

ance of a book for students of particle physics that mentions quarks only in passing is somewhat surprising. While I regard Pilkuhn's selection of topics as excessively reactionary, it is not without merit. It is important for students to become familiar with a broad range of the phenomena that are the concern of high energy physics. Many aspects of these phenomena cannot be described economically on the constituent level, although systematics frequently can be interpreted neatly in terms of quarks. Beyond this, the author seems to have in mind a wider audience than incipient particle physicists, including students of intermediate energy and classical nuclear physics. The reader of *Relativistic Particle Physics* will indeed gain an awareness of the general phenomenology of particle physics but will have a somewhat dated impression of what constitutes current theoretical and experimental research.

The strong point of the book is its treatment of nonstandard textbook topics in applied relativistic quantum mechanics. The classical applications are to problems in atomic structure, but these have served as prototypes for recent descriptions of hadron masses. Generally speaking, techniques are thoroughly explained but specific experimental facts are described only briefly. The discussion of the Weinberg-Salam model is quite condensed. The subtleties of spontaneous symmetry breaking are not adequately explained, and no comparison is made with data. In contrast, the chapters on hadron-hadron scattering contain good introductions to a number of useful methods.

For use as a textbook, *Relativistic Particle Physics* would be improved by the addition of sets of problems and by the inclusion in the bibliography of more review articles or summer school lectures that contain pedagogical discussions of specific topics. Several criticisms must be directed to the publisher. To conserve space, equations have been set in a most annoying format: $3/8\pi^{-12-1/2}$ is a typical infelicity. Many of the figures are sloppily executed, the proofreading is less than meticulous, and the style of the bibliography is inconsistent.

Relativistic Particle Physics is devoted to techniques of lasting interest. Although its viewpoint is not thoroughly modern, it provides a serviceable introduction to high energy physics on the graduate level, and individual sections may be read profitably by researchers.

CHRIS QUIGG

Fermi National Accelerator Laboratory,
Batavia, Illinois 60510

Books Received

Advances in Archaeological Method and Theory. Vol. 2. Michael B. Schiffer, Ed. Academic Press, New York, 1979. xii, 340 pp., illus. \$26.

Advances in Behavioral Pharmacology. Vol. 2. Travis Thompson and Peter B. Dews, Eds. Academic Press, New York, 1979. xii, 264 pp., illus. \$23.50.

Advances in Desert and Arid Land Technology and Development. Vol. 1. Papers from a conference, Cairo, Sept. 1978. Adli Bishay and William G. McGinnies, Eds. Harwood Academic Publishers, New York, 1979. xii, 618 pp., illus. \$66.

Biomembranes. Vol. 10. Lionel A. Manson, Ed. Plenum, New York, 1979. xii, 242 pp., illus. \$29.50.

Breast Cancer. Advances in Research and Treatment. Vol. 3, Current Topics. William L. McGuire, Ed. Plenum, New York, 1979. xvi, 272 pp., illus. \$39.50.

Bridge and Pier Protective Systems and Devices. Kenneth N. Derucher and Conrad P. Heins, Jr. Dekker, New York, 1979. xvi, 328 pp., illus. \$29.50. Civil Engineering, 1.

Calculus in Vector Spaces. Lawrence J. Corwin and Robert H. Szczarba. Dekker, New York, 1979. xii, 782 pp., illus. \$65. Monographs and Textbooks in Pure and Applied Mathematics, 52.

Cancer. Myths and Realities of Cause and Cure. Manu L. Kothari and Lopa A. Mehta. Marion Boyars, Salem, N.H., 1979. 160 pp. Cloth, \$12; paper, \$4.95. Ideas in Progress.

Cancer. Science and Society. John Cairns. Freeman, San Francisco, 1978. xiv, 200 pp., illus. Cloth, \$13; paper, \$7.50. A Series of Books in Biology.

Clinical Infant Intervention Research Programs. Selected Overview and Discussion. Alcohol, Drug Abuse, and Mental Health Administration, Rockville, Md., 1979 (available from the Superintendent of Documents, Washington, D.C.). x, 124 pp. Paper, \$3.75. DHEW Publication No. (ADM)79-748.

Cognitive-Behavioral Interventions. Theory, Research and Procedures. Philip C. Kendall and Steven D. Hollon, Eds. Academic Press, New York, 1979. xx, 482 pp. \$24. Personality and Psychopathology, 21.

Cognitive Psychology. Wayne A. Wickelgren. Prentice-Hall, Englewood Cliffs, N.J., 1979. xii, 436 pp., illus. \$15.95.

Developmental Craniofacial Biology. Harold C. Slavkin. Illustrations by Maureen Dubois. Lea and Febiger, Philadelphia, 1979. xvi, 464 pp., illus. \$45.

Developmental Disabilities. Etiologies, Manifestations, Diagnoses, and Treatments. Robert J. Thompson, Jr., and Aglaia N. O'Quinn. Oxford University Press, New York, 1979. x, 308 pp., illus. Cloth, \$13.95; paper, \$8.95.

Differential and Integral Equations. Boundary Value Problems and Adjoints. Štefan Schwabik, Milan Tvrdý, and Otto Vejvoda. Reidel, Boston, 1979. 248 pp. \$39.50.

Dislocations in Solids. Vol. 1, The Elastic Theory. F. R. N. Nabarro, Ed. North-Holland, Amsterdam, 1979 (U.S. distributor, Elsevier, New York). viii, 350 pp., illus. \$61.

Electrons in Disordered Metals and at Metallic Surfaces. Papers from a NATO Advanced Study Institute, Ghent, Belgium, Aug. 1978. P. Phariseau, B. L. Györfy, and L. Scheire, Eds. Plenum, New York, 1979. viii, 574 pp., illus. \$59.50. NATO Advanced Study Institutes Series B, vol. 42.

Electro-Optics and Dielectrics of Macromol-

ecules and Colloids. Proceedings of a conference, Uxbridge, England, Apr. 1978. Barry R. Jennings, Ed. Plenum, New York, 1979. xvi, 408 pp., illus. \$42.50.

Elie Cartan-Albert Einstein Letters on Absolute Parallelism, 1929-1932. Robert Debever, Ed. English translation by Jules Leroy and Jim Ritter. Princeton University Press, Princeton, N.J., 1979. xvii, 236 pp. \$20.

Encyclopedia of Medical Tests. Cathey Pinckney and Edward R. Pinckney. Pocket Books, New York, 1978. 222 pp. Paper, \$4.95. A Wallaby Book.

