



## **Shipwreck at Cape Flora: The Expeditions of Benjamin LeighSmith, England's Forgotten Arctic Explorer**

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coming, if using it as a textbook, is the lack of exercise problem sets. Another cautionary note is that although modeling is increasingly used in permafrost hydrology studies, this book, in the interest of space, gives it scant treatment. Readers should be alerted that modeling studies that fully couple temperature and water flow deserve more attention in studying permafrost hydrology.

In summary, this is an excellent book on permafrost hydrology. It is impressive for its comprehensive and systematic coverage, and unique for the presentation of field data and explanation of concepts at a proper level. I believe this book will become an invaluable reference for many for years to come.

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SHIPWRECK AT CAPE FLORA: THE EXPEDITIONS OF BENJAMIN LEIGH SMITH, ENGLAND'S FORGOTTEN ARCTIC EXPLORER. By P. J. Capelotti. Calgary, Canada: University of Calgary Press, Northern Lights Series No. 16, 2013. 269 pp. \$39.95 (softcover). ISSN (print): 1701-0004, ISSN (online): 1925-2943; ISBN: 978-1-55238-705-4.

A biography of Benjamin Leigh Smith (1828–1913) is probably about a century overdue. It would never have been an autobiography given his diffidence and his refusal to seek personal publicity for the results of polar expeditions conducted between 1871 and 1882. By the end of his life, his achievements had been almost forgotten and were clearly overshadowed by events at the other end of the Earth from that which attracted him.

Leigh Smith was the eldest son in a large family of dissenters. He nursed an ambition to explore the polar regions that could only be realized with the inheritance of wealth in 1870. That allowed him to support his five expeditions to survey the coasts of Svalbard and Franz Josef Land, particularly the south coast of the latter in 1880. These expeditions were important for more than geographic surveys: they included early oceanographic research on the Arctic Ocean and geological and biologic collections that were returned to London. But his real fame derives from his last expedition in 1881 when his vessel, *Eira*, was wrecked on the south coast of Franz Josef Land, which gives this book its title. Following the wreck, the 25 members of the expedition were forced to overwinter at 80°N. After almost a year, Leigh Smith led the expedition with small boats over ice and open water for six weeks to Novaya Zemlya with no loss of personnel—a voyage comparable to that of Shackleton 30 years later.

SHIPWRECK AT CAPE FLORA treats a fine subject and provides a good biography of Benjamin Leigh Smith, for which the author deserves thanks. It is based on extensive research in published materials, diaries, the private correspondence and archives of the Leigh Smith family, and contacts with the subject's descendants. The text is supported by notes, references, an index, and appendi-

ces. Unfortunately, the book is marred by a few typographic errors (e.g. Smith South for Smith Sound [p. 143] and RSG for RGS [p. 218] and especially by the poor reproduction of many of its figures, including the photograph of its author! However, this is carping criticism of what is truly a good read.

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THE VEGETATION OF ANTARCTICA THROUGH GEOLOGICAL TIME. By David J. Cantrill (Royal Botanic Gardens, Melbourne, Australia) and Imogen Poole (Utrecht University). Cambridge, U.K., and West Nyack, New York: Cambridge University Press, 2012 (U.K.), 2013 (U.S.). 480 pp. £85.00 (U.K.), \$140.00 (U.S.) (hardcover, with numerous illustrations, photos, maps, index, and extensive bibliography). ISBN: 978-0521855983.

My first impression from the title, THE VEGETATION OF ANTARCTICA THROUGH GEOLOGICAL TIME, was that this book would be mainly about paleobotanic studies in Antarctica. I found it to be much more. Both authors have carried out extensive field research in Antarctica. Although much of the discussion is centered on the evolution of vegetation through geologic time, the book also discusses global climates, paleogeography, and geology.

The book is divided into 9 chapters, each followed by several pages of cited references. The first chapter provides a concise history of exploration and summary of the geography and geology of Antarctica. The remaining 8 chapters treat the major episodes in the history of Antarctica from the mid-Paleozoic to present. Each chapter includes wide-ranging topics such as global climate change, atmospheric and oceanic conditions, plate tectonics, local geology, and evolution of plants with maps showing localities and illustrations of plant fossils. Stratigraphic charts compare flora in various southern areas. Tables include lists of species for each geologic period. Interesting case studies are included in some chapters, such as “The relictual Cenozoic flora of Antarctica and Valdivian Model.” The following chapter headings give an idea of the breadth of the topics that are covered: (1) Historical background and geological framework; (2) Early to middle Paleozoic climates and colonization of the land; (3) Collapsing ice sheets and evolving polar forests of the middle to late Paleozoic; (4) Icehouse to hot-house: floral turnover, the Permian–Triassic crisis and Triassic vegetation; (5) Gondwana break-up and landscape change across the Triassic–Jurassic transition and beyond; (6) Fern-conifer dominated Early Cretaceous (Aptian–Albian) ecosystems and the angiosperm invasion; (7) The origin of southern temperate ecosystems; (8) The heat is on: Paleogene floras and the Paleocene–Eocene warm period; and (9) After the heat: late Eocene to Pliocene climatic cooling and modification of the Antarctic vegetation.

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