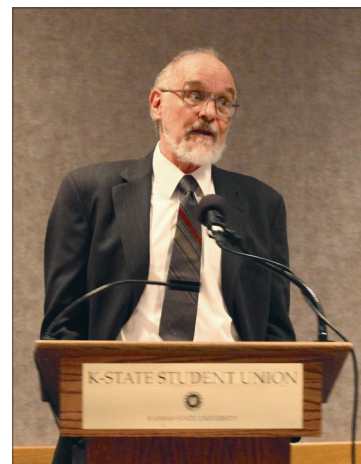


Biochemistry News

Kansas State University - Alumni and Friends Newsletter

50th Anniversary Edition



Top (left to right): Master of Ceremonies Mike Kanost; David Cox, Bill Stamey, Ken Burkhard and Rae Stamey; Featured Speaker David Cox.
Bottom (left to right): Del Mueller, Yasuaki Hiromasa and Tom Roche; Randy Corfman and Jerry Reeck.

Biochemistry Department Celebrates 50 Years at K-State

The Department of Biochemistry began celebrating its 50th anniversary this March with a variety of speakers and a banquet dinner. The banquet, at the K-State Student Union, featured David Cox, head of the K-State Department of Biochemistry from 1973-1989. The anniversary was held in conjunction with the fifth annual Functional Genomics Consortium Symposium, which featured 13

speakers on an array of topics. Two alumni of the K-State biochemistry program: Congcong Ma, senior staff scientist in the Molecular Biology Department at Life Technologies, and Lee Zou, associate professor from the Massachusetts General Hospital Cancer Center at Harvard Medical School were among the speakers.

Michael Kanost said he was happy to involve students in the celebration.

"It's nice to combine the celebration with a scientific event and have our students involved in both," he said. He believes the interdisciplinary nature of the biochemistry program has led to its success. "That's part of what makes it a successful program," he said. "Our students get a broad science education."

History of the Biochemistry Department at K-State

Lawrence Davis

Founding members of the department as listed in the college catalog included Howard L. Mitchell as Head, Robert E. (Bob) Clegg, Donald B. Parrish and Alfred T. Perkins as Professors, R.K. (Ken) Burkhard, J.L. Hall, Willard E. (Bill) Ruliffson as Associate Professors, Anthony M. Gawienowski and Philip Nordin as Asst Profs. Professors Josiah Simpson (J. S.) Hughes and Carrell H. Whitnah, and Asst Prof Benjamin L. Smits were listed as emeritus. The department became part of the College of Agriculture upon its formation in 1961, moving from Arts & Sciences¹. Ken Burkhard was 10 tenths A & S, while all other members had partial appointments with the Agricultural Experiment Station.

Around 1960, there were only a few undergraduate chemistry majors completing a professional (ACS certified) degree, just (1-3 degrees/yr) out of a K-State student population of over 6500. On the other hand there were 9 PhD and 2 M.S. degrees in chemistry awarded in the year 1960. There was a very active student chapter of the ACS through the 1950s.

The Biochemistry department got off to a good start with 6 M.S. and 5 PhDs in the first 5 years². Those who went on to an academic career have been much easier to track down. Herman Knoche was, for

many years, Chair of the biochemistry department at University of Nebraska. Dwight Klaassen became a professor and administrator at University of Wisconsin, Platteville. John H. Copenhaver went on to positions at the University of Nebraska Medical School in Omaha.

Rae Marie Dodge was the first undergraduate to receive a degree in biochemistry. Later she completed the M.S. with Bob Clegg.

New faculty members were added: Bryce Cunningham in 1963, William E. (Bill) Klopfenstein in 1964 and Charlie Hedgcoth in 1965. Anthony Gawienowski left early on, by 1963, and was later at University of Massachusetts, Amherst, where he retired as a professor of biochemistry and molecular biology in 1992. Delbert D. Mueller was hired in 1966. Gary R. Beecher was in the department for a few years,

beginning in 1968, and went on to be a highly successful analytical chemist with the USDA Food Composition labs at Beltsville, MD. Bryce Cunningham left the university to start his own company marketing enzymes, in Iowa, about 1985. It is called Bio-Research Products and specializes in peroxidases. W.E. Klopfenstein went to be Head of Chemistry at Western Illinois in the late 1980s. The other faculty members joining the department prior to 1970 completed their careers at K-State.



