

ditional difficulties in his stride and not let them distract him from his learning.

More and more, undergraduates in engineering and the sciences are taught courses in Algol. In the not-too-distant future, it is quite reasonable to assume that Algol will be used as the accepted description language of all computing processes, the way mathematics is the accepted description medium for natural processes. As a publication language, as a formal, unambiguous description of an algorithm, Algol is definitely far superior to any other medium. It is the only language accepted in the Algorithms Section of ACM Communications, the preferred language in many other publications.

After a thorough study of this book, one will not necessarily be able to write a good Algol program; this was not the intent anyway, at least for American readers, particularly since there aren't any Algol processors available for most American computers. However, one will be able to read and understand a published algorithm written in Algol and encode it in one of the available languages such as Fortran.

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## BRAINSTORMING AND OTHER TECHNIQUES

*Title Creative Synthesis in Design  
Authors John R. M. Alger and Carl V. Hays  
Publisher Prentice-Hall, Inc., 1964  
Pages 112  
Price \$2.95 paper; \$4.95 cloth*

*Reviewer J. B. Godel*

*Creative Synthesis in Design* is one of a series of eight design books published, or about-to-be published, covering such subjects as decision theory, engineering communication, reliability and studies of specific design problems. In *Creative Synthesis in Design*, the authors examine the subjective elements of problem solving in engineering.

They divide the design process into six sequential categories: recognizing the problem, establishing functional specifications, proposing solutions, evaluating alternatives, deciding upon a solution and, finally, implementing the decision. A "design decision table" is used to evaluate alternatives by rating each concept on how well it meets the requirements of the specification. An interest-

ing weighted scoring arrangement helps to point the way towards the best solution.

The authors believe that there are methods to stimulate creativity in problem solving. The first step (and perhaps the most difficult in the reviewer's opinion) is understanding the problem. Secondly, the problem solver must have cultivated a creative attitude, which is defined as one possessing self-confidence, constructive discontent, positive outlook, an open mind and the courage of his convictions. As to the methods of achieving the best solutions to design problems, it is suggested that existing knowledge and experience relating to the problem be studied as a prerequisite to individual and group creative effort.

The mechanics of individual and group creative effort is covered in sufficient depth to be useful to the reader. A morphological analysis of the problem outlining a systematic examination of possible solutions is presented with clarity. 'Brainstorming' as a tool for group inventiveness, in which many solutions are offered with no immediate consideration of their worth, is explained. The text provides a useful guide for conducting such a session. Final chapters are devoted to project planning and scheduling. Elementary descriptions of Program Evaluation Review Technique (PERT) and Critical Path Method (CPM) might be helpful to the novice.

*Creative Synthesis in Design* is not a lengthy volume. As such, it can do little more than survey the field and guide the interested reader toward further study. Abundant reference material is found in the bibliography. The book is well written in an unsophisticated style and, while its use to the practicing engineer is limited, it should be of special value to the engineering student.

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## THERMAL STRESS AND STRENGTH

*Title Strength and Deformation in Nonuniform Temperature Fields  
Author Ya. B. Fridman, ed.  
Publisher Consultants Bureau Enterprises, Inc., 1964  
Pages iv + 169  
Price \$25.00  
Translated from the Russian, 8 1/2 x 11 in.*

*Reviewer Robert B. McCalley, Jr.*

This book contains five chapters by different authors on problems of thermal stress and strength. Each chapter generally follows the form of a survey of the state of the