Geology, alchemy and exploration
The Earth Sciences Rare Book Collection

Lesley Truffle

The oldest book in the University of Melbourne's Earth Sciences Rare Book Collection is the 1776 edition of Rudolph Raspe's book *An account of some German volcanos*.[1] This small book was originally published as an ancillary text to Sir William Hamilton's research on Italian volcanos. The original cover has long gone but the illustrative plates have both aesthetic and historical significance. One plate titled 'Volcanic crater near Frankenhousen in Lower Hesse' is a fold-out engraving of strata and lava. The quality of the paper used and the fine resolution of the printing process both contribute to subtle nuances of tone and shadow. For those unfamiliar with 18th century language it would not be an easy read, but Raspe's book is still relevant today because contemporary geologists are constantly looking to the past when making geological observations. Early geology reports may be the only geological evidence left once an area has been built over or decimated.

Rudolph Raspe's book was published in the late 18th century, a transitional period frequently referred to as the late Enlightenment. Some of the speculations put forward by Boyle, Leibniz, Descartes, Hume and Voltaire would become the basis for scientific enquiry—such as the concept that knowledge should result from analysis, observation and empirical reality rather than being construed from religious and historical traditions. It was an era when many intellectuals and writers were busily devising new ways of looking at the world: Giacomo Casanova was documenting his astute observations of high and low society and Immanual Kant was formulating his critiques of reason.

Rudolph Raspe's book has recently been catalogued along with the rest of the Earth Sciences Rare Book Collection (with generous funding granted in 2007 by the Russell and Mab Grimwade Miegunyah Fund), and can now be accessed through the University of Melbourne Library's online catalogue.[2] A listing of the collection can also be browsed on the Earth Sciences Library homepage.[3] The

Opposite: 'Volcanic crater near Frankenhousen in Lower Hesse', engraving, from Rudolph Erich Raspe, *An account of some German volcanos, and their productions: With a new hypothesis of the prismatical basaltes, established upon facts: Being an essay of physical geography for philosophers and miners*, London: Printed for Lockyer Davis, Holborn, printer to the Royal Society, 1776, plate II, facing p. 38. Earth Sciences Rare Book Collection, University of Melbourne.

Left: Binding, from John Henry Pepper, *The boy's book of metals: Including personal narratives of visits to coal, lead, copper, and tin mines: With a large number of interesting experiments relating to alchemy and the chemistry of the fifty metallic elements,* London and New York: G. Routledge, c.1875. Earth Sciences Rare Book Collection, University of Melbourne.

subject matter is mostly natural history, palaeontology, history and philosophy of science, mineralogy and geology.

There are over 1,000 books in the collection and a significant proportion of these are the only known copy available in Australia. The majority were published between 1850 and 1900, with most of the remainder published before 1940. The collection consists largely of early geological and palaeontological texts with strong holdings of early palaeontological monographs in French, German and English. There is a substantial number of early periodical titles such as *Transactions of the Geological Society of Australasia, Geological Society of Victoria* (Reports, Bulletins, Memoirs and Records), *Transactions of the Geological Society (London), Mémoires de la Société géologique de France*, various publications from the United States Department of the Interior and the *International Catalogue of Scientific Literature.* Although some of the series are incomplete, these periodicals are important historically because at the time the earth sciences disciplines were being developed, these journals were publishing original observations and research. Also, several of the journals are still being published today and the archived volumes are used by contemporary researchers.

Three quarters of the collection is in English and some of the key authors are William Baragwanath, Joseph Cushman, Georges Cuvier, James Dwight Dana, Charles Darwin, Richard Lydekker, Frederick McCoy and Raymond Priestley. Most of the titles were published in Australasia, the United States and the United Kingdom. The books are predominantly in English, French and German. There are also some titles from Mexico, India, Japan and Spain, along with the odd title from countries such as Holland, Russia and Brazil.