PHOTOS COURTESY
1963 UNIVERSITY YEARBOOK

(Left) Howard Mitchell, first Biochemistry Department Head. (Right) Rae Marie Dodge, first Biochemistry undergraduate student. After completing her B.S. in biochemistry, Dodge received a M.S. degree in Biochemistry with Bob Clegg.



1988 Faculty: (Back row, left to right) Ramaswamy Krishnamoorthi, Owen Koepp, Kenneth Burkhard, Charlie Hedgcoth Jr., Tom Roche and David Cox. (Front row, left to right) Raymond Ochs, Delbert Mueller, Dolores Takemoto, Subbaratnam Muthukrishnan and Gerald Reeck. Not pictured: Larry Davis.

In order to enhance graduate programs offered by the department, a new structure was developed in the late 1960s, in the form of a Graduate Biochemistry Group (GBG)³. This group was constituted of interested biochemists and molecular biologists in several departments. Perhaps the best known of these was Karl Gordon Lark, who initially joined K-State in the Physics department as a biophysicist in 1963. He was instrumental in the reorganization of several departments to form the Division of Biology, as well as being one of the first members of the GBG outside the department. He went on to develop programs at the University of Utah and is still an active researcher, exploring the evolution of canines, and genetics of soybeans.

Rudolph E. Clarenburg, Vet Medicine (Physiological Chemistry), and K.G. Lark,

BIOCHEMISTRY FACULTY

Original faculty in 1961:

R. Kenneth Burkhard
Robert Clegg
Anthony M. Gawienowski
J.L. Hall
Howard Mitchell (Dept. Head, 1961-1973)
Philip Nordin
Donald Parrish
Alfred T. Perkins
Willard E. (Bill) Ruliffson

Faculty later joining the department:

1963	Bryce Cunningham
1964	William E. (Bill) Klopfenstein
1965	Charlie Hedgcoth, Jr. (Department Head, 1999-2002)
1968	Delbert Mueller
1973	David Cox (Department Head, 1973-1989)
1974	Gerald Reeck
1974	Thomas Roche (Department Head, 1990-1999)
1974	Karl Kramer (Adjunct)
1975	Lawrence Davis
1980	Subbaratnam Muthukrishnan
1980	Owen Koepp (KSU Provost, 1980-1987; interim Department Head, 1989-1990)
1981	Dolores Takemoto
1985	Raymond Ochs
1986	Ramaswamy Krishnamoorthi
1990	Laura Andersson
1991	Michael Kanost (Department Head, 2002-present)
1991	Xuemin Wang
1992	John Tomich
1993	Om Prakash
1996	Paul Smith
1997	Anna Zolkiewska
1997	Michal Zolkiewski
2004	Qize Wei
2005	Rachel Zufferey
2007	Jianhan Chen
2011	Timothy Durrett

Biology, were the first two persons outside the department admitted to the new GBG. Drs. Mueller and Beecher were the first two within the department, after the original founding group of Burkhard, Clegg, Cunningham, Gawienowski, Hedgcoth, Klopfenstein, Mitchell, Nordin, Parrish, and Ruliffson. In 1970 David Lineback and Cho C. Tsen of Grain Science became members. By 1969 there were at least two dozen graduate students in the graduate program.

The department returned from the College of Agriculture to the College of Arts and Sciences in the early 1970s. David J. Cox joined the Department of Biochemistry in 1973 as Head, coming from the University of Texas at Austin. In the following year, G.R. Reeck, T.E. Roche and K.J. Kramer arrived (Kramer as an adjunct, employed by the USDA). Davis came in 1975, Muthukrishnan in 1980, Takemoto in 1981. Another dozen faculty members have joined the Biochemistry department during the past 30 years. Those currently in the department are

Krishnamoorthi, Kanost, Tomich, Prakash, Zolkiewska, Zolkiewski, Wei, Chen and Durrett.

Owen Koepp, (Provost 1980-1987) was a member of the department and served as interim Head 1989-1990. In 1990, Tom Roche became Head, serving until 1999. Charlie Hedgcoth was Head from 1999 until his death in 2002. Mike Kanost has been Head from 2002 until the present.

The GBG increased its size gradually to a peak of 28 faculty, with a majority outside the department for a few years⁴. Graduate student numbers showed an increase to reach numbers the mid-30s at the beginning of each fall semester. Faculty mobility has resulted in considerable changes in the composition of the GBG outside the department. Total graduate student enrollment has remained steady, at about 30, for the past decade.

