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Julia Tanner, John Betterton, Robert Neller & Jonathan Craig

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The Life and Works of Sir Archibald Geikie

Julia Tanner^{1*}, John Betterton¹, Robert Neller¹ and Jonathan Craig²

¹Haslemere Educational Museum, 78 High Street, Haslemere, Surrey, GU27 2LA, UK

²Eni Upstream & Technical Services, Via Emilia 1, 20097 San Donato Milanese, Italy.

*correspondence: curator@haslemeremuseum.co.uk

Sir Archibald Geikie KCB, OM, FRS (1835–1924) was one of the most eminent geologists of the late 19th and early 20th centuries. Geikie was instrumental in the development of the science of geology during this period and the eminence he attained was acknowledged by the bestowal of many prestigious honours.

During his distinguished career Geikie held numerous appointments, including Director-General of the Geological Survey of the United Kingdom, President of the Geological Society, President of the British Association, Trustee of the British Museum and President of the Royal Society (the only geologist to have ever held the latter honour). He was also an accomplished writer and during his career he published over 200 scientific papers, survey memoirs, books, articles and an autobiography. In addition, he was a masterful lecturer to any level of audience and a talented artist.

As the most distinguished and influential geologist of the period, he received many notable honours, including a Knighthood in 1891, Knight Commander of the Bath in 1907 and the Order of Merit in 1913. In retirement Geikie continued to work vigorously as demonstrated by his contribution to the famous Geological Survey Memoir of the North West Highland of Scotland published in 1907 which he edited, his numerous obituaries of fellow geologists, geological contributions to Encyclopaedia Britannica and other publications, as well as work on his geological collections and Royal Society history.

Despite this high profile, Sir Archibald Geikie is the most significant Victorian geologist without a general recent study. Most existing information on this Victorian scientist is derived from his 1924 autobiography. This Special Publication, based on collaboration between the Geological Society of London and Haslemere Educational Museum, aims to fill this lacuna in the Earth Sciences literature and to showcase the life and achievements of this prolific geologist for the first time in the modern era.

The Geikie Archive at Haslemere Educational Museum

Geikie's association with Haslemere Educational Museum began after his retirement in 1901, when as a patient of Sir Jonathan Hutchinson, the Museum's founder, he moved to Haslemere. When Hutchinson died in 1913 the Museum's future looked in jeopardy, but Geikie along with other interested parties created a trust which was instrumental in saving the museum for perpetuity. In 1913 he was invited to become the first Chairman of Haslemere Educational Museum, a post he held until his death in 1924. That the Museum was saved during the difficult war years was also largely due to Geikie's leadership. He died at his home, Shepherd's Down, Hill Road, Haslemere, on 10th

November 1924, aged eighty-eight. He is buried at St. Bartholomew's Church, Derby Road Cemetery, Church Hill, Haslemere.

Many of the papers in this volume make extensive use of material in the Geikie Archive at the Museum. The Archive was in part donated by Geikie himself and then subsequently by members of the family including his daughters Gabrielle Geikie Behrens and Lucy Webb, his uncle Harold Geikie and his grandson Derick Behrens. This unique collection records the life and career Sir Archibald Geikie and his significant contribution to British science. The contents can be summarised as follows: copy letter books consisting of outbound letters, incoming letters, field notebooks, watercolours, drawings, photographs, maps, geological specimens, books, offprints, newspaper clippings, manuscripts and personal memorabilia. Geikie's significant role and contribution to geology and also as a leading Victorian scientist remains preserved within the contents of the Archive at Haslemere Educational Museum. As such this archive is of worldwide importance to the history of science.

This Special Publication is partly the result of many years of research and development of the Geikie Archive, starting during the curatorship of Diana Hawkes from 1988 to 1999. As a geologist who realised the true historic value of the archive, Diana Hawkes re-organised and catalogued the collection with a mind to its access and promotion. In 1994, she produced a document entitled, 'The Geikie Archive Development Project' outlining the nature of the Archive and seeking sponsorship for cataloguing, research, display and improved storage of the collection. A second report was produced in 1998 by Dr Paul G Davis who was commissioned by the Museum to develop the document named, 'The Sir Archibald Geikie Archive - Management Report and Development Plan', detailing the contents of the Archive, future requirements, core development areas and fundraising plans. Since

2000, the Museum has developed a number of Geikie Archive reports to raise its profile, resulting in successful funding in support of this unique collection.

