

He makes his "song" by vibrating two little ear-like drums located on the sides of the basal part of his abdomen. A series of sounds have been accredited to the male cicada. First and most common is a sound that can only be described as "tsh-e-e-E-E-e-ou," uttered continuously for about a half-minute.

Next is the "Pha-r-r-aoh" song, made early in the season usually. Another is a series of short chirps, which lasts about five seconds.

Cicada's Song Described

Here's how one scientist described the 17-year cicada's singing back in 1851—and how the melancholy song affected him:

"The music or song produced by the myriads of these insects in a warm day from about the 25th of May to the middle of June is wonderful. It is not deafening, as many describe it; even at its height it does not interrupt ordinary conversation.

"It seems like an atmosphere of wild, monotonous sound, in which all other sounds float with perfect distinctness. After a day or two this music becomes tiresome and doleful, and to many very disagreeable. To me it was otherwise, and when I heard the last note on the 25th of June the melancholy reflection occurred—shall I live to hear it again?"

To hear that brood of cicadas sing again, the scientist would have had to live through the period of the Missouri Compromise, the South's secession, the whole Civil War, the assassination of Lincoln and the beginning of Reconstruction. Yet during these 17 hectic years for humans, the cicadas would have been disturbed only by the tread of soldiers' feet on the ground above them.

Science News Letter, May 9, 1953

It costs less to transport two gallons of gasoline by tanker from the Gulf to the Atlantic seaboard than to send a two-cent postcard.

The force of *adhesion* between two materials is believed to reside in a relatively few layers of molecules next to each surface.

LISTEN and LEARN a LANGUAGE by LINGUAPHONE IN 20 MINUTES A DAY

World's-Standard Conversational Method
 FRENCH SPANISH GERMAN
 RUSSIAN JAPANESE NORWEGIAN
 —29 Languages available

At Home learn easily, quickly by the LINGUAPHONE CONVERSATIONAL METHOD. You LISTEN—you hear native men and women speak—you understand—you SPEAK, correctly as they do. Worldwide educational endorsement: a million home-study students. Write today for FREE Book.

SEND FOR FREE BOOKLET

LINGUAPHONE INSTITUTE
 3105 Mezz., Rockefeller Plaza
 New York 20, N. Y.

Send me your FREE book. I want to learn..... language.
 Name.....
 Address.....
 City..... Zone..... State.....

Books of the Week

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.

ANALYSIS OF ALUMINUM ALLOYS: A Compilation of Modern Methods—G. H. Osborn and W. Stross, Eds.—*Chemical Publishing*, 144 p., illus., \$3.50. A survey of analytical methods, new, modified and standard.

AQUARIUMS—Anthony Evans—*Dover*, 115 p., illus., paper 60 cents, cloth \$1.50. Covers fish-keeping equipment, water plants, fish foods, and all types of fish.

THE ARMY AIR FORCES IN WORLD WAR II, Vol V: The Pacific, Matterhorn to Nagasaki, June 1944 to August 1945—Wesley F. Craven and James L. Cate, Eds.—*University of Chicago Press*, 878 p., illus., \$8.50. Fifth in a seven-volume series, this completes the narrative of combat operations of the AAF in World War II.

BEGINNING ALGEBRA FOR COLLEGE STUDENTS—Lloyd L. Lowenstein—*Wiley*, 2nd ed., 279 p., \$3.50. Intended for the student who has had no background in algebra.

BICYCLE IN THE SKY: The Story of Alberto Santos-Dumont—Rose Brown—*Scribners*, 183 p., illus., \$2.50. Tells about the Brazilian pioneer in aviation and his many experiments with balloons, dirigibles and early airplanes. Ages 9-14.

BIRDS AND PLANES: How They Fly—John Lewellen—*Crowell*, 134 p., illus., \$2.00. An account of the "hows" and "whys" of flight, natural and mechanical. Ages 10-14.

THE CARE OF CATS—Kit Wilson and Addison Webb—*Dover*, 106 p., illus., paper 60 cents, cloth \$1.50. A practical guide for all kinds of cat fanciers.

CHILDREN OF DIVORCE—J. Louise Despert—*Doubleday*, 282 p., \$3.50. Covers the effects of marriage failure in its impact on the child. With case histories.

