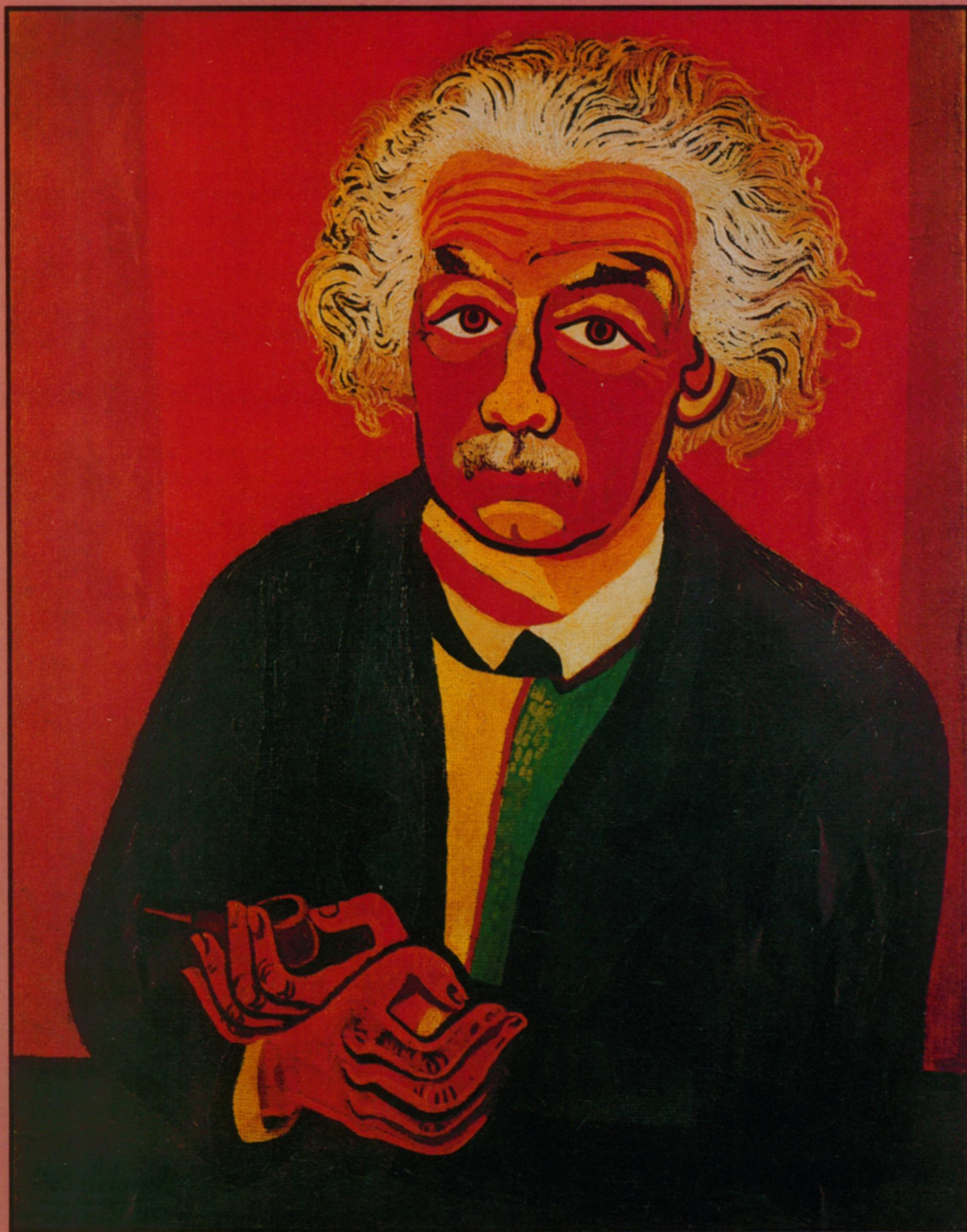


SCIENCE NEWS

MARCH 31, 1979
VOL. 115, NO. 13



A. Einstein

It's one of the best microscopes you can buy.

