crystals, and can be understood as an introduction to physical concepts in atomic, molecular, and solid-state science. The guiding principle throughout the text is the increasingly complex behaviour of electrons from stable states in the H atom to 'bistability' in H_2^+, 'hexastability' in C_6H_6, and 'polystability' in crystals. Emphasis is on spectroscopy, and maser and laser techniques are treated in detail. The chapter on crystals also contains an introduction to band theory (metals and semiconductors), lattice dynamics, and neutron scattering, the latter especially sound.

As expected, macroscopic properties can be related to microscopic theory where electronic mechanisms are involved, and where, in the case of crystals, symmetry arguments can be employed. In the remaining 36 pages, the author makes an attempt to arrive at a similar level of interpretation for mechanical properties of crystals based on the concept of planar force constants. Peierls stresses (using the Frenkel–Kontorava model for a dislocation) and fracture strengths (for brittle fracture) are calculated, and a lattice dynamical foundation of acoustic emission is presented. It becomes clear that an atomistic interpretation of the mechanical properties of engineering materials will remain a very difficult task for a long time to come. The last figure of the book shows a photograph of the oil tanker Martha R. Ingram on January 11th, 1972, after complete fracture amidships....

The book is intended for advanced students of physics, chemistry and engineering (nuclear, electronic, chemical, mechanical). It does not provide many empirical facts but lays down, with patience and sometimes in considerable detail, the formal aspects of physical principles used. The first three chapters also contain exercises and excellent references for further reading.

In the best humanistic tradition, the author tries to open perspectives and to remind the reader of the beauty and universality of the human mind, be it primarily directed towards science, engineering or arts. For this reason alone one would hope that Caglioti's book will be translated.

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Manual of optical mineralogy. By D. SHELLEY. Pp. xiii+239. Amsterdam: Elsevier, 1975. Price (cloth) Dfl 65.00, (paper) Dfl 26.95.

The ability to use a polarizing microscope is an essential skill for every student of geology and to help to instill this, several texts have been written on the subject, some devoted entirely to principles whilst others provide in addition the data on individual mineral species so essential to the practising petrographer. This new text falls into the latter category with more than two-thirds of the book given over to mineral data and descriptions.

The book begins with an introduction to general crystallography, dealing briefly with symmetry, Miller indices and some of the physical properties of minerals. Structure, unit cells, and axial ratios receive curt treatment, though the whole of this section is generally dealt with more fully in standard texts on mineralogy.

Chapter 2 is devoted to the polarizing microscope, components, accessories, basic adjustments and care of the instrument – though the advice that benzene be used as a cleaning agent should perhaps be tempered by a health warning! Chapter 3 discusses the optical properties of minerals with the aid of numerous diagrams whilst Chapter 4 covers laboratory techniques, sample preparation, RI determination, orientation, interference figures, optic sign, $2V$, extinction angles, pleochroism and use of the universal stage. A very short Chapter 5 outlines routine laboratory procedure and should perhaps have been appended to Chapter 4.

The greater part of the book appears in Chapters 6 and 7 as mineral data and descriptions. Tables of minerals according to RI, birefringence, colour and optic sign are followed by individual descriptions of 127 minerals giving composition, crystal system, colour, optical properties, orientation diagrams, occurrence, and distinguishing features. Photographs of some minerals illustrate this section and, though good, are relatively infrequent compared with other texts. Typographic errors are few, and most, though not all, diagrams are good.

Comparisons between this text and its older rivals will doubtless be made by both teachers and students. Resemblances are inevitable, though clearly the author has made good use of recent standard texts on mineralogy which postdate most rivals. This comparison will also extend to cost, and students will wonder why this textbook is twice as expensive as some others. This book would provide a useful alternative at half this price, but the cost will doubtless deter many students and professionals may find the mineral data too selective. As the book is so clearly aimed at geologists, the title should perhaps have reflected this.

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Surface Science. Vienna: International Atomic Energy Agency, 1975. Vol. 1: pp. 503; price $31.00. Vol. 2: pp. 302; price $19.00.

I have a strong prejudice against multiauthor volumes such as these; in general, the contributions are very uneven in quality, very rarely sustain a coherent theme and represent a poor substitute for the scholarly monographs of less frenetic times. I can well imagine that previous discussions (*Theory of Condensed Matter*, *Theory of Imperfect Crystalline Solids and Electrons in Crystalline Solids*), at the Trieste International Centre for Theoretical Physics have been homogeneous and successful but to take on *Surface Science*, in the same breath as it were, was altogether too ambitious.

Having said that, there is some good material here for the selective reader. Selectivity is necessary for one has a déjà-vu impression of much, something which conveys the uncharitable thought 'have a theoretical suitcase, will travel!' To continue with my prejudices just a little further, one might ask, rhetorically of course, whether the balance of the material is right if a major intent of the Trieste Schools were to provide stimulus and help to students from the developing countries. Would it not have made more sense to see the articles in *Applied Surface Science* have more prominence? Parson's article on *Electrode reactions and Corrosion*, Tabor's on *Friction*, and Dowden's on *Applied*