CLOTHES MOTHS AND CARPET BEETLES: How To Combat Them—Agricultural Research Administration, U. S. Department of Agriculture—*Government Printing Office*, 12 p., illus. paper, 15 cents. Describes the many products and methods home owners can use to protect their woolsens.

THE DECLINE OF THE ROMAN EMPIRE IN THE WEST—Frank W. Walbank—*Schuman*, 97 p., paper, \$1.00. A re-examination of the problem of the causes of the collapse of the Roman Empire, using the wealth of archaeological discovery of the past 50 years.

THE DISTEMPER COMPLEX—Leon F. Whitney and George D. Whitney—*Practical Science*, 219 p., illus., \$5.00. The history, symptoms, diagnosis, pathology and treatment of 11 diseases which comprise the distemper complex.

ELECTRONICS IN INDUSTRIAL RESEARCH—Axel H. Peterson—*Mellon Institute of Industrial Research*, 5 p., illus., paper, free upon request direct to publisher, 4400 Fifth Avenue, Pittsburgh 13, Pa.

ENCYCLOPEDIA OF ABERRATIONS: A Psychiatric Handbook—Edward Podolsky—*Philosophical*

Library, 550 p., \$10.00. Discusses all types of aberrations, with particular emphasis on their psychodynamics and legal aspects.

FAITH AND MORAL AUTHORITY—Ben Kimpel—*Philosophical Library*, 186 p., \$2.75. The author maintains that the function of moral principles is to help individuals to make choices that contribute to human well-being.

FAUNAL AND ARCHEOLOGICAL RESEARCHES IN YUCATAN CAVES—Robert T. Hatt et al.—*Cranbrook Institute of Science, Bul. No. 33*, 126 p., illus., paper, \$2.50. Concerns excavations conducted in caves of Yucatan during 1929 and 1947.

FEUDAL ORDER: A Study of the Origins and Development of English Feudal Society—Marion Gibbs—*Schuman*, 147 p., paper, \$1.00. A study of the social order and civilization that played a major part in shaping the history of modern Europe.

FREE AND UNEQUAL: The Biological Basis of Individual Liberty—Roger J. Williams—*University of Texas Press*, 177 p., illus., \$3.50. The author believes that we have ignored the facts of genetics in our social and political thinking, and advocates the abandonment of the false concept of "the average man."

HEATING, VENTILATING, AIR CONDITIONING GUIDE, 1953—*American Society of Heating and Ventilating Engineers*, 1560 p., illus., \$7.50. Contains a technical data section on the design and specification of various systems, and information on modern equipment.

HELPING YOUR HEART—Emanuel Goldberger—*Longmans, Green*, 240 p., \$3.75. Explains what heart disease is, how a person can live in spite of an ailing heart, and what he can do to help such a heart and himself.

THE INTELLIGENT USE OF THE MICROSCOPE—C. W. Olliver—*Chemical Publishing*, 192 p., illus., \$4.00. A guide to the understanding of the possibilities and limitations of the microscope, its principles of design and the functions of its component parts.

INTRODUCTION TO GEOPHYSICAL PROSPECTING—Milton B. Dobrin—*McGraw-Hill*, 435 p., illus., \$7.50. Discusses all geophysical methods of prospecting in current use, with emphasis upon the gravity, magnetic and seismic techniques.

INTRODUCTION TO THE THEORY OF STATISTICS—Victor Goedicke—*Harper*, 286 p., illus., \$4.50. Text for a one-semester course in beginning statistics based on the assumption that the student has not had calculus.

LANGUAGE AND MYTH—Ernst Cassirer, translated by Susanne Langer—*Dover*, 103 p., paper \$1.25, cloth, \$2.25. Intended to prove that reason is an achievement of man, this analyzes the myth-making tendencies of mankind.

LIFE OF THE PAST: An Introduction to Paleontology—George Gaylord Simpson—*Yale University Press*, 198 p., illus., \$4.00. A non-technical discussion of how the history of living things is preserved, discovered and interpreted.

THE LOW SODIUM COOK BOOK—Alma S. Payne and Dorothy Callahan—*Little, Brown*, 477 p., \$4.00. How to prepare tasteful meals for the low sodium diet, including suggestions for the low sodium, low fat, low cholesterol diet.