The AO 150 is also one of the best buys.

Series 150 microscopes are rugged, finely crafted instruments with the same superb optical system used in our more expensive microscopes. But the price of the 150 makes it an exceptional value.

And while our price is competitive, our quality is superior. The AO 150 offers many features which similar instruments don't have, such as:

- Focusable nosepiece—prevents damage to slide or objectives
- Advanced, infinity-corrected optics
- Fixed mechanical stage—extra stability, no vibration
- Locked-in condenser
- In-base tungsten halogen illuminator with built-in transformer
- Wide Field eyepieces with pointer
- UL listed

AO has reduced the suggested list price to:

\$885*

Model L150 BGA-QW in quantities
of 1-4, \$796.50 for 5 or more.

Get in on a good buy. Contact your AO Dealer for more information on AO 150 Microscopes, or write American Optical, Scientific Instrument Division, Buffalo, NY 14215.

AO
American
Optical

executive health

the report that briefs you on what to watch

©WORLD COPYRIGHT RESERVED 1979 BY EXECUTIVE HEALTH PUBLICATIONS

Volume XV, Number 6 • March, 1979 • Pickfair Bldg., Rancho Santa Fe, Calif. 92067 • Area 714:756-2600

Raymond J. Shamberger, Ph.D.:

ON SELENIUM . . . the natural anti-oxidant that helps protect you from heart disease

PUBLISHER'S NOTE: *Dr. Raymond J. Shamberger is a member of the Division of Laboratory Medicine, Department of Biochemistry, the Cleveland Clinic Foundation. He has published some 80 scientific papers and abstracts in the area of nutrition and health.*

—Richard Stanton

Selenium deficiency has a devastating effect on animals' hearts. A heart from a selenium deficient pig will collapse into a flat flaccid sheet almost devoid of fiber and muscle. Pig hearts from normal animals will retain their shape. Because of the dramatic effect of selenium deficiency in animals, heart disease in humans may be also related to a deficiency of this trace element selenium commonly found in one's blood.

The best evidence for this deficiency theory is backed by nutritional experiments in animals and by epidemiological studies in humans.

Rats and lambs fed selenium-deficient diets developed abnormal electrocardiograms (ECG's) accompanied by blood pressure changes and cardiac

hemorrhage. The deficiency in pigs has been termed mulberry heart disease.

Conversely, a trace metal known as cadmium, primarily an environmental pollutant, is known to cause hypertension in rats.

Intrigued by previous studies done on the effect of selenium and cadmium on heart disease in animals, as well as an epidemiological relationship between plant selenium and heart disease, a research team composed of McCormack, Willis, Gunsch and myself decided to relate the two metals and five other trace metal intakes to humans. This was done primarily by comparing data from a heart disease mortality study done in 1973 on 25 countries by the World Health Organization

EDITORIAL BOARD

SIR HANS KREBS, M.D., F.R.C.P. (England), Nobel Laureate in Physiology and Medicine. Emeritus Professor of Biochemistry, Oxford University, Metabolic Research Laboratory, Nuffield Department of Clinical Medicine, Radcliffe Infirmary, Oxford, England.

RICHARD L. BOHANNON, M.D., F.A.C.P., Lieutenant-General, United States Air Force (Ret.); Medical Director, The Institute for Aerobics Research, Dallas, Texas.

JAMES F. TOOLE, M.D., F.A.C.P., The Walter C. Teagle Professor of Neurology, Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, North Carolina.

LEONARD HAYFLICK, Ph.D., Senior Research Cell Biologist, Children's Hospital Medical Center, Bruce Lyon Memorial Research Laboratory, Oakland, California.

DEMETRIO SODI-PALLARES, M.D., Professor of Medicine, Chief of the Department of Electrocardiography, Instituto Nacional de Cardiologia, Mexico, D.F.

