

tures were not used, so as to avoid stirring up possible opposition to the whole effort, and before the fact such a decision may have been a reasonable one. In retrospect, it seems that the program could have proceeded in a less gingerly way.

One could speculate endlessly about what might have been done, and what the effects might have been. It is the great merit of *Family Planning in Taiwan* that it concentrates on telling in great detail what actually was done, and as far as technically possible what the actual effects were. At least one basis for optimism about the future of population control is the fact that scientific competence of such a high order is being used to monitor and evaluate pioneering efforts in the field. The successes and failures of the Taichung program are presented for all to see and reflect on. Similar studies in other countries, which the authors deem essential, should sharpen our understanding of both the capabilities and the limits of the current family-planning approach.

THOMAS K. BURCH

*Center for Population Research,
Georgetown University,
Washington, D.C.*

Molecular Embryology

Gene Activity in Early Development. ERIC H. DAVIDSON. Academic Press, New York, 1969. xii + 376 pp., illus. \$12.50.

The concept of the gene has come a long way since Mendel. Originally genes were factors whose distribution was governed by unknown agents. These agents were soon found to be the chromosomes. The physical identity of the gene remained unknown until the role of DNA was discovered. With that, genes became nucleotide sequences that could be translated into the particular amino acid sequence of a given protein. It would certainly seem that we have finally reached the end of at least one path Mendel started us on, and that the gene has been identified.

If genes are nucleotide sequences that give rise to particular proteins, then strictly speaking this book does not say much about gene activity. In fact, with the exception of a few "genes" governing the production of nucleolar RNA, no bona fide genes are mentioned. The problem is that the title is ahead of its time. A more accurate title would have been "Ribonucleic Acids in Early Development." There is a lot here on that

subject. In fact, the abbreviations RNA and DNA appear on about three-quarters of the pages. Essentially this is a review of the abundant literature that has now accumulated on the characteristics and changes in RNA during early development of molluscan, echinoderm, and amphibian embryos. This is an area in which Davidson has made important contributions.

In a way this book reviews the beginnings of attempts by embryologists to examine development from the inside out. In the past most of molecular biology has been directed toward determining the chemical basis for a particular phenotype. The approach here is the reverse. The nucleic acid changes that occur during development are becoming known; the question is now, What phenotypic character do they control?

The "early development" of the title in general refers to development through gastrulation. The nucleic acid changes that occur during this period are placed in proper perspective with good summaries of the pertinent areas of experimental embryology. There is also a large section on oogenesis, a part of embryology that is often ignored yet obviously important if the developmental process is to be understood.

This book is the first major attempt to bring the results of experimental embryology and molecular biology together in a coherent whole. It will be indispensable to anyone who wishes to know what has been going on in the early development of molecular embryology.

RALPH T. HINEGARDNER

*Division of Natural Sciences,
University of California, Santa Cruz*

Natural Communities

Habitats and Territories. A Study of the Use of Space by Animals. PETER H. KLOPFER. Basic Books, New York, 1969. x + 118 pp., illus. \$3.95. Basic Topics in Comparative Psychology.

Elton once stated that "while ecological work is fascinating to do, it is unbearably dull to read about." He also warned against making ecology consist in "saying what every one knows in language that nobody can understand." After 40-odd years his statement is still true, but his warning has a quaint, old-fashioned ring about it; for although we know little more than we did in 1927 about the way communities are organized, we do have new and sophis-

ticated ways of saying the same old things. Such treatment, while giving the subject a spurious air of respectability, is particularly unfortunate in the present book, which, as one of a series on Basic Topics in Comparative Psychology, is supposed to appeal to students of psychology and the social sciences.

The author's intentions are laudable enough: he wants to stop those who write about human behavior from dressing up preconceived notions as justifiable inferences from the behavior of other animals. Although he would probably agree with Tinbergen [*Science* 160, 1411-18 (1968)] that it is the methods rather than the results of ethological studies that such writers should attend to, he himself dishes up a conceptual macedoine that is unlikely to be digestible by readers whose diet may not have included biology. Such readers will certainly see that ideas about animals' use of space are too varied to lead to satisfactory conclusions of any kind, but are unlikely to get much out of learning how ecologists measure bird species diversity—beyond noting that they seem unsure of the difference between prediction and correlation.

The prevailing lack of rigor in the study of natural communities is also apparent from other statements. Merely to "infer [from descriptive data] the explanation for the continued coexistence of related species" (p. 6) counts as a form of experimentation, and discussions of the competitive exclusion principle ignore the recognized difficulty that one is dealing either with a tautology or an unfalsifiable hypothesis. (It is not too surprising that this principle has led to less of a renaissance in ecology than was at one time predicted.) Miller's paper on competitive exclusion [*Adv. Ecol. Res.* 4 (1967)] is only one of the odder omissions from the references, few of which go beyond 1966.

Results with birds and mammals, before being extended to human beings, must "account for all relevant evolutionary and ecological factors" (p. 102). Strictly interpreted this advice amounts to an indefinite taboo on a comparative approach to human behavior, which is far from the author's intentions. More loosely interpreted, however, his advice might reduce the number of simplistic explanations of mental illness, crime, riots, and war (between nations and sexes) and free certain grant applications from their more dubious claims.

With the author's main theme one