the Ethiopian faunal region, in fact, that restricting it to a limited geographical area seems unnecessarily confining when, with relatively little more effort, it could have been "The Carnivores of Africa." Of course, since the first two volumes were limited, both geographically and in the percentages of African bats and rodents included, the third volume had to follow suit. Also, the chief purpose of the series, as stated in the preface to volume 1, was to serve the needs of African university students and amateur naturalists in the British Commonwealth territories of West Africa. Rosevear is too modest on both counts: his descriptions and taxonomic discussions are bound to appeal to specialists (and may not appeal to very many lay readers), and the region covered, following more or less natural zoogeographical boundaries, includes the vast expanse between the Sahara and the Congo basin (18°N to 4°N) from the Atlantic to western Sudan.

The literature on African carnivores has been thoroughly covered through 1971 and into 1972. Under "Habits," much of the behavioral and ecological information published up to that time is summarized for each species. It would have been more readily accessible if organized under subheadings such as "predatory behavior," "reproduction," and "social organization." Sources are sometimes inadequately cited, and occasionally, hunters' lore or anecdotal reports are passed along as established facts (for example, p. 86, wild dogs, *Lycaon pictus*, "certainly do not hesitate to eat the dead of their own kind"). Nevertheless, the wealth of material based on recent studies of living animals is what mainly distinguishes this book from descriptive and taxonomic works like Robert's *The Mammals of South Africa* and Shortridge's *The Mammals of South West Africa*. The author is to be commended for his thoroughness, the more since he is first and foremost a taxonomist whose own chief concern has evidently been with collecting, describing, and classifying museum specimens. This interest is reflected by the space allotted to those topics. For instance, six pages are devoted to the leopard's habits—followed by six and a half pages on its taxonomy and preceded by a three-page description. In my opinion, the detailed descriptions are valuable, whereas the taxonomic discussions—by their very nature—are often tedious.

Indeed, there is an old-fashioned quality about this work that faithfully reflects the ambience of the venerable institution that published it. The prose reminds me of Dickens, the layout is uninspired, and who else, in this age of offset printing, would stick to letterpress? Such a traditional approach can only suffer when compared with Jonathan Kingdon's innovative, superbly illustrated *East African Mammals*. Yet *The Carnivores of West Africa* is so rich in information that its literary and esthetic defects, and even its price, are outweighed by its value as a source book.

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Gene Control

Regulation of Gene Expression in Eukaryotic Cells. Proceedings of a symposium, Bethesda, Md., Apr. 1973. MAUREEN HARRIS and BRAD THOMPSON, Eds. National Institutes of Health, Bethesda, Md., 1974 (available from the Superintendent of Documents, Washington, D.C.). vi, 128 pp., illus. $4.15. Fogarty International Center Proceedings No. 25. DHEW Publication No. (NIH) 74-648.

Although this collection of papers and discussions was presented at a symposium two years ago, it still provides a useful overview of the many possible levels of gene control in higher organisms. The edited transcripts of discussions following each presentation not only communicate the flavor of the conference but also give insight into the merits and pitfalls of commonly used methodologies. For example, the problem of multiple initiations in measuring chromatin template activity for DNA-dependent RNA polymerase is thoroughly examined, as are the disparities between in vitro and in vivo studies on RNA transcription and nuclear steroid binding sites. In some papers, however, although results are summarized, the lack of accompanying experimental data makes it difficult for the reader to evaluate the conclusions drawn. Subjects of interest for further investigation are delineated. For example, Siminovitch and Krooth point out that the genetic approach, which has been a powerful tool in the elucidation of gene expression in prokaryotes, is only beginning to be exploited in mammalian cells. Weiss draws attention to the usefulness of somatic cell hybrids in the investigation of cell differentiation and control of gene activity. The need is made evident for studies involving the use of purified RNA synthesized in vivo and hybridization conditions that permit detection of both unique and repetitive genes.

Genetic regulation at the transcriptional, translational, and post-translational levels are covered in this book. Felsenfeld and Cedar evaluate the structure and function of chromatin in RNA transcription, as well as the problems with techniques generally employed to investigate this matter. Kourilsky and Gros give a succinct and well-illustrated summary of genetic regulation in prokaryotes. They detail the positive and negative control factors that influence the initiation and termination of transcription in prokaryotic cells and, in particular, the complex pattern of regulation in the bacteriophage lambda. They suggest that a detailed knowledge of prokaryotic regulation may conceptually help in the understanding of genetic expression in eukaryotic systems, but remark that the increased complexity of mammalian DNA limits the use of genetics and biochemistry with currently available techniques. Siminovitch summarizes the problems in somatic cell genetics and the types of mutants that had been isolated in mammalian cell populations in culture up to the time of the symposium. His review and Krooth's presentation, as well as experimental findings in different laboratories in the last two years, indicate that the genetic approach to the study of regulation in eukaryotes is not only valid and desirable but also feasible.

Steinberg, Scott, Levinson, Ivarie, and Tomkins present data indicating that the induction of tyrosine aminotransferase by glucocorticoids is the result of increased messenger RNA for this protein. They also discuss the possible role of nuclear processing and stability of mRNA in control of transcription. Unfortunately, nuclear acidic proteins and repetitive DNA sequences are not extensively examined as potential factors in regulation.

Initiation and termination of protein synthesis and the rate of chain elongation are probed as forms of translational control. Revel presents evidence for translational control by a protein synthesis initiation factor that specifically recognizes hemoglobin mRNA. Post-translational control by protein degradation and by protein modification are reviewed. Cox reports that steroid induction of alkaline phosphatase activity in HeLa cells is due to a decrease in the amount of inorganic phosphate bound to the enzyme. Hershko discusses factors such as protein structure, binding of specific ligands, and energy level that might influence the degradation of proteins.

At the price this book is not only a rare value but is also a good introduction to regulation in higher organisms for students and researchers in other fields. The evaluations of certain experimental procedures make it useful for those already in the field.

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