Important Departures from Elementary Theory, Chapter 16, includes the mathematical optimisation of stringer/skin panels but as the author points out, the proportions derived are rarely directly applicable. However, the efficiency curve is relatively flat and quite large departures from the mathematical ideal are possible without significantly affecting the weight. Structural Index (a concept which often governs the buckling case) appears in symbolic form, in Chapter 13, but without a sub-heading or inclusion in the index, its significance may be missed. A very basic tension field beam, without curvature or taper, is also discussed, with a few words on warping, axial constraint, diffusion and transport joints. Chapter 17, Conclusions, contains a short Bibliography (1958-2002) and the author concludes by offering four worked examples based on the Cranfield A1 aerobatic type, G-BCIT, shown on the dedication page.

This is a super book by a highly respected teacher, ideal for group project design but priced way beyond the means of individual students. Even the college librarian will be hard-pressed to justify purchase of more than a single copy.

Peter C. Gasson, CEng, MIMechE, MRAeS

Classical Mechanics

J.R. Taylor

University Science Books, Sausalito, CA. 2004. Distributed by Macmillan Distribution, Houndmills, Basingstoke, Hampshire RG21 6XS, UK. 786pp. Illustrated. £41.99. ISBN 1-891389-22-X.

This book is aimed at physics undergraduates and, as such, does an excellent job. It is a long book, nearly 800 pages, but it is not heavy reading. Both the style and presentation are clear and one could easily imagine being in the presence of a capable lecturer.

The book is in two parts.The first part covers all the expected topics for theoretical dynamics including Lagrange's equations. The second part extends into Hamiltonian mechanics, nonlinear mechanics and chaos theory. I especially liked the chapter on special relativity which is clear, concise yet covers all the major concepts. The book concludes with a chapter on continuum mechanics.

The applications are, in the main, taken from fundamental physics together with basic problems to illustrate the mathematical procedures. There are many worked examples, plus further examples for the student with answers to half of them.

Because of the easy style of writing, the book would be of great help to engineering students as a reference book on the mathematical principles. Most of the examples deal with frictionless systems except for the chapter on vibration which deals with a single degree-of-freedom systems with viscous damping. Two and three degrees-of-freedom systems without damping are also included.

For a book which is very accurate it came as a great surprise to find a fundamental error when dealing with the simple case of a block sliding down a plane with dry friction. The intention was to apply the work energy method but in fact the author simply integrated the equation of motion. Another oddity occurs when considering the height of tides due to the gravitational attraction of the Moon, taking this as an example of the use of a non-inertial reference frame. Here the usual numerical result was obtained but the Earth Moon system was consider to be in linear acceleration rather than an orbiting system.

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