

in spreading these ideas that this book should play an important part. The management of large tracts of sparsely populated land in Africa can only be based on a sound knowledge of their ecology.

It is regrettable that a well produced, expensive and otherwise important book should be marred by a large number of serious typographical errors, poor black-and-white figures and indifferent plates.

M. J. COE

The Kruger Park and other National Parks by **R. J. Labuschagne**.
Da Gama, Johannesburg.

Wankie, the Story of a Great Game Reserve by **Ted Davison**.
Books of Africa (Pty) Limited, Cape Town, 37s. 6d. (R3·75).

Game Ranger on Horseback by **Nick Steele**. Books of Africa,
Cape Town, 30s. (R3).

Life with Daktri, Two Vets in East Africa by **Susanne Hart**.
Bles/Collins, 36s.

Four books about nature conservation in Africa, each distinctive and highly recommended, all in one way or another intimately connected with man's approach to a complex subject, the first three related generally to a specified region, the fourth mainly concerned with the well-being of individual wild animals. Each of the trio has a useful map of the national parks and/or game reserves in the countries or area under discussion – South Africa, Rhodesia and Natal – and all three are well illustrated, the Kruger one exceptionally so with superb colour pictures by ten of South Africa's leading game photographers. This book celebrates the 70th birthday of Africa's first and best known wild animal sanctuary, now embracing some 10,000 square miles. The park's development and achievements are meticulously recorded with descriptions of its inmates, and there is adequate reference to South Africa's other national parks.

Wankie, in Rhodesia, another great game reserve covering some 5000 square miles, but only 41 years old, will ever be associated with Ted Davison, its founder, who was originally given £500 (including his own salary) for his first year's budget. Won from a bushy stretch of waste Kalahari sand in the face of well-nigh insuperable difficulties, it became a wonderful sanctuary stocked with an abundance of wild animals in astonishing variety. Ted Davison, now retired, here publishes valuable observations, such as the record of weights and measurements of new-born elephant twins and the growth rate of a crocodile over a 31 years' period.

Nick Steele deals with the trials and tribulations of a game ranger in Natal in the course of his everyday duties, during 12 years' service, when persistent skilful poaching by the local inhabitants was an ever-present hazard both to the wildlife and himself; the hideous cruelty of the untended wire snare makes sickening reading. This Zululand story introduces that strange, prehistoric-looking creature, the white or square-lipped rhinoceros, which, reduced to a mere few dozen and seemingly destined for early extinction, recovered sensationally to a total of about 800, some 500 of which have been removed to restock localities from which it had long disappeared.

Common to all these sanctuaries are the climatic extremes of devastating droughts and terrible floods, terrifying bush-fires, the urgent necessity to conserve and develop water resources, the importance of soil conservation, the perils of disease and the development of communications, as well as the provision of amenities for the visitor. Their achievement, like the magician's, savours of having produced something from nothing.

Finally, *Life with Dakтари* (doctor) describes the diverse activities in East Africa of a veterinary partnership, Sue Harthoorn and her husband Toni, which include such amazing operations as the removal of a semi-feral lion's eye and screwing back a cheetah's displaced heel bones, as well as the fantasy of 'The Rhino with a Rubber Horn'. Exciting adventures, narrow escapes and near disaster are vividly recounted. Toni is responsible for having pioneered and developed the now indispensable technique of immobilising wild animals, and some of his extraordinary experiences and triumphs are graphically recorded. Well illustrated in black-and-white and colour, together with amusing sketches in outline, there is also a useful map.

C. R. S. PITMAN

Comparative Nutrition of Wild Animals edited by **M. A. Crawford**. Academic Press, 130s

A Practical Guide to the Study of the Productivity of Large Herbivores edited by **F. B. Golley** and **H. K. Buechner**. IBP Handbook No 7 Blackwell, Oxford, 40s.

A deeper purpose than simply presenting scientific information on nutrition evidently motivated the organisers of this London Zoological Society symposium and promoted them to include papers on elephant populations, the biology of Sirenia and the domestication of eland. The unifying theme is the need to re-examine feeding systems and to consider how effectively wild species use their food supplies. By inference, great benefits might accrue to man from a more judicious management of a great variety of animals.

Deer exhibit seasonal fluctuations of food intake and growth, and are physiologically adapted to a self-induced starvation during the rut; in the laboratory their resting metabolism is higher than that of sheep. In some ways, therefore, deer appear to be poorer food-converters for meat production than domestic stock. But a direct comparison is artificial, and the effective efficiency of deer has somehow to be measured in habitats supplying range and browse that are otherwise difficult to exploit.

Among African herbivores the eland has water requirements that are higher than many other species including zebu cattle, yet it can live in dry scrub without drinking by an elegant combination of physiological and behavioural devices: it selects succulent food, forms exceptionally dry faeces, and in the cool of the night it increases its metabolic rate to produce metabolic water. Unlike mad dogs and Englishmen it avoids the midday sun.

Cape buffalo, cattle, warthog, hartebeest, topi, pig, kob and elephant exhibit almost identical patterns in the amino-acid composition of their muscle, and at the molecular level, therefore, all these mammals need to achieve the same end result, yet their separate evolutionary developments have provided them with astonishingly diverse means of deriving their requirements from vegetable food. A new significance is given to examining the way in which species are ecologically separated and to the meaning of their efficiency as secondary producers.

The elephant studies show this beast to be an agent that must rank in importance with fire and man in shaping African ecology. Populations appear to go through long cycles of changing abundance, accompanying environmental changes partly induced by the elephants themselves. For the first time data is given on the age structure of different populations and their organisation into family groups. This is the most important paper yet published on the management of elephant populations.