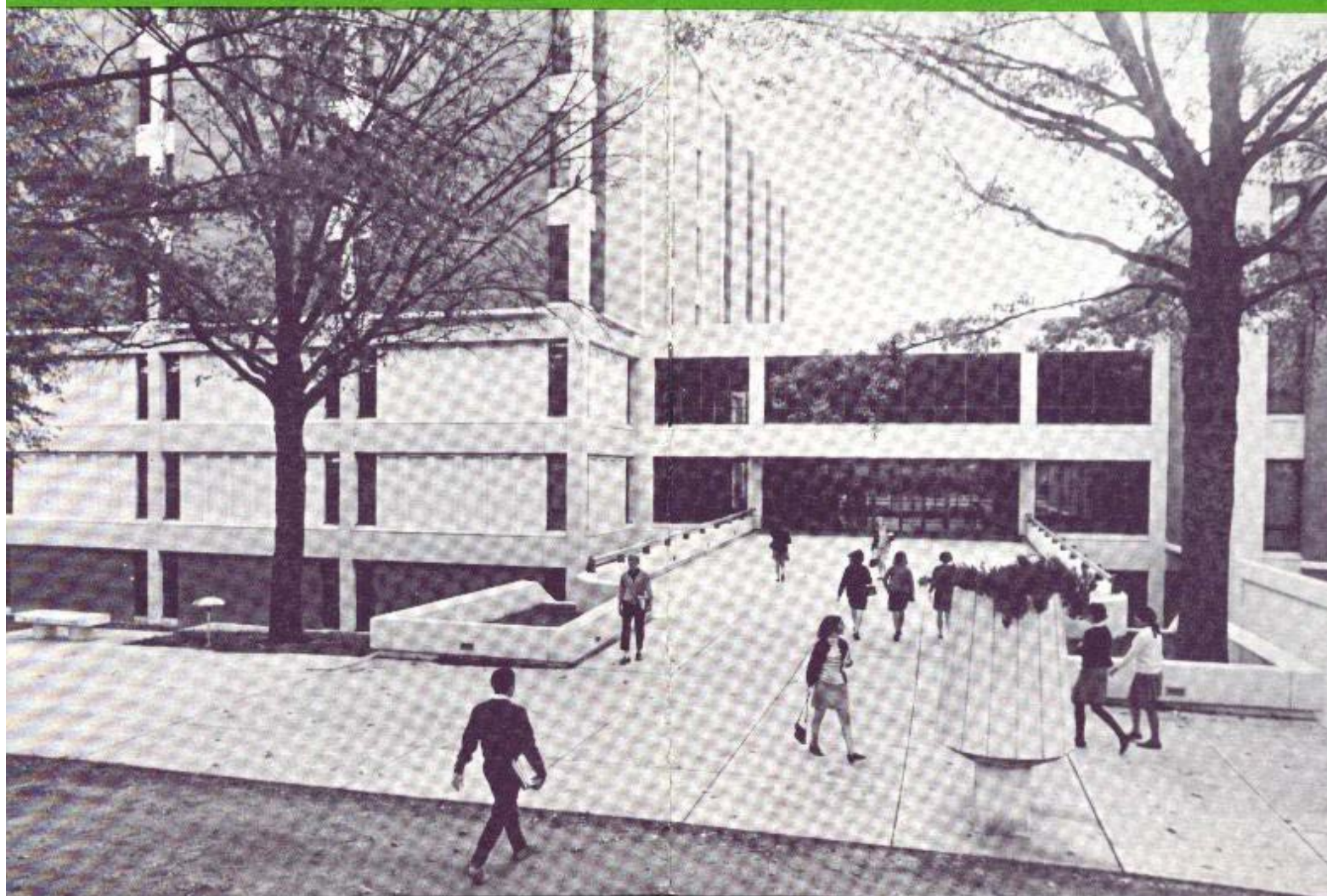


Biochemistry



The University of Georgia
Athens, Georgia



General Information

The Department of Biochemistry is one of six departments comprising the Division of Biological Sciences in the Franklin College of Arts & Sciences at the University of Georgia. Degree programs are offered in Biochemistry at the BS, MS and PhD levels. The undergraduate major is designed to give the student a strong background in both the physical and biological sciences as preparation for either graduate study or medical school. A strong graduate program has been developed which includes major teaching responsibilities for students in most of the colleges and schools with biological orientation.

