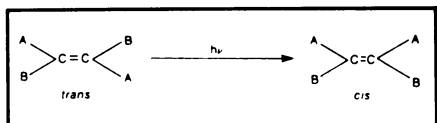


The program attempts such discrimination after studying an appropriate training set of "knowns."

Tests using those training sets indicate that ADAPT now accurately classifies only if the molecular pool is limited to one class of compound — polyaromatic hydrocarbons (PAH's) for example. Eventually, though, ADAPT may be a useful tool for setting toxicological testing priorities by screening diverse batches of suspect chemicals.

The screening potential of computer chemistry programs already is being exploited in a Battelle search for dyes that can store a sufficient amount of solar energy. The energy of light can cause the structure of those dye molecules to convert from the trans to the cis configura-



tion. Since it takes light energy to drive this transformation, the resulting cis configuration has stored energy. The Battelle researchers knew that a series of indigo dye derivatives could undergo light-driven, trans-cis conversions. What they did not know, however, was which dye derivatives in the cis form could store at least 15 kilocalories per mole (6.023×10^{23} molecules), the estimated minimum for profitable storage devices. "With molecules of this complexity, synthesis and characterization can be very difficult," says Battelle's Wolken. "In fact, for a typical compound in this series, approximately a man-year of effort could be required to make the compound to investigate its properties thoroughly."

To save those years of synthetic effort, the researchers decided to use a computer program to screen all of the potential dye derivatives — a procedure "far more economical than a purely experimental approach." Although the computer could not calculate the precise energy storage value for each dye, it was able to calculate trends that helped identify "the best prospects for success ... among the many possible structures."

In addition to enlisting the aid of the computer in their search for chemical solar energy collectors, Battelle researchers have used computers to study chemical corrosion and to calculate the heat of different reactions — a program that eventually may be used to analyze the many chemical steps that occur among short-lived molecules involved in the combustion of fuels.

"New uses for the computer are emerging," Wolken says. "In more and more laboratories, computers are being used to predict the properties of molecules before they have been produced." And although "much work has been done," says Wolken, "much work needs to be done." □

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 50¢ handling charge for each book to **Book Order Service**, Science News, 1719 N Street, N.W., Washington, D.C. 20036. All books sent postpaid. Domestic orders only.

ANIMAL PLAY BEHAVIOR — Robert Fagen. Addresses a major biological paradox. Why do young and old animals of many species spend time and energy, even risk physical injury, performing the apparently unproductive behaviors called play? What makes this "useless" activity so important that animals literally risk their lives for it? Presents an evolutionary approach to the development of behavior based on recent advances in theoretical biology. Oxford U Pr, 1981, 684 p., illus., \$29.95, paper, \$14.95.

ANNUAL REVIEW OF ANTHROPOLOGY, VOL. 9 — Bernard J. Siegel, Alan R. Beals and Stephen A. Tyler, Eds. An article by Cora Du Bois, "Some Anthropological Hindsight," introduces this volume. Annual Reviews, 1980, 646 p., illus., \$20.

ANNUAL REVIEW OF PHYSICAL CHEMISTRY, VOL. 31 — B.S. Rabinovitch, J.M. Schurr and H.L. Strauss, Eds. Activity in diverse newer branches of physical chemistry has been matched by a resurgence of interest in some of the more traditional areas. This volume reflects progress across the broad spectrum of this field. Annual Reviews, 1980, 675 p., illus., \$20.

BIGFOOT: A Personal Inquiry into a Phenomenon — Kenneth Wylie. For many years controversy has raged over the existence of Bigfoot, a two-legged creature of enormous size said to be roaming the backwoods of America. The author, a historian, anthropologist and amateur naturalist, follows the many dubious and not-so-dubious physical trails of the beast, surveys the extensive literature, consults scientists and interviews leading Bigfoot hunters. This is a history of a strange phenomenon together with studies of the people who maintain the pursuit. Viking Pr, 1980, 268 p., illus., \$14.95.