Freud, Biologist of the Mind. Beyond the Psychoanalytic Legend. Frank J. Sulloway. Basic Books, New York, 1979. xxvi, 612 pp., illus. \$20.

From Panic to Power. The Positive Use of Stress. John J. Parrino. Wiley, New York, 1979. xviii, 260 pp., illus. \$12.95.

Function and Structure of the Immune System. Proceedings of a conference, Damp/Kiel, Germany, June 1978. Wolfgang Müller-Ruchholtz and Hans Konrad Müller-Hermelink, Eds. Plenum, New York, 1979. xxii, 850 pp., illus. \$75. Advances in Experimental Medicine and Biology, vol. 114.

Functional Integration and Quantum Physics. Barry Simon. Academic Press, New York, 1979. xii, 298 pp. \$29.50. Pure and Applied Mathematics, vol. 86.

Fundamentals of Contemporary Set Theory. Keith J. Devlin. Springer-Verlag, New York, 1979. viii, 184 pp. Paper, \$9.50.

Good Laboratory Practice. Papers from a conference. G. E. Paget, Ed. University Park Press, Baltimore, 1979. xiv, 204 pp., illus. \$24.50. Topics in Toxicology.

Group Psychotherapy and Personality. Intersecting Structures. Henry Kellerman. Grune and Stratton, New York, 1979. xxii, 346 pp. \$19.50.

Guide to Gas Chromatography Literature. Vol. 4. Austin V. Signeur. IFI/Plenum, New York, 1979. x, 1322 pp. \$145.

Handbook of the Birds of India and Pakistan. Together with Those of Bangladesh, Nepal, Bhutan and Sri Lanka. Vol. 1, Divers to Hawks. Salim Ali and S. Dillon Ripley. Oxford University Press, New York, ed. 2, 1978. lviii, 382 pp., illus. + plates. \$29.95.

Heat Pumps. R. D. Heap. Spon, London, and Halsted (Wiley), New York, 1979. xii, 156 pp., illus. \$9.95.

Immunoserology in the Diagnosis of Infectious Diseases. Proceedings of a symposium, Philadelphia, Nov. 1977. Herman Friedman, T. Juhani Linna, and James E. Prier, Eds. University Park Press, Baltimore, 1979. xii, 194 pp., illus. \$19.50.

The Impact of Piagetian Theory on Education, Philosophy, Psychiatry, and Psychology. Papers from a symposium. Frank B. Murray, Ed. University Park Press, Baltimore, 1979. xvi, 232 pp. \$14.95. A Publication of the Jean Piaget Society.

Inborn Errors of Immunity and Phagocytosis. Papers from a symposium, Elsinore, Denmark, Sept. 1977. F. Güttler, J. W. T. Seakins, and R. A. Harkness, Eds. University Park Press, Baltimore, 1979. xvi, 392 pp., illus. \$27.50.

Kinins—II. Biochemistry, Pathophysiology, and Clinical Aspects. Proceedings of a symposium, Tokyo, Nov. 1978. Setsuro Fujii, Hiroshi Moriya, and Tomoji Suzuki, Eds. Plenum, New York, 1979. xii, 610 pp., illus. \$59.50. Advances in Experimental Medicine and Biology, vol. 120A.

(Continued on page 1066)



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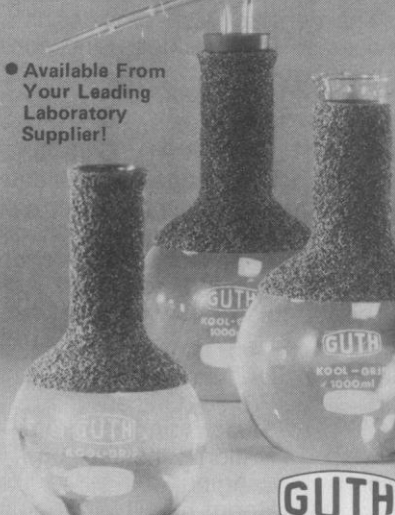
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BOOKS RECEIVED

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Laboratory Tests in the Rheumatic Diseases. Standardization in Clinical-Laboratory Investigation. D. C. Dumonde and M. W. Steward, Eds. University Park Press, Baltimore, 1979. xviii, 324 pp., illus. \$24.50.

Mutagenesis in Sub-Mammalian Systems. Status and Significance. Papers from a meeting. G. E. Paget, Ed. University Park Press, Baltimore, 1979. xiv, 232 pp., illus. \$29.50.

My Dearest Julia. The Love Letters of Dr. Benjamin Rush to Julia Stockton. Neale Watson, New York, in association with Philip H. & A. S. W. Rosenbach Foundation, Philadelphia, 1979. xviii, 62 pp. \$14.95.

Mycotoxins. World Health Organization, Geneva, 1979 (U.S. distributor, WHO Publications Centre USA, Albany, N.Y.). 128 pp., illus. Paper, \$7.30. Environmental Health Criteria 11.

Nephrologic Problems of the Newborn. Papers from a symposium, San Juan, P.R., Dec. 1977. José F. Pascual and Philip L. Calcagno, Eds. Karger, Basel, 1979. vi, 78 pp. Paper, \$21.50. Contributions to Nephrology, vol. 15.

Nutritional Requirements of Cultured Cells. Papers from a symposium, Tokyo, Sept. 1977. Hajim Katsuta, Ed. Japan Scientific Societies Press, Tokyo, and University Park Press, Baltimore, 1978. xiv, 306 pp., illus. \$39.50.

Obstacles to Mineral Development. A Pragmatic View. John S. Carman. Bension Varon, Ed. Pergamon, New York, 1979. xvi, 180 pp., illus. \$17.50. Pergamon Policy Studies.

Oeuvres. Collected Works. Henri Cartan. R. Remmert and J-P. Serre, Eds. Springer-Verlag, New York, 1979. Three volumes. xlii, 1470 pp. \$125.

Of Wolves and Men. Barry Holstun Lopez. Scribner, New York, 1979. x, 310 pp., illus. Paper, \$7.95. Reprint of the 1978 edition.

Pediatric Bronchology. Edgar Székely and Edit Farkas. Translated from the Hungarian. University Park Press, Baltimore, 1979. 628 pp., illus. \$65.

The Pediatrician and the Developmentally Delayed Child. A Clinical Textbook on Mental Retardation. Pasquale J. Accardo and Arnold J. Capute. University Park Press, Baltimore, 1979. xii, 244 pp., illus. \$14.95. Monographs in Developmental Pediatrics.