Through the 1970s and 1980s the department expanded gradually in size, filling renovated space in Leasure, Burt and Willard halls. Undergraduate major numbers increased, with many under-

graduates doing laboratory research with faculty members, prior to going on to careers in medicine or research.

Research support expanded a lot in the later 1970s into the 1980s, increasing close to 10-fold. Since that time growth has been less dramatic, but it now averages in the range of \$2.5 to 3 million per year. The department has done well by other measures of productivity, including publications per faculty member per year, in comparison with peer institutions and other departments in the Big 12. Over 275 graduate degrees have been awarded during the past 50 years. For the past five years, undergraduate degrees have averaged 11 per year, with almost half of those degree recipients going to medical or graduate school directly.

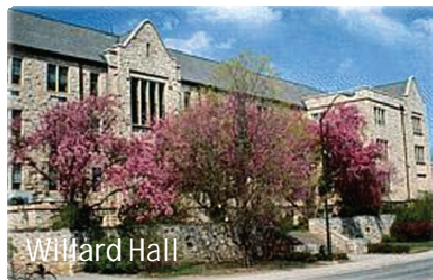
A new building for chemistry and biochemistry was constructed in the later 1980s, with occupancy in the fall of 1988. Several faculty members moved there from Leasure and Willard. During the 2000s, Chalmers Hall (named for John Chalmers) was constructed adjacent to Ackert Hall. Biochemists arrived in stages, completing the transition from Willard and the Chemistry/Biochemistry building in the fall of 2006. Now the department is located in both Chalmers Hall and Burt Hall.

Notes:

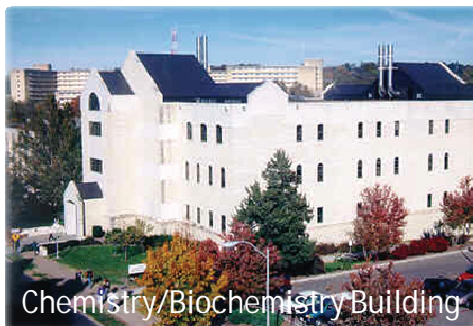
1. In 1960, T.D. O'Brien was Head of Chemistry, Thomas M. Hahn Jr was Dean of Arts and Sciences and Harold Howe was Dean of the Graduate School.
2. During 1961, there was 1 M.S. degree in Biochemistry and 9 PhD degrees in Chemistry. In 1962 there were two M.S. and one PhD in biochemistry, in 1963 1 M.S. and 3 PhDs, in 1964 1 PhD and in 1965 2 M.S. and 1 PhD. Brunilda Alvarez was the first M.S. degree recipient, working with Howard Mitchell. S.K. Malik finished an M.S. with Clegg. Lynn M. Stewart received a PhD with Nordin in 1962. Shefalika Deb was an M.S. student with Parrish, finishing in 1962. John Copenhaver received a PhD in 1963 for his work with Gawienowski, as did Herman Knoche. M.M. Simlot completed the PhD with Clegg that year and Y.P. Wu completed the M.S. with Clegg. Dwight Klaassen got the PhD in 1965 with Burkhard, while Jane C.S. Shaw received a M.S. working with Clegg.
3. The proposed group was stimulated by R.F. Kruh, who at that time (from 1967-1992) was Dean of the Graduate School, John Lott Brown was V.P. for Academic Affairs, Floyd Smith was Director of the Agricultural Experiment Station, Carroll Hess was Dean of Agriculture (from 1966), Glenn H. Beck was V.P. for Agriculture, John Chalmers was Dean of Arts and Sciences (and became V.P. for Academic Affairs in 1969), and Charles Cornelius was Dean of the College of Veterinary Medicine. Between Feb 5 and April 25 of 1968 this was all worked to develop the Graduate Group in Biochemistry (GBG) in essentially the form that it has today.
4. The GBG is steered by an executive committee consisting of three members, elected annually with staggered three year terms, with one elected as Chair of the group. Persons serving as Chair have been Clegg, Klopfenstein, Roche, Hedgcoth, Davis, and Zolkiewski.



Chalmers Hall



Willard Hall



Chemistry/Biochemistry Building



Leasure Hall



Burt Hall

Biochemistry Student Awarded Goldwater Scholarship

K-State News Services

Gage Brummer, a junior in biochemistry and premedicine, was honored as K-State's 67th Goldwater Scholarship recipient. The national scholarship is given to outstanding students who plan to pursue careers in mathematics, the natural sciences or engineering.

