

# BOOKS

BOOKS is an editorial service for readers information. To order any book listed or any U.S. book in print please remit retail price, plus 25¢ handling charge for each book to **BOOK ORDER SERVICE**, Science News, 1719 N Street, N.W., Washington, D.C. 20036. All books sent postpaid.

**CEREMONIAL CHEMISTRY:** The Ritual Persecution of Drugs, Addicts and Pushers—Thomas Szasz—Anchor/Doubleday, 1975, 235 p., paper, \$2.95. Reprint (1974) of psychiatrist's assessment of drug abuse and imposed regulations.

**THE CHALLENGE OF THE PRIMITIVES**—Robin Clarke and Geoffrey Hindley—McGraw, 1975, 240 p., \$8.95. Based on investigations of tribal groups throughout the world, the authors discuss the habits and habitats of native peoples from Brazil to India to Alaska and the Kalahari Desert.

**CLAYS AND CERAMIC RAW MATERIALS**—W. E. Worrall—Halsted Pr, 1975, 210 p., photographs, diagrams, tables, \$21.50. Deals with structure, geology, occurrence, physical and chemical properties and applications, properties of clay-water systems, the plasticity of clays, and refractory and offer raw materials.

**THE CYCLES OF SEX**—Warren J. Gadpaille, M.D.; Lucy Freeman, Ed.—Scribner, 1975, 510 p., \$17.50; paper, \$6.95. Describes the continuous process of psychosexual development from fetal development until old age, and the characteristic behavior at each stage of physical maturation.

**ETRUSCAN CITIES**—Francesca Boitani, Maria Cataldi and Marinella Pasquinucci; introd. by Mario Torelli—Putnam, 1975, 9x12, 336 p., 300 color photographs, maps, \$30. A guide to 54 archaeological sites in northern and southern Etruria, describes and depicts outstanding examples of artifacts.

**HOTHOUSE EARTH**—Howard A. Wilcox—Praeger, 1975, 190 p., illus., \$7.95. Marine scientist-physicist explores those long-range implications of thermal pollution that might lead to a warming of the atmosphere and melting of polar ice, and urges development of solar heat collecting and describes experiments with open-ocean farming.

**THE INDOOR GARDENER'S FIRST AID BOOK**—Jack Kramer—S&S, 1975, 128 p., photographs, drawings, \$6.95. Practical guidelines on how to detect and combat plant pests and diseases.

**THE NEW PSYCHOTHERAPIES**—Robert A. Harper—P-H, 1975, 178 p., paper, \$2.95. Provides outline to 30 of the more prominent contemporary psychotherapies, allowing the reader to understand, compare and evaluate each one.

**SUPERMINDS**—John Taylor—Viking, 1975, 183 p., photographs, drawings, \$10.95. British mathematician-physicist subjects Uri Geller's metal-bending, and other paranormal phenomena, to scientific scrutiny, seeking to explain the "Geller effect" in terms of physical forces such as the electromagnetic hypothesis.

are predicated.

Just what and how deep are these structures? The work of Richard Davenport of the Georgia Institute of Technology and the Yerkes Regional Primate Research Center in Atlanta may provide some answers. He is investigating cross-modal perception in apes.

Communication implies perception. Someone must be out there receiving what you send or there is no communication. Perception, however, is not a simple phenomenon. It comes in various forms or modes, and the human brain is able to integrate or coordinate inputs from all the senses. The existence of this type of cross-modal perception and the unity of the senses was graphically summed up by the Austrian musicologist von Hornbostel when he said, "It matters little through which sense I realize that in the dark I have blundered into a pigsty."

