OBITUARY NOTICE.

Daniel John Cunningham. By Professor C. G. Knott.

(MS. received 7th December 1910.)

DANIEL JOHN CUNNINGHAM was born at Crieff on April 15, 1850. He was a son of the manse, and his father, the Rev. John Cunningham, subsequently became Principal of St Mary's College, St Andrews University. His mother was descended from a brother of Captain Porteous, of the Porteous Riot fame.

Daniel Cunningham was first educated at a small private school started by the heads of six families, who engaged a teacher for their boys. Ere long, however, Crieff Academy was organised, and to it the younger scholars were transferred. Cunningham received the simple, strong education of which Scotland was proud in those days, an education which fitted a promising boy for any walk in life. His first intention was to enter on a business career, and with this object in view he spent a year or two in Glasgow. When, at the age of twenty, he decided to follow medicine, he began his university studies with a more matured experience of life than was possessed by the majority of his associates. His business training had taught him the value of method, and, although a little out of touch with recognised methods of book study, he very quickly showed himself to be a man of marked ability. He proved an excellent all-round student, and specially distinguished himself in the classes of anatomy, physiology, materia medica, and surgery. After his graduation as M.B. and C.M. in 1874, he commenced practice as a physician in Glasgow.

The bent of his mind was, however, towards scientific studies. This he had already indicated by publishing in 1873 a short paper in the *Journal of Anatomy and Physiology* while he was still an undergraduate. The paper was called "Observations on the Distribution of some of the Nerves of the Head and Neck," and will be found in vol. vii. of the *Journal*, pp. 94–97.

A much stronger evidence of his scientific leanings was given by his M.D. thesis on the Anatomy of the Cetacea, for which in 1876 he received a gold medal. The same year, on the invitation of Sir William (then Professor) Turner, Cunningham returned to Edinburgh University as

Demonstrator in Anatomy. As Senior Demonstrator he took an important share in the removal of the Anatomical Department from the old to the new buildings in 1880, and in arranging the rooms for teaching purposes. Here he spent six years of strenuous work and continuous study, fulfilling not only his University duties but also during the last four years lecturing on physiology in the Royal Veterinary College. Meanwhile, his love of research was evidenced by some dozen notes and papers communicated to the *Journal of Anatomy and Physiology* between 1873 and 1882, and still more by the publication in the last-named year of an elaborate *Challenger* Report. On the return of the *Challenger* Expedition in 1876, Sir Wyville Thomson, under the advice of Sir William Turner, placed in Cunningham's hands the marsupial animals collected during the voyage. In preparing the report on their anatomy he met a puzzling modification in the arrangement of the muscles of the hand and foot, which led him to investigate the myology of those parts of the limbs in mammalia generally. This memoir established his reputation as an anatomist of the first rank. Some of the results had been published in the *Journal of Anatomy and Physiology* during the preparation of the Report, and it is not surprising that in the spring of 1882 he was elected Professor of Anatomy at the Royal College of Surgeons in Dublin.

In October 1883 he was transferred to the Anatomy chair in Trinity College, Dublin; and during his twenty years' tenure of this office Cunningham became by the simple force of his character a leading spirit. Into all that made for efficiency in university teaching and research he threw himself with devoted and single-hearted energy. Professor A. F. Dixon, his successor in the Dublin chair, describes his master's influence and work in these words:—

"Cunningham came to Trinity College at a very critical period in the history of her Medical School. The old medical buildings had long been inadequate for the requirements of her students, and the authorities of the College had become alive to the fact, thanks largely to the energy and zeal of the late Rev. Dr Samuel Haughton, F.R.S., Senior Fellow of Trinity College. The old spirit which regarded the school of physic as something foreign to and outside the university was dying fast, and, like the wall which for so long a period had separated the Medical School from the rest of the College, was soon to completely disappear. It is needless to say that in every movement for the advancement of the School, and for the better housing and equipment of its departments, Cunningham took a leading part, and assisted Haughton ably and enthusiastically. These gifted and able men became fast friends, and to their combined efforts the School of

Trinity College owes much—probably more than even she herself recognises. . . . In the equipment of his own department it was his aim and ambition to make it a perfect machine for teaching and research, and, as it stands to-day, the Anatomy School is a monument to the genius and energy of Cunningham—his foresight and powers of organisation are to be recognised in almost every detail. . . .

