by Kathleen Histon

Via Mazzini 4, Valganna (Va), Italy. Email: hiscat@interfree.it

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Rebels, Scholars, Explorers

Women in Vertebrate Paleontology

Authors: Annalisa Berta and Susan Turner

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This excellent volume by Annalisa Berta and Susan Turner presents a comprehensive study of the women who have contributed to the world of Vertebrate Palaeontology for more than 200 years. The book provides a wealth of historical background on a variety of women working on “old bones” from around the globe and across centuries that have witnessed social, political and cultural changes that have influenced their role in science.

Both authors have strong backgrounds in science and especially in history of science and in particular, S. Turner who is a member of the

IUGS International Commission on the History of Geological Sciences (INHIGEO), has published widely on documenting the history of Women in Geology.

The title *Rebels, Scholars, Explorers* is well chosen and provides a perfect image to the unfolding transformation of women’s integration within vertebrate paleontology. The authors state in the preface that they envision that their book will “serve two audiences – students and professional paleontologists”. Their hope is that by sharing their stories and telling the history of women intertwined with that of the development of the discipline a new generation will be encouraged to follow their passion and join in the exciting discovery of fossils.

The book is divided into seven distinct chapters which are complemented by a set of appendixes regarding oral interviews both to women vertebrate paleontologists and their male mentors and examples of taxa named for and by women, in addition there is an extensive list of literature on the topic and bibliography for further consideration by the reader.

The opening chapter sets out the path the authors will guide us along in order to best understand the role women have played within this specific discipline and thus they begin by looking at the past to discuss the origins of vertebrate paleontology as a science. There is a fascinating insert that provides the contribution of women under the heading “The Vertebrate Fossil record”. Over the next three chapters the biographies of many well-known names in vertebrate paleontology are mentioned, however, it is the numerous relatively unknowns that have been presented herein from across the globe that attract attention regarding their important contributions, especially from the Soviet Union and China.

Chapter 2 leads us through the historic development with a series of relevant biographies of early “bone hunters” from the 18th century up until the middle of the 19th century: a period when significant discoveries were made by the “Rebels”. These were mainly British or European women from wealthy family backgrounds who had a strong interest in science despite a general reluctance to include them in these endeavours due to the demands and restrictions that governed their place in society. They were as yet not accepted within the university realm so

were mainly self-educated as science was a male dominated discipline. However, many were wives or assistants who drafted illustrations or worked on preparation of collections and in this way made their contribution. These include figures such as Mary Anning (1799-1847), Mary Ann Mantell (1795-1869), wife of Gideon Mantell, Mary Buckland (1797-1857) wife of William Buckland who are well known but those such as the far east British traveller Hester Lucy Stanhope (1776-1839), who amassed a collection from the Cretaceous of Lebanon, and Anna Harden Leidy (183?-1913) who assisted her husband Joseph Leidy in Wyoming (USA) are new names of interest. In Russia we learn of Maria Nikolaevna Romanova (1819-1876), daughter of Nicholas I who collected the fossilized jaw of an Ice Age rhinoceros which she donated to the Moscow Society of Naturalists. She was enrolled as an honourable member in recognition of her gift.

Chapter 3 takes us into the late 19th to early 20th centuries when access to university was now possible for our “Scholars” and they could participate in geological and paleontological research. Our authors have provided a remarkable array of women who now could follow their dreams: M.E.D. Courtenay-Latimer (1907-2004) in Africa, while in Europe H.S. Pearson (1899-1975) in Britain, K.L. Adametz (1879-1966) in Austria, “Tilly” Edinger (1897-1967) in Germany, Annie Schreuder (1887-1952) in the Netherlands just to mention a few, M.Dolgopol de Sáez (1901-1957) in Argentina, in the United States we learn of A. M. Alexander (1867-1950) in California and F.R.M. Hitchcock in New York and from the USSR A.B. Missuna (1868-1922). These biographies reveal the passionate interest shown in paleontology by these women who forged careers within academia, despite both the social and political difficulties of their time.

Chapter 4 concentrates on women vertebrate paleontologists during the decades of the Mid - 20th century (1940-1975) and examines the challenges and achievements in the same period that witnesses the founding of the first professional society devoted to the study of fossil vertebrates in 1940, The Society for Vertebrate Paleontology. Many American women were charter members of the SVP such as Tilly Edinger. World War II affected paleontology around the world leading to loss of key figures such as Anna Hartmann-Weinberg (1882-1942) in Russia while others took over museum and academic activities in the USA, previously dominated by their male colleagues such as Hildgard Howard (1901-1998). By the Mid-20th century there is a remarkable increase around the world of participation by women in this discipline making significant findings and contribution to research with new discoveries and here I mention just a small selection of those in the book: such as Mary D. Leakey (1913-1996) and S.C. Coryndon (1926-1976) in Africa, Chang-Kang Hu (1928-2011) and Yu-Ping Chang (Zhang) (1934-1985) in China, Doherty Hill (1907-1997) and Joyce Gilbert-Tomlinson (1916-1981) in Australia, Noemi Violeta Cattoi (1911-1965) in Argentina, Elizaveta Ivanovna Beliaeva (1894-1983) in Mongolia and E.Y. Mark-Kurik (1928-2016) from Estonia who took part in excavations in the Ukraine, Russia, Latvia and Siberia.

Chapter 5 brings us from the late 20th century into the early 21st and

current times and we follow the careers of many important women in the geological sciences, especially in Asia, Africa and South America while Chapter 6 is a review of the multidisciplinary approaches in science and the achievement of gender parity. The careers of a multitude of women are placed in context of the major developments taking place in vertebrate paleontology around the world.

A set of 40 illustrations brings these rebels, Scholars and Explorers to life within a variety of settings from portraits, to lecture room, laboratory, field work, field excursions, during preparatory work, to group conference photos – how marvellous to see the not only evolving roles but the vast range of attire for fieldwork!

There is a compelling final chapter on Challenges and Opportunities for women in vertebrate paleontology that deserves to be given special mention as the content can be applied across the range of geoscience disciplines and indeed science in general. The authors based on an in depth and comprehensive analysis of the sector and those who have worked in this discipline present their conclusions as follows: a review of challenges for women in the discipline, a series of positive changes achieved and a set of recommendations and guidelines for going forward. This chapter displays such detail and underlines the seriousness with which not only the authors have dealt with the topic in hand but the willingness of their colleagues both men and women to contribute by describing in both written and oral interviews the worlds they work within, their participation and achievements in their science, the failures and the often painful and difficult circumstances they have overcome.

The authors in this gem of a book have brought together their own experience and that of hundreds of women in vertebrate paleontology from every continent and across the centuries and decades of time, including a range of age groups, ethnic and cultural backgrounds to tell their stories - certainly to be taken as standard reading for anyone considering a career in the geological sciences.

Episodes does not have to share the same opinion as reviewers and we do not take responsibility for reviews and comments.

Kathleen Histon is an invertebrate paleontologist and stratigrapher and currently INHIGEO Publications and Outreach Coordinator.