ALBERT SZENT-GYORGYI, M.D., Ph.D., Nobel Laureate for Physiology and Medicine. Scientific Director, The National Foundation for Cancer Research, Woods Hole, Massachusetts.

JOHN K. LATTIMER, M.D., ScD, FACS, Professor and Chairman, Department of Urology, College of Physicians and Surgeons, Columbia University; Director, Squier Urological Clinic and Director, Urological Service, Presbyterian Hospital, New York City.

JOHN STIRLING MEYER, M.D., Professor, Department of Neurology, Baylor College of Medicine; Director, Baylor-Methodist Center for Cerebrovascular Disease, Texas Medical Center, Houston, Texas.

SOLON PALMER, Jr., M.D., Scripps Clinic and Research Foundation, La Jolla, California.

HANS SELYE, C.C., M.D., Ph.D., D.Sc., F.R.S. (C), President, International Institute of Stress, University of Montreal, Montreal, Quebec, Canada.

LINUS PAULING, Ph.D., Nobel Laureate in Chemistry and in Peace; Emeritus Professor of Chemistry, Stanford University, Stanford, California. Research Professor, Linus Pauling Institute of Science and Medicine, Menlo Park, California.

MARK D. ALTSCHULE, M.D., Visiting Professor of Medicine, Harvard Medical School; Lecturer in Medicine, Yale University; Staff Consultant, Boston City Hospital; Attending Physician, Boston Veterans Administration Hospital, Boston, Massachusetts.

ALTON OCHSNER, M.D., Senior Consultant in Surgery, Ochsner Clinic and Ochsner Foundation Hospital and Emeritus Professor of Surgery, Tulane University School of Medicine, New Orleans, Louisiana.

ROGER J. WILLIAMS, Ph.D., D.Sc., Professor of Chemistry, Co-founder and Consultant, Clayton Foundation Biochemical Institute, The University of Texas; Past President, The American Chemical Society, Austin, Texas.

How Long Will You Live?

Ignorance about how to take care of yourself can be the mistake that kills you in your 50's or 60's . . . "the dangerous years"!

Discover what research scientists now know about how to take the best care you can of the only body you will ever have.

Do as so many thousands of executives do. Subscribe to Executive Health Report. The members of our *Editorial Board* are among the world's most distinguished authorities on *preventive medicine*. Their wise advice can help you not only live longer but enjoy those extra years! (Note their high qualifications as shown on opposite page.)

Executive Health Report is not sold on newsstands but only by private subscription at \$24 a year in the U.S.A. and its possessions, Canada and Mexico. Individual reports (back issues) \$2.00 per copy. All other countries \$26 by surface mail, \$30 by air mail. (Only International Money Order or check cashable on U.S. bank will be acceptable.)

Subscribe now under this unusual introductory offer:

(1) Your choice of any three of the reports listed below (\$2.00 each) FREE!

(2) If you are not satisfied with your first issue, your money will be promptly refunded.

Please study the reports listed here and circle your three choices:

New research findings On Walking . . . nature's own amazing "anti-age antibiotic"! Not running, not jogging, but walking is your most efficient form of exercise and the only one you can safely follow all the years of your life!

Linus Pauling, Ph.D.: For the best of health, how much vitamin C do you need? People who take the optimum amount of vitamin C may well have, at each age, only one quarter as much illness and chance of dying as those who do not take extra vitamin C.

New research findings On Zinc . . . the amazing metal so essential to your health.

George C. Griffith, M.D.: On those irregular Heart Beats (Arrhythmias). Some mean little or nothing, but others warn your heart is in trouble. Have you had any irregular heart beats?

On The Syndrome Of Longevity. Key factors dependably present ("constants") in the way of life of men who have outlived other men born when they were by a generation!

Roger J. Williams, Ph.D., D.Sc.: On Your Startling Biochemical Individuality. Some amazing facts about your body you need to know if you want to understand yourself (and other people) better.

