Second English Edition 1974
translated from the Third German Edition 1974

METHODS OF
ENZYMATIC
ANALYSIS

edited by HANS ULRICH BERGMeyer
assisted by KARLFRID GAWEN
translated by D. H. WILLIAMSON
with the assistance of P. LUND

The new edition of this outstanding reference work has now been expanded and updated to include all the latest developments in analytical biochemistry. Like its predecessor, this edition contains working methods for carefully tested procedures (all of which have been contributed by leading specialists) and includes important details for their practical application. It is a unique laboratory manual designed to facilitate the use of enzymes as analytical tools in biochemistry. As such, it provides complete coverage of new methods in enzymatic analysis which are now available, describes improvements in existing techniques, and gives general experimental instructions for the techniques of measuring and for pretreatment of samples.

Features of the new edition:

- Gives the equations, in each chapter, for the principles on which measurements are based.
- Prints the pipetting protocol (a prominent feature of each method) as a table with data on the “concentration in assay mixture.”
- Defines every cited enzyme by its system name and number according to the 1972 Recommendations of the Enzyme Commission of the International Union of Biochemistry.
- Includes the assays for enzyme activity in Section B “Biochemical Reagents.”
- Contains complete representation of the “principles of enzymatic analysis” (mathematical examples of enzyme kinetics, measurement of Michaelis constants and inhibitor constants).
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fections are less frequently spread by this route. Serological tests are available in most cases and are routinely applied in endemic areas. These factors must be considered when potential blood donors give a history of residence in tropical areas.

The proceedings of the symposium, edited by G. A. Jamieson and T. J. Greenwald under the title Transmissible Disease and Blood Transfusion, will be published by Grune & Stratton.

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Forthcoming Events

January

20–22. Conference on Computer Architecture, Inst. of Electrical and Electronics Engineers, Houston, Tex. (W. King, Dept. of Computer Science, Univ. of Houston (Houston 77004)
20–22. Society of Thoracic Surgeons, Montreal, Canada. (W. G. Purcell, 111 E. Wacker Drive, Chicago, Ill. 60601)
20–24. Nevada Acad. of Family Physicians, Lake Tahoe. (B. Holland, NAFP, 225 Albany St., Carson City, Nev. 89701)
20–25. Orbis Scientiae of the Center for Theoretical Studies, 2nd mtg., Coral Gables, Fla. (S. M. Widmayer, Center for Theoretical Studies, Univ. of Miami, Coral Gables 33124)
22. Microprocessors and Microcomputers Symp., Newark, N.J. (Continuing Education, Newark College of Engineering/New Jersey Inst. of Technology, 323 High St., Newark 07102)
25–27. Mathematical Assoc. of America, Washington, D.C. (H. L. Alder, Dept. of Mathematics, Univ. of California, Davis 95616)
27–29. International Conf. on Metric Education, 2nd, Biloxi, Miss. (G. Tinnon, Southern Sta., Box 56, Hattiesburg, Miss. 39401)
27–30. American Assoc. of Physics Teachers, Anaheim, Calif. (A. A. Strassenberg, AAPT, Drawer AW, Stony Brook, N.Y. 11790)
28–30. Association for the Development of Computer-Based Instruction Systems, Charleston, S.C. (K. A. Duncan, Office of Computer Resources, College of Dental Medicine, 80 Barre St., Charleston 29401)
28–3. Winter Medical-Dental Assembly, Havana and Varadero Beach, Cuba. (A. T. Wachna, 504 Medical Arts Bldg., Windsor 14, Ont., Canada)
29–31. Western Spectroscopy Assoc., 22nd annual, Pacific Grove, Calif. (G. R. Haugen, L-404, Univ. of California, Lawrence Livermore Lab., Livermore 94550)
29–1. Southern Soc. for Pediatric Research, New Orleans, La. (J. R. Montgomery, Dept. of Pediatrics, Baylor College of Medicine, Houston, Tex. 77025)
31–2. Los Angeles Midwinter Radiological Conf., 27th annual, Los Angeles, Calif. (J. F. Mack, 4500 Marloma Dr., Rolling Hills Estate, Calif, 90274)
31–2. Southern Radiological Conf., 19th, Point Clear, Ala. (M. Eskridge, P.O. Box 7544, Mobile, Ala. 36607)
31–5. Biofeedback Research Soc., 6th annual, Monterey, Calif. (F. Butler, Room 202, Dept. of Psychiatry, Univ. of Colorado Medical Center, 4200 E. Ninth Ave., Denver, Colo. 80220)

February


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The Lashley Memorial Conference. West Virginia University, September 1971