The undergraduate program is still relatively small, but is rather selective and students graduating are entering the better graduate and medical schools. The staff participates in the freshman and junior level interdisciplinary core courses in biology which are administered by the Division of Biological Sciences. In addition, three courses in general biochemistry are offered by the department at the undergraduate level, a one quarter introductory course plus a two quarter sequence at the advanced undergraduate-beginning graduate level. A two quarter advanced general biochemistry sequence serves as the base for graduate work in biochemistry and is open to both majors and nonmajors. More advanced courses in enzymology, research techniques, and physical chemistry of macromolecules are available as well as subject matter specialization in carbohydrate metabolism, nucleic acid metabolism, lipid metabolism, phytochemistry, reproductive biochemistry and enzyme kinetics plus special topics courses. Formal training in biochemistry is supplemented by subjects in physical and organic chemistry and in the biological sciences.

The central role of research in the training of graduate students is recognized and emphasized by each staff member. Students usually begin participation in research activities after their first quarter in the department. Each of the staff has one or more active research programs and most are supported by grants from federal agencies. The seminar program, in which all staff, postdoctoral fellows and graduate students participate, is considered to be an extremely valuable adjunct to graduate teaching and is supplemented each year with presentations by 10 to 20 visiting scientists. Training in biochemistry at both the graduate and undergraduate level is designed to provide insight into the chemical basis of life processes so that an interpretation of basic biological phenomena may be made by students from all areas of the biological, agricultural, medical and physical sciences.

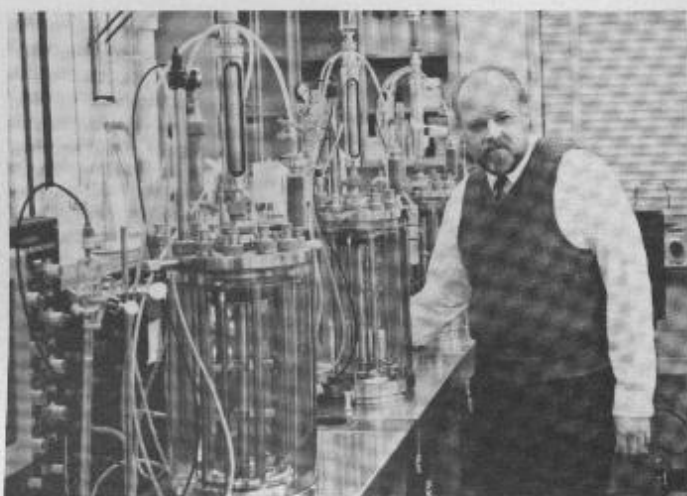
The department, which was organized in 1965, now consists of 18 full-time and 8 part-time faculty members. The research interests of the staff are quite varied and present a well-rounded program appropriate to a department in a College of Arts & Sciences. A Science Development Award from the National Science Foundation has made possible the addition of staff with primary interests in physical biochemistry giving a better balance between those whose orientation is primarily biological and those who stress the physical aspects of biochemistry.

The Department of Biochemistry moved into its present quarters in the newly constructed Graduate Studies Research Center in 1968. The entire 7th floor of the \$6.5 million structure is devoted to 10 large biochemistry research laboratories. Departmental offices are on the 6th floor and modern animal quarters with a surgery suite, incinerator, etc. are located on the 8th floor. Classrooms are on lower floors along with the Departments of Mathematics and Statistics, and the Graduate School. The Computer Center occupies the ground floor with an IBM 360/65, CDC 6400 and IBM 7094 computers plus supporting equipment with a total value of about \$14 million available for use. The Science Library, with more than 250,000 of the total University holdings of approximately 1.2 million volumes, is conveniently located in a wing of the Graduate Studies Research Center.

