

and provide some quantitative data. This volume will be of most value to those interested in the biology of loons, grebes, albatrosses, shearwaters and petrels. I look forward to seeing Volume 3, on birds of prey, but Volume 4, dealing with grouse and cranes, is planned first and expected to appear in 1987.

*Josef K. Schmutz*  
*Department of Biology*  
*University of Saskatchewan*  
*Saskatoon, Saskatchewan, Canada*  
*S7N 0W0*

**FLUCTUATIONS OF GLACIERS 1975-80 (Vol. IV).** Compiled for the Permanent Service on the Fluctuations of Glaciers of the IUGG-FAGS/ICSU by WILFRIED HAEBERLI, Laboratory of Hydraulics, Hydrology and Glaciology, Swiss Federal Institute of Technology (ETH), Zurich. Paris: International Association of Hydrological Sciences and UNESCO, 1985. 265 p. Maps, index of glaciers cited. Softbound. US\$38.00.

There is presently much discussion and research being conducted on global climatic change. A growing concern is that inadvertent human interference in the atmosphere at all levels may cause the most dramatic change in climate in 100 000 years. One of the major obstacles to understanding climatic change is a paucity of usable data. A study of ocean, lake and ice cap cores has given us a wealth of information on how climate changed in the past. These changes give us better insight into the present climate and what may happen in the future. However, while the planet is now bristling with environmental instrumentation, it is generally located in areas of high population density. We have to turn to natural indicators to measure present-day climatic trends; glaciers can serve as one of these indicators. This volume, the fourth in a series beginning in 1959, serves this purpose. It brings together data from 691 glaciers located in 15 different countries and Antarctica. The data will be of use mainly to the glaciological community, but should also be useful to anyone working in the field of climatic change.

The first 117 pages of the book serve several purposes. The sources of the data are fully documented, the meaning of the data is explained and the method of glacier classification and the formats used to gather the data are described. Twenty pages of glacier data that do not fit the official format are presented, including some interesting Australian material from Antarctica. Then there is a 25-page chapter describing each of 11 glacier maps from seven countries. The maps, which show glaciers from both remote and accessible areas in Europe and Asia, are carried in a back pocket of the cover, which also carries the data volume itself.

Before describing the various tables, it should be noted that mass balance is a measure of the amount of snow and ice that accumulates on the glacier each year, mainly during winter (i.e., winter balance), the amount that melts and leaves the glacier each year, mainly in summer (summer balance) and the difference between these two amounts (net balance). More accumulation than loss gives a positive balance and the converse gives a negative balance.

There are nine sets of tables. The first covers variations of the glacier front position on 626 glaciers, with a set of 105 glacier updates from previous years. The next gives mass balance summaries of 75 glaciers (winter, summer, net balance, equilibrium line elevation, accumulation area ratio and total glacier area), with 22 glacier updates from previous years. Then there is a set of tables of mass balances given for each of 20 glaciers by 100 m altitude intervals. This is followed by a 36 glacier set of areas, volumes and thickness changes, again by 100 m altitude intervals, and then a table listing 30 glaciers and the availability of hydrometeorological data (stream gauge, meteorological station, their coordinates, altitude and area of the drainage region studied). Finally, there is an alphabetical glacier index, which lists the data available with page numbers.

All the tables are well organized, with each having its own distinc-

tive page colour for easy location from the closed book. The first page of each table section explains the acronyms at the top of each table. It is not necessary to be a glaciologist to use and understand the data.

A brief look at some of the data indicates that in the five-year period covered by the volume, 77% of the reported glaciers had positive balances and 23% negative ones. In terms of terminus changes, 46% have advanced and 44% retreated, with 10% unchanged. So, between 1975 and 1980 glaciers were more than holding their own.

Among the various contributing countries, Canada and the U.S. are well represented, although the compiler notes that many Canadian measurements have been discontinued due to a lack of funding. If so, the next five-year edition, ending with 1985, will show a much smaller Canadian contribution. Data lost can never be regained.

Antarctica and Greenland are very poorly represented, and while they have provided the deepest and longest ice cores to date, and will continue to do so, the mass balance of both ice sheets remains unknown. Some mass balance work is now being done in Greenland. However, it would be nice to see the data from past and present stake farms in Antarctica. These would at least give time series of snow accumulation rates there.

The compiler, Haerberli, is to be congratulated on taking over and succeeding in the particularly arduous job of wrestling data from scientists. We can look forward to an even better Volume V (1980-85), which is already in the collection stage.

*R. Koerner*  
*Terrain Sciences Division*  
*Geological Survey of Canada*  
*Energy, Mines and Resources Canada*  
*880 Wellington Street*  
*Ottawa, Ontario, Canada*  
*K1A 0E4*

**ARCHEOLOGIE DE L'UNGAVA: LE SITE DE LA POINTE AUX BELOUGAS (QILALUGARSIUVIK) ET LES MAISONS LONGUES DORSETIENNES.** By PATRICK PLUMET. Montréal: Laboratoire d'Archéologie de l'université du Québec à Montréal, Collection Paléo-Québec, No. 18, 1985. 472 p. Figs., photos, drawings, plans, bib. In French. Softbound. Cdn\$18.00.

This book is a product of the multidisciplinary Tuvaaluk Programme funded by the Canada Council during the second part of the 1970s. The volume deals essentially with only one aspect of the program, namely the longhouses from Ungava. Another presents the history of human occupation in Ungava from an ethnohistorical perspective, and a third is a Master's thesis on one of the sites excavated during the Tuvaaluk Programme.

The hypothesis in vogue during the time of Plumet's initial field work in the Eastern Arctic held that longhouses in arctic Quebec resulted from Norse who had left Greenland in the 12th century and adopted a Dorset subsistence culture. Plumet's hypothesis is that longhouses discovered throughout the Arctic were effectively built by the Dorset people themselves, about A.D. 1000. The earlier hypothesis had been proposed by the late Thomas Lee, who could not conceive that such advanced architecture could have been developed by aboriginal people.

The book is organized in a way peculiar to the author and French prehistorians. Plumet's methodology is inspired by the work of Leroi-Gourhan. The strong point about Plumet's work is that he uses a *vocabulaire d'attente*, which makes his methodology explicit and his reasoning, although dense, easy to follow. Moreover, the field techniques used throughout the program are very detailed and the data collected during the field research are well integrated by using computer techniques.

The book is divided into ten parts, which in turn are subdivided into chapters. It starts with a general description of the aims of the Tuvaaluk Programme and the topic of the longhouses. The next section includes a description of the environment of the west coast of Ungava Bay, with a