

LANGUAGE LEARNING BY A CHIMPANZEE

The Lana Project

Edited by DUANE M. RUMBAUGH

A volume in the *COMMUNICATION AND BEHAVIOR Series*

FROM A REVIEW: "... from the opening chapter onward, one is in a world not only of adventure but of careful scholarship. . . . The book, which is written as a series of essays by Rumbaugh and his colleagues, is as a whole fluent and rounded. . . . The real promise of these experiments lies in what they will tell—the chimpanzee itself will tell—about its conceptual model of the outside world. . . . the conceptual system they are beginning to uncover is essentially prelinguistic. . . . The implications for understanding human preverbal and nonverbal thinking are profound." —N. K. Humphrey in *SCIENCE*

This book reports the findings of the Lana Project (Lana is an acronym for *Language Analogue Project* as well as the name of a young chimpanzee), whose aim was to develop a computer-based language-training system in an effort to investigate the ability of chimpanzees to acquire language. Beginning with a review of language

theory and communication, the report discusses the probable relation between cross-modal perception and language. The strategies and tactics of the language project along with the details of the Yerkes language and computerization and programming are presented, followed by a description and analysis of the methods used in training the chimpanzee and her ultimate acquisition of various linguistic skills (e.g., learning names and attributes); the chimpanzee's conversations, both spontaneous and manipulated, are detailed. Implications for the language training of the mentally retarded are discussed. Finally, using the data obtained from their experimentation, the authors consider the possible relationship between communication in general and language in particular from an evolutionary perspective.

1977, 304 pp., \$22.00 ISBN: 0-12-601850-2

THE PSYCHOLOGY OF COGNITION

By GILLIAN COHEN

The Psychology of Cognition synthesizes evidence from a variety of methodological approaches to provide an overall view of the role of concepts, words and images in thought. The relative strengths and weaknesses of different methodologies are critically assessed, and the book shows how these approaches may be complementary, and how our knowledge of cognitive processes may be increased in power and scope when they are combined.

A wider perspective on the subject is provided by the inclusion of studies of computer simulation, the brain-injured, the deaf, children and animals, and by an emphasis on the need to relate psychological experimental results to everyday experience in the world outside the laboratory.

1978, 292 pp., \$15.65 ISBN: 0-12-178750-8

LATERALIZATION IN THE NERVOUS SYSTEM

Edited by STEVAN R. HARNAD

Co-Editors: ROBERT W. DOTY, LEONIDE GOLDSTEIN, JULIAN JAYNES and GEORGE KRAUTHAMER

Lateralization in the Nervous System exhaustively surveys what is currently known about differences in function between the two sides of the brain. The approach is comparative and phylogenetic. Beginning with molluscs and crayfish and working up through vertebrate nervous systems of amphibians, songbirds, mammals and primates to man, this volume examines the embryology and inheritance of asymmetry, the underlying mechanisms of func-

tional lateralization, the neocortical commissures and interhemispheric relations, cerebral dominance in non-human species, turning tendencies and lateral bias in attention, perception and cognitive mode, scalp electrographic indicators of lateralization in animals and man, and anatomical asymmetry of the brain.

1976, 472 pp., \$25.50 ISBN: 0-12-325750-6

THE STRUCTURE OF COMMUNICATION IN EARLY LANGUAGE DEVELOPMENT

By PATRICIA MARKS GREENFIELD and JOSHUA H. SMITH

A volume in the *CHILD PSYCHOLOGY Series*

This book presents a new view of the first stages of language development. Developing a formal system which integrates the verbal and nonverbal aspects of communication, it traces in detail the language development of two children from the emergence of their first word until the point at which two-word utterances form a majority of their verbal communications. Using the mothers' responses and the observers' records, the authors identify the situational elements, such as action, object, gesture, and intonation, which enable the one-word communica-

tions to be made and understood. They then analyze these communications in terms of a modified case grammar, and show that they undergo developmental changes even before the first two-word sentences appear, becoming more complex not only in vocabulary but in semantic structure as well. The many similarities in the development of the two children studied also point to possible universals in language development.

