

Woodger—*Harper*, 200 p., paper, \$1.50. Reprint (1933).

THE NATURE OF ATOMS AND MOLECULES: A General Chemistry—Ewing C. Scott and Frank A. Kanda—*Harper*, 765 p., illus., \$8. Textbook emphasizing chemical correlations, intended for college students who have serious interest in chemistry.

THE NEW SCIENCE OF SKIN AND SCUBA DIVING—Conference for National Co-operation in Aquatics, Alex A. Maleski, Chmn.—*Assn. Press*, rev. ed., 208 p., illus. by Andre Ecuyer, \$3.95; paper, \$2.95. Replaces original (1957) official text.

NINE PLANETS—Alan E. Nourse—*Pyramid*, 288 p., illus. by Mel Hunter, paper, 75¢. Reprint (1960).

NUCLEAR SUBMARINE SKIPPERS AND WHAT THEY DO—Commanders George P. Steele and Herbert J. Gimpel, USN—*Watts, F.*, 140 p., \$3.95. Includes glossary and index.

1,000 ANSWERS TO QUESTIONS ABOUT PHOTOGRAPHY—Robert L. McIntyre, Ed.—*Grosset & Dunlap*, 248 p., photographs, paper, \$1.95. Reprint (1959), formerly "1,000 Photo Questions Answered by Experts."

1001 QUESTIONS ANSWERED ABOUT BIRDS—Allan D. and Helen G. Cruickshank—*Grosset & Dunlap*, 291 p., photographs by author, illus. by James Macdonald, paper, \$1.75. Reprint (1958).

PRINCIPLES OF PHYSICS—Earnest S. Greene—*Prentice-Hall*, 806 p., diagrams, \$9.75. Text intended for physics course at the liberal arts and premedical level.

THE REAL NUMBER SYSTEM IN AN ALGEBRAIC SETTING—J. B. Roberts—*Freeman*, 145 p., diagrams, \$3.50; paper, \$1.75. Textbook intended to acquaint student with the basic facts of an important mathematical system, also of cultural value to nonscience students.

ROBERT BOYLE: Founder of Modern Chemistry—Harry Sootin—*Watts, F.*, 133 p., illus. by Gustav Schrotter, \$1.95. Biography for young people.

SCIENTISTS: Their Psychological World—Bernice T. Eiduson, foreword by Harrison Brown—*Basic Bks.*, 299 p., \$6.50. An examination of the nature of technically trained people, dealing with parental backgrounds, interests, aptitudes, personality, intelligence and other motivating factors of 40 contemporary American research scientists.

SEMIMICRO LABORATORY EXERCISES IN GENERAL CHEMISTRY—J. Austin Burrows, Paul Arthur and Otto M. Smith—*Macmillan*, 3rd ed., 306 p., illus., paper, \$4. Includes more quantitative experiments and experiments introducing modern techniques.

THE SMALL GROUP: An Analysis of Research Concepts and Operations—Robert T. Golembiewski—*Univ. of Chicago Press*, 303 p., \$6. Reviews research in small-group analysis, and points out its useful relevance to students of behavior.

SOUTH AMERICA A TO Z—Robert S. Kane—*Doubleday*, 370 p., photographs, maps, \$4.95. A practical guide to 14 Latin American countries, for the tourist who also wants to know something about their historical and political background.

SPACE BIOLOGY: The Human Factors in Space Flight—James Stephen Hanrahan and David Bushnell—*Science Editions*, 285 p., photographs, paper, \$1.95. Reprint (1960).

THE STARS: A New Way to See Them—H. A. Rey—*Houghton*, rev. ed., 160 p., illus., \$6. Guide to the constellations for beginners. Jacket unfolds into 22x26-inch map.

THEORY OF THE TRANSMISSION AND PROCESSING OF INFORMATION—A. G. Vitushkin, transl. from Russian by Ruth Feinstein—*Pergamon*,

206 p., \$15. Research monograph, attempts to define mathematically the construction of tables for functions, a concept important in the automatization of programming.

TIME'S ARROW AND EVOLUTION—Harold F. Blum—*Harper*, 220 p., illus., paper, \$1.65. Reprint of 2nd ed. (1955).

UNIFIED ORGANIC CHEMISTRY—Charles A. MacKenzie—*Harper*, 586 p., illus., \$8.50. Text combines aliphatic and aromatic compounds in an order which emphasizes functional groups.

• Science News Letter, 81:252 April 21, 1962

Live Cells Frozen Alive

(Continued from page 246)

lated ox blood remained alive when cooled at a rate of about 200 degrees per second by immersion in liquid nitrogen and then rewarmed at about the same rate.

In 1950, Dr. A. U. Smith of the Institute for Medical Research in England discovered that a 15% glycerol solution protected rabbit and human red blood cells from death during freezing at temperatures of more than 100 degrees below zero Fahrenheit.

The aim of current research, Dr. Harold Meryman of the Naval Medical Research Institute, Naval Medical Center, Bethesda, Md., told SCIENCE SERVICE, is to find an additive to protect frozen blood that does not have to be removed before the blood can be used for transfusion. Transfusions could then be started within 90 seconds instead of the more than an hour now needed to prepare the blood.

He said that Dr. Audrey Smith and her co-workers at the Mill Hill Laboratory near London were studying the freezing of whole organs and whole animals.

Dr. Meryman said the current belief was that the stage for damage from cold was set during the freezing process, but that the final blow making the damage irreversible occurred during thawing.

• Science News Letter, 81:246 April 21, 1962

FISHERIES

No Bones About It, Machine Does the Job

► DON'T LIKE FISH because of the bones? How about a machine that debones them?

The U.S. Bureau of Commercial Fisheries Review, 24:15, 1962, claims it is now possible to design and build a machine that will detect and reject those harmful fish bones.

Research by the Bureau has been carried on since 1954 to find such a machine. When the results were in, the scientists report that there are no bones about it, the machine really works.

Fish are relayed in front of an X-ray unit which detects the bones, even when the fish are frozen. An electronic flash forms an image of the fish's interior on a fluoroscopic screen. The bones cause a change in energy levels on the screen which can be picked up and relayed to a photoelectric unit. This unit can control a rejecting device which de-ribs the fish.

The device works best on thin slices but Bureau scientists are confident that it can be improved for commercial use.

• Science News Letter, 81:253 April 21, 1962

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