

BOOK REVIEW

Observations and Experiments in Natural History, by Alan Dale. New York. Doubleday - American Museum of Natural History, 1962. Pp. x and 148. \$.95.

For anyone concerned with instructing young people in biology or research this attractive little book could be a good starting point. Its English author, who died in 1960 at 44, was a teacher who must have had a flair for generating curiosity and excitement. He was influential in revising the curriculum in High School biology in the U.K., and was the author of 3 textbooks and 'Patterns of Life' and 'Introduction to Social Biology.' The current edition of this book has been adapted for North American use from the 1960 original.

First of the 6 chapters is an introduction in which Dale illustrates research methods and pitfalls. Then follow observations and experiments on invertebrates, insects (45 pages), vertebrates, lower plants, and higher plants. There are simple experiments on snails (homing, use of oxygen), flukes, crustaceans, earthworms (light reactions, regeneration, burrows), spiders, hydra, centipedes, and millipedes.

In the insects there are experiments on pupation and hibernation, phototaxis and feeding, light-compass reactions, color and sex recognition by Lepidoptera, selection of food by

caterpillars, pollination by various bees, olfaction in ants, and so on. The subjects are common, e.g.: beetles (water, click, burying, ground, and *Geotrupes*); water striders and water boatmen; lacewings, grasshoppers, gall makers, cabbage butterflies and aphids.

But there is more than just experiments and observations. On every page the author poses questions and leaves problems dangling, perhaps with a hint as to how answers might be found. He sees groups of 5 or 6 water striders in mid-winter. Are they feeding? On what? How long can they go without food? If males play no part in rearing larvae are over-wintering adults always female? Try with bumblebees, mosquitoes and earwigs. How fast do aphids reproduce? Which end of an aphid is born first? Do blowflies arrive at rotting meat in succession or at random? Dale thinks *Calliphora* come first and *Lucilia* a day or so later. The same fertility of ideas runs through the chapters on vertebrates and plants.

The style is easy and appropriate with no undue use of the first person. There are 28 sketches in the text and 8 original halftone plates illustrating 13 or 14 of the phenomena dealt with. In short, here is a book to stimulate the latent biologist in most young people.

—H. R. MacCarthy.