Perception and Its Development. A Tribute to Eleanor J. Gibson. Anne D. Pick, Ed. Erlbaum, Hillsdale, N.J., 1979 (distributor, Halsted [Wiley], New York). xiv, 258 pp., illus. \$18.

Perception of Emotion in Self and Others. Proceedings of a symposium, Toronto, May 1977. Patricia Pliner, Kirk R. Blankstein, and Irwin M. Spigel, Eds. Plenum, New York, 1979. x, 204 pp., illus. \$24.50. Advances in the Study of Communication and Affect, vol. 5.

Rice Postproduction Technology in the Tropics. Merle Esmay, Soemangat Eriyatno, and Allan Phillips. Published for the East-West Center by University Press of Hawaii, Honolulu, 1979. xii, 140 pp., illus. Paper, \$7.

Running Wild. The Next Industrial Revolution. Adam Osborne. Osborne (McGraw-Hill), Berkeley, Calif., 1979. x, 182 pp., illus. Paper, \$3.95.

Scarcity and Survival in Central America. Ecological Origins of the Soccer War. William H. Durham. Stanford University Press, Stanford, Calif., 1979. xx, 210 pp., illus. \$14.50.

Science and Technology for What Purpose? An Australian Perspective. Proceedings of a workshop, Canberra, Apr. 1979. A. T. A.

Healy, Ed. Australian Academy of Science, Canberra, 1979. vi, 386 pp. Paper, A\$7.50.

Scientific Models and Man. The Herbert Spencer Lectures Delivered in the University of Oxford, 1976. Henry Harris, Ed. Clarendon (Oxford University Press), New York, 1979. viii, 102 pp. \$17.95.

2nd E.C. Photovoltaic Solar Energy Conference. Berlin, Apr. 1979. R. Van Overstraeten and W. Palz, Eds. Reidel, Boston, 1979. xviii, 1210 pp., illus. \$71.05.

Seepage and Groundwater Flow. Numerical Analysis by Analog and Digital Methods. K. R. Rushton and S. C. Redshaw. Wiley-Interscience, New York, 1979. xii, 340 pp., illus. \$45. Wiley Series in Geotechnical Engineering.

Semiconductors and Semimetals. Vol. 14, Lasers, Junctions, Transport. R. K. Willardson and Albert C. Beer, Eds. Academic Press, New York, 1979. xiv, 334 pp., illus. \$32.

Singlet Oxygen. Harry H. Wasserman and Robert W. Murray. Academic Press, New York, 1979. xviii, 686 pp., illus. \$75. Organic Chemistry, vol. 40.

6th International Conference on Atomic Physics Proceedings. Riga, Aug. 1978. Robert Dambrug, Ed. Plenum, New York, and Zināte, Riga, 1979. 666 pp., illus. \$65. Atomic Physics 6.

Transport Organs. G. Giebisch, Ed. Springer-Verlag, New York, 1979. Two volumes. liv, 940 pp., illus. \$162.80. Membrane Transport in Biology, vol. 4A and vol. 4B.

Transurethral Resection. John P. Blandy. University Park Press, Baltimore, ed. 2, 1979. viii, 184 pp., illus. \$24.50.

Treatment of Early Diabetes. Proceedings of a symposium, Algarve, Portugal, Nov. 1978. Rafael A. Camerini-Davalos and Bernard Hanover, Eds. Plenum, New York, 1979. xvi, 532 pp., illus. \$49.50. Advances in Experimental Medicine and Biology, vol. 119.

The Treatment of Hypertension. E. D. Freis, Ed. University Park Press, Baltimore, 1979. xii, 164 pp., illus. \$16.50. Current Status of Modern Therapy, vol. 1.

Trends in Behavior Therapy. Per-Olov Sjöden, Sandra Bates, and William S. Dockens, III, Eds. Academic Press, New York, 1979. xviii, 404 pp., illus. \$24.50.

Tropical Foods. Chemistry and Nutrition. Vol. 2. Proceedings of a conference, Honolulu, Mar. 1979. George E. Inglett and George Charalambous, Eds. Academic Press, New York, 1979. x + pp. 341-702, illus. \$21.

Vegetation of the Earth and Ecological Systems of the Geobiosphere. Heinrich Walter. Translated from the 3rd German edition (Stuttgart) by Joy Wieser. Springer-Verlag, New York, 1979. xx, 276 pp., illus. Paper, \$13.90. Heidelberg Science Library.

Vocabularium Nominum Animalium Europae Septem Linguis Redactum. László Gözmány, Henrik Steinmann, and Ernő Szily, Eds. Akadémiai Kiadó, Budapest, 1979 (U.S. distributor, Heyden, Philadelphia). Two volumes, 1172 pp. and 1016 pp. \$230.

Writing Scientific Papers in English. An Else-Ciba Foundation Guide for Authors. Maeve O'Connor and F. Peter Woodford, Pitman, London, 1978 (U.S. distributor, University Park Press, Baltimore). viii, 108 pp., illus. Paper, \$5.95.

The Year of the Greylag Goose. Konrad Lorenz. Photographs by Sybille and Klaus Kalas. Translated from the German edition (Munich, 1979) by Robert Martin. Harcourt Brace Jovanovich, New York, 1979. 200 pp. \$25. A Helen and Kurt Wolff Book.

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The University of California, Irvine, Department of Pathology, is recruiting for a faculty position at the assistant professor level. Required: M.D., Board-certified/eligible in clinical pathology. Duties: service and administrative responsibilities in blood banking and cellular immunology, teach medical students and house staff, and research. Send curriculum vitae and references to: Dr. H. C. Pirkle, Department of Pathology, University of California, Irvine, 101 City Drive South, Orange, California 92678 by 14 July 1980. *Affirmative Action Employer*

ASSISTANT PROFESSOR, cancer cell biologist with interest in viral oncology or nucleic acid biochemistry.

The McGill Cancer Centre is inviting applications for a tenure-track position in the Faculty of Medicine. Applicants should have postdoctoral research experience and be familiar with modern research techniques in molecular biology and biochemistry. Successful candidate will be expected to set up an independent research program and obtain grant support. Applications will be considered until the position is filled. Send covering letter, curriculum vitae, and names of three references to: Dr. Phil Gold, Director, McGill Cancer Centre, 3655 Drummond, Montreal, Québec, Canada H3G 1Y6.

