

Obituary.

PROF. J. SYMINGTON, F.R.S.

THE death of Prof. Johnson Symington on February 24 has deprived anatomical science of a keen and devoted investigator who has enriched its literature, especially in the domain of topographical anatomy. Born in 1851, he received his early education in Taunton, and his medical training in the University of Edinburgh, where he graduated in medicine in 1877. There was no doubt as to his choice of a career, and, within a short period after graduation, he became established as an extra-mural lecturer in anatomy in Minto House, Edinburgh. His reputation as an inspiring teacher attracted large numbers of students, and during this period, which extended over fifteen years, he played an important part in the development of anatomical teaching and research in Scotland.

In 1893 Prof. Symington was appointed to the chair of anatomy in Queen's College, Belfast, and for twenty-four years he devoted himself to the interests of the anatomical department and the general university administration in that centre. Shortly after his appointment to the Belfast chair, he was elected a member of the governing body, and from that time onward until his retirement it may be truthfully said that in every matter dealing with college administration his advice and assistance were sought and freely rendered. On the retirement of Prof. John Purser in 1901, Prof. Symington was appointed registrar, and in the same year he helped to found the Better Equipment Fund, acting as one of the honorary secretaries. As a fellow of the Royal University of Ireland he acted as examiner, and contributed in no small degree to the work of framing and carrying out the regulations and courses in anatomy. On the passing of the Irish Universities' Act, 1908, he became professor of anatomy and registrar in the Queen's University of Belfast. He was appointed one of the seven commissioners under the Act to frame the Statutes, and one of the eight members of the Joint Committee. The duties of both these offices he carried out most ably. As a member of the University Senate, Academic Council, Faculty of Medicine, etc., he proved himself to be invaluable. In 1916 he succeeded Sir William Whitla as the University representative on the General Medical Council, but his period of service was unfortunately a very brief one, as within less than a year he was stricken down by the illness which led to his retirement.

Prof. Symington's contributions to anatomical literature cover a wide field, mainly dealing, however, with splanchnology, and the anatomy of the central nervous system. In 1903 he described a method to illustrate the relations of the deeper parts of the brain to the surface, and from this time onwards, until the publication of the work in "Quain's Elements of Anatomy," he carried out a series of investigations in cranio-cerebral topography with which his name will always be associated. The numerous casts, endocranial, endodural, and arachnoid, which he prepared, were of outstanding merit, and the results of these researches have been of the greatest service to all engaged in

the subject of cranio-cerebral topography. A set of these casts is now in the Museum of the Royal College of Surgeons, England. He also subjected to a thorough and careful analysis the value of endocranial casts in the study of prehistoric skulls. In September 1908, part 1, vol. iii. (Neurology) of "Quain's Elements of Anatomy," was brought out by Sir Edward Sharpey Schafer and Prof. Symington, the macroscopic section of this important work being left entirely to the latter. Part 2 of this volume was issued under the same joint editorship in the following year, and in 1914 there appeared part 2, vol. ii., on Splanchnology, under the sole editorship of Prof. Symington.

The wealth of anatomical material, upon which this valuable work was based, was the result of many years' collection and preparation by the Belfast Anatomical School. An interesting atlas of skiagrams, illustrating the development of the teeth in man, was published by Prof. Symington and Dr. Rankin, and a set of the original slides was presented to the Royal College of Surgeons, England. His most recent work was the preparation of a complete series of plates illustrating sections of the human body, the atlas being designed specially for the use of military hospitals. More than three hundred copies of this atlas were in use during the War, and proved of great service in the localisation and removal of foreign bodies.

Prof. Symington was elected a fellow of the Royal Society in 1903, president of the Anthropological Section of the British Association in 1903, and president of the Anatomical Society of Great Britain and Ireland, 1904-1906. It is truly a record of good and faithful service, forty years of active work in a subject which he loved so much and for the University of which he was such a distinguished member. Nothing gratified Prof. Symington more than the action of his old pupils in Edinburgh and Belfast in raising sufficient funds to endow a prize, the "Symington Prize," to be awarded by the Anatomical Society for research carried out by junior anatomists. He was delighted when the Society made its first award about a year ago. T. H. M.

HANS GEITEL.

BORN at Brunswick in July 1855, Hans Geitel spent his early years at Blankenburg, and at the local secondary school he formed a friendship with Julius Elster that was the dominant note in both their careers. Having studied at the Universities of Heidelberg and Berlin, Geitel gained his Secondary Teacher's Diploma in 1879, and proceeded to the Secondary School at Wolfenbüttel, where he rose to be senior science master in 1896. Elster became associated with the same school in 1881, and lived until his marriage at Geitel's home. After his mother's death, Geitel joined his friend, and they built themselves a house with a well-equipped laboratory. Here they laboured until Elster's death in 1920, followed soon afterwards by that of Mrs. Elster. Left alone, Geitel arranged for his cousin to keep house for him, and in July 1922 he married her.

In the spring of 1923, Geitel was taken seriously ill, and in spite of an operation he died on August 15.

