60 [9.10].—MORRIS NEWMAN, *The Number of Partitions into Primes*, National Bureau of Standards, November 1969. Nine pages of computer output deposited in the UMT file.

To test a new set of subroutines with an interesting problem, the author extends the function called $q(n)$ in the recent table of Chawla and Shad [1]. They computed $q(n)$ for n to 150, but earlier O. P. Gupta and S. Luthra had computed $q(n)$ for $n = 1(1)300$. The latter table gave

$$q(300) = 62737270. \tag{1}$$

The present table lists $q(n)$ for $n = 1(1)500$. It confirms (1) and continues to

$$q(500) = 414270104287.$$

The computation required only 30 seconds on a UNIVAC 1108.

Since $p(500)$ is approximately $2.3 \cdot 10^{21}$, the ratio $\log q(500)/\log p(500)$ is down to 0.5438 here—see the discussion in the review of [1].

D. S.

1. *Math. Comp.*, v. 24, 1970, p. 490, RMT **38.**

61 [12].—DON SECREST & JURG NIEVERGELT, Editors, *Emerging Concepts in Computer Graphics*, W. A. Benjamin, Inc., New York, 1968, ix + 418 pp., 24 cm. Price $20.00.

The book consists of a compilation of 16 of the total of 19 papers presented at the Conference on Emerging Concepts in Computer Graphics at the University of Illinois in November 1967.

This reviewer was especially impressed by the paper of K. C. Knowlton, entitled "Computer-Animated Movies." It is liberally illustrated with excellent figures; in addition, it contains a comprehensive list of references, and a detailed description of various uses of computer-produced movies.

Perhaps the editorial shortcomings afflicting so many of the other papers can be explained by a note from the publisher, facing the title page. Therein we find the statements: "This volume was printed directly from a typescript prepared by the editors, who take full responsibility for its content and appearance. The Publisher has not performed his usual functions of reviewing, editing, typesetting, and proofreading the material prior to publication. The Publisher fully endorses this informal and quick method of publishing conference proceedings, and he wishes to thank the editors for preparing the material for publication."

In the light of these remarks of the publisher and the specialized contents of the book, the reviewer found the description on the dust jacket inaccurate and misleading. For example, the book does not appear to be in any sense an "indispensable guide," nor does it "delineate the basic problems" of computer graphics. Indeed, it is neither a textbook nor a handbook; it is merely the proceedings of a conference.

Some of the conference presentations have necessarily suffered in the process of being transcribed into the book. For example, films accompanied the presentations

of T. O. Ellis & W. I. Sibley ("On the Problem of Directness in Computer Graphics") and of R. Resch ("Experimental Structures"), but these, of course, have not been reproduced in the book. The article corresponding to the first of these presentations suffers particularly from this omission.

Several of the papers contain too much detail peculiar to their respective technical specialties to be easily understood by the layman. Included in this category are the papers by D. L. Bitzer & H. G. Slottow ("The Plasma Display Tube—A New Device for Direct Display of Graphics"), M. Faiman ("ARTRIX—A Hybrid Graphical Processor"), C. Levinthal, C. D. Barry, S. A. Ward & M. Zwick ("Computer Graphics in Macromolecular Chemistry"), and B. Herzog ("Computer Graphics for Designers").

In addition to the previously mentioned paper of Knowlton, this reviewer found particularly interesting and informative the papers of C. Levinthal et al., R. Resch, W. F. Miller & A. C. Shaw ("A Picture Calculus"), S. H. Chasen ("Experience in the Application of Interactive Graphics"), C. W. Beilfuss ("Automated Graphics in an Industrial Environment"), and W. A. Fetter ("Computer Graphics").

Levinthal and his associates describe a project for graphical display with simulated manipulation and rearrangement of molecular models by a computer, with the objective of freeing the investigator of molecular structures from the constraints imposed by physical models.

Resch discusses the use of a computer graphic console in the design of three-dimensional geometric structures.

Miller and Shaw attempt to analyze and synthesize "artificial pictures" (i.e., well-defined or structured pictures) by means of a "picture calculus."

Chasen describes the use of computer graphics in the aircraft design process.

Beilfuss discusses problems involved in an attempt to make computer graphics feasible and economical in the preparation of structural steel shop drawings.

In the concluding paper, Fetter describes the application of computer graphics to the choice of location of radar stations for air traffic control by plotting the radar visibility of aircraft and to the drawing of animated human figures.

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62 [13.35].—MICHAEL A. ARBIB, *Theories of Abstract Automata*, Prentice-Hall, Inc., Englewood Cliffs, N. J., 1969, xiii + 412 pp., 24 cm. Price $14.95.

The aim of this book is to provide an advanced textbook for graduate study in automata theory. Its scope and depth attest to this purpose. The book is divided into three sections: I. Background, II. An Introduction to Automata Theory, III. Selected Topics.

The background section contains the motivation and mathematical preliminaries for studying automata theory. The author states that "automata theory is the pure mathematics of computer science" by which he further interprets as meaning "auto-