Book Reviews

Spectroscopy at Radio and Microwave Frequencies. D. J. E. Ingram. Philosophical Library, New York, 1956. 332 pp. Illus. $15.

The rapid and extensive development of spectroscopy in the radio-frequency and microwave regions during recent years has created an important demand for review articles and textbooks in these fields. This most recent addition to the still limited number should be welcome and useful. The author sets out to cover essentially all radio-frequency and microwave spectroscopy at a level appropriate for the nonspecialized worker or student of physics. He achieves worth-while but limited success, partly because this is a small book and partly because a penetrating treatment and optimum choice of material in such a wide range of fields would require slightly superhuman ability. The book does consider and discuss techniques and elementary theory of microwave spectroscopy of gases, electronic paramagnetic resonance, ferromagnetic resonance, molecular and atomic beams, nuclear paramagnetic resonance, nuclear quadrupole resonance, and their applications to various fields. It provides useful, brief discussion and a handy summary of results obtained as well as a liberal supply of references.

The book has several faults, which I will mention in order of increasing importance. First, the author is apparently not sufficiently familiar with the literature in some areas of the wide fields he covers to specify unerringly the sources of various contributions to the developments discussed. This fault is probably important only to those contributors who may feel slighted and sensitive. Second, his lack of perspective is disappointing. To quote from the preface, he evidently planned "a broad approach" to radio-frequency and microwave spectroscopy, and "a critical review." The approach is broad in that he mentions a wide variety of topics, but hardly critical or penetrating. Nor is the treatment balanced in the amount of space given to various topics. Molecular and atomic-beam spectroscopy is treated in 10 pages and nuclear paramagnetic resonance, in 20, whereas electronic paramagnetism is allotted nearly 70. This makes the treatment of electronic paramagnetic resonance particularly good, but that of some other fields distinctly minimal. Finally, there are some important errors. For example, Table 9.1, which summarizes the usefulness of the various techniques in yielding physical information, contains both misleading and incorrect statements. Similarly, the paragraph on measurement of nuclear magnetic moments by Zeeman effects in gaseous spectroscopy is almost completely incorrect. Such errors can be very misleading to someone who dips casually into this volume for orientation and guidance.

In spite of such definite limitations, the book is interesting and informative. It should be helpful to anyone wanting a quick view of modern research in radio-frequency and microwave spectroscopy, and also to those who are somewhat more deeply interested in the active and valuable field of electronic paramagnetic resonance.

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Therapeutic Use of Artificial Radioisotopes. Paul F. Hahn, Ed. Wiley, New York; Chapman & Hall, London, 1956. 414 pp. Illus. $10.

Despite the availability of radioactive materials, Paul Hahn points out in the preface of this book that "tremendous strides" in the treatment of malignant disease have not been made. Criticism of past research is not a feature of this book, although Hahn stresses the need for new and ingenious ways to use isotopes in therapy.

The editor is the senior author of chapters dealing with the production and handling of isotopes, the use of radioactive colloids in chronic leukemia, and the use of silver-coated radioactive colloids as adjuvants in the surgical treatment of bronchiogenic carcinoma. Introductory chapters, written by G. Hevesy, C. W. Sheppard, and by A. Aaran Yalow, dealing with the problems of therapy, physics, and dosimetry help prepare the reader for the more practical chapters which deal with particular facets of radioisotope therapy in man. D. L. Tabern's chapter dealing with the availability and procurement of isotopes includes photographs of the forms necessary to secure radioisotopes from the U.S. Atomic Energy Commission.

Hymer L. Friedell and Paul Salerno present the one chapter based only on research data in laboratory animals. In this the differences in the distribution of radioactive materials in the liver, spleen, and bone are correlated with some of the biologic effects of mixtures of radioactive materials. Other chapters deal with the techniques of radioactive isotope therapy which have been used with varying degrees of success in human beings. Edwin E. Osgood is the author of a chapter which discusses in detail the use of phosphorus-32 in the treatment of leukemia and polycythemia. Osgood does present follow-up statistics for a large group of treated patients.

The techniques of using radioactive colloids is emphasized in this book. J. H. Muller of Switzerland discusses the intraperitoneal application of radiocolloids in patients with neoplasms involving the peritoneum. Gould A. Andrews of the Oak Ridge Institute of Nuclear Studies discusses the treatment of pleural effusion secondary to neoplasms with radioactive colloids. These chapters outline well the techniques for the use of radioactive colloids for the therapy of serous effusions secondary to neoplasms. The use of radioactive colloids to treat serous effusions secondary to neoplasms is more widely accepted than is the local interstitial use of radioactive colloids in and adjacent to neoplasms.

Separate chapters by authors with unique experience in using radiocolloids in carcinoma of the uterine cervix and carcinoma of the prostate are presented. The use of radioactive colloids interstitially in tumors and adjacent tissue may have value alone or when combined with other types of therapy such as surgery. Uniform distribution of the colloid in tumor and adjacent tissue is difficult to achieve. Often the uptake of the interstitially administered material is less in nodes containing large aggregates of tumor than it is in normal lymph nodes. In a chapter dealing with the use of radioactive colloids in carcinoma of the lung, Hahn recommends the techniques as an adjuvant to surgical treatment. The authors' collective experience with radioactive colloids is extensive and the record of this experience is perhaps the best part of this book.

Several of the chapters are written by British scientists as follows: D. W. Smithers, D. M. Wallace, and N. G. Trott discuss their use of bromine-82 in an intraluminal rubber bag to treat carcinoma of the urinary bladder. The only chapter dealing entirely with nonneoplastic lesions is that on the treat-