The Goldwater Scholarship provides up to \$7,500 annually for students' educational expenses in their remaining one or two years of undergraduate study. This year, 275 scholars were chosen from a field of 1,095 applicants. K-State ranks first in the nation among 500 public universities, with 67 Goldwater scholars.

Brummer is researching the underlying causes of keratoconus, an eye disease, under the supervision of Gary Conrad, university distinguished professor of biology. Brummer is looking at the current clinical treatment of the disease to try to make it more effective and less harmful to patients. He also works on developing



PHOTO COURTESY K-STATE NEWS SERVICES

microfluidic devices for rapid single cell analysis with Christopher Culbertson, associate professor of chemistry. He had an internship in the summer of 2009 and summer of 2010 at the Mount Desert Island Biological Laboratory in Salsbury Cove, Maine. In September 2010 he helped teach a course on renal physiology research techniques to doctors at the laboratory under John Forrest, professor of medicine at Yale University. He also was awarded the best student presentation at the Mount Desert Island Biological Laboratory Student Research Symposium in 2009.

Brummer has been a Kansas Institutional Development Awards Network of Biomedical Research Excellence Undergraduate Research Scholar. He also received a June Sherrid Cancer Research Scholarship and Johnson Cancer Center Research Scholarship. An Eagle Scout, Brummer graduated from Shawnee Mission East High School in 2008 and is the son of John and Amy Brummer, Prairie Village.



UNDERGRADUATE STUDENT AWARD

Congratulations to **Jithma Abeykoon** for receiving the Anderson Senior Award for Outstanding Academics from the K-State Alumni Association. Jithma is now in his first year of medical school at the University of Kansas.



PHOTO COURTESY DAVID MAYES '96, K-STATE ALUMNI ASSOCIATION

(Left to right) President & CEO Alumni Association Amy Button Renz, Jithma Abeykoon and Distinguished Professor & Department Head Mike Kanost.

Grad Student Wins Travel Award from Biophysical Society

K-State News Services

The Biophysical Society is honoring research by a Kansas State University graduate student on synthetic channel-forming peptides to treat diseases like cystic fibrosis.

Urska Bukovnik, doctoral student in biochemistry from Slovenia, received a travel award from the society and attended its 55th annual meeting in Baltimore, Md., in March 2011. Bukovnik presented "Synthetic Peptide-based Channels: Candidates for Treatments of Channelopathies."

Bukovnik works in the lab of **John Tomich**, professor of biochemistry. One of the major research focuses of the lab is to design synthetic channel-forming peptides for use in treatments of channelopathies, diseases caused by the loss of functioning ion channels, such as cystic fibrosis. "None of the currently available genetic methods for treating channelopathies is fully successful; therefore, my approach employs a novelty based on the synthesis



of synthetic channels that could replace defective ion channels," Bukovnik said.

The peptide sequences Bukovnik uses are distantly related to the natural, pore-forming transmembrane segment of a glycine receptor. Her research focuses on altering the electrostatic properties of the pore by substituting pore-lining residues with a small, positively charged, non-

encoded amino acid, diaminopropionic acid. "It's believed that such modification could improve ion selectivity," Bukovnik said.

Bukovnik plans to finish her degree work this fall and would like to find a postdoctoral fellow position in biopharmaceutical or biomedical research.

New Adhesive Earns Patent, Could Find Place in Space

K-State News Services

A recently patented adhesive made by Kansas State University researchers could become a staple in every astronaut's toolbox.

The patent, "pH dependent adhesive peptides," was issued to the Kansas State University Research Foundation, a nonprofit corporation responsible for managing technology transfer activities of K-State. The patent covers an adhesive made from peptides that increases in strength as moisture is removed.

It was created by **John Tomich**, professor of biochemistry, and Xiuzhi "Susan" Sun, professor of grain science and industry. Assisting in the research was **Takeo Iwamoto**, an adjunct professor in biochemistry, and Xinchun Shen, a former postdoctoral researcher.

"The adhesive we ended up developing was one that formed nanoscale fibrils that become entangled, sort of like Velcro. It has

all these little hooks that come together," Tomich said. "It's a mechanical type of adhesion, though, not a chemical type like most commercial adhesives." Because of its unusual properties, applications will most likely be outside the commercial sector, Tomich said.