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1920, IEEE Los Angeles Council Office, 3600 Wilshire Blvd., Los Angeles 90010
5-7. San Diego Biomedical Symp., 14th annual, sponsored by American Soc. for Quality Control, Mission Bay, San Diego, Calif. (L. Rosen, Dept. of Radiology, Univ. of California, P.O. Box 109, La Jolla 92037)
6-7. Physiology and Pathology of Human Aging, Symp., Miami, Fla. (M. Rockstein, Univ. of Miami School of Medicine, P.O. Box 875, Biscayne Annex, Miami 33152)
6-8. International Soc. of Lymphology, Rio de Janeiro, Brazil. (R. C. Mayall, 52, rue Dona Mariana, Buenos Aires, Argentina)
13-15. Society of University Surgeons, Phoenix, Ariz. (E. W. Fonkalsrud, Dept. of Surgery, Univ. of California Medical Center, Los Angeles)
14-15. International Symp. on Psychopharmacology, Louisville, Ky. (C. B. Denber, Dept. of Psychiatry and Behavioral Sciences, Univ. of Louisville, School of Medicine, Louisville 40201)
5-6. Symposium on Computers in Laboratory Medicine, San Francisco, Calif. (J. Hall, Continuing Education in Sciences and Mathematics, Univ. of California Extension, Berkeley 94720)
15-19. American Acad. of Allergy, San Diego, Calif. (J. O. Kelley, AAA, 225 E. Michigan St., Milwaukee, Wis. 53202)
16-21. Inter-American Congr. of Radiology, Bogotá, Columbia. (A. Mejia, IACR, Apto Aereo 53737, Bogotá 2)
17-20. Southern Surgical Cong., 43rd annual, Atlanta, Ga. (A. H. Letton, SSC, 340 Boulevard, NE, Atlanta 30312)
18-22. American Acad. of Forensic Sciences, Chicago, Ill. (M. M. Hibbard, AAFS, Room 515, 11400 Rockville Pike, Rockville, Md. 20852)
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21–26. California Medical Assoc., Los
Angeles. (H. Hassard, 731 Market St.,
San Francisco, Calif. 94103)
21–28. American Soc. of Clinical Path-
ologists and College of American Path-
ologists, Las Vegas, Nev. (J. Graves,
Intersociety Committee on Pathology In-
formation, 9650 Rockville Pike, Bethesda,
Md. 20014)
22. Oregon Acad. of Science, Salem. (F. A. Hirsch, Dept. of Geography,
Oregon College of Education, Monmouth
97461)
23–28. Coping with Environmental and
Safety Regulations in the Food Industry,
5th conf., Engineering Foundation, Pacific
Grove, Calif. (EFP, 345 E. 47 St., New
York 10017)
24–27. International Conf. on Carriers
and Channels in Biological Systems,
New York Acad. of Sciences, New York, N.Y.
(Conf. Dept, NYAS, 2 E. 63 St., New
York 10021)
24–27. Experimental Medicine and
Surgery in Primates, 4th conf., Jerusalem,
Israel. (J. Moor-Jankowski, LEMSP,
New York Univ. Med. Center, 550
First Ave., New York 10016)
and Astronautics, Washington, D.C. (J. J.
Harford, AIAA, 1290 Ave. of the Ameri-
cas, New York 10019)
25–27. Computer Conf., Inst. of Elec-
trical and Electronic Engineers, Phila-
delphia, Pa. (IEEE, Technical Activity
Board, 345 E. 47 St., New York 10017)
26–l. Assoc. for Children with Learn-
ing Disabilities, 12th intern. conf.,
New York, N.Y. (K. M. Tillotson, ACLD,
Lower Level, 5225 Grace St., Pittsburgh,
Pa. 15236)
26–l. American Cleft Palate Assoc.,
New Orleans, La. (H. A. Leeper, Jr.,
Speech and Hearing Clinic, Hanner Hall,
Oklahoma State Univ., Stillwater 74073)
26–l. Society of Professors of Educa-
tion, Chicago, Ill. (R. E. Bayles, 326
Adams St., Decatur, Ga. 30030)
26–2. Medical Soc. of Pan-American
Doctors' Club, San Miguel, Mexico. (T. R.
Maxson, Arlen Acres, Warrensburg
Mo. 64093)
27–l. American Soc. for Surgery of the
Hand, San Francisco, Calif. (J. A. Bos-
wick, Jr., ASH, Box 2414, 4200 E.
Ninth Ave., Denver, Colo. 80220)
27–l. Central Surgical Assoc., Chicago,
Ill. (A. J. Walt, CSA, 540 E. Canfield,
Detroit, Mich. 48201)