"A great and inspiring teacher, no detail was too trivial and no labour too arduous where the interests of his students were concerned. His knowledge and advice were ever freely at the disposal of all who desired to consult him, and those who went to him received counsel, encouragement, and assistance for the carrying out of their ideas such as few men have it in their power to give. His approbation and approval were most generously given and most highly appreciated. We doubt if any man ever exercised a more powerful influence over his students than Cunningham did, and the keen interest which he took in their work and pleasures was repaid by an admiration, esteem, and affection such as are rarely bestowed upon any teacher."

Cunningham's best energies were now devoted to two great purposes—scientific research in anatomy and anthropology and increased efficiency in the teaching and training of medical students. These two purposes shaped his whole career; but, as is ever the case with men of high character and unselfish devotion, his energies overflowed into other channels partly conditioned by circumstance. Trinity College and its Medical School were no doubt foremost in his thoughts and affections; but he gave unstintedly of his very best to other important institutions, such as the Royal Irish Academy, the Royal Dublin Society, the Royal Zoological Society, and the Royal Veterinary Society. Not only was he a student of the anatomy and physiology of all types of animals—he was a lover of them for their own sakes. Second only to the interests of his students was the welfare of the animals in the gardens of the Zoological Society. From 1895 to 1902 he was honorary secretary to the Society, and under his enthusiastic supervision great advances were made in improving the housing of the animals and in making the gardens a beauty and a pride in the eyes of the people of Dublin. Of special value was his success in providing open air for monkeys and other animals whose native haunts were of much warmer and milder climate than prevails even in Ireland. The Haughton House for kangaroos and monkeys and the later Roberts House for the lions were among his creations. The plans for these houses were drawn up after careful consideration of what had been done for similar purposes both on the Continent and in America. Only those who worked with him had any

true conception of the time and thought Cunningham gave to the whole question. He became president of the Society during his last year in Dublin; and there is no doubt that, although in 1903 he felt it his duty to obey the call to Edinburgh, he was sorry to part with his wild pets of the "Zoo," and especially with the young lion cubs whom he had known from their birth in captivity.

In 1901 Cunningham wrote a pamphlet on the "Origin and Early History of the Royal Zoological Society of Ireland." This eminently readable tract is a good example of the author's skill as a searcher of records. He showed how curiously fortuitous the initiation of the Society was, and how much its final success was due to its catholicity of spirit and to the self-devotion of the early secretaries and presidents. This interest in the history of institutions was almost a passion with Cunningham, and many of his less technical addresses take the form of an historic sketch.

Keenly interested in horses and cattle, Cunningham was also for a number of years the honorary secretary and afterwards vice-president of the Royal Dublin Society, whose annual show is one of the outstanding events in Dublin, and indeed in all Ireland. In the same connection may be mentioned his services in helping to found the Royal Veterinary College.

A man of Cunningham's scientific eminence could not long escape the eye of the administrators of national affairs. Accordingly, we find him serving on the Viceregal Commission appointed to inquire into the condition of the Inland Fisheries of Ireland (1900), on the Royal Commission on the Care of the Sick and Wounded during the South African War (1900), and on the War Office Commission appointed to report on the Physical Standards required for Candidates for Commissions and for Recruits. More recently he was convener of the Committee appointed to look after the arrangements for the medical equipment of the Territorial force in the East of Scotland.

Professor Cunningham entered on what might be called the third great stage of his life in 1903, when he was invited to return to Edinburgh University and take up the duties of the chair of Anatomy, which his former master, Sir William Turner, had vacated on assuming the office of Principal. Here at once he stepped into the very heart of the scientific life of the city. Many of the leading physicians had been his associates and pupils in the early days, and the younger medical men knew him as a foremost anatomist and author. The University staff still contained a goodly number of his former colleagues, and one and all welcomed him back to the scenes of his early triumphs. It seemed but natural that he

should almost immediately become the Dean of the Faculty of Medicine and one of the honorary secretaries of the Royal Society of Edinburgh.

Cunningham began his professoriate duties in Edinburgh by an inaugural address in which, in characteristic fashion, he dipped into the records of the past. Rapidly tracing the rise of the true study of anatomy from its beginnings under Vesalius of Padua in 1537, he showed how the Edinburgh school began to take form in 1700, although it was not till 1720 that with Monro Primus the University School of Anatomy assumed a definite organisation. The great developments associated with the introduction of antiseptic surgery and the application of the Röntgen Rays were touched upon in a luminous manner, and the address ended with suggestive remarks on the relation between the great size of the brain of man and his erect attitude. The succeeding year, when acting as Promotor at the July graduation ceremony, Cunningham delivered an address on "The Evolution of the Graduation Ceremonial." The address contains the description of very curious customs and regulations in several of the oldest universities of Europe. Most of these have disappeared with the advance of the centuries, although the fairly complete mediæval ceremonial still survives in the universities of Spain and of Coimbra in Portugal. In a valuable appendix to the address proper the regulations of the ceremonial details of graduation as practised to-day in nearly twenty of these old universities are given in considerable detail.

