Lists information and pamphlets available, arranged under 524 diverse subject headings.

TV TROUBLE ANALYSIS—Harry Mileaf—*Gernsback,* 224 p., illus., $4.95; paper, $3.20. For the technician.

A TAXONOMIC AND BIOLOGICAL STUDY OF THE GENUS XYELA DALMAN IN NORTH AMERICA—Donald J. Burdick—*Univ. of Calif. Press,* 71 p., illus., paper, $1.50.

TEACH YOURSELF ATOMIC PHYSICS—J. M. Valentine—*Macmillan,* 192 p., illus., $1.95. Tries to cover, with a minimum of mathematics, structure of the atom, and the behavior of electrons and of atomic nuclei.

TERNARY SYSTEMS: Introduction to the Theory of Three Component Systems—G. Masing, transl. from German by B. A. Rogers—*Dover,* 173 p., illus., paper, $1.45. Unabridged reprint of 1944 edition.

THE THEORY OF EQUATIONS with an Introduction to the Theory of Binary Algebraic Forms, Vol. I—William Snow Burnside and Arthur William Panton—*Dover,* 7th ed., 286 p., paper, $1.85. Reprint.

TOWARD MODERN SCIENCE, Vol. I: Studies in Ancient and Medieval Science. Vol. II: Studies in Renaissance Science—Robert Palter, Ed.—*Farrar, Straus,* 270 p., 216 p., $5 each, $9 per set; paper, $1.95 each. Essays representing authoritative historical interpretations by leading modern scholars.

TRANSCENDENTAL & ALGEBRAIC NUMBERS—A. O. Gelfond, transl. from the first Russian edition by Leo F. Boron—*Dover,* 190 p., paper, $1.75. Advanced study of the modern theory of transcendental numbers, with discussion of the fundamental methods of the theory.

TRANSMISION OF INFORMATION: A Statistical Theory of Communications—Robert M. Fano—*Wiley,* 389 p., $7.50. Graduate course, provides up-to-date treatment of coding theory, emphasizing formulations and mathematical techniques that have proved of greatest engineering significance.

TRIGONOMETRY: A Practical Course—Norman A. Crowder and Grace C. Martin—*Doubleday,* 250 p., $3.95. A TutorText for self-instruction in the fundamental ideas of trigonometry.

TURNING POINTS IN PHYSICS—R. J. Blin-Stoyle and others; introd. by A. C. Crombie—*Harper,* 192 p., illus., paper, $1.45. Reprint of 1959 edition.

THE UNIVERSE—Herbert S. Zim—*Morrow,* 64 p,. illus. by G. Schrotter, $2.75. Simple account of complex subject written for the young reader.

WEIGHT-STRENGTH ANALYSIS OF AIRCRAFT STRUCTURES—F. R. Shanley—*Dover,* 2d ed., 404 p., illus., paper, $2.45. Includes bibliography on optimum design and on creep buckling.

WILDERNESS: The Discovery of a Continent of Wonder—Rutherford Platt—*Dodd,* 310 p., illus. by Frances Ellis, $6. Takes the reader back 300 years into the American wilderness as seen by early explorers and naturalists.

WILLIAM CHANDLER BAGLEY: Stalwart Educator— I. L. Kandel—*Teachers College,* 131 p., photo., $3.50. Account of the aims and work of one of the founders of Kappa Delta Pi.

WILLIAM JAMES/PSYCHOLOGY: The Briefer Course—Gordon Allport, Ed.—*Harper,* 343 p., paper, $1.85. Reprint of 1892 text omitting dated chapters dealing with sensory processes.

WONDER WORKER: The Story of Electricity—Walter Buehr—*Morrow,* 96 p., illus., $3. For boys and girls.

THE WONDERFUL WORLD OF ENGINEERING—David Jackson—*Garden City Bks.,* 94 p., illus., $2.95. Picture-book style presentation of great engineering feats.