Departmental facilities include a Mass Spectrometry Laboratory, located in a nearby building and a Fermentation Plant, which also contains two large research laboratories, in addition to those facilities in the GSRC. The Mass Spectrometry Laboratory contains a high resolution, double-focusing mass spectrometer and two low resolution machines, one of which is interfaced with a protein sequenator. The Fermentation Plant contains two 400 liter fermentors, one of which is programmable, and five smaller fermentors, plus the necessary equipment for harvesting and processing kilogram quantities of microorganisms. Other research equipment available in the department includes an analytical ultracentrifuge with scanner, an electron paramagnetic resonance spectrometer, a constant intensity spectrofluorimeter, a polarization of fluorescence fluorimeter, a stopped-flow spectrophotometer, two automatic amino acid analyzers, and two in-lab computers plus most of the other equipment needed for modern biochemical research. Supporting facilities outside the department include the Electron Microscope Laboratory, Electronic Design and Maintenance Shop, Glassblowing Shop, Machine Shop, and Central Research Stores. The University also maintains a marine station on Sapelo Island, which is utilized by a number of the staff for investigations into the biochemistry of selected marine organisms.

(continued on page 15)

Cover: Graduate Studies Research Center



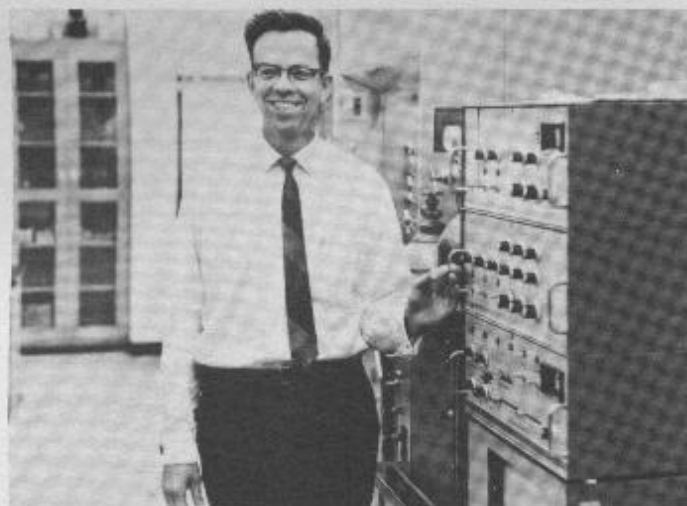
Harry D. Peck, Jr.
Professor of Biochemistry and Department Head
B.A., M.A. Wesleyan,
Ph.D. (1956) Western Reserve University.

Dr. Peck spent two postdoctoral years with Dr. Fritz Lipmann at Harvard and Rockefeller. He then joined the enzymology group at the Biology Division of Oak Ridge National Laboratory. In 1964 he was a senior NSF Postdoctoral Fellow at the CNRS in Marseille with Dr. Jacques Senez. Dr. Peck came to Georgia as Department Head when the department was organized in September, 1965. His research interests center on sulfur metabolism, with particular emphasis on mechanism of reduction and oxidation of inorganic sulfur compounds plus comparative aspects of energy generation.



Milton J. Cormier
Research Professor of Biochemistry
B.S. Southwestern University, M.S. University of Texas,
Ph.D. (1956) University of Tennessee.

Dr. Cormier was a Research Associate with Dr. G. David Novelli at the Biology Division of Oak Ridge National Laboratory from 1956-58. He came to the University of Georgia in 1958 as Assistant Professor of Chemistry, was appointed Associate Professor in 1961, and became Professor of Biochemistry in 1966. Dr. Cormier received a Career Development Award from NIH in 1964. His research interests are in the area of bioluminescence where he is involved in the isolation and identification of luciferins and purification and characterization of luciferases from a number of systems.



William L. Williams
Research Professor of Biochemistry
B.S. University of Minnesota,
M.S., Ph.D. (1949) University of Wisconsin.

Dr. Williams was an Assistant Professor of Biochemistry at North Carolina State University in 1949-50. In 1950 he accepted a position at Lederle Laboratories where he became Head of Physiological Chemistry. Since 1959 he has been at the University of Georgia where his research interests center on the biochemistry of reproduction. He is especially interested in the molecular mechanisms involved in fertilization, mode of action of hormones and biochemical events in reproduction. He has held an NIH Career Development Award since 1962.

Leon S. Dure III

Professor of Biochemistry
B.A., M.A. University of Virginia,
Ph.D (1960) University of Texas.

Dr. Dure came to the University of Georgia in 1960 as a Research Associate, working with Dr. John Totter and Dr. Milton Cormier. In 1962 he was appointed Assistant Professor of Chemistry, a position he held until the organization of the Dept. of Biochemistry. He was appointed Professor in 1970. His research is concerned with biochemical control mechanisms in differentiation and growth, particularly those changes in nucleic acid and protein metabolism during embryogenesis and germination in higher plants. Dr. Dure has held an NIH Career Development Award since 1967.



