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BOOK REVIEW, by S. H. Haughton

Findlay, G. H. Dr. Robert Broom, F. R. S. Palaeontologist and Physician/1866–1951. A biography, appreciation and bibliography. A. A. Balkema/Cape Town/1972.

This book, of 208 pages and 57 illustrations, is priced at R7,50. It is prefaced by a 5-page appreciation of the subject written by Raymond A. Dart, the anatomist of the University of the Witwatersrand who startled the world in 1924 by his description of the "man-ape" *Australopithecus* represented by a juvenile skull and lower jaw found in the limestone deposits of Taungs, C. P.

Dr. Findlay has divided his account of his subject into two parts and has added a chronology and a bibliography, the latter consisting of 456 entries written from the year 1885 until the final one in 1952. Of this number, 37 have Broom listed as a co-author, but in the senior capacity. By far the greater number consist of descriptions of the anatomy of vertebrate fossils and of living vertebrates (amphibia, reptilia, mammals, and hominids); but some are of a more theoretical nature, and four of them are of interest to the philatelist.

Part 1 of Findlay's book is entitled "Biography"; part 2 "Science and the Man". Broom's life extended from his birth in Paisley in Scotland in 1866 to his death in Pretoria in 1951 and appears to have been governed throughout by a sense of superiority over most of his fellow scientists, and an objection to remaining chained to any one environment for any considerable time. The author's first paragraph in Chapter I is of some significance: "Robert Broom liked working out his family heritage. Alas, it was a bleak one—made up of six generations of Scotsmen setting their faces against poverty and tuberculosis, reinforced from time to time by stern calls to religion." Robert himself suffered from ill-health during his early years, so that his early schooling was of a sporadic character; but fresh air, away from Glasgow, at the week-ends and during the summer holidays worked wonders, opened his eyes and mind to the wonders of Nature, and developed a thirst for first-hand knowledge.

Four years at Hutcheson's Grammar School in Glasgow were followed by three years as an unpaid laboratory assistant in the Chemistry Department of Glasgow University. At the age of 17, Broom enrolled as a student of science and medicine at Glasgow, where he appears to have been something of a "lone wolf", unorthodox, and with something approaching contempt in his mind for most of those giving instruction. One man, however, appears to have exerted a great influence on this young student—John Young, Under-Curator of the Hunterian Museum, who introduced Broom to practical palaeontology and taught him the use of the microtome for preparing microscopic sections. In the Medical School, Broom found Cleland, the anatomist, of interest and was guided by the clinical accuracy displayed by Gairdner; but "the only branch of clinical work for which Broom immediately developed a liking was midwifery". For this, in his final medical examination in 1889, Broom carried off the William Hunter medal. This led him, after registration as a medical practitioner, to work for some months at the Glasgow Maternity Hospital, before shifting to the Royal Infirmary.

Then followed a period of "wanderlust". Two voyages as a ship's doctor to North America and back in 1891 were followed by emigration to Australia in 1892 after becoming affianced to his sweetheart Mary Baillie. First to Queensland, where he had little medical work to do, spent many hours collecting plants and animals of all sorts, found an interest in the aborigines and their detailed knowledge of the wild life of the region, and was laid prostrate for weeks by a bad attack of typhoid fever. Thence, in 1893, he migrated to New South Wales where he was joined by and married to Mary Baillie. In this State he remained until 1896, doing medical work at a succession of centres but concentrating for the most part on the "study of Nature", both living and fossil, and completing his M.D. thesis. In May, 1896, the Brooms sailed for England, and Broom made there his first acquaintance with Karroo vertebrate fossils from South Africa. Here was a study to which he considered he could contribute to morphological knowledge; so in January 1897 they sailed for South Africa which country was to be "home" for Robert until his death on April 6, 1951.

Chapters III to IX of Part I of this book are devoted to a fairly detailed account of Broom's doings and movements during these 54 years, with many quotations from diaries and letters which give ample evidence of Broom's self-confidence and, in some cases, the contempt he felt for any worker in his chosen fields who did not agree with his views or his actions. He described the staff members of the South African Museum at Cape Town—of whom Dr. Louis Péringuey was the Director and the present reviewer a member—as "jealous nonentities".

Settling in the town of Douglas, on the Vaal river, in 1918 Broom began to take an interest in the physical characteristics of the various non-European groups that lived in the area—Bushmen, Korannas, Hottentots—and made a collection of skulls and skeletons, some from "very old graves", which he studied intensively. His methods were not always in strict accordance with the law; but his studies led him to the conclusion that the Bushman and the Koranna were the two fundamental types in the area and that the Hottentot was a cross between the two. He admitted that these views were not universally accepted but "I think the world will ultimately agree with my solution in the main". During his years at Douglas, Dart's account of the discovery in the Taungs breccias of the skull and lower jaw of a young "man-ape", *Australopithecus*, burst upon the world and was received with scorn by highly-placed anatomists in Europe;

but Broom vigorously supported Dart's conclusions—and his own discoveries made from 1936 onwards fully substantiated the stand taken by them.

Through the influence of General J. C. Smuts and the Hon. J. H. Hofmeyr, stimulated by Professor Dart, Broom was appointed as a temporary "assistant for Palaeontology and Physical Anthropology" at the Transvaal Museum, in Pretoria, in 1934, a post that he occupied until his death. It was here, in addition to writing many descriptions of what he considered to be new genera and species of mammal-like reptiles of Karroo age, that he contributed so much to the discovery, recovery, and description of the humanoid remains found in deposits in caves in the dolomites of the Transvaal, in particular those from the Sterkfontein area (including Kromdraai). The chapters of the book dealing with these seventeen years are of intense interest. They, and the others, display a man of endless industry and immense powers of observation.

In Chapter XI the author attempts an evaluation of "the Man and His Thoughts". In a review of a book such as this, it is not desirable to enlarge on the author's findings. Suffice it to say that the author has depicted the simple nature of his subject's attitude towards his fellow-workers in the same fields of study—admirable fellows if they agreed with his conclusions, but pompous or ignorant nonentities if they did not so agree. There can be no doubt that Broom's mind was an extremely active one and that he saw that the essential preliminary to the postulation of a hypothesis was the possession of facts. But facts of themselves were to him useless unless they could be co-ordinated into a coherent whole; and the attainment of this coherent whole was his objective in the two fields of study in which he spent most of his scientific life—the origin of mammals and the origin of Man. Read this chapter more than once—it is revealing.

The book ends with a short chapter entitled "Broom's Contribution to the Origin of Man" (which does not exactly express its contents), followed by a Chronology and a Bibliography. Of the works listed 64 appeared during the years that he was associated with the Transvaal Museum.

Readers of this book will agree that it is a fitting tribute to an outstanding scientific personality who made South Africa his home and who did much to enhance its importance in the field of vertebrate palaeontology, an importance that is now recognized on a world-wide scale.