even for those who know a little bit about very low and very high temperatures. However, sections 1 and 5 are less enjoyable. Especially the introduction of the Kelvin temperature scale without even mentioning Gay-Lussac's law of 1802, makes it difficult to understand the arrival at the absolute zero point. If the author thinks that Gay-Lussac's experiments are too elementary, why then does he mention other simple things in the book? For instance, on page 47 he explains what a sodium ion is. There is also some misleading information, for example on page 8, ". . . the optical pyrometer may be used at temperatures above the melting points of metals" (!). We know that there are metals which melt at 156°, 30°, and even at −39°C.

Only elementary mathematics is used in the book; and the derivations of some equations, for example that of Boltzmann (pages 31-35) and that of Planck (pages 83-85), are given. Nevertheless, the reviewer disagrees with the opinion of the author (see preface) that the book can be used by a high-school student, especially as we know that one can graduate from high school without taking any course in chemistry or physics. The book could be useful only for those who already have some good knowledge in physics.

Physical Acoustics, Principles and Methods. Volume 2, Part B, Properties of Polymers and Nonlinear Acoustics. Warren P. Mason, ed. 383 pp. Academic, New York, 1965. $14.00.
Reviewed by Walter G. Mayer, Georgetown University.

The detailed description of relaxation processes, which formed the main theme of Part A of the second volume (*Physics Today*, September 1965, p. 74), is concluded in Part B. The first three chapters are concerned with relaxation in various forms of polymers and to some extent with its relation to physical acoustics. The first section (W. Philippoff) treats shear deformation in polymer liquids and gels, and only the harmonic aspects of stressing are considered in terms of acoustics. The next two chapters on relaxation in solid polymers and glasses (I. L. Hopkins and J. E. McKinney) concentrate on physical chemistry and the mechanical behavior of these polymers. These sections leave the realm of acoustics to some extent but the authors appear to be aware of this departure, judging from a statement in Chapter 8: "We are not overly concerned by this, particularly since we have never found any wide agreement on the definition of 'acoustics'."

Re-entry into the more familiar atmosphere of "acoustics" takes place by means of a rather brief chapter on nonlinear acoustics (R. T. Beyer). This section gives a description of the various parameters that lead to harmonic distortion of an initially sinusoidal wave. A number of experimental verifications is given here with more emphasis on results than on experimental methods. The application of optical methods, that is, light diffraction by ultrasonic waves, to problems of nonlinearity in liquids is treated in the first part of the last chapter (L. E. Hargrove). These two sections on nonlinear acoustics present a well rounded treatment of finite amplitude distortion in liquids.

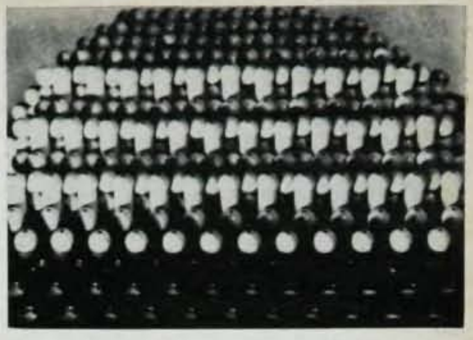
The second part of the last chapter (K. Achyuthan) deals with optic-ultrasonic methods in determination of photoelastic constants of solids.

Finally, the book contains a section on acoustics streaming (W. L. Nyborg) which presents much more information on this particular subject, both theory and experiment, than one finds in the usual textbook.

Every chapter is written with the authority and clarity that one now expects to find in every new volume of this series. Anybody who has appreciated the contents of the previous volumes will not be disappointed with this book.

An Atlas of Models of Crystal Surfaces. By John F. Nicholas. 229 pp. Gordon and Breach, New York, 1965. $27.50.
Reviewed by H. M. Otte, Martin Co.

At the list price this book is a horrendous overindulgence by the publishers. The volume is one of a series of eclectic books gathered under the title of Materials Science and Engineering Program for which J. [F.] Nicholas is listed as an associate editor. One is tempted to inquire whether, in that position, he is at the mercy of the publishers, or in cahoots with them. In either case, the result is to make the dissemination of whatever useful information may be contained in this atlas so prohibitively expensive as to question whether there is in fact any desire to communicate with fellow scientists or merely with bibliophiles. The book is most attractively produced.



Model of diamond (311). From: An Atlas of Models of Crystal Structures.

"An Illustrated Catalogue of Selected Models of Crystal Surfaces" would be a more apt description of the contents. A total of 191 halftone photographs ($4\frac{1}{2} \times 6$ inches) have been assembled under one cover together with a 21-page explanatory and descriptive introduction written primarily for the practising surface chemist or physicist. The introduction summarizes not only the mathematical foundations for calculating the positions of atoms on "atomically-flat surfaces" but also the construction of the models. For details the reader is referred to several publications by the author.

In the FCC, BCC, NaCl and diamond structures 22 surfaces, ranging from the (100) to the (851) were photographed. For the FCC and BCC this was done with the surfaces in two orientations, one with reference to the (100) plane and the other with reference to the (111). For the NaCl, the diamond, and the HCP structures the surfaces were recorded in only one orientation; however for certain hkl, two possible surfaces could exist, and in this case both were photographed. Thus there are 44 photographs for each of the FCC and BCC structures, 27 for NaCl, 33 for diamond and 43 for HCP. (For