

BOOK REVIEW

Healing Earths: The Third Leg of Medicine. A History of Minerals in Medicine by W. Rudolph Reinbacher. 1st Books Library, Bloomington, IN 47404, USA, 2003; xiv + 244 pages. [ISBN: 1-4033-5096-5]. Price \$19.95 paperback, \$4.95 electronic version from www.1stbooks.com

The use of healing earths is an ancient medical practice with suggested utility in modern society. This thesis is explored in detail in this easy-to-read volume by author Reinbacher. The text is clear with footnotes to explain ancient and scientific terms. The themes, developed in 18 chapters, provide a general, and sometimes specific, historical account of the use of earths as remedies for external and internal afflictions of mankind. Four chapters, and parts of others, are devoted to the work of Julius Stumpf (1856–1932), a Bavarian physician and professor. Reinbacher credits him with a clay cure for cholera and other afflictions of the stomach and intestinal tract. Some of his earliest experiments concerned the use of clay to prevent bacterial infections of wounds and to cure other skin problems. Several experiments are described involving the use of bolus alba, a kaolinitic clay, and the small particle size of the clay is inferred to be the source of the healing properties. In subsequent chapters, the >5000 year history of healing earth is revealed. The earliest mention of the practice is depicted in artifacts from Sumeria, Egypt, and from China, dated to ~1800 B.C. at the latest. Their contemporaneity in various geographic locations supports the contention that the practice actually originated much earlier. By 900 B.C., an earth from Limnos, a Greek Island, was in common use and gained mention in Homer's *Odyssey*. Later, clays were pressed or squeezed into balls, disks, or lozenges and imprinted with a seal, usually attesting to the source of the earth. 'Signed earths', *terra sigillata*, were common in Europe and other parts of the world until the middle of the 19th century, and the text contains many images of these clay coins. The concluding chapters deal with the testimony of Andreas Berthold von Oschatz on the virtues and force of approved *terra sigillata* in Germany. And so, the accounts of uses for earths in healing continue until modern times detailing sanitary improvements through the use of earth toilets and cosmetic benefits of mud bathing, among others.

A limited number of modern references document the increased interest in healing earths by clay scientists, anthropologists and physicians. An article by Robertson (1996) asserts that the use of clay as a remedy for

cholera could save thousands of lives today in war-torn regions of the world where modern pharmaceuticals are not available. A report by Brouillard and Rateau (1989) justified the use of clays to treat enterocolitis as due to the ability of kaolinite and montmorillonite to absorb viruses, biliary acids and bacterial toxins. Nadeau (1987) asserted that engineered clay particles may find renewed use for the treatment of burns and the immobilization of bacteria. Work by Mahaney *et al.* (2000) documents the mineralogy and geochemistry of geophagical earths used by humans and animals. However, this book is not a scientific treatise on mineralogy and chemistry.

The chief value of this book to the clay scientist is its record of the historical use of healing earths in medicine. The accounts may provide some stimulus for research, but one should not go to this source for mineralogical information. There are many earths defined in the glossary with respect to their historical location or description. Of the clay minerals, only kaolinite, montmorillonite, smectite and sepiolite are listed and their definitions are not very technical. The author also incorrectly identified clays as those particles with a diameter <0.002 inches. For an up-to-date representation of the involvement of clay mineralogists in this topic, one should refer to the report by Williams *et al.* (2003) on the use of a French illite to cure 'flesh-eating disease' in Burundi and the other reports in the special session on medicinal uses of minerals presented at The Clay Minerals Society meeting in Athens, Georgia in June of 2003.

Overall, I consider this book to be good value for its historical account of the use of healing earths, although I can not attest to the completeness nor veracity of the accounts detailed by Reinbacher. *Healing Earths* made interesting reading and has been fodder for discussion with other scientists.

REFERENCES

- Brouillard, M.-Y. and Rateau, J.-G. (1989) Pouvoir d'adsorption de deux argiles, la smectite et la kaolin sur des entérotoxines bactériennes. *Gastroenterologie Clinique et Biologique*, **13**, 18–24.
- Mahaney, W.C., Milner, M.W., Mulyono, Hs, Hancock, R.V.G., Aufreiter, S., Reich, M. and Wink, M. (2000) Mineral and chemical analysis of soils eaten by humans in Indonesia. *International Journal of Environmental Health Research*, **10**, 93–109.
- Nadeau, P.H. (1987) Clay particle engineering: a potential new technology with diverse applications. *Applied Clay Science*, **2**, 83–93.

- Robertson, R.H.S. (1996) Cadavers, cholera and clays. *Mineralogical Society Bulletin*, **41**, 3–6.
- Williams, L.B., Holland, M. and Eberl, D.D. (2003) Killer Clays! A medicinal application of minerals. *Abstracts with Program, Annual Meeting of The Clay Minerals Society, Athens, GA*, June 2003.

RAY E. FERRELL JR
 Department of Geology and Geophysics,
 Louisiana State University,
 Baton Rouge,
 LA 70803-4101, USA

FORTHCOMING PAPERS

The following are some papers that have been accepted for publication in future issues of *Clays and Clay Minerals*:

- Mark P. S. Krekeler. Improved constraints on sedimentary environments of palygorskite deposits of the Hawthorne Formation, southern Georgia from a detailed study of a core
- Mark P. S. Krekeler, Stephen Guggenheim and John Rakovan. A microtexture study of palygorskite-rich sediments from the Hawthorne Formation, southern Georgia by transmission electron microscopy and atomic force microscopy
- Dimitri Papoulis, Panayota Tsohis-Katagas and Christos Katagas. Progressive stages in the formation of kaolin minerals of different morphologies in the weathering of plagioclase
- Markus Egli, Aldo Mirabella, Alessandro Mancabelli and Giacomo Sartori. Weathering of soils in alpine areas as influenced by climate and parent material
- Wanda Alló. Authigenic Ti-bearing crystals in a Precambrian clay from Buenos Aires Province, Argentina
- Chandrika Varadachari and Gargi Mukherjee. Discriminant analysis of clay mineral compositions
- Daniel G. Strawn, Noel E. Palmer, Luca J. Furnare, Carmen Goodell, James E. Amonette and Ravi Kukkadapu. Copper sorption mechanisms on smectites
- Silvia G. De Bussetti and Eladio A. Ferreiro. Adsorption of poly(vinyl alcohol) on montmorillonite
- Maria Jose Carrizosa, Pam Rice, William C. Koskinen, Ignacio Carrizosa and Maria del Carmen Hermosin. Sorption of isoxaflutole and DKN on organoclays
- Hongping He, Ray L. Frost, Feng Deng, Jianxi Zhu, Xiaoyan Weng and Peng Yuan. Conformation of surfactant molecules in the interlayer of montmorillonite studied by ¹³C MAS NMR
- C. I. Sainz-Díaz, E. J. Palin, A. Hernández-Laguna and M. T. Dove. Effect of the tetrahedral charge on the order-disorder of the cation distribution in the octahedral sheet of smectites and illites by computational methods
- Laura A. Wendling, James B. Harsh, Carl D. Palmer, Melinda A. Hamilton and Markus Flury. Cesium sorption to illite as affected by oxalate
- Guilhem Bourrié, Fabienne Trolard, Philippe Refait and Frédéric Feder. A solid-solution model for Fe(II)-Fe(III)-Mg(II) green rusts and fougérite and estimation of their Gibbs free energies