March
1. American Orthopaedic Foot Soc.,
San Francisco, Calif. (H. R. Cowell,
Veterans Administration Center, 1601
Kirkwood Hwy., Wilmington, Del. 19805)
1–4. American Assoc. of Pathologists
and Bacteriologists, New Orleans, La. (R.
E. Anderson, Dept. of Pathology, Univ.
of New Mexico School of Medicine,
Albuquerque 87106)
1–6. American Acad. of Orthopaedic
Surgeons, San Francisco, Calif. (C. W.
Heck, A.O.S., 430 N. Michigan Ave.,
Chicago, Ill. 60611)
1–8. International Acad. of Pathology,
(L. D. Stoddard, Dept. of Pathology,
Medical College of Georgia, Augusta
30902)
2–6. Pine Mountain Conf. on Immu-
nochemistry, American Assoc. of Clinical
Chemists, Pine Mountain, Ga. (PMC,
F.O. Box 50122, Federal Annex, Atlanta,
Ga. 30322)
2–7. American Soc. of Contemporary
Medicine and Surgery, Miami Beach, Fl.
(V. Kendall, Suite 1506, ASCMS, 30 N.
Michigan Ave., Chicago, Ill. 60602)
2–7. American Soc. on Contemporary
Ophthalmology, Miami Beach, Fl. (J. G.
Bellows, Suite 1506, ASCO, 30 N. Michi-
gan Ave., Chicago, Ill. 60602)
3–5. National Federation of Abstracting
and Indexing Services, Washington, D.C.
(S. Keenan, NFAIS, 3401 Market St.,
Philadelphia, Pa. 19104)
Symp., Coral Gables, Fla. (T. N. Vezir-
glu, Clean Energy Research Inst., School
of Engineering and Environmental De-
sign, Univ. of Miami, Coral Gables
33124)
3–7. Pittsburgh Conf. on Analytical
Chemistry and Applied Spectroscopy,
26th Soc. for Analytical Chemists of
Pittsburgh and Spectroscopy Soc. of
Pittsburgh, Cleveland, Ohio. (P. M.
Castle, Westinghouse Research Labs.,
Beulah Rd., Pittsburgh, Pa. 15235)
3–7. Medical Data Processing Symp.,
Toulouse, France. (Inst. for Research in
Information and Automation, Public Re-
lations Dept., Domaine de Voluceau,
7815-Rocquencourt, France)
3–7. Nuclear Cross Sections and Tech-
ology Conf., American Nuclear Soc.,
American Physical Soc., Intern. Union of
Pure and Applied Physics, National
Bureau of Standards, and U.S. Atomic
Energy Commission, Washington, D.C.
(W. W. Havens Jr., Div. of Nuclear Sci-
ence and Engineering, Columbus Univ.,
520 W. 120 St., New York 10027)
6–7. Mississippi Acad. of Sciences,
Jackson. (C. L. Duggin, University
Medical Center, Jackson 39216)
6–7. American Psychopathological As-
soc., 65th annual, New York, N.Y. (E.
Sachar, Bronx Municipal Hospital Center,
Eastchester Rd. and Pelham Pkwy., Bronx,
N.Y. 10461)
6–9. Student American Medical Assoc.,
Chicago, Ill. (C. C. Dewitt, 1400 Hicks
Rd., Rolling Meadows, Ill. 60008)
7–12. American Soc. of Photogram-
metry, Washington, D.C. (L. P. Jacobs,
ASP, 105 N. Virginia Ave., Falls Church,
Va. 22046)
9–12. Medical Soc. of the State of New
York, New York. (H. I. Fineberg,
MSSNY, 420 Lakeville Rd., Lake Success,
N.Y. 11040)
9–13. Society of Toxicology, Williams-
burg, Va. (R. A. Scala, Exxon Research
and Engineering Co., P.O. Box 45, Lin-
den, N.J. 07036)
10–12. Symposium on the Integrity of
Water, Environmental Protection Agency,
Washington, D.C. (K. M. Mackenthun,
Office of Water Planning and Standards,
Office of Water and Hazardous Materials,
EPA, Washington, D.C. 20460)
10–14. International Symp. on Ad-
vances in Biomedical Dosimetry, Intern.
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SCIENCE, VOL. 186
ASSISTANT PROFESSOR
Assistant Professor, University of Illinois, Chicago Circle. Ph.D. plus 2 or 3 years of experience, publications, beginning September 1975, for teaching graduate and undergraduate courses in development and supervising graduate student research in the Dental School with special emphasis on child language. Salary for academic year: $13,000 minimum, with possibility of additional academic rank and salary dependent upon qualifications. Applications, including three letters of recommendation, should be addressed to Dr. Sheldon Rosenberg, Department of Dental Health Sciences, University of Illinois, Chicago Circle, Box 4348, Chicago, Illinois 60680. Telephone: 312 996-8952.

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The Department of BIOLOGICAL SCIENCES at the University of Southern California has several positions open at the assistant professor level.

1. An EVOLUTIONARY BIOLOGIST with interests in a mammalian or invertebrate group who will have some responsibility in overseeing the Hancock systematic collections; biochemical or morphological expertise is desirable as well as more traditional workers.

