BOOK REVIEWS

Vic Baker, Book Reviews Editor

ALONG THE HUDSON AND MOHAWK: THE 1790 JOURNEY OF COUNT PAOLO ANDREANI. *Edited and translated by Cesare Marino and Karim M. Tiro; Iroquoian Linguistic Notes by Roy A. Wright (Tekastiaks). 2006. University of Pennsylvania Press, Philadelphia, Pennsylvania, 115 pp. ISBN 0-8122-3914-8; Hardcover, $35.00; £23.00.*

With all of Europe as his back yard, so to speak, his curiosity of the unknown and his burning desire for knowledge led Paolo Andreani, an Italian Nobleman, to choose the wilderness in the frontier of New York State over the salons of Paris or Vienna. Born on 27 May 1763, the third son of Count Giovanni Pietro Paolo Andreani and Countess Cecilia Sormani, young Paolo did not have the easy childhood that might be expected given the status of his family. His mother died while he was still a baby, and then when he was nine, his father and twenty year old brother both died. When his two sisters entered Christian Orders, Paolo became a ward of his brother Gian Mario, only three years his senior. But learning and study would be his salvation, and as his brother Gian had managed to save the family fortune, Paolo was able to have private tutors. At the age of sixteen he entered *Saggio Collegio d'Arcadia* (Wise College of Arcadia) under a pseudonym and by 1788 he was at the College of Modena, where he was known for doing his own experiments rather than the expected literary studies. In 1782, Paolo petitioned Pope Pius VI to allow him to acquire and read books and scientific treatises that had been banned by the Church and his petition was granted, except for works in astrology and the works of Machiavelli.

In March of 1784, Andreani astonished his fellow countrymen and women with the first hot-air balloon flight in Italy, and the first outside of France. With two of the three carpenters who helped construct the craft, he flew a distance of about five kilometers, reaching an altitude of 800 meters. He was hailed as the *Dædalus of Italy*, and about two years later there was a note about the flight in the *Pennsylvania Gazette* of 29 November 1786. He then began in earnest to do research in meteorology, mineralogy, and geography, which, in his brother's mind, was much preferable to the women and gambling he seemed to like almost as much. So when Paolo indicated he wanted to do more detailed scientific research, his brother was delighted. Paolo traveled throughout Europe visiting and working with some of the leading scholars of the time; in 1784 in Scotland he traveled with James Smithson (of Smithsonian Institution fame); at Mount Etna he did mineralogical studies; and in 1788 he climbed Mont Blanc and conducted temperature and pressure experiments as he climbed. Thus by the time Paolo Andreani was twenty-five, he had developed quite a reputation among the intellectuals of Europe. The next world to explore was across the Atlantic.

Through his many European connections, Paolo arranged for letters of introduction to Thomas Jefferson, George Washington, and James Madison, to name just a few. It is reported he had a letter of introduction to Joseph Brant, the leader of the Mohawks, but there is no evidence that they ever met. After a stormy passage, with waves twice as high as the masts, the small ship, *Duke of Cumberland*, limped into Halifax, Nova Scotia, 26 May, 1790; arriving then in New York City 6 June. Paolo took up residence in the same boarding house as Jefferson and Madison and began moving in high society circles. Of all those he met, the Count took a real dislike to John Adams, whom he thought was "the most pompous man that I know and the most selfish . . . God prevent that he become President". But the feeling was mutual and Adams said of the Count that he [Adams] "had paid him but little Attention [*sic*]" (p. 14).

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This is a long introduction, but to fully appreciate the journal of his trip, the reader needs to have a feeling for the personality of the writer behind the words. The translators have provided a lengthy biography (thirty-four pages) in the introduction to the journal, which serves to complement what follows. As with other journals of traveling scientists, such as Lyell's *Travels in North America*, Andreani commented on the social and political scenes around him as well as providing his scientific observations. The frontispiece of the present edition is a contemporary map showing the locations he visited. Also the translators have added several illustrations, which, while not part of the original journal, nevertheless coincide with his time in the United States and provide the reader with a small look at what Adreani was seeing during his journey. While most of these illustrations are quite well reproduced, Figure 3 (p. 8), the bronze medallion commemorating his balloon flight, is rather dark and the details of the medallion are hard to discern.

Andreani's comments and observations during his travels into the lands of the Six Nations provide an interesting glimpse of the everyday life of these native people. There is a very interesting drawing by Andreani, Figure 5 (p. 25), that is one of the earliest extant images of an Oneida lacrosse stick. He also included several pages and notes on the language spoken by the Six Nations, including a small vocabulary and rules of grammar.

Even though most of his descriptions are more political and social in nature, Andreani included many descriptions of the local rocks and minerals that he saw and studied during his travels. In the vicinity of New York City, he commented on the many transported boulders around him, and wrote that they had been transported "by the waters of the river, or by some great upheaval" (p. 37). As he lived before Charpentier and Agassiz, the idea of transport by ice was not known to him but he did allow for some other "great upheaval". Although there is no evidence of a connection, Andreani appears, based on some of his comments, to have been a Wernerian in his rock classification: "it is to be discovered that the native rocks are of a primitive nature" (p. 37). And in describing the area around West Point he wrote that the rocks there, "which could be regarded as the basis of the Allegany [*sic*] [Mountains],* are of a primitive nature" (p. 88) (* brackets added by translators). The translators do not make a point of this, however, and only say that primitive rocks were believed to have preceded all the others (Footnote 10, p. 37), following a Wernerian point of view. But given his many travels in Europe and his interest in geology and mineralogy, and given that some of Werner's ideas were published before 1790, it seems likely that Andreani would have known of Werner's work.