Robert A. McRorie

Professor of Biochemistry
B.S., M.S. North Carolina State University
Ph.D. (1953) University of Texas

Dr. McRorie came to the University of Georgia in 1953 where he was jointly staffed between the Dept. of Chemistry and the Agricultural Research Station. He was active in the development of the teaching program in biochemistry as well as in the administration of research for the University. He organized the Office of General Research and served for several years as Director. He has recently returned to teaching and research after a period of service in the University AID program to East Pakistan. Dr. McRorie's research interests are primarily in the area of uronic acid utilization in bacteria.



Raymond B. Ashworth

Assistant Professor of Biochemistry
B.S., M.S. University of Georgia
Ph.D. (1966) Emory University.

Dr. Ashworth worked one year as a Research Associate under Dr. M. J. Cormier in the department after completing his Ph.D. He was appointed Assistant Professor in 1967. His research interests center on the evolution and metabolism of halogenated phenols in marine invertebrates and on certain blood proteins such as carbonic anhydrase and mammalian erythrocyte copper proteins.



Clanton C. Black, Jr.

Associate Professor of Biochemistry
B.S., M.S., Ph.D. (1960) University of Florida.

Dr. Black worked as a postdoctoral Research Associate at Cornell University under Dr. Martin Gibbs from 1960 until 1962. He then went to the Charles F. Kettering Research Laboratory at Yellow Springs, Ohio, for five years before coming to the University of Georgia in 1967 as Associate Professor. His research interests lie in the general area of the light reaction in photosynthesis, particularly with mechanisms of photophosphorylation and oxygen evolution, and with C_4 dicarboxylic acid metabolism in chloroplasts.



John M. Brewer

Assistant Professor of Biochemistry
B.A., Ph.D. (1963) Johns Hopkins University.

After completion of the Ph.D., Dr. Brewer worked with Dr. Gregorio Weber at the University of Illinois for 3 years as a Research Associate. He joined the Department of Biochemistry at the University of Georgia in 1966 where he has studied the interaction of various metals, substrates, inhibitors, etc. with proteins, as measured by a variety of physical techniques such as sedimentation, electrophoresis, and polarization of fluorescence.

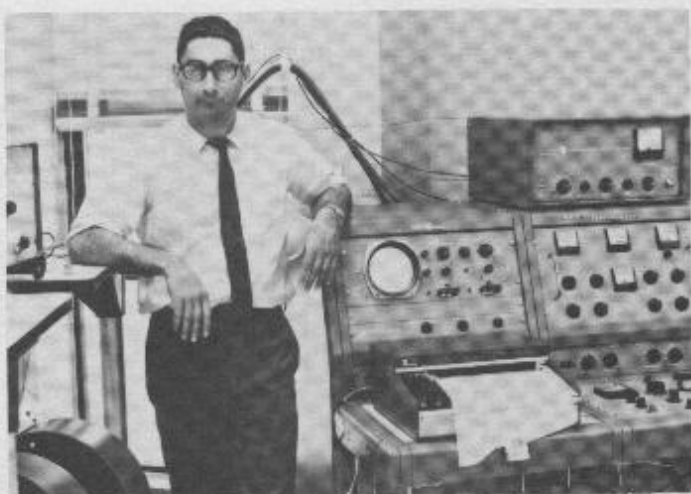


Richard J. DeSa

Assistant Professor of Biochemistry
B.S. Buffalo, Ph.D. (1964) University of Illinois.

Dr. DeSa spent one year at the Johnson Research Foundation (1964-65), then he worked with Dr. Q. H. Gibson at Cornell University as a postdoctoral fellow from 1965-68. He came to his present position at Georgia in 1968 where he has pursued three areas of interest: the biochemistry of flavoprotein oxidases with particular emphasis on their kinetics as revealed by stopped-flow and other rapid kinetic techniques, the application of on-line computer techniques to biochemical problems and the design and construction of electro-optical instrumentation.





Daniel V. DerVartanian
 Assistant Professor of Biochemistry
 B.S. Boston University,
 D.Sc. (1965) University of Amsterdam

Dr. DerVartanian joined the Department in 1968 after 3 years as a Research Associate at the University of Wisconsin Enzyme Institute where he worked with Dr. H. Beinert. He is working on certain flavoproteins and metalloproteins which can be studied by electron paramagnetic resonance spectrometry. He received an NIH Career Development Award in 1971.



