John Goodsir: anatomist, microscopist and proponent of the cell structure of tissues

This year marks the 150th anniversary of the birth of the distinguished anatomist, John Goodsir, whose pioneer microscopical studies were a landmark in the development of the concept of the cellular basis of all tissues.

Goodsir was born in Anstruther, in Fife, Scotland in 1814, the eldest of the six children of John Goodsir, a general medical practitioner, whose father and grandfather were both surgeons in that town. His early education was at the local school, while his mother, a gifted amateur artist, taught him to draw.

Young Goodsir, now aged 13 years, went to St Andrew's university as an arts student and in 1830 was apprenticed to an Edinburgh dentist. He also attended the extramural anatomy classes of that gifted teacher, Robert Knox, who gained some notoriety by employing grave robbers to obtain his 'teaching material'. Goodsir did not enjoy practical dentistry – a crude and painful art in those days – and transferred to study at the Edinburgh College of Surgeons, taking his surgical licence in 1835 and joining the family practice in Anstruther. For the next 5 years, John worked as his father's assistant, but continued his scientific studies and built up a collection of anatomical and pathological specimens to use in his later teaching.

In 1841, Goodsir was appointed curator of the museum at the Edinburgh College of Surgeons and popularised the museum by giving lectures to the public and to medical students. In 1844, he was appointed assistant to the ailing Professor Alexander Monro tertius and, on Monro's retirement in 1846, Goodsir was appointed as his successor. (The remarkable story of the three Alexander Monros' dynasty, primus, secondus and tertius, as successive Professors of Anatomy, will be recounted as an 'Anniversaries' article in the July 2017 issue of this journal).

Goodsir was an excellent choice for this prestigious post. He was a popular teacher, whose lectures were lively, amiable and interesting, and covered the arts as well as the sciences. He improved the teaching facilities by extending and upgrading the dissection rooms, recruited additional staff and, most unusual in those days, introduced demonstrations using the microscope. For this, he purchased the new achromatic microscope, which greatly improved the quality of the images.

Goodsir continued his work on his ideas on the cellular nature of all animal and vegetable structures and, by 1848, came to the conclusion that the cell was the fundamental structure of all life and the unifying factor in the animal and vegetable worlds. Rudolph Virchow, one of the father figures of pathology and an early proponent of the cellular theory, dedicated his great textbook 'Cellular Pathology', published in 1858, to John Goodsir.

Although secure and deeply involved with anatomical duties, Goodsir obviously hankered after a return to his original clinical work. He was disappointed when his application to be appointed as assistant surgeon was rejected when this post became vacant at the Edinburgh Royal Infirmary.

In 1845, Goodsir published his 'Anatomical and Pathological Observations', which contained much of his original work. This also contained some of the investigations of his brother Harry, who had died on Franklin's ill-fated expedition to the Arctic circle. Their brother Robert, another of the Goodsir doctors, travelled on two further unsuccessful voyages to find possible survivors of that expedition.

John Goodsir himself travelled extensively on the continent of Europe, visiting centres in Paris, Vienna and Berlin to inspect their schools, acquire scientific instruments and anatomical specimens, and to meet his fellow scientists. However, by 1850 his health began to decline. He began to exhibit the first symptoms of the spinal disease (most likely in those days to have been tuberculosis) which was eventually to prove fatal.

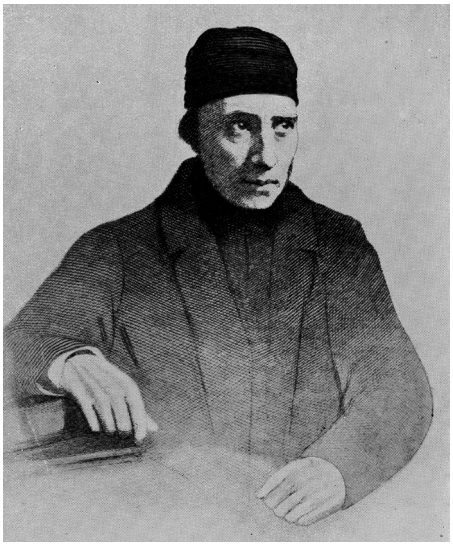

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Figure 1. John Goodsir (1814–1867).

The portrait of John Goodsir (*Figure 1*), painted in about 1854 by George Aikman, shows a tall, thin man, with a long, thoughtful and serious face. He certainly looks to me to be a sick man.

Despite his ill health, Goodsir continued to work with apparent unflagging energy. As well as his other teachings, he now took over the lectures on natural history in 1853. This work exhausted him and he was persuaded to take a year's leave of absence from all his duties. Apparently better, he returned to work and in 1856 he was able to publish a set of studies on the skeleton, which ranged over embryological and comparative anatomical studies. In November 1866, he collapsed while lecturing and died, of what was labelled 'atrophied spine', on 6 March 1867 at his home. He was buried at Dean cemetery in Edinburgh. His successor to the Chair of Anatomy, William Turner (himself a well-known anatomist), published the collected 'Anatomical Works of John Goodsir' in tribute to his predecessor in 1868. **BJHM**

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Conflict of interest: none.