For example, unlike most adhesives that become brittle as moisture levels decrease, the K-State adhesive's bond only becomes stronger. Because of this, it could be useful in low-moisture environments like outer space, where astronauts could use it to reattach tiles to a space vehicle.

Conversely, its deterioration from water could also serve a purpose. "It could be used as a timing device or as a moisture detection device," Tomich said. "There could be a circuit or something that when the moisture got to a certain level, the adhesive would fail and break the circuit,



John Tomich

sounding an alarm."

The project began nearly a decade ago as Sun and a postdoctoral researcher were studying the adhesive properties of soybean proteins. Needing an instrument to synthesize peptides, Sun contacted Tomich. Serendipitously, Tomich's lab had developed a peptide that had cement-like properties. Tomich said he knew it was unusual but had set it aside to pursue

other interests. "When Dr. Sun and I resurrected this protein, we didn't use the whole thing — just a segment of it," Tomich said. "We isolated a certain segment where the cells are highly attracted to each other and form these fibrils."

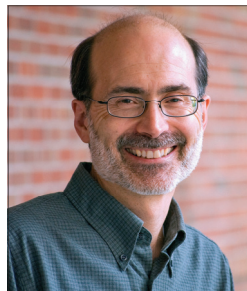
Since their collaboration Tomich has taken the same sequence and changed its design. The new peptide, he said, will have an eye toward gene therapy.

Hageman Distinguished Lecturer: Dr. Richard Amasino

On November 3-4, Richard M. Amasino presented the 2010 Hageman Distinguished Lecture in Agricultural Biochemistry. His talks were entitled "Memories of winter: vernalization is an environmentally induced epigenetic switch" and "Biochemistry teaching and earth history".

Professor Amasino grew up just east of Pittsburgh, PA and memory of winter there remained with him throughout his years as a student (Penn State for B.S., and Indiana for M.S. and Ph.D.) and as a post-doctoral fellow at the University of Washington, Seattle. Of course as a Professor at the University of Wisconsin, for the past 25 years, he gets to experience a real winter each year, so that the memory is renewed annually.

For his Ph.D. dissertation, Professor Amasino worked with Carlos Miller, who with Folke Skoog at Wisconsin, identified cytokinins in plants. Amasino examined how hormonal balance determines shoot differentiation vs. disorganized callus growth. As a post-doctoral fellow in Seattle he worked with our first Hageman lecturer, Eugene Nester. There he investigated integration of genes from the Ti plasmid of *Agrobacterium*, and showed that they



Richard Amasino

encode production of plant growth hormones. He also observed the impact of DNA methylation on Ti gene expression.

Professor Amasino's research at Wisconsin has dealt with the importance of DNA and histone methylation, in a variety of contexts during the plant life cycle, particularly in the model plant, *Arabidopsis thaliana*. Plant DNA is heavily methylated, and methylation serves in many long-lasting epigenetic responses. Along the way he studied both the TIC and the TOC of the circadian clock, and recently has focused on how plants can maintain, or lose, their memory of winter. That epigenetic memory was the topic of his Hageman lecture.

Among his services to the scientific community, Professor Amasino has served on numerous review panels, and on editorial boards of *Plant Journal*; *Plant Physiology*; *Plant, Cell and Environment*; and *Science*. During 2006-2007 he was president of the American Society of Plant Biology. His honors include a McKnight Foundation award, Presidential Young Investigator Award, Alexander von Humboldt Award and, in 2006, election to the National Academy of Sciences.

Professor Amasino is also a Howard Hughes Medical Institute Professor, since 2006. Part of his effort in that capacity is to develop rapid-cycling brassicas as a genetic model system for use in undergraduate education. Undergraduate students are to be involved in generation of mutants, and development of the system. The brassicas are close relatives of *Arabidopsis*, but are easier for novices to handle.

In addition to his research, advancing science education and general science knowledge is an interest of Professor Amasino. His colloquium explored the observation that "recent advances in cosmology and geobiology provide opportunities to stimulate interest in and broaden our student's understanding of, traditional biochemical topics such as respiration and photosynthesis." For instance, Albert Szent-Györgyi remarked that "life is nothing but an electron looking for a place to rest", and a number of authors have suggested that "hydrogen is a colorless, odorless gas, which, given enough time, turns into people." These somewhat provocative points open opportunities for discussion, and catch the attention of non-science majors as well as science majors. How things came to be as they are, is a topic for investigation, not merely "just-so stories."