John W. Lee
 Associate Professor of Biochemistry
 B.S., Ph.D. (1960) University of New South Wales.

After completion of his Ph.D. in Nuclear and Radiation Chemistry, Dr. Lee came to the U.S. and spent two years (1961-63) with Dr. H. Seliger at Johns Hopkins pursuing his interests in biophysics. In 1963 he became Staff Scientist at the New England Institute for Medical Research where he remained until assuming his present position in 1969. His research interests are concerned with excitation mechanisms in chemiluminescent and bioluminescent reactions and the interaction of laser-generated singlet oxygen with biologically important molecules.



Jean LeGall
 Assistant Professor of Biochemistry
 B.S., Ph.D. (1967) University of Aix-Marseille.

Dr. LeGall joined the department in 1969, coming to Georgia from Centre National de La Recherche Scientifique in Marseille. He held various positions with CNRS since 1957, with a two year break as a Fulbright Fellow (1961-63) at the University of Illinois with Dr. I. C. Gunsalus. His present research interests center on the structure of cytochromes and non-heme iron-containing proteins in sulfate reducing bacteria.

Lars G. Ljungdahl

Associate Professor of Biochemistry
B.S. Stockholm Technical Institute
Ph.D. (1964) Western Reserve University

After receiving the Ph.D., Dr. Ljungdahl accepted a faculty position in the Department of Biochemistry at Western Reserve University where he continued to work very closely with Dr. Harland G. Wood. In 1967 he joined the Department of Biochemistry at the University of Georgia where he is working on the biosynthetic pathway of vitamin B₁₂, the mechanism of action of B₁₂ factors in CO₂ fixation and the characterization of enzymes from thermophilic bacteria.



Robert E. Lovins

Associate Professor of Biochemistry
A.B. University of California, Riverside
Ph.D (1963) University of California, Davis.

After receiving his Ph.D., Dr. Lovins remained at Davis from 1963-65, then he accepted a position at M.I.T. in the Mass Spectrometry Laboratory with Dr. K. Biemann, where he remained until coming to his present position in 1969. He directs the Mass Spectrometry Laboratory in the department and works on quantitative sequencing of heterogeneous proteins using mass spectrometry with particular emphasis on the structural heterogeneity of antibodies. Dr. Lovins was awarded an NIH Career Development Award in 1971.



Joseph F. Mendicino

Associate Professor of Biochemistry
B.S., Case Institute of Technology,
Ph.D. (1958) Western Reserve University.

From 1958 until 1962 Dr. Medicino was a post doctoral fellow who worked with Dr. Luis Leloir in Buenos Aires, and Dr. Harland G. Wood at Western Reserve. From 1962 until 1968 he was an Assistant Professor of Biochemistry at Ohio State University until his appointment as Associate Professor at Georgia in 1968. He is interested in the effects of hormones on multienzyme systems of carbohydrate metabolism, biosynthesis of branched-chain monosaccharides and the formation of glycoproteins.





Norman G. Sansing

Assistant Professor of Biochemistry
B.S., M.S., Auburn University
Ph.D. (1962) Iowa State University.

After completing the Ph.D. Dr. Sansing received an appointment as Research Associate at the Biology Division of the Oak Ridge National Laboratory where he worked for two years under the direction of Dr. Elliot Volkin. In 1964 he was appointed assistant professor in the Botany Department at the University of Georgia and assumed his present position in 1967. His research interests lie in the area of nucleic acid metabolism, particularly the characterization of plant nucleases and the effects of certain herbicides on nucleic acid metabolism.



Prakash N. Srivastava

Assistant Professor of Biochemistry
B.S., M.S. Lucknow University,
Ph.D. (1965) Cambridge University.

After receiving his Ph.D., Dr. Srivastava returned to his former position in charge of the Endocrinology Laboratory of the Indian Veterinary Research Institute at Izatnagar. In 1968 he came to the University of Georgia as a Research Associate with Dr. W. L. Williams. In 1969 he was appointed to his present position where his research is concerned with the enzymology of mammalian fertilization, particularly the enzymes found in spermatozoa which appear to be involved in penetration of the ovum.



