plane, toppling and collisions of a chain of dominoes and forced vibration of a mechanical oscillator near a limiter. These systems tend asymptotically to some steady-state behavior with systematic impacts. This can be due to self-excitation or synchronization of periodically repeated interactions within the dissipative structures as well as due to chaotization of the motion through its strong sensitivity of perturbations. A propagation of a solitary wave in dominos is analyzed in detail with the calculation of the speed of propagation. A comparison with well-known results on the dynamics of a lattice would be pertinent here.

The dynamics of an impact oscillator is described in a sketchy manner omitting many important facts indicating a poor knowledge of the subject history and state of the art. There is no indication, for example, about the crucial influence of the initial gap, subharmonic motions, structural bifurcations due to additional penetrations of phase trajectory through the impact surface etc. Results about the stability and bifurcation of impact oscillator periodic motion indicated by the author's references were published in this and more general form 20–30 years earlier.

The book is concluded with two useful appendices presenting a history of the influence of impact studies on the formation of mechanics and a glossary of terms. The list of references is rather short for such a wide area of consideration.

The general scope of the material in the book is a significant supplement to the literature on the subject. The author did not try to avoid challengeable or discussible topics and many results presented reflect his own contribution or point of view. Some debatable considerations in the book reflect a vivid character of the material presented. The educational benefit of the book is increased by the solution of mutual instructive examples and by the supplement of every chapter with problems for exercises.

The mechanics of impact is the developing area on the cutting edge of modern technologies. It generates permanently new problems and fertilizes many adjoining areas of mechanics. The book will be an important aid for those entering or involved in this productive process as well as for graduate students and their instructors. This can be used as a textbook and a reference book and should be recommended for university and engineering libraries.

V. I. Babitsky

FOUNDATIONS OF ENGINEERING ACOUSTICS, 2001, by F. Fahy, London: Academic Press. xix + 433 pp. Price £39.95; US$84.95. ISBN 0-12-247665-4

Professor Fahy is an internationally renowned specialist on acoustics and vibration and is well known both for his scholarship in acoustics and for his passion in teaching. These two aspects of his career make him ideally suited to write a new text book on the fundamentals of engineering acoustics. The book is intended as an advanced text for undergraduate students or as a core text for postgraduate students and this is reflected in the style and structure of the book. The book is wide-ranging covering a great number of acoustic subjects, namely the nature of sound and some wave phenomena, sound in fluids, impedance, sound energy and intensity, sources of sound, sound absorption and sound absorbers, sound in waveguides, sound in enclosures, structure-borne sound, transmission of sound through partitions, reflection scattering deflection and refraction as well as a number of appendices covering specialist areas such as Fourier transforms, frequency analysis etc.

As with most books, the text begins and progresses with simple ideas with each subsequent chapter building on some of the ideas and theories presented in earlier chapters.

However, as this is an undergraduate text, the end point of each section is not an understanding of specific noise problems but rather the understanding of the underlying phenomena.

A particular strength of the book is the way in which each chapter begins with a detailed description of the phenomena to be investigated with practical examples drawn from everyday life, before the more detailed and rigorous analysis begins. For example, the chapter on the sources of sound has eight pages of general description of sources of sound such as loudspeakers, exhaust noise, fan noise and jet noise, before beginning with the mathematical treatment. This is of great benefit in helping to place the work in a wider context, as well as providing many interesting examples of acoustic phenomena. There is a similar emphasis on the explanation of results and this too is a great strength of the book.

Although this book contains a substantial body of mathematics, the level required to follow the arguments is not excessive and should not be beyond the ability of most engineering students. The level of detail provided is sufficient for the derivations to be followed with relative ease and the frequent pauses for discussion ensure that the equations which are being developed are put in a wider context. Some of the more specialist subjects have been placed in appendices where they can be studied independently and at leisure without interrupting the flow of the text.

Although this book is primarily an undergraduate textbook and is not directly concerned with practical problems of noise control, it should, nevertheless, be of interest to consultants and noise control specialists, not because it would enable them to solve any specific problem but as a reference text to help understand phenomena and to understand the background theory from which the application theories are derived.

Overall, this is an excellent textbook and I would strongly recommend it both as a student text and as a general text on the fundamentals of acoustics.

R. J. M. Craik