

BOOK REVIEW

The Periglaciation of Great Britain

PAGE 235

Colin K. Ballantyne and Charles Harris, Cambridge University Press, New York, 330 pp., 1994, \$39.95 (paperback).

A book devoted to the periglaciation of Great Britain seems paradoxical at first glance, since the island lies far to the south of the current Arctic permafrost zone, it supports no modern glaciers or ice fields, and is today influenced mainly by a maritime climate. But then few of the Earth's landscapes can be explained by geomorphological processes operating at present.

During the last 2 million years, the landscape of Great Britain developed under climatic conditions different from those of today: glaciers and ice fields expanded in cold periods and melted in milder periods. Much of the northern part of the island shows evidence of Quaternary glaciations. The glaciers sculpted the British uplands into a landscape of cirques, sharp ridges, and rock basins. In southern Britain, beyond the limits of maximal glaciation, cold climates formed a relict landscape. Here, beyond the glaciers, the periglacial zone was exposed to cold climate.

The term "periglacial" refers to conditions, processes, and landforms associated

with cold, nonglacial environments. Periglacial geomorphology is concerned with study of the landforms, deposits, and processes of cold, nonglacial environments. The concept of periglaciation adapted by the authors of this book is less universal, however. It describes "the collective and cumulative effects of periglacial processes in modifying the landscape, much as glaciation describes the general effects of glacial action."

Ballantyne and Harris, known for their work on different regional aspects of periglacial activity, have succeeded in demonstrating how modern theory in periglacial research can be applied to achieve a better understanding of the periglacial features in Great Britain and to reconstruct past episodes in the evolution of the British landscapes. In *The Periglaciation of Great Britain* the authors evaluate the geomorphological and environmental implications of relict periglacial phenomena in the British landscape, synthesize evidence found across Great Britain, and identify sites that represent particular periglacial phenomena and priorities for future research.

The 4-part book begins by introducing the concept of periglaciation and gives the chronological and environmental background for the understanding of the subject, then describes the periglaciation of lowland Britain, below about 400 m in elevation. Part three is devoted to the periglaciation of upland Britain. This upland/lowland distinction

seems appropriate, since the periglacial phenomena in these two zones are quite different. Parts of upland Britain may still experience periglacial activity, while the periglacial landscapes of lowland Britain are relict. Part four summarizes several previously described phenomena and puts them into the context of three different periglacial environments: the Dimlington Stadial (ca. 26,000–13,000 radiocarbon years before present), the Loch Lomond (Younger Dryas) Stadial (~11,000–10,000 radiocarbon years before present), and that of the present.

Many examples of theoretical, laboratory, and field research strengthen the book, and many results from modern periglacial environments in other parts of the world are provided as well, including in Canada, Alaska, Siberia, the Alps, the North American Cordillera, and Scandinavia.

The book's text is smartly organized and well written, and the table of contents and the subject index are detailed. Page numbers and running headers are in their proper places, the line illustrations are clear and easy to read, and the black and white illustrations are nicely reproduced, with a few exceptions.

The Periglaciation of Great Britain should be used actively by students and Earth scientists interested in cold-climate geomorphology and Quaternary palaeoenvironmental reconstruction, not only in Britain but worldwide. The volume can be used as a textbook for geology and physical geography classes and as a reference for geomorphologists, geologists, Quaternary scientists, civil engineers, and pedologists teaching periglacial courses.—Atle Nesje, Department of Geography, University of Bergen, Norway

In Brief

PAGE 234

Burned After three months of investigation, NASA and the Agenzia Spaziale Italiana (ASI) have concluded in a report that the tether connecting the TSS-1R satellite to the space shuttle *Columbia* broke because unexpected electrical arcing severed it. Presenting its findings on June 4, the independent review panel led by Kenneth Szalai of NASA's Dryden Flight Research Center noted that something punctured the tether and allowed electrical current to breach the insulation and jump to a nearby electrical ground.

The space tether broke as it was being unfurled on February 25, just five hours into the TSS-1R experiment to generate electricity from and characterize the electrodynamic of the ionosphere (*Eos*, March 5). The satellite immediately lurched away from the space shuttle into a higher orbit. The frayed end of the tether was charred.

Investigators have surmised from the remains of the tether and from further tests of the system's prototypes that something nicked or punctured the kevlar insulation. Either an external object (but not a micrometeor or space junk) or an internal defect in the tether breached the cover protecting the copper wires. The breach allowed current to jump—or arc—for about nine seconds, burning away most of the tether and causing it to split.

The investigators noted in their report that debris and contamination could have nicked the tether as it was wound up in the reel system; they also speculated that even a stray strand of copper wire could have breached the insulation under normal stress. In the end, "the degree of vulnerability of the tether insulation to damage was not fully appreciated," the report says.

Genesis of a bad idea According to an article in *Business Week* (June 10), Macmillan/McGraw-Hill Inc. has agreed to custom-pub-

lish a version of its fourth-grade textbook *Changing Earth* in order to omit a chapter entitled "Birth of Earth." Parents in the Cobb County, Georgia, school district complained that since the chapter does not include creationism as a theory for the origin of the universe and of Earth, the entire discussion ought to be left out.

According to McGraw-Hill, customizing its textbooks is good business. *Changing Earth* and other such books are designed to allow teachers to build their own programs; the company is willing to customize texts because it does not want to dictate curricula, and it tries to meet demands of school districts. *Business Week* noted that the theory of evolution still is taught in the sixth and eighth grades, as well as high school, in Cobb County. *Changing Earth* also contains references to evolution in other chapters besides the one being deleted.

The controversy over textbooks comes just as state legislators in Tennessee are considering a bill to require schools to fire teach-