James Travis

Assistant Professor of Biochemistry
B.S. University of Manitoba
Ph.D. (1964) University of Minnesota.

Dr. Travis worked for two years at Johns Hopkins University with Dr. W. D. McElroy as a post doctoral fellow. In 1966 he was a member of the faculty of the University of Maryland and accepted his present position in 1967. His research is concerned with evolution of protein molecules, particularly with sequence analysis of the active center of enzymes.

JOINTLY STAFFED FACULTY

Bruce C. Carlton

Professor of Biochemistry and Microbiology
B.S. University of New Hampshire,
M.S., Ph.D. (1960) Michigan State University
Research interests - regulation of enzyme synthesis in bacteria.

Richard V. Eck

Associate Professor of Biochemistry and Computer Science
B.S. (1943) University of Maryland
Research interests - evolution of protein molecules and the cryptogamic approach to biochemical data.

William R. Finnerty

Associate Professor of Microbiology and Biochemistry
B.S., Ph.D. (1960) State University of Iowa
Research interests - mechanism of hydrocarbon oxidation in microorganisms.

Franklin P. Inman, Jr.

Associate Professor of Microbiology and Biochemistry
A.B., Ph.D. (1964) University of North Carolina
Research interests - immunochemistry, particularly structure of immunoglobulins.

Joe L. Key

Research Professor of Botany and Biochemistry
B.S. University of Tennessee (Martin),
M.S., Ph.D. (1959) University of Illinois
Research interests - protein and nucleic acid synthesis and regulation in plants.

G. David Novelli

Research Professor of Biochemistry and Enzymology Group
Leader at the Biology Division, Oak Ridge National Lab.
B.S. University of Massachusetts,
Ph.D. (1948) Harvard University
Research interests - enzymology of nucleic acid and protein synthesis.

Gordhan L. Patel

Assistant Professor of Zoology and Biochemistry
A.B., Ph.D. (1964) Washington University
Research interests - enzymology of the acidic nuclear proteins.

James J. Peifer

Associate Professor of Nutrition and Biochemistry
B.S. Ursinus College, Ph.D. (1954) Rutgers
Research interests - metabolism of polyunsaturated fatty acids.

VISITING PROFESSORS

A program for visiting professors is available for persons on sabbatical leave who wish to collaborate with faculty members in the department. Appointments have ranged from 3 months to a full year. During 1969-70 Dr. Harland G. Wood of Case-Western Reserve University was Visiting Professor.

POSTDOCTORAL FELLOWS

The following persons held appointments as Research Associates in the Department of Biochemistry during the calendar year 1970. Also shown is the University from which their doctors degree was obtained and the person with whom they worked. Support for the postdoctoral program is obtained from a number of state, federal, and private agencies.

Name	University Awarding Doctorate	Research Sponsor
H. Abou-Issa	Wisconsin	J. F. Mendicino
Jan Andreesen	Goettingen	L. G. Ljungdahl
Larry L. Barton	Nebraska	H. D. Peck
Vinod K. Bhalla	Agra	W. L. Williams
Gerald Edwards	California (Riverside)	C. C. Black
Thomas Fairwell	Poona	R. E. Lovins
Nancy Fernald	Indiana	H. D. Peck
R. K. Ghambeer	Australian National	L. G. Ljungdahl
Kenneth Gould	Royal Vet. College	W. L. Williams
Kazuo Hori	Tokyo Kyoiku	M. J. Cormier
Y. D. Karkhanis	Florida State	M. J. Cormier
Shaw S. Lee	Wayne State	C. C. Black
Iain Matheson	St. Andrews	J. M. Lee
Glenda Michaels	Georgia	H. D. Peck
Margaret Neece	Duke	L. G. Ljungdahl
Sally Newell	Georgia	W. L. Williams
David Newman	Sussex	H. D. Peck
Thomas Oeltmann	Georgia	W. L. Williams
C. A. Reddy	Illinois	H. D. Peck
J. C. Sadana	Punjab	W. L. Williams
John Wampler	Tennessee	M. J. Cormier
Lourens Zaneveld	Georgia	W. L. Williams

General Information (cont. from page 1)

As a result of generous support from both the State of Georgia and various federal agencies, such as the Atomic Energy Commission, National Institutes of Health and the National Science Foundation, the Department of Biochemistry has acquired a young and productive staff, adequate physical facilities, and most of the specialized equipment required for modern biochemical research. The undergraduate, graduate and postgraduate training programs are well-established and are producing individuals well-trained in biochemistry at each level. In this environment the department has developed into an intellectually self-sustaining group who interact well and are capable of making significant academic and economic contributions to the university, the state, and the nation.