THE COMPUTER: From Pascal to von Neumann — Herman H. Goldstine. A history of the computer concentrating on the ideas and the people who conceived them. This work is presented in three parts: pre-World War II; the war period, particularly at the Moore School of Electrical Engineering, University of Pennsylvania; and the post-war years at the Institute for Advanced Study in Princeton through 1957. Originally published in hardback in 1972. Princeton U Pr, 1980, 378 p., illus., \$6.95.

A COUNTRY HERBAL — Lesley Gordon. A mix of folklore, history and fact tells the story of each herb — its physical description, medicinal purposes, household and cosmetic uses and cultivation. Beautiful illustrations enhance the descriptions of over 130 different herbs and spices, both common and rare, poisonous and useful. Mayflower Bks, 1980, 208 p., color/b&w illus., \$19.95.

DISCOVERING THE HUMAN BODY: How Pioneers of Medicine Solved Mysteries of the Body's Structure and Function — Bernard Knight. Tells how the structures and function of the human body were discovered, by whom and how parts of the body were named. This historical background is given system by system. Lippincott & Crowell Pubs, 1980, 192 p., illus., \$17.95.

INSECT WORLDS: A Guide for Man on Making the Most of the Environment — Lorus J. Milne and Margery Milne. Presents the fascinating world of insects, which have outnumbered all other forms of animal life for millions of years. Shows how insects make the most of the environment, whether it is the desert, the water surface or the forest canopy. Scribner, 1980, 274 p., illus., \$12.95.

A MATTER OF LIFE: The Story of a Medical Breakthrough — Robert Edwards and Patrick Steptoe. The authors describe their lengthy struggles that led to the birth of the first baby conceived *in vitro*, the setbacks at every stage and the opposition that they encountered. The doctors discuss the ethical implications of their work and its long-term medical applications. Morrow, 1980, 188 p., illus., \$9.95.

McGRAW-HILL ENCYCLOPEDIA OF ENERGY — Sybil P. Parker, Ed. The first section of this reference work features major signed articles on the conservation of energy, exploring energy choices, the risk of energy production, energy consumption, the outlook for fuel reserves and protecting the environment. The second section is devoted to 300 articles that examine the sources, development and distribution of energy. Explains air conditioning and air pollution to wet cells and wind power. McGraw, 2nd ed., 1981, 838 p., illus., \$34.50.

THE RED LAMP OF INCEST — Robin Fox. A noted anthropologist traces the origins of the uneasiness we feel with this ancient taboo to find out what incest can tell us about who we are and how we evolved. Dutton, 1980, 271 p., \$12.95.

SAVING THE TIGER — Guy Mountfort, foreword by Sir Peter Scott. A study of the tiger, how it hunts, mates, rears its young and marks its territories. Tells the story also of Operation Tiger, a successful campaign to save the tiger from extinction. Magnificent color photographs. Viking Pr, 1981, 120 p., color/b&w illus., \$16.95.

TREES FOR EVERY PURPOSE — Joseph Hudak. Tells how trees grow and function, the basic requirements of trees, explains care for existing and transplanted trees and landscape guidelines. The main section is a "catalog of trees" that depicts 277 individual trees for landscaping. Each tree is described and illustrated and requirements as to appropriate climate, soil, light, exposure and care are given. McGraw, 1980, 229 p., illus., \$21.95.

Voyager has done it again! We now have two beautiful full-color posters of everyone's favorite planet. Saturn! One shows only Saturn; the other is a montage showing the ringed planet and six of its moons.

We are also offering a set of ten slides from the Voyager-Saturn encounter.

Enclosed is \$4.50 prepaid for both posters.

Enclosed is \$5.00 prepaid for set of 10 slides.

Add \$1.00 for our complete catalogs
Foreign orders add \$1.00 postage.

DEPT. SN
Hansen Planetarium
15 South State Street
Salt Lake City, Utah 84111

Circle No. 121 on Reader Service Card