Book Reviews

A Bicentennial History

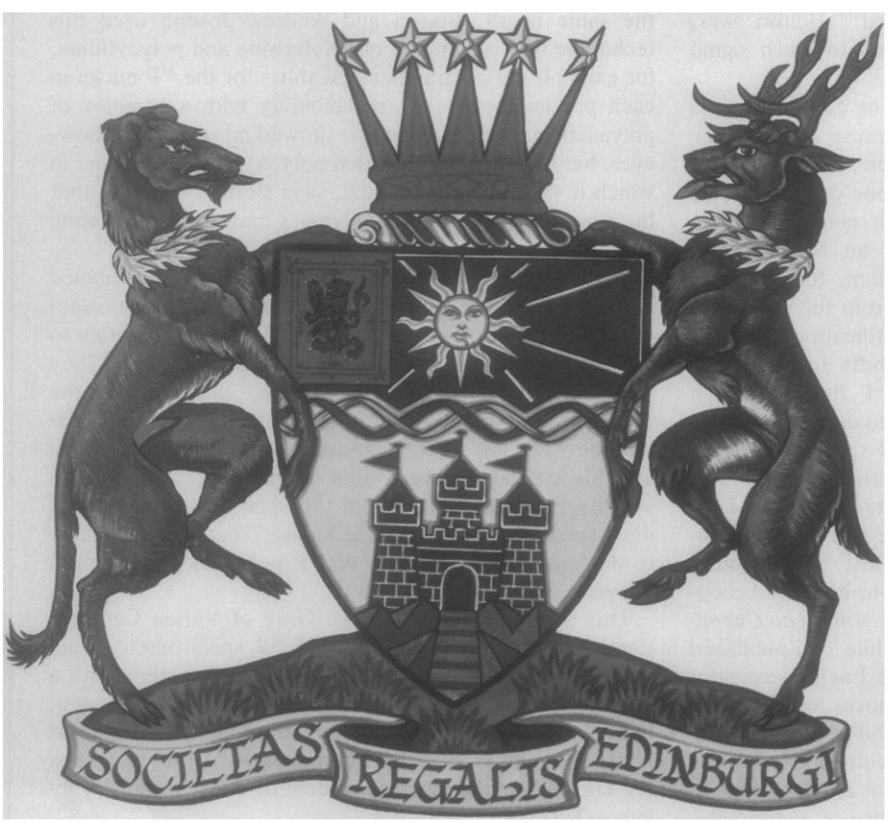
The Royal Society of Edinburgh (1783–1983). The First Two Hundred Years. NEIL CAMPBELL and R. MARTIN S. SMELLIE. Royal Society of Edinburgh, Edinburgh, 1983. xvi, 186 pp., illus. £7.50.

Among the many sodalities created in the 18th and early 19th centuries, those directed principally toward the contemplation of nature and natural phenomena seem to have a better record of survival than those catering to other interests. In this country the American Philosophical Society, founded in Philadelphia in that period, still proudly flourishes, while in Great Britain a multiplicity of metropolitan and provincial scientific associations of the date endure. One of the most respected is the Royal Society of Edinburgh. Instituted in 1783, it has, over the years, listed among its fellows a host of distinguished scientists. This account—the first in book form—celebrates the bicentenary of the Society by surveying its past and placing the organization and some of its fellows "in the context of the life of Scotland as a whole and of the wider world of science and learning." The volume describes the organization and functioning of the Society at various periods, the range of its scientific interests, its support of scientific endeavors, the achievements and foibles of some of its fellows, and several debates and controversies that have marked its history. A final "Miscellanea" deals with a few subsidiary activities, such as the Royal Society of Edinburgh Club, the Alembic Club, and various prizes. The authors of this pleasant "conspectus" are two senior fellows, both with a long-standing interest in the history of science.

Like many early scientific societies, the Edinburgh body grew out of informal associations that came together in the face of some perceived external threat rather than in answer to a cultural need. When in 1782 the principal of Edinburgh University and six of its professors (one of them the chemist William Cullen) together with eight other prominent citizens (among them the economist Adam Smith), petitioned George III to charter a "Royal Society in Edinburgh for the Advancement of learning and useful knowledge," their interest was not solely altruistic: they were acting to protect the University's science lectures as well as its museum and the Library of the Faculty of Advocates from outside competitors, chiefly "the then recently formed Society of Antiquaries of Scotland." Their successful ploy was to organize, under the patronage of the king, a new body that could serve as a forum for discussion among its members, provide for the publication of papers, and furnish a library and reading accommodations. Over the years a fourth aim, the bestowal of awards in acknowledgement of intellectual achievement, has been added.

From the first the Society has been regional rather than merely local. In addition, through the election of a limited number of honorary fellows, it has recognized men and women in Great Britain and in foreign states "who have rendered distinguished service to science and literature." Benjamin Franklin, elected in 1783, was one of the earliest so honored, and through the years many notables have been added. It is Scotland, however, with its rich store of scientific and literary talent that has unfailingly furnished the bulk of the membership. Great names—among them Joseph Black (a founder member), James Hutton (whose *Theory of the Earth* first appeared in the Society's *Transactions*), John Playfair, Sir Walter Scott, Sir David Brewster, James David Forbes, James Watt, James Clerk Maxwell, Peter Guthrie Tait, Alexander Crum Brown, and Sir Edmund Whittaker—abound on the roster of fellows and officials. The publications of the Society—its *Transactions* and its *Proceedings* (both A and B)—have been, through the decades, of significant service to science; it was in their pages, for example, that Graham's law of the diffusion of gasses and Kelvin's dynamical theory of heat first appeared. Further, it was the Society that published the 50 volumes of *Challenger* reports after the completion of that expedition.

