

In general, I find this volume a timely contribution to the field of benthic ecology and to the study of shallow marine ecosystems in general. Approximately a third of the contributions provide new insights that will influence the direction of future research in the field.

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Synthetic Gemstones

Gems Made by Man. KURT NASSAU. Chilton, Radnor, Pa., 1980. xviii, 364 pp., illus., + plates. \$28.50.

Kurt Nassau's *Gems Made by Man* received extensive prepublication publicity, and its readers will not be disappointed.

Gems Made by Man is written with a scholarly attention to detail in both its technical and its historical sections. The

treatments of the commercial development of processes for the growth of gemstones and of current commercial practice are particularly thorough. Much of the subject matter has been described in articles by Nassau, particularly in the *Lapidary Journal*, and there is, of course, considerable overlap with the reviewer's *Man-Made Gemstones* (Halsted [Wiley], 1979), but there is also an extensive amount of original material.

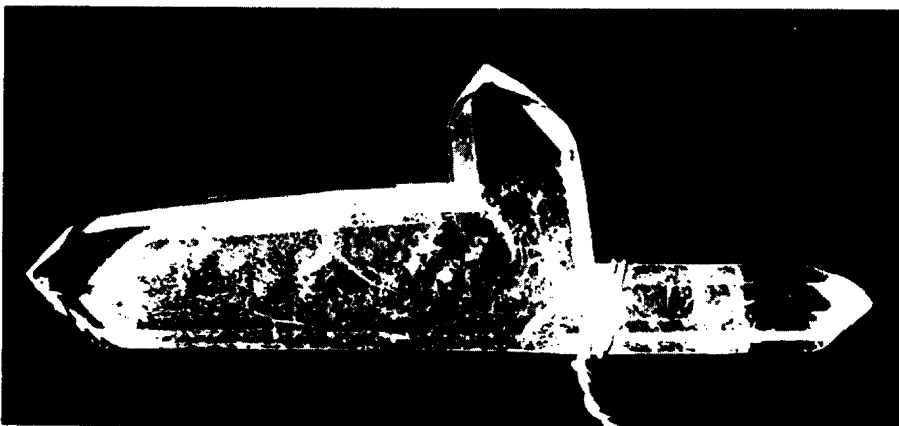
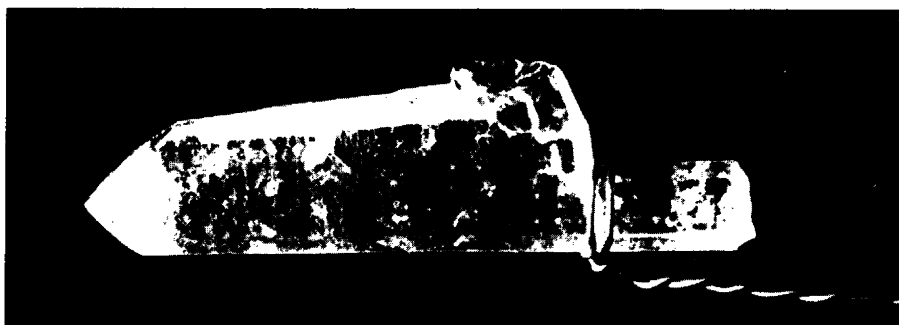
The book consists of 26 chapters arranged in eight sections. The first section is introductory and includes brief details of growth techniques and gem testing. A relatively long second section deals with the growth of ruby and sapphire, stressing particularly the work of Auguste Verneuil, who can be considered the originator of the modern synthetic gemstone industry, and the development of his flame-fusion technique from its less successful predecessors. Section 3 covers quartz, with chapters on the growth of colorless and colored crystals (amethyst, citrine, and so on). Section 4 deals with

emerald, with mention of other beryls. Section 5 deals with the growth of diamond. Diamond substitutes are treated in section 6 with particular emphasis on cubic zirconia but with detailed discussion also of synthetic garnets and earlier alternatives to diamond. Section 7 treats a range of materials and topics, with a brief discussion of alexandrite, turquoise, and the like, which are grown on a fairly small scale, and a fairly detailed discussion of opals, imitation gems, and the treatment of gemstones by heat and irradiation. The final section contains a survey of crystal growth techniques and a detailed and authoritative chapter on the origin of color in gemstones.

The book contains for each material a section of technical data, with a useful summary of properties and structure together with notes on the choice of conditions of preparation, and so forth. Suggestions for additional reading are included with each chapter, but serious readers may be irritated at the absence of a comprehensive list of references. On the other hand, the patent literature is referenced comprehensively. *Gems Made by Man* is well-illustrated, interesting reading even for nonspecialists.

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A natural quartz crystal 2½ centimeters long, and the same crystal after a 5-month hydrothermal growth experiment by Giorgio Spezia in 1908. Quartz was the second gemstone material to be synthesized in useful size (ruby was the first). Though not the first to grow quartz by a hydrothermal process, Spezia did the key work, published in a series of reports in 1898 to 1908. "Spezia supported his seeds with silver wire in a steel pressure vessel lined with silver. Growth occurred under pressure from a hot water solution containing sodium silicate . . . , using crushed natural quartz as the feed material. A typical growth run lasted 199 days and produced, at most, 15 mm (5/8 in) of new growth. Curiously enough, Spezia placed his hotter feed-region at the top and his cooler growth-region at the lower end of this growth vessel. He expected the denser solution to move downward, but this was opposed by thermal convection and explains his very slow growth rate. All he would have had to do to obtain much more rapid growth was to turn his vessel upside-down." [Reproduced in *Gems Made by Man* courtesy of P. F. Kerr and E. Armstrong (E. A. Wood)]

Books Received

Advances in Biophysics. Vol. 13, *Some New Approaches to Muscle Contraction*. Masao Kotani, Ed. Japan Scientific Societies Press, Tokyo, and University Park Press, Baltimore, 1979. x, 290 pp., illus. \$39.50.

Advances in Human Genetics. Vol. 10. Harry Harris and Kurt Hirschhorn, Eds. Plenum, New York, 1980. xviii, 294 pp., illus. \$35.

Advances in Immunology. Vol. 29. Henry G. Kunkel and Frank J. Dixon, Eds. Academic Press, New York, 1980. xiv, 342 pp., illus. \$35.

Aging Phenomena. *Relationships among Different Levels of Organization.* Proceedings of a symposium, Tokyo, Aug. 1978. Kunio Oota, Takashi Makinodan, Masami Iriki, and Lynn S. Baker, Eds. Plenum, New York, 1980. xiv, 318 pp., illus. \$37.50. *Advances in Experimental Medicine and Biology*, vol. 129.

The Aloineae. *A Biosystematic Survey.* Herbert Parkes Riley and Shyamal K. Majumdar. University Press of Kentucky, Lexington, 1980. x, 182 pp., illus. \$28.75.

Amyloid and Amyloidosis. Proceedings of a symposium, Póvoa de Varzim, Portugal, Sept. 1979. George G. Glenner, Pedro Pinho e Costa, and A. Falcão de Freitas, Eds. Excerpta Medica, Amsterdam, 1980 (U.S. distributor, Elsevier/North-Holland, New York). xx, 630 pp., illus. \$109.75.

Anatomy of the Dicotyledons. Vol. 1, *Systematic Anatomy of Leaf and Stem, with a Brief History of the Subject.* C. R. Metcalfe and L. Chalk with contributions from 8 others. Clarendon (Oxford University Press), New York, ed. 2, 1979. x, 276 pp., illus. + plates. \$55.

Annual Review of Materials Science. Vol. 10. Robert A. Huggins, Richard H. Bube, and David A. Vermilyea, Eds. Annual Reviews, Palo Alto, Calif., 1980. x, 460 pp., illus. \$20.

Antihypertensive Drugs Today. University Park Press, Baltimore, 1979. xxiv, 176 pp., illus. \$29.50. *Cardiovascular Drugs*, vol. 4.

