miscellaneous cases of ecsomatic experiences containing common features such as the feeling of being "above" the physical body, autoscopia (the seeing of one's own body), the subject's emotional relationship to his physical body in the ecsomatic state, and the seeing of things, sometimes by "travelling", which subjects could not see in their physical bodies. The work ends with an account of experimental evidence of the fulfilment of a previous prediction of the author that subjects whose alpha-frequency was accelerated above their own pre-test baseline in electroencephalogram recordings did better in ESP tests than others.

The value of the book lies in its accumulation of case-material and the raising of questions suggested by this. Scientists, theologians, parapsychologists and psychical researchers will find it useful and stimulating.

D. CHRISTIE-MURRAY

Story of Immunology

The Science of Self: a Report on the New Immunology. By David Wilson. Pp. xii+346. (Longman: London, June 1972.) £2.75.

THIS exemplary text on "the new immunology" is good enough to be read as a primer by beginners in the field—by PhD starters, for example, by surgeons turning their hand to immunological research, or by anyone whether in the health business or not anxious to get a synoptic view of the most exciting branch in modern medical biology.

For Wilson the new immunology grows out of the study of self-recognition. The special virtue of this approach is that it makes it possible to embrace cancer immunity and auto-immunity within one comprehensive narrative. From the standpoint of the history of ideas the most interesting thing about immunology is how little progress it made between the great days of Behring, Bordet and Koch, and its modern developments by chemists, zoologists, molecular biologists and experimental surgeons. The reason is that over the whole of the period during which it was in the doldrums immunology was running along what may be called "Rothschild" lines, that is, orientated strictly towards practical usefulness and material advantage—antisera, vaccines and the like—without sufficient attention to chemical and biological fundamentals. In this conception of the way science ought to develop the kind of skin-grafting work that played such a large part in the growth of the new immunology might easily have been dismissed as laboratory play.

The New Immunology is a very good story and David Wilson has both the

technical knowledge and the literary skill to make it clear that it is so.

P. B. MEDAWAR

Harvesting the Waters

Aquaculture: The Farming and Husbandry of Freshwater and Marine Organisms. By John E. Bardach, John H. Ryther and William O. McLaren. Pp. xii+868. (Wiley: New York and London, November 1972.) £15.95.

THIS is an ambitious book devoted to a subject which is attracting increasing attention. Most of the important natural resources of fish and shellfish in the sea have now been discovered and exploited, and in areas such as the North Atlantic the amount of fishing effort deployed is already more than enough to harvest the maximum sustainable yield in an economic manner. On the land, development and pollution may seriously restrict freshwater fish production, while in the intervening estuaries and coastal fringes conditions have often sadly deteriorated as the result of industrialization. In such circumstances the possibilities of land-based culture systems for fish, molluscs and crustaceans, and of "farming" shallow coastal waters, are beginning to look increasingly attractive. Thus the book is very timely, particularly because of its very wide coverage. It is also very clearly written in plain English and well illustrated by clear photographs and line diagrams.

The plan of the book is straightforward. The first chapter establishes general principles and examines the economics of different culture systems. It is followed by no less than forty-two specialized chapters dealing successively, among many others, with carp, catfish, mullets, milkfish, *Tilapia*, eels, salmonids, sturgeon, pompano, yellowtail, marine flatfishes, shrimps, lobsters, freshwater crayfish, oysters, mussels and seaweeds. There is a useful appendix on pond siting and construction.

References are given separately after each chapter; the coverage varies, but is sometimes rather less than one might expect—eighteen references to the culture of freshwater salmonids seems a meagre guide to anyone wishing to consult the original papers. There is, moreover, no chapter on Atlantic salmon, although its Pacific cousins receive separate treatment in a very informative chapter of fifty-one pages.

In addition to references, the authors give after each chapter a list (with addresses) of those people interviewed or from whom they received personal communications. There are some unexpected gaps; to a European, for example, it is strange to find no Dutch references in the chapters on oyster and mussel culture. On the other hand,

the book is particularly informative about Japanese and Far Eastern practices which are not well described in easily accessible references. Another good feature is its insistence on looking realistically at the economic prospects of the culture systems described. All in all, this is a very useful book although, despite its length, the specialist must still seek out the original papers and must not assume that coverage is complete. He will, however, usually find some stimulating ideas.

H. A. COLE

Plant Viruses

Principles and Techniques in Plant Virology. Edited by Clarence I. Kado and Hari O. Agrawal. Pp. xv+688. (Van Nostrand Reinhold Company: New York and London, 1972.) £14.10.

THIS is a very useful book indeed, even though it can hardly be expected to fulfil the claim on the dust cover to include "in extensive detail both the principles and techniques of every aspect of plant virology". Besides control measures and nomenclature (which were omitted for stated reasons not necessarily valid) insect vectors other than aphids and leafhoppers, for example, are not considered.

The book will be helpful to research workers seeking information on recently developed techniques. These develop very rapidly, however, and I was not surprised to find a few places where information was already incomplete. For university lecturers and their students this book will fill a long-felt need.

It is divided into four parts. The first, which is called "Biology of Plant Viruses", comprises chapters on inoculation principles, inhibition, interference and acquired resistance, inclusion bodies, and (oddly placed) electron microscopy. The second deals with transmission by aphids, plant hoppers, mites, nematodes, and fungi, and through seed and pollen. The third part on "Isolation and Characterization" contains chapters on purification, preparative centrifugation, chromatographic purification, electrophoresis, isolation and properties of virus proteins, virus degradation and nucleic acid isolation, serology and analytical ultracentrifugation. The fourth part, called "Photobiology and Mutation", is more esoteric and less concerned with methodology.

Each chapter is authoritative, having been written by a research worker specializing in the subject, and reflects the outlook of the author. The standard of clarity, if not uniform, is certainly high. The editors must be congratulated on compiling a book which should be on hand for reference in all plant virus laboratories.

A. F. POSNETTE