

Book review

Structural Impact by Norman Jones, Cambridge University Press, New York, USA, First paperback edition (with corrections) 1997, 591 pp.

Professor Jones is a leading researcher in the field of impact and is Editor-in-Chief of the *International Journal of Impact Engineering*. His book, entitled *Structural Impact*, is devoted to theoretical analyses of the static and dynamic behavior of simple structures as they yield in response to impact loads.

Structural Impact is comprised of eleven chapters, all of which have parallel structure. Each topic is well introduced and the limitations and assumptions are clearly outlined. There are numerous illustrative examples from experiments, and there is a comprehensive references list and author index. Each chapter concludes with final remarks by the author and approximately a dozen problems.

The book begins by introducing basic concepts in engineering plasticity theory. The subjects covered in the first two chapters include the static plastic behavior of beams, plates, and shells. Chapters 3 through 5 parallel the first two chapters and examine the influence of inertia on the dynamic plastic behavior of beams,

plates, and shells. Chapter 7 examines the effects of finite displacements on the governing equations and solutions presented in Chapters 1 through 5. The dynamic response of strain-rate-sensitive material is the subject of Chapter 8. Chapter 9 deals with dynamic buckling of structures where the loads are applied at a sufficiently slow rate the lateral inertia effects can be neglected. Chapter 10 also deals with dynamic buckling; however, under the severe loads considered, the lateral inertial loads dramatically affect the modes of deformation. In the final chapter, the author presents methods for scaling small scale laboratory experiments to full scale prototypes. In summary, *Structural Impact* is an excellent, well organized, and well written text on a difficult field. It has particular relevance to the crashworthiness research community; however, it is also suitable as a reference text for any problem involving dynamic failure.

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