ELIEZER, C. J., *A Modern Textbook on Statics for Students of Applied Mathematics, Physics and Engineering* (Pergamon Press, Oxford, 1964), xii + 295 pp., 30s. (Flexicover), 40s. (hard cover).

No one will dispute the claim made for this admirable work that it will be extremely useful to students of applied mathematics, physics and engineering in universities and technical colleges, and to students at scholarship level in applied mathematics in senior forms of schools. But that there should still be room for books—at least if they are as good as Professor Eliezer's—which as regards subject matter and treatment could have been written—matters of notation apart—a century ago is vaguely disturbing to the complacency of a reviewer who has himself been teaching precisely this material for something approaching half that time. In the teaching of pure mathematics at all levels syllabuses and methods of approach have been the subject of a great deal of discussion and experiment in recent years, but not nearly as much attention seems to have been devoted to the entirely comparable problems of applied mathematics teaching, which, as far as British universities are concerned, can scarcely be said to reflect the progress that is being made in the subject as a whole. This is not to deny that the student can derive considerable benefit from the discipline of solving even the more unrealistic " problems " of conventional applied mathematics courses; but it is at least open to question whether the kind of course that served an earlier generation of British mathematicians so well is still the most suitable under present-day conditions.

When these general misgivings have been expressed, it must be said that what Professor Eliezer has set out to do he has done outstandingly well. His exposition is everywhere clear, concise and readable. The ground covered is rather less than in Lamb's well-known *Statics* of 1912, and the level of treatment comparable, but more detailed. The topics dealt with are Composition of Forces (including 3-dimensional applications), Friction, Graphical Statics, Shearing Force and Bending Moment, Work, Energy and Stability, Strings and Chains, Elastic Beams. Well-chosen examples, both worked and for solution by the student, taken from recent examination papers of the Universities of Cambridge, Oxford and London, and from G.C.E. and Ceylon Civil Service examinations, greatly enhance the value of the book, which is attractively produced and moderately priced. It can be cordially recommended.   R. SCHLAPP

LYUSTERNIK, L. A., *Shortest Paths—Variational Problems* (Popular Lectures in Mathematics, Pergamon Press, Oxford, 1964), x + 102 pp., 17s. 6d.

This short book deals with a number of problems in the calculus of variations which are solved by entirely elementary methods. No knowledge of the calculus is required of the reader. The author states that the material was in the main presented to the secondary school mathematics circle at Moscow State University. The book can be strongly recommended for a school library and would form most useful additional reading for a sixth-form pupil.

After dealing with shortest paths on polyhedral surfaces, cylinders, cones and spheres the author introduces the idea of a geodesic on a surface in an elementary manner. The remainder of the book is devoted to problems connected with the potential energy of a stretched string, isoperimetric problems, Fermat's Principle, the brachistochrone problem and minimal surfaces of revolution.   R. P. GILLESPIE

BOLTYANSKII, V. G., *Envelopes* (Popular Lectures in Mathematics, Pergamon Press, Oxford, 1964), ix + 76 pp., 15s.

This booklet is an elementary introduction to the idea of the envelope of a system of plane curves. This idea is introduced by discussing how an envelope arises naturally in certain concrete problems, e.g. the " parabola of safety " in the theory of projectiles (Chapter I), the hyperbola which is the boundary of the zone of audibility of the sound of an aircraft flying at constant speed (Chapter II) and the astroid and cycloid which