- Antimicrobial Food Additives.** Characteristics, Uses, Effects. Erich Lueck. Translated from the German edition (1977) by Grant F. Edwards. Springer-Verlag, New York, 1980. xviii, 282 pp. \$39.80.
- Applied Animal Reproduction.** H. Joe Bearden and John W. Fuquay. Reston (Prentice-Hall), Reston, Va., 1980. xiv, 338 pp., illus. \$15.95.
- Applied Soil Physics.** Soil Water and Temperature Applications. R. J. Hanks and G. L. Ashcroft. Springer-Verlag, New York, 1980. vi, 160 pp., illus. \$19.80. Advanced Series in Agricultural Sciences 8.
- Applied Soil Trace Elements.** Brian E. Davies, Ed. Wiley-Interscience, New York, 1980. xiv, 482 pp., illus. \$64.50.
- L'Apprentissage Social.** Albert Bandura. Translated from the English edition (Englewood Cliffs, N.J., 1976) by Jean-A. Rondal. Mardaga, Brussels, 1980. 208 pp. Paper, 390 BF. Psychologie et Sciences Humaines, 83.
- Approximation Theory and Numerical Methods.** G. A. Watson. Wiley-Interscience, New York, 1980. x, 230 pp., illus. \$24.95.
- Aquametry.** A Treatise on Methods for the Determination of Water; Part 3 (The Karl Fischer Reagent). John Mitchell, Jr., and Donald Milton Smith. Wiley-Interscience, New York, ed. 2, 1980. xviii, 852 pp., illus. \$75. Chemical Analysis, vol. 5.
- Archaeological Investigations at AZ U:6:61 (ASU), a Prehistoric Limited Activity Site in South-Central Arizona.** Patricia Eyring Brown and A. E. Rogge. Arizona State University Department of Anthropology, Tempe, 1980. viii, 86 pp., illus. Paper, \$4. Technical Paper No. 4. Arizona State University Anthropological Research Papers No. 21.
- The Archaeology of Missouri, II.** Carl H. Chapman. Illustrations by Eleanor F. Chapman. University of Missouri Press, Columbia, 1980. xiv, 338 pp. \$26.95.
- Astronomy and Astrophysics Abstracts.** Vol. 26, Literature 1979, Part 2. S. Böhme and eight others, Eds. Published for Astronomisches Rechen-Institut by Springer-Verlag, New York, 1980. x, 794 pp. \$55.70.
- The At Risk Infant.** Papers from a workshop, Tel-Aviv, July 1979. Shaul Harel and Yehuda Shapira, Eds. Excerpta Medica, Amsterdam, 1980 (U.S. distributor, Elsevier/North-Holland, New York). xx, 460 pp., illus. \$80.50.
- Atlas of Benthic Shelf Foraminifera of the South-west Atlantic.** Esteban Boltovskoy, Graciela Giusani, Silvia Watanabe, and Ramil Wright. Junk, The Hague, 1980 (U.S. distributor, Kluwer Boston, Hingham, Mass.). vi, 148 pp. \$57.90.
- Atlas of the Netherlands Flora.** Vol. 1, Extinct and Very Rare Species. J. Mennema, A. J. Quené-Boeterenbrood, and C. L. Plate, Eds. Translated from the Dutch. Junk, The Hague, 1980 (U.S. distributor, Kluwer Boston, Hingham, Mass.). 226 pp. \$65.
- Atlas of the Planets.** Paul Doherty. McGraw-Hill, New York, 1980. 144 pp. \$16.95.
- Atmospheric Phenomena.** Readings from *Scientific American*. Introductions by David K. Lynch. Freeman, San Francisco, 1980. xii, 176 pp., illus. Cloth, \$15.95; paper, \$8.95.
- Atomic and Molecular Processes in Controlled Thermonuclear Fusion.** Papers from a NATO Advanced Study Institute, Castéra-Verduzan, France, Aug. 1979. M. R. C. McDowell and A. M. Feren-deci, Eds. Plenum, New York, 1980. xii, 494 pp., illus. \$55. NATO Advanced Study Institutes Series B, vol. 53.
- Atomic Masses and Fundamental Constants 6.** Proceedings of a conference, East Lansing, Mich., Sept. 1979. Jerry A. Nolen, Jr., and Walter Benenson, Eds. Plenum, New York, 1980. xiv, 572 pp., illus. \$59.50.
- Automata, Languages and Programming.** Papers from a colloquium, Noordwijkerhout, Netherlands, July 1980. J. W. de Bakker and J. van Leeuwen, Eds. Springer-Verlag, New York, 1980. viii, 672 pp. Paper, \$31.90. Lecture Notes in Computer Science, vol. 85.
- BASIC for Business for the PDP-11.** Alan J. Parker and Val Silbey. Reston (Prentice-Hall), Reston, Va., 1980. viii, 264 pp., illus. Paper, \$10.95.
- BASIC Made Easy.** A Guide to Programming Microcomputers and Minicomputers. Don Cassel and Richard Swanson. Reston (Prentice-Hall), Reston, Va., 1980. xiv, 240 pp., illus. + index. Cloth, \$12.95; paper, \$9.95.
- BASIC Programming.** John G. Kemeny and Thomas E. Kurtz. Wiley, New York, ed. 3, 1980. xiv, 334 pp., illus. Paper, \$13.95.
- Behavioral Psychology in Rehabilitation Medicine.** Clinical Applications. Laurence P. Ince, Ed. Williams and Wilkins, Baltimore, 1980. xvi, 436 pp., illus. \$34. Rehabilitation Medicine Library.
- A Bestiary for Saint Jerome.** Animal Symbolism in European Religious Art. Herbert Friedmann. Smithsonian Institution Press, Washington, D.C., 1980. 380 pp., illus. \$35.
- Biliary Atresia.** The Japanese Experience. D. M. Hays and Ken Kimura. Harvard University Press, Cambridge, Mass., 1980. xiv, 218 pp., illus. \$20.
- Biochemical Applications of Mass Spectrometry.** First Supplementary Volume. George R. Waller and Otis C. Dermer, Eds. Wiley-Interscience, New York, 1980. xx, 1280 pp., illus. \$150.
- Bioresources for Development.** The Renewable Way of Life. Papers from a conference, Houston, 1978. Alexander King, Harlan Cleveland, and Guy Streetfield, Eds. Pergamon, New York, 1980. xxii, 346 pp., illus. \$37.50. Pergamon Policy Studies on Energy and Environment.
- Breast Cancer.** Epidemiology, Endocrinology, Biochemistry and Pathobiology. Helmuth Vorherr, Urban & Schwarzenberg, Baltimore, 1980. xviii, 488 pp., illus. \$42.50.
- Burnside Groups.** Proceedings of a workshop, Bielefeld, Germany, June 1977. J. L. Mennicke, Ed. Springer-Verlag, New York, 1980. vi, 274 pp. Paper, \$16.80. Lecture Notes in Mathematics, vol. 806.
- Carbohydrate Sweeteners in Foods and Nutrition.** Papers from a symposium, Helsinki-Espoo, Finland, Nov. 1978. Pekka Koivistoinen and Lea Hyvönen, Eds. Academic Press, New York, 1980. xiv, 290 pp., illus. \$40.50.
- Cell Potassium.** Roderick P. Kernan. Wiley-Interscience, New York, 1980. xvi, 200 pp., illus. \$32.50. Transport in the Life Sciences, vol. 1.
- Children and Exercise IX.** Papers from a congress, Marstrand, Sweden, Sept. 1978. Kristina Berg and Bengt O. Eriksson, Eds. University Park Press, Baltimore, 1980. xxii, 388 pp., illus. \$34.50. International Series on Sport Sciences, vol. 10.
- Cognition in Schizophrenia and Paranoia.** The Integration of Cognitive Processes. Peter A. Magaro. Erlbaum, Hillsdale, N.J., 1980. xii, 340 pp. \$24.95.
- The Cognitive-Developmental Basis of Human Learning.** Studies in Hypothesis Testing. Barry Gholson. Academic Press, New York, 1980. xiv, 250 pp., illus. \$19.50. Developmental Psychology Series.
- Commutative Algebra.** Hideyuki Matsumura. Benjamin-Cummings Advanced Book Program, Reading, Mass., ed. 2, 1980. xvi, 314 pp. Paper, \$19.50. Mathematics Lecture Note Series.
- The Complete Trees of North America.** Field Guide and Natural History. Thomas S. Elias. Drawings by Ruth T. Brunstetter, Charles Edward Faxon, and Mary W. Gill. Van Nostrand Reinhold, New York, 1980. xii, 948 pp. \$19.95.
- Complex Analysis, Microlocal Calculus and Relativistic Quantum Theory.** Proceedings of a colloquium, Les Houches, Sept. 1979. D. Jagolnitzer, Ed. Springer-Verlag, New York, 1980. viii, 504 pp. Paper, \$33.60. Lecture Notes in Physics, vol. 126.
- Comprehensive Psychotherapy.** Vol. 1. Paul Olsen, Ed. Gordon and Breach, New York, 1980. viii, 176 pp. Paper, \$23.50.
- Computational Methods in Chemistry.** Proceedings of a symposium, Bad Neuenahr, Germany, Sept. 1979. Joachim Bargon, Ed. Plenum, New York, 1980. viii, 332 pp., illus. \$37.50.
- Computer Applications to Chemical Engineering.** Process Design and Simulation. Papers from a symposium, Washington, D.C., Sept. 1979. Robert G. Squires and G. V. Reklaitis, Eds. American Chemical Society, Washington, D.C., 1980. xii, 512 pp., illus. \$37.50. ACS Symposium Series, 124.
- Computer-Assisted Eye Examination.** Background and Prospects. Elwin Marg with contributions from Arthur G. Bennett, Maxwell M. Lang, and Robert D. Reinecke. San Francisco Press, San Francisco, 1980. vi, 146 pp., illus. \$10.
- Computers and Privacy in the Next Decade.** Proceedings of a workshop, Pacific Grove, Calif., Feb. 1979. Lance J. Hoffman, Ed. Academic Press, New York, 1980. xvi, 216 pp. \$16.50.
- Concepts in Cancer Care.** A Practical Explanation of Radiotherapy and Chemotherapy for Primary Care Physicians. Jay Scott Cooper and Donald J. Pizzarello. Lea and Febiger, Philadelphia, 1980. xii, 274 pp., illus. \$16.50.
- Concepts in Drug Metabolism.** Part A. Peter Jenner and Bernard Testa, Eds. Dekker, New York, 1980. xii, 410 pp., illus. \$49.50. Drugs and the Pharmaceutical Sciences, vol. 10.
- Condenser Biofouling Control.** Symposium Proceedings. Atlanta, Mar. 1979. John F. Garey, Roger M. Jorden, Andrew H. Aitken, Dennis T. Burton, and Robert H. Gray, Eds. Ann Arbor Science, Ann Arbor, Mich., 1980. xvi, 528 pp., illus. \$39.95.
- Conflict Resolution and the Structure of the State System.** An Analysis of Arbitrative Settlements. Gregory A. Raymond. Allanhoff Osmun, Monclair, N.J., and Sijthoff & Noordhoff, Alphen aan den Rijn, Netherlands, 1980. xiv, 108 pp. \$22.50.
- Congenital Malformations.** Papers from a meeting, Apr. 1979. A. J. C. Huffstadt, Ed. Excerpta Medica, Amsterdam, 1980 (U.S. distributor, Elsevier/North-Holland, New York). x, 360 pp., illus. \$44. The Jonxis Lectures, vol. 4.
- The Conquest of Epidemic Disease.** A Chapter in the History of Ideas. Charles-Edward Amory Winslow. University of Wisconsin Press, Madison, 1980. viii, 412 pp. Cloth, \$25; paper, \$7.50. Reprint of the 1943 edition.
- The Conquest of Pain.** Peter Fairley. Scribner, New York, 1980. 272 pp. + plates. \$12.95.
- Conservation Standards for Works of Art in Transit and on Exhibition.** Nathan Stolow. Unesco, Paris, 1980 (U.S. distributor, Unipub, New York). 130 pp., illus. Paper, \$16.50. Museums and Monuments, 17.
- Constancy and Change in Human Development.** Orville G. Brim, Jr., and Jerome Kagan, Eds. Harvard University Press, Cambridge, Mass., 1980. viii, 754 pp., illus. \$27.50.
- Consumer Behaviour.** A Practical Guide. Gordon R. Foxall. Halsted (Wiley), New York, 1980. 208 pp. \$19.95.
- Controls of Eating.** Carl I. Thompson. SP Medical and Scientific Books, New York, 1980. x, 284 pp. \$40. Monographs in Pharmacology and Physiology, vol. 4.
- Crystalline Electric Field and Structural Effects in f-Electron Systems.** Proceedings of a conference, Philadelphia, Nov. 1979. Jack E. Crow, Robert P. Guertin, and Ted W. Mihalasin, Eds. Plenum, New York, 1980. xiv, 638 pp., illus. \$69.50.
- Crystals.** Growth, Properties, and Applications. Vol. 3, III-V Semiconductors. Springer-Verlag, New York, 1980. vi, 164 pp., illus. \$39.80.
- The Curious Naturalist.** John Mitchell and the Massachusetts Audubon Society. Illustrated by Gordon Morrison. Prentice-Hall, Englewood Cliffs, N.J., 1980. Unpagged. Cloth, \$15.95; paper, \$7.95.
- Current Developments in Anthropological Genetics.** Vol. 1, Theory and Methods. James H. Mielke and Michael H. Crawford, Eds. Plenum, New York, 1980. xiv, 436 pp., illus. \$45.
- Current Topics in Cellular Regulation.** Vol. 16. Bernard L. Horecker and Earl R. Stadtman, Eds. Academic Press, New York, 1980. x, 322 pp., illus. \$36.
- Data Communications.** An Introduction to Concepts and Design. Robert Techo. Plenum, New York, 1980. x, 294 pp., illus. \$24.50.
- Databook on Geriatrics.** G. S. Rai and V. Pearce. University Park Press, Baltimore, 1980. viii, 218 pp. \$19.95.
- Deltaic Sand Bodies.** James M. Coleman and David B. Prior. American Association of Petroleum Geologists, Tulsa, Okla., 1980. iv, 172 pp., illus. Paper, \$8. AAPG Continuing Education Course Notes Series No. 15.
- Diagnosis and Drug Treatment of Psychiatric Disorders.** Adults and Children. Donald F. Klein, Rachel Gittelman, Frederic Quitkin, and Arthur Rifkin. Williams and Wilkins, Baltimore, ed. 2, 1980. xxxii, 850 pp. \$42.
- Dirichlet Integrals on Harmonic Spaces.** Fumi-Yuki Maeda. Springer-Verlag, New York, 1980. x, 180 pp. Paper, \$11.80. Lecture Notes in Mathematics, vol. 803.
- Directory of Adult Education Documentation and Information Services.** Unesco, Paris, ed. 2, 1980 (U.S. distributor, Unipub, New York). 114 pp. Paper, \$5.25.
- Drug Concentrations in Neuropsychiatry.** Papers from a symposium, London, July 1979. Excerpta Medica, Amsterdam, 1980 (U.S. distributor, Elsevier/North-Holland, New York). viii, 266 pp., illus. \$45.75. Ciba Foundation Symposium 74 (new series).
- The Ecology and Conservation of Large African Mammals.** S. K. Eltringham. University Park Press, Baltimore, 1979. x, 286 pp., illus. + plates. \$49.95.
- The Effect of the Greenwich Sewage Lagoon Discharge upon Two Small Receiving Streams in Northwest Ohio.** Gary L. Martin and Karl Schurr. Karl Schurr, Ed. Bowling Green Popular Press, Bowling Green, Ohio, 1979 (available from Karl Schurr, Department of Biological Sciences, Bowling Green State University, Bowling Green, Ohio). viii, 102 pp. Paper, \$2. Science Series B 149.
- Electron-Beam Technology in Microelectronic Fabrication.** George R. Brewer, Ed. Academic Press, New York, 1980. xiv, 362 pp., illus. \$36.50.
- Electrophoresis '79.** Advanced Methods, Biochemical and Clinical Applications. Proceedings of a conference, Munich, Oct. 1979. Bertold J. Radola, Ed. Walter de Gruyter, Berlin, 1980. xvi, 858 pp., illus. DM 185.
- The Enterprise of Knowledge.** An Essay on Knowledge, Credal Probability, and Chance. Isaac Levi. MIT Press, Cambridge, Mass., 1980. xviii, 462 pp. \$27.50.
- Environmental and Climatic Impact of Coal Utilization.** Proceedings of a symposium, Williamsburg, Va., Apr. 1979. Jag J. Singh and Adarsh Deepak, Eds. Academic Press, New York, 1980. xvi, 656 pp., illus. \$39.50.
- Environmental Science Handbook for Architects and Builders.** S. V. Szokolay. Halsted (Wiley), New York, 1980. viii, 532 pp., illus. \$76.95.
- ESP and Psychokinesis.** A Philosophical Examination. Stephen E. Braude. Temple University Press, Philadelphia, 1980. xvi, 284 pp. \$19.50. Philosophical Monographs.