In the Appendix, the translators have included several selected letters written by Andreani, mostly to his brother Gian, during and after his journey to North America (he also traveled to parts of Canada, but an account of that journey is not in this journal). The letters provide more of his own thoughts about what he was seeing and are an important addition to the journal descriptions. Andreani made a second trip to the Americas in the fall of 1806, during which he contracted smallpox, from which, however, he recovered and was quarantined in New Orleans during the spring of 1808. Between 1809 and 1811, he traveled to Cuba, some of the islands of the Greater and Lesser Antilles and in 1812 he was in Martinique and St Thomas. He finally settled in Nice where he died on 11 May 1823, just a few days before his sixtieth birthday.

The importance of this journal lies mostly with the social and political descriptions it provides, but the many geological gems that are found within will keep the interest of any earth scientist. The translators have brought the English reader a really good story—that happens to be true.

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HARD ROAD WEST HISTORY AND GEOLOGY ALONG THE GOLD RUSH TRAIL.
Keith Heyer Meldahl, 2007. University of Chicago Press. Chicago. 329 pp. Hardcover, $25.00.

This is a great book, and one that should be read by every person interested in the history of the westward migration of people along the California Trail during the days running up to and including the Gold Rush. Meldahl is a passionate and thorough follower of the history and its geologic context. Generally, he mixes them well.

In his Introduction, Meldahl starts with a brief introduction to the origin of heavy elements, particularly Element 79, gold, and its discovery in California in 1848. He follows this with a thorough account of the route west and the experiences of the travelers.

Chapter headings epitomize the story: 1. An American Journey—a summary of the journey; 2. Between Winter's Chill Brackets—the time window between arrival of Spring on the Great Plains—melting of snow on the plains, growth of grass, and subsiding of spring floods—and beating the snows while crossing the Sierra Nevada before the onset of winter; 3. Ascending the Plains—the way up the North Platte River; 3. Exhumed Mountains and Hungry Rivers—the first encounters with the Rocky Mountains; 4. The Black Hills and Bent Rock—more difficulties with the Rocky Mountains; 5. To the Backbone of the Continent—up to and across South Pass; 6. Cordilleran Upheaval—an introduction to the geologic and tectonic evolution of the western U.S. Cordillera; 8. Most Godforsaken Country—western Wyoming and into Utah; 9. The Bear and the Snake—into Idaho; 10. A Breaking up of the World—into the Basin and Range Province; 11. Most Miserable River—down Nevada's Humboldt River; 12. The Worst Desert You Ever Saw—across the 40-mile gap between the Humboldt Sink and the Truckee or Carson Rivers, or the detour across NW Nevada's Blackrock Desert; 13. Into the Land of Gold—over the Sierra Nevada crest and down into the Great Valley and the goldfields; and finally 14. Contingent History—the effect of the geology and topography on migration. In an Epilogue, we learn of the subsequent experiences of some of the journal-keepers.

The book is well illustrated with abundant maps and photographs. Particularly welcome and useful are the maps of the California Trail and its various branches and cutoffs. Meldahl is a self-confessed 'rut nut', and he evidently has personally retraced essentially the entire Trail. He has consulted many personal journals, and follows several journal-keepers across the entire journey.

Although Meldahl is not John McPhee, he writes engagingly and he often skillfully interweaves geology with the conditions faced on the Trail.

The geological treatment is best on the Plains and in the Rockies. It becomes less appealing across the Basin and Range and especially in the Sierra Nevada. Although Meldahl uses many primary geologic sources for the Plains and the Rocky Mountains, he relies on secondary sources for the Sierra Nevada. Accordingly the account of ophiolite generation and emplacement and its effect on orogenic features further east, as well as the relationship between tectonic events, ophiolites, serpentinite, and bedrock gold are somewhat disappointing. The Farallon Plate almost certainly was not the only plate to go down beneath the Pacific margin of the U. S. The arrival of terranes, collisions, and reversal of subduction polarity are succinctly described for the Precambrian of the western Plains region. It would have been nice to see reference to similar processes for the Mesozoic of the Sierra Nevada and surrounding regions.

Despite these quibbles, this is an outstanding work of scholarship. Buy it and read it. You won't regret it.