Dolores Takemoto Retires



(Left to right) University President Kirk H. Schulz, Dr. Dolores Takemoto and Provost April Mason.

Subbaratnam Muthukrishnan

Dr. Dolores (Dee) Takemoto spent more than three decades at Kansas State University as a faculty member in the Department of Biochemistry. She was promoted to the position of a full professor in 1994. At K-State, she not only had an exemplary career as researcher and a teacher, but generously served as a mentor for several other faculty members all over campus.

Professor Takemoto was instrumental in initiating the first Women and Minority Faculty Mentoring Program for the university, obtaining a grant for that purpose from the Sloan Foundation in 1995. She was active in the initial Women in Science Program and served as a faculty member of the Women's Studies Program. In addition, she served on Faculty Senate as the first Chair of the Technology Committee. She received the K-State Professorial Performance Award, in 2007, and the Commerce Bank Distinguished Graduate Faculty Award, in 2008.

Dr. Takemoto and her students were the first to determine that a truncation of the β -subunit of the cyclic GMP phosphodiesterase was the genetic basis of retinal degeneration. This work led to the identification of the first known retinal degeneration gene, and subsequently other laboratories followed this lead resulting in the identification of a family of genes affecting visual perception.

Dr. Dee Takemoto's research on

protein kinase C in the eye was continuously and substantially funded including five separate grants from the National Eye Institute of the National Institutes of Health (NIH). Her current RO1 grant has been funded for 11 years. Nationally she has served on three separate NIH Study Sections. She has been an active member of the Association for Research in Vision and Ophthalmology (ARVO) for 32 years, serving as Chair of the National-Members-in-Training Committee. She was awarded the national recognition of a Fellow of ARVO in 2010.

Dr. Dee Takemoto has over 100 publications in peer reviewed journals, has authored book chapters and reviews.

Professor Takemoto taught many courses, supervised 43 undergraduate student researchers, graduated 19 graduate students, and mentored 11 postdoctoral fellows. She is co-author of a textbook and lab book for Biochemistry and Society, published by Kendall Hunt.

Dr. Takemoto thanks all of those who have made her tenure at Kansas State University a wonderful experience. She and her husband Larry Takemoto have moved to sunny California and enjoy living in their beach-front home; spending time with their two lovely daughters, Michelle and Lauren; and planning the wedding of Michelle. Dr. Takemoto also wants to help non-profit organizations with grant proposal writing and editing in her retirement. We wish her well in her retirement and look forward to her continued interactions with K-State.



FACULTY AWARDS

Dr. Anna Zolkiewska received an **Innovative Research Award** from the Terry C. Johnson Center for Basic Cancer Research for her work titled "MicroRNAs and the Function of the Oncogenic Fusion Protein PAX7-FKHR".



Alveolar rhabdomyosarcomas are highly aggressive pediatric tumors of connective tissues. In many cases, tumors are caused by the presence of an abnormal protein PAX7 and FKHR, in which parts of two unrelated transcription factors PAX7 and FKHR are joined together. When PAX7-FKHR is present, cells are unable to maintain normal levels of PAX7, which further contributes to cancer progression. The Innovative Research Award will support her studies on the mechanism by which the oncogenic protein PAX7-FKHR eliminates PAX7.

Dr. Jianhan Chen received an **HP ACS Outstanding Junior Faculty Award in Computational Chemistry** and will speak at the Award symposium in the American Chemical Society Annual Meeting in Denver this Fall.



Dr. Neal Dittmer (Research Assistant Professor) received a K-State Arthropod Genomics Center travel award and attended the Silkworm Genome Symposium and Annotation Workshop in Tsukuba, Japan in November of 2010.



Obituaries

HOWARD MITCHELL

Manhattan Mercury

Howard L. Mitchell, first Head of the Department of Biochemistry at Kansas State University, died on December 28, 2010 in Farmington Hills, Michigan at age 96.

He was born in Dewey, Oklahoma in 1914 and graduated from the Bartlesville, OK High School in 1933. He obtained a B.S. and Masters Degree at Oklahoma State University and a Ph.D. Degree in Agricultural Biochemistry at Purdue University and joined the Chemistry Department at Kansas State University in 1946. He served as acting head of the Chemistry Department in 1955 and again in 1960. In 1961 he became head of the newly formed Biochemistry Department.

He retired in 1981 after 34 years of service. He and his wife Leola enjoyed retirement in Manhattan until they joined their daughter in Michigan in 1977. He is survived by daughters Karen Hooper and Linda Homan, five grandchildren and three great grandchildren.



