

# Book Reviews

BOOK REVIEWS published in this section reflect the opinions of their individual authors. They are not necessarily the opinions of the Editors of this journal or of AIAA.

## **Multimedia Fluid Mechanics—Multilingual Version CD-ROM**

G. M. Homsy, H. Aref, K. S. Breuer, S. Hochgreb, J. R. Koseff, B. R. Munson, K. G. Powell, C. R. Robertson, and S. T. Thoroddsen, Cambridge University Press, New York, 2004, \$21.00

The new release of *Multimedia Fluid Mechanics*, a CD-based text available for use with a computer, provides a critical link between the classroom theory as presented in undergraduate curricula and the realities of fluid motions. It also provides valuable tutorial material for those wishing to refresh their understanding of fluid dynamics or for those with specific questions regarding flow phenomena. The authors make use of visual imagery, such as flow visualization films, along with animated graphs and interactive demonstrations to provide a visual aspect to aid one's understanding of fluid dynamics. This newest version builds upon the previous release by adding a multilingual feature, with French and Spanish being added to the original English release. The preface does not indicate whether new content material has been added. The publisher's web site indicates that this version has been "updated." A more accurate title would use the word dynamics rather than mechanics because the topic of fluid statics is not covered.

The contributors, under the leadership of Prof. G. M. Homsey, are to be congratulated for developing a valuable contribution to the instructional resources available in the discipline of fluid dynamics. The second version of *Multimedia Fluid Mechanics* represents a "good value for money" investment for beginning students as well as for those who wish to review and refresh their basic understanding of this highly varied subject.

The instructions on the first page introduce the user to "rollovers," blue text that leads to fuller explanations: this is a valuable part of the detailed presentations that make use of it. Similarly, the Preface helps to orient the user to the supplemental—not primary—contribution that is made by this CD. Specifically, there are four major headings, Dynamics, Kinematics, Boundary Layers, and Video Library, and they are not intended to form a "logical progression" as one expects from a textbook. Historical references form the fifth section of the CD. The absence of an audio narrative requires a degree of sophistication and maturity to stay focused and gain from the printed words and the demonstrations. These attributes may not be present in all first-time students. Hence, if the CD is used to supplement classroom instruction, the directions of what to examine and the reasons to examine it are expected to help those most in need of help.

The option for the user to easily move to an explanation (blue rollovers) and historical information (red) provides a welcome opportunity for the user to exercise control over the information flow. The section entitled Boundary Layers provides a good example of this positive feature. The alert instructor should also be aware that "destabilizing" messages may be present. As one example, the "potential energy of the pressure field" is introduced in Conditions Producing Separation of the video section. The classroom instruction related to the control volume energy equation will typically emphasize that potential energy per unit mass (gz) and the "flow work" term ( $P/\rho$ ) introduced into the net flux term (for convenience) are significantly different entities.

Returning to the identification of the CD as a supplemental asset, it is pertinent to note that the well-regarded National Committee for Fluid Mechanics Films (NCFMF) series (now available in video format from Encyclopedia Britannica) also serves a distinct and quite valuable role as supplemental material that does have a logical structure. As such, the films are valuable for classroom (i.e., multiperson) instruction. The CD-text is distinctive for its individualized and interactive attributes.

The reviewers suggest that the following items be considered by the authors for future editions of this CD-text:

1) A sixth category could be added: A Concise Introduction to Fluid Dynamics, in which a logical progression of topics, drawn from their assembled content, could be presented. The "bricks" are already available for such a section; only the "mortar" of connecting passages would be needed to enhance the CD's value for the independent learner.

2) Some of the links need to be updated or changed. For example, a link to D'Alembert's Paradox brought up the biography of Jean Le Rond D'Alembert; however, the paradox was not explained.

3) There are numerous typographical errors in the French version of this CD. One of the reviewers (DRN) is fluent in French, and these errors were further confirmed by consulting with a native speaker.

Douglas R. Neal and John F. Foss  
Michigan State University