The names Elster and Geitel are prominently engraved on the roll of modern science, and we shall doubtless search in vain for a similar instance of private scientific partnership throughout a lifelong friendship. Each ascribed to the other the credit for a discovery published jointly; they were above petty jealousies to which mortal man is prone. More than once, one or other of them declined the offer of a university chair, and at least on one occasion they were offered a dual chair, but preferred the quiet of their home laboratory. On the occasion of his sixtieth birthday, Geitel had conferred upon him the title of Geheimrat by the Duke of Brunswick.

Elster and Geitel's earliest work on the production of electricity in flames (1882) led them to the study of atmospheric electricity and the production of electricity in thunderstorms, and in 1889 they noted that negatively charged bodies lose their charge not only in sunlight but also in diffuse daylight, thus extending the work of Hallwachs on the photoelectric effect. Their work on the unipolar conduction of gases in the neighbourhood of heated electrodes was followed by a study of the effect of the nature of the surface and the wave-length of the incident light on the photoelectric effect, and resulted in their recognising that the more electropositive a metal is, the more readily it can be excited photoelectrically by rays of longer wave-length. Further investigations on minerals indicated that photoelectric processes are a kind of resonance phenomenon, related to that of phosphorescence. Other work on the photoelectric effect and cathode rays was followed by investigations on the nature of the newly discovered Becquerel rays. Their scientific intuition is forcefully indicated in a paper published in January 1899, where they state "that the atom of a radioactive element, after the manner of the molecule of an unstable compound, passes over into a stable state under emission of energy." "Of course, this conception would involve the assumption of a gradual transformation of the active substance into an inactive one, with alteration of its elementary properties." They proved the non-identity of Röntgen- and Becquerel-rays by experiments in a magnetic field, and showed the presence of polonium in radio-lead from pitch-blende. They studied the ionisation of air on mountains, its dependence on temperature, and showed that air always contains emanation. They made exhaustive experiments on the distribution of radioactive elements in the earth's crust, and share with Crookes the discovery of scintillations on a zinc sulphide screen. Later, they returned to the study of photoelectricity, and carried out their well-known work on the photoelectric cell, and its photometric applications. Finally, mention should be made of their very delicate string electrometer (1909), capable of detecting currents of 10^{-14} ampere.

Elster and Geitel both celebrated their sixtieth birthdays in 1915, and this event was honoured by the publication in that year of an Elster-Geitel Festschrift, which contained numerous contributions to science from Germany, Austria, and neutral countries. Had the opportunity presented itself, many British men of

science would have been proud to contribute to this volume, for these two men had earned the respect and admiration of men of science far beyond the confines of their own country. R. W. L.

DR. W. HATCHETT JACKSON.

BY the death, on February 21, of Dr. W. Hatchett Jackson, Radcliffe Librarian, subwarden and tutor of Keble College, students of natural science in Oxford have lost an old and trusted friend who played an important part during the last half-century in the development of the University Museum as a centre of scientific teaching and research. He died in his seventy-sixth year, at Weston-super-Mare, after an attack of influenza.

Jackson entered New College as an undergraduate, took his degree with first-class honours in 1873, and soon became assistant to Rolleston, the first Linacre professor. Those were the early days before specialisation, and the work in Rolleston's department covered not only the whole of zoology and comparative anatomy but animal physiology as well. Jackson devoted himself whole-heartedly to teaching, became a personal friend and took a sympathetic interest in the welfare of his pupils, among whom one may mention Prof. E. P. Poulton, the late Prof. E. A. Minchin, and Dr. Mervyn Gordon, whose name appears in this year's list of candidates selected for the Royal Society. Being a good classical scholar and an indefatigable reader, proficient in modern languages, he soon acquired and placed at the disposal of his pupils a vast store of learning comprising a truly remarkable knowledge of the ancient and modern literature of zoology, together with a detailed acquaintance with the large collections of specimens and preparations in the department. His instructive lectures ranged over many aspects of zoology and physiology. When Rolleston introduced the type system of teaching, he wrote a small book called the "Forms of Animal Life," and Jackson will long be remembered as the author of the greatly enlarged second edition of this work published in 1888. It is a monument of learning, and would no doubt have become the standard text-book on the subject had it been adequately illustrated. Even now it remains a valuable guide and work of reference.

Although Jackson helped others in their researches, he did not himself publish much original work. His chief contributions are a memoir on the embryology of insects in the Transactions of the Linnean Society (1890) and a description of the cranial nerves and brain of the shark *Echinorhinus* (*Jour. Anat. and Physiol.*, 1878) in collaboration with M. B. Clarke. This paper is important, for in it were first described the so-called ventral motor nerve-roots of the vagus region, a discovery which eventually led to the correct interpretation of the morphology of the occipital nerves.

Dr. Jackson was appointed Radcliffe Librarian in 1900, at a time when the library of scientific books was being transferred to its new quarters in the present building. The later years of his life were chiefly devoted to the organisation of this library, which, largely owing to his efficient and practical management, has been of such value to all scientific workers in Oxford.