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BOOKS RECEIVED

(Continued from page 1157)

Essay on Mind. D. O. Hebb. Erlbaum, Hillsdale, N.J., 1980. xii, 160 pp. \$16.50.

Essential Relativity. Special, General, and Cosmological. Wolfgang Rindler. Springer-Verlag, New York, ed. 2, 1980. xvi, 284 pp., illus. Paper, \$19.80. Texts and Monographs in Physics.

Estuarine and Wetland Processes with Emphasis on Modeling. Proceedings of a workshop, New Orleans, June 1979. Peter Hamilton and Keith B. Macdonald, Eds. Plenum, New York, 1980. xii, 654 pp., illus. \$69.50. Marine Science, vol. 11.

Ethics, Humanism, and Medicine. Proceedings of three conferences, Ann Arbor, Mich., 1978-1979. Marc D. Basson, Ed. Liss, New York, 1980. xxii, 322 pp. \$22. Progress in Clinical and Biological Research, vol. 38.

First Order Algebraic Differential Equations. A Differential Algebraic Approach. Michihiko Matsuda. Springer-Verlag, New York, 1980. viii, 112 pp. Paper, \$9.80. Lecture Notes in Mathematics, vol. 804.

Fluidization. Proceedings of a conference, Heniker, N.H., Aug. 1980. John R. Grace and John M. Matsen, Eds. Plenum, New York, 1980. xviii, 606 pp., illus. \$69.50.

Food Industry Energy Alternatives. Robert P. Ouellette, Norman W. Lord, and Paul N. Cheremisinoff. Food and Nutrition Press, Westport, Conn., 1980. viii, 136 pp., illus. \$22.

Forensic Toxicology. Proceedings of a meeting, Glasgow, Aug. 1979. John S. Oliver, Ed. University Park Press, Baltimore, 1980. 320 pp., illus. \$39.95.

From Genesis to Genocide. The Meaning of Human Nature and the Power of Behavior Control. Stephan L. Chorover. MIT Press, Cambridge, Mass., 1980. xiv, 238 pp. Paper, \$5.95. Reprint of the 1979 edition.

Gauge Fields. Introduction to Quantum Theory. L. D. Faddeev and A. A. Slavnov. Translated from the Russian edition (Moscow, 1978) by D. B. Pontecorvo. Benjamin-Cummings Advanced Book Program, Reading, Mass., 1980. xvi, 232 pp. \$28.50. Frontiers in Physics, 50.

Geothermal Energy Projects. Planning and Management. Louis J. Goodman and Ralph N. Love, Eds. Pergamon, New York, 1980. xvi, 230 pp., illus. \$30.

Gradwohl's Clinical Laboratory Methods and Diagnosis. Alex C. Sonnenwirth and Leonard Jarett, Eds. Mosby, St. Louis, ed. 8, 1980. Two volumes. xlv, 2340 pp., illus. \$115.

Gravitational Radiation, Collapsed Objects and Exact Solutions. Proceedings of summer school, Perth, Australia, Jan. 1979. C. Edwards, Ed. Springer-Verlag, New York, 1980. vi, 488 pp., illus. Paper, \$30.70. Lecture Notes in Physics, vol. 124.

Growth and Differentiation in *Physarum polycephalum*. W. F. Dove and H. P. Rusch, Eds. Princeton University Press, Princeton, N.J., 1980. xx, 252 pp., illus. \$25.

Handbook of North American Indians. William C. Sturtevant, Ed. Vol. 9, Southwest. Alfonso Ortiz, Ed. Smithsonian Institution, Washington, D.C., 1979 (available from the Superintendent of Documents, Washington, D.C.). xvi, 702 pp., illus. \$17.

Hazards to Your Health. The Problem of Environmental Disease. James Gorman. New York Academy of Sciences, New York, 1979. viii, 70 pp. Paper, \$4.

Health, United States, 1979. Public Health Service, Washington, D.C., 1980 (available from the Superintendent of Documents, Washington, D.C.). xiv, 232 pp. Paper, \$5.50. DHEW Publication No. (PHS)80-1232.

Introduction of Macromolecules into Viable Mammalian Cells. Papers from a symposium, Philadelphia, May 1979. Renato Baserga, Carlo Croce, and Giovanni Rovera, Eds. Liss, New York, 1980. x, 358 pp., illus. \$26. Wistar Symposium Series, vol. 1.

Introduction to Computers and Information Processing. Don Cassel and Martin Jackson. Reston (Prentice-Hall), Reston, Va., 1980. xviii, 526 pp., illus. \$16.95.

Introduction to Digital Filters. Trevor J. Terrell. Halsted (Wiley), New York, 1980. x, 222 pp., illus. \$29.95.

Introduction to Modern Virology. S. B. Primrose and N. J. Dimmock. Halsted (Wiley), New York, ed. 2, 1980. x, 252 pp., illus. Paper, \$19.95. Basic Microbiology, vol. 2.

Introduction to Molecular Energy Transfer. James T. Yardley. Academic Press, New York, 1980. xii, 308 pp., illus. \$34.

An Introduction to the Biology of Marine Life. James L. Sumich. Brown, Dubuque, Iowa, ed. 2, 1980. xii, 360 pp., illus. + plates. Paper, \$12.95.

The Joints and Synovial Fluid. Vol. 2. Leon Sokoloff, Ed. Academic Press, New York, 1980. xvi, 562 pp., illus. \$55.

Laboratory Medical Mycology. Yousef Al-Doory. Lea and Febiger, Philadelphia, 1980. x, 410 pp., illus. \$24.50.

Language Disability in Children. Assessment and Remediation. F. Margaret Jones, Ed. University Park Press, Baltimore, 1980. xiv, 256 pp., illus. \$24.50.

Law in the Practice of Psychiatry. A Handbook for Clinicians. Seymour L. Halleck with the assistance of Nancy H. Halleck. Plenum, New York, 1980. xii, 294 pp. \$21.50. Critical Issues in Psychiatry.

Lithium Effects on Granulopoiesis and Immune Function. Proceedings of a workshop, Eagle River, Wis., June 1979. Arthur H. Rossof and William A. Robinson, Eds. Plenum, New York, 1980. xiv, 476 pp., illus. \$47.50. Advances in Experimental Medicine and Biology, vol. 127.

Local Mechanisms Controlling Blood Vessels. W. R. Keatinge and M. Clare Harman. Academic Press, New York, 1980. viii, 142 pp., illus. \$27. Monographs of the Physiological Society, No. 37.

Low Temperature Preservation in Medicine and Biology. M. J. Ashwood-Smith and J. Farrant, Eds. University Park Press, Baltimore, 1980. xii, 324 pp., illus. \$39.50.

Materials in World Perspective. Assessment of Resources, Technologies and Trends for Key Materials Industries. D. G. Altenpohl in collaboration with T. S. Daugherty. Springer-Verlag, New York, 1980. xvi, 220 pp., illus. \$34.80. Materials Research and Engineering, vol. 1.

Mathematical Statistics and Probability Theory. Proceedings of a conference, Wisla, Poland, Dec. 1978. W. Klonecki, A. Kozek, and J. Rosinski, Eds. Springer-Verlag, New York, 1980. xxii, 374 pp. Paper, \$20. Lecture Notes in Statistics, vol. 2.

The Mathematical Understanding of Chemical Engineering Systems. Selected Papers of Neal R. Amundson. Rutherford Aris and Arvind Varma, Eds. Pergamon, New York, 1980. x, 830 pp., illus. \$113.



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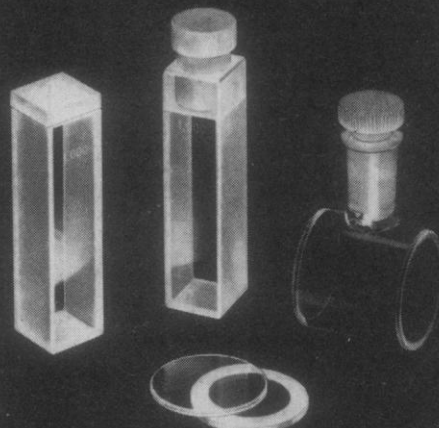
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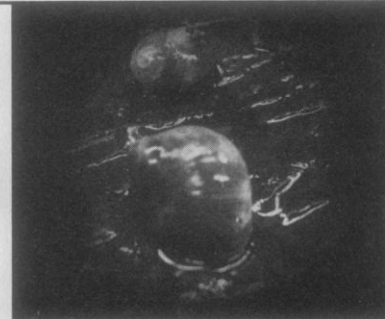
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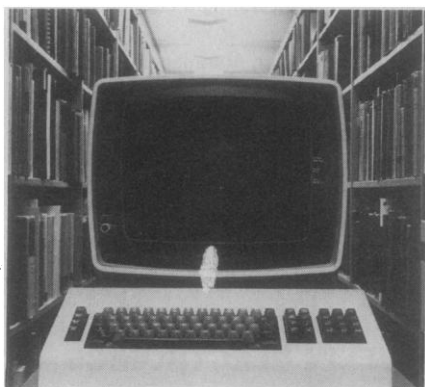
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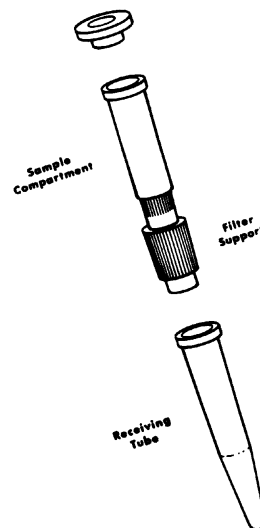
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Progress in Medical Ultrasound. Reviews and Comments. Vol. 1. A. Kurjak, Ed. Excerpta Medica, Amsterdam, 1980 (U.S. distributor, Elsevier/North-Holland, New York). x, 336 pp., illus. Paper, \$61.

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The Ruelle-Araki Transfer Operator in Classical Statistical Mechanics. Dieter H. Mayer. Springer-Verlag, New York, 1980. viii, 154 pp., illus. Paper, \$12. Lecture Notes in Physics, vol. 123.

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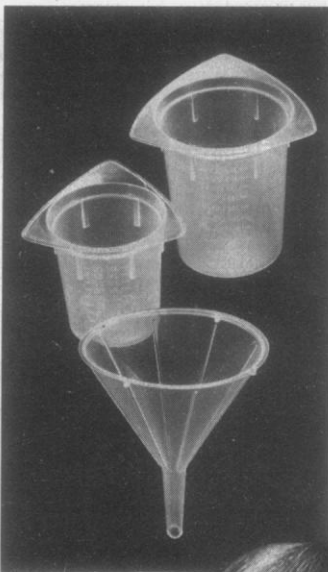
Safety with Lasers and Other Optical Sources. A Comprehensive Handbook. David Sliney and Myron Wolbarsht. Plenum, New York, 1980. xxviii, 1036 pp., illus. \$49.50.

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pp., illus. \$68.40. Developments in Cardiovascular Medicine, vol. 4.

Survey of Progress in Chemistry. Vol. 9. Arthur F. Scott, Ed. Academic Press, New York, 1980. xii, 272 pp., illus. \$35.

Symposium on Glacier Beds. The Ice-Rock Interface. Ottawa, Aug. 1978. International Glaciological Society, Cambridge, England, 1979. 446 pp., illus. Paper, £25. *Journal of Glaciology*, vol. 23, No. 89.

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27th International Congress of Pure and Applied Chemistry. Helsinki, Aug. 1979. A. Varmavuori, Ed. Pergamon, New York, 1980. x, 386 pp., illus. \$100.

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ANATOMISTS. Two full-time faculty positions in anatomy will be available 1 July 1981 at the College of Osteopathic Medicine of the Pacific, Pomona, California. Teaching is of prime importance in both positions, one requiring a strong background in neuroanatomy, the other in embryology. Each will be expected to teach in one or more of the other subdisciplines of anatomy. Research is also encouraged. Position and salary will be commensurate with education and experience. Deadline for application with curriculum vitae and three letters of reference is 1 May 1981. Write to: Dr. G. H. Nelson, Assistant Dean of Basic Sciences, College of Osteopathic Medicine of the Pacific, 309 Pomona Mall East, Pomona, California 91766. Affirmative Action/Equal Opportunity Employer.