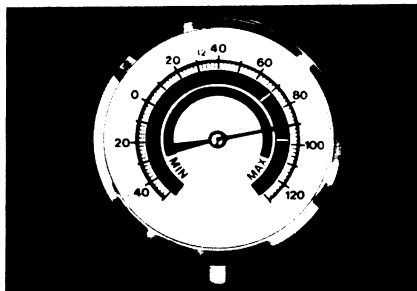
The existence of cross-modal perception is an essential part of human language and speech ability. Without it, it would not be possible to see an object and use a name for that object—an act that requires coordination between the visual and auditory modalities. To what degree do animals share with humans this cross-modal ability? Davenport has demonstrated, in apes, the ability to integrate visual and tactile inputs. The experimental setup he used allows an animal to see an object through a window and to reach through a slot beneath the window and feel two objects, one of which is similar to the one seen through the window. The chimps in Davenport's experiments were able to match the visual and tactile inputs with a great deal of regularity, suggesting a type of neurological organization once thought to be uniquely human and mediated only by language.

Monkeys, using the same procedures, showed no evidence of the ability after prolonged training. Neither apes nor monkeys showed any auditory-visual matching ability. So there appears to be an evolutionary cut-off point below which certain types of cross-modal ability do not exist.

Of what relevance is cross-modal perception to the origin and evolution of speech and language? It may have been among the first necessary neurological developments leading to the possibility of speech. This ability, says Davenport, may result in a more truthful and complete form of perception, and it may be the basis for higher cognitive functioning—leading eventually to the language ability.

Reconstructing the evolutionary process by examining the mental abilities and cognitive complexities of existing animals may answer some of our questions about the evolution of speech and language. Another approach is to reconstruct evolution by looking at the artifacts left behind by our ancestors. □

(These and other approaches will be discussed in part 2).



## HOW COLD WAS IT LAST NIGHT?

### NEWEST GIFT IDEA!

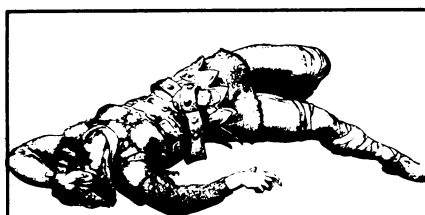
Tells What the Temperature IS  
Tells what the temperature WAS

This Maxi-Mini Thermometer is ideal for home, garden, factory, school, and as a gift. The present temperature is easy to read accurately at the jet black pointer. It moves the red Max and Min indicators along as the temperature rises and falls. They always show the hottest and coldest experienced. To reset them just rotate the stem below. Usable from  $-50^{\circ}$  to  $130^{\circ}$  F indoors or out. Beautiful red, white and blue case.  $2\frac{3}{4}$ " diameter. With mounting bracket. Thermometer #7410 sent postpaid. \$7.50 each. 3 for \$18.50. NY residents add sales tax. NEW! For dual metric  $^{\circ}$ C and  $^{\circ}$ F scales specify #7413. Money Back Guarantee.

**BROOKLYN THERMOMETER CO., INC.**

Dept. S-53, Farmingdale, N.Y. 11735

Circle No. 122 on Reader Service Card



## DON'T EXPIRE ON US!

Do you want to know when your Science News subscription is due to expire? The final four digits at the top of your subscription label will tell you. The last two digits indicate the year of expiration (75 or 76, etc.). The preceding two digits indicate the number of the week within that year. Example: 1276 would mean the twelfth week (last week of March) of 1976.

## FREE TROPICAL FISH CATALOG

Over 500 low-cost hobby items. Fine jewelry, fish, plants, filters, pumps, books, gifts, etc. Ask for our picture-filled, free catalog. Send 25¢ for postage/handling. We will mail it to you instantly. Also, want colorful fishbook, over 400 pages? If so, send \$5.95. Aqua Discount, Box 1-E, Orionville, Mich. 48462

Circle No. 121 on Reader Service Card

## GAMES MATH BUFFS PLAY—

**THE MATH ENTERTAINER** is a treasure trove of mathematical teasers, ticklers, traps, and twisters, gems, jests and gyrations—by the hundreds!—to beguile, bemuse, and bewilder, perchance—whisper it softly!—to instruct. Answers and complete explanations are given for all problems.

Illustrated • ORDER NOW!

**THE MATH ENTERTAINER** by Philip Heafford  
\$5.95 plus 50¢ handling. 10-day Money Back Guarantee

**EMERSON BOOKS, Inc.**

Dept. 720B, Buchanan, New York 10511