Linus Pauling, Ph.D.: On Vitamin C and Heart Disease. Can vitamin C protect you, and how much should you take?

James F. Toole, M.D.: On Strokes and "Little Strokes" . . . their causes and what you should know about them to help protect yourself!

Alton Ochsner, M.D.: On the Role of Vitamins C and E in Medicine. A world-famous surgeon tells you how he uses these two essential vitamins.

John K. Lattimer, M.D., Sc.D.: On that treacherous gland, your prostate — especially as you approach 50.

Linus Pauling, Ph.D.: What About Vitamin E? Eminent investigators now suspect it may be one of the key factors to help resist disease and slow the aging process.

Mark D. Altschule, M.D.: Is it true what they say about cholesterol? Do so many of our favorite foods, such as eggs, that contain cholesterol increase your risk of heart disease? Or are those TV ads for "substitute" foods that loudly proclaim "No cholesterol, no animal fat" a lot of pseudo-scientific nonsense?

Alton Ochsner, M.D.: On "The Chair Disease" . . . Why blood clots in your veins are a little-realized hazard of "desk-bound" executives.

Hans Selye, M.D.: On Stress Without Distress. The secret is adaptability . . . your mind can make or break you!

Stephen R. Elek, M.D. On "The Hurry-up Disease." Why it may be a key factor that triggers heart attacks as early as age 40.

James F. Toole, M.D.: Can An Aspirin A Day Keep A Stroke Away?

Leonard Hayflick, Ph.D.: On The Facts of Life. "How old would you be if you didn't know how old you were?"

Linus Pauling, Ph.D.: On Vitamin C and Cancer. Recent studies show that vitamin C has a large life-extending effect for patients with advanced cancer and suggest a similar large effect for earlier stages of the disease.

Albert Szent-Gyorgyi, M.D., Ph.D.: On A Substance That Can Make Us Sick (If We Do Not Eat It!) One of the world's most honored scientists, winner of the 1937 Nobel Prize for Physiology and Medicine explains the fascinating paradox of vitamins.

New Discoveries: On The Dangers of Not Getting Enough Magnesium in the Food You Eat. Chronic deficiency can cause heart disturbances ranging from premature beats to deadly ventricular fibrillation with its useless fluttering of the heart neuromuscular symptoms that include twitching and tremor of any or all muscles.

Roger J. Williams, Ph.D., D.Sc.: On the truth about the food you should eat!

If you sit at a desk all day . . . How to avoid a Pot-Belly and Double-Chin (or get rid of them for good!)

Raymond J. Shamberger, Ph.D.: On Selenium . . . the natural anti-oxidant that helps protect you from heart disease.

Please use the coupon below under our special money-back guarantee.

EXECUTIVE HEALTH, Pickfair Bldg., Rancho Santa Fe, CA 92067
Gentlemen: Enclosed is my check for \$.....for a year's subscription to Executive Health to start with this month's issue. I have circled the three \$2.00 reports I am to receive free. It is understood that if I am not satisfied with my first issue, my money will be promptly refunded. In addition, send me a list of your 101 other reports. There may be some from which I might greatly benefit and would otherwise miss.

NAME (please print) _____
ADDRESS _____
STATE/COUNTRY _____ ZIP _____ SN-3

Our Magazine Will Make You See Stars!

And Planets, Asteroids, Novas, Comets, Eclipses...

STAR & SKY, The ^{new} Magazine for Today's Astronomy Enthusiast

In the pages of *STAR & SKY* you will learn about the latest research taking place at the world's largest observatories and how a worldwide network of *amateur* astronomers contributes to our knowledge of the universe.