As Dean of the Faculty of Medicine, Cunningham carried out a number of changes in the curriculum, his guiding principles being the efficiency of the teaching and the benefit of the student. One great feature of his method of teaching was the regular periodic intercourse between each student and himself or one of his assistants. Only in this way, he was convinced, could the student be tested as to the progress he was making.

As one of the honorary secretaries of the Royal Society of Edinburgh he was of invaluable service, not only on account of the advice he gave the Council on all matters of import, but also during the removal of the Society from its former rooms in Princes Street to its new home in George Street.

In December 1908 Cunningham's health became so unsatisfactory that he was relieved of his University duties for the session and ordered to Egypt for rest and sunshine. At first the change seemed beneficial, but the improvement did not continue. He returned to his home in Edinburgh in the month of May in a condition which gave little hope of recovery. From this condition he never rallied, but passed away on June 23, 1909, at the comparatively early age of fifty-nine.

These are the main facts in the life of a man whose scientific eminence was early recognised by the Fellowship of the Royal Society of London. The Universities of Dublin, Oxford, St Andrews, and Glasgow conferred on him their honorary degrees. He was President of the Anthropological Section of the British Association at the Glasgow meeting of 1901, delivering on that occasion a suggestive address on the influence of the brain in the development of the human race. He also served as President of the Royal Anthropological Institute (1908), of the Anatomical Society of Great Britain and Ireland (1895), and of the Royal Academy of Medicine of Ireland (1902).

Cunningham's scientific work is marked by accuracy, lucidity, and a great sanity of judgment. In both public and private life his human sympathy and beauty of character shone through all he undertook. To know him was to love him. Inspired with a high sense of the duties and responsibilities of the position he occupied, he brought into the wide world which formed his environment all the strong and delicate traits of mind and heart which go to the making of the highest type of civilised man.

Some of his scientific work has been touched on incidentally in the foregoing paragraphs. It remains to indicate in the following list of papers and addresses the character of the more important of these. For convenience of reference the writings are grouped according to the Journal or Transactions in which they were published.

A. "Challenger" Reports.

1. Reports on some points in the Anatomy of the Thylacine (*Th. cynocephalus*), Cuscus (*Phalangista maculata*), and Phascogale (*Ph. calura*), collected during the voyage of H.M.S. *Challenger* in the years 1873–1876; with an account of the Comparative Anatomy of the Intrinsic Muscles of the Mammalian Pes. 1882. 192 pages; 13 plates.

In the material supplied, in addition to eight specimens of the animal mentioned above, there were three specimens of *Dasyurus viverrimus*, the Tasmanian Devil, the anatomy of which was not discussed in the same detail as in the other less familiar species.

B. Transactions of the Royal Irish Academy.

2. The Lumbar Curve in Man and in the Apes. The second "Cunningham Memoir." 1886. 148 pages.

This is regarded as one of his most important papers. He showed how necessary it was to consider the influence of the intervertebral discs in the constitution of the curves, and how very erroneous conclusions might be drawn from a study of macerated skeletons where the discs had disappeared.

3. Surface Anatomy of the Primate Cerebrum. Seventh "Cunningham Memoir." 1892. 360 pages.

This great work embodied researches covering many years, some of which had been published already in shorter papers.

4. On the Brain and Eyeball of a Human Cyclopian Monster. 1891. Vol. xxix. pp. 101–126. In conjunction with Dr E. H. Bennett.

5. On the Skeleton of the Irish Giant Cornelius. 1891. Vol. xxix. pp. 553–612.

This forms part of Cunningham's extended studies in acromegaly and giantism, concerning which he advanced several important views.

C. **Proceedings of the Royal Irish Academy.**

6. On some Ossean Remains found at Old Connaught, Bray, County Dublin. 1894. Vol. iii. pp. 421–427.

7. On some Human Remains recently discovered near Lismore in the County of Waterford. In conjunction with Dr C. R. Browne. 1897. Vol. iv. pp. 552–558.

D. **Transactions of the Royal Society of Edinburgh.**

8. The Varying Form of the Stomach in Man and the Anthropoid Ape. 1906. Vol. xlv. pp. 9–49.

Here Cunningham discusses with lucidity and fair-mindedness the various observations made by many physiologists and anatomists, and the conclusions arrived at. He shows how the marked changes in the form of the stomach are closely associated with its functioning at the time, according as it is filling, or emptying, or empty.

