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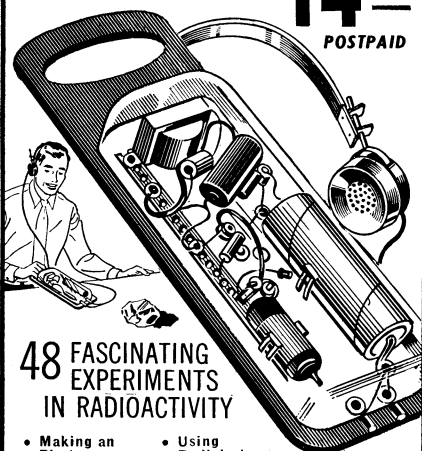
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For the editorial information of our readers, books received for review since last week's issue are listed. For convenient purchase of any U. S. book in print, send a remittance to cover retail price (postage will be paid) to Book Department, Science Service, 1719 N Street, N.W., Washington 6, D. C. Request free publications direct from publisher, not from Science Service.

THE ADVENTURE BOOK OF STARS—Thomas D. Nicholson—Capitol Pub. Co. (Simon & Schuster), 111 p., illus., paper, \$2.95. With this book for junior star watchers, comes a kit including sighting instrument, star finder, sky map and log sheet.

BEHIND THE SPUTNIKS: A Survey of Soviet Space Science—F. J. Krieger—Public Affairs Press, 380 p., illus., \$6. Report of a Rand Corporation research study.

THE COMPUTER AND THE BRAIN—John von Neumann—Yale Univ. Press, 84 p., \$3. An unfinished manuscript that was the last writing of this famous mathematician. It was intended for delivery as the Silliman Lectures at Yale.

CURRENT TRENDS IN THE DESCRIPTION AND ANALYSIS OF BEHAVIOR—Robert Glaser and others—Univ. of Pittsburgh Press, 242 p., illus., \$4. Nine lectures under the auspices of the Department of Psychology in the College of the University of Pittsburgh.

DESCRIPTION AND USE OF A SATELLITE APPARENT POSITION CALCULATOR—P. G. Kirmser and I. Wakabayashi—Kansas State College, Engineering Experiment Station Bulletin 86, 23 p., illus., paper, \$1. Contains apparent position calculator chart with plastic overlays.

DIRECTORY OF GRADUATE RESEARCH—Committee on Professional Training, American Chemical Society—Am. Chemical Soc. 626 p., paper, \$3.50. Listing the faculties, publications and doctoral theses in departments or divisions of chemistry, biochemistry and chemical engineering at U. S. universities.

THE DISPOSAL OF RADIOACTIVE WASTE ON LAND—Committee on Waste Disposal, Division of Earth Sciences—National Academy of Sciences—National Research Council, Publication 519, 142 p., paper, \$1. Disposal in cavities mined in salt beds and salt domes is suggested as the possibility promising the most practical solution of the problem.

DYNAMIC ANATOMY AND PHYSIOLOGY—L. L. Langley, E. Cheraskin and Ruth Sleeper—McGraw-Hill, 719 p., illus., \$6. A text with the emphasis on function.

THE FIELD THEORY OF MEANING—Andrew Paul Ushenko, preface by Stephen C. Pepper—Univ. of Mich. Press, 182 p., \$4.75. On the analogy of dynamic field structures in physics, the author analyzes the contextual field structure of informative meaning.

GOING UP: Voluntary Support of America's Colleges and Universities 1956-57—Council for Financial Aid to Education, 48 p., illus., paper, \$1.50. Survey of the volume, sources, and purposes of gifts and grants.

THE GOLDEN BOOK OF ANIMALS—Photographs by W. Suschitzky—Simon and Schuster, 96 p., illus. with photographs of exceptional beauty, \$2.95. A picture book of animals.

THE GOLDEN BOOK OF NATURE CRAFTS: Hobbies and Activities for Boys and Girls—John R. Saunders—Simon and Schuster, 68 p., illus. with photographs by Roy Pinney and drawings by Rene Martin, \$1.95. A wealth of information and inspiration to help boys and girls embark on hobbies.

THE GREAT DOCTORS: A Biographical History of Medicine—Henry E. Sigerist, translated by Eden and Cedar Paul—Doubleday, 422 p., paper, \$1.25. Brief biographies of medical greats from Imhotep and Aesculapius to Osler.

THE GYROSCOPE: Theory and Applications—James B. Scarborough—Interscience, 257 p., illus., \$6.50. Including an exposition of the vector analysis needed to understand the text.

A HISTORY OF PUBLIC HEALTH—George Rosen, foreword by Felix Marti-Ibanez—MD Publications, 551 p., \$5.75. Recounting man's measures against disease from the time before the Middle Ages when society's protection was to isolate or destroy the patient to the modern era of preventive medicine.

INSOMNIA AND ITS RELATION TO DREAMS—Leonard Gilman—Lippincott, 237 p., \$4.95. An explanation for the general reader of sleep and lack of it, dreams and the unconscious.

INTRODUCTORY PLANT SCIENCE—Henry T. Northern—Ronald, 2d ed., 718 p., illus., \$6.75. A beginning text.

THE LAST CONTINENT—Douglas Liversidge—Jarrolds, (British Bk Centre), 248 p., illus., \$5. Antarctica has lain in its icy tomb for a hundred million years at least, although the existence of coal indicates an earlier period of perhaps even sub-tropical warmth.