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HYDRO TO NAVOCEANO: 175 YEARS OF OCEAN SURVEY AND PREDICTION BY THE U.S. NAVY, 1830–2005. *Charles C. Bates (G. L. Hanssen, Editor), 2005. Corn Field Press, Rockton, Illinois, 330 pp. Hardcover (available from Charles Bates, Apt. 388, 501 S. La Posada Circle, Green Valley, AZ 85614-5109; e-mail bartiebee2@hotmail.com).*

The book is written and self-published by Charles Bates (b. 1918), whose biography in *American Men & Women of Science* (2003) occupies twenty-four lines. The experiences described there have made him admirably equipped to provide a company history of twentieth-century U.S. Government ocean hydrography, which is what this book is. Yet reading those twenty-four lines may leave the reader a bit confused about the thread of the author's biography, such is the effect of tasks he undertook concurrently, or between, lengthy tours with the Navy, Coast Guard, and Department of Defense. Moreover, neither that biography nor the book prepares the reader for the fact that Bates is now a lieutenant colonel (retired) in the U.S. Air Force. On a larger scale, the book resembles the twenty-four-line biography. This is interesting and authoritative historical data, but in discrete lumps.

The title page of this book lists Bates as author and George L. Hanssen as editor. Bates is now ninety and Hanssen is eighty and ocean hydrographers from Illinois and Iowa, respectively. Actually, Hanssen disclaims the title of editor. He was the expeditor who got the graphics done and the book published. Typographic errors in the original printing are corrected in the version available from Amazon on the Web. From my telephone conversations with them, both men are informative and interesting. One gets the feeling from conversation and reading that Bates is a particularly independent author; and he has written in ways that probably would not have been possible if his book had been subsidized by the Navy. Thus the fact that it is privately published can be regarded as a positive feature.

Hydrography is the surveying, sounding, and charting of bodies of water. Shorelines and landmarks must be located, and water depths measured. To function, a Navy or a merchant marine needs maps and charts. Hydrographic activity to produce them needs ship time, instruments, and people. The enterprise is inherently expensive, driven by politics, and operates in a strong social environment. As a result, almost all ocean hydrography is performed by government agencies, or under government contract.

Bates joined the Army field artillery in March 1941 and became an Air Force weatherman in March 1942, after the start of the War. He subsequently served with the Naval Hydrographic Office (1946–1957), the Office of Naval Research (1864–1968), and the U.S. Coast Guard (1968–1979) in positions ranging from hydrographer and oceanographer to scientific and technical director. His duties brought him early commendation for his oceanography, which was used in the Normandy landings. Having worked both in the military and as a civilian, with close military contacts in the government hydrographic enterprise, gives Bates particular authority for the period from 1941 to 1978. He retired from government employment in 1979.

My review of Bates is intended for historians of geology. Most geologists will know that the 1941–1979 period of active service by Bates included the development of plate tectonics. Naval ships traveling the oceans during World War II and immediately post-War produced knowledge of the sea-floor topography that provided the raw material for ideas leading to plate tectonics. Those ideas were refined by more purposeful oceanographic studies. The seafloor maps of Heezen and Tharp, beginning in 1957, and especially from 1964, became well known to geologists, and today even to school children.

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Knowledge of seafloor topography became more important during the Cold War, when submarines capable of launching missiles needed concealment in the ocean. This raises a question: Why did the Navy underwrite the Heezen–Tharp seafloor maps, making them publicly available during the height of the Cold War? The answer lies in maps' precision and accuracy. Seafloor maps were not sufficiently accurate or precise to divulge important data. Heezen and Tharp illustrated topography by hachure and shading that greatly exaggerates shape, given the map-scale, and their mapped locations long preceded the accurate navigation now possible in surveying at sea.

The book has twelve chapters sandwiched between front matter and back matter. There are twenty-eight tables, thirteen figures, eleven maps and twelve appendices listed in the table of contents. The Contents is followed by a Foreword from Walter Munk (twice a shipmate of Bates), which contains Map 1: tidal currents at Bikini atoll. The author's Preface starts with a quotation from Winston Churchill and ends with Bates' two-page poem lamenting the conversion of the Naval Oceanographic Office, Suitland, Maryland, into a parking lot! The succeeding lumps of data have their own historical interest.

The title of the book includes *Hydro* and *Navoceano*. The naming began in 1830 when the Navy established the Depot of Charts and Instruments headed by Lt Charles Wilkes. (James Dwight Dana sailed with the famous Wilkes expedition.) In 1854, the 'Depot' was re-designated as the U.S. Naval Observatory and Hydrographical Office with Lt Matthew Fontaine Maury as Superintendent. In 1866, Congress separated the Hydrographical Office, which became known as HYDRO, from the Observatory, and in 1962, re-designated HYDRO as the U.S. Naval Oceanographic Office (NAVOCEANO, later shortened to NAVO). After further changes, NAVOCEANO moved to Bay St Louis, Mississippi, in 1978.

The book's subtitle says *Ocean Survey and Prediction*. The index covers twenty-five pages under 'survey techniques', yet the word 'prediction' is not indexed. Prediction was required in planning for amphibious landings, using weather forecasting to generate surf predictions. Other predictions included ice cover and ocean water thermal stratification. The Army Corps of Engineers, whose Beach Erosion Board ran wave tanks for experiment and design in Washington D.C. during the 1941–1945 War, but this is not mentioned though Bates was professionally acquainted with the BEB investigators.

As footnote to this history: The transfer of the Naval Oceanographic Office from Suitland, Maryland, to Bay Saint Louis, Mississippi, in 1978–1979 had a noticeable effect on the Potomac Geophysical Society, a local group loosely affiliated with the Society of Exploration Geophysics and with the American Geophysical Union. Bates was an original member of PGS, where I became briefly acquainted with him. About a third of the attendees at monthly meetings of PGS belonged to that agency (information from Patrick Taylor, NASA). Their transfer to Mississippi permanently reduced attendance at meetings of PGS.

