

Red colobus

The Red Colobus Monkey. (Wildlife Behavior and Ecology.) By Thomas T. Struhsaker. Pp. xiv+311+37 plates. (University of Chicago: Chicago and London, 1975.) £15.

ADEQUATE descriptions of the behaviour and ecology of rain forest mammals are rare, largely because difficult observations conditions impose severe restrictions on the scope and accuracy of the data which can be collected. Struhsaker's study of the red colobus is one of the few cases in which an observer has succeeded in producing a comprehensive survey both of social behaviour and feeding ecology, and represents a major achievement in this field.

The four main chapters cover population dispersion, social behaviour (agonistic behaviour, grooming, sexual behaviour, mother-infant relationships and intragroup dispersion) and feeding ecology (food selection, ranging behaviour and interspecific rela-

tions). On each topic the author has been at pains to include both detailed qualitative descriptions of the behaviour patterns and, where relevant, quantitative material concerning their frequency.

The book is of particular interest because of the comparisons which it draws between the red colobus and the partially sympatric black-and-white colobus. The two species differ markedly in grouping patterns, red colobus living in large, multi-male troops which occupy extensive home-ranges—black-and-white in smaller and more cohesive single-male troops in defended territories. The study shows that these differences are associated with variation in dietetic diversity and in the proportion of mature leaves in the diet at particular times of year.

Unlike its three precursors in the same series, this monograph is clearly aimed at specialists and is not easy to read, partly because the text relies heavily on 76 pages of tables published at the end of the volume.

T. H. Clutton-Brock

Chromosome configurations at meiosis

Meiotic Configurations: A Source of Information for Estimating Genetic Parameters. (Monographs on Theoretical and Applied Genetics, Vol. 1.) By J. Sybenga. Pp. x+251. (Springer: Berlin and New York, 1975.) DM68; \$27.90.

DR SYBENGA gives an account of the different kinds of chromosome configurations encountered at meiosis; how they vary in response to change in genotype and environment, and to change in chromosome structure and number. He presents a critical survey of statistical methods by which the frequencies and distributions of the various kinds of configurations within and among individuals may be efficiently described and analysed. Many of the methods concern variation in configurations dependent on chiasma frequencies and distribution. Dr Sybenga is evidently sceptical of the ability of cytologists to score chiasmata with accuracy even in organisms, such as rye, with large chromosomes. The scepticism, or modesty, embraces Dr Sybenga himself who, by way of caution, prefers to score the number of chromosome arms bound per bivalent rather than the number of chiasmata per arm. I think Dr Sybenga is over modest. I know many who claim to score chiasmata

with a very high degree of accuracy and thereby acquire more detailed information about the consequences of variation in chiasma formation!

To date, the emphasis in this field of investigation is of course on the consequences of variation in chiasma formation. We are still a long way from understanding the *mechanics* of chiasma formation or of other events at meiosis such as chromosome pairing. Many of the facts presented in this book provide clues as to why experiments seeking to elucidate the mechanisms are, to an unusual degree, difficult and inconclusive. Consider, for example, the question of establishing to what extent a structural change within a chromosome affects its ability to pair and form chiasmata with its homologous partner. We may introduce an alien chromosome segment, by transposition, and observe its effects. The trouble arises in interpreting these effects because the structural change is inevitably accompanied by a change in the chromosome genotype—that is in the content and arrangement of genes whose expression in itself affects pairing and chiasma formation independently of structural homology. The effects of genotype and of structure are here, typically, confounded. Were we able to distinguish between them we would make some progress.

Dr Sybenga, who has specialised in the study of meiosis, has produced a useful book, bursting with facts and figures which are presented with clarity and authority. **H. Rees**

Life and death of microbes

The Survival of Vegetative Microbes. (Twenty-sixth Symposium of the Society for General Microbiology, April 1976.) Edited by T. R. G. Gray and J. R. Postgate. Pp. x+432. (Cambridge University: Cambridge and London, April 1976.) £12.

THIS year's Society of General Microbiology Symposium dealt with the subject of Survival of Vegetative Microbes and this book arises from it.

Death of microbes is a subject which impinges on many areas of microbiology but relatively little interest has been shown in such a 'vital' theme. This book brings together a number of chapters on this topic in an attempt to stimulate interest in this important area.

Professor Postgate introduces the subject in an admirably well written first chapter. Several of his comments on the problems of working in this field should be taken to heart by microbiologists, not least by some of the later contributors to the book. The next chapter by Professor Dawes is a classic review on the role of endogenous metabolism on survival of microbes.

The effect of other physiological stresses on survival are dealt with in a series of chapters on cold-shock and freezing, drying and aerosol stress, osmotic stress, ultraviolet and ionising radiation, light and heat. The next group of chapters deal with the survival of microbes in natural environments. Professor Morita's chapter deals with survival (in the sea, particularly) in conditions of extreme pressure. There then follows chapters on survival *in vivo* and in the soil. The last two contributions deal with the specific role of thymidine starvation, and the effect of chemicals on survival.

Any book which is a collection of papers from different authors would be expected to vary in standard. This is indeed the case but the best are of a very high standard indeed. The two editors are to be congratulated in producing such a readable and informative book, and it is to be hoped that it will stimulate interest in this neglected area.

I strongly recommend that this book be general reading for all microbiologists so that they may appreciate the role that death as well as life may play in their areas of interest.

D. C. Ellwood