2. A POSTDOCTORAL ECOLOGIST, preferably but not exclusively with an interest in physical or organic chemistry. This is an Affirmative Action Employer. Send résumé to: David W. Butcher, Department of Biological Sciences, University of Southern California, Los Angeles, Calif. 90007. An Equal Opportunity/Affirmative Action Employer.

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ASSISTANT PROFESSOR OR ASSOCIATE PROFESSOR
Organizational or Social Ecologist, beginning September 1975, University of Illinois, Chicago Circle, to develop research or evaluation programs in community development and supervising graduate student research in department with strong emphasis on child language. Salary for academic year: $13,000 minimum, with possibility of additional academic rank and salary dependent upon qualifications. Applications, including three letters of recommendation, should be addressed to Dr. Sheldon Rosenberg, Department of Dental Health Sciences, University of Illinois, Chicago Circle, Box 4348, Chicago, Illinois 60680. Telephone: 312 996-8952.

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THE DEPARTMENT OF BOTANY AND ENTOMOLOGY
The department is inviting applications for professor or head of the department. Write to: Dr. E. Grant Kinsey, Search Committee, Department of Botany and Entomology, Box 386, Las Cruces, New Mexico 88003, for position announcement. Résumés must be submitted by 1 January 1975. An Equal Opportunity/Affirmative Action Employer.

The College of Biological Sciences, The Ohio State University, invites qualified applicants to apply for the following positions: (i) Assistant or Associate Professor, ecology or evolutionary biology; (ii) Associate Professor, plant ultrastructure; (iii) Assistant Professor, structural botany (anatomy and morphogenesis). The successful candidate for the position of Assistant Professor, professional biology. Candidate must hold the Ph.D. and be interested in teaching at both the undergraduate and graduate level and in involving students in research in his/her specialty. Appointments will be for 9 months, beginning 1 October 1975. Salary range: Assistant Professor $12,500 to $14,000; Associate Professor $14,500 to $16,000. Candidates should submit curriculum vitae, brief outlines of research, and three letters of recommendation to Dr. Thomas N. Taylor, Chairman, Department of Biological Sciences, The Ohio State University, 1855 Neil Avenue, Columbus, Ohio 43210. Deadline for receipt of all materials is 1 January 1975. An Affirmative Action Employer.

CHAIRMAN
DEPARTMENT OF BOTANY AND ENTOMOLOGY
COLORADO STATE UNIVERSITY
The Department of Botany and Plant Pathology at Colorado State University is seeking applications for the position of chairman of the department: the position to be filled 1 July 1975. The Department has 12 full-time faculty members and offers Ph.D. degrees in Botany and in Plant Pathology. Candidate should have a Ph.D. and have a distinguished record of achievement in teaching or research. The department is part of an administration with a strong commitment to affirmative action and equal opportunity. Applicants should submit a résumé and a list of three references to: J. P. McGhee, Chairman, Department of Botany and Plant Pathology, Colorado State University, Fort Collins, Colorado 80523.

CSU is an equal opportunity employer. In order to assist CSU to meet its affirmative action goals, women are encouraged to apply and identify themselves as such on their résumés.

State University of New York at Binghamton. The DEPARTMENT OF CHEMISTRY seeks one or two additions to its organic faculty, preferably beginning September 1975. The appointments may be at the Associate or Assistant Professor level. We seek organic chemists with research interests in one or more of the following areas: physical organic, photochemistry, organometallic, or organic spectroscopy. Candidates should be expected to conduct strong research programs and to participate in graduate and undergraduate levels teaching. Applicants should send a curriculum vitae, brief statement of research interests and plans, a list of publications, and original applications to: Dr. John Kinsey, Chairman, Chemistry Department, State University of New York, 1471 Robeson Hall, Binghamton, New York 13901. Applications, including references, should be completed by 20 January 1975 to ensure consideration.

DEPARTMENT CHAIRPERSON for the Department of Biology, Boston University. Faculty of 25 with diverse interests offer strong undergraduate and master's level graduate program. Applicants should have Ph.D. in biology, teaching, and research experience, and demonstrate administrative potential. Send résumé to: Search Committee, Biology Department, Central Michigan University, Mt. Pleasant, Michigan 48859, by 15 February.

The CHEMISTRY DEPARTMENT at the State University of New York at Binghamton is searching for a physical chemist with chemical physics background for appointment to the faculty in the fall of 1975. Rank and salary dependent upon qualifications. Applicants should include curriculum vitae and a brief statement of research plans. In addition, three letters of recommendation should be submitted. Application letters should be sent to: Dr. Jerome M. Arosen, Department of Biology, Botany-Mineralogy, SUNY-Binghamton, Oneonta, New York 13828. Send letters of recommendation should be addressed to Walter E. Kaskin, Department of Chemistry, State University of New York at Binghamton, Binghamton, New York 13901. To assure consideration, replies should be received by 31 January 1975.