This is a useful book for anyone interested in the military use of science and technology, by an author who has been an 'inside' participant observer. It is essential for all those interested in the mapping of the seafloor. I recommend it to anyone professionally interested in the relation between science policy and practice.

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INTERESTING PUBLICATIONS

compiled by Gerald M. Friedman

Gerald M. Friedman, the Founding Editor of *Earth Sciences History*, has prepared this column since the journal's inception. Readers' help has been, is, and will be greatly appreciated, as we are beginning to find fewer relevant historical publications. Persons wishing to list recent books and papers of interest to HESS's membership are requested to send them to Professor Friedman, Northeastern Science Foundation, P.O. Box 746, Troy, NY 12181-0746, USA; FAX: 518-273-3249; email: gmfriedman@thesciencefoundation.com.

ALL, PHILIP. 2006. *The Devil's Doctor: Paracelsus and the World of Renaissance Magic and Science*. Farrar, Straus, Giroux, New York, 436 pp.

ALVARO, J. J., ARETZ, M., BOULVAIN, F., MUNNECKE, A., VACHARD, D. and VENNIN, E. eds. 2007, *Paleozoic Reefs and Bioaccumulations: Climatic and Evolutionary Controls*. Geological Society of London Publishing House, Special Publication, no. 275, 304 pp.

ANDERSEN, G. 2007. *The Telescope: Its History, Technology, and Future*. Princeton University Press, Princeton, NJ, 248 pp.

ARMSTRONG, PATRICK, 2004, *Darwin's Other Islands*. Continuum, London/New York, 266 pp.

AXELSSON, M. and RYDE, F. eds 2006. Gamma-Ray Bursts: Prospects for GLAST. AIP Conference Proceedings 906. Symposium Proceedings, Stockholm, Sept 2006, AIP, Melville, NY, 166 pp.

BALMUTH, M. S., CHESTER, D. K., and JOHNSTON, P. A. eds. 2006, *Cultural Responses to the Volcanic Landscape: The Mediterranean and Beyond*. Archaeological Institute of America, Boston, 345 pp.

BALSON, P. S. and COLLINS, M. B. eds. 2007, *Coastal and Shelf Sediment Transport*. Geological Society of London Publishing House, Special Publication, no. 274, 168 pp.

BOWDEN, A. J., BUREK, C. V., and WILDING, R. 2005. *History of Palaeobotany. Selected Essays*. Geological Society Special Publication, no. 241, 304 pp.

BRANAGAN, D. F. 2005. *T. W. Edgeworth David: A Life. Geologist, Adventurer, Soldier and 'Knight in the Old Brown Hat'*. National Library of Australia, Canberra, 648 pp.

BRAUN, T. E. D. and RADNER, J. B. eds. 2005. *The Lisbon Earthquake of 1755: Representations and Reactions*. The Voltaire Foundation, Oxford, 342 pp.

BUREK, C. V. and HIGGS, B. eds. 2007, *The Role of Women in the History of Geology*. Geological Society of London Publishing House, Special Publication, no. 281, 352 pp.

BUTA, R. J., CORWIN, H. G. and ODEWAHN, S. C. 2007. The de Vaucouleurs Atlas of Galaxies. Cambridge University Press, New York, 344 pp.

CAMENZIND, M. 2007. Compact Objects in Astrophysics: White Dwarfs, Neutron Stars, and Black Holes. Astronomy and Astrophysics Library. Springer, New York, 679 pp.

CARNEIRO, ANA and MOTA, T. S. 2007. The geological survey of Portugal (1857–1948): an overview: *Earth Sciences History*, v. 28, no. 1, pp. 85–96.

CAROZZI, A. V. 2000. *Manuscripts and Publications of Horace-Bénédict de Saussure on the Origin of Basalt (1772–1797)*. Editions Zoé, Geneva (English and French texts), 769 pp.

CLOOS, M., CARLSON, W. D., GILBERT, M. C., LIOU, J. G. and SORENSEN, S. S. 2007. Convergent Margin Terranes and Associated Regions: A Tribute to W.G. Ernst. The Geological Society of America, 273 pp.

CORSI, PIETRO. 2007. Introduction to thematic set of papers on geological surveys: *Earth Sciences History*, v. 26, no. 1, pp. 5–12.

CORSI, PIETRO. 2007. Much ado about nothing: the Italian geological survey, 1861–2006: *Earth Sciences History*, v. 26, no. 1, pp. 97–125.

DAVIES, G. L. H. 2007. *Whatever is Under the Earth*: The Geological Society of London 1807 to 2007. Geological Society of London Publishing House, 378 pp.

DEBUS, A. A. 2007. Furred fury: exhumation of *Incognitum*, America's first carnivorous monster, Part 1: *Fossil News Journal of Avocational Paleontology*, v. 13, no. 6, pp. 2–6.

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DEBUS, A. A. 2007. Furred fury: exhumation of *Incognitum*, America's first carnivorous monster, Part 2: *Fossil News Journal of Avocational Paleontology*, v. 13, no. 7, pp. 12–15.

