

BOOKS



COSMIC RAYS. By L. Jánossy. 424 pp. Oxford University Press, New York, 1948. \$10.00.

This volume is the first complete treatise on cosmic rays to be published. It is a book on a difficult and intricate subject, prepared with care and competence by a man who has made for himself a prominent place among physicists for his original investigations in the field of which he writes. The contents include a historical introduction, a description of experimental techniques, a summary of the results of quantum electrodynamics and of meson theory which are of importance for the interpretation of cosmic ray phenomena, a discussion of the nature and properties of high-energy particles, a detailed description of geomagnetic effects, and a discussion of theoretical and experimental results concerning air showers and meson production. The appendices contain mathematical relations and tables which are useful in the evaluation of cosmic ray data and will find applications also in allied fields of physics.

In this book the effort is evident not to omit any experimental or theoretical result which was significant in the development of our knowledge of cosmic rays or which may prove of importance in future developments. As a consequence, clarity is sometimes sacrificed to completeness. This emphasis on details, added to a somewhat confusing organization of the material and to the intrinsic difficulty of the subject, makes the book hard to read. To a great extent, the imperfections noted are due to the difficulty of dealing with a subject which is still in a phase of rapid development. They do not detract from the value of the book, which everyone interested in cosmic rays will find very interesting and stimulating and which represents a source of extremely useful information.

Bruno Rossi
Massachusetts Institute of Technology

ALSOs. By Samuel A. Goudsmit. 259 pp. Henry Schuman, Inc., New York, 1947. \$3.50.

The well-kept secret of the Alsos Mission was hidden in its name; "Alsos" is Greek for Groves. The mission was created to follow the troops into Europe and to discover, by whatever means it could improvise, whether Germany was likely to drop an atom bomb upon this nation or its forces. To head it General Leslie R. Groves chose Dr. Samuel A. Goudsmit, then of the University of Michigan and the Massachusetts Institute of Technology Radiation Laboratories.

Dr. Goudsmit now gives us an account of his adventures, written with a charm and a gusto that sharpen the message he seeks to include. He believes he knows not only that the Germans failed, and were still treading the road to failure at the war's end, but also the reasons for

their failure. To Dr. Goudsmit, this inevitable failure was a direct outcome of the Nazi spirit. Science and the higher technology did not survive the police state and the nationalist myth, for science is bound up with freedom and internationalism. Science, as it gropes, offends the doctrinaire, who always knows his way; and in Germany, says Dr. Goudsmit, science fell before doctrine.

This contention is well documented by the author, at times by quotation and at times by reproduction of originals. To some, however, it may not be entirely convincing, for Dr. Goudsmit has sought to make his case strong by simplifying it. It is not difficult to think of other reasons and perhaps to become convinced that those reasons predominated: the unlikelihood (for Germany or for the United States) of completing a bomb in time to see it play a decisive part in the war; the diversion of effort to more immediate needs; the constant pummeling of German heavy industry by Allied bombs.

But in the sense of Dr. Goudsmit's larger message, these are quibbles. Whether Nazism itself made the creation of a bomb impossible, the fact remains (and Dr. Goudsmit proves it) that Nazism carried German science a long way down the road to destruction. Those elements of the police state which seem sometimes to be on the way toward appearance in this country would do for our science, the author believes, what they did for Nazism, and his book is a measured, thoughtful warning against permitting such a thing to happen.

Above all, it is worth reading, and the author's personality makes it a delight to do so. Sedate readers will enjoy a mild surprise if they check back on the references to I. I. Rabi and E. O. Salant in the index.

Stephen White
New York Herald Tribune

NUCLEAR FORCES, Volume I. By L. Rosenfeld. 181 pp. Interscience Publishers, Inc., New York, 1948. \$5.00.

More than a decade has elapsed since Bethe and Bacher published their monumental work on nuclear theory. By the time of World War II, many features of nuclear structure had been more clearly delineated. Although fundamental theoretical work ceased here during the war, much experimental work, now becoming available, was performed. In addition, theoretical research continued in the neutral countries of Switzerland, Ireland, and Sweden, and under the most trying conditions in occupied Netherlands. A thorough, detailed, critical survey of the present status of nuclear theory in the manner of Bethe and Bacher is greatly to be desired. Professor Rosenfeld has done us all a great service by performing this difficult task clearly, ably, and with great care for the two- and three-body problem in nuclear theory.

Volume I, the volume being reviewed here, contains Part I, "General Features of Nuclear Forces," and Part II, "Two nucleon systems on the hypothesis of central interaction." The second volume is to contain the discussion of saturation, the binding energy of H^3 , the effects of non-central forces, and, finally, the effects of velocity-depend-

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