ASSISTANT PROFESSOR. The University of Delaware, Department of Entomology and Applied Ecology, is recruiting for a faculty position at the assistant professor level. Qualifications: Ph.D. in entomology or a closely related field with demonstrated potential for quality research and teaching required. Responsibilities: candidate will be expected to do research in one of the following areas—population genetics (including genetic manipulation of insect populations), chemical communication (including chemical control of insect behavior), insect pathology, or insect transmission of plant diseases. Candidate will teach undergraduate and graduate level courses. Salary commensurate with training and experience. Position is a 12-month appointment. Applications will be received until 1 May 1981, or until a suitable candidate is selected. Submit curriculum vitae, transcripts, reprints, and names of at least three references to:

Dr. John Reese, Search Committee Chairperson
Department of Entomology and Applied Ecology
University of Delaware
Newark, Del. 19711

An Equal Opportunity/Affirmative Action Employer which encourages applications from qualified minority groups and women.

ASSISTANT PROFESSOR. Two positions in biology. Ph.D. required; 1-year appointments with a second-year appointment possible. One position to teach wildlife biology, aquatic biology, and nonmajors' biology. Other position to teach human anatomy and human physiology with some background in bacteriology. Combinations of these two positions considered. Research encouraged. Send curriculum vitae and three references by 1 April 1981 to: Dr. Melvin Denner, Chairman, Division of Science and Mathematics, Indiana State University Evansville, Evansville, Indiana 47712. Equal Opportunity Employer.

ASSISTANT PROFESSOR IN CHEMISTRY with primary teaching and advising duties in the Honors Program. A 2- or 3-year nontenure position. Availability date: 1 September 1981. Primary strengths in teaching required. Ph.D. required. Opportunity and facilities for research. The weight of candidate's teaching will be at the freshman level. Applications and letters of recommendation with particular emphasis on the candidate's teaching abilities should be sent to: Dr. Burnaby Munson, Department of Chemistry, University of Delaware, Newark, Del. 19711. Deadline for applications: 15 April 1981.

The University of Delaware is an Equal Opportunity Employer which encourages applications from qualified minority groups and women.

BIOLOGY FACULTY POSITION. Full-time, 1-year leave replacement, to begin fall 1981, to teach general biology. Requirements: Ph.D., excellence as a teacher, commitment to undergraduate education, and research program with opportunity for student participation. Salary and rank dependent on qualifications and experience. For detailed job description and application procedure, write to: Dr. Richard Nickerson, Search Committee, Biology Department, Simmons College, 300 The Fenway, Boston, Mass. 02115. An Affirmative Action/Equal Opportunity Employer.

Ph.D.—CANCER RESEARCH

Postdoctoral fellowship or assistant professor level to join cancer research group at major university medical center in Westchester County, 20 miles north of New York City. Program includes cell kinetics, biochemical pharmacology, and clinical protocols. Experience required in tissue culture, flow cytometry, animal tumor drug studies, or HPLC. Send résumé to: M. Straus, M.D., Chief, Division of Oncology, New York Medical College, Valhalla, N.Y. 10595.

POSITIONS OPEN

ASSISTANT PROFESSOR—BIOPSYCHOLOGY

RUTGERS UNIVERSITY has a tenure-track assistant professor opening in biopsychology for September 1981. This is in addition to the position announced in *Science* in September 1980. Subspecialty is open but the candidate's research should be concerned with the relationship between brain mechanisms and behavior at the neurophysiological, neurohumoral, or genetic level. The individual hired would be expected to develop an active research program and participate in graduate and undergraduate teaching. Ph.D. required. Candidates should send their curriculum vitae and other supporting materials, and have three letters of recommendation sent to:

Dr. Charles F. Flaherty, Chairman
Department of Psychology
Busch Campus
Rutgers, The State University
New Brunswick, New Jersey 08903

Rutgers University is an Equal Opportunity Employer.

THE UNIVERSITY OF OTTAWA, DEPARTMENT OF BIOLOGY, expects to fill several tenure-track positions for, and during, the 1981-1982 academic year. Appointments will normally be at the assistant professor level, but applications for appointment at higher ranks will be considered. The research/teaching qualifications of the applicant, rather than the area of specialization, are of prime importance. Appointees will be expected to maintain an active, externally funded, research program and to contribute to undergraduate and graduate teaching. The University of Ottawa is a bilingual institution; the ability to lecture in both English and French will be a definite asset.

Applicants should submit, by 1 May 1981, curriculum vitae and a brief description of teaching interests and future research plans, and should arrange to have three letters of recommendation sent to: Dr. David L. Brown, Chairman, Search Committee, Department of Biology, University of Ottawa, Ottawa, Ontario, Canada K1N 6N5.

BAILEY ENDOWED CHAIR IN ENVIRONMENTAL HORTICULTURE UNIVERSITY OF MINNESOTA

The Bailey professor will be a tenured member of the faculty with appointment at the full professor level. The appointee will be expected to provide intellectual leadership to the woody plant programs of the department in research, teaching, and/or service to the nursery industry. Applications are invited from scholars who have made significant contributions in the field.

For more information, write:

Harold Pellett
Department of Horticultural Science and
Landscape Architecture
University of Minnesota
St. Paul, Minn. 55108

An Equal Opportunity/Affirmative Action Employer

DEAN, COLLEGE OF CHEMISTRY AND PHYSICS. Louisiana State University seeks applications. Initial appointment will be for 5 years beginning in summer 1982. College includes Departments of Biochemistry, Chemistry, Computer Science, and Physics and Astronomy, and the Allied Health Programs. The successful candidate must merit appointment as professor in one of the departments and also must demonstrate outstanding potential leadership. Applicants should submit their curriculum vitae and statement of their philosophy of governance, and have three letters of recommendation sent directly to: Chemistry and Physics Dean Search Committee, Wayne L. Mattice, Chairman, Office of Academic Affairs, Louisiana State University, Baton Rouge, La. 70803. Deadline: 15 August 1981. *An Equal Opportunity/Affirmative Action Employer.*

DEVELOPMENTAL BIOLOGIST—Applications are invited for a position at the assistant professor level in the Department of Biological Sciences at Goucher College, beginning in September 1981. Ph.D. required. Teaching responsibilities to include a course in animal development, an advanced seminar (given in alternate years) in an area of the applicant's choice, and participation in a team-taught, required course in cell biology. Participation in research is encouraged. Interested applicants should submit curriculum vitae and three letters of recommendation by 1 April 1981 to: Dr. Martin Berlinrood, Department of Biological Sciences, Goucher College, Towson, Md. 21204. *An Affirmative Action/Equal Opportunity Employer*

POSITIONS OPEN

ASSISTANT PROFESSOR OF ZOOLOGY VERTEBRATE MORPHOLOGIST

A tenure-track position for a vertebrate morphologist is open in the Department of Zoology, The Ohio State University, starting autumn quarter 1981. The successful candidate will be responsible for conducting independent research, teaching an introductory morphology course to zoology majors, a similar course for nonmajors, and graduate level courses in his/her specialty. Occasional participation in introductory zoology and biology courses is expected. The salary range for this 9-month appointment is \$18,000 to \$21,000. Curriculum vitae and three letters of reference should be sent to: **Dr. Tony J. Peterle, Department of Zoology, The Ohio State University, 1735 Neil Avenue, Columbus, Ohio 43210.** Deadline for receipt of applications is 15 April 1981.

The Ohio State University is an Equal Opportunity/Affirmative Action Employer. Qualified women and minority and handicapped persons, as well as others, are encouraged to apply.

CARDIOVASCULAR TRAINING POSITIONS. The Department of Pharmacology at the Medical University of South Carolina offers postdoctoral training opportunities in cardiovascular function, dysfunction and the action of cardiovascular drugs. Ongoing studies, carried out at the chemical, biochemical, biophysical, morphological, physiological, and clinical levels, focus on the role of vasoactive substances (for example, catecholamines, renin, kinins, and prostaglandins) in control of arterial pressure, the molecular and biophysical basis for cardiac and vascular diseases and cardiovascular drug action, metabolism of drugs, action of drug metabolites, and new drug development. Stipends are available and applications from individuals holding the Ph.D. and/or M.D. degree with backgrounds in the physical and/or biomedical sciences should be addressed to: **Postdoctoral Training Committee, Department of Pharmacology, Medical University of South Carolina, 171 Ashley Avenue, Charleston, S.C. 29403.** Affirmative Action/Equal Opportunity Employer.

DIRECTOR OF ACADEMIC ENDOCRINOLOGY LABORATORY. Ph.D. with experience in steroid and/or vitamin D receptors and RIA sought to participate in development of research program. Independent research encouraged. Contact: **John R. Higgins, M.D., Chief, Division of Endocrinology and Metabolism, Texas Tech University Health Sciences Center, 1400 Wallace Boulevard, Amarillo, Texas 79106.** Equal Opportunity Employer.

ELECTRON MICROSCOPY RESEARCH SPECIALIST—Applications are invited for the position of an electron microscopy research specialist to be in charge of the day-to-day planning and operation of a biological EM facility. The position is currently open. Duties include TEM, some SEM, and specimen preparation and examination. Master's degree is preferred, but not essential. Salary will depend on experience. Send applications with curriculum vitae and sources of references to: **Mary T. Dixon, Professional Staffing, c/o Personnel Office, THE INSTITUTE FOR CANCER RESEARCH, 7701 Burholme Avenue, Philadelphia, Pa. 19111.** Affirmative Action/Equal Opportunity Employer.

FACULTY POSITIONS UTICA COLLEGE OF SYRACUSE UNIVERSITY

Four new tenure-track positions, fall 1981. Candidates must have a strong commitment to teaching; research encouraged. Rank and salary commensurate with qualifications.

COMPUTER SCIENCE: Advanced degree in computer science, science, or mathematics; ability to teach a range of courses within rapidly expanding computer science program.

HISTORY AND PHILOSOPHY OF SCIENCE AND TECHNOLOGY: Ph.D. in history and philosophy of science and technology, physics, or mathematics; should be competent to teach some computer science, physics, or mathematics courses.

MATHEMATICS: Ph.D., background in statistics and computer science preferred.

PHYSICS: Ph.D., specialty open; background in computer science preferred.

Submit curriculum vitae and three letters of recommendation to: **Dr. Roger Rockefeller, Chairman, Division of Science and Mathematics, Utica College of Syracuse University, Utica, N.Y. 13502.** An Affirmative Action/Equal Opportunity Employer which specifically invites minorities and women to apply.

POSITIONS OPEN

Applications are invited for a position as **DIRECTOR OF RESEARCH** in the laboratories of the Department of Dermatology at the University of Minnesota Medical School, Minneapolis. Applicants should be well-trained biomedical scientists capable of independent research of a quality high enough to attract support from granting agencies. In addition to conducting research in problems related to the skin and its diseases, this individual will be expected to provide inspiration and guidance in research to physicians in training for careers in academic dermatology. A scientist with an interest in skin and background in such fields as experimental pathology, cell biology, immunology, pharmacology, or toxicology is sought. Appropriate salary and academic appointment will be negotiated. *The University of Minnesota is an Affirmative Action Employer and specifically invites and encourages applications from women and minorities.*

Interested scientists should send résumés to: **Head of the Search Committee, Department of Dermatology, Box 98, University of Minnesota Hospitals, Minneapolis, Minnesota 55455.**

NMR LABORATORY OPERATIONS DIRECTOR for a major new multinuclei NMR facility at Syracuse University. Laboratory instrumentation will include two supercon NMR spectrometers and a large minicomputer-based laboratory computer network. Responsibilities include r-f design, maintenance, and operations supervision. Also, significant work with digital instrumentation and hardware/software design. Ph.D. preferred in chemistry or related field, plus experience in NMR and digital systems. Excellent salary plus professional fringe benefits, including TIAA/CREF annuity. Candidates should send professional résumé and reference list by 6 April to: **Professor B. R. Ware, Chairman, Department of Chemistry, Syracuse University, Syracuse, N.Y. 13210.** Syracuse University is an Equal Opportunity/Affirmative Action Employer.

