

religion in a Siberian collective farm' is important for all students of the native peoples of the Soviet Union. Based on a visit to Buryatiya in May and June, 1967, when she visited the Karl Marx collective farm in Selenga, as well as a second spell of field work in 1974–75 in a similarly named kolkhoz in Barguzin, east of Lake Baykal, Dr Humphrey has supplemented her direct observations with an extraordinarily thorough analysis of published material relating to the Buryats, as well as statistical material she has obtained locally.

What might, therefore, have been a rather 'thin' book based on a few weeks' stay has been converted into a very complete and important pioneer analysis of the economic and social bases of farm collectives in the region. Not all her material may be extended to other areas of Russia, but she does show us all how much data on the Soviet Union is to be discovered in print if one searches lengthily, as she has done.

At times she is a little ill at ease with the 'official' Soviet theoretical discussion of a sociological nature, but generally she distances herself from this by the skilful use of single inverted commas. The book is dedicated to Sir Edmund Leach, and one encounters traces of his theoretical views in her discussion of Buryat religion.

Dr Humphrey is to be warmly congratulated on the appearance of a work of scholarship that will not quickly date, and which runs little chance of being superseded. Her very full bibliography will be especially useful. (Ian Whitaker, Simon Fraser University, Burnaby, BC, Canada V5A 1S6.)

ADÉLIE PENGUINS; A LONG TERM BANDING STUDY

BREEDING BIOLOGY OF THE ADÉLIE PENGUIN. Ainley, D. G., Le Resche, R. and Sladen, W. J. L. 1984. Berkeley, University of California Press. 240 p, illustrated, hardback. ISBN 0-520-04838-5. £22.00.

This is the long-awaited synthesis of a banding study of Adélie penguins at Cape Crozier, Ross Island, Antarctica between 1960 and 1975. The study was organized by William Sladen, whose involvement with the species began several years earlier in the maritime Antarctic, and for 15 years engaged a team of American biologists, financed and supported by the United States Antarctic Research Program (USARP). As the authors point out in their introduction, the success of the operation owes much to the diligence of Robert C. Wood, who spent ten successive summers at Cape Crozier organizing the banding and recovery. Chapter headings show the scope and detail of the work: Methods and definitions; Occupation of the rookery; Activities of prebreeders; Breeding behaviour; Initial pairing and breeding; Activities of breeding with respect to age and experience; Factors other than age and experience that affect productivity; Demography of the Crozier population; Age at first breeding and the balance among demographic variables.

To those who have been following the American work over the years, a deal of this will be familiar, for the book is a summary of much that has already been published in research papers and reports. It is none the less welcome for bringing the work together and drawing conclusions. The authors write clearly and on the whole non-technically, though this is by no means a popular account of the species. Conclusions on population structure, demography and such important issues as deferred maturity are relevant to many other species for which fewer data are available, and will interest population biologists greatly. This study of Adélie penguins stands alongside Richdale's classic work on Yellow-eyed penguins of New Zealand, and recent Australian studies on Little Blues. The insights it reveals fully justify, if justification is still needed, further long term,

properly monitored banding programmes of colonial species in Antarctica and elsewhere. (Bernard Stonehouse, Scott Polar Research Institute, Lensfield Road, Cambridge CB2 1ER.)

THE CLIMATES OF ANTARCTICA

WEATHER AND CLIMATE OF THE ANTARCTIC. Schwerdtfeger, W. 1984. Amsterdam, Elsevier. (Developments in Atmospheric Science: 15). 262p, illustrated, hard cover. ISBN 0-444-42293-5. US \$46.25. Dfl. 120.00.

According to the author, the purpose of *Weather and climate of the Antarctic* is to present an up-to-date description, and as far as possible explanation, of the meteorological characteristics of the southern continent, including its inseparable topics weather and climate and their close relation to ice conditions on the surrounding waters. Some problems which need further field work and theoretical investigation are outlined in detail. However, questions of weather forecasting are discussed only where it appears that new information or understanding of the involved atmospheric processes make it worthwhile. Schwerdtfeger considers that in the past two decades, considerable progress has been made in meteorological, climatological and related glaciological research in Antarctica and the surrounding ocean. A large part of the resulting literature refers directly or in a broad sense to climate problems. In contrast, little has been published about the vagaries of *weather* in different sectors of the continental coasts, and on the formidable high plateau which, permanently covered with snow and ice, is yet one of the largest deserts on earth. This is the gap in the literature filled by Schwerdtfeger's book, which is a detailed, comprehensive study of antarctic meteorology.

Chapter 1 is introductory, considering Antarctica's unique topography (over 97 per cent permanently covered with snow or ice, mean surface elevation over 2 300 m) and the effects of polar day and night, and drawing attention to the sparseness of meteorological stations. The USA has roughly fifty times more year-round stations per unit area than the antarctic region; lack of stations (most of which have operated only since the International Geophysical Year, 1957-58) has recently been compensated in part by measurements from satellite, automatic weather stations, drifting buoys and GHOST balloons. Chapter 2 discusses radiation and temperature, treating radiation balance in detail with examples from many stations, and such temperature phenomena as the 'pointed summer' and 'coreless winter' of the high plateau and temperature inversion in the lower troposphere. Chapter 3 discusses surface winds including inversion, katabatic, barrier and foehn winds, and also blowing snow and windchill. Atmospheric circulation and its disturbances are described in Chapter 4, including such topics as the circumpolar vortex, cyclones and anticyclones over the southern ocean, and atmospheric pressure systems over the antarctic plateau.

Chapter 5 describes water as gas, liquid, and solid, covering its transport, clouds and fogs, precipitation and accumulation. In Chapter 6 the author considers selected problems of Antarctic climatology, including the ice mass budget, ice supply and climate, and periodic fluctuations of temperature and pressure, with a brief comparison of south and north polar climates. Ice mass budget is one of Antarctica's major unsolved problems awaiting further research. Early research surprisingly reported a positive mass budget, indicating that the snow and ice cover has recently been growing. Later research suggests that individual budget components are too inaccurate to allow certainty over the sign of the budget as a whole. Satellite technology should soon help to increase accuracy, for example in monitoring calving from glaciers and ice shelves, a component large and