ASSISTANT PROFESSOR. Microbiologist with postdoctoral experience. Applicant is expected to develop a strong research program in the area of molecular mechanisms of pathogenesis. Teaching responsibilities will be in the pathogenic microbiology area at both the undergraduate and graduate level. Send curriculum vitae and names of three references to: Dr. Bernard W. Koft, Department of Microbiology, Nelson Biology Building, Rutgers University, New Brunswick, New Jersey 08903. *Rutgers is an Equal Opportunity/Affirmative Action Employer.*

ASSISTANT PROFESSOR OF BIOENGINEERING

The Department of Bioengineering of the University of Pennsylvania has an open tenure-track position for an assistant professor. Candidates must have experience and interest in the field of cardiology research with special focus on: (i) cardiac electrophysiology, (ii) echo cardiography, and (iii) nuclear cardiology. Candidates must have a Ph.D. in bioengineering or a closely related engineering specialty. One to 2 years of related experience in the above fields is desirable. Qualified applicants should submit their résumé to: Professor S. R. Pollack, Chairman, Bioengineering Department, University of Pennsylvania, Towne Building/D3, Philadelphia, Pa. 19104.

An Equal Opportunity/Affirmative Action Employer

CELL BIOLOGIST. The Department of Anatomical Sciences will have a faculty position open during the coming academic year. Applicants should have an active research program in the areas of cellular motility, cellular biomechanics, or neuromuscular interaction. Teaching responsibilities include microscopic anatomy for medical, dental, and allied health students and participation in university-wide graduate training. Level of position dependent upon qualifications. Excellent research facilities available. Reply with curriculum vitae by 1 August 1980 to: Dr. Maynard Dewey, Chairman, Department of Anatomical Sciences, Health Sciences Center, State University of New York at Stony Brook, Stony Brook, Long Island, N.Y. 11794. *Equal Opportunity/Affirmative Action Employer.*

POSITIONS OPEN

ASSISTANT PROFESSOR BIOLOGICAL CHEMISTRY

Applications are invited for a faculty position to begin on 1 July 1980. Applicant must have training in chemistry and a Ph.D. degree, at least 4 years of postdoctoral experience in lipid biochemistry, and research experience with mass spectrometry and microbial culture techniques with appropriate published results. The successful candidate will be expected to develop and conduct a program of research on membrane lipids associated with prostaglandins and cyclic nucleotides and participate in graduate and medical school teaching. Send curriculum vitae, bibliography, and three letters of recommendation to: Chairman, Search Committee, Department of Biological Chemistry, University of Illinois at the Medical Center, 835 South Wolcott Avenue, Chicago, Illinois 60612.

The University of Illinois is an Equal Opportunity/Affirmative Action Employer and encourages applications from women and minorities.

BIOLOGIST, assistant professor. One-year replacement beginning fall 1980. Graduate course in ecology; undergraduate courses in zoology, introductory biology, and ecology. Ph.D. preferred. Salary negotiable. Submit curriculum vitae, résumé, and three letters of recommendation before 16 June 1980 to: Dennis L. Kalma, Chairman, General Science, Biology, and Environmental Studies, University of New Haven, 300 Orange Avenue, West Haven, Conn. 06516.

Affirmative Action/Equal Opportunity Employer

CAREER RESEARCH OPPORTUNITY

For a creative NIH-funded scientist to pursue research activities within the framework of a cancer research center devoted to developmental biology. Superb laboratory facilities, ample space, and stimulating scientific colleagues support this opportunity. Please send inquiries to: Chairman, Search Committee, La Jolla Cancer Research Foundation, 2945 Science Park Road, La Jolla, Calif. 92037. *An Equal Opportunity Employer.*

CHAIR, DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY. Nominations and applications are invited for the position of chair, Department of Microbiology and Immunology, College of Medicine at the Downstate Medical Center of the State University of New York (SUNY). The candidate should be a nationally recognized research scientist with a strong academic background and with a commitment to medical and graduate education. Please send nominations and applications with curriculum vitae to: Dr. John D. Broome, Chairman Search Committee, College of Medicine, Department of Pathology, SUNY/DOWNSTATE MEDICAL CENTER, 450 Clarkson Avenue, Brooklyn, N.Y. 11203. *Equal Opportunity/Affirmative Action Employer.*

CYTOGENETICIST

The Genetics Division, Eunice Kennedy Shriver Center, is seeking a director for the Cytogenetics Laboratory as of 1 July 1980. Applicants should hold a Ph.D. in cytogenetics and have 3 years of postdoctoral experience.

The chosen candidate will have appointment at the Harvard Medical School and Massachusetts General Hospital. Responsibilities include directing a cytogenetic laboratory largely for prenatal diagnosis and research participation in somatic cell genetics including hybridoma work. Please send résumé and three references to:

Dr. Aubrey Milnsky
Director, Genetics Division
Eunice Kennedy Shriver Center
200 Trapelo Road
Waltham, Mass. 02154

An Equal Opportunity Employer

COMPUTER PROGRAMMER

Person with strong mathematical background and interest in Physical and/or Chemical oceanography to work on the developments of ocean circulation models for study of environmental problems. Position available to start immediately. Excellent benefits package.

Please send resume with salary requirements to:

JOAN N. DOIG
PERSONNEL SERVICES
CLIO HALL

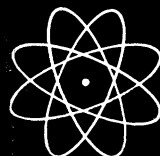


Princeton University

PRINCETON, NEW JERSEY 08544

An Equal Opportunity/Affirmative Action Employer
Minority/Female/Handicapped/Veteran

Director of the Intense Pulsed Neutron Source At Argonne National Laboratory



Argonne National Laboratory invites applications for the position of Director of the Intense Pulsed Neutron Source (IPNS) program. Candidates should have a record of scientific leadership in condensed matter research and administrative ability. IPNS, a national facility, is presently under construction and will begin operation in the Spring of 1981 as an intermediate-flux pulsed spallation neutron source for condensed matter research with neutron scattering and neutron irradiation techniques.

The research program at IPNS will involve scientists from academic, industrial, and government laboratories and a strong in-house effort by Argonne staff. The responsibilities of the Director include overall leadership of the scientific research program, as well as the operation and development of the neutron source and associated research instrumentation. Interactions with the condensed matter research community and the DOE-Basic Energy Sciences Division are an important aspect of the position.

For more details, please send resume to R. A. Johns, Box IPNS, for submission to Dr. Frank Fradin, Chairman of the IPNS Search Committee, Argonne National Laboratory, 9700 S. Cass Ave., Argonne, IL 60439.