DEBUS, A. A. 2007. Furred fury: exhumation of *Incognitum*, America's first carnivorous monster, Part 3: *Fossil News Journal of Avocational Paleontology*, v. 13, no. 8, pp. 12–16.

DEBUS, A. A. 2007. Furred fury: exhumation of *Incognitum*, America's first carnivorous monster, Part 4: *Fossil News Journal of Avocational Paleontology*, v. 13, no. 9, pp. 12–15.

DOTT, R. H., Jr. 2007, Two remarkable women geologists of the 1920s: Emily Hahn (1905–1997) and Katharine Fowler (1902–1997): *Gaea*, September–October, pp. 6–7.

DRESSLER, B. O. and SHARPTON, V. L. eds. 1999, *Large Meteorite Impacts and Planetary Evolution II*. GSA Bookstore, Boulder, CO, 442 pp.

DUMITRACHE, C., POPESCU, N. A., SURAN, M. D. and MIOC, V. eds. 2006. *Fifty Years of Romanian Astrophysics*. AIP Conference Proceedings 895. Conference Proceedings, Bucharest, Romania, 352 pp.

EGAN, TIMOTHY, 2006, *The Worst Hard Time: The Untold Story of those who Survived the Great American Dust Bowl*. Houghton Mifflin Company, New York, 340 pp.

EWING, HEATHER, 2007, *The Lost World of James Smithson. Science, Revolution, and the Birth of the Smithsonian*. Bloomsbury, 432 pp.

FIGUEIRÔA, S. F. D. M. 2007. Geological surveys in the tropics: the Brazilian experience (1875–1934): *Earth Sciences History*, v. 26, no. 1, pp. 151–171.

FROSSARD, E., BLUM, W. E. H., and WARKENTIN, B. P. eds. 2007, *Function of Soils for Human Societies and the Environment*. Geological Society of London Publishing House, Special Publication, no. 266, 208 pp.

GAY, H. 2007. *The History of Imperial College London, 1907–2007: Higher Education and Research in Science, Technology, and Medicine*. Imperial College Press, London, 825 pp.

GOHAU, G. 2003. *La naissance de la géologie historique la terre: des "théories" à l'histoire*. Vuibert . Adapt, Paris, 124 pp.

GRAYLING, A. C. 2006. *Descartes: The Life and Times of a Genius*. Walker, New York, 303 pp.

GROESSENS, ERIC and GROESSENS-VAN DYCK, M.-C. 2007. Two hundred years of geological mapping in Belgium, from D'Omalius D'Halloy to the Belgian federal state: *Earth Sciences History*, v. 26, no. 1, pp. 75–84.

GUERRAGGIO, ANGELO and NASTASI, PIETRO. 2005. *Italian Mathematics between the Two World Wars* (Science Networks Historical Studies, no. 39). Birkhäuser Verlag, Basel, 299 pp.

HÅRD, MIKAEL and JAMISON, ANDREW. 2005. *Hubris and Hybrids: A Cultural History of Technology and Science*. Routledge, New York, 335 pp.

HARMOM, R. S. and WICKS, C. M. 2006. *Perspectives on Karst Geomorphology, Hydrology, and Geochemistry—A Tribute to Derek C. Ford and William B. White*. The Geological Society of America, 344 pp.

HARMON, J. E. and GROSS, A. G. eds. 2007, *The Scientific Literature: A Guided Tour*. University of Chicago Press, Chicago, 327 pp.

HARRINGTON, P. S. 2002. *Star Ware: The Amateur Astronomer's Guide to Choosing, Buying, and Using Telescopes and Accessories*. 4th edn, Wiley, Hoboken, NJ, 417 pp.

HARSHAW, R. 2007. *The Complete CD Atlas of the Universe. Patrick Moore's Practical Astronomy Series*, Springer, London, 120 pp.

HENTSCHEL, KLAUS. 2005. *Gaussens unsichtbare Hand: Der Universitaets-Mechanicus und Maschinen-Inspector Moritz Meyerstein: Ein Instrumentenbauer im 19. Jahrhundert*. (*Abhandlungen der Akademie der Wissenschaften zur Göttingen*, Series 3, 52). Vandenhoeck & Ruprecht, Göttingen, 321 pp.

HERBERT, S. 2005. *Charles Darwin, Geologist*, Cornell University Press, Ithaca and London, 485 pp.

HILLMAN, M. FAWCETT, T. and RAJAN, S. C. 2007. *The Suicidal Planet: How to Prevent Global Climate Catastrophe*. Thomas Dunne Books/St Martin's Press, New York, 296 pp.

HÖSLE, VITTORIO and ILLIES, CHRISTIAN eds. 2005. *Darwinism and Philosophy*. University of Notre Dame Press, Notre Dame, Indiana, 392 pp.

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JOHNSTON, M. 2007. *Mettle & Mines: The Life and Times of Colonial Geologist Edward Heydelbach Davis (1845–71)*. Nikau Press, Nelson (NZ), 288 pp.