In each issue of *STAR & SKY* you get informative, probing articles by astronomers and astronomy journalists, accompanied by photographs of all the wonders of deep space. *STAR & SKY* reports on the whole range of new and exciting discoveries taking place in such diverse fields as X-ray and infra-red astronomy ... black holes and quasars ... "ring" galaxies ... planetology ... space exploration ... cosmology ... spectroscopy ... radio astronomy ... and the search for extraterrestrial intelligence. You'll learn about variable stars, eclipse and planetary observation, how to search for a comet, and how to make spectacular deep-sky photographs that can rival those of sophisticated observatories. You'll read about *The Solar Connection, The Gas Clouds of Orion, The Death of Massive Stars, Voyager's Mission to the Outer Planets, The Beta Lyrae Star System, and Scanning the Skies for Novas*. Every month you'll get into such unique departments as the *Astrophoto Gallery*, which will showcase, in color and black-and-white, several pages of an individual amateur's sky photographs. A "*Who's Who*" in *Astronomy*, another "first" for *STAR & SKY*, will examine the

work of prominent figures in the astronomical world. Other regular features will include *STAR & SKY Reviews, Astronomy Update, Sky-watch, Cosmic Frontiers*, and more.

We'll provide you with easy-to-read charts and timetables to help you follow the ever-changing spectacle of the nighttime sky and let you know "what" and "when" to observe. You get tips on the best telescope buys — and how to build your own telescope!

STAR & SKY will help you to discover for yourself the joys of astronomy — whatever your level of interest. We'll get you out under the stars ... or, if you simply want to be an "armchair astronomer" and stay indoors, we'll fill you in on the latest developments. Not only will we help you to appreciate the splendors of our Universe, but we'll give you the theoretical "edge" to understand its complexities — in clear, concise language that is *written to be understood*.

From planetary apparitions to periodic comets, meteor showers to moonrise, solar eclipses to supernovas — we will cover it ALL!



1979 will be a galvanizing year for the space sciences.

Even as the year begins, Pioneer 1 and 2 data is being analyzed and scientists are making telemetry checks on Voyager spacecraft in anticipation of the first close-up pictures of Jupiter's moons and the rings of Saturn. And very soon the Space Shuttle will make its dramatic orbital debut, ushering in the most exciting and ambitious era in man's exploration of the cosmos.



So don't delay! Astrogate with us ... in a mind-expanding interface with the Cosmos! Subscribe to the new magazine that promises to be a valued addition to your astronomy library.

STAR & SKY P.O. BOX 324, SOUTHPORT, CT 06490

Turn me on to the Universe! SN1

I enclose:

- \$15 for one year (12 issues) — a savings of \$6 over the newsstand price
- \$27 for two years (24 issues) — a savings of \$15 over the newsstand price
- Please bill me.

Canada and Mexico: Add \$3 per year. All other foreign: Add \$6 per year.
(Please make check or money order payable to STAR & SKY)

Name _____

Mr. _____

Mrs. _____

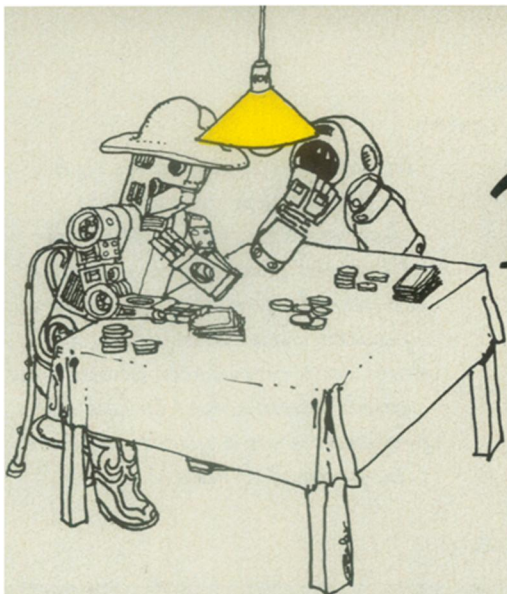
Ms. _____

Address _____

City _____

State _____

Zip _____



Your Move

Consider
these
stimulating
options

BASIC COMPUTER GAMES: Microcomputer Edition—David H. Ahl, Ed., program conversion by Steve North—Workman Pub. 1978, 183 p., illus. by George Beker, paper, \$7.50. 101 games for home microcomputers, minis, time-sharing systems and large main frames—any computer that speaks BASIC. The programs are written in microsoft 8080 BASIC with instruction for conversion to other BASICS. [1]

Illustration above from *Basic Computer Games*. Courtesy of Workman Publishing.