MIT ENERGY ANALYST—Massachusetts Institute of Technology (MIT), Energy Laboratory, will involve independent research in three areas: thermodynamic analyses of large scale thermal/electrical nuclear and fossil-based systems; small scale distributed energy thermal/electrical systems; and physical and economic modeling of solar and wind systems, including analysis of complex interactions between renewable, distributed thermal and electrical energy systems and the present, large-scale centralized systems. Requires doctorate in engineering with background in physics, advanced thermodynamics, central power production, and energy technologies (including nuclear), as well as training in economics, finance, and management. Should have at least 5 years of experience in energy technology research, with demonstrated ability in energy systems engineering, physical modeling, and computer simulation. Salary range: \$26,000 to \$30,000. Please submit résumé (referring to Job Number R403) to: **MIT Personnel Office, E19-239, 77 Massachusetts Avenue, Cambridge, Mass. 02139.** MIT is an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITION IN ANATOMY

Full-time faculty position is available in the Department of Anatomy beginning May 1981. Principal responsibilities include lectures and laboratories in gross anatomy, histology, and embryology. Applicants must hold the Ph.D. or master's degree in the specific discipline and have a strong commitment to teaching. Send curriculum vitae and names of three references by 1 April 1981 to:

**Director of Basic Science
Cleveland Chiropractic College
6401 Rockhill Road
Kansas City, Missouri 64131**

FACULTY POSITION

Full-time faculty position is available in the Department of Physiology beginning September 1981. Principal responsibilities in physiology include lectures and laboratories in neuromuscular and neuroendocrine physiology. Applicants must hold the Ph.D. or master's degree in the specific discipline and have a strong commitment to teaching. Send curriculum vitae and names of three references by 1 April 1981 to:

**Director of Basic Science
Cleveland Chiropractic College
6401 Rockhill Road
Kansas City, Missouri 64131**

POSITIONS OPEN

DIRECTOR of major, newly endowed clinic and research center devoted to the study of the effects of alcohol upon the brain. Affiliated with the Department of Neurology, University of California, San Francisco. M.D. degree required; expertise in fundamental neurosciences and clinical qualifications in neurology desirable. Senior academic appointment. Address curriculum vitae and inquiries to: **Chairman, Search Committee, 1120 HSW, University of California, San Francisco, California 94143.** We are an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITIONS

Growing, well-established, accredited school of chiropractic seeks quality teachers/scholars for basic science positions opening August 1981. Human **PHYSIOLOGY.** Preference will be given candidates with interests in digestion and biochemistry. Doctorate essential. Gross **ANATOMY,** preferably with interest in neuromusculoskeletal interrelationships. Doctorate or master's plus 30 required. Interested persons with those and **OTHER SPECIALTIES** relevant to preclinical sciences are invited to submit a letter discussing career goals in teaching and research. Enclose curriculum vitae, with names and addresses of three referees. **Basic Science Division, Northwestern College of Chiropractic, 1834 South Mississippi River Boulevard, St. Paul, Minn. 55116.** Equal Opportunity Employer.

FACULTY POSITION—BIOCHEMISTRY

The Department of Biological Chemistry, Hahnemann Medical College, invites applications for a full-time position at the assistant/associate professor level involving teaching and research responsibilities. Candidate should have a Ph.D. or M.D., postdoctoral and junior faculty experience in biochemistry, a record of research accomplishments, and evidence of ability to secure external research support. Candidate must be dedicated to excellence in research and in teaching of medical and graduate students. Research field of interest is open. Applicant should submit curriculum vitae, a bibliography, an outline of research objectives, copies of two recent publications, and names of three references to: **Thomas M. Devlin, Ph.D., Chairman, Department of Biological Chemistry, Hahnemann Medical College, Philadelphia, Pa. 19102.** The Hahnemann Medical College and Hospital is an Equal Opportunity/Affirmative Action Employer and welcomes applications from women and members of minority groups.

FACULTY POSITION IN PSYCHIATRY. Applications are invited for a neurobiologist in a tenure-track position. We are looking for an outstanding individual who has skills in immunohistochemistry, receptor biochemistry, and neurotransmitter physiology. Submit curriculum vitae, a short summary description of research interests, and the names of three references by 1 May 1981 to: **Bernard I. Grosser, M.D., Department of Psychiatry, University of Utah College of Medicine, Salt Lake City, Utah 84132; telephone: 801-581-7955.** The University of Utah is an Equal Opportunity Employer.

FISH CULTURE SPECIALIST—Newly formed consulting firm, specializing in rural development, seeks fish culture specialist to provide short-term and long-term technical assistance to domestic and overseas fish farming projects. Must have M.S. in aquaculture, fish farming, or preferably aquatic pathology; also one or more years of experience as fish farm manager and expertise in both cold- and warm-water culture. Developing country experience in project design, evaluation, and implementation preferred. Please send résumé to: **LandPlan, 3538 East Flower Street, Tucson, Ariz. 85716.**

MEDICINAL CHEMISTRY—ASSISTANT PROFESSOR

The College of Pharmacy, The University of Texas at Austin, is anticipating a tenure-track position available in the area of medicinal chemistry. Candidates should have a background in pharmacy or related discipline such as chemistry; postdoctoral experience; a strong commitment to research and to undergraduate and graduate education; and the potential for excellence in their fields. Research interests may be in any aspect of medicinal chemistry. Send curriculum vitae, copies of representative publications, and a brief outline of proposed research to: **Jaime N. Delgado, Ph.D., Professor of Pharmaceutical Chemistry, Area Coordinator, College of Pharmacy, The University of Texas at Austin, Austin, Texas 78712.**

**DIRECTOR
CENTER FOR ENVIRONMENTAL AND
ESTUARINE STUDIES
UNIVERSITY OF MARYLAND**

The University of Maryland seeks a director to serve as chief administrative officer for its Center for Environmental and Estuarine Studies, a branch of the University of Maryland. The Center is charged with the responsibility to produce and develop new knowledge in environmental matters through a program of research, education, and public service. Center headquarters are in Cambridge, Maryland, with three regional laboratories—Horn Point Environmental Laboratories located on the Eastern Shore coastal plain, Chesapeake Biological Laboratory on the Western Shore of the Chesapeake Bay, and the Appalachian Environmental Laboratory in the mountains of western Maryland.

Applicants should be distinguished environmental scientists with a proven record of scientific and administrative excellence, qualified for the rank of full professor in the University of Maryland. The successful candidate will be expected to provide administrative and programmatic leadership to growing academic and research programs. At present, the director administers a scientific and support staff of approximately 200, 45 of whom are academic faculty; operating and research budgets of approximately \$5 million; and a research fleet and a large physical plant. The director reports to the President of the University of Maryland, and is administratively equivalent to a Chancellor in the University of Maryland system.

Nominations are invited. Applicants should include current résumés and details of present responsibilities.

Nominations and applications should be sent to:

**Dr. David Sparks
Vice President for Graduate Studies and Research
Chairman, Search Committee, Director of CEES
University of Maryland
Wilson H. Elkins Building
3300 Metzgerott Road
Adelphi, Maryland 20783**

Those received by 3 April 1981 will receive full consideration. Those arriving after that date may be considered by the Committee if received before the final report is submitted. All applications and inquiries will be treated as confidential.

**FACULTY POSITIONS OPEN
COLLEGE OF AGRICULTURAL SCIENCES
AND FOODS**

**KING FAISAL UNIVERSITY
HOFUF, SAUDI ARABIA
Academic Year 1981-1982**

The expanding College of Agricultural Sciences and Foods of King Faisal University invites inquiries from qualified applicants for the 1981-1982 academic year in the following fields:

Biology	Plant Pathology
Chemistry	Agricultural
Physics	Economics
Biochemistry	Animal Science
Agronomy	Animal Ecology
Horticulture	Dairy Science
Bee Keeping	Agricultural Engineering
Poultry Science	Water Resources and
Home Economics	Climatology
Agricultural Extension	Aquatic Wealth

PREREQUISITES: Ph.D. or master's or equivalent degrees, practical and/or teaching experience. Knowledge of Arabic helpful, but not required.

Language of instruction is English.

Positions available September 1981; interviews scheduled with the dean in Houston and London in April/May 1981.

SALARY RANGES (approximate annual U.S. dollars):

Professor—\$25,469 to \$33,965
Associate professor—\$22,779 to \$28,973
Assistant professor—\$18,750 to \$27,487
Lecturer—\$11,611 to \$16,035

Salaries are paid monthly in Saudi riyals.

BENEFITS: Free furnished accommodations; substantial education allowance for up to four children. Air tickets to and from Saudi Arabia once per year for family of four. Sixty-day paid summer holiday, overweight allowance. No Saudi income tax. Contracts are for 1 year and renewable.

Send curriculum vitae with current telephone number, and the names, addresses, and telephone numbers of three references to: **Dr. Yahia Makki, Dean, College of Agricultural Sciences and Foods, King Faisal University, c/o Saudi Arabian Educational Mission, 2425 West Loop South, Houston, Texas 77027, OR c/o P.O. Box 2, Sudbury-on-Thames, Middlesex, TW16 5JP, England.**

13 MARCH 1981

PhD TOXICOLOGIST

Career opportunity with rapidly growing ethical pharmaceutical firm located in the Northeast. Responsibilities include designing, implementing and monitoring preclinical acute, subacute and chronic toxicity studies; evaluating data; preparing study reports; interacting on project teams. Will also assist in preparation of INDs and NDAs.

Requirements: PhD with at least 2 years' pharmaceutical toxicology experience preferred. Send resume, which must include salary history, to:

BOX 58, SCIENCE

An equal opportunity employer M/F



HARVARD
SCHOOL
OF
PUBLIC
HEALTH

SHORT COURSE PROGRAM

1981

Industrial Hygiene Workshop.....	March 23-27
Occupational and Environmental Radiation Protection.....	March 23-27
Planning for Nuclear Emergencies.....	June 8-12
In-Place Filter Testing Workshop	June 15-19
Environmental Radiation Surveillance.....	July 13-17
Harvard/ERT Joint Course on Air Pollution Meteorology	July 27-31
Occupational and Environmental Radiation Protection.....	August 24-28
In-Place Filter Testing Workshop ...	August 31- September 4
Current Topics in Industrial Hygiene	September 23- 25
Industrial Hygiene Workshop.....	October 19-23

Detailed information may be obtained by contacting:

Kathleen T. Fahey, Coordinator of Short Courses, Dept. of Environmental Health Sciences, Harvard School of Public Health
665 Huntington Avenue, Boston, MA 02115 (617) 732-1171

1237

POSITIONS OPEN

FACULTY POSITION—BIOCHEMISTRY/REPRODUCTIVE ENDOCRINOLOGY—UNIVERSITY OF MIAMI. The Department of Biochemistry is seeking a successor to the late John M. Marsh, professor of biochemistry and director of the Endocrine Laboratory, an interdepartmental research unit of the Departments of Biochemistry and Obstetric and Gynecology. This tenure-track appointment may be made at any level up to full professor. Candidates should have demonstrated ability to perform independent, funded research in the area of hormone biochemistry as it relates to reproductive processes in mammals. The appointee would also be affiliated with, or become the director of, the Endocrine Laboratory, and in addition, participate in, or assume the directorship of, an NIH training program in reproductive biology. This position is available immediately. Interested candidates should submit their credentials and the names of three referees to: **Dr. J. F. Woessner, Chairman, Search Committee, Department of Biochemistry R-127, University of Miami School of Medicine, P.O. Box 016960, Miami, Florida 33101.** An Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL APPOINTMENT now available for studies of the biogenesis, structure, and function of messenger RNA in animal cells. Training either in biochemistry, microbial genetics, or molecular biology required. Salary negotiable. Please send curriculum vitae and names of two references to: **Dr. Mary Edmonds, Department of Biological Sciences, 527 Langley Hall, University of Pittsburgh, Pittsburgh, Pa. 15260.** An Equal Opportunity Employer.

RESEARCH ASSOCIATE. Conduct research on the mechanism of biological electron transport. Applicants should be expert in flash photolysis and spectroscopic and chemical techniques at low temperatures to study transient oxygen intermediates of cytochrome oxidase. Physical biochemistry and organic synthesis. Ph.D. in chemistry and 3 years of experience required. Salary: \$16,000. Send résumé to: **Dr. Britton Chance, Johnson Research Foundation/G4, University of Pennsylvania, Philadelphia, Pa. 19104.** An Equal Opportunity Employer.

GENETIC ENGINEERING SUPERVISORY AND STAFF POSITIONS

An aggressive, rapidly growing New Jersey company committed to an academically oriented research and development program is soliciting applications for unique career opportunities in recombinant DNA and hybridoma research. Candidates should possess a doctorate and at least 2 years of intensive research experience in:

RECOMBINANT DNA—Nucleic acid biochemistry including DNA and mRNA purification, transcription, translation, microinjection, restriction analysis, hybridization, and sequencing.

HYBRIDOMA—Monoclonal protein production including cell fusion, separation, immunological characterization, and tissue culture. Experience with automated cell sorting equipment is desirable.

