

15¢

\$5.50 A YEAR

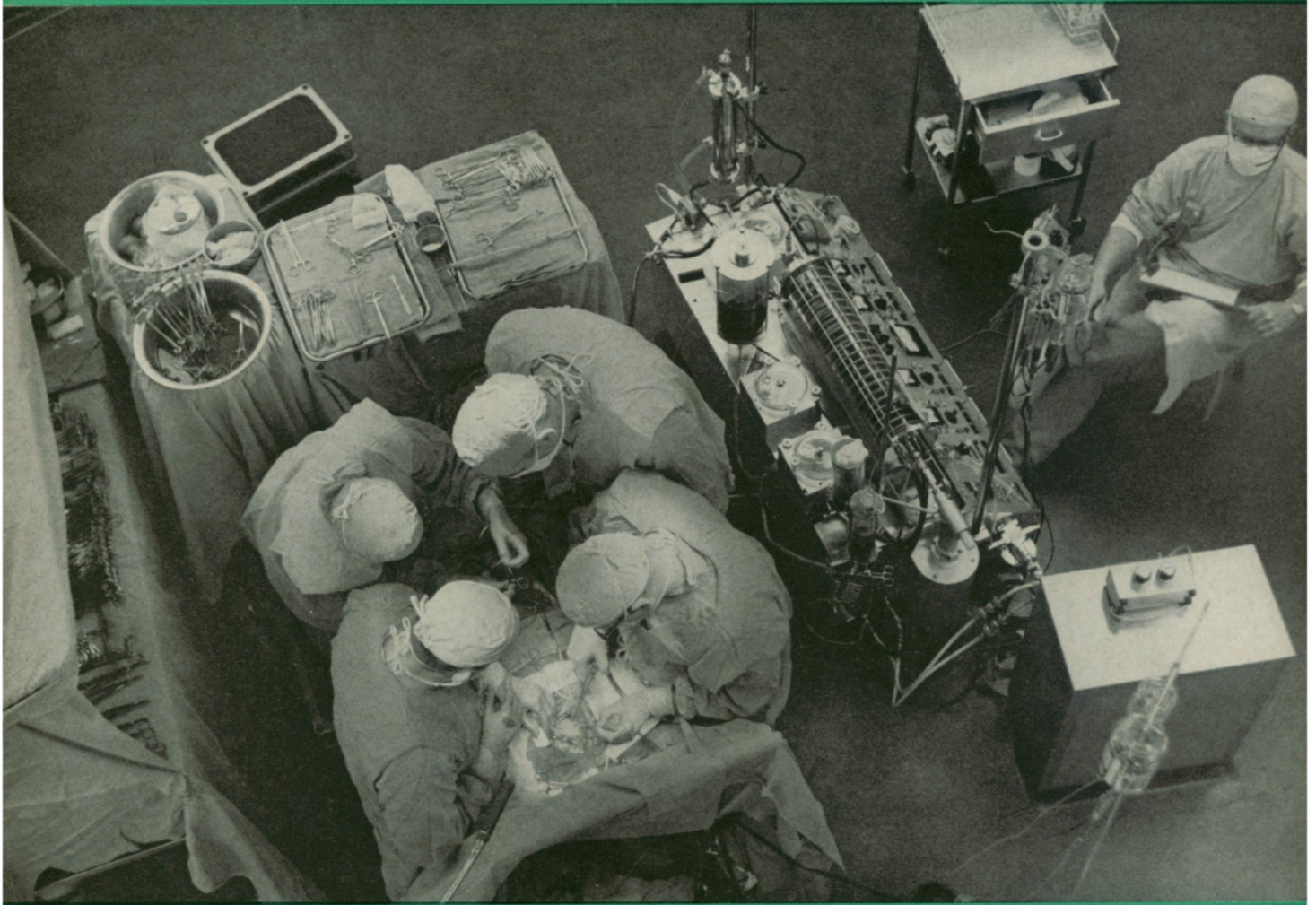
September 28, 1963

VOL. 84, NO. 13 PAGES 193-208

# SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE

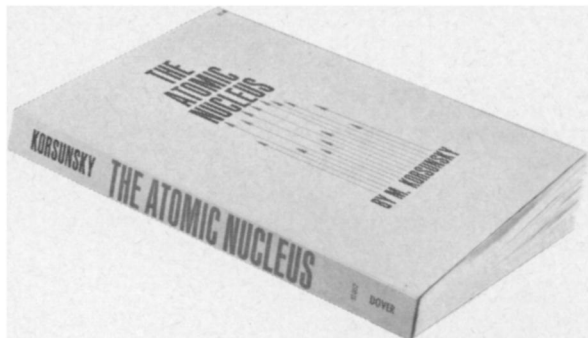


National Institutes of Health

**Open-Heart Surgery**  
See Page 194

A SCIENCE SERVICE PUBLICATION

# The latest of Dover's Books Explaining Science! A brilliant verbal exposition of the most vital subject in modern physics!