THE CHEMISTRY OF HUMAN BEHAVIOR—Herbert L. Meltzer—Nelson-Hall, 1979, 261 p., illus., \$17.95. Focuses on the brain as a functioning organ and on the complexity of its chemical morphological organization. This book is intended as a progress report for the informed layman, telling where the author thinks we are in the pursuit of detailed knowledge of brain chemistry, how this knowledge might relate to human behavior and where further research is needed. [2]

CORONARY!: Prediction and Prevention—David T. Nash—Scribner, 1978, 256 p., \$12.50. The aim of the cardiologist-author is to provide for the layman vital, current and medically correct information on atherosclerotic heart disease—causes and treatment and suggestions for ways to prevent the risks of heart disease. [3]

EVOLUTION—Colin Patterson—Cornell U Pr, 1978, 197 p., illus., \$10.95, paper, \$4.95. The modern theory of evolution is the basis of biological science, often called neo-Darwinian—Darwin because it uses Darwin's idea of natural selection and "neo" (new) because it incorporates a theory of heredity worked out since Darwin's time. A readable account, well illustrated for those with little or no technical knowledge of biology. [4]

FIELD GEOLOGY IN COLOR—D.E.B. Bates and J. F. Kirkaldy—Arco, 1977, 215 p., color plates and drawings, \$7.95. To give guidance on the field work that can be done with a minimum of equipment—hammer, handlens, notebook, pencil, map, compass/clinometer. [5]

A FIELD GUIDE TO EDIBLE WILD PLANTS: Eastern and Central North America—Lee Peterson—HM, Peterson Field Guide Series, 1978, 330 p., b&w drawings and color photographs, \$8.95. Information for identifying, harvesting and preparing nearly 400 species. Plants are described and well illustrated. Common poisonous plants that resemble edible ones are discussed and depicted. [6]

547 EASY WAYS TO SAVE ENERGY IN YOUR HOME—Roger Albright—Garden Way Pub, 1978, 124 p., drawings by Penny Lee, \$8.95, paper, \$4.95. A smattering of old-fashioned common sense, practical energy-saving ideas written in simple, down-to-earth, easy-to-follow language. [7]

GROWING & SAVING VEGETABLE SEEDS—Marc Rogers—Garden Way, 1978, 140 p., illus., paper, \$4.95. If you raise and save seeds, with careful selection over several generations of plants you can produce plants best suited to your climate and your gardening conditions. [8]

HOW TO GROW TREES INDOORS—Penny and Cronan Minton—Doubleday, 1978, 160 p., illus., paper, \$4.95. A book for the general reader that includes the major indoor trees and discusses their growing requirements in detail. [9]

INVESTIGATING ECOLOGY—Elliott H. Blaustein and Rose Blaustein—Arco, 1978, 140 p., photographs & drawings, \$11.95, paper, \$7.95. A project book, student-oriented, for the study of ecology in schools at the secondary level or for anyone who wishes an interesting and active introduction to ecology. [10]

THE LIVING HEART—Michael DeBakey and Antonio Gotto—G&D, 1978, 256 p., illus., paper, \$6.95. Two heart specialists tell, in this well-illustrated book, how the cardiovascular system works, what can go wrong and why, and describe what can be done to prevent, contain or repair damage to the heart or blood vessels. Originally published in hardback in 1977. [11]

