completely correct. For example, Whitworth's bench micrometer calipering machine is again called the "millionth machine," but no evidence that I have seen has convinced me that this machine could measure a hundred-thousandth, let alone a millionth, of an inch. For another example, the conventional implied conclusion that an error of "the thickness of a thin sixpence" in the diameter of a 72-inch cylinder is "monstrous" is misleading; and I question the author's suggestion that Frederick W. Taylor made metal cutting into a science.

The outright errors are few and inconsequential. The pictures are well-selected but their sources are not given in sufficient detail. The bibliography is adequate, but footnote references to sources are entirely too seldom given. The index is satisfactory.

This book is an example of the refreshing attitude of British industrial firms toward public relations. It was commissioned by Charles Churchill & Co. Ltd., machine tool builders, to whose contributions a paragraph and a sentence are devoted.

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The School Mathematics Study Group

SMSG: The Making of a Curriculum. William Wooton. Yale University Press, New Haven, Conn., 1965. x + 182 pp. $4.

This brief history of the School Mathematics Study Group was written by one who participated in its summer writing sessions from their beginning. It is based upon his own experience, the records of the SMSG office, and interviews with other participants, especially panel chairmen. From this material the author has constructed an interesting account of the operations and accomplishments of SMSG during the first 4 years of its existence from its founding in the spring of 1958 to the spring of 1962. I regret that he did not add an appendix summarizing the more recent activities of SMSG.

A brief description is given of the various movements affecting the elementary and secondary school curriculum in mathematics during the present century, culminating in the report of the Commission on Mathematics and the formation at several universities of groups to revise existing programs in school mathematics. The dissatisfaction among college and university mathematicians with the content of most high school courses and with the spirit in which they were being taught, the example of the successful accomplishments of the Physical Science Study Committee, and the widespread doubt about American scientific accomplishments following the launching of Sputnik I—all these caused the leaders of the mathematics community to recommend the establishment on a national scale of a group whose aim would be to improve the general level of mathematical instruction in the schools. With the financial assistance of the National Science Foundation this plan could be carried out.

A first decision of SMSG was to publish a series of textbooks that would serve as samples of what the group considered a suitable school curriculum. Although SMSG has other accomplishments to its credit and other publications, such as the New Mathematical Library, its most important product has been a series of 20 textbooks covering all grades from kindergarten through the 12th grade, with commentaries for teachers and some texts for non-college-bound students. Within 4 months of its formation, SMSG was able to begin on its task by arranging its first summer writing session with 45 college and high school teachers of mathematics in attendance. This indicates the support given by all levels of the mathematical community to the objectives of SMSG.

In addition to the problem of having textbooks written, the book describes the problems of reproduction of material, its testing at selected centers, and further revisions of the written material. The hope that the example of SMSG would lead to commercial publication of similar texts has not yet been realized. SMSG has now established a more permanent organization, whose bylaws state that the primary purpose of SMSG is to foster research and development in the teaching of school mathematics.

Reactions to the textbook produced by SMSG have been favorable, whether from teachers, students, parents, administrators, or university mathematicians. The chief objectors have been those who feel that the textbooks are not sufficiently oriented toward the physical sciences. The book should be of interest to mathematicians at all levels, and to those who plan similar curriculum revisions in other fields.

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Textbook on Astrodynamics

The Foundations of Astrodynamics. Archie E. Roy. Macmillan, New York, 1965. xiv + 385 pp. Illus. $10.95.

Roy's book is a good one. It has very few typographical errors (in fact, I did not note a single one). The organization, the exercises (together with answers!), and the clearly drawn and succinct figures are all indicative of a valuable textbook. As the author indicates in the preface, the book is ". . . aimed principally at university and technical college engineering students . . . ." The only areas that warrant improvement are the following: The book is short on illustrative numerical examples (these are a tremendous aid to the student as well as the teacher) and a number of areas of great interest to the practical astrodynamicist are neither mentioned nor discussed—for example, universal variables; radiation pressure constants; laser beam sensors, fixed cameras, and phase-comparison ranging systems; statistics of observations; analytical and difference equation generation of partial derivatives; electromagnetic, radiation pressure, and relativity perturbations (mentioned but not discussed); Runge-Kutta numerical integration; and modern filtering techniques for orbit improvement and navigation (of the highest importance at the moment). Today, in astrodynamics, we find an ever increasing use of matrices in analysis, but Roy provides no basic information about these techniques. The use of digital computer analysis is also becoming more and more important, and, although noted from time to time in the text, no guidelines are really developed for using these computing devices. This drawback goes hand-in-hand with the lack of attention given to matrix manipulations, and to singularities that often arise whenever the student attempts to develop computer algorithms