KARNER, G. D., MANATSCHAL, G. and PINHEIRO, L. M. eds. 2007. *Imaging, Mapping, and Modelling Continental Lithosphere Extension and Breakup*. Geological Society of London Publishing House, Special Publication, no. 282, 488 pp.

KENKMANN, THOMAS, HÖRZ, FRIEDRICH and DEUTSCH, ALEX eds. 2005, *Large Meteorite Impacts III*. GSA Bookstore, Boulder, CO, 457 pp.

KENNEDY, B. A. 2006. *Inventing the Earth: Ideas on Landscape Development since 1740*, Blackwell, Oxford, 160 pp.

KNELL, S. J. 2007. The sustainability of geological mapmaking: the case of the geological survey of Great Britain: *Earth Sciences History*, v. 26, no. 1, pp. 13–29.

KOEBERL, CHRISTIAN and MACLEOD, K. G., eds. 2002. *Catastrophic Events and Mass Extinctions: Impacts and Beyond*. GSA Bookstore, Boulder, CO, 729 pp.

KOERTGE, N. ed. 2008. *New Dictionary of Scientific Biography*, 8 vols. Thomson Gale, Detroit, New York, San Francisco, New Haven, Waterville, and London.

LABOULAIS, ISABELLE. 2007. From sketches to publication: the genesis of the *Essai d'une Carte Géologique* by Omalius D'Halloy and Coquebert de Montbret (1810–1823): *Earth Sciences History*, v. 26, no. 1, pp. 31–53.

LONERGAN, L., JOLLY, R. J. H., RAWNSLEY, K. and SANDERSON, D. J. eds. 2007. *Fractured Reservoirs*. Geological Society of London Publishing House, Special Publication, no. 270, 296 pp.

MAIAR, GERHARD. 2003. *African Dinosaurs Unearthed: The Tendaguru Expeditions*. Indiana University Press, 380 pp.

MANDUCA, C. A. and MAGK, DAVID eds. 2006. *Earth and Mind: How Geologists Think and Learn about the Earth*. The Geological Society of America, 188 pp.

MELIA, F.. 2007. *The Galactic Supermassive Black Hole*. Princeton University Press, Princeton, NJ, 296 pp.

MERRIAM, D. F. 2007. *Raymond Cecil Moore: Legendary Scholar and Scientist: World-Class Geologist and Paleontologist*. University of Kansas, Special Publication, no. 5.

MOYAL, A. ed. 2003. *The Web of Science: The Scientific Correspondence of the Rev. W. B. Clarke, Australia's Pioneer Geologist*, 2 vols. Australian Scholarly Publishing, Melbourne, 1340 pp.

MUÑOS, E. A. 2004. *Filosofía de las ciencias de la terra: el cierra categorial de la geologia*, Bibloteca Filosofïa en español, Oviedo, 355 pp.

NIELD, T. 2007. *Supercontinent: Ten Billion Years in the Life of our Planet*, Granta Books, London, 288 pp.

NORDLUND, CHRISTER. 2007. Between science and industry: on the establishment, organization and practices of the Swedish geological survey in the nineteenth century: *Earth Sciences History*, v. 26, no. 1, pp. 127–149.

O'CONNOR, A. 2007. *Finding Time for the Old Stone Age: A History of Palaeolithic Archaeology and Quaternary Geology in Britain, 1860–1960*. Oxford University Press, Oxford and New York. 423 pp.

OLDROYD, D. R. 2002. *Earth, Water, Ice, and Fire: Two Hundred Years of Geological Research in the English Lake District*. Geological Society Memoirs, no. 25, Geological Society of London, 328 pp.

OLDROYD, D. R. 2005. Evolution, paleontology, and metaphysics. In: Hösle, Vittorio and Illies, Christian eds. *Darwinism and Philosophy*. University of Notre Dame Press, Notre ßDame, Indiana, pp. 20–57.

OLSON, R. G. 2006. *Science and Religion, 1450–1900: From Corpernicus to Darwin*. Johns Hopkins University Press, 292 pp.

PAULY, DANIEL. 2004. *Darwin's Fishes: An Encyclopedia of Ichthyology, Ecology, and Evolution*. Cambridge University Press, Cambridge, New York, 340 pp.

PICCARDI, L. and MASSE, W. B. eds. 2007. *Myth and Geology*. Geological Society of London Publishing House, Special Publication, no. 273, 360 pp.

PIJPERS, F. P. 2006. *Methods in Helio- and Asteroseismology*. Imperial College Press, London, 306 pp.

PŘIKRYL, R. and SMITH, B. J. eds. 2007. *Building Stone Decay: From Diagnosis to Conservation*. Geological Society of London Publishing House, Special Publication, no. 271, 344 pp.

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PRIVETT, G. 2007. *Creating and Enhancing Digital Astro Images: Patrick Moore's Practical Astronomy Series*. Springer, London, 142 pp.

PROTHERO, D. R. and SCHWAB, FRED. 2004. *Sedimentary Geology*. W. H. Freeman & Company, New York, 600 pp.

QUAMMEN, DAVID. 2006. *The Reluctant Mr. Darwin: An Intimate Portrait of Charles Darwin and the Making of his Theory of Evolution*. W. W. Norton, 304 pp.

