

Conferences are small; only eminent scientists and experts are asked, and programmes are informal to ensure interchange of ideas between delegates. The First Spilhaus Symposium concerned engineering in the Arctic Ocean.

*Arctic Ocean Engineering for the 21st century* is intangibly addictive. Had I seen it while browsing in a bookshop I would not have rushed to buy it. Having read it from cover to cover, and re-read some chapters several times, I still cannot pin down what makes me go back for more. I am not sure I even agree with the Spilhaus Concept (though this may be sour grapes because I was not invited to the conference). Perhaps it is the originality of free thought, derived from knowledgeable people waxing poetic, that makes the concept work. About to say that this is no reference tome, I checked again and found it a mine of information once you know where to dig. Rey on geophysical and environmental issues, Armstrong on Arctic transportation (with special emphasis on the Soviet Union) and Kildow on US Arctic policy, all give useful facts and learned predictions. A particularly entertaining paper by Ostreng discusses both strategic and offshore developmental aspects of the Arctic Basin. The four appendices include a list of participants, the text of the Arctic Research and Policy Act of 1984, abstracts that had been distributed before the conference, and a set of extended papers. From this final section, papers by Croasdale, Jumppanen, Zaleski-Zamenhof and Itoh on engineering design problems under Arctic conditions deserve special mention; so does the paper by Brigham on Soviet Arctic transportation. I found the workshop report section somewhat turgid, perhaps because the reports try to summarize too many often disparate ideas. However, pulled together into a single volume, these papers are of great value to all who are interested in polar matters.

The First Spilhaus Symposium was an adventurous project. I think it worked. Its proceedings will interest engineers, lawyers and policy makers who wish to read around the Arctic aspects of their subjects. (Vernon A. Squire, Scott Polar Research Institute, Lensfield Road, Cambridge CB2 1ER.)

### PORTRAIT OF A LAND BRIDGE

BERINGIA IN THE CENOZOIC ERA. Kontrimavichus, V. L. (editor). 1985. Rotterdam, Balkema. 724p, illustrated, hard cover. ISBN 90-6191-4450. £28.50, Fl.120.00.

This volume is a translation of a set of 57 contributions to a symposium on 'The Bering Land Bridge and its role in the history of Holarctic floras and faunas in the Late Cenozoic' held at Khabarovsk in 1973. The volume was published in Russian in 1976.

Beringia is a critical area for any consideration of Holarctic biogeography, since sea level changes and tectonic history control the extent and timing of the land-bridge between Asia and North America. The translation will therefore be welcomed by a wide variety of scientists, be they botanists, zoologists, geologists, geographers or archaeologists. This is especially so since the great majority of contributors are Soviet authorities on these matters, and even though there has been a considerable lapse of time between writing and publication.

The papers are presented under five general headings: the geological history of Beringia (11 papers), vegetative cover and palaeogeography of Beringia (15), Beringia and fauna of the Holarctic: palaeontological data (11), Beringia and recent fauna of the Holarctic (10), and Beringia and the problem of human migration to America (10). They include general reviews of sea-level change, vegetation history, faunal history, climatic history, Asian and American flora and fauna elements (mammals, insects, helminths) and

their connections, and archaeology. There are also accounts of the palaeontology and archaeology of particular areas in north-east Asia and North America. Most of the papers deal with Late Cenozoic time, or with the Quaternary, only a minority covering the Tertiary in any detail. The treatment of vegetation history varies from general surveys of areas with little detail attached, to more factual accounts of recent (in 1973) research. Of the latter, there are good outline accounts of variations in vegetation types in north-east Asia in the Quaternary as a whole and in the late Quaternary in more detail. Several of the papers refer to the attributes of the Kharginsky interglacial some 50,000 years ago, and there are valuable discussions of the very interesting biome of tundra-steppe communities, now very restricted in range but formerly much more extensive. A paper by Yutsev synthesises the biota history in the Late Cenozoic. On the zoological side, there are contributions on the migration of proboscideans, rodents, lagomorphs and on mammalian faunas as a whole, and on the changes which may have led to present distributions of various elements of the present fauna of north-east Asia and North America. The archaeological section contains accounts of particular sites or areas, of relations between the archaeology of north-east Asia and North America and of the history of indigenous peoples in the area.

From this brief survey it will be seen that the contributions in the volume will be valuable for anyone who is interested in Holarctic biogeography in a broad or narrow sense, and not only in Beringia. Even though the papers are of 1973 vintage, they provide a good insight into the way palaeontology, palaeoecology and systematics are providing important basic data for the study of the present flora, fauna, population and climate. The translator, D. Löve, is to be commended for enabling a much wider audience to take advantage of the results of recent research in Beringia. (R. G. West, The Botany School, Downing Street, Cambridge CB2 3EA)

### BRIEF REVIEWS

**STUDIES OF SEA MAMMALS IN SOUTH LATITUDES.** Ling, J. K. and Bryden, M. M. (editors). 1985. Adelaide, South Australia Museum. 132 p, illustrated, soft cover. ISBN 0-7243-6761-6. A\$16.50.

A compilation of nine research papers presented at the 52nd ANZAAS Congress of May 1982. Three of the papers are on southern elephant seals *Mirounga leonina*, covering size, status and demography (McCann), tagging studies of young males in the Vestfold Hills of Antarctica (Burton), and endocrine regulation of breeding on Macquarie Island (Griffiths). The fourth paper is on milk production and pup growth in Weddell seals *Leptonychotes weddelli* (Tedman), and the fifth deals with the taxonomy, biogeography and life history of South African and Australian fur seals *Arctocephalus pusillus* (Warneke and Shaughnessy). The remaining four papers include a history of whales in the southern hemisphere (Fordyce), recent work on southern right whales *Eubalaena australis* and humpbacks *Megaptera novaeangliae* off Western Australia (Bannister), studies of humpbacks in Area V (Bryden) and a contingency plan for cetacean strandings in Australia (Anderson). Available directly from the South Australia Museum; the price includes postage and packing.

**ARCTIC WHALING:** Proceedings of the international symposium on Arctic whaling, February 1983. s'Jacobs, H. K. (editor). 1984. Groningen, University of Groningen. 181 p, illustrated, soft cover. ISBN 90-800042-1-9.