## THE ATOMIC NUCLEUS

by M. Korsunsky Only \$2.00

The study of the atom is one of the most important current subjects in physics. As a result, there are plenty of books available on the early history of radioactivity, the discovery of the first sub-atomic particles, the nature of the atomic bomb, and similar topics. But few studies have been made of the nucleus of the atom, that part which has top priority in this age of nuclear fission and fusion.

Thus, Korsunsky's text is virtually unique, both for its coverage and for the level at which it is written. The latest addition to Dover's Books Explaining Science, it is a surprisingly readable text, presenting all the available facts about the nuclei of atoms in an exposition that has no equal for clarity and thoroughness.

Beginning with the pioneers (Bequerel, Curie, Rutherford, Soddy, Ramsay, et al.) and their work in the discovery and analysis of the phenomenon of radioactivity, it moves quickly, but step-by-step, through the major phases in the unfolding of the mysteries of the nucleus, reaching to hard-to-find material on the important results of even modern investigations, up to 1958. Some of the topics discussed

along the way include: the phenomenon of radioactive series; nuclear model of the atom, describing the experimental work that established with finality the existence of nuclei in atoms; the mass of atomic nuclei; the discovery and investigation of such recently-found particles as the positron, mesons, and the neutrino; the disintegration of atomic nuclei; artificial radioactivity; the study of the nature of the forces acting between nuclear particles; and various aspects of peaceful and military applications of nuclear energy. There is a good deal of historical material in the book, and information on modern Russian and Western research that will prove valuable to students in the field and to scientists in other areas looking for a reliable introduction to the subject. But certainly as important is the strong emphasis it gives to scientific method. Korsunsky provides full, rounded pictures of every advance, including the background, the clashes in theory that led to successive discoveries; the logical paths to new theories and experiments; the experiments themselves; and the results obtained and their implications for further research and conclusions. This analysis of experiments is so vivid that you are

almost a participant as Fermi creates radioactive isotopes for stable elements . . . you see, in action, Alvarez's method of detecting electron capture . . . you can follow the chain of reasoning that led Yukawa to postulate the meson. This handling of experimental field work is a unique feature that helps to make this one of the most useful books on atomic nuclei that is available anywhere.

By pausing frequently to summarize preceding material and by carefully organizing the wide-ranging material he must deal with, Korsunsky has succeeded in making this a book that you will read with a perpetual sense of discovery and enlightenment. If you are a layman or a beginning science student, you will easily pick up the equivalent of a full course by a remarkably gifted expositor. If you are more of a specialist in atomic studies or physics, you'll find this a remarkably apt verbal statement of the field, summarized and coordinated, evaluated and interpreted by one of the world's foremost scholars.

Slightly corrected reprint of original edition, 1958. Translated by G. Yankovsky. 65 figs., plus 45 photos in appendix. 12 tables. 413pp. 1052. Paperbd. \$2.00

