Notes RBG Edinb. 40(3):534 (1983)

BOOK REVIEW

Hawaii: A Natural History.* This is a splendid book which fully justifies its title. It covers a wide range of natural history on the Hawaiian chain of islands, from geology and climate to discussions of varied aspects of animal and plant life above the shoreline. It does not aim to include animals and plants introduced by man, although an account of the devastation by rabbits on the island of Laysan gives a brief but dramatic account of the changes that can be wrought on an island by the introduction of an aggressive continential species and the remarkable recovery when that species has been removed.

The chapters on geology and climate give a good interpretation of the scenery for the non-specialist and set out the historical background for the subsequent accounts on long-distance dispersal and diversification of the biota. The text is broken-up with first-rate photographs and diagrams which complement and reinforce the points made in the main narrative: the captions often explaining the same phenomenon in a slightly different way which can be very useful to the novice in emphasizing an idea.

In discussing introduction of plants and animals to the Hawaiian islands the evidence for long-distance dispersal is well and forcefully presented. Given that the geological evidence for isolation is conclusive and the timescale quite limited owing to the volcanic nature of the islands, the author argues that long-distance dispersal must have been important in contributing to the establishment of the flora and fauna, and stepping stones must have been very limited. This is one important aspect which makes Hawaiian natural history of more than local interest. The text is full of stimulating ideas: for instance, the possibilities for dispersal in high altitude jet-streams, unfortunately the reference to this information is hard to find as there are no references given in the text; instead all are to be found hidden-away at the end of the book—they are arranged in groups relevant to each chapter and one feels that it would have been much better had they been placed at the ends of the chapters concerned.

The chapter on arborescence in relation to island floras reads like a catalogue of examples which seems to lead nowhere in particular, until one reaches the end, where an excellent summary is given of the suggested reasons for this peculiar island phenomenon. It would be a pity if readers lost interest and skipped this illuminating account because of the arrangement of the material.

Four typically Hawaiian groups are given special chapters and these include two groups of plants, the lobelioids and the silverswords; both these chapters are very readable accounts with much interesting observation and speculation. It might be mentioned here that whereas the author's statement that the 'lifespan of a single plant [silversword] is five to fifteen years although no determination has been made,' our experience of *Argyroxiphium kauense* in cultivation at Edinburgh is that it flowers in as little as three years, and shows, after only a few generations of selfing, the loss of vigour discussed elsewhere in the book as a genetic problem of establishment from isolated diaspores.

The next section of the book deals with major ecological habitats on the main islands: the coast, dry forest, wet forest, epiphytes, bogs and alpine zone. Each are dealt with in the author's stimulating style, with numerous examples beautifully illustrated by black-and-white photographs. It is a pity, however, that these are essentially botanical accounts with less of the integration of animal and plant information which is such a useful feature of the rest of the book.

A section on the minor islands will be useful for tourists and natural historians seeking information on many of the smaller islands and reefs. Again the author's keen observations make colourful reading, e.g. Sphinx moths visiting the newly opened buds of the vine *Tribulus,* which when fully expanded has open saucer-shaped flowers totally unsuited for long-tongued moths—such observations cry out for further research as to whether the moth can effect pollination or indeed find any reward at this stage of flower-opening.

A few notes for natural-history-minded tourists, the references, and the index conclude the book, which is much more than a well-produced tourist manual. It does not pretend to allow identification of plants and animals, although the pictures alone will in many instances permit naming. It is a general and stimulating natural history, drawing materials from many branches of science, and is to be recommended to those interested in the evolution, dispersal, establishment, and particular problems of island life.

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**Hawaii: A Natural History* by Sherwin Carlquist. Second Ed. Pacific Tropical Botanical Garden, Lawai, Kauai, Hawaii, 1980. $19.95.