Howard Mitchell

GARY STOLZENBERG

www.hansonrunsvold.com

Gary Eric Stolzenberg, (Ph.D.1968) died September 30, 2010 at the age of 70, in Fargo, North Dakota. He was born in Hempstead, New York on December 1, 1939 and graduated from Riverhead High School in Riverhead, New York. He received a B.S. from Rensselaer Polytechnic Institute in Chemistry in 1962 and then received a Ph.D. in Biochemistry from Kansas State University in 1968.

He was a USDA Research Scientist doing pesticide degradation studies, organic structure analysis, occupational safety and radiation protection. After retiring from USDA in 1995, he held short-term positions with Northwest Technical College (East Grand Forks, N.D) and NDSU Entomology Department. Then, in 1996, he joined the NDSU Chemistry Department as a Lecturer, working mostly in the undergraduate organic lab program. He also participated in outreach work, especially on an NIH grant for the Tribal Colleges in ND to improve chemistry instruction for Native Americans preparing for biomedical careers.

He is survived by his wife Rosa and brother, Norman (Susan) of Southwick, Massachusetts, nieces Suzanne Nurkin (Charlotte, NC), Lisa Terrell (Melbourne, FL), Tric Stolzenberg (Washington, DC) and their children. He was preceded in death by his parents Walter and Vary Stolzenberg.

DONALD PARRISH

www.ymfuneralhome.com

Donald B. Parrish, Ph.D., age 97, of Manhattan, died May 27, 2011.

Dr. Parrish was born September 24, 1913, in Fort Scott, Kansas, the son of Harry E. and America (Baker) Parrish. He was proud to have been an Eagle Scout. He earned his bachelors in 1935, masters in 1938 and Ph.D. in 1949, all in Industrial Chemistry from Kansas State University.

He was a high school science and chemistry teacher from 1936 to 1943, an Assistant Chemist at the Kansas Agricultural Experiment Station from 1943 to 1949, Assistant Professor of Chemistry and Assistant Biochemist and Nutritionist at the Agricultural Experiment Station from 1949 to 1952. He was one of the original members of the new Biochemistry Department in 1961 and he was promoted to Professor in 1962. He retired as Professor Emeritus in 1983. He was also an Associate Referee for the Vitamin A in Mixed Feeds for AOAC starting in 1954.

Dr. Parrish's fields of research were in experimental animal nutrition, vitamin A analysis, requirements, and metabolism and trace mineral nutrition.

At the age of 85 he starting working on a book of the history of Manhattan and surrounding area, and when he was 89 the book he authored "This Land Is Our Land" was published by the Riley County Historical Society. It is commonly referred to as a reference for the early history of Manhattan.

He married Hazel A. Bebermeyer on August 22, 1936, in Enterprise, Kansas. Mrs. Parrish preceded him in death in 1990. He was also preceded in death by one son 1LT Roger A. Parrish in Vietnam in 1969. Survivors include two children: COL (Ret) Robert J. Parrish and his wife Dorothy Anne of O'Fallon, Illinois, and Joan E. Adams and her husband LTC (Ret) Stephen F. Adams of Montgomery, Alabama; two siblings: Elizabeth Brazee of Overland Park, Kansas, and John Parrish and his wife Amy of Minneapolis, Minnesota; and four grandchildren: Steven and Susan Parrish, Melanie and Levi Adams.



Donald Parrish

SPRING 2011 BS/BA GRADUATES



Jithma Abeykoon (BS)

Miguel Aldrete (BS)

Jennifer Arnold (BS)

Lora Joyce (BA)

Nathan McGraw (BS)

Kelsey Pearson (BS)

Kyle Steuber (BS)

Jared Wilmoth (BS)

Rashaun Wilson (BS)

Tracking Alumni

Dr. Aparna Dixit is a Professor at the School of Biotechnology at Jawaharlal Nehru University, New Delhi, India. She also served as the Dean of the same school during 2007-2009. Dr. Dixit was a post-doctoral fellow in the Biochemistry Department and worked with Dr. Tom Roche from 1981-1983. Her second stint at Biochemistry was as a visiting scientist in 2003 under the auspices of the Overseas Associateship Program of the Department of Biotechnology of the Indian Government, during which she worked with Dr. Muthukrishnan.