GRADUATE STUDENTS

The recruitment of graduate students has changed from regional in scope to national, and to a lesser extent, international. The 39 graduate students enrolled in the fall of 1970 were from 29 different colleges and universities. The schools in which these students were previously enrolled and their locations are shown below:

College or University	Location
Armstrong College	Savannah, Ga.
The Citadel	Charleston, S. C.
Chung Hsing University	Taiwan
Columbia University	New York, N. Y.
Cornell University	Ithaca, N. Y.
Emory University	Decatur, Ga.
Georgia Institute of Technology	Atlanta, Ga.
Iowa State University	Ames, Iowa
LaGrange College	LaGrange, Ga.
Lawrence University	Appleton, Wis.
Mercer University	Macon, Ga.
Mississippi State University	Starkeville, Miss.
Ohio State University	Columbus, Ohio
Seoul National University	Seoul, Korea
Southwest Texas State College	San Marcos, Texas
St. Andrews College	Laurinburg, N.C.
Talledega College	Talledega, Ala.
Tunghai University	Taiwan
University of Georgia	Athens, Ga.
University of London	London, England
University of Maryland	College Park, Md.
University of Massachusetts	Amherst, Mass.
University of Michigan	Ann Arbor, Mich.
University of Pennsylvania	Philadelphia, Pa.
University of Tokyo	Tokyo, Japan
University of Wisconsin	Madison, Wisc.
Wisconsin State University	Stevens Point, Wisc.
Wittenberg University	Springfield, Ohio
Yale University	New Haven, Conn.

Graduate students making normal progress toward their degree are financially supported. This support is from a number of sources, including state, private, and federal agencies. Recently a number of NIH and NSF Predoctoral Fellowships have been won in national competition by graduate students enrolled in the department.

SEMINAR PROGRAM

An active seminar program is maintained with all faculty, postdoctoral fellows and graduate students participating. Four interest groups have been organized which include developmental biochemistry, photobiology, reproductive biochemistry, and intermediary metabolism. Everyone participates in the Monday and Friday general seminars, with interest groups meeting at various times during the week. Guest speakers normally meet the Monday or Friday noon general seminar. A list of the guest speakers for 1969-70 and 1970-71 is shown below.

SEMINAR SPEAKERS

ACADEMIC YEAR 1969-70

Dr. M. D. Hatch
Toowong, Australia
Dr. E. C. Slater
University of Amsterdam
Dr. Frank F. Richards
Yale University
Dr. Peter Hemmerich
University of Konstanz
Dr. L. Leon Campbell
University of Illinois
Dr. Howard Gest
Indiana University
Dr. G. P. Talwar
All India Inst. Med. Sci.
Dr. Lester J. Reed
University of Texas
Dr. Vincent Massey
University of Michigan
Dr. Francis T. Kenney
Oak Ridge National Lab.
Dr. Andre Jagendorf
Cornell University
Dr. Howard Dalton
Purdue University
Dr. Brian S. Hartley
Cambridge University
Dr. Feodor Lynen
Max Planck Inst. Munich
Dr. R. R. Porter
Oxford University
Dr. Robert L. Hill
Duke University
Dr. Edward F. Hartree
Cambridge University
Dr. Howard H. Seliger
Johns Hopkins University

ACADEMIC YEAR 1970-71

Dr. J. E. Varner
MSU/AEC Plant Res Lab
Dr. J. P. Belaich
Univ. of Aix-Marseille
Dr. H. E. Umbarger
Purdue University
Dr. Theresa Stadtman
NIH
Dr. Earl R. Stadtman
NIH
Dr. Michael Laskowski, Jr.
Purdue University
Dr. Robert H. Burris
University of Wisconsin
Dr. Merton Utter
Case-Western Reserve
Dr. Lawrence Bogorad
Harvard University
Dr. William Konigsberg
Yale University
Dr. J. M. Shively
Clemson University
Dr. Clarence H. Suelter
Michigan State Univ.
Dr. J. W. Hastings
Harvard University