THE L-SHAPED STRONGHOLD FENCE STAPLE—E. George Stein—*Wood Research Laboratory, Virginia Polytechnic Institute*, 20 p., illus., paper, free upon request to publisher, Blacksburg, Va. Covers the effectiveness of the L-shaped staple with threaded shank, in comparison with that of the U-shaped staple.

MANUAL OF COMPARATIVE ANATOMY—Osmond P. Breland—*McGraw-Hill*, 2nd ed., \$4.50. Includes the Amphioxus, the lamprey, the dogfish, the perch, the Necturus, the turtle, the cat and the pigeon.

METERING LIQUID SULFUR—E. S. Boe, C. E. Butterworth and J. R. West—*Mellon Institute of Industrial Research*, 5 p., illus., paper, free upon request direct to publisher, 4400 Fifth Avenue, Pittsburgh 13, Pa.

MICROBIOLOGY AND HUMAN PROGRESS—Madeleine P. Grant—*Rinehart*, 718 p., illus., \$6.75. A college text for introductory courses in bacteriology and microbiology.

MODERN MEDICINE ANNUAL, 1953—Walter C. Alvarez, Ed.-in-Chief—*Modern Medicine*, 1414 p., illus., \$6.00. The articles that appeared in the 24 issues of "Modern Medicine" during 1952.

NORTH AMERICAN AND EUROPEAN STROPHODONTIDS: Their Morphology and Systematics—Alwyn Williams—*Geological Society of America, Memoir* 56, 67 p., illus., \$1.50.

PETS: Wild and Western—Elmo N. Stevenson—*Scribners*, 163 p., illus., \$2.50. Interesting stories of wild animals found in the western states. Ages 8-12.

THE PRINCIPLES OF PHYSICAL METALLURGY—Gilbert E. Doan—*McGraw-Hill*, 3rd ed., 331 p., illus., \$5.50. An account of the behavior of metals under the various processes which are performed upon them in the metal fabricating and manufacturing industries.

PROBLEMS IN SELECTING AND PREPARING STUDENTS IN PROFESSIONAL EDUCATION WITH SPECIAL ATTENTION TO STUDENT EXPENSES—Bureau of Educational Research and Service—*Medical College of Virginia*, 87 p., paper, \$1.75. Suggests possible means and methods of solutions.

SCIENCE FUN WITH MILK CARTONS—Herman and Nina Schneider—*Whittlesey House*, 159 p.,

illus., \$2.50. By using milk cartons to build bridges, motor cranes, elevators, etc.; children can learn the scientific principles involved in simple engineering. Ages 9 and up.

SILICON: The Cinderella of the Elements—R. R. McGregor—*Mellon Institute of Industrial Research*, 3 p., illus., paper, free upon request direct to publisher, 4400 Fifth Avenue, Pittsburgh 13, Pa.

SOCIAL EVOLUTION—V. Gordon Childe—*Schuman*, 184 p., paper, \$1.00. Traces the evolution of society and culture from barbarism to civilization.

SOCIOLOGY AND PSYCHOLOGY OF COMMUNISM—Jules Monnerot, translated by Jane Degras and Richard Rees—*Beacon Press*, 339 p., \$6.00. Covers the development, theory and practice of Communism.

SPADEWORK IN ARCHAEOLOGY—Sir Leonard Woolley—*Philosophical Library*, 124 p., illus., \$4.75. A collection of reminiscences by a great archaeologist, covering briefly the areas in which he excavated.

THE SUEZ CANAL IN WORLD AFFAIRS—Hugh J. Schonfield—*Philosophical Library*, 174 p., illus., \$4.50. The history of the Suez Canal from the days of the Pharaohs to the present clashes between Britain and Egypt.

TELLING TREES—Julius King—*William Sloane*, 127 p., illus., \$2.00. Describes and illustrates more than 100 common trees of America.

YOUR DIABETES AND HOW TO LIVE WITH IT—Floyd L. Rogers and Ruth M. Levertov—*University of Nebraska Press*, 113 p., paper, \$2.25. A doctor and a nutrition expert teamed up to write this guide to a normal life for diabetic patients.