1976, 250 pp., \$17.95 ISBN: 0-12-300250-8

PROGRESS IN APE RESEARCH

Edited by GEOFFREY H. BOURNE

Based on the *Robert M. Yerkes Centennial Conference, October 26 through 27, 1976, in Atlanta, Georgia*

SECTION HEADINGS: Historical Beginnings of Research on Great Apes. Communication and Language in Great Apes. Chimpanzees as Biomedical Models. Comparative

Perspectives of Human Origins.

1977, 320 pp., \$16.00 ISBN: 0-12-119350-0

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The JOURNAL OF ETHNOPHARMACOLOGY is published quarterly, one volume per year, 4 issues to each volume. The first issue was published in January, 1979.

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August 1979 600 pp.; 31 illus. \$19.50

The Neurophysiological Aspects of Human Mental Activity

Second Edition

N. P. BECHTEREVA, Institute of Experimental Medicine, Leningrad. This book, translated from Russian for the first time, provides a unique view of the deep structure neural dynamics of the human brain in learning and attention, sleep and wakefulness, and in the performance of psychological tests. It summarizes the author's laboratory research and much of the Russian and American literature on EEG changes correlated with mental activity.

1978 175 pp.; 33 illus. \$11.95

Endorphins in Mental Health Research

Edited by **EARL USDIN** and **WILLIAM E. BUNNEY, JR.**, both of the National Institute of Mental Health, and **NATHAN S. KLINE**, Rockland Research Institute, Orangeburg, New York. A broad-ranging survey of an exciting new field, this book reviews the biosynthesis and degradation of endorphins, their function and interaction with other neurotransmitter and endocrine systems, their localization in brain and peripheral tissue, their structure, new methods for their assay, their clinical importance in man, and their possible therapeutic use.

1979 450 pp.; 15 illus. \$46.50

The Hippocampus as a Cognitive Map

JOHN O'KEEFE, University College, London, and **LYNN NADEL**, Dalhousie University, Nova Scotia. The function of the hippocampus has been long debated; this book provides the first full explanation of a new theory of hippocampal function. The authors offer a model of the hippocampus as a mapping system that is, on the one hand, consonant with the known anatomy and physiology of the structure, and on the other, explains the behavioral changes that occur in man after damage to the hippocampus.

1978 576 pp.; 35 illus. \$39.50

The Synaptic Organization of the Brain

Second Edition

GORDON M. SHEPHERD, Yale University School of Medicine. The enlarged second edition of this highly acclaimed text keeps pace with the latest research, with new chapters on neurotransmitter mechanisms, the basal ganglion, the peripheral autonomic ganglion, and separate chapters on the motor and sensory areas of the cortex. Throughout, the text has been updated to include results obtained with new techniques: immunocytochemistry, HRP labeling, 2-deoxyglucose mapping, dendritic modeling, and unit activity in behaving animals.

September 1979 575 pp.; 128 illus. cloth \$18.95 paper \$11.95

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RAYMOND D. LUND, University of Washington. "This volume was written to fill the need for a basic text that reviews developmental neurobiology... It has successfully accomplished this... A very comprehensive bibliography comprising 35 pages of references, which include the pertinent literature up to April, 1977. ... Dr. Lund has done a significant service to students of neurobiology by providing an up-to-date and well organized text dealing with neurodevelopment and plasticity."

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– *Journal of Neurosurgery*

A Behavioral Atlas of the Rat Brain

ROBERT THOMPSON, Louisiana State University. Based on seventeen years' study of laboratory rats in which lesions were selectively induced, this volume fulfills the need in the neurosciences for a comprehensive description of behavioral syndromes arising from lesions to different parts of the brain. "An excellent approach to a laboratory course in physiological psychology. This is beautifully illustrated and will be a valuable tool in teaching brain-behavior relationships."

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Behavioral Neurology

Second Edition

JONATHAN H. PINCUS, Yale University School of Medicine, and **GARY J. TUCKER**, Dartmouth Medical School. "The second edition of this work continues as an excellent introduction to the borderland between neurology and psychiatry." – *JAMA*. "This book provides an extraordinarily concise and easily readable survey of the interface between neurological and psychiatric disorders. It is a superb text for any student of psychiatry, and none should be without it in their library." – Sherwyn M. Woods, University of Southern California School of Medicine, Los Angeles

1978 284 pp. cloth \$11.95 paper \$5.95

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LA JOLLA CONFERENCE ON COGNITIVE SCIENCE

AUGUST 13-16, 1979

La Jolla, California

An international conference on Cognitive Science will be held August 13-16, 1979, on the campus of the University of California, San Diego. It will constitute the first annual meeting of the Cognitive Science Society. Proceedings will be published as a special issue of *Cognitive Science*.