LISTENING IN THE DARK: The Acoustic Orientation of Bats and Men—Donald R. Griffin—Yale Univ. Press, 413 p., illus., \$7.50. Reporting a study of the way bats navigate by emitting ultrasonic sounds and being guided by their echoes, and the practical use we make of the same principle.

MAN AND HIS PHYSICAL UNIVERSE—Frank Covert Jean and others—Ginn, 3d ed., 657 p., illus., \$6.50. A text in "generalized science."

MINERALS YEARBOOK 1954: Volume II, Fuels—Staff, U. S. Bureau of Mines—Govt. Printing Office, 465 p., illus., \$2.25. The three volumes of this yearbook contain all data collected in cooperation with the U. S. Bureau of the Census for the 1954 Census of Mineral Industries.

PATH OF FLIGHT: Practical Information About Navigation of Private Aircraft—Civil Aeronautics Administration—Govt. Printing Office, 35 p., illus., paper, 65¢. Providing study material for applicants for private pilot certificates.

THE ROLE OF DIETARY FAT IN HUMAN HEALTH: A Report of the Food and Nutrition Board—Willis A. Gortner, Ed.—National Academy of Sciences—National Research Council, 32 p., paper, \$1. Fat in the food brought into household kitchens makes up an increasing proportion of the calories.

SCIENTISTS' CHOICE: A Portfolio of Photographs in Science—Franklyn M. Branley, Ed.—Basic Bks., 12 photographs suitable for framing, paper, \$4.95. Chosen and described by leading scientists. Includes a booklet on "Using Your Camera in Science," by Jerry A. Schur.

SKIN GRAFTING—James Barrett Brown and Frank McDowell—Lippincott, 3d ed., 411 p., illus., \$15. Includes chapters on the injuries resulting from farm, industrial and traffic accidents.

SOVIET PHARMACEUTICAL RESEARCH: Volume I, Pharmaceutical Chemistry—Consultants Bureau, In English Translation, 447 p., illus., paper, this volume \$95, three volumes \$200.

SOVIET PHARMACEUTICAL RESEARCH: Volume II, Pharmacognosy—Consultants Bureau, In English translation, 401 p., illus., paper, this volume \$90, three volumes, \$200.

SOVIET PHARMACEUTICAL RESEARCH: Volume III, Medicinal Chemistry—Consultants Bureau, In English translation, 556 p., paper, this volume \$100, three volumes, \$200.

SYMPOSIUM ON NONDESTRUCTIVE TESTS IN THE FIELD OF NUCLEAR ENERGY—Sponsored by the American Institute of Chemical Engineers—Am. Soc. for Testing Materials, 395 p., illus., \$10.

TOYS, THE TOOLS OF CHILDREN—June Frantz-

en—*National Society for Crippled Children and Adults*, 17 p., illus., paper, \$1. A guide for the selection of toys to help in the development of the child.

WILD FOLK IN THE MOUNTAINS—Carroll Lane Fenton—*John Day*, 96 p., illus. with drawings by the author, \$3. A book for children about mountain wildlife.

THE YEAR BOOK OF THE INTERNATIONAL COUNCIL OF SCIENTIFIC UNIONS 1958—*International Council of Scientific Unions*, 74 p., paper, 75¢.

Science News Letter, June 7, 1958

BIOLOGY

Carbon Dioxide Changes Undifferentiated Cells

► WHEN CARBON dioxide is bubbled into a solution containing undifferentiated cells that have just begun to grow after egg fertilization, the cells become brain cells.

Dr. Reed Flickinger, zoologist at the University of California at Los Angeles, is studying the process by which like embryonic cells suddenly begin to specialize to form specific structures such as brain, muscle, skeleton, and reproductive organs.

Addition of small amounts of carbon dioxide—large amounts kill the cells—to undifferentiated frog embryo cells caused the cells to form nervous tissue the day after fertilization, Dr. Flickinger said. Three or four days later definite brain structures could be identified.

Apparently the carbon dioxide stimulates protein synthesis in the cell by causing release of nucleic acids and storage protein from the yolk granules packed in the cell, the UCLA zoologist said.

All cells have equal potential of becoming brain cells or any kind of cell in the body, he pointed out, because they all carry the same genetic information. But some unknown stimulus makes them specialize. Perhaps the carbon-dioxide-stimulated protein synthesis triggers the cell-differentiating mechanism.

There seems to be a specific order in which specialized tissue is formed. Nervous tissue forms first, followed by muscle cells and reproductive organs.

Science News Letter, June 7, 1958

Questions

ASTRONOMY—What are tektites? p. 363.

ELECTRONICS—How can the moon aid in voice communication by telephone? p. 356.

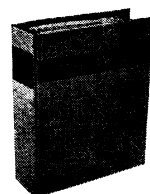
EVOLUTION—When did the prehistoric animal *Daphneus* live? p. 363.

MEDICINE—What is chemopallidectomy? p. 361.

SURGERY—What effect did a parathyroid transplant operation have on the amount of oral calcium required by the patient? p. 357.

Photographs: Cover, Bendix Aviation Corporation; p. 355, Sikorsky Aviation; p. 358, British Information Services; p. 359, Dr. Jean-Pierre Perrenoud; p. 362; U. S. Weather Bureau; p. 368, Eastman Chemical Products, Inc.

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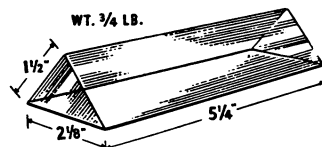
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