Book Reviews

Of Stars and Men. The human response to an expanding universe. Harlow Shapley. Beacon Press, Boston, 1958. vi + 157 pp. $3.50.

In this book, Harlow Shapley seeks to overthrow the anthropocentric view of the universe. So, far from believing the sun's system of planets, the earth, and its life and intelligent creatures to be unique, he would make them of common occurrence. If many stars besides the sun have planetary systems, and if there is no direct observational evidence for the existence of these systems, it is necessary to argue from theories of the origin of the solar system and from probabilities. Fifteen theories are listed on pages 66 and 67; six are rejected, two are classified as doubtful, and seven may pass muster, though Shapley admits that he is not entirely satsified with any of them.

The number of stars in the universe is estimated at 10^{20}; in order to find the number with planetary systems, Shapley multiplies together four probabilities, each equal to 10^{-3}, thus arriving at the conclusion that one star in 10^{12} has a planetary system like the sun's. Thus, there are 10^{8} such systems in the universe. It is most unfortunate that, in the compass of a small book, Shapley can devote only two or three pages (pages 72 to 74) to this important argument. The curious reader would have liked a detailed presentation of the evidence for the value of 10^{-3} assigned to each probability; if 10^{-5} is used instead, one predicts that only a single star out of the 10^{20} has planets.

The title of Chapter 6, "Rainbows and cosmic chemistry," seems to imply that the astronomer has found spectroscopic evidence of chemical processes—that is, of molecular combinations and interactions—taking place in the universe. This is difficult to reconcile with the observations, which indicate that matter in the universe occurs overwhelmingly in the gaseous state and as separate atoms. Only the simplest types of molecules are detected spectroscopically. Indeed, it is a curious fact that chemical compounds possessing any degree of complexity are detected by direct observation only on the earth, in meteorites, and in the atmospheres of the sun's planets.

In chapter 9, Shapley regards the artificial production of amino acids in the laboratory as evidence that, apart from some minor details, the nature and origin of life are understood. The prime difficulty—namely, that the artificial synthesis of amino acids, proteins, and other elaborate chemical compounds found in living matter produces materials that are as "dead" as the hydrogen, nitrogen, carbon, and oxygen of which they were compounded—is not discussed. In his final chapter, "What should be the human response?," Shapley pleads for humility in man as he contemplates the astronomical universe, and he has some encouraging remarks to make regarding the probability that man will continue to survive on this planet.

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Some Applications of Behavioural Research. Rensis Likert and Samuel P. Hayes, Jr., Eds. UNESCO, Paris, 1957. 333 pp. $3.25.

This little book is a product of the Foundation for Research on Human Behavior, an organization that over the past five years has pioneered in the interpretation of research in the social sciences to representatives of industry and government and in the solicitation from industry of long-term support for research by university-based social scientists working on problems where "basic" and "applied" interests converge. One of the activities of the foundation has been a series of brief seminars in which behavioral scientists discuss a particular research topic with persons from business and government thought to have potential interest in its application. Typically, a panel of several "experts" on the topic covers much the same ground with several seminar groups, and a report on the material presented and discussed is subsequently prepared for distribution to the participants. Most of these reports have been admirable examples of responsible popularization; while copies of them could be obtained from the foundation, their circulation has not been as wide as they deserve. The present volume, mainly composed of these seminar reports, thus performs a useful service in making them more widely available.

It is in this connection that the volume is appropriately evaluated. Its production under UNESCO auspices might, on the other hand, give rise to different expectations that the book would disappoint. Not only is the research reviewed an entirely American product but the interests of behavioral scientists associated with the Institute of Social Research at the University of Michigan, with which the foundation has an informal symbiotic relationship, are preponderantly (though by no means exclusively) represented. And the areas of application emphasized fall heavily within the sphere of American "big business." The reader in this country or abroad should realize that the reports gathered here are not intended as a representative sampling either of American "behavioral science" or of its actual or potential fields of application, but that he would nevertheless find a number of able, nontechnical, and practically oriented summaries of recent research, together with references to selected primary sources.

The topics treated fall into four program areas in which the foundation has been interested: leadership, management, and organization; public communications; economic behavior; and cross cultural operations. The chapter headings indicate the subject matter: "Administrative leadership and organizational effectiveness," "The training of leaders for effective human relations," "Human factors in effective research administration," "Training foreign nationals in the United States," "Group influence in marketing and public relations," and "Psychological surveys in business forecasting." Initial and final chapters deal in more general terms with problems of applying behavioral research effectively.

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New Bottles for New Wine. Julian Huxley. Harper, New York, 1958. 318 pp. Illus. + plates. $4.50.

This latest collection of Huxley's entertaining essays on scientific subjects is treated with his usual broad understanding of the relation of science to man. Huxley is again concerned with evolution in its broadest sense. His primary theme is where man is going and why. In the best tradition of British popularization, the book is filled with interesting