DEVELOPMENTAL BOTANIST
Biochemical emphasis on vascular plants. Assistant Professorship available August 1975. Share instruction in lower division course(s), develop course(s) in specialty and maintain active research program. Ph.D. required. Send résumé and names of three letters of reference to: Dr. Jerome M. Arosen, Department of Biology, Botany-Mineralogy, SUNY-Binghamton, Oneonta, New York 13828. Deadline for receipt of all materials is 1 January 1975. An Affirmative Action Employer.

ECOLOGISTS
Two or three faculty positions in ecology are available, beginning August 1975. Persons with varied backgrounds are especially encouraged to apply. Salary competitive with other positions of comparable rank in a beginning faculty position. Applicants should submit curriculum vitae to: Ecology Search Committee, Department of Biology, The University of New Mexico, Albuquerque, N.M. 87131, An Equal Opportunity Employer.

UNIVERSITY OF ILLINOIS
FACULTY MEMBERS, preferably with postdoctoral experience, to help in teaching gross anatomy in medical or dental school. Search area open, but applicants should expect to have or seek a rank minimum of assistant professor. Somewhat senior person could be considered. Send résumé and names of three references to: Dr. K. A. Rafferty, Department of Anatomy, The University of Illinois at the Medical Center, Chicago, Illinois 60612. The University of Illinois is an Equal Opportunity Employer.

FACULTY POSITIONS (Two)—Department of Pharmacology invites qualified applicants to apply for two assistant professorships. Applicants with research interests in the following areas are encouraged to apply: experimental and clinical pharmacology. Selected candidates will be expected to conduct research and teaching, and to participate in graduate and undergraduate levels teaching. Applicants should send curriculum vitae, a list of three references, and a brief statement of research interests and plans to: Dr. Donald R. Ramge, Chairman, Department of Pharmacology, Harvard Medical School, 25 Shattuck Street, Cambridge, Massachusetts. Applications, including references should be completed by 15 January 1975 to ensure consideration.

FACULTY POSITION (rank open) in School of Life Sciences for biologist to engage in vigorous research in Genetics or Developmental Biology of eukaryotes. Preference will be given to candidates with training in molecular biology, and familiarity with techniques such as genetic crosses, organelle transformation, parasexual techniques. Teaching responsibilities will be at both undergraduate and graduate levels. Appointees will have the opportunity to develop their research plans, areas of teaching competence, etc. Applicants should send curriculum vitae, a list of three references, and a brief statement of research interests and plans to: Prof. J. H. Williams, Chairman, Department of Genetics and Development, University of Illinois, Urbana, Ill. 61801. The University of Illinois is an Affirmative Action/Affirmative Opportunity Employer and encourages applications from members of minority groups and women.

20 DECEMBER 1974

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Invites applications for the anticipated position of DIVISION HEAD, NATURAL SCIENCES

This upper-level institution, in its second year of operation, seeks applicants who can exercise responsibility for development of undergraduate and graduate-level programs in the natural sciences, recruit faculty, and perform other administrative functions through Office.

Interested applicants should send a résumé to:

Dr. D. Reginald Traylor
The University of Houston Victoria Center
2708 North Ben Jordan
Victoria, Texas 77901

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FACULTY POSITIONS AVAILABLE MEDICAL EDUCATION PROGRAM TEXAS A&M UNIVERSITY COLLEGE STATION, TEXAS 77843

Texas A&M University, in affiliation with Baylor College of Medicine, is currently developing a new Program in Medical Education. The 2-year preclinical phase of instruction will be presented primarily on the TAMU campus. The clinical curricula, occupying the third and fourth years, will utilize the faculty and facilities of the Baylor College of Medicine and its affiliated hospitals in Houston as well as the Veterans Administration Center and the Scott & White Clinic and Hospital in Temple, Texas. Training experiences under the guidance of physicians in private practice are planned, both in the preclinical and clinical years. A major emphasis of this Program will be the training of physicians who, by virtue of their background and educational experience, will be prepared for and attracted to medical practice in communities other than the larger metropolitan centers.

Qualified individuals with teaching experience in human anatomy, physiology, biochemistry, pathology, pharmacology, microbiology, and general medicine in a medical school setting are invited to make application. Letters of application should include a résumé of pertinent prior experience and may be directed to Dean of Medicine, Office of Medical Careers, Texas A&M University, College Station, Texas 77843.

Texas A&M University is an Equal Opportunity/Affirmative Action Employer.

FACULTY POSITION

The University of California, Irvine, Department of Biological Chemistry in the College of Medicine invites applications for a faculty appointment as an Assistant Professor. Applicants should also have considered appointment at the Associate Professor level. Teaching responsibilities involve instructing medical students and graduate students in selected areas of biochemistry, research experience and interest in molecular biology, control of expression, and/or enzymology are preferred. Faculty members are expected to develop a strong, independent research program. Applications from all qualified candidates are welcome; minority nominees are particularly encouraged.