Information on the provenance of the collection might emerge with further research, but it is known that Sir Frederick McCoy (1817–1899) and Professor Ernest Willington Skeats (1875–1953) donated a significant number of the volumes. It is believed that the core of the collection came from Skeats. Most of the books bearing his name tend to be on scientific subjects such as vulcanology and petrology. However, there are some books in the collection that are rather more obscure. *The boy's book of metals* by John Henry Pepper was published in around 1875,[4] originally as the *Playbook of metals*, and appears to have been popular at the time as the c.1875 version was the eighth edition. With over 300 illustrations, it documents 'A Large Number of Interesting Experiments' in alchemy and chemistry of the metallic elements. Included are descriptions of personal visits to coal, lead, copper and tin mines. Many of the illustrations are diagrams of scientific experiments, drawings of metals, alchemy apparatus and mining equipment. There are also some humorous depictions of alchemists and conmen performing their magic for awed spectators. Pepper covers diverse subjects, ranging from hydrogen generators and coalmining to the domestic use of magnesia and the arsenic eaters of Styria. He recounts:

> There is in Stürzburg a well-known arsenic eater, Mr. Schmid, who now takes daily twelve and sometimes fifteen grains of arsenic. He began taking arsenic from *curiosity*, and appears to be very healthy, but always becomes sickly and falls away if he attempts to leave it off.[5]

Pepper writes that he has it on good authority that some citizens of the metallurgical areas of Styria developed their penchant for arsenic because they believed it enhanced their physical appearance and diminished the fatigue commonly

'The miraculous omelette from the monk's wand', from John Henry Pepper, *The boy's book of metals: Including personal narratives of visits to coal, lead, copper, and tin mines: With a large number of interesting experiments relating to alchemy and the chemistry of the fifty metallic elements*, London and New York: G. Routledge, c.1875, fig. 86, p. 140. Earth Sciences Rare Book Collection, University of Melbourne.

experienced in high altitude alpine regions. He notes that when the local graveyard is full and the bodies are dug up for relocation, that the arsenic eaters' bodies are still 'recognisable by their friends' due to the unique preservation properties of arsenic. He puts forward the theory that the finding of these preserved bodies could well be the inspiration and origin of vampire stories.[6]

Pepper also writes about the rise of alchemy in the 16th and 17th centuries. Many of the practitioners were fraudsters and they developed all manner of tricks such as demonstrating to the gullible that base metals could be changed into precious metals. Frequently this involved painting gold daggers or coins with dark paint that could be washed away when immersed in supposedly magical elixirs. A few spells later and it appeared that a metal object had been turned into pure gold. Another trick was 'transmutation', which involved sleight of hand and the use of a hollow rod which was filled with small amounts of gold or silver and a wax plug.[7] When the heat of the crucible melted the wax, the precious metal would slide out of the hollow rod, to the astonishment of the onlookers. One of the illustrations depicts a pious Spanish monk, who