An Affirmative Action/Equal Opportunity Employer. Women, Minorities, the Handicapped and Veterans Urged to Apply.

POSITIONS OPEN

CHAIRMANSHIP DEPARTMENT OF HUMAN GENETICS MEDICAL SCHOOL UNIVERSITY OF MICHIGAN

The University of Michigan Medical School invites applications for the chairmanship of its Department of Human Genetics. Qualifications must include: national stature as a leader in research in the field of genetics, demonstrated commitment to excellence in teaching, and interest in administration. Respond to: M. J. Coon, Ph.D., Chairman, Human Genetics Search Committee, University of Michigan Medical School, Department of Biological Chemistry, Room 5416 Medical Science I, 1335 Catherine Street, Ann Arbor, Michigan 48109. A nondiscriminatory, Affirmative Action Employer. Code 100BH.

CHEMIST. Opening for Ph.D. in organic chemistry beginning 12 September 1980. Applicants must have a demonstrated ability to teach introductory and advanced organic chemistry and courses for non-majors. Position is for 3 years, contingent upon favorable annual reviews. Send curriculum vitae, three letters of recommendation, and official transcripts by 1 July to: Lester E. Walker, Acting Chairperson, Department of Natural Sciences, University of North Florida, Jacksonville, Florida 32216. Affirmative Action/Equal Opportunity Employer.

DENTAL MATERIALS SCIENTIST. The Biomaterials Group in the Dental Research Center and the Department of Operative Dentistry seek applications for a position of research assistant professor expected to become available on 1 September 1980. The successful candidate would bring to the center a defined research protocol complementary to existing research projects on dental materials. Interest in dynamic mechanical properties is especially desirable. This is not a tenure-track position, and the successful applicant will be expected to secure salary support from other than university sources.

Send curriculum vitae, statement of research plans, and names of three references by 1 July to:

Dr. Philip F. Hirsch
Director, Dental Research Center, 210-H
University of North Carolina
Chapel Hill, N.C. 27514

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

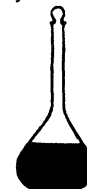
DIRECTOR OF TOXICOLOGY

A key-level position with an industry leader. HILL TOP RESEARCH, INC., has been a leading life sciences laboratory for three decades.

We currently have available an exceptional, key-level opportunity to direct the scientific research and business development of our toxicology activities. The director of toxicology reports to the president of Hill Top Research.

A Ph.D. in biological or physical science and experience in acute and subchronic studies are crucial requirements of this important position and will command a top salary with superb benefits.

For immediate consideration, please send your confidential résumé to:



J. James Pearce, Jr.
President
HILL TOP RESEARCH, INC.
P.O. Box 42501
Cincinnati, Ohio 45242

Equal Opportunity Employer

ELECTRON MICROSCOPIST SEM/TEM position available 1 September 1980 through 31 May 1982. The candidate (preferentially postdoctoral) is expected to perform research on salamander mutants (*Ambystoma mexicanum*). Preference will be given to an individual with a strong background in histochemistry. Salary for 21 months: \$24,000. Interested persons should send a résumé, publications, and two letters of reference to: Dr. Rudolf Brun, Biology Department, Texas Christian University, Fort Worth, Texas 76129. Texas Christian University does not discriminate on the basis of sex, religion, handicap, race, or ethnic origin. Application deadline: 1 July 1980.

Professional Staff Positions for Information Center – General Tire Research

General Tire is a diversified Company which has always been deeply committed to maintaining a fully competitive position in tires, chemicals, plastics, athletic and industrial products. We enjoy a stable management and a modern well-equipped Research and Development Center staffed by 200 persons and located near our Corporate Headquarters in Akron, Ohio.

An important part of our resources in technology is our Information Center housed in our main research building. We need to increase our staff not only to serve better our 100 scientists and engineers at this location, but also to meet the expanding needs of our manufacturing divisions and numerous plants located throughout the United States and the world.

We currently have openings on our professional staff from entry level to an administrative position. Please apply if you have an MLS plus a background in physical science or engineering or a BS degree in physical science or engineering (preferably chemical) and an interest in a challenging opportunity in information science. We seek mature, career-oriented, innovative professionals who can make real contributions in a stimulating environment.

An attractive salary and excellent benefits accompany this growth opportunity.
Send your resume and salary history/requirements to:



Dr. Jon S. Gerhardt, Manager Technical Staff Development

THE GENERAL TIRE & RUBBER COMPANY

Research Division

2990 Gilchrist Road • Akron, Ohio 44305

An Equal Opportunity Employer M/F

CAREER OPPORTUNITIES

Exxon Production Research Company, located in Houston, Texas, has immediate openings for a variety of well-qualified personnel who are interested in a challenging career in the rapidly expanding fields of:

COAL AND OIL SHALE EXPLORATION

•Coal Petrographers (PhD/MS)

To apply petrographic techniques to a variety of coal geology research problems. Candidates should have appreciable experience with studies of coal using transmitted and reflected light, be innovative in the development of petrographic techniques and able to direct and train others in all phases of coal petrography.

•Sedimentologists-Geochemists (PhD/MS)

To design and conduct research projects on the origin, distribution and quality of organic-rich, fine-grained sediments [oil shale].

EXXON PRODUCTION RESEARCH COMPANY

EXXON

•Coal Geologists (PhD/MS)

Candidates should have strong background in areas of clastic facies and diagenesis as applied to environments of deposition of coals. Training should include stratigraphy, field geology, facies of ancient clastic deposits, sedimentary geochemistry and sedimentary petrography.

•Coal Geophysicists (PhD/MS)

Candidates should have special interest in coal geology and experience in seismic investigation as well as interpretation of well logs. Training should include sedimentary petrology and clastic sedimentation.

•Paleobotanists/Palynologists (PhD/MS)

To apply paleobotany to research on environments of deposition of coals of Paleozoic to Recent age.

