

John Berry Haycraft, M.D., D.Sc. By **Professor T. Graham Brown.**

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THE death of Professor John Berry Haycraft on 30th December 1922 has removed one who played a not insignificant part in the development of British physiology. A serious illness fell upon him, as it fell upon Pasteur, in middle age; and but for the handicap which it imposed upon his research, there can be no doubt that he would have been as prominent a figure to the younger generation of physiologists as he was to the older.

After graduation in medicine at Edinburgh, Haycraft studied abroad at Leipzig, and then returned as Demonstrator in the Physiological Laboratory in Edinburgh under the late Professor Rutherford. He then held the chair of Physiology at Mason College, Birmingham, but returned to Edinburgh temporarily to undertake the duties of the chair during Rutherford's illness. After Rutherford's return, Haycraft remained for a short time in Edinburgh until he was called to be the first Professor of Physiology at Cardiff. This chair he held until 1920, when he resigned it in the hope of devoting the remainder of his life to those researches which, in spite of illness and the burdens of his office, had been the foremost interest of his life.

His contributions to knowledge were many, and the field of his investigation was broad. To name but a few of his papers:—The Results of Temperature Variation (1879); The Chemistry of the Blood, its Coagulation, etc. (1879, 1882, 1884, 1888, 1891); Special Sense Physiology—Vision, Taste, Smell (1883, 1884, 1885, 1887, 1893, 1897, 1910); various contributions to Chemical Physiology (1889, 1891, 1894); contributions to Histology (1879, 1880, 1889, 1890); Development (1891, 1893, 1895); Theory of Amœboid Movement (1880); The "Muscle Sound" (1890); Voluntary Movement (1890, 1898); The "Scratch-Reflex" (1890); Elasticity of Animal Tissues (1904). Perhaps his chief interest was in the field of the mechanics of circulation:—The Cause of the First Sound of the Heart (1890); The Movements of the Heart within the Chest (1891); The Time of Contraction of the Papillary Muscles (1896); and The Changes in Shape of the Heart (1896, this and the last paper being in collaboration with Paterson).

When Haycraft resigned his chair it was with the intention of continuing his researches on the circulation of the blood, and he did so in the Physio-

logical Laboratory at Cambridge. His last contribution to knowledge was a posthumous paper on this subject. But it is probable that his best-known works will be his articles on animal mechanics and upon the senses of taste and smell in Sir Edward Sharpey Schafer's great *Text-book of Physiology*; and that his best-known original contribution to knowledge will be his research upon the cross-striation of skeletal muscle.

In his investigation of cross-striation Haycraft used the ingenious method of taking casts of muscle fibre upon collodion. The impression of the fibre upon the collodion exhibited the same cross-striated appearance as the muscle fibre itself. From this Haycraft inferred that the cross-striation is an optical phenomenon due to the varicose shape of the muscle fibrils, which gives different refractive effects in the globular and in the restricted parts of the fibril.

Throughout his life, and in spite of ill-health, Haycraft kept firmly before him the ideal of scientific investigation. He dreamt greatly, and was fortunate in securing the aid of Sir William James Thomas in bringing his dreams to reality. Their collaboration, with the help of the architectural genius and burning enthusiasm of the late Colonel Bruce Vaughan, resulted in the magnificent Physiology Institute at Cardiff—perhaps the largest and most modern in this country. If Haycraft's well-earned retirement was cut short, he at any rate had the satisfaction of seeing his great Institute in completion, and of being its first occupant. Few who have dreamt such dreams have seen their fulfilment, and the Physiology Institute at Cardiff will be Haycraft's memorial. He was elected a Fellow of this Society in 1880, and contributed to its publications.