

*Monday, 15th February 1875.*

SIR WILLIAM THOMSON, President, in the Chair.

The following Communications were read:—

1. Obituary Notice of Dr Robert Edward Grant, late Professor of Comparative Anatomy in University College London. By Dr W. Sharpey.

DR ROBERT EDMOND GRANT was the seventh son of Alexander Grant, Esquire, Writer to the Signet. He was born in his father's house in Argyle Square, Edinburgh, on the 11th of November 1793. His mother's maiden name was Jane Edmond. It appears from a memorandum in Dr Grant's handwriting, that he was sent from home to be nursed, and saw little of either of his parents during his infancy and childhood. He had eight brothers and three sisters, all of whom died before him, and as none of them left any children, Dr Grant was the last survivor of his family.

When about ten years old he was placed at the High School of Edinburgh, where he continued for five years, under the tuition, successively of Mr Christison, afterwards Professor in the University, Dr Carson, and Dr Adam, the Rector, author of the well-known work on Roman Antiquities. In 1808 his father died, and in November of that year, Dr Grant became a student in the University of Edinburgh, attending the junior classes of Latin and Greek. In the following November he entered on his curriculum of medical study, and during its course attended the several classes in the Faculty of Medicine under the professors of that day. He also studied Natural History under Professor Jameson, and attended the lectures of some of the extra-academical teachers. After completing his course of medical study, he, in 1814, took his degree of Doctor of Medicine, and published his inaugural dissertation, under the title "De Circuitu Sanguinis."

In the meantime he had obtained (in May 1814) the diploma of the College of Surgeons. In November of the same year, he was elected one of the presidents of the Medical Society of Edin-

burgh, a place justly regarded as an honourable object of ambition among the young aspirants in the Medical School.

Rather more than a year after taking his degree, Dr Grant went to the Continent, where he spent upwards of four years. During this time he visited various places of interest in France, Italy, and Germany, and made a pedestrian tour in Hungary; but his principal stay was in Paris, Rome, Leipsic, Dresden, Vienna, and Munich, on account, no doubt, of the varied opportunities for scientific study and general culture afforded by these foreign seats of science, art, and learning. He returned to Edinburgh in the summer of 1820, and took up his residence in his native city. At a later time he became a Fellow of the Edinburgh College of Physicians, but he seems not to have engaged in medical practice; his career had taken another direction. He had early imbibed a taste for comparative anatomy and zoology, and now devoted himself assiduously to the prosecution of these branches of science, both by continued systematic study and by original research. The study of the invertebrate animals was peculiarly attractive, and at this time Dr Grant published various interesting anatomical and physiological observations on mollusks and zoophytes; and his name will always be associated with the advances of our knowledge concerning the structure and economy of sponges, to the investigation of which Dr Grant at this time enthusiastically applied himself. The pools left by the retiring tides on the shores of the Firth of Forth afforded favourable opportunities for observation, and he would spend hours patiently watching the phenomena exhibited by these humble organisms in their native element.

Dr Grant remained at Edinburgh till 1827, and in the meantime communicated the results of his various scientific inquiries to the Edinburgh Philosophical Journal and to the Memoirs of the Wernerian Society, of which he became an active member. He was also in 1824 elected a Fellow of the Royal Society of Edinburgh.

In June 1827 Dr Grant was elected Professor of Comparative Anatomy and Zoology in the newly founded University of London, afterwards University College. He was not altogether new to the work of teaching. He had some early, though brief, experience in Edinburgh in 1824, when Dr Barclay, who for some years had delivered lectures on Comparative Anatomy during the summer

session, entrusted him with the part of the course which related to the anatomy of invertebrate animals. He entered on his duties in London in 1828, and in October of that year delivered his Inaugural Lecture, which was published at the time, and went through two editions. In this office he continued up to the time of his death, during which long period of forty-six academical years he never omitted a single lecture. This was a point on which he justly prided himself. Up to the last session (1873-74) he continued to give five lectures a week, but, sensible of failing strength, he proposed to reduce the number to three in the next session, which he was not destined to see. The number of students who entered to his class fluctuated a good deal, but was never large, attendance not being compulsory in the medical curriculum prescribed by the licensing corporations. In one session (1836-37) the number was fifty-six, but usually it was between thirty and forty, and sometimes much less.