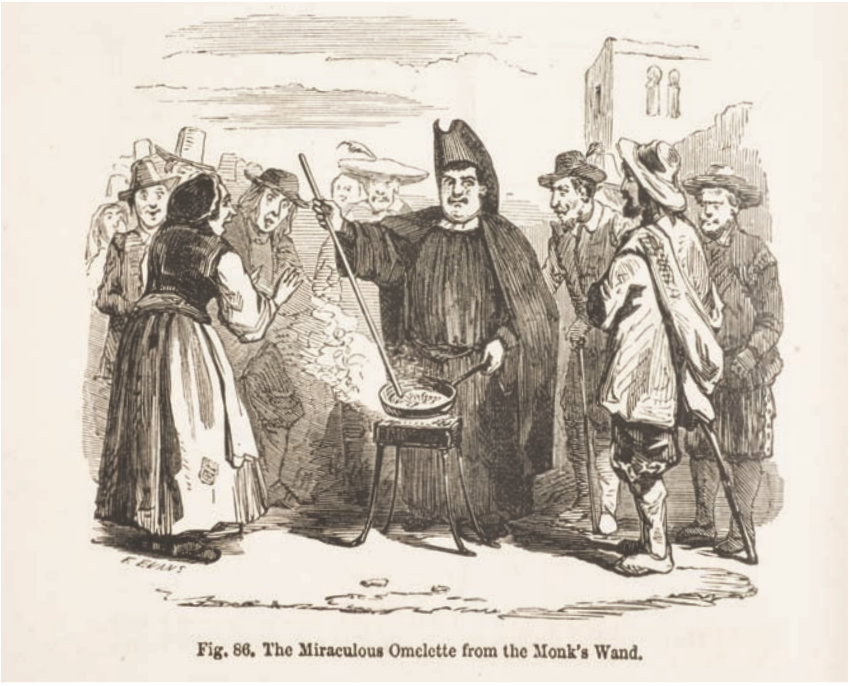

Fig. 86. The Miraculous Omelette from the Monk's Wand.

produced an omelette by trans-mutation for his hungry flock (above). The omelette ingredients apparently slid out of the rod when the priest performed his miracle and stirred the rod over a heated frypan.

Research to date has not uncovered documentation as to when the books were donated, although some bear University of Melbourne bookplates with the names of the donors neatly penned in. A large number of books appear to have been donated by professors, academic staff and visiting academics. Some of the books bearing presentation plates indicate that they had been presented to the University by various societies, museums and individual citizens. It does not appear that any of the books were purchased specifically for the Rare Book Collection.

Helen Thomson, former Earth Sciences Librarian and author of the 2006 significance assessment of the collection,[8] has pointed out that many

of the books donated by Professor Skeats were actually from his personal collection. It was this collection that formed the basis of the original Department of Geology Library which eventually became the Earth Sciences Library. Helen mentioned that, 'When I found one of the books that had been donated by Skeats in the library, I thought it gave the whole library a wonderful sense of romance. To be holding a book in my hand that was the beginning of a library established long before I was born and will continue long after I'm gone was a fabulous feeling and sent chills down my spine.'[9]

Skeats was Professor of Geology and Mineralogy at the University of Melbourne from 1904 to 1941, and his generous contribution to the collection provides an insight into a working geologist's library of that time. A British petrologist of some distinction, Skeats' early research predominantly concerned the chemical and microscopical characteristics of limestones. In Australia he studied amongst other things the petrology of igneous rocks, volcanics and granites, lavas, dyke rocks, and alkali lavas. He received many prestigious awards for his scientific work. Under his strong leadership the University of Melbourne's Department of Geology gained an international reputation as a specialist school in igneous petrology and petrography.

Skeats was a man of great energy and varied enthusiasms and he sustained many interests throughout his life. In his youth he played Association football and in later years retained an interest in both Australian Rules football and cricket. From 1920 to 1941 he was chairman of the University's Sports Union. When he was not serving on the boards of various scientific societies and institutes, he indulged his passion for Gilbert and Sullivan operettas. In 1935 he was elected chairman of the Gilbert and Sullivan Society of Victoria. Skeats knew the lyrics to Gilbert and Sullivan's works by heart and he liked nothing better than entertaining people with impromptu renditions of his favourite tunes.[10]

Professor Skeats has been fondly recalled by former students. John Knight was a student in the 1930s who first met Skeats during a Gilbert and Sullivan season, and later became a student in Skeats' geology classes. Professor Skeats' lecture style was engaging and witty and he covered most aspects of geology. At that stage some University of Melbourne classes were conducted on Saturday mornings. On one memorable occasion Skeats took the students in omnibuses to inspect rock types near the zoo. In the field some of his keener students tended to follow him rather too closely. One Saturday morning—as Skeats bent suddenly to retrieve a rock specimen—a nun in his entourage lost her footing and tumbled over the Professor's back, much to the alarm and amusement of the little group.[11]