A great deal of work has been undertaken to curate, research and raise the profile of the collection. Haslemere Educational Museum's geologist/mineralogist John Betterton has worked on the Archive since 2004. He has worked tirelessly to catalogue, research and digitise the Archive and his outstanding contribution to the understanding and preservation of the Archive is reflected in his three seminal contributions and his two compilations of Geikie's work for this volume. Robert Neller, Collections Officer at Haslemere Museum, has also assisted with the research, development and collections management of the Geikie Archive since 1995. Museum volunteers have worked on the Archive over time, including Margaret Borrelli, Rhys Davies, Rosemary Lloyd-Williams, Philip Palmer and Lucia Woodward. Numerous researchers have consulted material in Archive over the years including, in particular, David Oldroyd and Peter Worsley. Shell UK Ltd have provided two grants towards research, storage and documentation. Grants have also been received from the Curry Fund of the Geologists' Association for upgrading the storage of the collection and improvements to the Museum's gallery display devoted to Geikie. In 2012 the Museum received funding from Statoil (UK) Ltd to digitise and transcribe part of the Geikie Archive.

In 2012, a conference entitled, 'In the Footsteps of Sir Archibald Geikie', was jointly organised between the Geological Society's History of Geology Group (HOGG) and Haslemere Educational Museum, with key assistance from John Diggins and Richard Moody. The conference was held at the Museum on 13th April 2012 and comprised a series of lectures, a display of material from the Geikie Archive and a visit to the grave of Sir Archibald in St Bartholomew's churchyard. With momentum from the conference, the Museum was keen to forge ahead with a modern publication relating to

Geikie. With the support of Jonathan Craig (Honorary Professor, UCL, Royal Holloway and University of Durham), geoscientist and editor, the Museum entered discussions with the Geological Society of London regarding the development of such a publication. Several people provided advice in deciding the nature and scope of the publication during the initial considerations and we are very grateful for their expertise, namely Rob Butler, John Henry, Richard Law and John Mendum. Sadly, John Mendum has not lived to see the final publication of the book but it stands as a lasting legacy to his memory.

Organization of the volume

With such a broad theme as Archibald Geikie we have divided this volume into seven sections that cover the main areas of his life and accomplishments.

The first section deals with Geikie's family life, with a contribution from **Betterton (2018a)** describing the immediate family and descendants together with much previously unpublished documentary archival material held at Haslemere Educational Museum. **Cribb (2018)** concentrates on Geikie's early life in Edinburgh from the period 1835 to 1855 and his development. **Taylor (2018a)** traces the family's history including a number of family scandal's and Geikie's religious belief.

The second section covers some of Geikie's most important contemporary friendships and relationships during his lifetime. **Taylor (2018b)** discusses his relationship with Hugh Miller, his mentor, and how this friendship led to Geikie's recommendation to the Geological Survey. **Burek (2018)** explores Geikie's early support for female geologists and their various roles as researchers, lecturers, wife assistant and students. Several case studies are examined. While in **Johnston (2018)**, the lifelong friendship with the Scotland's most eminent mineralogist Mathew Forster Heddle and Geikie is scrutinized, and traces their lives from birth, education; and first fruits of employment and their first meeting. Followed by their different and complementary career paths. **Sorkhabi (2018)**

examines Geikie's geological connections with fellow American geologists made during his two visits to the United States of America in 1879 and 1897. Here, he made long professional relationships with many pioneering American geologists, conducted several field trips to various states, studied fluvial erosion including his famous lecture series at John Hopkins University. **Sanders (2018)** encapsulates the professional and personal relationship between Geikie and his publisher Alexander Macmillan and Macmillan & Co. Through this relationship Geikie met his future wife Anna Maria Alice Gabrielle Pignatal.

