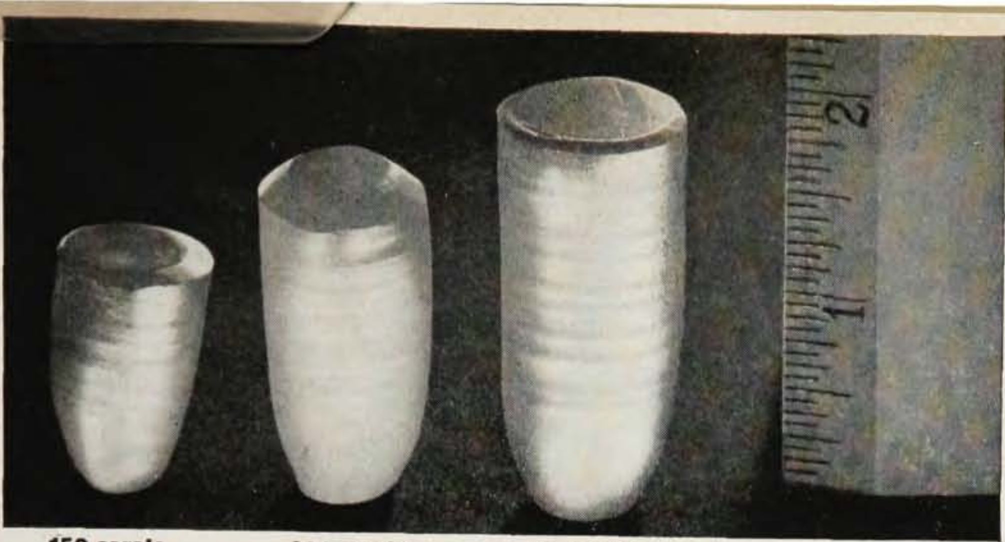
he has succeeded in producing a work which, although presumably addressed to the intelligent layman, can be read with profit by the physicist as well. As one might expect, he does not restrict himself to a description of past achievements but makes some sound predictions too. Progress in some areas is so rapid that since the writing of these predictions some already have come true.

It is a pity that the beauty of this volume is marred by many inaccuracies and typographical errors. For instance, our colleague Hudson becomes "Henderson" in the text and in the index. Lenard becomes "Lennard", Müller becomes "Möller", and so on. In Chapter 12, the orbiting velocity is given in the text as v. The caption of Figure 12.1 employs the Greek letter ν to denote the same velocity. The figure itself is halfway between; it could be read as either ν or as v. Also, since Sir Harrie has carefully defined his terms throughout the book, it may be hoped that in the next edition of this very interesting work he will include a definition of angular momentum.

Classical Mechanics (2nd ed.). By H. C. Corben and Philip Stehle. 389 pp. John Wiley & Sons, Inc., New York, 1960. $12.00. College ed. $10.00. *Reviewed by Nicholas Chako, Queens College.*

CLASSICAL mechanics has been one of the most important disciplines in the university science curricula. However, since the advent of quantum mechanics many important parts included in the traditional courses have been relegated to secondary place or altogether neglected, and the emphasis has been put more on the Hamiltonian formalism. On the other hand, the recent interest in space satellites, rocket development, and space technology in general, has brought a revival in teaching mechanics in a broader sense, not only to physics and mathematics students, but to engineering students as well.

In this new edition, the authors have improved the presentation of the subject matter and have added a substantial number of new topics. Among the most important of these is a section on rigid-body rotation about a fixed point, time-dependent forces, a considerable improvement in Poisson brackets, perturbation theory (especially for time-dependent dynamical systems), motion of a particle with spin, a brief discussion of rocket motion and the Navier-Stokes equation, application of the strong focusing principle in high-energy accelerations, and a new chapter on classical field theory based on variational principles. The inclusion of such a wide variety of new topics makes the new edition superior to the old, even though a number of these are treated so briefly as to shed some doubt on their usefulness to the student in understanding the subject matter as presented in the text. For instance, in the chapter dealing with "time-dependent forces and nonconservative motion", where Mathieu functions are introduced in connection with the problem of inverted-pendulum motion, the student will be at a total loss,



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unless he has a familiarity with the properties of these functions. The authors would have done better if one or two chapters had been devoted to motion under periodic and nonlinear dynamical systems, where Mathieu and allied functions come to play an important role in the solution of such problems. In addition, a complete discussion of van der Pol's equation as an important example among nonlinear equations might have been helpful. The same objections could be raised in connection with the section on the Navier-Stokes equation. Here, again, examples from magnetohydrodynamics and fluid mechanics would have given a student an idea of the important role this equation plays in modern developments in many fields of physics. As an application of the perturbation method, the authors could have likewise included a short discussion of motion of satellites and rockets. As a new topic, a chapter devoted to stability of dynamical systems would have been valuable, since it is vigorously studied at the present time. Undoubtedly these additions would have increased the size of the book, but they would also have increased its usefulness to a large circle of students and readers. Perhaps one should not expect such great changes in a new edition.

In spite of these shortcomings, the new edition of this important book should be welcomed by students taking a first course in advanced mechanics and by teachers using it as a text.

Electrons and Phonons: The Theory of Transport Phenomena in Solids. By J. M. Ziman. 554 pp. Oxford U. Press, New York, 1960. $13.45. *Reviewed by Paul W. Levy, Brookhaven National Laboratory.*

FOR some time there has been an apparent need for a book that would synthesize the numerous recent advances in the field of "collective electron and phonon processes in solids". The need has been competently filled by the present volume. The subject of the book might be more accurately described in the subtitle as "The theory of transport phenomena in solids which involves electrons and phonons".

The organization of the material is straightforward. The first five chapters, entitled: Phonons, Electrons, Phonon-Phonon Interactions, Electron-Electron Interactions, and Electron-Phonon Interactions, form the basis for an understanding of the remainder of the book, which considers the interaction of electrons and phonons with the crystal lattice and lattice imperfections. The author employs a very compact notation which will appeal to individuals who like to see derivations reduced to a minimum of steps. Undoubtedly, some will find the notation excessively abbreviated and even confusing, especially if one attempts to read the later chapters without having read enough of the book to become familiar with the notation, say the first four chapters.

It would appear, both from this book and his other publications, that the author's primary interest is phonon processes, which are here considered first. He