This equal opportunity employer offers an outstanding employee benefit program and excellent opportunities for advancement and travel. Salaries commensurate with education and/or experience. Please send resume [and copies of transcripts if available] to:

C.C. Rix
Exxon Production
Research Company
Dept. 84
P.O. Box 2189
Houston, Texas 77001

An Equal Opportunity Employer, M/F

POSITIONS OPEN

DIRECTOR OF PROTEIN-NUCLEIC ACID SEQUENCING FACILITY. Applications are invited for the position of research assistant professor. Responsibilities include protein sequence analysis in a protein and nucleic acid sequencing center with space and time available to pursue own research interests. Several years of experience in protein chemistry and sequencing is required. Send curriculum vitae to: **Dr. David C. Benjamin, Department of Microbiology, University of Virginia School of Medicine, Charlottesville, Virginia 22908. The University of Virginia is an Equal Opportunity/Affirmative Action Employer.**

ELECTRON MICROSCOPIST (Ph.D.) to provide EM services and to collaborate on projects in lipid metabolism and membrane biochemistry. Please send résumé and salary requirements to: **Dr. H. H. O. Schmid, Chairman, EM Search Committee, The Hormel Institute, University of Minnesota, 801 16th Avenue, NE, Austin, Minn. 55912. An Equal Opportunity Employer.**

ONCOLOGY FACULTY POSITION—Assistant professor, Division of Clinical Oncology and Wisconsin Clinical Cancer Center, Department of Medicine, William S. Middleton VA Hospital, University of Wisconsin. Individual with clinical training in medical oncology and research training in an oncology-related discipline. Applicant should have defined research objective. Preference will be given to applicants with laboratory interest and expertise in immunology, virology, or pharmacology. The individual should be willing to establish a clinical program focused on bronchogenic or urologic malignancies. Laboratory and clinical activities will be primarily at VA Hospital; the physically contiguous locations of the VA and University hospitals assures maximal integration of research and clinical programs between the two institutions.

Applications to: **Ernest C. Borden, M.D., Chief, Oncology, William S. Middleton VA Hospital, Madison, Wis. 53795.**

An Equal Opportunity/Affirmative Action Employer

POSITIONS OPEN

Laboratory

ELECTROPHYSIOLOGIST

To join multidisciplinary group in an analysis of the control of surface functions by the cytoskeleton with particular emphasis on endocytosis, mitosis, and surface receptor topography. Send application to: **Richard D. Berlin, Professor and Head, or Janet M. Oliver, Associate Professor,**

**DEPARTMENT OF PSYCHOLOGY
University of Connecticut Health Center
Farmington, Connecticut 06032
Equal Opportunity Employer, M/F**

ENVIRONMENTAL SCIENTISTS

Enviro Control, Inc., has a need for environmental scientists at the Ph.D. and M.S. levels with appropriate experience to participate in programs concerned with evaluation and assessment of health effects, environmental effects, exposure levels, transport and fate of chemicals, and risk assessment of industrial chemicals.

Excellent communication and technical writing skills are required. Scientists with a background and experience in the following areas are of interest:

- Environmental Chemistry
- Environmental Toxicology
- Ecology

Interested applicants may send résumé to: **Personnel Director, Enviro Control, Inc., 11300 Rockville Pike, Rockville, Md. 20852.**

Washington-based organization representing professional nutrition groups seeks **EXECUTIVE OFFICER** to develop and implement programs established by Board representing member organizations. Requires Ph.D. in food science, nutrition, or related field and knowledge of scientific, regulatory, and legislative aspects of food and nutrition. Demonstrated administrative skills required. Send résumé, three references, and support documents to: **Search Committee, National Nutrition Consortium, 1635 P Street, NW, Washington, D.C. 20036. Deadline: 30 June 1980. Equal Opportunity Employer.**

POSITIONS OPEN

TENURE-TRACK FACULTY POSITION/ELECTRON MICROSCOPIST

The Materials Engineering Department, Rensselaer Polytechnic Institute, invites applications for a tenure-track position at the assistant, associate, or full professor level in the area of materials characterization. Position includes responsibility for departmental TEM, SEM, microprobe, and x-ray diffraction laboratories. Opportunity exists to teach courses, both at the undergraduate and graduate levels, in x-ray diffraction, quantitative microscopy, microanalysis, and scanning and transmission electron microscopy. Successful candidate is expected to build a strong, externally funded research program in metallurgy, ceramics, or polymers. A Ph.D., D.Sc. or equivalent earned degree in materials science or related field is required. Qualified applicants should send curriculum vitae, a statement of research interests, and names of three references to: **Dr. M. E. Glicksman, Chairman, Materials Engineering Department, Rensselaer Polytechnic Institute, Troy, N.Y. 12181. Position available 1 September 1980. Applications will be accepted through 15 August 1980, or until a suitable candidate is identified. Rensselaer is an Equal Opportunity/Affirmative Action Employer.**

PLANT PHYSIOLOGIST. Assistant faculty level beginning 1 January 1981 in botany, Washington State University, with same privileges for fringe benefits as regular faculty. Tenure-track: 16 September 1982. Annual appointment with salary depending on qualifications. Working in collaboration with G. E. Edwards in photosynthesis. Position: 75 percent research, 25 percent teaching with emphasis at the graduate level. Candidates must have a Ph.D. with training in physiology and biochemistry of photosynthesis. Send curriculum vitae and three letters of reference by 1 October 1980 to: **G. E. Edwards, Department of Botany, Washington State University, Pullman, Wash. 99164. An Equal Opportunity/Affirmative Action Employer. Minority, women, handicapped, Vietnam-era and disabled veterans, and/or aged persons are encouraged to apply and identify themselves in their application.**

CLINICAL PHYSIATRIST ASSISTANT CHIEF

Department of Rehabilitation Medicine
Clinical Center

National Institutes of Health

The NIH Clinical Center's Department of Rehabilitation Medicine is seeking a Clinical Physiatrist who is board eligible and who has the medical and administrative skills and the humanistic qualities necessary for effective work in the clinical area of a research environment.

The Department of Rehabilitation Medicine promulgates a progressive and explorative approach in directing the entire scope of services in the field of Physical Medicine and Rehabilitation related to patient care in this research environment. The Assistant Chief will be closely involved with inpatients and outpatients of the Clinical Center and with researchers in the NIH community. Administrative talent to plan, develop and establish policies and procedures governing the organization and the management of the Department are essential to fulfill responsibilities in the organization.

The position offers an unusual challenge for an individual interested in clinical physiatry and allied research in muscular skeletal disease and the motivation to provide a positive leadership influence in this research setting. Post graduate teaching opportunities are available through courses sponsored by existing institutions. Appointment will be made in the career Civil Service or through the Public Health Service Commissioned Corps or a Service Fellowship. Salary is negotiable and commensurate with experience.