• Science News Letter, 79:252 April 22, 1961

INVENTION

Patents of the Week

A method of freezing foods at very low temperatures, safe replanting of trees and an instrument for stunning animals to be slaughtered have been patented.

➤ A METHOD OF PRESERVING foods by freezing them at unusually low temperatures has been patented.

Frozen foods packed by this method have been shipped from New York to such far off lands as Japan and Ceylon, arriving in perfect frigid condition as much as six weeks from the time they were frozen, inventor Willard Langdon Morrison of Lake Forest, Ill., claimed. British solders on maneuvers in Asia and Americans vacationing in Bermuda were fed with food preserved by the method awarded patent No. 2,978,336. Patent rights were assigned to Liquefreeze Company, Inc., New York City.

"Within the next 10 years, all frozen foods will be packed in this way," Mr. Morrison predicted.

The relatively simple process uses liquid nitrogen to freeze food. A nozzle, connected to a supply of liquid nitrogen, is poked into the food to be preserved. The liquid nitrogen, which boils at the frigid temperature of minus 320 degrees Fahrenheit, filters through the material, and evaporates when it touches the relatively warm food surfaces. The resulting nitrogen gas drives all the air from the food's airtight container, and the frozen food is then sealed.

It can then be transported by insulated trucks, freight cars or ships to points throughout the world. No compressor units or ice is needed when transporting, the inventor claimed. The prolific inventor has more than 200 patents issued to him, many in the "cryogenic" or low temperature field.

Fully grown trees can be uprooted and replanted without killing the tree, inventor Lewis C. Pearce of Berea, Ohio, stated in patent No. 2,977,716, assigned to Pearce Development Company of Cleveland, Ohio. A deep trench is dug around the tree and a cable is dropped down, girdling part of the tree. The two ends, attached to a pulley system, are alternately tugged by motors, producing a cutting action that separates the tree core from the surrounding earth.

An electric instrument that stuns an animal before it is slaughtered in the packing houses won patent No. 2,977,627 for Roy E. Morse of New Brunswick, N. J., and Fred A. DiPasquale of Chicago, Ill. Patent rights were assigned to Reliable Packing Company, also in Chicago. The patented device can be applied without the animal being aware of the impending doom.

Charting the depths of ocean waters with an echo sounder parachuted from an airplane is envisioned in patent No. 2,978,668, assigned to the U. S. Navy by winners Franz N. D. Kurie of Alexandria, Va., and Louis A. Cartwright of San Diego, Calif. As soon as the instrument smacks the water's surface, radio signals recording the depth begin operating immediately. The signals are picked up by an observer at a remote station or in an airplane.

• Science News Letter, 79:253 April 22, 1961

MEDICINE

White Blood Cells Change

➤ THE BLOOD OF ADULTS contains white cells that can develop into other cells necessary for healthy tissue, Vitamin C is apparently necessary for this cell change.

White blood cells were placed in dime-sized boxes and planted under the skin of humans by Dr. Nicholas L. Petrakis, University of California Medical Center. The boxes, called diffusion chambers or micropore filters, had holes large enough to let the fluid part of the blood and some of its particles flow through it, but so small that the blood cells outside could not enter the box nor white cells inside leave it.

The researchers found that the white cells could change into three different kinds of cells. They formed scavenger cells that eat up foreign substances, fibroblasts that make the cell "backbone" and fat cells.

Malignant white cells of leukemia could not change. When placed in normal people and in leukemic patients, they continued to produce more leukemic cells. Normal white cells from healthy people, however, could change even under the skin of leukemic patients.

White cells normally contain large amounts of vitamin C, which is essential for nutrition and healing wounds. White cells from guinea pigs that had been deprived of vitamin C were placed in boxes and buried under the skin of healthy guinea pigs. The cells became normal after several days.

White cells removed from healthy guinea pigs and boxed under the skin of animals with scurvy developed almost normally for five to seven days. Then they began to pile up in formless heaps within the box; they divided rapidly and became monstrously large. The guinea pigs were then put on diets rich in vitamin C. The white cells and the guinea pigs regained their health.

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