatomy in England and the Founder of British Ophthalmology, Sir William Bowman was born on July 20th, 1816, in Nantwich, the third of the sons of John Eddowes Bowman, a banker by profession but also a botanist, geologist and an artist who was the illustrator for some of Sir William Bowman's scientific papers, a skill that he passed on to his son.^{1,2} A childhood accidental injury to his hand involving a gunpowder explosion brought young Bowman in contact with Joseph Hodgson, surgeon at Birmingham General Hospital and his treating physician then, and the future President of the Royal College of Surgeons and Founder of Birmingham Eye Hospital.^{3,4} Bowman was since then attracted to medicine and chose to be an apprentice to Joseph Hodgson in Birmingham at 16 years of age.^{1,5}

After graduation, Bowman was inducted as a Demonstrator in Anatomy at the King's College, London, in 1837.³ He went on to become the Prosector (1838) and then Assistant Surgeon (1840) and Surgeon (1856) at King's College Hospital.² In 1838, Bowman also travelled to different hospitals in Paris, Vienna, Germany, and Holland along with Francis Galton, the explorer and Father of Eugenics and Charles Darwin's cousin.⁵ For a few months in 1838, Bowman was a pupil of Sir Benjamin Brodie and expressed his gratitude to his mentor many years later in meeting addresses and acknowledgments of books.² Perhaps the greatest accomplishment for both the mentor and his mentee, Bowman operated on Brodie for cataract.² He was appointed the Assistant Surgeon to the Royal London Ophthalmic Hospital, Moorfields, in 1846 and Surgeon in 1851 before retiring in 1876.²

Armed with a new Powell microscope, he had been rewarded with by Dr Peyton Blakiston for his accurate calibration of cardiac orifices, Bowman's scientific and literary endeavors reached their peak in the interval between 1839 and 1842.⁵ During this time, staining of histological tissues had not been developed and Bowman performed his studies from teased out tissues seen by reflected light treated with alcohol or liquor ammonia and hardened in salt solutions, if at all.⁵ 'The Structure of Striated Muscle' which was read before the Royal Society on June 18th, 1840; 'The Structure of Mucuous Membrane of the Alimentary Canal', published in Robert Todd's *Cyclopaedia of Anatomy and Physiology*; and 'The Structure of the Kidney' presented to the Royal Society on February 17th, 1842 were the chief highlights amongst his numerous works. He collaborated with Robert Bentley Todd for the volumes of *Physiological Anatomy and Physiology of Man* (1843–1856). This book was considered "an epoch-making work for its first of its kind to give an accurate description of the histology of the organs of the body".² All his works contain several illustrations by Bowman himself. His works earned him the Fellowship of the Royal Society when he was just 25 years old, and after 3 years, the Royal College of

Surgeons.³ He was also awarded the Royal Medal of the Royal Society (1842) for his paper 'On the Structure and Use of the Malpighian Bodies of the Kidney, with Observations on the Circulation through that Gland'.⁵

Following the death of John Dalrymple, the baton of the leading English ophthalmic surgeons was passed on to Sir William Bowman.¹ From 1850, Bowman focused on his career as an ophthalmic surgeon. Bowman understood the application and extensively used the ophthalmoscope devised by Helmholtz in 1851. He also performed iridectomy and advocated the techniques of glaucoma surgery proposed by von Graefe.^{1,3} During 1864–65, he concentrated on treating retinal detachment and cataracts.¹ He discovered three structures – the Bowman membrane, the anterior elastic membrane, the Bowman muscle, the radial fibres of the ciliary muscle, and Bowman tubes.⁶

Bowman devised sounds for the management of epiphora in 1851, which continue to be in use in modern times and bear his eponym, 'Bowman lacrimal probes'.¹ The paper 'Treatment of Lacrymal Obstructions' (1857) discussed the passage of graduated probes in the canaliculus instead of horse-hair-sized sounds in practice.⁵ The smaller Bowman probes were found to be useful in congenital occlusion or stenosis of the nasolacrimal duct that did not respond to massage.⁷ Once the canaliculus was dilated, the probe was introduced till it reached the floor of the nose and then moved back and forth to open the passage completely.⁷ In acquired stenoses, the use of Bowman's probes required multiple attempts, but the course of treatment was still shorter than with the use of style.⁷ Bowman himself commented on his work on lacrimal ducts that he "constantly kept in view the analogy of these obstructions with those of the urinary passages".⁸ He also described punctoplasty in 1853 and canaliculotomy in 1857.⁹ Bowman's 1-snip punctoplasty involved incision along the entire length of canaliculus which resulted in the destruction of the capillary action of the canaliculus.¹⁰ Although this is no longer advocated,¹¹ it was a novel technique when it was described.