After he had thus laboured for more than twenty years, the Council of the College added to the small return he received for his services an annual stipend of one hundred pounds, which was continued during the rest of his incumbency. About the same time a number of his friends, in presenting him with a microscope, in testimony of their esteem, purchased for him a Government annuity of fifty pounds. Afterwards he succeeded to some property left by his brother Francis, an officer in the Madras army, who died in 1852, so that in his later years he found himself in easy circumstances.

His leading pupils were much attached to him, and he was sincerely esteemed and respected by all. His style of lecturing was clear and impressive, with a ready and copious flow of language. Without meaning to speak of his mode of treating his subjects, we may nevertheless remark, that on one great biological question—the origin of species—he was from the first an evolutionist, and on the promulgation of the Darwinian hypothesis of natural selection he became one of its warmest adherents.

Between 1838 and 1840, Dr Grant was frequently engaged to deliver lectures at the Literary and Scientific Institutions of various large provincial towns, where his services were in great request and high esteem. In 1833 he gave a gratuitous course of 40 lectures,

on the structure and classification of animals, to the members of the Zoological Society. In 1837 he was appointed Fullerian Professor of Physiology in the Royal Institution, which he held for the usual period of three years. At a later period he was appointed by the Trustees of the British Museum to the Swiney Lectureship on Geology, the tenure of which is limited to five years. In 1841 he delivered the annual oration before the British Medical Association. In 1836 he was elected a Fellow of the Royal Society of London. He was also a Fellow of the Linnean, Zoological, and Geological Societies.

Dr Grant's vacations were spent sometimes in Scotland, but chiefly abroad, in France, Germany, Belgium, and Holland. On more than one of these occasions he was accompanied by an intelligent and favourite Hindoo pupil, Dr Chuckerbutty, who afterwards became a Professor in the Government Medical College of Calcutta. Dr Grant seems to have had a special liking for Holland, which he visited and revisited several times, partly no doubt on account of its scientific institutions and zoological museums, but largely also for the sake of acquiring the Dutch language. In like manner he afterwards spent a vacation in Copenhagen, and worked hard at Danish. Indeed, it is to be noted that he had a great taste for the study of languages, both practical and philological, and spoke the principal European tongues fluently.

Dr Grant's lectures were reported in the early numbers of the "Lancet," and he afterwards published a treatise on Comparative Anatomy, which embodied the substance of them. The work came out in parts, but was not completed. He was also author of the article, "Animal Kingdom," in Todd's Cyclopædia of Anatomy. The titles and dates of his communications to periodical works are given in the Royal Society's Catalogue of Scientific Papers; they are thirty-five in number, and extend from 1825 to 1839.

Dr Grant was a devoted lover of music, and attendance at operas and concerts was one of his chief enjoyments in his latter years.

In August 1874 Dr Grant suffered from a dysenteric attack, for which at first he would have no medical advice, and although subsequently, by appropriate treatment, the virulence of the disease was subdued, his strength was exhausted, and he died on the 23d of that month, at his house close by Euston Square. He was

buried in Highgate Cemetery, attended to the grave by a few old friends and attached pupils, among whom was his friend and former companion in travel, Dr Chuckerbutty, who was then in England, and two months later was destined to follow his venerated master.

Dr Grant was never married; he knew of no surviving relative. Three of his brothers, whose deaths he had recorded, were military officers. Of these, James, a lieutenant in the German Legion, fell at the siege of Badajoz in 1811; Alexander, captain in the Madras Engineers, died in the Burmese War in 1825; and Francis, captain in the Madras army, as already mentioned, died at Edinburgh in 1852.

By his will Dr Grant bequeathed the whole of his property, including his collections and library, to University College, in the service of which he had spent the greater part of his life, and to the principles of which he was sincerely attached.

2. An Illustration of the relative Rates of Diffusion of Salts in Solution. By Professor Crum Brown.

3. On the Oscillation of a System of Bodies with rotating Portions. By Sir William Thomson.

4. Laboratory Notes. By Prof. Tait.

*a.* On the Application of Sir W. Thomson's Dead-Beat Arrangement to Chemical Balances.

A considerable amount of time is lost in making an accurate weighing on account of the slowness of oscillation of the balance when the loads are nearly equal; and this loss of time is nearly proportional to the delicacy or sensitiveness of the balance. Hence it becomes a matter of importance to endeavour to bring the balance speedily to rest without, if possible, impairing its sensitiveness; as thus much time and labour would be saved in weighing. Several methods of applying gaseous friction for this purpose have been tried by me of late. By far the most successful consists in suspending from the beam, either within or beyond the scale-pans,