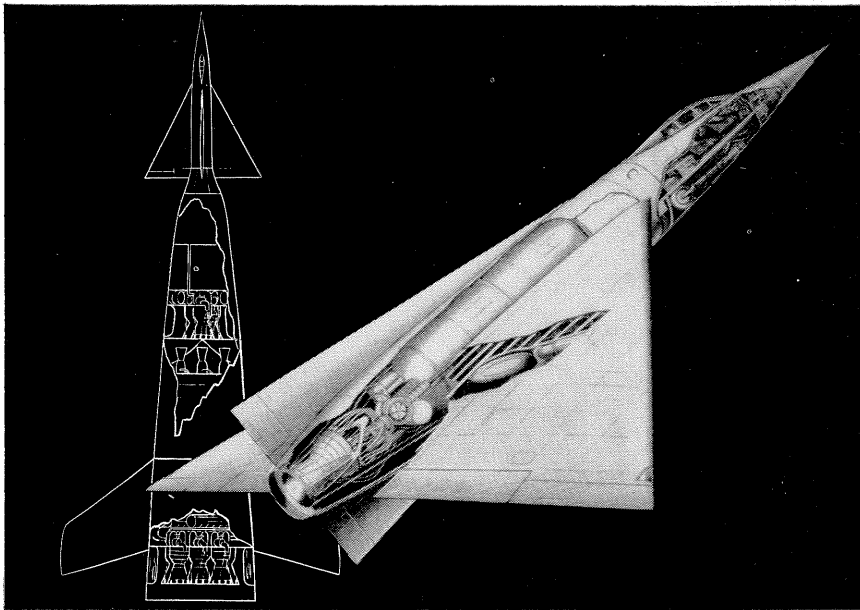


BOOKS



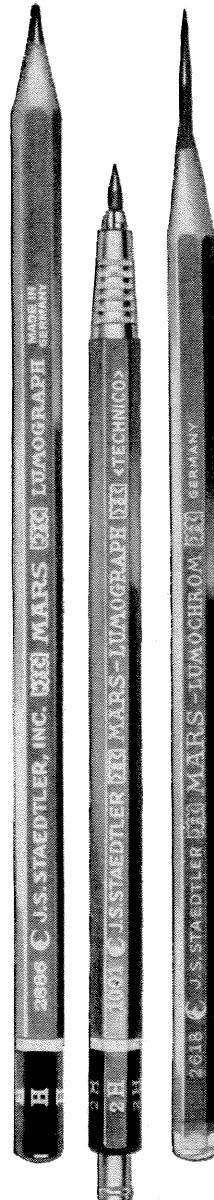
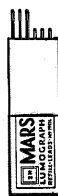
3 stages to space

The designs that will make news tomorrow are still in the "bright idea" stage today—or perhaps projects under development like this three-stage, two-man space ship. Drawn by Fred L. Wolff for Martin Caidin's "Worlds in Space," the rocket craft would start out as shown in the reverse drawing at left, shed its propulsion boosters in two stages as fuel is exhausted, and end up as the trim plane-like ship at right. Ship is planned to orbit a hundred miles above earth, return safely after one to two days.

No one knows what ideas will flower into reality. But it will be important in the future, as it is now, to use the best of tools when pencil and paper translate a dream into a project. And then, as now, there will be no finer tool than Mars—sketch to working drawing.

Mars has long been the standard of professionals. To the famous line of Mars-Technico push-button holders and leads, Mars-Lumograph pencils, and Tradition-Aquarell painting pencils, have recently been added these new products: the Mars Pocket-Technico for field use; the efficient Mars lead sharpener and "Draftsman's" Pencil Sharpener with the adjustable point-length feature; and — last but not least — the Mars-Lumochrom, the new colored drafting pencil which offers revolutionary drafting advantages. The fact that it blueprints perfectly is just one of its many important features.

The 2886 Mars-Lumograph drawing pencil, 19 degrees, EXEXB to 9H. The 1001 Mars-Technico push-button lead holder, 1904 Mars-Lumograph Imported leads, 18 degrees, EXB to 9H. Mars-Lumochrom colored drafting pencil, 24 colors.



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MEN AND MATERIALISM

by Fred Hoyle

Harper & Brothers, N.Y.