We offer an attractive location, excellent salaries, company benefits, profit sharing, and stock options. If you are looking for a position with scientific and financial growth potential in a company run by scientists, send curriculum vitae, including references, to:

**Dr. W. Levy
25 River Road, 26B
Nutley, N.J. 07110**

POSITIONS OPEN

FISHERIES

Extension, Research, and Teaching in Aquaculture

The Department of Entomology, Fisheries and Wildlife, the Minnesota Sea Grant Program, and the Agricultural Experiment Station are jointly sponsoring an assistant professorship (tenure-track) in aquaculture. Doctorate in fisheries (aquatic) biology required, and professional or field experience preferred. Specialization in genetics, fish diseases, or nutrition desirable. Individual will develop innovative research program, teach courses in aquaculture and, through Minnesota Sea Grant Extension, provide expertise to diverse professional user community and lay audiences. Extension efforts demand exceptional communication/education skills. Salary competitive. *The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.* Send curriculum vitae, statement of research interests, and three letters of recommendation to: **Dr. M. Weller and Dr. D. McNaught, Minnesota Sea Grant Program, 435 Animal Science, University of Minnesota, St. Paul, Minn. 55108,** by 15 April 1981.

FLOW CYTOMETRY SPECIALIST. Supervise operations of Laboratory of Cellular Analysis and Sorting. Primary duties will be in operating and scheduling, as well as in maintenance, training, and service. Requires master's (Ph.D. preferred) in immunology, cell biology, biophysics, biochemistry, or related field and experience in use of flow cytometers, \$12,000 minimum annually. Apply by 1 April to: **Dr. David W. Galbraith, 13 Manter Hall, The University of Nebraska-Lincoln, Lincoln, Nebraska 68588.** Affirmative Action/Equal Opportunity Employer.

IMMUNOLOGIST—A full-time faculty position at the level of assistant professor. Candidates must have Ph.D., M.D., or equivalent degree and demonstrate evidence of the ability to establish a strong independent research program in some aspect of molecular or cellular immunology. Duties will include teaching of graduate and medical students. This position offers an opportunity for a scientist to participate in the further development of active and ongoing research and training programs in immunology of this department and institution. Send curriculum vitae and references before 15 May 1981 to: **Dr. Gerald D. Shockman, Professor and Chairman, Department of Microbiology and Immunology, Temple University School of Medicine, 3400 North Broad Street, Philadelphia, Pa. 19140.** An Equal Opportunity/Affirmative Action Employer.

INFECTIOUS DISEASES/MICROBIOLOGY EPIDEMIOLOGIST. Applications are invited for a tenure-ladder position in the Division of Epidemiology, University of California, Los Angeles, School of Public Health, for an individual with a doctoral degree (Ph.D., M.D.-M.P.H., D.V.M.-M.P.H., and so forth) and appropriate experience in infectious diseases and medical and public health microbiology. A background in epidemiology is essential. This position will complement the training already available in parasitology, medical entomology, and arbovirology within the infectious and tropical diseases specialization of the epidemiology program. The development of graduate-level courses and a research program is expected. For a person with appropriate clinical qualifications, an affiliation with the appropriate medical school department is possible. Although the position is expected to be filled as an entry-level assistant professor, appointment at a higher rank may be considered for individuals with appropriate qualifications. *The University of California is an Equal Opportunity/Affirmative Action Employer; applications from minority and women candidates and other qualified persons are encouraged.* Candidates should submit curriculum vitae and three references to: **Professor Ralph Barr, Division of Epidemiology, School of Public Health, University of California, Los Angeles, Calif. 90024.** The application deadline is 1 April 1981 or until position is filled.

PALEONTOLOGIST. Tenure-track position; salary and rank to be determined by prior experience; Ph.D. required. Teaching duties include invertebrate paleontology and historical geology. Excellent research opportunities, beginning September 1981. Send résumé and three letters of recommendation to: **Chairman, Department of Geosciences, Rider College, 2083 Lawrenceville Road, Lawrenceville, N.J. 08648.** Deadline for applications is 1 May 1981. *Rider College is an Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

MEMBRANE BIOCHEMIST. A position as a research associate for a Ph.D. in biochemistry or enzymology is available. Applicant must have 1 to 3 years of postdoctoral experience in one or more of the following areas: (i) membrane protein and/or enzyme isolation and characterization, (ii) tissue culture and immunological techniques, or (iii) nucleic acid isolation and cell-free translation. Excellent opportunity to extend a research program dealing with the characterization, control, and mechanism of action of the integral membrane-bound thyroid peroxidase and control of the biosynthesis of thyroid hormones. Send curriculum vitae and three letters of recommendation by 10 April 1981 to: **Dr. Farahe Maloof, Thyroid Unit, Massachusetts General Hospital, Boston, Mass. 02114.** An Equal Opportunity Employer.

MICROBIOLOGY. Associate professor of microbiology with duties teaching molecular virology to medical, dental, and graduate (Ph.D.)-level students and performing research in the area of protein, DNA, and RNA sequencing as applied to influenza genetic and antigenic variation. Candidates must have Ph.D. and a minimum of 5 years of relevant postdoctoral experience in protein sequencing, DNA sequencing, and RNA sequencing using chemical and enzymatic methodologies. Salary range: \$29,300 to \$33,800. Applications will be accepted through 1 May 1981. Please send letter of interest and curriculum vitae, along with three references, to: **Kevin Bilson, Department of Microbiology, University of Alabama in Birmingham, University Station, Birmingham, Alabama 35294.** An Equal Opportunity/Affirmative Action Employer.

MOLECULAR GENETICS Ph.D.'s

The INTERNATIONAL PLANT RESEARCH INSTITUTE (IPRI) invites applicants for its rapidly expanding programs in advanced molecular genetics. Applicants with significant records of frontier achievements are invited to join a strong team of innovative scientific leaders in the pleasant San Francisco area.

Send résumé with recent publications to:

DIVISION OF MOLECULAR GENETICS, IPRI, 853 Industrial Road, San Carlos, Calif. 94070.

Equal Opportunity Employer, M/F

UNIVERSITY OF OKLAHOMA COLLEGE OF MEDICINE

Applicants are solicited for faculty positions in the following departments:

PEDIATRICS: (Number 282)—Assistant or associate professor. The responsibilities of the individual are to develop a research program in the area of exocrine secretion and to be involved in the teaching of medical students, house staff officers, and clinical fellows; advanced training and expertise in the area of exocrine physiology and biochemistry. Specialty training is a doctorate degree (M.D. or Ph.D.). Closing date is 30 May 1981. **(Number 283)**—Professor or associate professor. This individual will head the section of Pediatrics Pulmonary Medicine within the Department of Pediatrics and Oklahoma Memorial Hospital, will develop an active research program in the area of pulmonary diseases and physiology and develop a training program in that area, and will be involved in the teaching of house officers, medical students, and postgraduate fellows. M.D. with Board-certification in pediatrics and must have completed a 2-year fellowship in pulmonary medicine. Closing date for application is 30 May 1981.

Applicants should send curriculum vitae, identifying vacancy number for which they are applying, to: **G. Rainey Williams, M.D., Interim Dean, College of Medicine, University of Oklahoma Health Sciences Center, P.O. Box 26901, Oklahoma City, Okla. 73190.** We are an Equal Opportunity Employer.

POSTDOCTORAL POSITION available for theoretical polyelectrolyte calculations of intercalative dye binding to DNA and specific ion effects on DNA conformation. Start no later than 1 June 1981; \$12,500. Résumé and references to: **Dr. Gerald Manning, Rutgers University, School of Chemistry, P.O. Box 939, Piscataway, N.J. 08854.** Affirmative Action/Equal Opportunity Employer.

POSTDOCTORAL POSITION available immediately to work on the virus-cell interaction of Simian virus 40 and polyoma in permissive, nonpermissive, and murine teratocarcinoma cells. Experience in cell or molecular biology is desirable. Write to: **John M. Lehman, Department of Pathology, University of Colorado School of Medicine, 4200 East Ninth Avenue, Denver, Colorado 80262.**

POSITIONS OPEN

PHYSIOLOGIST

A tenure-track position at the rank of instructor or assistant professor is available. Qualifications include a Ph.D. degree or its equivalent and, at the assistant professor level, a minimum of 2 years of postdoctoral training. The successful candidate will be expected to participate in a group conducting research on the control of vasopressin secretion and metabolism and on the role of vasopressin in hypertension. Other duties include participating in the teaching programs of this department. Applicants should submit curriculum vitae, list of publications, statement of research interests, and three letters of recommendation to: **Dr. Leonard Share, Professor and Chairman, Department of Physiology and Biophysics, Memphis, Tennessee 38163. An Equal Opportunity/Affirmative Action Employer.**

PHYSIOLOGIST

A tenure-track position at the assistant professor level beginning 25 August 1981. A candidate should have the Ph.D. degree, should be firmly committed to undergraduate teaching, and be willing to start an active research program involving students. Responsibilities include instructing in cell physiology, comparative animal physiology, genetics, and possibly one section of general zoology every other semester. Salary commensurate with education and experience. Application deadline: 27 March 1981. Send résumé to: **Dr. James McKeown, Biology Department, Millsaps College, Jackson, Miss. 39211.**

POSTDOCTORAL ASSOCIATES and SENIOR VISITING SCIENTISTS Ecosystems Research Center Cornell University

The U.S. Environmental Protection Agency has recently established the Ecosystems Research Center at Cornell University. The goals of the Center are the identification of fundamental principles and concepts of ecosystems science and the testing of their importance in evaluating the responses of ecosystems to stress. The principal approach will be through the development of syntheses from existing long-term and other ecosystem studies.

The Center has available both postdoctoral associate and senior visiting scientist positions for individuals with Ph.D.'s and demonstrated research ability in relevant areas. Terms of appointment are flexible. Interested individuals are invited to send letters of application to: **Simon Levin, Director, Ecosystems Research Center, 468 Hollister Hall, Cornell University, Ithaca, New York 14853.** Applications will be reviewed beginning 30 March 1981.

Cornell University is an Equal Opportunity/Affirmative Action Employer.

POSTDOCTORAL FELLOW

Ph.D. position available for tumor biology research involving cell kinetics, drugs, radiation, and immunobiology. NIH stipend. Available immediately. Send curriculum vitae and names of references to: **Lewis M. Schiffer, M.D., Director, Cancer Research Laboratories, Allegheny-Singer Research Corporation, 320 East North Avenue, Pittsburgh, Pa. 15212. An Equal Opportunity Employer.**

POSTDOCTORAL RESEARCHER, BIOLOGICAL SCIENCES, commencing 1 June. One-year position to study the mechanism of plant virus transmission by beetles. Experience with plant rinses and/or beetles desirable. Salary: \$14,000. Apply by 30 April to: **Dr. Leslie C. Lane, Plant Pathology Department, The University of Nebraska-Lincoln, Lincoln, Nebraska 68583. Affirmative Action/ Equal Opportunity Employer.**

POSTDOCTORAL RESEARCH TRAINING IN CHILD PSYCHIATRY

Positions are available for 2 years in research training at the interface between biological and experiential factors that contribute to developmental disabilities. Previous clinical training in child psychiatry or a graduate degree (Ph.D.) in developmental psychology are required. Stipends commensurate with current NIH guidelines for years of postgraduate experience. Apply by sending curriculum vitae, a brief summary of research interests, and addresses of three references to: **Dr. Peter H. Wolff, Children's Hospital Medical Center, 300 Longwood Avenue, Boston, Mass. 02115.**

An Equal Opportunity/Affirmative Action Employer

RIYADH UNIVERSITY KINGDOM OF SAUDI ARABIA

The University of Riyadh invites applications for the following vacancies in its COLLEGE OF PHARMACY for the academic year 1981-82 with the requisites indicated:

Consultants:	Ph.D. in Natural Products with 4 years experience. Ph.D. in Biological Screening with 4 years experience.
Medical Plants Taxonomist:	Ph.D. with 4 years experience.
Research Assistants:	M.S. in Pharmaceutical Chemistry. B.S. in Pharmacy or Chemistry with experience in Instrumentation. M.S. in Pharmacognosy. M.S. in Natural Products.
Computer Programmer:	A degree in Computer Programming with 3-5 years experience.
Teaching Assistants:	B.S. in Pharmacy with experience.
Qualified Laboratory Technicians:	HND or HNC in Chemistry. HND or HNC in Phytochemistry. Higher diploma with experience in student laboratories. HND or HNC in Biology.
Instructional Aids Technician:	University degree and experience in Instructional Aids.
Laboratory Technicians:	Diploma or experience in Pharmaceutical Chemistry. Diploma or experience in Phytochemistry. B.S. in Pharmacy with 3 years experience.
Veterinary Technician:	B.S. Veterinary Medicine.
Technical Laborers:	Experience in Animal Breeding and Animal Housing.
English Typists:	Intermediate with diploma in typing and shorthand with experience.

