

ILLUSTRATED ICE GLOSSARY. TERENCE ARMSTRONG *and* BRIAN ROBERTS. *Polar Record*, Vol. 8, No. 52, 1956, p. 4-12. Cambridge, Scott Polar Research Institute. Published as a separate reprint at five shillings.

A CONSTRUCTIVE step forward has been made in the still thorny field of sea ice terminology with the publication by the Scott Polar Research Institute of this excellent illustrated glossary. An abstract of a more complete glossary which will be published later; it is intended as a practical aid to mariners navigating in ice and aims to cover the minimum number of terms required. Sixty-eight well chosen terms, of which forty are illustrated, give the seaman and the air observer all they require and save the difficulty of sifting through a lot of technical terms that they will never need.

In the definitions and choice of terms the authors have taken careful consideration of international usage, and especially of usage in English-speaking countries, and they have approached encouragingly near to producing something that is acceptable to all. It should not be difficult to arrive at a satisfactory compromise on the few remaining points of difference with United States terminology, and it is hoped that the forthcoming Canadian glossary, which will be a slight modification of the present work, may be in a position to embody such a compromise.

There remain one or two uncomfortable terms, the most outstanding of which is probably "ice cluster". This term was originated by the authors to describe a phenomenon noted in recent years by the Russians, who have observed that in the coastal seas of Siberia there are certain areas of ice concentration which persist every year and which they call "*massifs*". This apparently simple concept is extremely difficult to express in English without resorting to such words as "field", which is to be avoided as having other and more general connotations. The word "cluster", however, at least to this reviewer, is associated with small bunches, as of grapes, and is not really descriptive of the phenomenon. Another term of doubtful value is "bay ice", which is defined as

"Fast ice of more than one winter's growth, which may be nourished also by surface layers of snow. Thickness of ice and snow up to about 2m. above sea-level. When bay ice becomes thicker than this it is called an ice shelf."

This is an Antarctic phenomenon for which some term is essential, but there seem to be three grave objections to this particular term: in the first place a simple descriptive phrase is being misused, as the incipient shelf need not be, and in fact very commonly is not, in a bay; secondly, the term will inevitably be used as a straightforward descriptive phrase to distinguish between the ice in a bay and in the sea outside, and this is likely to cause confusion; thirdly, by defining it as fast ice of more than one winter's growth, the authors are by implication restricting the term "fast ice" to one-year-old ice only. In the Arctic this is not acceptable, as there is such a thing as fast ice which is two or more years old but which will never develop beyond a certain thickness owing to low snowfall and the balance of freeze and thaw, and for this "fast ice" remains a perfectly satisfactory term.

The illustrations are first-rate and fully justify the very considerable time and effort which must have been devoted to their selection. Almost without exception they show clearly the feature they are designed to illustrate, a thing not easy to achieve and painfully lacking in most illustrated glossaries. It would have helped however to have an indication of altitude in the case of the few air photographs included, as it is by no means easy to judge the scale. This is particularly true of the ice island photograph, which might be very misleading to those unfamiliar with the subject. By an unfortunate oversight the caption of the illustration of polar ice draws attention to the great thickness of the ice under water, when all that appears in the reproduction is the reflection of the part above the surface.

Concentration of pack ice is expressed in octas, which is in accordance with WMO practice. North American users adhere firmly to tenths, but this is not a serious discrepancy, as the authors have carefully arranged their breakdown so that the terminology and map symbols are interchangeable, and as all estimates of concentration are at best approximate it makes little difference

which is used. Measurements are given in the metric system, again, and quite rightly, to conform with international usage. However as the glossary is intended for practical field use by English-speaking mariners, it would have been kind and useful to have included equivalents in feet and miles.

The authors are to be congratulated on an admirable piece of work, and the publication of the longer glossary for scientific use will be eagerly awaited.

MOIRA DUNBAR

LAWINEN: ABENTEUER UND ERFAHRUNG, ERLEBNIS UND LEHRE. 2TE AUFLAGE. WALTHER FLAIG. Wiesbaden, F. A. Brockhaus, 1955. 251 pages, text-figures, 82 plates. 23.5 cm. Price D.M. 16.50.

No more comprehensive study of avalanches has been published than this the second and rewritten edition of a book which made a great reputation on its first appearance.

The second chapter—incidentally the chapters are not numbered, a tiresome innovation—should have been the opening chapter for it is a little confusing to open with a brief review of the terrible avalanches of 1951 and then to jump back into the Middle Ages, but this displaced chapter is scholarly and interesting. The theoretical analysis of avalanches is very thorough, but of greater interest, if not of greater value, is the detailed description of historic avalanches.

In my long experience of the avalanche in winter I can remember no avalanche catastrophies more terrible than those described and illustrated in the chapters devoted to the avalanches of 1951 and 1954.

Of particular interest is Anton Stegmüller's personal narrative of an avalanche. He regained consciousness after being over three hours under the snow. "I had given up all hope of rescue and was indifferent to my fate. I remember thinking that it would be best to fall asleep again and not to wake." My own experience of being buried in snow is that as the oxygen gets exhausted one passes into a dreamy, comatose mood in which one is only half-conscious. It is rather like going under an anaesthetic.

There is one point about avalanches which nobody has satisfactorily explained, and which is not, so far as I can see, referred to in this book\*. Many years ago I observed that on an afternoon in the late spring, the moment of maximum danger was when the sun *left* the slope. I remember a race against avalanches in the course of a ski descent from the Eiger on a May afternoon in 1924. I watched the shadow creeping round from the Eiger and the avalanches sliding down when the shadow touched the snow. And I knew that if we did not reach the bottom before the shadow loosened the snow on the Mönch buttresses there would be no escape. We won that race with about forty minutes to spare.

There are eighty-two full pages of illustrations, by far the finest collection of avalanche photographs which has yet appeared. The most striking is a photograph of the Airolo Church tower emerging from above the tremendous avalanche of the fatal year, 1951.

ARNOLD LUNN

PRAKTISCHE SCHNEE- UND LAWINENKUNDE. LEO HANDL. Obergurgl, Austria, Alpinen Forschungsstelle der Universität Innsbruck, 1955. 56 pages, 16 text-figures. 21 cm. Price Sch. 28.00.

PUBLISHED under the authority of the official Austrian Alpine Research Station at Obergurgl in the Ötztal, this little book deals briefly but adequately with the minimum needs of the mountain-goer in respect of the snow cover and avalanches. The author is a mountaineer and skier of long-standing experience.

\* This phenomenon is now being investigated by the Eidg. Institut für Schnee- und Lawinenforschung, Davos. *Ed.*