Book Reviews

Life, the Great Adventure. Jean Rostand and Paul Bodin. Scribner's, New York, 1956. 228 pp. $3.50.

Jean Rostand is well known and widely read in France. He is better known, I would guess, than any biologist in this country is known to the general public. It is a credit to French broadcasting that the series of discussions contained in this book were prepared for the radio.

The subject matter is largely the same as that in Rostand's *Ce que Je Crois,* and, in fact, the dialog technique is largely used for Paul Bodin to criticize and ask amplification of statements made in *Ce que Je Crois.* The few new topics that are covered add to the interest which the present volume arouses.

Rostand strikes a middle course between two extremes found among scientists writing for the lay public. On the one hand, there are those who extract the fruit of recent research and present it in a readable form. The best examples of this sort of writing give the reader excellent mental exercise and also sometimes the same consummation of curiosity that is the life blood of the professional scientist. On the other hand, there are those who write of subjects far removed from science—on philosophy, politics, or religion—from what they sometimes consider a privileged position as scientists. Such writing is sometimes entertaining and serves to present different and often unorthodox ideas.

Rostand does not belong to either category; he does not indulge in describing the mechanism of heredity or of hormonal action, nor does he spend much time on setting the philosophers, politicians, or theologians right, except in details that touch upon biological topics. What he attempts is to give an up-to-date account of what a biologist believes concerning great biological questions.

The main theme is given by Paul Gaugin's inscription written under a painting more than a century and a half ago: "Where do we come from? What are we? Where are we going?" One's first thought after reading this book is how little the answers to these questions have been advanced since 1898. Rostand is a firm believer in evolution and mentions one or two prominent French biologists who are not. He believes, however, that all the main groups of animals and plants were formed under special conditions and that only trivial evolution is now taking place.

He believes that intellect can be improved perhaps by genetic or surgical means but more likely by chemical means, such as hormones or glutamic acid. Man's life-span may be extended to about 100 years but not more. He makes the nice point that, just as man evolved by fetalization or neoteny, so intellectually a genius is often an example of retarded development, the period of keener learning and curiosity of the child being extended into the man. He thinks water divining and radiaesthesia are pure quackery and is skeptical about telepathy.

Marston Bates tells us in the foreword that this is an adaptation of a translation by Alan Brodrick published in England but unfortunately there is no mention of the title or publishers of the English publication, of whether the French text is available; more important, there is no clue as to when the work was first published or broadcast.

The scientist and nonscientist alike should find this enjoyable reading. The biologist may disagree with parts and may wish to amplify other parts, but both will be induced to wander to future horizons of biology with their feet firmly planted on the ground of present knowledge.

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Genetics and Metabolism. Robert P. Wagner and Herschel K. Mitchell. Wiley, New York; Chapman & Hall, London, 1955. xi + 444 pp. Illus. $7.50.

This book is a rich and provocative account of current knowledge in physiological genetics, written in a careful and critical but lucid style. The subject may be taken as the linkage between genes and characters; unlike some unduly optimistic accounts, the authors are careful to emphasize how fragmentary our knowledge of these links really is; at the same time, they explore its riches. Some of the content of the experimental work in this field is seemingly rather remote from gene function—for example, the aspect of "biochemical genetics," which concerns the analysis of metabolic pathways with the help of genetic tools. Albeit these links are rather terminal, they are still a necessary part of our understanding of how a mutant gene affects the development of the mutant character.

In a book of this scope, one might expect to find many details to quarrel about, but the discussion is so analytic and circumspect that I could find hardly any issues in which all sides were not given ample recognition. There is, naturally, a heavier emphasis on illustrations from *Neurospora* and *Drosophila,* with which the authors are more closely acquainted than, say, with bacteriophage and bacteria. If only because of the importance of tracer studies with phage and with DNA-mediated-transductional analysis in forging the most fundamental links between chemistry and heredity in contemporary research, this emphasis may be expected to shift in future versions.

The book would be rewarding enough for its help in the assimilation of current factual knowledge in its field; the plums in the pudding are cautions against pretension and critical reminders on almost every page that recall first principles in genetics and in biochemistry. The book will therefore be equally useful in various ways, to the new student and to the experienced investigator. The impact of genetics is now so widespread that no physiologically minded student of biology can afford to be unaware of the material it covers. The first few pages, which are intended as a review of elementary genetics are perhaps supererogatory; any reader who would need them would better refer to a complementary textbook such as that of Srb and Owen. As is so typical of the rest of the book, Wagner and Mitchell have already pointed this out themselves.

The authors have wisely refrained from anticipating unpublished work to give the color of up-to-dateness. The work has therefore a sound foundation, from which the contemporary biologist can build a perspective on the exciting day-to-day developments on the biochemistry of genes.

The following are a few points raised by the authors that are worth remembering: (i) "It is the whole cell which is the living system, for it is the smallest unit capable of reproducing life, and it is important to recognize that the expression of inherited characteristics . . . is through the activities of cells, not merely through genes, which are parts of cells." (ii) "The [spontaneous mutation rate] is usually stated to be low, but this needs to be qualified as to whether one is speak-