

## BOOK REVIEW

D. B. O. SAVILLE, *Arctic adaptations in plants*. Monograph No. 6, Canada Department of Agriculture. Ottawa, 1972. 81 pp.

The author has an impressive experience of several decennia in botanical investigation in the Nearctic. In this publication he gives a survey of the present knowledge of the relationship of plants in the Arctic to their physical environment, notably in terms of late Pleistocene history, viz. of their geographical distribution and the effective means of dispersal and survival on which phytogeographic patterns depend. The literature on this subject of the past four years has not been fully incorporated, but, as the author emphasizes, this loss is perhaps not very serious, for the study was originally planned as an expression of his personal ideas and observations, rather than as an encyclopedic review of the world literature on plant life in cold climates.

The great merits of the publication are in particular the very clear, systematic, and didactical exemplary arrangement and treatment of the various aspects of the subject, especially if the inequality of the present knowledge of these aspects is considered.

In the brief introduction the author should have given a clear indication of the area to which most observations refer (viz. the Nearctic), the differential characteristics of the Arctic in respect of the frequently referred to, more or less similar, various alpine areas, and a mention of the consequences of frost phenomena for plant life.

After the introduction he subsequently treats the flowering plants, the cryptogamic plants except fungi, and the fungi. The number of pages dedicated to these sections, 41, 6, and 15 p., respectively, mirrors the author's personal specialism as well as the attention paid to the various groups in Arctic botanical research. The section on flowering plants is by far the most exhaustive one, with the various aspects of physical, physiological, morphological, and genetic adaptations to winter survival, summer survival, and dispersal under Arctic conditions. Regrettably a paragraph on the initial and critical early phase of establishment and development of the individual plants, the germination phase, is omitted. The adaptations of the Arctic fungi to their environment are mainly discussed in terms of the well-documented modification, as a rule simplification, of the life cycle and breeding system and of the dispersal. The section on cryptogamic plants except fungi is apparently mainly included for the sake of completeness, as the author is not a specialist in this field. Actually, comparatively little is known about this subject, but in particular with regard to bryophytes and lichens it is manifestly incomplete. This section should have been placed at the end.

For students in botany requiring a survey of the field the book may be recommended, especially as most textbooks on phytogeography and -ecology treat the subject as a rule only in general terms and rather superficially. For specialists it is a useful work because of the broad field covered, and it may be hoped to provide a stimulus for future fundamental research. However, the reader should keep in mind that a book of this size cannot be more than an introduction to the subject of adaptations of plants in a little accessible region, where many conditions interfere with long-term observations and experiments in the field.

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