### Other New Dover Books

1046. **ELECTRONS, METALS & ALLOYS.** W. Hume-Rothery. Unusual and unusually effective introduction presents the electron theory of structure, properties of metals and alloys. Enjoyable, enlightening. 416pp. Paperbd. \$2.25
1111. **THE NATURE OF COMETS.** N. B. Richter. The best, concise, up-to-date summary of knowledge about one of nature's grandest phenomena, on middle level. 69 illus. 41 tables of data for more advanced readers. 262pp. Clothbd. \$10.00
1059. **1800 RIDDLES, ENIGMAS & CONUNDRUMS.** D. A. Hindman. Unpredictable, amusing, frustrating collection of puns, corn, genuine puzzles, and plain "wisecracks," all answered. Original publication. 160pp. Paperbd. \$1.00
1076. **BASIC ELECTRONICS,** prepared by Bureau of Naval Personnel. Complete course in elementary electronics (including computers), easily followed by beginners, hobbyists. 419 diagrams, charts, drawings. 471pp. Paperbd. \$2.95
- 1063-4. **THE QUESTIONS OF KING MILINDA,** trans. by T. W. Rhys Davids. Indian prose masterpiece clarifies many philosophical puzzles of Buddhism. Part of Sacred Books of the East series. Total of lix + 710pp. Two-volume set. Paperbd. \$4.50
1057. **TYCHO BRAHE: A Picture of Scientific Life & Work in the 16th Century.** J. L. E. Dreyer. The stormy Renaissance genius comes to life with his age and his astronomical discoveries in this delightful, non-technical biography. xiv + 405pp. Paperbd. \$2.00
1039. **150 PUZZLES IN CRYPT-ARITHMETIC.** Maxey Brooke. First book devoted to fascinating puzzles that use letters for numbers. Ingenious, infuriating, satisfying mathematical recreations. Solutions. 80pp. Paperbd. \$1.00
794. **THE PETERKIN PAPERS.** Lucretia P. Hale. Whimsical doings of unique, amusing family have delighted generations of youngsters. 153 illus. 219pp. Paperbd. \$1.00
1070. **WAVE MECHANICS & ITS APPLICATIONS.** N. F. Mott, I. N. Sneddon. Modern approach to quantum mechanics, via actual physical problems rather than abstract mathematical methods. Useful aid to physics, chemistry students. xii + 393pp. Paperbd. \$2.25
1067. **THE PRINCIPLES OF MECHANICS SIMPLY EXPLAINED.** M. Mott-Smith. Gravity, kinetic energy, Archimedes, mass, Boyle, other essential notions and thinkers explained to laymen, beginning students. Formerly "This Mechanical World." 45 illus. xiv + 171pp. Paperbd. \$1.00
332. **HOW TO KNOW THE WILD FLOWERS.** Mrs. W. S. Dana. Charming, easiest-to-use field guide to more than 1,000 flowers of U. S. Canada. 174 full-page plates by Marion Statterlee. Fully revised. xliii + 438pp. Paperbd. \$1.85
423. **JOE MILLER'S JESTS,** or The Wits Vade-Mecum. Facsimile reprint of the most famous book of puns, jokes, jests ever written. Originally published in 1739. New introduction by Robert Hutchinson. xxi + 70pp. Paperbd. \$1.00
999. **AMERICAN VAUDEVILLE: Its Life & Times.** D. Gilbert. Masterly, documented history of native American institution that kept the country laughing through a remarkable 50 years, 1850-1930. x + 428pp. Paperbd. \$2.25

