Book Review

Development in Thin-Walled Structures—2, edited by J. Rhodes and A. C. Walker, Elsevier Applied Science Publishers, London and New York, 1984, 244 pp., $55.50.

This is the second volume in a series devoted to thin-walled structures. It contains six chapters, each written by a different author or team of two authors. The topics range from statically loaded (Chaps. 1, 3-6) to dynamically loaded (Chap. 2) structures, from I-section columns (Chap. 3) through monolithic shells (Chaps. 2, 4, and 6) to fiber-reinforced composite structures (Chaps. 1 and 5).

The chapter of greatest interest to the aerospace structures community is undoubtedly Chapter 5, Thin-Walled Structures in Aerospace Design, by R. C. Tennyson. In spite of its more general title, it places emphasis on recent developments in two subtopics: 1) design to resist buckling, (both local and global), especially in laminated, fiber-composite shells, and 2) crashworthiness of typical stiffened aircraft-fuselage structures. Application areas emphasized in the other chapters include ship structures (Chap. 1), undersea pipelines (Chap. 4), and grain-storage silos (Chap. 6).

This volume should be useful to the novice entering a structures field involving one of the specialized topics or application areas, as well as to established practitioners.

Charles W. Bert
University of Oklahoma

Behavior of Thin-Walled Structures, edited by J. Rhodes and J. Spence, Elsevier Applied Science Publishers, London and New York, 1984, 435 pp., $114.75.

This volume contains twenty papers presented at the retiral conference for Professor James M. Harvey at the University of Strathclyde, Glasgow, Scotland, March 29-30, 1983. The terminology, Thin-Walled Structures, is a relatively new one, which includes thin-walled beams and columns as well as thin plates and shells (monolithic as well as stiffened). Since all of these structural elements have been and are currently of considerable importance in ships, aircraft, missiles, and spacecraft, it is obvious that this area is of prime importance to a large number of both reseachers and practitioners in the aerospace structures community.

The buckling mode of failure is crucial in the design of thin-walled structures; thus, emphasis is placed on this mode of failure in all of the papers. The twenty papers are nearly uniformly divided in subject matter: six on thin-walled beams/columns, and seven each on plates and shells. Such a classification is, of course, somewhat arbitrary in that one of the buckling modes of thin-walled beams/columns is plate-type buckling. Another way of characterizing the papers is to note that nine are devoted to original applied research, five are surveys of past research, and six emphasize design implications. It is also noted that fourteen of the papers were written solely by university-affiliated authors, four solely by industry/government authors, and two by combinations of both.

Although as noted above this general class of structures should be of general interest to the aerospace structures community, only about half of the papers have *direct* application in aerospace structures. These include one on plain channel columns, several on simple or stiffened cylindrical shells, one on aluminum plates, and one on composite-material plates (and cylindrically curved panels). The remaining papers should be of more interest to civil engineers and to mechanical engineers concerned with pressure-vessel design.

Charles W. Bert
University of Oklahoma