9. The Evolution of the Eyebrow Region of the Forehead, with special reference to the excessive Supraorbital Development in the Neanderthal Race. 1908. Vol. xlvi. pp. 283–312.

From a general survey of the morphological characters of the eyebrow eminence in man and the apes, Cunningham doubts its value in determining specific differences between the Neanderthal and other races of mankind, in this respect disagreeing with Schwalbe.

E. **Proceedings of the Royal Society of Edinburgh.**

10. Cape Hunting Dogs (*Lycaon pictus*) in the Gardens of the Royal Zoological Society of Ireland. 1905. Vol. xxv. pp. 843–848.

11. Obituary Notice of Professor W. His. 1905. Vol. xxv. pp. 1235–1240.

12. Report on the Skulls appended to Dr Robert Munro's paper on a Human Skeleton with Prehistoric Objects found at Great Casterton, Rutland, etc. 1906. Vol. xxvi. pp. 293–309.

Also from time to time exhibits of slides and photographs.

F. Journal of the Royal Anthropological Institute of Great Britain and Ireland.

13. Account of Anthropometric Laboratory in Dublin founded by D. J. Cunningham and A. C. Haddon. 1892. Vol. xxi. pp. 35–39.

14. The Skull and some of the Bones of the Skeleton of Cornelius Magrath, the Irish Giant. 1892. Vol. xxi. pp. 40–41.

15. On the Microcephalic Brain. 1900. Vol. xxx. Given also at the B.A. Meeting at Bradford, 1900.

16. On the Sacral Index. 1900.

17. Right-handedness and Left-brainedness. The Huxley Memorial Lecture, delivered October 21, 1902. Vol. xxxii. pp. 272–296.

Cunningham's conclusion was that an explanation of right-handedness had still to be found.

18. The Head of the Aboriginal Australian. 1907. Vol. xxxvii. pp. 47–57.

19. Anthropology in the Eighteenth Century. Presidential Address, 1908. Vol. xxxviii.

The address contains a record and criticism of the genius and labours of Camper, White, Blumenbach, Pritchard, Lawrence, and others.

20. Deputation on proposed National Anthropometric Survey to the Prime Minister (Campbell-Bannerman). 1907. Vol. xxxvii. Cunningham was first spokesman.

G. Transactions of the Royal Dublin Society.

21. The Brain and Head of the Microcephalic Idiot. 1895. Vol. v.

22. Lantern Demonstration of the Development of the Convolutions and Fissures of the Human Brain. 1894. Vol. v.

23. The Cape Hunting Dogs in the Gardens of the Royal Zoological Society. 1897. Vol. vi.

24. The Seventh Cranial Nerve in the Orang. 1898. Vol. vi.

Also from time to time various lantern-slide exhibitions on the Cape Hunting Dog, Chimpanzee, Orang, etc.

H. Journal of Anatomy and Physiology.

25. Observations on the Distribution of some of the Nerves of the Head and Neck. 1873. Vol. vii. pp. 94–97.

26. Notes on the Broncho-œsophageal and Pleuro-œsophageal Muscles. 1876. Vol. x. pp. 320–323.

27. The Spinal Nervous System of the Porpoise and Dolphin. 1877. Vol. xi. pp. 209–228.

28. Note on a Connecting Twig between the Anterior Divisions of the First and Second Dorsal Nerves. 1878. Vol. xii. pp. 539–540.

29. Note on Hypertrophy of the Sympathetic Nervous System. 1878. Vol. xii. pp. 294–296.

30. The Nerves of the Fore-limb of the Thylacine and Cuscus. 1878. Vol. xii. pp. 427–433. A first instalment of his *Challenger* Report.

31. The Intrinsic Muscles of the Hand of the Thylacine, Cuscus, and Phascogale. 1878. Vol. xii. pp. 434–444. Also in *Challenger* Report.

32. The Intrinsic Muscles of the Mammalian Foot. 1879. Vol. xiii. pp. 1–16. See also *Challenger* Report.

33. Note on the Distribution of the Anterior Tibial Nerve on the Dorsum of the Foot. 1879. Vol. xiii. pp. 398–399.

34. A large Sub-Arachnoid Cyst involving the greater part of the Parietal Lobe of the Brain. 1879. Vol. xiii. pp. 508–517.

This paper contains one of the earliest descriptions of the condition now known as acromegaly.