Send curriculum vitae and two letters of reference to:

Dr. Kevie Moldove
Department of Biological Chemistry
College of Medicine
University of California, Irvine
Irvine, Calif. 92664

THREE FACULTY POSITIONS DEPARTMENT OF BIOLOGICAL SCIENCES STATE UNIVERSITY OF NEW YORK AT BINGHAMTON

Research-oriented biologists with an interest in graduate and undergraduate education are sought in the following areas:

- MICROBIAL GENETICS
- DEVELOPMENTAL BIOLOGY
- POPULATION GENETICS-ECOLOGY

Any of the positions may be filled at the assistant, associate, or full professor level. Outstanding candidates are encouraged to submit curriculum vitae with statement of research and teaching interests, reprints or preprints, and current or pending grant proposals. Also, please have at least three letters of reference sent. Additional requirements for applicants for assistant professor are postdoctoral research experience and submission of academic transcripts. All correspondence from candidates and references should specify which position is being sought and should be sent to Alan H. Haber, Chairman, Department of Biological Sciences, State University of New York at Binghamton, Binghamton, New York 13901. An Equal Opportunity/Affirmative Action Employer.

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SCIENCE, VOL. 186
Ph.D., with training and Post-Doctoral experience in chemical carcinogenesis, metabolic activation of carcinogens and mammalian cell culture techniques needed to investigate metabolic activation of chemical carcinogens and the various biochemical aspects involved. Develop metabolic activation systems for use with in vitro carcinogenesis bioassay models. Determine the role of activating enzyme systems in the transformation of human cells and study human metabolites of chemical carcinogens.

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Mr. D. S. Loker, Personnel Mgr.
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AN EQUAL OPPORTUNITY EMPLOYER

The Faculty of the Department of Biochemistry, University of California at Berkeley anticipates an opening at the level of Assistant Professor beginning in July 1975. The position will entail the establishment of a vigorous research program as well as teaching in departmentally administered courses. It is expected that the chosen candidate will have demonstrated outstanding competence, originality, and productivity, as evidenced by research accomplishment and reputation in the field. The candidate should also be able to perform effectively both as a lecturer and in more informal teaching situations. Preference will be given to candidates whose research interests complement rather than duplicate those of current members of the department. In particular, we solicit applications from those with experience and interest in biochemical aspects of (1) growth and regulation of eucaryotic cells, (2) organization, function and assembly of supramolecular structures, and (3) neurobiology.

A brochure describing the department facilities and faculty research programs is available on request. Applicants should submit a curriculum vitae and bibliography, a concise (500-1000 words) description of their prospective research program and names of three references, to the Chairperson of the Search Committee, at the above address.

The University of California is an Affirmative Action/Equal Opportunity Employer.
DEPARTMENT HEAD, MATHEMATICS

The Department of Mathematics at the University of Illinois, Chicago Circle Campus, invites applications and nominations for the position of department head, effective September 1975. The Department, staffed by a full-time faculty of 77, presently has 42 undergraduate and 131 graduate students and offers undergraduate, master's, and doctoral programs in Pure and Applied Mathematics, Statistics and Probability, Computer Science, and Mathematics Education. Any person interested in this position must have a distinguished record of teaching and research and, preferably, a demonstrated commitment to active and effective teaching.

UNIVERSITY OF SOUTH CAROLINA FACULTY POSITIONS IN BIOCHEMISTRY

The University of South Carolina invites applications for faculty positions in its newly authorized MEDICAL SCHOOL which is to be established in affiliation with the Columbia Veterans Administration Hospital under the authority of the Columbia University Medical School Assistance and Health Manpower Training Act of 1972. Letters of application or nomination should include a statement as to the extent of research, teaching, or other activity which a candidate possesses or has demonstrated in molecular studies. Applicants should have a medical degree and/or a doctoral degree in the biomedical sciences. The University of South Carolina is an Equal Opportunity/Affirmative Action Employer.

HEMATOLOGIST

Board eligible or qualified. Instructor or Assistant Professor level. Apply to:

Chairman

Department of Medicine

University of South Carolina School of Medicine

Chapel Hill, N.C. 27514

PHYSICIANS FOR PRIMARY CARE CENTER

Apply to:

Chairman

Department of Medicine

University of North Carolina School of Medicine

Chapel Hill, N.C. 27514

PHYSIOLOGIST competent in either renal or neurophysiology for vacancy in our teaching faculty at either assistant or associate professor level. Candidates must also be actively engaged in research and contribute to excellent teaching program. This university is an Equal Opportunity Employer. D. A. Schuster, Department of Pharmacology and Physiology, Creighton University Medical College, Omaha, Nebraska 68178.

