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Insect Colonization and Mass Production. Edited by Carroll N. Smith. New York and London: Academic Press, 1966. xxii, 618pp. \$27.00.

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such measures, yet his argument is presented in such a clever and entertaining way that this reprint will appeal to a wide public. It is attractively printed in facsimile, with blue wrappers reproducing Holt's cover design. All of our readers will find *Why Not Eat Insects?* thought-provoking and well worth its modest price.

R. S. W.

INSECT COLONIZATION AND MASS PRODUCTION. Edited by Carroll N. Smith. New York and London: Academic Press, 1966. xxii, 618 pp. \$27.00.

The mass production of insects appears to have started with the requirements of the rod-and-line fisherman for bait. For many years, using crude but effective methods, an individual could earn a living rearing millions of blowflies a week to meet this demand. The recent rise of the insecticide industry—and now, biological control—has meant an ever-increasing demand for many insect species. Not only does the testing of insecticides demand very large numbers of standard insects, but their release, either as parasites to control an economic pest, or as sterile males to 'use up' wild females, involves the laboratory production of millions of specimens per week.

The demand for these multitudes of insects has been met, and this book ably describes the scientific methods now employed. For convenience the book has been divided into five sections. The first deals with Animal Parasites—the blood sucking group—Lice, Fleas, Mosquitoes. These are the species which can carry and transmit disease to man and the more important species are dealt with in a concise manner. The second section describes the methods used for Domestic and Stored Produce pests; the third, and longest section, Phytophagous insects; the fourth, Parasites, Predators and Pathogens, and the fifth, Insects by the Million, contains concise and detailed accounts of the rearing of Screw-worms and Tephritid flies for eradication programmes.

It is the third section that is the most informative. In a sense this section overlaps those on each side of it, for artificial diets are used for stored product pests and part four also involves phytophagous species and artificial diets. Although headed 'Phytophagous Insects' which is true of the species described when in the wild, in the laboratory it is no longer always so, since many of them are now reared on artificial diets. The use of such diets for stored product pests is well established; the rearing of cockroaches on dog biscuits is one such example. The use of biscuits for phytophagous insects on the scale here described is something comparatively new, and represents a real breakthrough.

A great drawback of so many insects for any research project has been that their availability is often limited to their normal seasonal appearance. It has long been known that diapause can be prevented, but only recently has it been possible to take full advantage of this, since lack of winter food has prevented year-round rearing.

This can now be done by the use of artificial or synthetic foods. The various methods and diets employed for different species are quite clearly set out, and one of the great advantages of the book is that it brings together in one source much scattered information on the subject, enabling diets to be compared at a glance. In the majority of cases they are set out in a way that can be

easily followed. The introductory chapter describing the principles and history behind their development will be found particularly useful for those wishing to experiment on new species. The detailed treatment of the methods and formulae used, as well as the listing of sources of supply, and costs, adds enormously to the value of the book and should enable either an individual or an already well-equipped laboratory to prepare a diet and commence rearing without further instruction.

Many of the chapters give detailed and useful biological information. Indeed, it is only by a proper understanding of all aspects of the life-cycle that a properly integrated control or eradication programme can be initiated against a pest species. It should be borne in mind, however, that the biological information presented here applies to laboratory conditions and may differ from that of feral populations.

As is usual in a book by many authors, there is some variation in layout and treatment. It would have led to greater uniformity if, for instance, all temperatures had been expressed on the same scale. The work is well printed on good, heavy quality paper, but considering its price, it is rather a pity it has not been encased in a rather stronger binding. These, however, are minor blemishes, and this book should be on the shelves of every Entomologist concerned with the rearing of insects.

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EXPERIMENTAL STATISTICS IN ENTOMOLOGY. F. M. Wadley. Washington, D. C.: Graduate School Press, U.S. Department of Agriculture, 1967. viii, 132 pp. \$6.50.

This book "is intended to help entomological workers who have a real interest, but little training, in applying statistical methods to research problems." The author has proceeded under the false assumption that removal of all mathematical precision *and* the elimination of the rationale behind statistical techniques results in simplification and clarification. This presents an insoluble dilemma to the statistically uninformed reader. He is given no basis (either mathematical or logical) for the design of a good experiment or for the use of a statistic once computed. A writer who discusses a range of topics from the construction of a histogram all the way through multiple regression, lattice designs and discriminant functions in 132 pages, has to be kidding. The errors of omission are so overwhelming that it seems pointless to attempt a list of the many errors of commission. Needless to say, *Experimental Statistics in Entomology* is not recommended reading for anyone, least of all the novice statistician.

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