YOUTH: The Nation's Richest Resource, Their Education and Employment Needs—Interdepartmental Committee on Children and Youth—*Government Printing Office*, 54 p., paper, 20 cents. Shows how teen-agers are being helped to get the kind of education and employment opportunities that prepare them for their adult responsibilities.

Science News Letter, May 9, 1953

MEDICINE

1,000 Mice Live in Smog for Cancer Study

➤ A THOUSAND mice are helping out in cancer research by living in enclosed cages which reproduce the most intense smog of our industrial cities. A control group lives in pure mountain air, achieved with glass fiber filters.

Dr. Paul Kotin of the University of Southern California School of Medicine and his associates are trying to find out whether there is anything in smoggy air which produces cancer. At the same time the effects of smog on nutrition and the ability to reproduce will be investigated.

The scientists have to wait until the mice live out their life cycle, about 30 months, to see what results they have.

Science News Letter, May 9, 1953

TECHNOLOGY

Transplanted Natural Gas Solves Load Problem

➤ **TRANSPLANTING NATURAL** gas from southwestern fields and storing it underground near heavy users is the present answer to the supply problem created by sudden cold snaps.

C. T. Konecny and B. J. Clarke of the Columbia Gas System Service Corp., Columbus, Ohio, told the American Society of Mechanical Engineers meeting in that city that unexpected cold weather causes a heavy demand for gas. Since gas travels through pipelines at low speeds, about 10 to 25 miles an hour, it is difficult to supply these extra heavy demands directly from the pipeline.

Storing gas underground is the present solution. Gas from the Southwest is pumped into storage tanks or suitable abandoned wells and mines. When gas demand is extra heavy, these underground reservoirs can be tapped.

On the peak day for natural gas demand during the winter of 1951-52, over 45% of the Appalachian Gas System's total load was supplied from underground reservoirs near the users.

Science News Letter, May 9, 1953



EARNED \$400 FIRST YEAR

"Last year I made around \$400 and it was the first year I started to write. Your course is the best way to get expert instruction in professional writing."—T. Edward Karlsson, 224 East 79th St., New York, N. Y.

To People who want to write but can't get started

DO YOU have that constant urge to write but fear that a beginner hasn't a chance? Here is what the former editor of Liberty said:—"There is more room for newcomers in writing than ever before. Some of the greatest of writing men and women have passed from the scene. Who will take their places? Fame, riches and the happiness of achievement await the new men and women of power."

A Chance to Test Yourself—FREE

The Newspaper Institute of America offers a FREE Writing Aptitude Test. Its object is to discover more men and women who can add to their income by fiction and article writing. The Writing Aptitude Test is a simple but expert analysis of your latent ability, your powers of imagination, logic, etc. Those who pass this test are qualified to take the famous N.I.A. course based on the practical New York Copy Desk Method which teaches you to write by writing. You work at home, in leisure time, constantly guided by experienced writers. Soon you acquire the coveted "professional" touch. Then you are ready to market your stories, articles and news items.

Mail the Coupon Now

Taking the FREE Writing Aptitude Test requires but a few minutes and costs nothing. So mail the coupon now. Take the first step towards the most enjoyable and profitable occupation—writing for publication! Newspaper Institute of America, One Park Ave., New York 16, N. Y. (Founded 1925) (Licensed by State of N. Y.)

FREE Newspaper Institute of America
One Park Avenue, New York 16, N. Y.

Send me, without cost or obligation, your Writing Aptitude Test and further information about writing for profit as promised in Science News Letter, May 9.

Miss _____
Mrs. _____
Mr. _____

Address _____
City _____ Zone _____ State _____

(All correspondence confidential. No salesman will call on you.) 117-E-783

Check if Veteran.

Copyright 1953 Newspaper Institute of America

FUN IN THE DARK

250 LUMINOUS STARS

Moon & 4 Planets

Have your own Planetarium on the ceiling of your den, bedroom or rumpus room!

"STARS" shine with outdoor realism AFTER turning off the lights.

Gummed and Ready to Put Up

NOW Only \$2.00 postpaid

Complete with Chart and Directions

"STARS" • 12127 HUSTON STREET NORTH HOLLYWOOD, CALIF.