

# to the editor

## Economics of genetic engineering

May I suggest a follow-up article to Joan Arehart's informative summary on the status and timetable of genetic engineering (SN: 9/4/71, p. 152)?

Perhaps you could find an economist to analyze the cost, in terms of resource allocation, of a program of genetic engineering sufficiently substantial to have any measurable effect on the population frequencies of the genetically governed diseases.

The potential of genetic engineering seems to engender as much fear as hope. Yet for any given populational effect, it will presumably cost as much to abuse genetic engineering as to use it with benign intent. Neither the extremely fearful nor the extremely hopeful seem to have asked themselves whether their fears or their hopes are economically feasible.

In a country in which "socialized-medicine" is a swear word, and in which the poor get demonstrably inferior medical and dental care, what agency is going to pay for these obviously delicate and costly microsurgical procedures on any scale that can possibly have strong social implications?

As a member of the "hopeful" school, I nonetheless wonder whether the remaining biological and technological breakthroughs will not come long before we get our national priorities straight for this kind of progress to matter to anyone but the very rich.

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**ACCIDENT PRONENESS:** Research in the Occurrence, Causation and Prevention of Road Accidents—Lynette Shaw and Herbert S. Sichel, foreword by H. J. Eysenck—Pergamon Press, 1971, 476 p., diagrams, tables, \$16. Deals with the whole subject of differential liability to accidents, describes scientific progress in determining the various factors, and discusses how this knowledge could be used.

**AMERICANS FROM AFRICA, Vol. I: Slavery and Its Aftermath. Vol. II: Old Memories, New Moods**—Peter I. Rose, Ed.—Atherton Press, 1971, 459 p., 452 p., \$12.50 each. Contributions range from African background memories, through black belt and ghetto community experiences, to protest and the black power image.

**ATOMIC AND MOLECULAR RADIATION PHYSICS**—L. G. Christophorou—Wiley-Interscience, 1971, 672 p., diagrams, \$29. Aimed at the researcher, the book concentrates on aspects of the interaction of radiation with single atoms and single molecules, and under multiple collision conditions in gases. Photophysical and low-energy electron-atom (molecule) interaction processes are emphasized.

**BIOLOGY AND THE FUTURE OF MAN**—Philip Handler, Ed.—Oxford Univ. Press, 1971, 967 p., illus., paper, \$4.95. Reprint (1970), covers the field of biology in its entirety, from molecular biology through nervous system, behavior and ecology, to the diversity of life, digital computer uses, food, medical practice and environmental health.

**ELECTROPLATING ENGINEERING HANDBOOK**—A. Kenneth Graham, Ed.—Van Nostrand Reinhold, 1971, 3rd ed., 845 p., illus., \$29.95. Incorporates the latest advances in the field, thoroughly interdisciplinary, covers chemical, mechanical and electrical engineering aspects. New chapters describe facilities for electrophoretic application of coatings and electrochemical machining applications.

**ENCYCLOPEDIA OF PHYSICS, SUPPLEMENTARY VOL. 4:** General, Nuclear, Solid State, Molecular, Chemical, Metal and Vacuum Physics, Astronomy, Geophysics, Biophysics and Related Subjects—J. Thewlis, Ed.-in-Chief, R. C. Glass and A. R. Meetham, Assoc. Eds.—Pergamon Press, 1971, 581 p., illus., \$35. Topics covered by articles with bibliographies range from Acoustic holography to Whole body counting.

**FOREIGN TRAVEL IMMUNIZATION MANUAL**—Hans H. Neumann, M.D.—Thomas, C. C., 1971, 56 p., paper, \$3.75. Based on WHO and PHS data, the manual groups countries by requirements; discusses immunizations, disease by disease; and gives general health precautions for travel in tropical and subtropical countries.

**GENETICS LECTURES, Vol. 2**—Ralph Borgia, Ed.—Ore. State Univ. Press, 1971, 126 p., diagrams, tables, paper, \$4. Nine lectures, topics range from genetic analysis of constancy to expected genetic change in commercial beef herds.

**GREAT BASIN LOWER DEVONIAN BRACHIOPODA:** Memoir 121—J. G. Johnson—Geological Soc. of Am., 1970, 421 p., 74 plates, maps, \$12. Comprehensive account of the brachiopod faunas and their

succession as they occur in the more fossiliferous localities in central Nevada. Gives full description and illustrations of 127 species distributed among 83 genera presently known.

**HOUR OF THE BEAVER**—Hope Sawyer Buyukmihci—Rand McNally, 1971, 176 p., photographs by author, \$5.95. The personal story of one family's observations of wild-life and efforts to create a refuge for beavers on their stream-fed New Jersey marsh and woodland.

**THE IMPACT OF MEDICARE**—Erwin Witkin, M.D.—Thomas, C. C., 1971, 286 p., tables, \$12.50. An analysis of the effect of the Medicare program on the delivery of health care services in the United States, its cost and impact on the medical profession and the layman.

**INTEGRATIVE DEVELOPMENT OF BRAIN AND BEHAVIOR IN THE DOG**—Michael W. Fox—Univ. of Chicago Press, 1971, 348 p., photographs, diagrams, \$22.50. Brings together recent research findings and theories, describes in detail experiments with dogs providing data for the comparative evaluation of the development of behavior and the integrative development of the nervous system.

**LOST LEVIATHAN**—F. D. Ommanney—Dodd, 1971, 280 p., plates, illus., maps, \$7.95. Blending personal reminiscence with scientific analysis, the author tells the story of the great whaling stations of the Antarctic, discusses the economics, biology and future of the species.

**THE MEDICAL GARDEN**—Geoffrey Marks and William K. Beatty—Scribner, 1971, 178 p., 22 plates, \$6.95. Traces the history of seven important drugs originally derived from plants—opium, cocaine, quinine, aspirin, colchicine, digitalis and penicillin, and discusses their proper use, misuse and abuse.

**MENDELIAN INHERITANCE IN MAN:** Catalogs of Autosomal Dominant, Autosomal Recessive, and X-linked Phenotypes—Victor A. McKusick—Johns Hopkins Press, 1971, 3rd ed., 738 p., \$17.50. Updated, computerized catalog of genetic disorders such as hereditary deafness, hand malformations, skeletal disorders, enzymopathies, linkages, and structural protein variants. Author index included.

**MINERALS YEARBOOK 1969, Vol. III: Area Reports: Domestic. Vol. IV: Area Reports: International**—Bureau of Mines Staff—GPO, 1971, 848 p., 942 p., diagrams, tables, \$4.75 each. Vol. III contains chapters covering the mineral industry of each of the 50 States. Vol. IV presents latest available mineral statistics for more than 130 foreign countries and areas.

**NUCLEAR POWER AND ITS CRITICS: The Cayuga Lake Controversy**—Dorothy Nelkin—Cornell Univ. Press, 1971, illus., 128 p., \$6.50. A case history of the complex issues in the conflict between the need for increased power capacity and the citizens' interest to protect a major water and recreational resource in the heart of New York State.

**PLACE AND PEOPLE: An Ecology of a New Guinean Community**—William C. Clarke—Univ. of Calif. Press, 1971, 265 p., photographs, maps, \$9. Study combines anthropology and geography in describing the interaction between a place and its people, observing the activities of a clan cluster of natives and their effect on the environment in a remote part of New Guinea.

**THE TREES OF SOUTH FLORIDA, Vol. I: The Natural Environments and Their Succession**—Univ. of Miami Press, 1971, 212 p., photographs, \$5.95. Directed toward conservationists and naturalists, presents new facts about plant communities in the Everglades, Florida Keys and Florida Bay region.