\$2.75

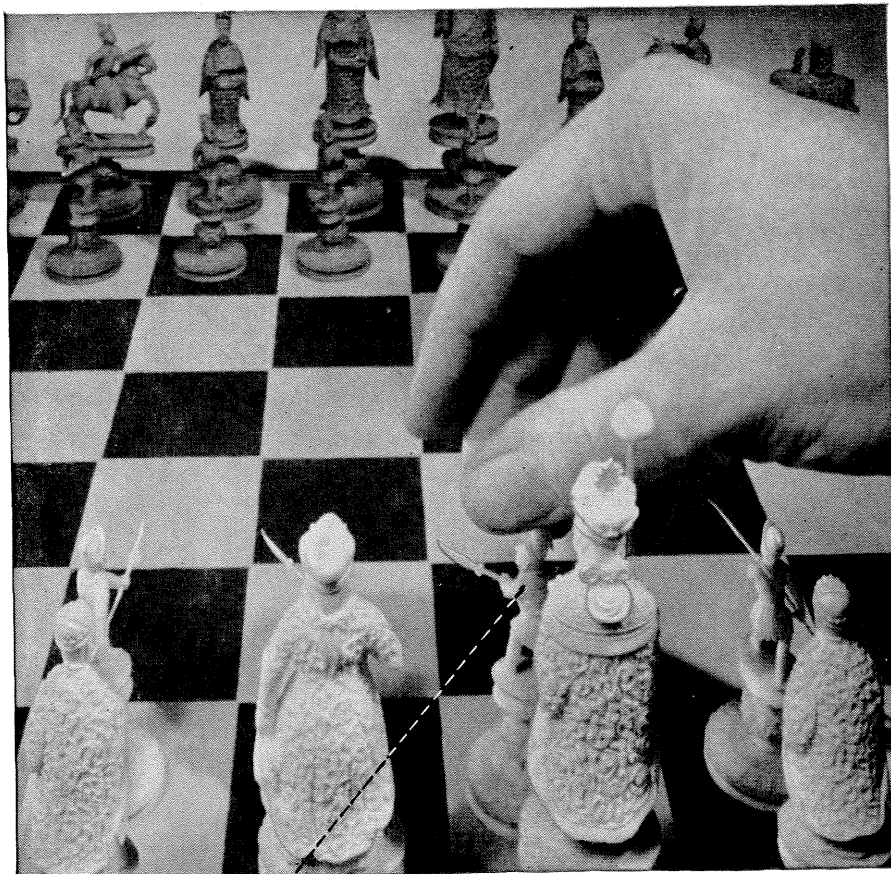
*Reviewed by Hunter Mead
 Professor of
 Philosophy and Psychology*

THIS SMALL volume is one of a well-intentioned series entitled "World Perspectives." Some eight or ten books in the series have already been published and another fifteen are announced.

Personally I found the book disappointing. Its subtitle, "A Commentary on Human Affairs," and the author's declaration in his opening chapters that the problems of modern civilization are too complex to be dealt with in such a small volume, necessarily rob the critic of much of his ammunition. However, the book can still be criticized on two grounds.

In the first place, it seems to me that Mr. Hoyle's handling of the enormously difficult problems facing modern man is not only brief, but cavalier and even casual. Again and again as I read the chapters I found myself saying, "Here is the boy scientist behaving in typical boy-scientist fashion: making the world over in his own rational image in less than one hundred and sixty pages." At first this seemed amusing; soon it became irritating. In short, I feel that Hoyle tried to cover far too much in such a small space, and then compounded his original mistake by covering it in a casual let's-make-the-world-over-some-weekend fashion. I feel a better subtitle for the book would have been, "Random Jottings on Human Affairs from the Desk of a Busy Scientist."

I feel Hoyle's second mistake was his attempt to adapt strictly technical terms to non-technical uses, thereby confusing the non-technical reader, and thereby giving readers who are completely at home in this terminology a false impression that the problems are as definite, well understood and soluble as most technical problems eventually become. One example will suffice. Hoyle states that the chief difficulty in understanding human behavior with any precision comes from the fact that "human behavior is controlled by an interlocking system of nonlinear feedback loops." He then gives a short para-



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Letters . . . CONTINUED

graph, consisting mostly of an analogy drawn from the stock market, explaining what he means by "linear" and "nonlinear" and "feedback." After this extremely brief (and to my mind, inadequate) explanation of these technical terms, he uses them freely throughout many sections of the book. Now to a technically trained person who has never seen the relation between human behavior and feedback systems, this might be helpful. But this book was intended for laymen, not technicians, and I am certain Hoyle confuses more readers than he ever enlightens by utilizing this misplaced technical vocabulary. It may be quite exact to describe human behavior as controlled by an interlocking system of nonlinear feedback loops, but the statement is not helpful to most of the persons for whom the book was supposedly written.

To my mind the best thing in the book is the author's frank acceptance of materialism, which he defines very well along these lines: "The essence of materialism lies in its refusal to separate Man and his environment into the mutually exclusive categories of 'spiritual' and 'material.'" This statement comes on the first page and looks promising of some good discussion. But on page two we come to those nonlinear feedback loops, and most readers will find themselves tangled therein for the remaining hundred and fifty pages.

Fred Hoyle, lecturer in mathematics at Cambridge University, is now at Caltech as visiting professor of astronomy.

ELEMENTS OF PURE AND APPLIED MATHEMATICS

by Harry Lass
McGraw-Hill, N.Y. \$7.50

THIS WORK is intended as a reference book for all readers and a text for upper-division undergraduate courses for physical science, engineering, and math majors. There is a short treatment of nonlinear mechanics and game theory, a chapter on group theory and algebraic equations, and material on vector and tensor analysis, probability theory and statistics, as well as a treatment of orthogonal polynomials. Dr. Lass, who received his PhD from Caltech in 1948, is a research specialist at Caltech's Jet Propulsion Laboratory.