



Still Unimitated

► **AMBITIOUS** dreamers of human flight, from Leonardo da Vinci to the Wright brothers, studied closely the flight of birds, and at long last profited thereby. A modern airplane is like a bird at least to the extent of putting a streamlined covering over the irregular surfaces of its power sources, as a bird streamlines its rather awkward-looking body with smooth feathers.

Some of our newer high-speed planes seem to have been modeled on the lines of a hawk-moth rather than those of a bird. They have the same fineness of fuselage, the same trim and taper wings as those hovering, long-tongued twilight visitants to summer flower-gardens.

However, if an airplane designer were able not only to copy the hawk-moth's smooth lines, but to imitate even a part of the things a hawk-moth can do in flight, he would have trouble taking home all the medals and prizes that would be heaped on him.

The hawk-moth is not only capable of swift, darting forward flight; it can fly backwards, dodge sidewise, stop abruptly in mid-flight and hover motionless in the air. It can rise or drop ab-

ruptly while hovering, swoop with equal abruptness while in flight. In all these marvelous skills it closely resembles the hummingbird, for which it is sometimes mistaken by those who are not close observers.

Add to this the fact that this insect's wonder-wings are also its only propellers!

It is only lately that scientists have been able to get an adequate idea of how an insect uses its wings in flight.

Close watchers with good eyes were able to catch the principal movements of a bird's wings: Leonardo's notebooks are full of sketches showing how carefully he watched the birds he strove to imitate. But the many-fold more rapid beats of an insect's wings defied study until the recent invention of ultra-high-speed motion-picture cameras capable of making thousands of exposures a second. Now we know how an insect flies—but we are still unable to imitate its art.

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Books of the Week

ALL BUT ME AND THEE: Psychiatry at the Foxhole Level—Brig. Gen. Elliot D. Cooke—*Infantry Journal*, 215 p., \$2.75. A non-medical report to General Marshall on the author's study of the problem of psychiatric cases in the Army and what was done about them.

ELEMENTS OF PUBLIC ADMINISTRATION—Fritz Morstein Marx, Ed.—*Prentice-Hall*—637 p., \$6.65. The administrative process as an integral phase of contemporary civilization is discussed by 14 experts deeply interested in this work.

FLIGHT TESTING: CONVENTIONAL AND JET-PROPELLED AIRPLANES—Benson Hamlin—*Macmillan*, 147 p., illus., \$5. This book provides the first complete standardization of methods of the analysis of flight test information, and makes available the author's systematized study of flight testing developed during the war, together with considerable new material on turbo-jet-propelled aircraft.

HANDBOOK OF CHEMISTRY—Norbert Adolph Lange, Ed.—*Handbook Publishers, Inc.*, 1767 p.; appendix, 269 p., and index, \$7. Contains essential fact-finding, time-saving chemical tables, formulas and other data for students and teachers of chemistry, physics and chemical engineering. Appendix carries mathematical tables and formulas. Sixth edition revised.

HATCHERY MANAGEMENT—Roland C. Hartman and G. S. Vickers—*Judd*, 404 p., illus., \$4. This revision of the 1932 edition gives considerable material on flock improvement, incubation, hatchery sanitation, advertising and selling.

HOW CAN WE TEACH ABOUT SEX—Benjamin C. Gruenberg—*Public Affairs Committee*, Pamphlet No. 122, 32 p., illus., paper, 10 cents. Several important "don'ts" in sex education are listed for schools, parents and groups endeavoring to guide people in this important field.

AN INTRODUCTION TO MATHEMATICAL GENETICS—Lancelot Hogben—*Norton*, 260 p., tables, ratios and formulas, appendices, \$5. This book, the first of its kind, aims to make mathematical genetics intelligible to readers and students who need assistance before they can consult original sources.

PAPAGO INDIAN RELIGION—Ruth M. Underhill—*Columbia University Press*, 359 p., \$4.50. A scholarly and understanding discussion of rites and beliefs of the Papago Indians of the Arizona reservations,

and a sequel to the author's *Social Organization of the Papago Indians*.

PENICILLIN—Its Practical Application—Alexander Fleming—*Blakiston*, 380 p., illus., \$7. New, authentic, practical, this book tells the general practitioner and surgeon how to use penicillin for best results. Twenty-eight specialists working under the editorial supervision of Dr. Fleming present the latest details as to dosage, forms and methods of administration, prophylactic uses, control, etc.

PLASTICS BUSINESS—Herbert R. Simonds and Joseph V. Sherman—*Van Nostrand*, 439 p., illus., \$5. Here is the first comprehensive survey of the plastics industry analyzing its structure and its trends. It covers the organization of the industry, its growth and development, and gives intimate statistics from individual companies to serve as a guide.

THE PRACTICE OF SEX EDUCATION—Dr. Eustace Chesser and Zoe Dawe—*Roy*, 227 p., diags., \$3. A plain guide for parents, teachers and young leaders who desire to help in this deeply important field.

SILICONES: FOOD FOR IMAGINATION—R. R. McGregor—*Mellon Institute of Industrial Research*, 10 p., illus., paper, free. One of the newest classes of plastics developed during the war was the silicones, and this pamphlet outlines the constitution and behavior of these new materials.

THE SOUTH AMERICAN HANDBOOK, 1946—Howell Davies, Ed.—Trade and Travel Publications, Ltd., *H. W. Wilson*, 810 p., 23d edition, \$1.25. A standard guide to 23 countries, including Cuba and the Falkland Islands, giving information on history, climate, flora, fauna, resources, government, transportation, monetary and other standards, where to go, what to see, hotels and living costs.

USE OF AUDIO-VISUAL MATERIALS TOWARD INTERNATIONAL UNDERSTANDING—Helen Seaton Preston, Ed.—*American Council on Education*, 168 p., paper, \$1.25. Report of conference sponsored jointly by the American Council on Education and the Film Council of America, June 14-15, 1946.

WHITE CAPS, The Sory of Nursing—Victor Robinson—*Lippincott*, 425 p., illus., \$3.75. A factual, thrilling story of nursing from its start under a thatched roof to the tremendous hospitals and laboratories of today.

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