Facilities provided by the University include attractive taxfree salaries, accommodation allowance, furniture allowance, round trip air tickets for self and family and free medical treatment in government hospitals.

Curriculum vitae and non-returnable copies of academic and experience credentials, together with two recent passport size photographs should be sent to:

Dean
College of Pharmacy
University of Riyadh
P. O. Box 2457
Riyadh, Saudi Arabia

A second copy of the applicants' papers should be sent to:

University of Riyadh
Recruitment Office
c/o Saudi Arabian Educational Mission
2425 West Loop South
Houston, Texas 77027 USA

POSITIONS OPEN

POSTDOCTORAL RESEARCH ASSOCIATE position available for recent Ph.D. in physics or medical physics to join research group investigating medical applications of nuclear technology, including neutron resonance spectroscopy, x-ray fluorescence, prompt and delayed neutron activation analysis, and Van de Graaff technology. These techniques are used for noninvasive measurement of human elemental composition and body and organ burdens. Send curriculum vitae to: Dr. Donald C. Borg, Chairman, Medical Research Center, Brookhaven National Laboratory, Associated Universities, Inc., Upton, Long, Island New York 11973. An Equal Opportunity Employer, M/F.

POSTDOCTORAL RESEARCH FELLOW, EMBRYOLOGIST, Ludwig Institute for Cancer Research, Tumour Biology Unit, Melbourne, Australia. This position is to work in the Cell Biology Group in collaboration with Dr. Roberts Whitehead on the cell biology of fetal epithelial development. The work will involve the isolation of epithelial cells from different stages during murine fetal development and the subsequent analysis of the proliferation potentials in soft agar cloning assays. Applicants should have worked in the general field of embryology, preferably with some experience in tissue culture technique. The initial appointment will be at the level of research fellow grade 1 (\$16,969 to \$17,933 per annum) for 2 years. Application and further enquiry should be addressed to: Administrator, Ludwig Institute for Cancer Research, Post Office Royal Melbourne Hospital 3050, Victoria, Australia. Applications, including curriculum vitae, publication list, and the names of three referees, will close on 27 March 1981.

PROFESSOR AND CHAIRMAN DEPARTMENT OF PHYSIOLOGY The Texas College of Osteopathic Medicine

Applications are invited for the position of professor and chairman of the Department of Physiology, Texas College of Osteopathic Medicine. The Texas College of Osteopathic Medicine is a state-supported medical school dedicated to academic and research excellence. Applications are sought from individuals with an acknowledged history of providing quality education to medical and graduate students and who have demonstrated scholarly productivity in active research programs. Persons with primary interests in major organ systems are especially encouraged to apply. Candidates should demonstrate academic excellence, leadership, administrative skills, and an ability to attract and maintain research funding. Interested individuals should submit inquiries or letters of application with curriculum vitae and references to:

Robert W. Gracy, Ph.D.
Chairman of the Search Committee
Texas College of Osteopathic Medicine
Camp Bowie at Montgomery
Fort Worth, Texas 76107

The Texas College of Osteopathic Medicine is an Equal Opportunity/Affirmative Action Employer.

POLYTECHNIC INSTITUTE OF NEW YORK SEEKS PROVOST

Polytechnic Institute of New York is a coeducational, independent, technological university. It was created in 1973 through a merger of the School of Engineering and Science of New York University with the Polytechnic Institute of Brooklyn. It has campuses in New York City, Long Island, and Westchester. It offers programs at the bachelor's, master's, and doctorate level.

The provost is the chief academic officer of the Institute and reports directly to the president. The preferred candidate should be a strong academic leader and administrator.

Nominations and applications should be sent to:

**Presidential Services Division
Academy for Educational Development
680 Fifth Avenue
New York, New York 10019**

An Affirmative Action/Equal Opportunity Employer

RESEARCH ASSOCIATE. Multidisciplinary group studying basic interrelationships between pituitary, hormones, nutrition, and breast cancer in animal models. A Ph.D. with endocrinology and RIA training required. Salary negotiable. Open immediately. Deadline: 27 March or until position is filled. Contact: W. J. Visek, 190 Medical Sciences Building, University of Illinois, Urbana, Ill. 61801; telephone: 217-333-0119. *The University of Illinois is an Affirmative Action/Equal Opportunity Employer.*

POSITIONS OPEN

Applications and nominations are requested for the **PROFESSOR AND CHAIR** of the Department of Surgery, The University of Texas Medical School at Houston. Position requires a clinical surgeon with major experience and qualifications in academic surgery and substantial administrative ability. *The University of Texas is an Equal Opportunity Employer.* Inquiries and recommendations should be addressed to:

R. Rodney Howell, M.D.
Chairman, Surgical Search Committee
Professor and Chairman
Department of Pediatrics
The University of Texas Medical School at Houston
P.O. Box 20708
Houston, Texas 77025

PROJECT ASSOCIATE. The Theoretical High Energy Physics Research Group invites applications for a full-time (40 hours per week) project associate position. The person filling the position will collaborate with members of the Theoretical/Mathematical High Energy Physics Group on field theoretical work. This work will include theoretical research in nonperturbative techniques in field theory, dynamical symmetry breaking calculations, and grand unified theory/supergravity model building. Applicants must hold a Ph.D. in theoretical high energy physics. Salary competitive. Contact: B. Durand, Department of Physics, University of Wisconsin, Madison, Wis. 53706.

The University of Wisconsin is an Equal Opportunity/Affirmative Action Employer.

RESEARCH ASSOCIATE. Ph.D. in organic chemistry or 3 years of experience with expertise in the analysis of natural plant products. Position involves the study of natural plant products on feeding patterns and dynamics of herbivorous insects. Duties are to analyze plant tissues for sesquiterpene lactones, monoterpenes, alkaloids, saponins, and other low-molecular-weight organic compounds. Experience in gas and high-pressure liquid chromatography techniques and identification procedures of natural plant products required. Available immediately for a period of 2 years. Beginning salary: \$14,000 to \$16,000. Send curriculum vitae, statement of research experience, and three letters of recommendation to: **Rex G. Cates, Department of Biology, University of New Mexico, Albuquerque, N.M. 87131.** Application deadline: 15 April 1981. *An Equal Opportunity/Affirmative Action Employer.*

SENIOR RESEARCH SCIENTIST— HAZARDOUS WASTE TECHNOLOGY AND POLICY

Job requires leadership in defining appropriate research objectives and approaches within the milieu of a small interdisciplinary group in a traditional academic setting. Requirements include: (i) successful record both in technical research and in public policy analysis in the area of hazardous wastes; (ii) science or engineering Ph.D.; (iii) successful experience in technical research settings; and (iv) demonstrated program management skills, including group leadership, fund raising, and supervision of projects. Government or public interest group experience also helpful. Two openings available. Send résumé to:

**Center for Energy and Environmental Studies
Engineering Quadrangle
Princeton University
Princeton, N.J. 08544**

Equal Opportunity/Affirmative Action Employer

JET PROPULSION LABORATORY (JPL) TECHNICAL GROUP SUPERVISOR

Ph.D. or M.S. degree required in physics or electrical engineering. Prefer 10 to 15 years of experience with IR detectors or a background in solid-state physics combined with the ability to supervise a diverse group of professionals, management of R & D contracts, and hands-on experimental background. The successful candidate will supervise a technical group engaged in the development of infrared detector arrays for current and future missions. The activity includes participation in mission and experimental studies, requirement definition, industry surveys, contracted development, and in-house programs.

Please telephone: A. Corral at 213-354-4776 for further details or send résumé to: Professional Staffing, Department Number E28

**Jet Propulsion Laboratory
California Institute of Technology
4800 Oak Grove Drive
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POSITIONS OPEN

RESEARCH POSITION, permanent, at university hospital. Immunochemist or immunologist with biochemical background. Doctorate required. Work on immunological aspects of human cancer. Experience in radioisotope work, antibody fractionation, labeling, and immunoassays necessary. Excellent salary and benefits. Send curriculum vitae and bibliography to: **Gerry Parker, Immunochemistry Research, Evanston Hospital, 2650 Ridge Avenue, Evanston, Ill. 60201.**

SEDIMENTOLOGY UNIVERSITY OF MINNESOTA

The Department of Geology and Geophysics invites applications for a temporary faculty position in recent sediments starting September 1981. This is likely to become a tenure-track assistant professor position starting fall 1982. Opportunities exist for interaction with the Limnological Research Center and with active research programs in paleoecology, paleomagnetism, hydrogeology, and low-temperature geochemistry, as well as with the St. Anthony Falls Hydraulic Laboratory. Ph.D. and strong interest in research are required. Résumé, statement of research interests, transcripts, and three letters of recommendation should be sent by 28 March to:

**Dr. Anita L. Crews
Sedimentology Search Committee
Department of Geology and Geophysics
University of Minnesota
108 Pillsbury Hall
Minneapolis, Minn. 55455**

The University of Minnesota is an Equal Opportunity Educator and Employer and specifically invites and encourages applications from women and minorities.

TEACHING AND RESEARCH POSITION in international agricultural development (IAD) at the assistant/associate/full professor level. Ph.D. in related field with strong background in social and management systems for IAD is required. Teaching responsibilities will include undergraduate and graduate courses in agricultural development. Recent overseas experience required. Research on issues and problems of rural and agricultural development would be expected. Applicants should submit statement of qualifications and research interests, résumé, list of publications, and the names and addresses of at least three references to: **Marc Pilisuk, Chair, Applied Behavioral Sciences, University of California, Davis, Calif. 95616.** Applications should be received by 1 May 1981 to be assured of consideration. Position available 1 July 1981. *The University of California is an Equal Opportunity/Affirmative Action Employer and invites applications from all qualified individuals.*

TOXICOLOGY AND BIOCHEMISTRY. Two research associate positions available immediately at Pesticide Research Center, Michigan State University (MSU). Ph.D. and knowledge of toxicological experimentation and neurochemical techniques desirable. Send curriculum vitae and names of two references to: **Dr. Fumio Matsumura, Room 107, Pesticide Research Center, Michigan State University, East Lansing, Mich. 48824.**

MSU is an Affirmative Action/Equal Opportunity Institution.

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP IN VIROLOGY

At Burroughs Wellcome Co.

To study the chemotherapy of herpesviruses. Research projects include mechanisms of viral resistance, comparisons of viral virulence in animal models, and factors influencing virus latency. This position begins in June 1981 for a 2-year period. Candidates must have a Ph.D. or M.D. with training in general virology. Experience in antiviral chemotherapy or viral immunology is desired.

BURROUGHS WELLCOME CO., a progressive pharmaceutical company, has close research contact with three major universities. Interested candidates should forward curriculum vitae to: **Employment Supervisor, BURROUGHS WELLCOME CO., 3030 Cornwallis Road, Research Triangle Park, N.C. 27709; or telephone: 919-541-9090, extension 4649.**

An Equal Opportunity Employer. Minority, veteran, and handicapped individuals are encouraged to apply.

**Chairperson
Department of Pathology
College of Medicine
University of South Florida**

The newly formed, scholarly, forward looking administration of this College of Medicine is reopening the search for Chairperson of Pathology. The candidate must have a commitment to academic excellence including a distinguished research background, development of a strong clinical pathology program and teaching expertise. Administrative experience must also be demonstrated.

The candidate should possess an M.D. degree with appropriate board certification.

Salary is competitive and negotiable. The position is available July 1, 1981. The application deadline is April 30, 1981.

Nominations or applications including a curriculum vitae and a list of at least three references should be sent to:

**Dr. Carleton Baker
Associate Dean for Research
and Graduate Affairs
College of Medicine, Box 40
University of South Florida
12901 N. 30th Street
Tampa, Florida 33612**

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Position requires a DVM and/or PhD in the area of Microbiology, with advanced training and/or experience in molecular virology or bacteriology, familiarity with protein and nucleic acid chemistry and understanding of analytical and preparative separation techniques. Previous supervisory and training experience desirable.

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MICROBIOLOGIST

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Abbott Laboratories is an established and growing leader in the international health care field. We are seeking an experienced Scientist to conduct applied research involving biological methods development related to new product and materials evaluation. Responsibilities of the position will include tissue culture studies, vitamin bioassays, antibiotic efficiency evaluation, and studies involving the use of radioactive isotopes.

