graphical sketch of the author. The latter are particularly valuable, although I noted some inaccuracies. One of the objections I have to the introductions is that they sometimes repeat each other unnecessarily. It is obviously impossible always to express matters as difficult as those treated here precisely and briefly in everyday language; in most cases the editors have succeeded remarkably well, but in others a little elaboration could have avoided the lack of precision.

There are two cases where, in my opinion, the editor's exposition has missed the point:

In the case of Perrin's determination of the Avogadro number by the distribution of particles in the field of gravity, the editors say that the barometric formula cannot successfully be applied to the atmosphere because it is not isothermal. This is true, but not the essential point. The exponent is mgh/kT (m, mass of molecule), but multiplication of numerator and denominator by the unknown Avogadro number gives Mgh/RT (M, mass of mole), which contains macroscopic quantities only. The point is that for suspensions m is determined directly, and then the Avogadro number follows from M, determined by the barometric formula (pp. 626–7).

In the discussion of Bohr's atomic theory, the statement "No one else had applied Planck's quantum concept to anything but to the behavior of radiation" (p. 742) is wrong. In 1911 Hasenöhrl tried to find conditions under which an atom would emit the Balmer lines. Bohr's genius brought great advance and success because of three points: He used the correct quantum conditions; he used them twice, once on the structure of the atom, and a second time for the radiation; he used the Rutherford model.

I think this book should be in every physics library.

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Surface Science

Surface science is, as A. Many, Y. Goldstein, and N. B. Grover, the authors of **Semiconductor Surfaces** [North-Holland, Amsterdam; Interscience (Wiley), New York, 1965. 512 pp., illus. $17.50] say, a very difficult field both experimentally and theoretically, but it is important for practical purposes. One might therefore fear an avalanche of undigested, uncritically repeated facts on every semiconductor surface that has ever been looked at. This book, however, turns out to be quite the opposite. The wealth of information is there, with over 400 references in one chapter alone, but the important pieces of work are picked out for discussion with enough detail that one can understand them. The chapter on surface states, for example, shows that the authors have not only read the references but also understood them; a crisper, more readable account would be difficult to find, and a tight binding calculation of Tamm and Shockley states is outlined in sufficient detail to give one the feeling of how it all works.

Most of the volume is devoted to the experimental methods, and to the results insofar as reasonable agreement between different workers exists. There is plenty of useful advice on how to etch and how not to etch, as well as a comment on where a useful gadget for lining up the spots is available commercially. The brief introduction is followed by a chapter reviewing the bulk properties of semiconductors and one covering lattice structure and the chemical reactivity of the surface. Subsequent chapters cover the surface space charge region, surface states, the field effect, other experimental methods, and transport processes; and there is a discussion of what has been found out with these methods about the electronic structure of the surface. The last chapter covers real germanium and silicon surfaces—that is, surfaces as normally prepared and chemically cleaned—as well as the atomically clean surfaces prepared in ultrahigh vacuum. The emphasis of the book is distinctly more on the electrical than on the chemical properties of the surface.

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A Small, Autonomous Community

In **Lamotrek Atoll and Inter-Island Socioeconomic Ties** (University of Illinois Press, Urbana, 1965. 191 pp., illus. Paper, $4), William Alkire presents some of the results of 15 months of field research among the 200 inhabitants of Lamotrek Atoll in the western Carolines and its satellite islands of Elato and Satawal. During the period of the author's residence (1962–63) Lamotrek was being visited by a trading ship only four times a year and, as a result, was still relatively unacculturated.

Alkire first discusses land tenure, economic activities, and political organization on Lamotrek in detail. As in Truk and other matrilineal societies in Micronesia, land is the joint property of a small lineage and is normally cultivated by the women of a matrilocal extended family and their husbands. People connected with a lineage by patrilateral ties frequently exercise provisional rights to cultivate part of its estate, in return for which they periodically bring gifts to the residual owners. The social organization of Lamotrek and its dependencies is pervaded by the stratification typical of much of Micronesia, with ranked lineages, subclans, clans, and islands. Each of the three districts of Lamotrek is administered by the chief of an aristocratic clan, under a paramount chief who was reigning over both Lamotrek and Elato at the time of the field work. Many people thus have obligations to both a district chief and to their clan chief residing elsewhere. The smallness of the island allows all of the inhabitants, regardless of descent-group affiliation, to attend funerals, assist in such projects as the purchase of a large canoe, and participate in communal fishing expeditions.

Alkire demonstrates that the economics of Lamotrek and its neighbors can be understood only in the context of a multi-island system traditionally centered on the high island of Yap. Since the same clans and subclans occur in several communities, and inter-island marriages and adoptions are common, all sorts of agricultural produce, artifacts, and imported goods are exchanged between islands as gifts to real or putative kinsmen. In addition Elato regularly used to send turtles, and Satawal coconuts and preserved breadfruit, to Lamotrek, which in turn paid tribute to Ulithi and Yap, its own superiors in the network. The islands receiving tribute permitted their subordinates to utilize unihabited atolls and islets as coconut plantations and