conclude that experience, particularly early childhood experience, plays a larger role than has usually been assumed.

Most of his evidence comes from the work of Piaget and his collaborators at the Rousseau Institute in Geneva. Piaget's carefully detailed analyses of the intellectual development of many children provide the basis for two long chapters in Hunt's book. Their contribution to Hunt's argument is a detailed, and often charming, account of the processes of intellectual development, of the continuous interaction between what the child can do (as a result of genetic constitution or earlier experience) and what the environment offers in the way of stimulation, challenge, and variety of experience. These chapters, by the way, can be read alone if one wants an excellent introduction to Piaget's work but is not interested in the basic argument that Hunt develops.

Earlier chapters discuss the evidence for and against the belief in intelligence as something fixed and predetermined, the evidence for and against the belief in predetermined development, and the evidence and speculation concerning intellectual development that have come from newer work on neurophysiology, learning, and the effects of early deprivation on later performance, and the ideas that come from work on programing computers to solve problems. Then come the chapters on Piaget's work, a chapter on the implications of Piaget's work and the other evidence presented, one that reinterprets much of the evidence that had earlier been interpreted to favor the idea of a fixed and predetermined development of intelligence, and a final chapter of recapitulation and summary.

Intelligence is a phenotype "for which the genes set limits of potential development but which is finally developed through encounters with the environment." Anyone who believes that the environmental contribution is only a minor one has a very strong case to answer. While there can be no general answer to the question of how much each factor contributes, Hunt suggests that "a sound scientific educational psychology of early experience" might raise the average Intelligence Quotient by something like 30 points. This estimate seems reasonable. In a technological culture that increasingly demands intellectual ability, the possibility of such an average increase justifies major efforts to develop the additional knowledge needed to give us a "sound scientific educational psychology of early experience."

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Microorganisms

The Biochemistry of Intracellular Parasitism. J. W. Moulder. University of Chicago Press, Chicago, 1962. xvi + 172 pp. $6.

This excellent book covers a topic which, with few exceptions, has been neglected, namely, the biochemistry of the microorganism that is neither a typical bacterium nor a typical virus.

Following his introductory chapter, Moulder considers four obligate intracellular parasites. The first one is the malarial parasite, "an organism with wide metabolic capability but with a comparative handful of restrictive enzymic peculiarities." Moulder then turns to the rickettsiae, which "have retained most of their enzyme systems but have lost many mechanisms for buffering themselves against unfavorable changes in their environment." Next in line are the agents of the psittacosis-lymphogranuloma venereum group which "depend on their hosts to generate energy-rich intermediates for them." Last are the pox viruses, which, despite their complexity, are viruses and thus depend "on the host for synthetic enzymes." Two of these parasites have been intensely studied in Moulder's laboratory.

Although the four types of intracellular parasites are arranged in order of increasing complexity, Moulder, in his concluding chapter, finds no evidence of an evolutionary history among them. There seems to be a complete gap in our knowledge of any intermediate step between the organismal type of intracellular parasite which has its own DNA-RNA-protein relationship and the viral type in which the RNA of the host has been substituted.

The strength of this book lies in the lucid development of each topic. For example, the discussion of the psittacosis agent evolves from the developmental cycle and susceptibility to sulfonamides and penicillin to the syntheses of folic acid and of some cell wall components. Moulder adheres closely to available evidence, but he offers provocative interpretations and speculations. Isolated observations that cannot be readily integrated with other information are usually omitted. The illustrations and general format are excellent. The book contains an index and a list of references that is extensive and up-to-date, but selective.

This book can be highly recommended to any earnest student of biology, rather than to those in any particular specialty. It is highly informative and stimulating, it covers a promising field of research, and any reader with a basic knowledge of biology can understand it.

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General Biology Textbook

Principles of Biology. Neal D. Buffaloe. Prentice-Hall, Englewood Cliffs, N.J., 1962. xiii + 365 pp. Illus. Trade ed., $9.25; text ed., $6.95.

Principles of Biology is one of the relatively few general textbooks of college biology that are written specifically for a one-semester course. The one-semester textbook presents a particularly difficult problem, for the author must convey the essence of biological science without superficiality and yet must avoid undue emphasis on detail. (I still consider *Animal Biology* by Haldane and Huxley, which appeared some 35 years ago, a model of such treatment.)

Buffaloe follows traditional patterns of textbook organization. There are ten chapters, of which the first three are concerned with science and biology, the nature of matter, and the organization of living matter. This material is covered in 40 brief pages that allow space primarily for listing, rather than for explaining, these important subjects and concepts. Chapter 4, profusely illustrated with interesting photographs, attempts the classification of organisms (both plant and animal), but again the author succeeds only in listing a few representatives of each division and phylum. Metabolism is treated in chapter 5, with emphasis on catabolism and