In ophthalmology, Bowman's most important scientific work was 'On some Points in the Anatomy of the Eye, chiefly in Reference to the Power of Adjustment' and was presented to the British Association at the Oxford meeting in 1847.¹ In this paper, Bowman, independent of the work of Ernst Brücke, discussed the structure and function of the ciliary muscles.¹ In 1849, 'The Lectures on the Parts concerned in the Operations on the Eye and the Structures of the Retina' was delivered at the Royal London Ophthalmic Hospital, Moorfields. These lectures were almost entirely on the normal histological appearances of the different parts of the eyeball "and show Bowman at his best on a subject peculiarly his own."²

In 1880, Bowman founded and was unanimously elected as the first President of the Ophthalmological Society of

the United Kingdom. He was also instrumental in the foundation of the Society's Library, giving some oak bookcases and an annual contribution for its upkeep. This tradition was continued by his family even after his death.² To honour his legacy and services to the Society, an annual lecture called 'The Bowman Lecture' was established in 1883, and the library was named the Bowman Library.^{1,2}

Bowman had many illustrious friends, and the friendship and mutual esteem helped many scientific and humanitarian endeavors across national borders. A fateful encounter with von Graefe and Donders at the Great Exhibition in Moorfields Eye Hospital, London, led the three to become close friends, separated only by the death of von Graefe in 1870.³ He regularly corresponded with Charles Darwin.⁵ In some of these letters, Darwin enquired Bowman about his understanding of the effect of emotions on tear production and the anatomy and physiology of the orbicularis oculi.⁵ This information helped Darwin in his book *The Expression of the Emotions in Man and Animals*, 1872.⁵ Bowman also introduced Darwin to Donders in 1869, and the two developed a unique friendship, both propagating ideas on natural selection.⁵ A contemporary of Bowman, Florence Nightingale's crusade to improve the standards of Nursing in Britain impressed Bowman while he was a surgeon at the Harley Street Institution for the Care of Sick Gentlewomen. He offered her a Superintendent post for reorganizing training of nurses at King's College Hospital.¹¹ This, however, did not come into being, but Bowman, along with Todd and a few others, established the St. John's Home and Sisterhood for the training of nurses. As a result, he was able to help Florence Nightingale by providing trained nurses during the Crimean War (1853–56).^{1,12} He also remained a member and trustee of the Council of the Nightingale Fund.²

In 1884, he was bestowed knighthood by Queen Victoria.¹³ Sir William Bowman led a long and fruitful life and passed away on March 29th, 1892, at his country house at Dorking, Holmbury St Mary, Surrey.⁶ In all obituaries and editorial tributes, a common characteristic mentioned was his gentle, patient, and modest nature as a clinician with shrewd observational accrue and decisive temperament when it came to treating ophthalmic diseases. He brought ophthalmic surgery to the forefront as a specialty.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

The author(s) reported that there is no funding associated with the work featured in this article.

References

1. Royal College of Surgeons of England. Plarr's lives of the fellows. Sir William Bowman. [Last accessed on November 15, 2023] (https://livesonline.rcseng.ac.uk/client/en_GB/lives/search/results?qu=William+Bowman&te=)
2. James RR. British masters of ophthalmology series: 16.—Sir William Bowman, BART., FRS, 1816–1892. *British J Ophthalmol.* 1925;9(10):nil2. doi:10.1136/bjo.9.10.nil2.
3. Trevor-Roper P. Sir William Bowman—1816–1892. *British J Ophthalmol.* 1992;76(3):129. doi:10.1136/bjo.76.3.129.
4. Heath P. Sir William Bowman. *Bull Med Libr Assoc.* 1936;24:205.
5. Thomas KB. The manuscripts of Sir William Bowman. *Med Hist.* 1966;10(3):245–256. doi:10.1017/S002572730001111X.
6. <https://www.english-heritage.org.uk/visit/blue-plaques/sir-william-bowman/> (last accessed on November 15, 2023)
7. Beck FW. History of the treatment of purulent dacryocystitis. *History.* 1935;5:1–935.
8. Eknayan G. Sir William Bowman: his contributions to physiology and nephrology. *Kidney Int.* 1996;50(6):2120–2128. doi:10.1038/ki.1996.538.
9. Ali MJ. Lacrimal disorders and surgery: historical perspectives. *Int Ophthalmol.* 2014;34(6):1309–1313. doi:10.1007/s10792-014-0003-0.
10. Caesar RH, McNab AA. A brief history of punctoplasty: the 3-snip revisited. *Eye.* 2005;19(1):16–18. doi:10.1038/sj.eye.6701415.
11. Ali MJ, Malhotra R, Patel BCK. Routine punctoplasty: isn't it time we preserved the integrity of the punctum? *Orbit.* 2022;41(4):407–412. doi:10.1080/01676830.2022.2055087.
12. Roman FS. Sir William Bowman. *British J Ophthalmol.* 1992;76(10):639. doi:10.1136/bjo.76.10.639.
13. <http://www.faqs.org/health/bios/47/William-Bowman.html> (last accessed on November 15, 2023)

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