Addresses

Norman Geschwind, Beth Israel Hospital, Boston
Philip Johnson-Laird, University of Sussex
George Lakoff, University of California, Berkeley

Marvin Minsky, Massachusetts Institute of Technology
Allen Newell, Carnegie-Mellon University
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Symposia

Belief Systems

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Allan M. Collins, Bolt Beranek & Newman, Inc.

Discourse

David E. Rumelhart, University of California, San Diego

Human Development

Jean M. Mandler, University of California, San Diego

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Daniel G. Bobrow, Xerox Palo Alto Research Center

Psychology of Categorization

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State-of-the-art tutorial sessions will provide an effective way of learning about philosophies and major results of specific research areas.

LJCCS Conference Information

Dormitory accommodations can be reserved through the conference coordinator. Advance reservations are advised for area motels and hotels (La Jolla is a popular summer resort). For registration information address: LJCCS c/o Nomi Feldman, P.O. Box 705, La Jolla, CA 92038.

Related Meetings

For information on the Annual Convention of the Association of Computational Linguistics (Aug. 11-12, UC San Diego campus) address: Dr. Norman Sondheimer, Sperry Univac, P.O. Box 500, MS 2G3, Blue Bell, PA 19424.

For information on the Sixth International Joint Conference on Artificial Intelligence (Aug. 20-24, Tokyo) address: Prof. Bruce Buchanan, Computer Science Dept., Stanford University, Stanford, CA 94305.

Postdoctoral Fellowships – Program in Cognitive Science

Applications for Visiting Scholar Fellowships are now being accepted by the Program in Cognitive Science at the University of California, San Diego. Candidates should have strong substantive interest in Cognitive Science with training in such areas as cognitive psychology, linguistics, sociolinguistics, cognitive anthropology, artificial intelligence, neurosciences and related disciplines. We are seeking particularly people with expertise in motor control or skilled performance coming from any background (psychology, sports, neurology, biology, AI, or engineering).

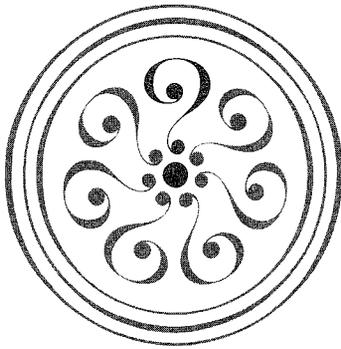
Fellowships are approximately \$15,000 per year, with exact dates and duration (6-24 months) arranged by mutual agreement. Applicants should send resumé, brief statement of interests, names of three references (and may include any other useful evaluation material) to: Donald A. Norman, Director/Program in Cognitive Science/Center for Human Information Processing C-009/University of California, San Diego/La Jolla, CA 92093 USA. The University of California is an Affirmative Action/Equal Opportunity Employer.

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FROM THE REVIEWS:

Harvey Sarles, in *American Anthropologist*: Certain books qualify as culminations of intellectual eras. Others signal a beginning, outlining programs for thinking or research which promise to illuminate some areas of ideas at conceptual impasse. Griffin's *Question* attempts both.... It's an important book.

José M. R. Delgado, in *Behavioral Processes*: The ideas presented in this concise and well planned book are challenging, offering new perspectives for future development of ethology. Griffin concludes that animals do "have mental experiences and communicate with conscious intent." There is an excellent bibliography, and "The Question of Animal Awareness" is appropriate for the general reader as well as the specialist.

Herbert Friedman in *Journal of Wildlife Management*: This book's importance lies, not in the facts it reports, but in the newly expanded concepts it encourages in the mind of the reader.... It is a delight to read....

David Chiszar, in *Contemporary Psychology*: I recommend this book to anyone interested in the history of human thought about animal thought. It is very well written; the presentation is fast-moving and enthusiastic. It would make a splendid supplementary text for advanced undergraduate courses in ethology, comparative psychology, and learning.

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Editor: Sheldon Rosenberg

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