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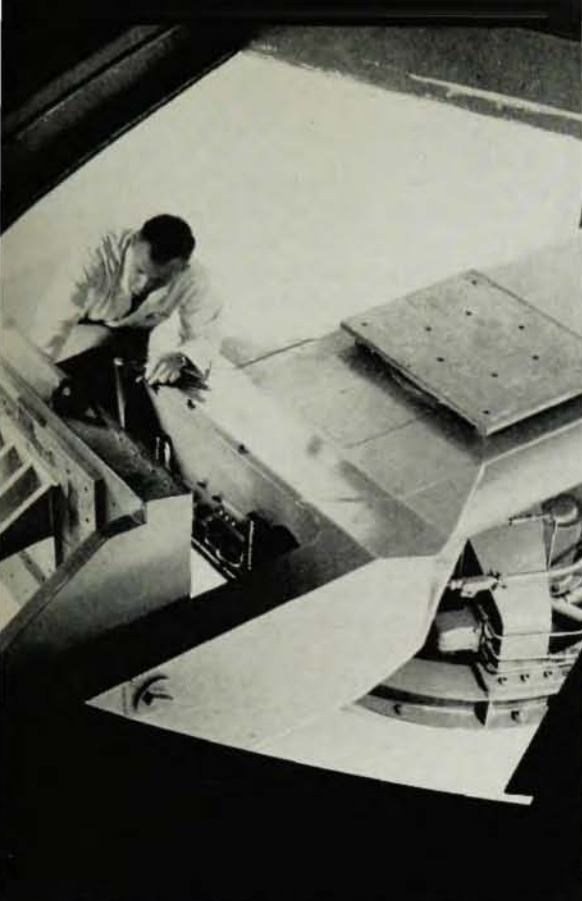
progress made in the elucidation of certain basic principles in catalysis.

Of interest are the studies by Gwathmey and Cunningham on the variation of catalytic activity with crystal face exposed. Also their observation of surface mobility and structural rearrangement during catalytic reaction adds to the complexity of surface phenomena. A method of distinguishing between chemical and physical adsorption is advanced by Eischens and Pliskin in their article on infrared spectra of adsorbed molecules. A wide variety of spectra is presented for different gases adsorbed on metals dispersed on a nonporous silica support. A comparison is made of the catalytic activity of metal films and metal-on-silica catalysts in a contribution by Schuit and Van Reijen. Such reactions as the hydrogenation of ethylene and benzene on nickel and other binary catalysts are discussed. An interesting review of the reactivity of oxide surfaces is presented by Winter. Included in the discussion are studies of isotopic exchange in the reactions of O_2 , CO , and CO_2 with various metallic oxides. Experimental evidence is presented which points to the participation of lattice oxygen in chemisorption and catalytic reactions. The remaining articles deal with the kinetics of catalytic hydrogenation (Balandin); the commercial alkylation of paraffins and aromatics (Jones); and the catalytic action of cholinesterases in ester hydrolysis (Bergman).

Atom—gestern und heute: die Geschichte des Atom-begriffs von der Antike bis zur Gegenwart. By A. G. M. van Melsen (translated from Dutch into German by C. Stoffregen; German edition edited by H. Dolch). 315 pp. Verlag Karl Alber, Freiburg/München, Germany, 1957. DM 23.80. Reviewed by R. Bruce Lindsay, Brown University.

This volume is one in the *Orbis Academicus* series of works on the history of science and related disciplines. Its purpose is to trace the evolution of the atomic concept from the Greek philosophers down to the twentieth-century atomic theory of physical science. The author is a chemist turned philosopher who has written widely on the philosophy of science. One might be inclined to question the need for a new history of the atomic idea in view of the existence of such extensive earlier works as that of K. Lasswitz: *Geschichte der Atomistik vom Mittelalter bis zu Newton* (Second Edition, 1926). However Dr. van Melsen apparently feels that not enough attention has hitherto been paid to the distinction between the atom as a concept in Greek philosophy and the modern scientific construct. He builds his book essentially around this point, dividing it into two parts; of which the first of 180 pages is devoted to Classical Antiquity, the Middle Ages, and the Renaissance. The second part carries the more purely scientific story from Dalton down to date.

The author freely indulges his penchant for philosophical probing, and the physicist who reads the first



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part must be prepared to encounter numerous and often lengthy quotations from the Greeks, with detailed comments on their significance. Great pains are taken to make clear that although Aristotle has the common reputation (which is correct in the strict sense) of being an antagonist of the atomic theory of Democritus, he did nevertheless believe in the finite divisibility of matter, i.e., the existence of *smallest* pieces of matter. The author feels that the significance of this has often been overlooked (e.g., by Lasswitz), particularly with reference to atomic theory in the later Middle Ages when the first traces of the modern point of view were beginning to appear.

The student of physics will not find anything particularly new in the second half of the book, devoted as it is to the atomic theory as we know it today, save perhaps for the final chapter on the relation between science and philosophy containing a justification for the existence of a genuine philosophy of nature (Naturphilosophie). The reviewer may have missed the point but he suspects the author is talking about metaphysics here and not what is now commonly accepted as the methodology of modern physical science.

The reviewer found this in general a stimulating book. However, even one who is not a professional historian of science could doubtless find some points to question. It seems that more could have been made of Parmenides in connection with the significance of invariance in modern physics. Moreover Plato's meaning for twentieth-century science is dismissed a bit too cavalierly. A physicist would naturally expect to find a rather lengthy discussion of the part played by the kinetic theory of gases in the development of the atomic theory, but the author dismisses this in a couple of pages and there is no mention at all of Daniel Bernoulli.

Looking at the Stars. By Michael Ovenden. 192 pp. Philosophical Library, Inc., New York, 1958. \$4.75. Reviewed by H. K. Kiess, Washington, D. C.

Looking at the Stars is one of a series of books on leisure-time activities. Especially written to interest young people, it has not only the personal touch emphasized by popular science writers, but also the professional authority which they lack; the author has himself made the observations he recommends.

In this little book he manages to cover most of the topics included in an introductory course in astronomy. The first six chapters are devoted to home territory, i.e., our solar system: the sun; the planets, and how they move; time, the seasons, and the calendar; the instruments by which this knowledge is gained. Before journeying into outer space the reader is advised to consult the main features of the celestial map; he is then ready to proceed.

As for the stars, the author considers their various types, distances, motions, sizes, temperatures, masses, and luminosities, evidence for all of which is presented with appropriate diagrams. He describes spectroscopic