PLANT POPULATION GENETICIST

Assistant Professor level. Available for September 1975. Undergraduate and graduate-level teaching in population biology is desired. Candidates must be active in a team-taught introductory biology course. Opportunity to conduct research and direct students in a plant science Ph.D. program. Salary up to $17,000 depending on qualifications and experience. Send applications and nominations to Chairman, Department of Biological Sciences, Herbert H. Lehman College, City University of New York, Bronx, N.Y. 10468. An Equal Opportunity Employer with an Affirmative Action Program.

POSTDOCTORAL POSITION

To investigate the biochemical pharmacology of the heart. Applicants with backgrounds in pharmacology, biochemistry, or electrophysiology will be considered. Send résumé and three letters of recommendation to: Chairman, Department of Pharmacology, University of Arizona College of Medicine, Tucson, Arizona 85724. The University of Arizona is an Equal Opportunity Employer.

POSTDOCTORAL POSITION

Two-year fellowship training in Clinical Pharmacology. Send résumé and two letters of reference to:

Dr. Philip Watson

Department of Pharmacology

University of Arizona College of Medicine

Tucson, Arizona 85724

The University of Arizona is an Equal Opportunity Employer.

POSTDOCTORAL RESEARCH

Experience in ecosystem research, statistical analysis, and computer programming is required to work in arid lands ecosystem laboratory. Position available for September 1975. Send résumé to: Dr. Walter G. Whitford, Department of Biology, New Mexico State University, Las Cruces, New Mexico 88003. An Equal Opportunity/Affirmative Action Employer.

PROFESSOR, DEPARTMENT OF ORAL BIOLOGY,

School of Dentistry, State University of New York at Buffalo. The department is seeking a cell biologist with a particular interest in dentistry who will utilize his/her background in cell function, preferably cellular immunology, as it relates to periodontal disease. Interested candidates should contact Dr. Ernest Haseman, Department of Oral Biology, School of Dentistry, State University of New York at Buffalo, 353 Main Street, Buffalo, New York 14226. An Equal Opportunity/Affirmative Action Employer.

RESEARCH ASSOCIATE

Applications are being accepted for a position of Research Associate in field research in physical oceanography. Applicants should have a strong background in physical science, have demonstrated research experience in field and instrumentation aspects of deep sea physical oceanography with emphasis on deep sea organisms. Salary will be competitive. Each year at sea, special emphasis will be placed on the ability to design and carry out experiments and to handle the problems of initial program will be focused in the Southern Ocean. Inquiries should be directed to: Dr. James Baker, Jr., Department of OceanographyWilliam and Mary, College of Marine Science, Newport News, Virginia 23606. An Equal Opportunity/Affirmative Action Employer.
**RESEARCH MARINE CHEMIST**

Development of chemical methodology; radioisotope tracer techniques; microanalysis; Ph.D. and proven ability to generate funds essential.

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West Boothbay Harbor  
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**RESEARCH POSITION—POSTDOCTORAL FELLOW, UNIVERSITY OF CALIFORNIA, SAN DIEGO**

Research Immunologist with five or more years of experience in immunogenicity and immunochemistry. Please send curriculum vitae and bibliography to: Professor B. W. J. Sturrock, Department of Pathology, University of California, San Diego, Medical School, La Jolla, California 92037. This is an Equal Opportunity, Affirmative Action Employer.

**THE AUSTRALIAN NATIONAL UNIVERSITY** invites applications for appointment to the following:

- Research Fellow—Department of Biochemistry, John Curtin School of Medical Research. The Research Fellow will join an existing research group in the Department in work in one of the following areas:
  - Protein structure with particular reference to the isolation and characterization of membrane proteins from plant and animal systems.
  - Biochemical genetics of bacterial oxidative phosphorylation.
  - Enzyme reaction mechanisms with particular reference to allostereic enzymes.

Further details to a range of positions may be obtained from Professor F. E. Gibson, John Curtin School of Medical Research, University of Australia, Canberra. Closing date: 1 March 1975.

Fellow/Senior Research Fellow/Research Fellow in Collid and Surface Biophysics, Biotechnology, Research School of Physical Sciences, appointment will be in the Department of Applied Mathematics, Institute of Advanced Study, where work is in Collid and Interface Science with a bias toward membrane biophysics (Professor W. N. Nowham) and in vision Research and Operations (Professor A. B. Horridge) and the Department of Theoretical Physics and Biophysics (Professor A. J. Winfield). Applicants are especially invited from people interested in Collid and Interfaces, Field and/or Polymer Science. The Department would particularly welcome a person with some knowledge of or an interest in membrane biology and physiology. It is expected that some opportunity to do experimental work may arise if desirable. Closing date: 31 January 1975.

Tenure as Fellow is for 5 years in the first instance with extension to retirement age; Senior Research Fellow and Research Fellow for 3 years in the first instance with possibility of extension to retirement age; travel expenses and assistance with housing is available.