35. The Nerves of the Hind-Limb of the Thylacine and Cuscus. 1881. Vol. xv. pp. 265–277. Also in *Challenger* Report.

36. The Relation of Nerve Supply to Muscle-homology. 1882. Vol. xvi. pp. 1–9.

37. The Development of the Suspensory Ligament of the Fetlock in the Fœtal Horse, Ox, Roe-deer, and Sambre-deer. 1884. Vol. xviii. pp. 1–12.

38. The Musculus Sternalis. 1884. Vol. xviii. pp. 208–210.

39. The Connection of the Os odontoideum with the Body of the Axis Vertebræ. 1886. Vol. xx. pp. 238–243.

40. The Neural Spines of the Cervical Vertebræ as a Race Character. 1886. Vol. xx. pp. 637–640.

41. The Musculus Sternalis. 1888. Vol. xxii. pp. 391–407.

42. The Proportion of Bone and Cartilage in the Lumbar Section of the Vertebral Column of the Ape and several Races of Men. 1890. Vol. xxiv. pp. 117–126.

43. The Occasional Eighth True Rib in Man and its Relation to Right-handedness. 1890. Vol. xxiv. pp. 127–129.

44. The Intraparietal Sulcus of the Brain. 1890. Vol. xxiv. pp. 136–155.

45. The Complete Fissures of the Human Cerebrum and their Significance in Connection with the Growth of the Hemisphere and the Appearance of the Occipital Lobe. 1890. Vol. xxiv. pp. 309–345.

46. The Fissure of Rolando. 1891. Vol. xxv. pp. 1–23.

47. The Value of Nerve Supply in the Determination of Muscular Homologies and Anomalies. 1891. Vol. xxv. pp. 31–40.

48. The Sylvian Fissure and the Island of Reil in the Primate Brain. 1891. Vol. xxv. pp. 286–291.

49. The Development of the Gyri and Sulci on the Surface of the Island of Reil of the Human Brain. 1891. Vol. xxv. pp. 338–348.

50. Delimitation of the Regions of the Abdomen. 1893. Vol. xxvii. pp. 257–274.

51. On the Form of the Spleen and the Kidneys. 1895. Vol. xxix. pp. 501–507.

52. The Rolandic and Calcarine Fissures—a Study of the Growing Cortex of the Cerebrum. 1897. Vol. xxxi. pp. 586–598.

53. The Insular District of the Cerebral Cortex in Man and in the Man-like Ape. 1898. Vol. xxxii. pp. 11–22.

54. The Significance of Anatomical Variations. 1899. Vol. xxxiii. pp. 1–9.

55. Supra-condyloid Process in the Child. 1899. Vol. xxxiii. pp. 357–358.

I. Dublin Journal of Medical Science.

56. Bologna: the Part which it has played in the History of Anatomy. 1888. Reprinted in *Die internationalen Monatschrift f. Anat. u. Phys.*, 1890, Bd. vii.

This paper was read before the Royal Academy of Medicine of Ireland, whose meetings and discussions were regularly reported in the *Dublin Journal of Medical Science*. Cunningham faithfully attended these meetings, frequently exhibiting anatomical models and communicating short notes, eighteen of which will be found chronicled, with brief reports, in the same *Journal* between the years 1883 and 1902. Several of these communications, which were not mere exhibits, were published more fully in the *Journal of Anatomy and Physiology*.

J. British Association Reports.

57. Address to the Anthropological Section. 1901.

K. Books and Pamphlets.

Cunningham's *Manual of Anatomy* (1889; last ed., in two volumes, 1907) was a natural development of his first modest *Students' Guide to Dissection* (in three parts, 1879–87), and is the best of its kind in the English language.

In 1888 he published along with Professor E. H. Bennett *The Topographical Anatomy of Congenital Inguinal Hernia.*

He was the editor and one of the principal writers of the *Text-book of Anatomy* (1902; 3rd ed., 1909), to which other pupils of Sir William Turner contributed as collaborators.

He was also for many years one of the editors of the *Journal of Anatomy and Physiology.*

The following addresses were printed in pamphlet form:—Inaugural Address delivered at the opening of the New Anatomical Theatre, Trinity College, Dublin, Nov. 2, 1885; The Origin and Early History of the Royal Zoological Society of Ireland, 1901; Introductory Address to the Class of Anatomy in the University of Edinburgh, Oct. 13, 1903; The Evolution of the Graduation Ceremonial—Address to Graduates in Medicine in Edinburgh University, July 1904.