RADHAKRISHNA, B. P. 2005. *Random Harvest: Biographical Sketches*. Geological Society of India Memoir 60. Geological Society of India, P.O. Box 1922 Gavipuram, Bangalore 560019, 291 pp.

REIPURTH, B., JEWITT, D. and KEIL, K. eds. 2007. *Prostars and Planets V*. University of Arizona Press, Tuscan and Lunar and Planetary Institute, Houston, TX, 951 pp.

RICHET, P. 2007. *A Natural History of Time*. Chicago University Press, Chicago and London, 471 pp.

RICHMOND, M. L. 2006. The 1909 Darwin Celebration: Reexamining evolution in the light of Mendel, mutation, and meiosis: *Isis*, v. 97, pp. 447–484.

RIES, A. C., BUTLER, R. W. H., and GRAHAM, R. H. eds. 2007. Deformation of the Continental Crust: The Legacy of Mike Coward. Geological Society of London Publishing House, Special Publication, no. 272, 608 pp.

RUDDIMAN, W. F. 2001. *Earth's Climate Past and Future*. W. H. Freeman & Company, New York, 465 pp.

SAVATON, PIERRE. 2007. The first detailed geological maps of France: contributions of local scientists and mining engineers: *Earth Sciences History*, v. 26, no. 1, pp. 55–73.

SELINUS, O., ALLOWAY, B., CENTENO, J. A., FINKELMAN, R. B., FUGE, R., LINDH, U. and SMEDLEY, P. eds. 2005. *Essentials of Medical Geology: Impacts of the Natural Environment on Public Health*. Elsevier, Amsterdam, 812 pp.

STANLEY, S. M. 2005. *Earth System History*. W. H. Freeman & Company, New York, 608 pp.

STEFL, S., OWOCKI, S. P. and OKAZAKI, A. T. eds. 2007. Active OB-Stars: Laboratories for Stellar and Circumstellar Physics. Astronomical Society of the Pacific Conference Series 361. Conference Proceedings, Sapporo, Japan, August–September 2005, Astronomical Society of the Pacific, San Franscisco, 573 pp.

TAYLOR, M. A. 2007. *Hugh Miller: Stonemason, Geologist, Writer*. National Museums Scotland, Edinburgh, 176 pp.

TEEUW, R. M. ed. 2007. *Mapping Hazardous Terrain Using Remote Sensing*. Geological Society of London Publishing House, Special Publication, no. 283, 184 pp.

TOURET, J. L. R. and VISSER, R. P. W. eds. 2004. *Dutch Pioneers of the Earth Sciences*, Koninklijke Nedertlandse Akademie van Wetenschappen, Amsterdam, 200 pp.

VAI, G. B. and CALDWELL, W. G. E. 2006 *The Origins of Geology in Italy*. The Geological Society of America, 235 pp.

VIANA, A. R. and REBESCO, M. eds. 2007, *Economic and Palaeoceanographic Significance of Contourite Deposits*. Geological Society of London Publishing House, Special Publication, no. 276, 360 pp.

WHEELER, J. C. ed. 2000. *Cosmic Catastrophes: Exploding Stars, Black Holes, and Mapping the Universe*. 2nd edition. Cambridge University Press, New York, 339 pp.

WIGLEY, P., DOLAN, P., SHARPE, T. and TORRENS, H. S. 2007. *'Strata' Smith: His Two Hundred Year Legacy Digitally Enhanced Maps and Sections by William Smith, George Bellas Greenough, John Cary, and Richard Thomas 1796–1840*. Geological Society of London Publishing House, DVD.

WYSE JACKSON, P. N. ed. 2007. *Four Centuries of Geological Travel: The Search for Knowledge on Foot, Bicycle, Sledge and Camel*. Geological Society of London Publishing House, Special Publication, no. 287, 424 pp.

ZHAI, M.-G., WINDLEY, B. F., KUSKY, T. M. and MENG, Q. R. 2007. *Mesozoic Sub-Continental Lithospheric Thinning under Eastern Asia*. Geological Society of London Publishing House, Special Publication, no. 280, 360 pp.

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NOTES ON CONTRIBUTORS

In 1965, **Jim Everett** went as a 'ten-pound Pom' to a post-doctoral at the Australian National University in Canberra. Coming from a family that always asked: "what are you going to do when you grow up?" he then joined the petroleum exploration industry in Western Australia. With computer experience, he was set to do project evaluations. He found himself arguing with (and losing arguments with) accountants, so completed a couple of degrees in Economic and Commerce at the University of Western Australia. The University was subsequently starting an MBA course and wanted staff with industry experience to teach on it. So Jim returned to being an academic for a brief thirty years. Now retired as Emeritus Professor of Information Management, he spends his time consulting on quality control to the (mainly iron ore) mining industry.

On the expiry of his United States student visa in 1963, **Alan Smith** was offered a research assistant position with Teddy Bullard and Jack Miller in the Cambridge Department of Geodesy and Geophysics, now known as the 'Bullard Labs'. He then became a Demonstrator in the Department of Geology, because, as Bullard put it, "When it is time for you to leave you can say you have been on the University staff, which counts for something". He is still in Cambridge—part of the furniture—as someone put it. During the past forty years or so, he has developed a continuing interest in global reconstructions and tectonics; in the geology of Greece, particularly ophiolites; in sedimentary basins and in the geological time-scale.