768. **THE SARDONIC HUMOR OF AMBROSE BIERCE,** ed. by G. Barkin. Bierce at his savage best; epigrams, verse, prose from long-unavailable books. 232pp. Paperbd. \$1.00
1075. **THE MUSIC OF BACH: AN INTRODUCTION.** C. S. Terry. A model music biography, perfectly balancing fact, criticism, analysis of forms, traditions, themes. For listeners, students, xi + 114pp. Paperbd. \$1.00
1040. **THE PHYSICAL DIMENSIONS OF CONSCIOUSNESS.** E. G. Boring. A top psychologist brings his own classic study of physiology and human behavior up to date with a new preface. 269pp. Paperbd. \$1.75
1061. **WATERHAMMER ANALYSIS.** J. Parmakian. Analytical, graphical methods of solving waterhammer problems; for students with even only elementary knowledge of hydraulics, calculus. Study problems. 113 illus. 173pp. Paperbd. \$1.65
1056. **THEORY OF THE MOTION OF THE HEAVENLY BODIES.** Karl F. Gauss. An 1809 classic that still stands as a landmark in astronomy. Astonishingly accurate methods lucidly described. 394pp. Paperbd. \$2.95
96. **AUTOBIOGRAPHY OF A WINNEBAGO INDIAN.** Paul Radin. Pioneer work in American anthropology, taken down in field from actual dictation of a Winnebago. Stirring, honest, valuable insight. 22pp. of foliows. ix + 91pp. Paperbd. \$1.00
1038. **BRAIN MECHANISMS & INTELLIGENCE.** K. S. Ashby. A must for anyone seeking to understand the direction taken by psychology, behaviorism in last 30 years. New introduction by D. O. Hebb. McGill U. 200pp. Paperbd. \$1.75
1043. **AIRPLANE STRUCTURAL ANALYSIS & DESIGN.** E. E. Sechler, L. G. Dunn. Carefully worked-out procedures, wealth of fundamental information make this a surprisingly useful summary of theoretical, experimental work. 256 illustrations. 431pp. Paperbd. \$2.25
1042. **INTRODUCTION TO APPLIED MATHEMATICS.** F. D. Murnaghan. Lucid, logical, practical presentation of vectors and matrices, spherical harmonics, Fourier's series, operational calculus, Laplace's equation, bilinear formula, much more. ix + 389pp. Paperbd. \$2.00
987. **MODERN THEORY OF MOLECULAR STRUCTURE.** B. Pullman. Survey of current work in atomic, molecular structure, a rapidly developing branch of chemistry that is rarely treated except on very technical level. Concise, with minimal mathematics. 95pp. Paperbd. \$1.00
380. **BASIC THEORY & APPLICATION OF TRANSISTORS.** prepared by U.S. Dept. of the Army (TM 11-690). An introductory manual that is perfect as an elementary text, course supplement, or as a home-study book. 240 clear, labeled diagrams. 272pp. Paperbd. \$1.25
1010. **ESSAYS ON THE THEORY OF NUMBERS.** R. Dedekind. Only authorized translations of "Continuity & Irrational Numbers" and "Nature and Meaning of Numbers," essays at the very foundation of mathematics. Essential reading for every mathematician, layman interested in numbers. 127pp. Paperbd. \$1.00
1066. **CLASSICS IN THE THEORY OF CHEMICAL COMBINATIONS.** ed. by O. T. Benfey. First of Dover's "Classics of Science" series! One-volume publication of 8 19th-century essays that together established the fact of valence in all matter. All in English. 205pp. Paperbd. \$1.85

103. **THE CIRCUS FROM ROME TO RINGLING.** E. C. May. Best-written, best-loved circus book. Colorful, exciting, fully-documented America as seen by a former troupier. New introduction by L. V. Farley. 66 illus. 384pp. Paperbd. \$2.00

Two additions to Dover's reprint of LIFE HISTORIES OF N. AMERICAN BIRDS series, the best, most-used single source of information on feeding, markings, voice, migration, distribution, etc. Absorbing texts by first-hand observers working under auspices of Smithsonian Institution.

1091. **DIVING BIRDS.** A. C. Bent. 33 auks, loons, grebes, penguins, etc. 55 full-page plates. xiv + 239pp. Paperbd. \$2.75
1082. **MARSH BIRDS.** A. C. Bent. 53 species of bitterns, rails, herons, egrets, cranes, etc. 98 full-page plates. xiv + 392pp. Paperbd. \$2.75
1007. **CHANCE, LUCK & STATISTICS.** H. C. Levinson. Probability and statistics entertainingly introduced, applied to games of chance, insurance, other aspects of everyday life. Formerly "Science of Chance." 372pp. Paperbd. \$1.75
769. **EINSTEIN'S THEORY OF RELATIVITY.** Max Born. New, 1962 revised, enlarged edition of a basic work explaining science. Rewarding explanation for almost any reader. Revised by Dr. Born, with Drs. G. Leibfried, W. Biem. vii + 376pp. Paperbd. \$2.00
437. **ADVANCE OF THE FUNGI.** E. C. Large. Non-technical, dramatic story of the battle against fungi and the man who fought it. "Highly entertaining, intelligent." New Yorker. 488pp. Paperbd. \$2.25
517. **INSECT LIFE & INSECT NATURAL HISTORY.** S. W. Frost. Immense empire of insects and their ways as seen by one of our foremost entomologists. Impeccably accurate and stimulating, exciting reading, too! Over 700 illustrations. x + 524pp. Paperbd. \$2.25

Box 448, Dover Publications, Inc.  
180 Varick Street, New York 14, New York

Please send me the following books:

I am enclosing \$..... in full payment.  
Payment in full must accompany all orders except those from libraries and public institutions, who may be billed. Please add 10¢ per book to orders under \$5.00 to cover postage and handling.  
(please print)

Name.....

Address.....

City..... Zone... State.....

**GUARANTEE:** All Dover books unconditionally guaranteed to satisfy. Returnable within 10 days for full refund, no questions asked.