Salaries: Fellow, $10,665 to $11,490 per annum; Senior Research Fellow, $13,316 to $15,548 per annum; Research Fellow, $9,002 to $12,269 per annum. Australian currency.

Further information from the Academic Registrar, P.O. Box 4, Canberra, A.C.T., 2600, Austalia.

**RESEARCH MARINE CHEMIST**

Applications (Equal Opportunity) are invited for a position in the Faculty of Sciences, University of Oregon. The position will be held jointly in the Faculty of Sciences and the Department of Plant Sciences, with responsibility for teaching and research at the undergraduate and graduate levels. Applicants should have a Ph.D. in Plant Sciences and substantial experience in the areas of physiology, biochemistry, and/or molecular biology. The position carries a salary of $12,000 per annum, with the possibility of extension to a position as an Associate Professor. Further information may be obtained from the Dean of Sciences, University of Oregon, Eugene, Oregon 97403.

**POSITIONS OPEN**

PSYCHOLOGIST

Postdoctoral position available in September 1975 or earlier for researchers with a background in experimental and clinical research. Previous experience in behavioral research or behavioral modification is highly desirable. The position is at the University of California, San Francisco, and includes a salary of $9,000 per year plus benefits. For further information, please contact Dr. J. W. Green, Department of Psychology, University of California, San Francisco, California 94122.

**RESEARCH POSITIONS—POSTDOCTORAL FELLOWSHIP, UNIVERSITY OF CALIFORNIA, SAN DIEGO**

Applications are invited for appointment to the following positions in the Materials Science and Engineering Program at the University of California, San Diego. These positions are open to candidates with a Ph.D. in materials science, engineering, or a related field. Preference will be given to candidates with experience in the areas of materials processing, microstructural studies, and mechanical properties. The positions will begin on September 1, 1975. The University of California, San Diego, is an Equal Opportunity, Affirmative Action Employer.

**FELLOWSHIPS**

**POSTDOCTORAL RESEARCH FELLOWSHIPS AT THE CENTER FOR ASTROPHYSICS**

The Harvard College Observatory and the Smithsonian Astrophysical Observatory invite applications for postdoctoral research fellowships. Tenure will be at the Center for Astrophysics, Cambridge, Massachusetts. Awards will normally begin 1 July 1975 for a period of 1 year and may be extended for one additional year. Awards will be made in various fields of astrophysics and astronomy, including Atomic and Molecular Physics, Geoastronomy, High-Energy Astrophysics, Optical and Infrared Astronomy, Planetary Sciences, Radio Astronomy, Solar and Stellar Physics, and Cosmology. Several awards will be made.

Research facilities include: laboratories for the determination of atomic properties, extensive laser tracking data for satellites, a CDC 6600 computer, X-ray satellite instruments, optical telescopes at several sites (including Mount Hopkins, Arizona), laboratories for geophysical and isotopic analysis of meteorites and lunar rocks, access to a 16-foot millimeter-wave telescope and large centimeter-wave telescopes, and data from orbiting solar telescopes.

Applicants should submit a curriculum vitae, a bibliography, a statement of research interests, copies of one or two publications, and the names of three referees to: Chairman, Postdoctoral Fellowship Committee, Center for Astrophysics, Smithsonian Astrophysical Observatory, Cambridge, Massachusetts 02138.

All materials should reach Cambridge by 1 February 1975. The Center for Astrophysics is an Equal Opportunity, Affirmative Action Employer. It encourages applications from women and members of minority groups.

**POSTDOCTORAL FELLOWSHIPS DEPARTMENT OF PHYSICS UNIVERSITY OF WASHINGTON WATERLOO, ONTARIO, CANADA**

Applications are invited for postdoctoral research fellowships in physics. Fellowships carry a stipend of $9600 per annum (after tax). The research facilities are excellent. The University is subject to Canadian income tax. The awards are tenable for a period of 1 year with a possible renewal for a second year.

Research areas include: Astronomy and Astrophysics (applicants in this area should be interested in teaching and in observational galactic structure, the Southern Hemisphere and related topics), Atomic and Molecular Physics, Biophysics and Crystallography, Electron Microscopy (thin crystal diffraction and instrumentation), Ellipsometry, Condensed Inert Gas Properties, Laser Physics and related (including Magnetic Resonance, Solid-State Physics (insulators, metals, magnetic thin films), and Ultrasonics), Statistical Mechanics, Superfluidity, Superconductivity, and Semiconductors. Closing date for applications is 15 March 1975.

For further information write to:

Dr. D. E. Brodie, Acting Chairman  
Department of Physics,  
University of Waterloo  
Waterloo, Ontario, Canada N2L 3G1

**PREDICTOCL FELLOWSHIPS IN PHYSIOLOGY**

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$170./set (>10 sets)

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