

Charles Bell (1774–1842)

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Charles Bell is remembered as a neurophysiologist, although his work in this field was somewhat contentious. In fact, his many talents lay elsewhere: anatomist, draughtsman, writer, lecturer, surgeon and museum-builder. One of his biographers remarked that while he “did enough to lay the foundation of a dozen reputations, he did too much to complete one” [7]. Also, his character sometimes impeded his career. As his friend Francis Jeffrey wrote to him: “... a little too much ambition ... and ... a small degree of misanthropy, particularly towards persons of your own profession” [7].

Charles was born in 1774, the fourth son of an Edinburgh clergyman who died only 5 years later. His mother, Margaret Morice, not only educated him but also stimulated his drawing talents and had him taught by the painter David Allan. After just a few years at school Charles attended philosophy lectures at the University of Edinburgh while assisting his brother John (1763–1820) in his

school of anatomy. John, also a talented draughtsman, obtained more bodies for dissection than the professor of anatomy (Alexander Monro, secundus) and was a practising surgeon as well. Formally John’s apprentice from 1792, Charles contributed text and drawings to John’s ‘The Anatomy of the Human Body’ and published ‘A System of Dissections’ under his own name [1]. However, in 1799 John was forced to close his school owing to growing animosity with the physicians of the Royal Infirmary; he continued as a surgeon only. This left Charles in a void; his trusted brother George, a lawyer, advised him to try his luck in London.

In 1804 Bell started his life in London by visiting the local medical luminaries, including Matthew Baillie (nephew of the Hunters) and Sir Astley Cooper (surgeon at Guy’s). Meanwhile, he had published several other books, on the anatomy of the brain [2], on nerves and on arteries. Also, he brought with him the manuscript of ‘Anatomy of Expression in Painting’ [3]. Within a year, after unsuccessful canvassing for the chair of anatomy at the Royal Academy, he bought a somewhat dilapidated house in Leicester Street to start his own school of anatomy; it included room for house pupils and for a museum. There were at least five other schools of anatomy for the approximately 1,000 medical students in London. As a rule, bodies were illegally bought from grave robbers. The number of Bell’s students increased slowly, as did his surgical practice. He published his ‘System of Operative Surgery’ and in 1809 travelled to Portsmouth to tend to the wounded soldiers brought back from the battle with Napoleon’s army at La Coruña.

In 1811 he married Marion Shaw, sister of George’s wife Barbara, from Ayr (on Scotland’s west coast) and moved to Soho Square. His bride did not have to put up with house pupils and anatomical specimens for long,

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because a year later Bell took over the school of anatomy in Great Windmill Street, founded by William Hunter in 1767. Having been admitted to the Royal College of Surgeons, he was appointed in 1814 to the surgical staff of the Middlesex Hospital. Meanwhile, his private practice flourished, though it was said he lacked the panache of some illustrious contemporaries. In June of 1815, when the news of Waterloo reached London, he travelled to Brussels with John Shaw, his brother-in-law who had become a junior partner. For 8 days he operated on hundreds of wounded soldiers, especially the French, whose medical services had been dispersed. He did not waste the opportunity to record a variety of wounds in sketches and watercolours.

Meanwhile, Bell's involvement with the nervous system had taken a new turn in 1810, when he found in 'an animal' (probably a pointer dog) that the posterior filaments of spinal nerves were 'insensible', whereas touching or cutting the anterior filaments caused convulsions. It is important to keep in mind that with the term 'sensibility' Bell did not refer to afferent impulses, as usual today, but to intrinsic 'irritability' of nerves and muscles, a notion introduced by Francis Glisson (1597–1677) and Albrecht von Haller (1707–1777). This observation led Bell to believe that the brain consisted of a 'grand division': on the one hand the cerebrum, for 'impressions' and motions, connected with the anterior roots, on the other the cerebellum and posterior roots, 'governing the operation of the viscera'. He published this 'New Anatomy' in a printed pamphlet that he sent to friends and colleagues [4]. In 1822 Magendie [8] revealed the true difference between anterior and posterior roots. He may have built on Bell's work and benefited from a visit John Shaw made to Paris, but he was a more astute vivisectionist as well as a more systematic scientist [10]. Acrimonious debates about priority followed, in which Bell did not behave admirably [6, 7]. In reprinting earlier papers in book form he made important textual changes in an attempt to bolster his claims [5].

Bell had a special interest in the Vth and VIIth cranial nerves, though he confused their functions to some extent. Incidentally, the issue was clarified by a younger colleague at the Middlesex, Herbert Mayo (1796–1852) [9]—again not without controversy. But Bell's description of facial palsy, in a letter to the patient's practitioner in 1829 [5], could not have been more accurate: "... The face is twisted to the right side. The left nostril does not move in

respiration. The eye-lids of the left side are not closed when he winks, although, when he attempts it, the eye-ball is turned up, the cheek is relaxed, and the forehead on the left side unruffled."

In 1825 Bell sold his school (to Mayo and Hawkins) and his collection (to the Royal College of Surgeons in Edinburgh). In 1835 the Middlesex Hospital built and opened its own medical school. A year later Bell accepted the chair of surgery in Edinburgh, but both teaching and surgical work proved somewhat disappointing. He had bouts of melancholy, suffered increasingly from 'spasms of pain', presumably angina, and died in 1842 on a visit to Hallow (Worcestershire). He had been knighted in 1831. Lady Bell survived him for 34 years; they had no children.

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