The third section covers Geikie as a field geologist. **Butler, Matthews, & Morgan (2018)** examine three pieces of geological research by Geikie from Scotland. They describe the field locations and places modern interpretations in a historical context and follows the various methods and bias introduced during the building of interpretations and debates. **Dewey (2018)** describes a rather different Geikie, a formidable, authoritarian character that rose to Director- General of the Geological Survey of Great Britain. Geikie developed a commanding impact over Victorian and Edwardian geology, propagated via his many geological publications. **Summerhayes (2018)** follows the Ice Age controversy between Lyell and the proponents of the ice sheet deposition theory by Agassiz and Geikie. Further demonstrated by Geikie's brother James worldwide. **Worsley (2018)** charts the Geikie brothers field expedition in 1865 to Arctic Norway to study current glacial processes to support the newly developed terrestrial glaciation hypothesis and correctly interpreting the genesis of 'Drift'. **Morgan (2018)** treats us to the study of rock weathering processes as applied to gravestones. Geikie developed a keen interest in using gravestones to monitor weathering in stone buildings.

The fourth section uncovers archival and unpublished material from Haslemere Educational Museum. **Betterton (2018b)** describes in detail the extensive archive of papers, illustrations, albums and geological specimens accumulated by Sir Archibald Geikie. The history is accompanied by numerous images from this rich depository in Surrey. **Betterton (2018c)** also publishes here for the

first time fourteen unpublished manuscripts by Archibald Geikie in approximate date order. Some date from when Geikie was only 12 years old. Later manuscripts dating from the 1850's and is important in understand his intellectual development during this decade. Finally, here, **Betterton (2018d)** gives us a brief coverage of the various archives in the UK that hold important Geikie material with content summaries.

The fifth section investigates the strong family artistic abilities with **Morrison (2018)** describing the extensive collection of landscape artwork by Geikie housed at Haslemere Educational Museum. The various links between geology and fine art are explored. While **Scott (2018)** devotes here study of the life and art of Walter Geikie. He was one of the most remarkable artists of the early 1800's in Edinburgh and his work focused on the portrayal of the poor and working classes of that city.

The sixth section covers a selection of geological collections related to Archibald Geikie. **Benton (2018)** visits the famous Elgin reptiles and traces their named history, including the dicynodont *Geikia*. **Betterton (2018e)** describes the uncommon mineral geikielite named after Geikie from co-types specimens presented to the Natural History Museum, London. Their history is documented together with notes on its occurrence. **Mendum and Howe (2019)** trace the evolution of petrography in Scotland from the 1850's to the 1890's based on the petrological collections assembled by Geikie and his subordinates at the British Geological Survey.

The final seventh section is devoted to the Scottish oil shale industry with a contribution from **Underhill and Craig (2019)** and traces its foundation by James "paraffin" Young and its subsequent development in the Midland Valley of Central Scotland.

A great deal of professional research has been undertaken by our contributors, with reference to various sources relating to Geikie's life and career and this has contributed to the depth and breadth of the publication. This contemporary research has enabled a deeper understanding of Sir Archibald

Geikie's life, career and contribution to the development of Geology as a scientific discipline. We hope that this Special Publication will inform and engage the reader, as well as inspire further research on Sir Archibald Geikie and his geological legacy. For Haslemere Educational Museum it has been important that the information stored within the Geikie Archive is promoted and made accessible to the academic and public realm so that its scientific and historical potential can be realised. Finally, we are extremely thankful to all our contributors without whom this publication on Sir Archibald Geikie would not have been possible.

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John Betterton's mother, Soraya Betterton (1926-2018), contributed in the initial and final selections of Sir Archibald Geikie's artwork for this volume. It is of considerable sadness to John personally, and

to his fellow editors, that she will not be able to see her selections published as she passed way in early March 2018. Soraya was also involved in the Geikie image selections and in John's lecture preparation for the joint HOGG/Haslemere Museum Conference on Archibald Geikie in April 2012.

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