

TOP LEVEL PHYSICIST TO HELP DIRECT KEY RESEARCH PROGRAM IN MICROWAVE FIELD

Microwave Associates, Inc., invites qualified physicists to discuss an unusual opportunity to direct a research group involved in the control of microwave energy by gas discharges or ferrites.

The man we seek should be well founded in the interaction of microwave energy with gas plasmas or ferrites. He must be prepared to generate new ideas and approaches to meet today's "beyond the state of the art" problems. Further, he must guide the work of his associates in this area.

Excellent high power and low power instrumentation is available to investigate these phenomena over a wide frequency spectrum — 500 mc to 35,000 mc.

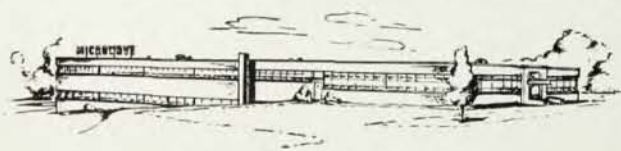
Associated with this research group will be an aggressive development group which can rapidly translate these new ideas into practical devices.

Opportunities for your continued growth are excellent — Microwave Associates has enjoyed exceptional progress over the past several years and occupies a well established position in the field.

You are invited to a confidential exploratory discussion of your future with us. Contact Dr. Jerome Kornreich for suitable arrangements.



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report by A. J. Vitale, E. M. Kaegi, N. S. Diaconis, and W. R. Warren covers a similar experimental investigation. In contrast, S. M. Bogdonoff and I. E. Vas have conjectured that great reductions in heat transfer to a blunt body in hypersonic flow are possible if the flow is separated by a spike extending ahead of the body. Their experiments verify this provided the flow remains laminar. The problem of finding materials able to serve as practical spike tips is still open.

A. J. Hanawalt, A. H. Blessing, and C. M. Schmidt compute the temperatures of leading edges in very high-speed long continued flight and point out the practicality of insulated surfaces so that it is radiation that balances the aerodynamic heating. For short periods surface melting can be a useful heat sink as is pointed out by the calculations of S. M. Scala and G. W. Sutton.

The van Karman-Polhausen approximate integral method of boundary layer analysis is shown by P. A. Libby to give satisfactory agreement with more exact and exacting theoretical computation schemes for laminary hypersonic flow.

In summary, if this collection is a fair sample of the latest research it is evidence of an orderly advance, for all the papers can be readily subsumed under a few headings: combustion, dissociated gas dynamics, flow of real fluids. This means either that most investigators have recognized and attacked the few major problems of our time or perhaps that there is a more centralized control of basic research in this country than we should like to admit.

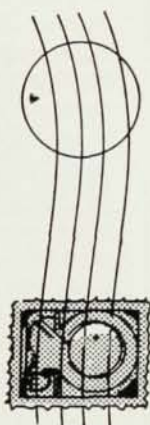
The Exploration of Space by Radio. By R. Hanbury Brown and A. C. B. Lovell. 207 pp. John Wiley & Sons, Inc., New York, 1958. \$6.50. *Reviewed by H. Mendlowitz, National Bureau of Standards.*

In a field which started just about a quarter of a century ago, a well-written book of an introductory character is quite welcome. Actually, although the field of radio-astronomy is about twenty-five years old, the major advances in techniques and accumulation of data took place in the last decade. The authors themselves have made important original contributions in this field. It is not very often that those people who make significant advances in research in a scientific field can also be effective in presenting their work to those not acquainted with the field. Hanbury Brown and Lovell have been able to put together a rather nice book to serve as an introduction to the uninitiated without giving him the feeling that he is being "talked down" to.

The authors start with a short chapter to give the reader some background material in astronomy and then continue with an introduction of the subject by discussing properties of radio waves and the techniques of radio astronomy. After this the meaty part of the subject is discussed. This includes such topics as galactic and extragalactic radio emissions, the importance of the hydrogen 21-cm emission line in the study of interstellar space, and solar radio waves. One of the

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JANUARY 1959

THE PHYSICS OF ELEMENTARY PARTICLES

By J. D. Jackson

This is an introductory account of the physics of elementary particles and their interactions, with a minimum of formal apparatus and unusual clarity of presentation. The book is designed for graduate students and for physicists not specializing in the field. Selected topics include scattering, photoproduction, K-mesons and hyperons, theoretical models, weak decay processes, and analysis of recent experiments on non-conservation of parity. *Investigations in Physics*, No. 9. 176 pages. \$4.50

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MESONS AND FIELDS

by Hans A. Bethe, Frederic de Hoffmann,
and Silvan S. Schweber

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Vol. II, MESONS. "... of value to anyone who has any connection with π -meson physics. Nowhere else can so much useful and important information on this subject be found . . ." By Geoffrey Chew, University of California, in *Nucleonics*.

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parts of the book which I found most interesting was the discussion of the discovery of discrete sources or radio stars. There are discussions of the tracking of meteors by radar, lunar probes, and radio echoes from earth satellites. New techniques and equipment are also described and, of course, the authors' own important facility, the 250-ft Jodrell Bank steerable telescope is discussed.

Except for a few slips by the authors the book is well written. For example "parsec", a unit of distance, is utilized right at the beginning and it is only defined on page 10. Also, a search through the index did not list this word. Another case which may cause some irritation to the reader is the discussion in the body of the text (page 59) of certain reference points in a diagram (44b). These points do not appear in the diagram.

I am sure that these kinds of errors can be repaired in later printings or editions of this book and that the over-all quality will outweigh these blemishes. In this important scientific International Geophysical Year and because of the current news of earth satellites and lunar probes, this book will surely help serve to introduce those unacquainted with radio astronomy to a very fascinating and important field.

Crystal Physics II. Vol. 7, Part 2 of *Handbuch der Physik*. Edited by S. Flügge. 273 pp. Springer-Verlag, Berlin, Germany, 1958. DM 76.00 (subscription price DM 60.80). Reviewed by R. Smoluchowski, *Carnegie Institute of Technology*.

In continuation of the new *Handbuch der Physik* series there appeared the second part of the volume dealing with crystal physics. While the first part concerns several subjects such as lattice defects, crystallography, elastic and thermal properties, and specific heats, the second is devoted only to plasticity and to transformations and precipitation in solids. Seeger's article, of over 200 pages, is a very thorough survey of the phenomenological and of the theoretical side of plasticity in crystalline materials. Inasmuch as dislocations, the basic concept of plasticity, have been treated at length by the same author in the first part of this volume, the present article uses them as a tool without going into a detailed theoretical and experimental discussion of their properties. Similarly the mathematical plasticity of a continuum is omitted since it is treated elsewhere. The first item to be treated in detail is the estimate of the so-called theoretical shear strength and its comparison with experiment. This is the crucial argument which underlies nearly all concepts of the defect structure of solids. This introduction is followed by an excellent and long (nearly half of the whole article) description of the fundamental facts and notion of plasticity: crystallography of deformation, geometry, creep curves, yield point, critical shear strength, influence of temperature, influence of composition, etc. The chapter covers both metals and many nonmetals such as germanium and