

Photo-ecology

Aerial Photo-ecology. By John A. Howard. Pp. xvii+325. (Faber and Faber: London, November 1971.) £7.

THIS book is intended to provide a compact source of information and data on the application of air photography to ecology, integrated land resource studies and forestry. It is not a successor to Spur's *Photogrammetry and Photo-interpretation* and it illustrates the difficulties, even for an experienced worker, of writing an account of a subject which embraces several disciplines, each of which is undergoing extremely rapid development.

The main sub-divisions are "Factors influencing the aerial photograph", "Elements of aerial photography", "Elements of photogrammetry", "Basic interpretation and integrated interpretation", each section consisting of two or more chapters. The chapters of the first section discuss the camera, the film, tropospheric conditions and the reflectance properties of vegetation. Minor omissions are unavoidable, but the cursory treatment of a topic such as colour film is unexpected. The descriptions of negative and reversal colour film are compressed into a few lines, there is no mention of subtractive colour, or any explanation of the colours which are seen in the infrared colour film and, contrary to what is stated, it is possible to obtain colour prints from colour film positives without a negative step but such prints, and particularly Cibachrome, are expensive working material. The almost total absence of illustrations in colour is disappointing and the colotype reproduction of the stereo pairs and of many of the illustrations is inadequate for a book of this type.

A delay in publication of three years detracts from the value of the book not merely in that the costs of aerial photography in the second section are quoted in shillings and pence (d) but much more serious is the absence of any reference later than 1966, with the result that there is, for example, no mention of Gaussman's work in the chapter on the reflectance of light by vegetation, or any reference to Dawkin's recent work on the tropical forest in the last section.

The section on the "Elements of Photogrammetry" provides a useful introduction to this subject although one wonders for whom the description of such techniques as the slotted template is intended.

The section, "Basic Interpretation", contains useful practical advice but both this and the last section would have been enhanced by being illustrated with well reproduced stereo pairs. The absence of any mention of microdensitometry in a discussion of tone difference is surprising. The use of the density scale and its relevance

to the second of the two apparently unrelated keys to African vegetation is not explained.

The last section, on "Integrated Interpretation", covers a variety of topics; the two chapters on forestry surveys under tropical and temperate conditions are probably the best of the six chapters. Other chapters on geography, geology and geomorphology are rather uneven though they will serve to make methods such as land system analysis more widely known.

The account of survey design in the chapter on regional biological survey proved very difficult to follow. (Sampling the effective area of every photograph using the effective area as defined earlier in photogrammetric terms would seem to involve sampling the same area twice.)

This book will probably not come up to the expectations of many of those who have awaited its appearance for so long. It is to be regretted that the first hand observations of the author tend to be lost in the welter of diverse topics.

A. BLAIR RAINS

Attack

The Physiology of Aggression and Defeat. Edited by B. E. Eleftheriou and J. P. Scott. Pp xi+312. (Plenum: New York and London, 1971.) £6.30.

The Imperial Animal. By Lionel Tiger and Robin Fox. Pp. xi+308. (Holt, Rinehart and Winston: New York, September 1971.) \$6.95.

THE first of these books (a record of a symposium held in 1968) describes experimental work on the social interactions of mammals. It seems to have been printed from uncorrected typescript; there are many minor errors. The other book is evidently intended to be popular. The two have little common ground.

In the symposium, a paper by F. H. Bronson and C. Desjardins is entitled "Steroid Hormones and Aggressive Behavior in Mammals". (The title, like others in this volume, suggests a wider coverage than is actually attempted.) It briefly reviews the literature on effects of hormones on attack and allied behaviour. It also describes the authors' studies of laboratory mice. Males are first put in isolation for some weeks; this makes attack on other mice more likely ("isolation-induced aggression"). The influence of hormones on this behaviour is then studied. These authors include observations on a sensitive period in mouse development: hormonal treatment just after birth can profoundly influence later capacity for intolerant social behaviour.

B. E. Eleftheriou gives a preliminary account of "Effects of Aggression and

Defeat on Brain Macromolecules". He too uses male laboratory mice which have been isolated. His main observations are on changes in RNA and RNAase in the brain; as he says, correlations of the kind he reports do not yet lead to any firm conclusions. Ann and Bruce Welch ("Isolation, Reactivity and Aggression: Evidence for an Involvement of Brain Catecholamines and Serotonin") also use isolated mice: their concern is with the metabolism, especially in the brain and adrenals, of three "biogenic" amines—noradrenaline, dopamine and serotonin. These substances are less rapidly metabolized by mice that have been kept alone. Once again, the authors are faced with the problem of interpreting correlations. The stage of testing predictions has not yet been reached.

R. Plotnik, D. Mir and J. M. R. Delgado give an account of "Aggression, Noxiousness, and Brain Stimulation in Unrestrained Rhesus Monkeys". By "aggression" they mean an approach to another monkey, a posture, a grimace, or a chase plus biting. Remarkable equipment enables them to evoke these responses, in socially appropriate circumstances, by stimulation of the brain from a distance. P. G. Bourne describes "Altered Adrenal Function in Two Combat Situations in Viet Nam". It was expected that the "stress" of flying would raise the 17-hydroxy-corticosteroid level in the urine, but this was not found. Bourne writes: "it appears that each subject utilizes very extensive and effective psychological defenses to handle the events with which he is faced. . . . For many reasons, warfare among nations cannot be equated either psychologically or physiologically with aggressive behavior in animals". This sober, critical comment deserves more attention than, probably, it will receive.

A feature of this volume is that most authors attempt some critical scrutiny of the concepts they use and the conclusions they draw. K. E. Moyer provides "A Preliminary Physiological Model of Aggressive Behavior". He emphasizes the diversity of the phenomena called "aggression", and lists eight "kinds of aggression", from predation to maternal defence of young. He might have gone further. One of his principal themes is the existence of "innately organized neural circuits for the various kinds of aggression". But he does not analyse the dubious concept of "innateness". Indeed, throughout the book, there is the usual confusion between genetical determination (of differences between individuals) and stability in development (of particular characters). Moyer's argument could reasonably have led to two conclusions: first, that each of his eight categories requires separate study and a separate name; second, that the ontology of predation, and of the