Peter Worsley has been Emeritus Professor of Quaternary Geology at the University of Reading since 2000. From 2000–2005 he was a Distinguished Research Associate in the Oxford University Centre for the Environment. Following the lamented closure of the Reading Postgraduate Research Institute for Sedimentology in 2004, he is now an orphan within the School of Human and Environmental Sciences at Reading University. His interests lie in the fields of glacial and periglacial processes and Quaternary environmental change and has specialised in the Last Glacial and Holocene stages. In retirement, he is now free to explore aspects of a life-long fascination with the history of glacial geology.

John Diemer is Professor of Earth Sciences at the University of North Carolina at Charlotte. He has a bachelor's degree from Oberlin College and a PhD in geology from Binghamton University. His geological work focuses on facies analysis, depositional environments, sequence stratigraphy, and tectonics and sedimentation. He also writes on nineteenth-century geology, in particular the work of Roderick Murchison.

Kenneth R. Aalto is Professor Emeritus of Geology at Humboldt State University. He received his PhD in Geology at the University of Wisconsin–Madison in 1970. His research interests are in sedimentary tectonics, stratigraphy, igneous petrology and structural geology of the Franciscan Complex and Neogene rocks of northern California, Pleistocene geology of the Bahamas Platform, and the history of geology. He is a Fellow of the Geological Society of America.

Howard Falcon-Lang is a Leverhulme Early Career Fellow at the University of Bristol, UK. His research interests include the ecology of Carboniferous rainforests, the origin of upland floras, the vegetation of the Cretaceous greenhouse world, and the climatic significance of tree-rings in fossil woods. Many of these interests coincide with those of Marie Stopes and this paper represents the second in a series documenting her geological career.

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William N. Berry is Professor at the Department of Earth and Planetary Science at the University of California, Berkeley, currently focusing his teaching on environmental geology, climate change, and paleoceanography. For more than fifty years he has been developing, using and evaluating Oppelian zonation, based on graptolites found in Ordovician and Silurian strata and correlations resulting from the zonations. He also has a major interest in the history of the geologic time scale which was expressed in his *Growth of a Prehistoric Time Scale: Based on Organic Evolution*, published in 1968 and a revised and updated version of the same book, published in 1987. In addition, he has written a number of papers on aspects of time-scale history, including one discussing R. M. Kleinpell's California Miocene zones and stages based on benthic foraminifera.

Richard Francaviglia began his academic career in art and geology, but became a geographer because that interdisciplinary field enabled him to study peoples' relationship to the landscape. He received his PhD in geography from the University of Oregon, where he was fortunate to study geomorphology under the direction of then visiting professor Gordon Herries Davies. Since 1970, Francaviglia has taught at numerous American colleges and universities, including the University of Minnesota, Antioch College, and the University of Arizona. Since 1991, he has served as Professor of History and Geography at the University of Texas at Arlington, where he also directs the Center for Greater Southwestern Studies and the History of Cartography. His lifelong interest in maps, geology, mineralogy, and geomorphology has served him well as a cultural-historical geographer. He is past president of the Mining History Association and the Society for the History of Discoveries, has published eight books and several dozen articles, including 'Disappointment in the Copper Breaks' and 'Discovering the Mineral Treasures of the Great Basin' in recent issues of *Matrix: A Journal of the History of Minerals*.

Jennie Bourne is a graduate of the University of Adelaide. **Rowl Twidale** holds doctorates from the University of Bristol, McGill University, Montreal, and (*honoris causa*) the Universidad Complutense, Madrid. First as student and mentor, and later as research colleagues they have worked together for more than forty years and have co-authored more than sixty research papers. Their most recent joint venture is *Crustal Structures and Mineral Deposits,* a collection of essays to which they contributed and which they edited and published in honour of their late esteemed friend and colleague Tim O'Driscoll. Both are now 'retired' but hold visiting research fellowships at the University of Adelaide and hope to continue their collaborations in research and publication.

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Bullen, K. E. and Bolt, Bruce A. 1985. *Introduction to the Theory of Seismology*. 4th edn. Cambridge: Cambridge University Press.

Good, Gregory A. (ed.). 1998. S*ciences of the Earth: An Encyclopedia of Events, People, and Phenomena*. 2 vols. New York and London: Garland Publishing Inc.

Suess, Eduard, 1904–1924. *The Face of the Earth (Das Antliz der Erde)*, translated by Hertha B. C. Sollas. 5 vols. Oxford: Clarendon Press.

Articles in journals

Jago, J. B., Pharaoh, M. D. and Wilson-Roberts, C. L. 2005. Douglas Mawson's first major geological expedition: the New Hebrides, 1903. *Earth Sciences History* 24: 93–111.

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Articles or chapters in books

Branagan, D. F. 1998. Geological periodization. In: S*ciences of the Earth: An Encyclopedia of Events, People, and Phenomena*, edited by Gregory A. Good, Vol. 2, 306–314. New York and London: Garland Publishing Inc.

Unpublished thesis or dissertation

Wolter, John A. 1975. The Emerging Discipline of Cartography. PhD dissertation, University of Minnesota.

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