In the collection are some superb elephant folios. One such folio is Adolph and Hermann Schlagintweit's atlas of 1854: *Neue Untersuchungen über die physicalische Geographie und die Geologie der Alpen*.[12] This atlas was authored by two of the five brothers Schlagintweit and can be appreciated even if one is not familiar with the German language. It deals with the geology of the European Alps and has superb maps, large illustrations, graphs and tables. Several of the illustrations are delicately tinted with subtle colour. The end papers are a rich burgundy marble pattern and the folio's edges have also been tinted. Around the time the atlas was published, three of the brothers Schlagintweit went overseas together. From 1854 to 1857 Adolph, Hermann and Robert travelled through India and some mountainous parts of Asia. They had been employed to compile data for the Magnetic Survey of India and High

Friedrich Mayer, lithographer, after a view from nature by Emil Schlagintweit, 1853, printed by J. Adam, Munich, '*Ansicht der Treffauerspitze und der Achsel (Im Kaisergebirge)*' [View of the Treffauerspitze and the Achsel in the Emperor Ranges], lithograph, from Adolph von Schlagintweit, *Neue Untersuchungen über die physicalische Geographie und die Geologie der Alpen …*, Leipzig: T.O. Weigel, 1854, Taf. XX, Fig. I.
Earth Sciences Rare Book Collection, University of Melbourne.

Asia and they also undertook their own research on geology, meteorology and orography. The brothers reputedly went their separate ways after Srinagar. It is believed that in 1857 Adolph was abducted and brutally murdered in Kashgar. At the time one of the rumours circulating was that he had been beheaded—without negotiation—simply for being under suspicion as a spy.[13]

Another interesting book in the collection is Samuel Kinns' *Moses and geology: Or, the harmony of the Bible with science*.[14] The book's prologue includes a seven-page list of subscribers, many of whom are bishops, reverends, colonels, captains and titled folk. At the back of the book there is also a 20-page list of signatories to Kinns' manifesto quoted in the first chapter. Kinns states in his introduction that: 'I would also trust that those who believe in and love their Bible will, after reading these chapters, find that the study of Nature, instead of weakening, tends greatly to strengthen our faith in the Divine origin of the Scriptures.'[15]

In the appendix there is also a brief dissertation on Jonah and the whale. Kinns challenges sceptics about 'the smallness of the swallow' of the whale and redefines what is actually meant by the word 'whale'. He settles on the term 'great fish' instead and concludes it was entirely possible that Jonah could have been swallowed whole by a great fish and lived to tell the tale.[16]

Kinns' book has 100 illustrations and includes drawings of 'the convolutions of the brain', molluscs, corals and shellfish, the constellations, Devonian fruits, fissures, plants, the 'Indian zodiac' and the destruction of Pompeii.

Moses and geology is in poor condition. Like many other books in the Earth Sciences Rare Book Collection it has a torn cover, loose pages and spine damage. In 1999 a conservation survey found that 52 per cent of the books were in good condition, 18 per cent were disfigured but useable, and 30 per cent were unstable and deteriorating. Interventive conservation work was recommended. This year, the more vulnerable material is being rehoused in acid-free, dye-free archival boxes. As with the cataloguing, this work has been funded by the Russell and Mab Grimwade Miegunyah Fund. Library staff member Tarek Sharaf, under the supervision of Guido Tresoldi and with guidance from the University's Centre for Cultural Materials Conservation, has commenced handcrafting the made-to-measure boxes and archival envelopes for these fragile items.

As Helen Thomson noted in her 2006 report, the Earth Sciences Rare Book Collection is a collection of

'Skeleton of the Megatherium (foreshortened)', from Samuel Kinns, *Moses and geology: Or, the harmony of the Bible with science*, 3rd edition, London, Paris and New York: Cassell, Petter, Galpin & Co., 1882, fig. 77, p. 320. Earth Sciences Rare Book Collection, University of Melbourne.

great significance and is definitely worth preserving. It has social significance, being highly regarded by academic staff for its connection to the development of geology and the history of the discipline of the earth sciences at the University of Melbourne. The collection has historic significance, as it is closely connected to the teaching of geology and prominent geologists such as Frederick McCoy, Ernest Skeats, J.W. Gregory and William Baragwanath. And the collection also has aesthetic significance; many items have beautiful illustrations, fine typography, elegant endpapers, and embossed leather covers and bindings.