For further information or to apply, call or write: **U.S. Public Health Service, National Institutes of Health, Ronald Sleyo, Personnel Management Specialist, Clinical Center Personnel Office, Room B2-A23, Building 10, 9000 Rockville Pike, Bethesda, MD 20205. (301) 496-1905. An Equal Opportunity Employer.**

NATIONAL INSTITUTES OF HEALTH

Earth Scientists

The Earth Sciences Division of **LAWRENCE BERKELEY LABORATORY**, University of California, has senior positions available for:

**Geologists, Hydrologists
Geotechnical, Reservoir
and Mining Engineers**

We are seeking both researchers and technical project managers for geothermal energy development and nuclear waste isolation programs.


Advanced degree preferred in Earth Sciences or Physical Sciences, and several years of demonstrated experience in mathematics and numerical modelling, well testing/borehole logging, rock mechanics or geohydrology. For more information, please contact **LAWRENCE BERKELEY LABORATORY** or send two resumes including salary history to: **Ron Lowder, LAWRENCE BERKELEY LABORATORY, One Cyclotron Road, Berkeley, CA 94720. An equal opportunity employer M/F/H.**



**LAWRENCE
BERKELEY
LABORATORY**



Open to both
men and women

 **Public Service Commission**
Canada **Fonction publique**
Canada

RESEARCH SCIENTIST — GEOCHRONOLOGY (310-106-017)

Salary: Up to \$42,283 (depending on experience)
Ref. No: 31-2080-1

Energy, Mines and Resources
Geological Survey of Canada
Ottawa, Ontario

Duties

The Geological Survey of Canada is seeking a senior scientist for employment with the Precambrian Division. The position requires graduation at the Ph.D level in geology (or at a lesser level with research experience and productivity equivalent to a doctorate). The successful candidate will undertake geochronological studies with emphasis on Precambrian geochronology as a contribution to defining the geological framework of Canada. The candidate will manage a geochronological laboratory presently equipped for investigations involving the isotopic systems U-Pb, Rb/Sr and K/Ar. The candidate will co-operate in the field and in the office with geologists on regional field mapping projects to contribute to the solution of geochronological problems identified by bed-rock mapping and by regional geological syntheses.

Qualifications

Applicants must have experience in conducting geochronological studies, and in the management of a geochronological laboratory.

Language Requirements

Knowledge of English is essential.

"Additional job information is available by writing to the address below;

Toute information relative à ce concours est disponible en français et peut être obtenue en écrivant à l'adresse suivante".

This position advertised through closed competition
80-EMR-CCID-GS-70-03553.

How to Apply

Send your application form and/or résumé to:
Miss Joan Girling, Staffing Officer
National Capital Region Staffing Office
Public Service Commission of Canada
Ottawa, Ontario. K1A 0M7
Closing Date: June 16, 1980

Please quote the applicable reference number at all times.

Researchers

Kuwait Institute for Scientific Research is a rapidly expanding institute for applied science and technology. We currently have two openings immediately available for Researchers.

The first Researcher will be responsible for testing epoxides filled with fibre-glass, obtaining fluctual modulus and fluctual strength, thermoplastic processing, extrusion moulding and processing and the processing of poly-olefins. You should have previous experience with all equipment used in these processes and knowledge of compression moulding and thermosets.

The second Researcher will obtain elastic modulus and poissons ratio of soft materials, the impact strength of plastics, establish the hardness of soft materials, and determine the tensile strength, compression strength and ultimate elongation of polymers. You should have a good knowledge of measuring techniques and physical preparation of models.

Both of these positions require individuals with a PhD in polymer science or polymer and physical chemistry plus a minimum of 2 years' experience in polymeric composites or polymer rheology. Industrial chemists are encouraged to apply.

Kuwait Institute for Scientific Research offers attractive salaries commensurate with qualifications and experience, furnished housing and liberal benefits which include local private school tuitions, 6 weeks of vacation, paid vacation air tickets, end-of-service gratuity and medical care.

Qualified applicants are invited to submit their resumes to: **Mr. Habeeb Al-Sahhaf, Personnel Manager, Kuwait Institute for Scientific Research, P.O. Box 24885, Safat, Kuwait**, no later than one month from the date of this publication.

Kuwait Institute for Scientific Research

POSITIONS OPEN

TENURE-TRACK position available immediately in DEPARTMENT OF HUMAN ONCOLOGY. M.D. or Ph.D. degree and academic experience required. Develop laboratory and clinical pharmacology program in oncology. Duties include conducting own laboratory research program, advising junior faculty in pharmacological research, and supervising graduate students and fellows in pharmacological research (if Ph.D.). If M.D., also conduct clinical Phase I trials and attend on oncology service. Send curriculum vitae and references to: **Director, Wisconsin Clinical Cancer Center, K4/614 Clinical Science Center, 600 Highland Avenue, Madison, Wis. 53792. An Equal Opportunity/Affirmative Action Employer.**



UNIVERSITY OF MAINE AT MACHIAS VACANCY NOTICE MARINE ECOLOGY

The University of Maine at Machias has a tenure-track vacancy, assistant professor level, for an individual with Ph.D. to teach field-oriented courses in marine ecology, invertebrate zoology, general ecology. Background in mathematical ecology or fisheries management desired but not required. Willingness to involve students in research is highly desirable.

The University of Maine at Machias is a small, independently accredited branch of the state system located on the coast of eastern Maine. Detailed curriculum vitae and letters of application which speak directly to the above requisites should be submitted to: **J. M. Aldrich, Academic Vice President, University of Maine at Machias, Machias, Maine 04654**, by 13 June 1980.

The University is an Equal Opportunity/Affirmative Action Employer.

Search Extended to 30 June 1980

MICROBIOLOGY-IMMUNOLOGY FACULTY POSITIONS. Applications are invited for tenure-track positions in the Department of Microbiology at Emory University. Applicants should have: two or more years of postdoctoral experience and commitments to both teaching and research. They must present evidence of current scholarly productivity and capacity to initiate and develop independent research programs in immunology, pathogenic microbiology, or plasmid biology using biochemical and molecular approaches. Rank is open but assistant professor is the likely level of appointment. Teaching duties include participation in graduate and undergraduate courses with emphasis on biomedical sciences. Supply complete résumé, statement of research plans, and summary of teaching experience. Have at least three letters of recommendation sent to: **Dr. John K. Spitznagel, Chairman, Department of Microbiology, School of Medicine, Emory University, Atlanta, Ga. 30322.**

Closing date: 30 June 1980.