To qualify, you should have a MS or Ph.D. in Microbiology, Biochemistry or a related area plus significant experience in development of experimental design related to product development, data collection and reporting/assessing results. A working knowledge of spectrophotometers, chromatography equipment and isotope counting equipment will be essential.

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THE AUSTRALIAN NATIONAL UNIVERSITY invites application for appointment to the post of FELLOW (one position) and RESEARCH FELLOW (two positions) in the Research School of Earth Sciences from those holding a Ph.D. degree in a relevant field. The research of the Geophysical Fluid Dynamics group has been in two main areas: laboratory and theoretical models of convection and mixing in the ocean; and studies of fluid dynamical processes in the interior of the earth. Recent work has included studies of mixing across oceanic fronts, the melting of icebergs in a stratified environment, and fluid processes relevant to the formation of ore deposits and of layered igneous intrusions. The group has a well-equipped laboratory, including a DEC computer for data logging and analysis, and the staff at present comprises Professor J. S. Turner, two research fellows, and two technical officers. For the appointment as fellow, preference will be given to a person with experience in the application of fluid mechanics to both oceanographic and solid earth problems, and a strong background in both theoretical and experimental work. For a highly qualified applicant, an appointment at the senior fellow level would be considered. Candidates for the research fellow posts should have qualifications and experience related to at least one of the fields outlined above and are invited to submit an outline of their proposed research program with their application. The successful applicants will be free to conduct their own independent research within the overall program of the group, and there are excellent opportunities to pursue interdisciplinary research with other groups in the School. Further information can be obtained from Professor Turner. Salary will be according to qualifications within the ranges: senior fellow, \$29,917 to \$34,870 per annum; fellow, \$22,301 to \$29,877 per annum; research fellow, \$19,132 to \$24,972 per annum, Australian currency. Present exchange rate A\$1 = U.S.\$1.16. Appointment as research fellow will be up to 3 years with possible extension to 5 years and as senior fellow/fellow, 5 years with possible reappointment to age 65. Reasonable appointment expenses are paid and assistance with finding accommodation is provided for an appointee from outside Canberra. Superannuation benefits are available. The University reserves the right not to make an appointment or to make an appointment by invitation at any time. Applicants should write to: Registrar, Australian National University, P.O. Box 4, Canberra ACT 2600, Australia, with whom applications close on 17 April 1981.

FELLOWSHIPS

POSTDOCTORAL FELLOWSHIP—Research on human blood cell antigens. Experience in cell culture and immunochemical techniques highly desirable. Excellent salary and fringe benefits. Send description of research experience, curriculum vitae, and names of three references to: **Dr. Richard Kahn, Missouri-Illinois Red Cross, St. Louis, Missouri 63108.**

HYPERTENSION RESEARCH FELLOWSHIPS. Fellowships in hypertension research for 2 years, with option of one or more additional years of clinical training for qualified applicants, are available at the Mayo Clinic and Mayo Graduate School of Medicine. This NIH-funded multidisciplinary program provides research training in hypertension by faculty in nephrology, endocrinology, cardiovascular disease, clinical pharmacology, pediatrics, biochemistry, and physiology. Applicant should have the M.D. or Ph.D. degree and hold a permanent visa if not a citizen of the United States. Degree programs leading to the master's or Ph.D. degrees are available to individuals with the M.D. degree. For further information, write to: **R. M. Weinshilboum, M.D., Director, Multidisciplinary Hypertension Research Training Program, Mayo Clinic, Rochester, Minn. 55901.**

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HARVARD SCHOOL OF PUBLIC HEALTH POSTDOCTORAL FELLOWSHIPS



Interdisciplinary Programs in Health (IPH) invites applications from promising graduates of advanced degree programs in the natural or social sciences interested in turning to research and training in environmental health problems. The program focuses on both scientific and assessment and analysis of public policy.

Fellows will be appointed for terms of 1 or 2 years, possibly renewable. Deadline for applications is 24 April 1981. Expected decision date is 29 May 1981. Expression of interest is particularly invited from qualified women and minority candidates.

For information, write to:

**Professor Donald F. Hornig
Director, IPH
Harvard School of Public Health
665 Huntington Avenue
Boston, Massachusetts 02115**

IMPERIAL CANCER RESEARCH FUND RESEARCH FELLOWSHIPS

Applications are invited for the following 3-year, pensionable postdoctoral fellowships:

- 1) In Dr. Brigid Hogan's laboratory at Mill Hill, London NW7, to work on the role of the extracellular matrix on the growth and differentiation of epithelial cells and embryonic tissues. Scientists with a background in biochemistry or protein chemistry, as well as cell biology, are encouraged to apply. Further information from: **Dr. B. Hogan, telephone: 01 959 3236. Reference MH.**
- 2) In the joint laboratories of tumour virology and viral leukaemogenesis at Lincoln's Inn Fields to apply recombinant DNA techniques to the study of virus-induced oncogenesis. Molecular cloning of RNA tumour viruses is being undertaken to investigate, by a combination of restriction enzyme analysis, DNA sequencing and DNA transfection, the structure and function of mutant and wild-type viral transforming genes, and their interaction with host cell sequences in which they integrate. Further information from: **Dr. John Wyke, telephone: 01 242 0200, extension 270. Reference TV.**

Salary scale: £6985 to £8845, plus London allowance of £967 a year (total pensionable pay: £7952 to £9812 a year), with entry point according to qualifications and experience.

Applications with curriculum vitae and names of two referees should be sent to: **Secretary, Imperial Cancer Research Fund, Lincoln's Inn Fields, London WC2, England, by 30 April 1981, quoting reference as above.**

FELLOWSHIPS

PRE- AND POSTDOCTORAL FELLOWSHIPS in neurophysiology; studies in brain metabolism utilizing microelectrodes.

**Dr. James Halsey
Department of Neurology
University of Alabama Medical Center
Birmingham, Ala. 35294
Telephone: 205-934-2400
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PRE- AND POSTDOCTORAL FELLOWSHIPS IN ENVIRONMENTAL TOXICOLOGY

Supported by a 5-year NIEHS program and private foundations for eight pre- and five postdoctorals in biomedical sciences towards research careers in toxicology. Areas include biochemical, neurobehavioral, pathology, reproductive, teratology, cell cultures, hepatic and colonic carcinogenesis. Write or telephone: **Dr. R. Abraham, Professor and Director, Institute of Experimental Pathology and Toxicology, Albany Medical College, Albany, New York 12208. Telephone: 518-445-5489.**

IMPERIAL CANCER RESEARCH FUND RESEARCH FELLOWSHIP

Applications are invited for a 3-year postdoctoral appointment to clone mammalian DNA sequences specifying control regions, structural genes, and transforming genes and to test the expression and biological activity of the cloned sequences by the use of DNA transfection techniques and eukaryotic vector systems.

Salary range: £6985 to £8845, plus London allowance of £967 a year, with entry point according to qualifications and experience.

Further information from: **Dr. M. Fried, telephone: 01 242 0200, extension 297.** Applications with curriculum vitae and names of two referees should be sent to: **Secretary, Imperial Cancer Research Fund, Lincoln's Inn Fields, London WC2, England, by 30 April 1981, quoting reference 50/81.**

GRADUATE STUDY

GRADUATE STUDIES IN PHARMACOLOGY

The Department of Pharmacology offers graduate courses and research training in the areas of autonomic, biochemical, and cardiovascular pharmacology. The program provides all the basic courses in biochemistry, physiology, and general pharmacology with specialized instruction in several cardiovascular areas, including the neural and hormonal control of the circulation, the cerebral circulation, the microcirculation, and biochemical studies on neurotransmission at monoamine synapses in the periphery and CNS. NIH predoctoral traineeships and teaching and research assistantships are available for financial support. Interested candidates with a degree in any area of basic science should write now for further information to: **Dr. Mustafa F. Lokhandwala, Chairman, Department of Pharmacology, University of Houston, Houston, Texas 77004.**

GRADUATE STUDIES IN ANATOMY. Fellowships leading to the Ph.D. degree in anatomy available fall 1981 at University of Kentucky Medical Center. Programs offer diverse training in research areas related to morphological sciences as well as general courses covering all aspects of human anatomy. Research techniques include: electron microscopy, stereology, autoradiography, stereotaxic surgical and infusion procedures, radioimmunoassay, tissue culture, fluorescence microscopy, histochemistry, enzyme assay, and others. Major research interests of the department include respiratory biology, neurobiology, neuroendocrinology, reproductive biology, biology of aging, and others. Anatomy Department is affiliated with Kentucky Tobacco Research Institute and Sanders-Brown Research Center on Aging and Neurology through joint appointments, shared research space, and research and teaching interests. Applicants should have a strong background in science and a sincere interest in an academic career. Stipends begin at \$5000 per year. Applications should be complete by 30 April. For further information regarding curriculum, research programs, and applications procedure, write: **Dr. H. Traurig, Director of Graduate Studies, Anatomy, University of Kentucky Medical Center, Lexington, Ky. 40536.**

Affirmative Action/Equal Opportunity Institution

ASSOCIATESHIPS

POSTDOCTORAL AND SENIOR POSTDOCTORAL RESEARCH

ASSOCIATESHIPS IN MUSCLE BIOLOGY
National Aeronautics and Space Administration (NASA), in conjunction with the National Research Council, sponsors a Resident Research Associateship Program at Ames Research Center, Moffett Field, California. Opportunities are available to conduct research relative to biochemical, endocrine, and neurotrophic mechanisms underlying disuse atrophy of skeletal muscle. Regular (within 5 years of Ph.D.) and senior associateship applicants must apply by 15 April or 15 August 1981 for competitive reviews of candidates held by the National Research Council. Detailed information on the research program can be obtained from: **Dr. Stanley Ellis, NASA-Ames Research Center, Moffett Field, Calif. 94035 telephone: 415-965-5757.** Application materials may be obtained from: **Associateship Office, JH608F2, National Research Council, 2101 Constitution Avenue, NW, Washington, D.C. 20418.**

DONATION REQUEST

BOOKS AND PERIODICALS REQUESTED

New Marine Sciences Research Laboratory, established in Costa Rica by the National Research Council on Science and Technology (CONICIT), requests the donation of back and new issues of periodicals and books on marine sciences. CONICIT will pay postage and handling costs. Send list of titles and volumes to: **Information Department, CONICIT, Apartado postal 10318, San José, Costa Rica.**

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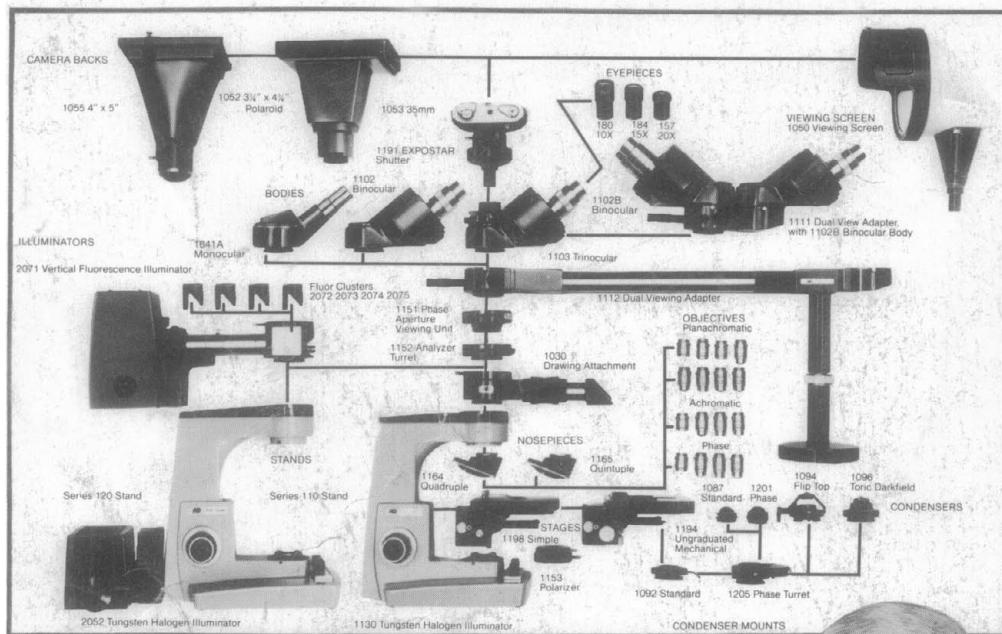
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