Finally it is worth noting that the collection is one of the few known earth sciences rare book collections in Australia, the only comparable collection being parts of the University of Melbourne's Vallance Collection.[17] As Associate Professor Bernie Joyce (University of Melbourne) and Dr Doug McCann (Deakin University) emphasised recently, the Earth Sciences Rare Book Collection has provided invaluable material for their historical research and special projects over the years. The collection will continue to be a valuable research source as it contains many of the major works in the field of geology and palaeontology for the past 150 years, and is especially strong on rare works from the 19th century.

At present the collection may be viewed on request at the Earth Sciences Library. Alternatively, individual items may be requested through Baillieu Library Special Collections and transferred for viewing to the Cultural Collections Reading Room on the 3rd floor of the Baillieu Library. For preservation reasons these books cannot be borrowed or photocopied by patrons, but research using the collection is encouraged.

Lesley Truffle holds a Bachelor of Arts, Diploma of Teaching and postgraduate qualifications in professional writing and information management. At present she works at the University of Melbourne Earth Sciences Library.

Notes

1 Rudolph Erich Raspe, *An account of some German volcanos, and their productions: With a new hypothesis of the prismatical basaltes, established upon facts: Being an essay of physical geography for philosophers and miners*, London: Printed for Lockyer Davis, Holborn, printer to the Royal Society, 1776. Earth Sciences Rare Book Collection, University of Melbourne.
2 http://cat.lib.unimelb.edu.au/search/
3 http://www.lib.unimelb.edu.au/collections/earth/rarebooks/
4 John Henry Pepper, *The boy's book of metals: Including personal narratives of visits to coal, lead, copper, and tin mines: With a large number of interesting experiments relating to alchemy and the chemistry of the fifty metallic elements*, London and New York: G. Routledge, c.1875. Earth Sciences Rare Book Collection, University of Melbourne.
5 Pepper, *The boy's book of metals*, p. 432.
6 Pepper, *The boy's books of metals*, p. 433.
7 Pepper, *The boy's book of metals,* p. 140.
8 Helen Thomson, 'Significance assessment: Earth Sciences Rare Book Collection', unpublished report, May 2006.
9 Helen Thomson, personal communication to Lesley Truffle, September 2008.
10 For biographical information on Skeats see Thomas A. Darragh, 'Skeats, Ernest Willington (1875–1953)', *Australian dictionary of biography*, vol. 11, Melbourne: Melbourne University Press, 1988, pp. 619–620.
11 E.B. Joyce, 'Memories of the Old Geology School at Melbourne Uni 1938–1942 (based on handwritten notes prepared by John Knight in February 2004)', *The Victorian Geologist*, March 2007, pp. 3–4.
12 Adolph von Schlagintweit, *Neue Untersuchungen über die physicalische Geographie und die Geologie der Alpen …,* Leipzig: T.O. Weigel, 1854. Earth Sciences Rare Book Collection, University of Melbourne.
13 H. Strachey and Herbert B. Edwardes, 'On the death of M. Adolphe Schlagintweit', *Proceedings of the Royal Geographical Society of London*, vol. 3, no. 4, 1858–1859, pp. 172–174.
14 Samuel Kinns, *Moses and geology: Or, the harmony of the Bible with science*, 3rd edition, London, Paris and New York: Cassell, Petter, Galpin & Co., 1882. Earth Sciences Rare Book Collection, University of Melbourne.
15 Kinns, *Moses and geology*, p. 2.
16 Kinns, *Moses and geology*, p. 476.
17 The Vallance collection, purchased from the private library of the late Professor Thomas Vallance of the University of Sydney, contains between 10,000 and 15,000 volumes as well as 3,000 offprints and 1,000 maps, and some long run geological journals. The collection contains major works in mineralogy, petrology, palaeontology, natural philosophy, geology and geography from the 19th century and selected works from the early 20th century.