of moving spins phenomenologically, the author gives a straightforward account of the effects due to electrons' diffusive motion and related lineshape broadening mechanisms. Comparison between theory and experiments shows that the present understanding of electron spin resonance is by no means complete.

On the whole, the book contains much useful information, but the diversity of the subject and the lack of clear organization make reading rather difficult. The book assumes its readers to be initiated in the field of magnetic resonance. For beginners it is advisable to have a copy of Abragam's *The Principles of Nuclear Magnetism* or Slichter's *Principles of Magnetic Resonance* close at hand for reference.

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Atmospheric Phenomena

The Optical Aurora. A. OMHOLT. Springer-Verlag, New York, 1971. xiv, 200 pp., illus. $17.30. Physics and Chemistry in Space, vol. 4.

The Radiating Atmosphere. A symposium, Kingston, Ontario, Aug. 1970. B. M. MCCORMAC, Ed. Springer-Verlag, New York, and Reidel, Dordrecht, 1971. xii, 458 pp., illus. $29.40. Astrophysics and Space Science Library, vol. 24.

Two books on the same subject could hardly differ more than *The Optical Aurora* and *The Radiating Atmosphere*. The first presents a concise and unified synthesis of our current understanding of the optical and spectroscopic aspects of the aurora. The second is a collection of papers of mixed quality and purpose, based on lectures presented at a symposium entitled "Aurora and Airglow, 1970."

In 1961 there appeared the monograph *Physics of the Aurora and Airglow* by J. W. Chamberlain. The physical principles required for an appreciation of auroral problems were presented in that book, and Omholt does not repeat the basic concepts, nor does he discuss the historical aspects of the subject in his compact work. He does provide an up-to-date (1970) description of the physical processes that produce the optical aurora. The emphasis that is placed on physical processes rather than phenomenology is especially evident in the brief chapter devoted to radio aurora and its relation to the optical aurora. The book is not for leisurely reading; it is for the serious student (in a broad sense) of the subject, and provides the sort of quantitative information required for working on current research topics. Key references to original papers are given at the end of each chapter, and there are even references to private communications and to unpublished theses that might not be easy to obtain for many readers. The newcomer to auroral physics will find the book by Omholt and the older book by Chamberlain an excellent combination. The two works are written in a similar style by authorities in the field.

The editor of *The Radiating Atmosphere* has made no attempt to unify the papers assembled in this book. The papers are grouped into eight parts, but the headings of the groups do not provide meaningful descriptions of their contents. The book contains 37 papers, and there is an "institute review" and a highly personal conclusion by the editor and two colleagues. Of the 37 papers I would classify 24 as review papers, a few containing relevant new material. There are 13 papers that present primarily new (and unrefereed) material. In my opinion, these papers do not belong in this book. The good ones will not be read as widely as they would be had they appeared in a standard journal in the field, and the bad ones might never have appeared in a journal at all. One should not, however, allow a few rotten apples to spoil the entire basket; there are some very well written and thoughtful articles in this collection. These include reviews on the airglow, including dayglow, twilight radiations, and the night glow; these subjects are discussed in terms of ionospheric chemistry, where appropriate. The auroral papers cover a wide range of topics: spectroscopic studies, electric fields, particle precipitation, substorm phenomena, radio aurora, x-ray events, and theoretical studies on the formation of aurora. I found the introductory review by D. M. Hunten most informative. In the "institute review," Hunten discusses results reported in the lecture by A. T. Stairs concerning the observation in aurora of a spectroscopic feature at 9.6 micrometers, but I could not find this point in Stairs's paper. Evidently, the written version lost some of the more exciting results reported verbally.

Anders Omholt has left the field of auroral physics; *The Optical Aurora* may be his swan song, a very good one, in my opinion. Billy McCormac's book has been a biennial undertaking on the same subject. First there was *Aurora and Airglow* in 1967, next *Atmospheric Emissions* in 1969, and now *The Radiating Atmosphere*. What will be the title of the next offering on this subject?

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Organogermanes

The Organic Compounds of Germanium. MICHEL LESBRE, PIERRE MAZEROLLES, and JACQUES SATGÉ. Wiley-Interscience, New York, 1971. xii, 702 pp., illus. $44. Chemistry of Organometallic Compounds.

The authors of this book, all from the University of Toulouse, have produced a most comprehensive account of organogermanium chemistry which includes, in a variety of tables, reference to all compounds described up to 1968. Many references to the 1969 literature are also included.

The text is divided into ten chapters and may be described as acceptably readable, though the nonspecialist will have some difficulty because of the very detailed treatment. The most disappointing part is the introductory chapter (seven pages), where one would have hoped for much more by way of comparative discussion of germanium in relation to the organic chemistry of silicon, tin, and lead.

Each of the remaining nine chapters is devoted to a discussion of the formation and the physical and chemical properties of compounds containing germanium: Ge-C (aliphatic and aromatic); Ge-C (cyclic); Ge-H; Ge-halogen; Ge-O; Ge-S (Se, Tl); Ge-N(P); polygermanes; Ge-metal. Individual chapters are well subdivided and the detailed table of contents is a great help in locating compounds of a given type. The chapters vary in quality: not surprisingly those most closely connected with the research interests of the authors are the most stimulating. The chapter title "Polygermanes" is somewhat misleading, for the chapter includes not only true di- and polygermanes (that is, compounds in which germanium atoms are bound together) but in addition organogermanes such as $(C_2H_5)_3Ge(CH_2)_3Ge(C_2H_5)_3$.

The book contains a fair number of errors, though most of these are trivial