The Society, despite one or two brief periods of "inanimation," has sustained a high record of achievement. Its early recognition, over the past two centuries, of important developments in science has been conspicuous; only photography—possibly because it was considered "artistic" rather than "scientific"—



Armorial bearings of the Royal Society of Edinburgh as adopted in 1967.

went unnoticed for some time. In the 1960's, when it was unexpectedly discovered that the long-used coat of arms of the Society was illegal and must be replaced, the design for the new armorial bearings promptly incorporated the double helix as a symbol of the growth and advancement of science. Conversaziones, symposia, television programs, annual lectures for school children, new prizes, and fellowships have in recent years brought the Society in closer contact with the general public. Its membership has been widened and more fellows from the arts, letters, and technology have been added; women, never barred by charter, were admitted in 1949.

Family albums are understandably of greater interest to family members than to outsiders. This work will be more attractive to Scots and Scotophiles than to ordinary readers. Scholars will continue to turn to original sources in studying the Society. Nevertheless this slim volume, with its many anecdotes, exceptional illustrations, and well-organized information, serves as a useful introduction to a distinguished group.

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Geomorphology

The Mountains of Northeastern Tasmania. A Study of Alpine Geomorphology. NEL CAINE. Balkema, Rotterdam, 1983 (U.S. distributor, MBS, Salem, N.Y.). viii, 200 pp., illus., + plates. $25.

Australia's poverty in mountains is redeemed in Tasmania. The mountains in the island's west are better known because of the glacial sculpture, temperate rainforest, most southerly Pleistocene spread of humans, and conservation conflict in that area. The mountains of northeastern Tasmania have received as much scientific attention in Caine's work on their geomorphology over nearly 20 years as have the mountains of the island's west.

Caine has published nearly a dozen papers and a monograph on these remnants of a faulted dolerite sill. Most of these earlier writings not only dealt with facets of the geomorphology of the mountains in isolation but also centered on elaborating methods for the study of these particular kinds of landforms. The earlier writings are drawn upon selectively in the book under review, and their essentials are amalgamated and then fleshed out into a synthesis that incorporates a good deal of unpublished material.

Such a regional synthesis might have only an Antipodean audience; its wider appeal results from the intrinsic interest of the region and from the approach Caine has taken. The region has an array of transported blockfields of periglacial origin that is hard to match globally and a set of topples around its biggest mountain, Ben Lomond, that, because it is in a simple geological context, lends itself particularly well to analysis of its mechanism of emplacement. The systematic meaning of the zonal blockfields and the azonal topples cannot be appreciated fully except against their regional background. The fashion, fortunately now passing, to oppose the nomothetic and the idiographic aspects of geomorphology had its risks.

The approach of the book is catholic in its evenhanded attempt to evaluate the roles of structure, climate, and history, though in the upshot the climatic factor is assessed as subordinate to the structural; it is puritanical in its thoroughgoing endeavor to quantify (and by corollary to test statistically) not simply the morphometry and sedimentology but the implications of all genetic and historical interpretations, especially as a means of adjudicating between multiple working hypotheses.

The last point is vital because in the author's view present-day processes are almost irrelevant to understanding the landscape in northeastern Tasmania. Most Quaternary meso- and microforms, if not the largest elements inherited from the Tertiary, suggest virtual stability in warmer intervals such as the Holocene and development in colder periods, generally by periglacial processes and in the case of Ben Lomond by glacial actions as well.

Chronology is the weak part of the study despite gallant wrestling with meager evidence. Rind thickness and weathering pan size are crucial to this attempt at chronology. Given the general statistical rigor of the book there is an unaccountable failure to quantify the vital comparison of rind thickness of dolerite clasts belonging to the two glacial periods that Ben Lomond experienced.

One would have welcomed more discussion of the contrast between the two glaciations, the later one comprising but a few small cirque glaciers below a plateau that carried no ice but had nourished ice caps in the earlier glaciation. The impossibility of the survival of tors through an ice-cap glaciation, which is proclaimed to have been but lightly erosional, needs to be argued rather than assumed, given contrary views elsewhere. Generally, however, there is frank recognition when matters remain problematic. There is no presentation of the wind regime, though weight is given to snow drifting. The place names of Ben Lomond and Mt. Barrow should have been put on maps. One has to refer to other publications of the author to follow parts of the argument.

This criticism amounts to little; the book is welcomed as stoutly representative of a modern geomorphology that has absorbed the quantitative revolution and yet remained firmly tied to the ground.

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Reproductive Ecology

Breeding Biology of the Adélie Penguin. DAVID G. AINLEY, ROBERT E. LERESCHE, and WILLIAM J. L. SLADEN. University of California Press, Berkeley, 1983. xii, 240 pp., illus., + plates. $27.50.

The authors of the present book, who have produced more than a dozen publications between them on Adélie penguins at Cape Crozier, here treat their previous work cursorily and concentrate on material not previously published. The book might appropriately have been subtitled "A Study of Reproductive Success in Relation to Age." Copious details are given of how age affects behavior at the Cape Crozier colony, the likelihood of breeding, different measures of reproductive success, and subsequent survival. The authors also examine the interaction of age and experience, and this is one of the most illuminating facets of the book. Because there is great variation among them in age at first breeding (from three to eight years) the Adélies provide a particularly good opportunity to study this interaction. Moreover, Adélies change mates more often than most seabirds, allowing the role of mate fidelity to be evaluated. The book will be an indispensable reference for anyone dealing with these topics.

The study also provides new insights into the effects of position of breeding site within the colony on breeding success. Among the Adélies at Cape Crozier, unlike some other seabird colonies, sites in the center were not preferentially occupied by older breeders. The oldest birds were concentrated in a band be-