An Equal Opportunity/Affirmative Action Employer

MICROBIOLOGIST/BIOCHEMIST

Established nonprofit research institution seeks individual with experience in in vitro mutagenicity/carcinogenicity testing to manage ongoing programs and assist in developing new business. Current programs deal with the application of in vitro bioassays and chemical/analytical methods for identification of biologically active components in water/wastewater and other environmental samples. The position requires a Ph.D. in a relevant discipline and experience with various microbial and cell culture bioassay systems. Experience in the collection and analytical workup of environmental samples is particularly desirable. Familiarity with government and private funding agencies and project management experience is advantageous.

Position available 15 June 1980; starting salary: \$20,000 to \$29,000 per annum, depending upon qualifications.

Syracuse Research Corporation is a multidisciplinary not-for-profit research organization located on the south campus of Syracuse University. We offer an excellent benefit package, and a stimulating research environment. Send résumé, including salary history and references, to:

**Personnel
Syracuse Research Corporation
Merrill Lane
Syracuse, New York 13210
Affirmative Action Employer**

POSITIONS OPEN

Position open for **ANATOMIC PATHOLOGIST** at the level of assistant professor, Northwestern Memorial Hospital and Northwestern University School of Medicine, Chicago, Illinois 60611. Competence in autopsy pathology with a special interest in membrane biology. Active research program in basement membrane biology obligatory. *Equal Opportunity/Affirmative Action Employer.*

Position open for **IMMUNOLOGIST** at the level of assistant professor, Northwestern Memorial Hospital and Northwestern University School of Medicine, Chicago, Illinois 60611. Competence in cellular immunology with special interest in neoplasia. Active research program in immuno-regulation in lymphoproliferative disease of humans obligatory. *Equal Opportunity/Affirmative Action Employer.*

MOLECULAR BIOLOGISTS

If you are interested in a challenging career at the Ph.D., M.S., or B.S. level with a leader in molecular biology, Bethesda Research Laboratories (BRL) is offering senior and junior positions in the areas of:

ENZYMOLGY—Purification of nucleic acid enzymes using state-of-the-art techniques; improving these techniques and exploring alternative methods;

DNA SEQUENCING—Contract and R & D sequencing of nucleic acids;

DNA SEPARATION/PURIFICATION—Contract DNA separation and exploring alternative methods for separating nucleic acids; large-scale purification of DNA from cells and viruses;

CLONING/MICROBIOLOGY—Experience in cloning technology or basic microbiology to work in challenging contract R & D program;

BIO-ORGANIC SYNTHESIS—Organic chemists to work on protein chemistry, nucleic acid synthesis, and affinity matrices; and

HYBRIDOMA—General background in immunology and cell culture; specific experience in hybridoma techniques to work on clinical applications.

For information, telephone or write:

BETHESDA RESEARCH LABORATORIES, INC.
411 North Stonestreet Avenue
Rockville, Maryland 20850
Telephone: 301-840-8000 or 8043
BRL is an Equal Opportunity Employer

The Wright State University School of Medicine and St. Elizabeth's Medical Center are jointly recruiting an experienced **PHYSIATRIST** to serve both as chairman of the Department of Physical Medicine and Rehabilitation at the School of Medicine and as director of Rehabilitation Services for the hospital. The successful applicant will be Board-certified in physical medicine and rehabilitation, and will have, or be eligible for, an Ohio license. Demonstrated excellence in teaching is essential. Nominations and applications (including curriculum vitae and names of three references) should be sent to: **Samuel E. Pitner, M.D., Chairman, Physical Medicine and Rehabilitation Search Committee, c/o Wright State University, Neurology Department, P.O. Box 927, Dayton, Ohio 45401. The institutions are Equal Opportunity/Affirmative Action Employers.**

POSTDOCTORAL POSITION available. Must have Ph.D., M.D., or D.V.M. in hand. Available 1 July 1980. Organ System Toxicology with emphasis on the kidney. Experience in drug metabolism and pharmacokinetics desirable. Salary commensurate with qualifications and experience. Send curriculum vitae and three letters of recommendation to:

**Dr. Jerry B. Hook, Director
Center for Environmental Toxicology
Michigan State University
East Lansing, Mich. 48824**

Michigan State University is an Affirmative Action/Equal Opportunity Institution.

POSTDOCTORAL POSITION Neurobiology

NIH postdoctoral traineeship available 1 June 1980 for interdisciplinary training in the neurobiology of hearing. Collaboration with research scientists in the areas of neuroanatomy. Prefer an individual interested in developmental studies. Send curriculum vitae, description of research interests, and three letters of recommendation to: **W. B. Warr, The Boys Town Institute for Communication Disorders in Children, 555 North 30 Street, Omaha, Neb. 68131. An Equal Opportunity Employer.**

POSITIONS OPEN

POSTDOCTORAL POSITION available to study the ultrastructural immunocytochemical distribution of (Na⁺ + K⁺)-ATPase in central nervous system and in neuronal tissue culture, with particular emphasis on plasmalemmal and intracellular localization during development and differentiation of neural tissue. Exposure to techniques of enzyme purification and immunochemistry also available. Background in neuronal ultrastructure and/or immunocytochemistry preferred. Collaborative project with Dr. George J. Siegel (neurosciences). Send curriculum vitae and three letters of recommendation to: **Dr. Stephen A. Ernst, Department of Anatomy, Medical Sciences II, University of Michigan, Ann Arbor, Mich. 48109.**

POSTDOCTORAL POSITION

University of Michigan Hospital

Postdoctoral position available immediately to study the molecular genetics of human hemoglobin abnormalities. Experience with recombinant DNA and restriction mapping techniques necessary. Contact: **Dr. Donald L. Rucknagel, M.D., Ph.D., Department of Human Genetics, University of Michigan Medical School, Box 015, Ann Arbor, Mich. 48109. A non-discriminatory, Affirmative Action Employer.**

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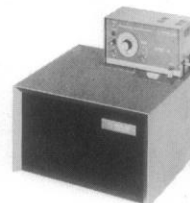
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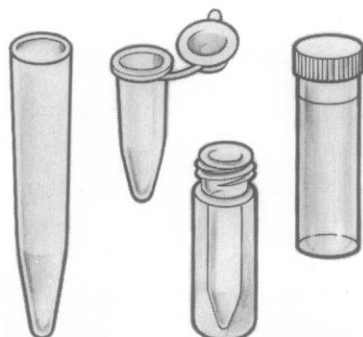
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