MIND CONTROL—Peter Schrag—Pantheon, 1978, 327 p., \$10. An account of methods being developed and used to control behavior; how and on whom they are used, the organizations which use them, the ideology on which they are based and the extensive effects, personal and social, which they create. [12]

PALAEONTOLOGY: An Introduction—James Scott—Taplinger, 1978, 160 p., illus. by Sheila Scott, \$9.95. For the student or the general reader interested in fossils. [13]

RAYS OF HOPE: The Transition to a Post-Petroleum World—Denis Hayes—Norton, 240 p., \$9.95, paper, \$3.95. The transition to a world with dwindling oil output is an imminent reality; it could be a painful transition if we do not prepare for it, says the author. This Worldwatch Institute book attempts to think through some of the steps that must be taken in energy conservation and in the development of alternate sources of energy. [14]

THE RED LIMIT: The Search for the Edge of the Universe—Timothy Ferris, introd. by Carl Sagan—Morrow, 1977, 287 p., photographs, \$10. About 20th-century astronomers and their major discoveries. Title refers to the finding that if a galaxy was receding, its light waves would shift toward the red end of the spectrum, leading astronomers to the discovery of the expanding universe. [15]

666 SCIENCE TRICKS & EXPERIMENTS—Bob Brown—Tab Bks, 1978, 405 p., illus., \$12.95. A collection of science experiments using readily available materials for those who have a natural investigative curiosity about how and why things happen. These experiments originally appeared in a syndicated newspaper column. [16]

SOLVE IT!: A Perplexing Profusion of Puzzles—James F. Fixx—Doubleday, 1978, 94 p., illus., \$5.95. Written specifically with young people of above-average intelligence in mind. Most of the problems require an interesting logical leap of one sort or another; they call into play an ability to perform mental gymnastics. [17]

TO THE RED PLANET—Eric Burgess—Columbia U Pr, 1978, 181 p., illus., \$19.95. The story of the Viking mission—the scientists and technicians, the spacecraft and its instruments, the trials and the technical problems and the landing. The author, who was closely involved with the project from its inception, assesses the results of the mission and outlines challenges for the future. [18]

THE TWENTY-NINTH DAY: Accommodating Human Needs and Numbers to the Earth's Resources—Lester R. Brown—Norton, 1978, 363 p., charts & graphs, \$11.95, paper, \$4.95. This Worldwatch Institute book documents the increasing frequency with which human claims are outstripping the substantial yields of the earth's principal biological systems—oceanic fisheries, grasslands, forests and croplands. These systems not only provide all our food but also provide much of the raw materials for industry. [19]

THE VISIONARY EYE: Essays in the Arts, Literature, and Science—J. Bronowski, edited by Piero E. Ariotti and Rita Bronowski—MIT Pr, 1978, 184 p., illus., \$10. The main emphasis is on the arts and humanities in these essays by Bronowski, who treated art and science as the same expression of the human imagination. [20]

YOU CAN HAVE A BABY: New Hope for the Childless, Including the Facts about Test Tube Births & Other New Techniques—Sherwin A. Kaufman—Nelson, 1978, 206 p., \$8.95. A gynecologist/obstetrician surveys the causes of infertility and presents many new techniques that have been developed to combat it. [21]

SCIENCE NEWS CHOICE BOOKS

1719 N Street, NW, Dept RC 25
Washington, D.C. 20036

Please send me the books circled below. Enclosed is check to cover retail price plus 50¢ to cover handling charge per book.

Domestic orders only.

1 2 3 4 5 6 7 8 9 10 11
12 13 14 15 16 17 18 19 20 21

(PLEASE PRINT)

Name _____

Address _____

City _____ State _____

Zip _____

(Prices subject to change)

If this selection has stimulated your appetite for good reading, we can help. All books listed in our columns and any in print (except nonscience paperbacks) are available through our order service. Enclose title, author's and publisher's names, and check for retail price plus 50¢ handling per book.

RC 25