from Germany relates a nice story of CdS and ZnS single crystals. The hydrogen-like emission lines, together with evidence from the spectra of absorption, photo conductivity and quenching, prove a new point: the existence of a series of non-conducting excited activator states, involved in the process of excitation as well as in quenching. As a result the quenched luminescence as well as the photo conductivity can be shown to depend only on the ratio of the intensities of the exciting and quenching illumination. This property has been used cleverly for the construction of an optical pyrometer, since the intensity at two given wave lengths depends on the color temperature only. Other applications also are described.

Finally, H. Kallman and J. Rennert discuss persistent internal polarization in photo conductors when electric fields are applied. Radiation causes depolarization. The principle seems to be related to electrets, though the authors do not mention this. Neither do they mention quantum efficiencies for depolarization. However, application possibilities in electrophotography, memory devices, and infrared detection are described.

A brief round table discussion about transistor frequency limitations, switching speeds and single *versus* poly crystals terminates the book.

To summarize, the book is a vivid report of a lively conference of a most alive subject. It will be interesting to compare, say ten years from today, what has become of the predicted possibilities.

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British Medical Bulletin. Vol. 14, Number 2. **Causation of Cancer.** E. BOYLAND, Scientific Editor. Medical Department, The British Council, 65 Davies Street, London, W. 1, England. May 1958. pp. 73–196. 22 × 28.5 cm. Price $4.00.

This series of essays by a most distinguished group of British investigators on the numerous causes of cancer was timed so as to precede the Seventh International Cancer Congress which took place in London on July 6 to 12, 1958. During its preparation the dean of investigators in this subject, Sir Ernest Kennaway, passed away in his 77th year, and so the volume became a memorial to him as well. A felicitous tribute to Kennaway by Alexander Haddow properly forms the introduction to the symposium, and the reader is once more reminded of the immeasurable debt which the field of cancer research owes to this versatile and indefatigable investigator.

There are 21 separate contributions to the volume, ranging over the entire field of carcinogenesis, and including discussions on the role of exogenous and endogenous factors, viruses, radiation, immunity and occupational hazards, as well as on the development of cancer in such specific organ sites as the liver and the lung. The opening review by Haddow on Chemical Carcinogens and their Modes of Action is a masterly summation of this classic area of research, and with its emphasis more on experiment than on speculation sets the tone for the brilliant articles which follow.

The number of chemical agents which produce cancer in the experimental animal is almost astronomical. The two most important questions which arise from this phenomenon, namely, what factors these agents possess in common, and what relation they bear to cancer in man, remain largely unanswered. The discovery of new carcinogenic agents (including those presumed to be implicated in the pleasurable social vices) only adds more details to a tapestry already almost undecipherable. A rational generalization to explain the carcinogenic process, on the one hand, and a rational prophylaxis to avoid cancer, on the other, are apparently not easily attainable. The lucid articles in the present volume are part of the good fight to reach these goals.

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Mass Spectroscopy. By HENRY E. DUCKWORTH, Professor of Physics at Hamilton College, McMaster University, Ontario. Cambridge University Press, 32 East 57th Street, New York 22, N. Y. 1958. xvi + 206 pp. 14 × 22 cm. Price, $6.50.

Considerable skill and judgment are required to write concisely and give adequate coverage to a field which has many applications. Authors writing on a broad research area to which they themselves have contributed frequently give undue emphasis to those aspects with which they are especially acquainted. In this monograph, Professor Duckworth has done a remarkable job of organizing the material and maintaining a balance between the various topics covered.

After a brief historical survey, the fundamentals of mass spectroscopy are covered in five chapters. Major topics are: positive ion optics, sources of positive ions, detection of positive ions, deflection-type instruments and time-of-flight mass spectrometers. The remaining five chapters of the book are devoted to applications of mass spectroscopes to the fields of: determination of isotopic abundances, determination of atomic masses, applications to nuclear physics research, ionization and dissociation of molecules under electric impact, and applications to geology.

The monograph is an excellent starting point for one interested in learning about the fundamentals of mass spectroscopy and many of its more important applications. Some chemists interested in applying mass spectroscopy to their fields may be disappointed in the brevity of treatment of points of particular concern to them. Those studying chemical reactions or molecular structure problems will probably regard the eighteen pages devoted to ionization and dissociation of molecules as inadequate. Also, no attempt is made to cover engineering-type problems such as vacuum or electronic considerations which enter into designing or operating mass spectrometers.

A monograph of 206 pages obviously cannot cover all topics to the depth that some may wish. What is lacking in volume is compensated for by the clarity of explanation and the excellent bibliography of some 650 references. A table of isotopic abundances and masses is appended. There appear to be relatively few errors. In the isotope table and also in the text (p. 158) the abundance of K^{40} is given as 0.162% instead of 0.0119%. A typographical error exists in the very last entry of the isotope table—U^{236} instead of U^{238} is given as the most abundant isotope of uranium.

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