"My mentor, Dr. Tom Roche, personified the Department's ethos of excellence and played an integral role in my development as a scientist. Not only did the department provide me with the tools and knowledge to succeed academically but it also became my new home. Tom and his wife, Janee, treated me like their own daughter; these are things that one is thankful for at the time and nostalgic about 30 years later. When I visited the Department in 2003, this culture of competence and caring was intact; I witnessed the same pursuit of excellence and was greeted with the same warmth and affection when I had first come here. It's this culture that makes the department so special and will enable it to march on the same path of growth and success as it has tread in its first 50 years".

Dr. Lalit C. Garg is senior Scientist at the National Institute of Immunology, New Delhi, India, where he began his career after returning from the USA. Dr. Garg was a post-doctoral fellow in the laboratory of Prof. Jerry Reeck at K-State Biochemistry during 1982-1985.

Dr. Dixit and Dr. Garg would like to congratulate the Biochemistry Department on completing 50 years.

"We take great pride in being alumni of this department and are happy to still be a part of this great community. We first came to K-State nearly 30 years ago and the Department of Biochemistry became our new home.

We want to take this opportunity to thank Drs. Tom Roche, David Cox (then head of the department), Larry Davis, Dee Takemoto, Jerry Reeck, and Muthukrishnan for being both academic and personal mentors during our time at KSU, and after, and for helping us to become the persons we are today. Once again, congratulations to KSU Biochemistry Department of completing 50 years!"

It's always good to hear from **Sherry Yi Guo '93** (M.S. with Davis) travel lover. She managed to get to both India and Italy in 2010, though not on the same trip. Now she's planning to travel sponsored by her employer, Eli Lilly in Indianapolis.

Seung-Sup Kim '97 (Ph.D. with Reeck) is now Assistant Professor of Biochemistry and Convener, Biochemistry Program, School of Theoretical and Applied Science (TAS), Ramapo College of New Jersey. Seung-Sup Kim came to K-State from Western Illinois where he got his M.S. degree with **Jack Huang '85** (Ph.D. with Muthukrishnan) and **Lisa Wen '83** (Ph.D. with Reeck). You can reach him at skim6@ramapo.edu.

Xiaolu "Lucy" Guo '95 (Ph.D. with Davis) was unable to attend the 50th reunion because she was traveling to New Zealand that week. She is a highly successful sales representative for a large biotechnology company (Life Technologies) in California and does a lot of overseas travel as part of her job. Her husband works in corporate finance area.

Jim Broughman '01 (Ph.D. with Tomich) is now Technical Director of the Integrated Microscopy Core Facility at Baylor, a job that he took just about a year ago. Also in Houston is **Zhihong (April) Zeng '99** (M.S. with Davis), who has returned to her roots as a medical researcher and is working at M.D. Anderson, studying stem cells and leukemia.

Bill Klopfenstein who was a faculty member at K-State from 1964-1989 moved to Western Illinois as Chair of Chemistry, and retired from there about a decade ago. He was able to attend the 50th.



Bill Klopfenstein and Tom Roche

Binghui Shen '90 (Ph.D. with Davis) has been having good success at the City of Hope. **Li Zheng '00** (Ph.D. with Krishnamoorthi) is in his research group. Shen is now leading the Cancer Biology Program, one of five programs in the Comprehensive Cancer Center. Binghui notes it is a pretty amazing transition from study of nodules in soybean, to human cancers, though both to involve regulation of cell proliferation. Starting at the end of 2009, he took up a visiting professorship in Zhejiang University, where he graduated with a bachelors degree, now having a laboratory there. His wife, Ying (Karen) now is a senior accounting manager in a major company headquartered in Southern California. Daughter Sherry graduated from Duke last May and is working in Wisconsin while planning to go to law school. Daughter Carolyn graduated from high school and went to UC Santa Barbara for her undergraduate studies.

Among alumni attending the 50th reunion was **Lee Zou '92** (M.S. with Davis) who was one of the speakers at the Functional Genomics symposium. Lee is leading a successful group at Harvard Medical School studying cell cycle regulation.



Lee Zou and Larry Davis

Also a speaker at the symposium was **Cong Cong Ma '99** (Ph.D. with Kanost). She has worked for a major technology company (now Life Technologies) and gave an insider's view of the latest developments in DNA sequencing technologies.



Cong Cong Ma, Jill Kanost and Yang Wang

K-State alumni keep in touch. One of the first departmental graduates, returning for the reunion was **Dwight Klaassen '65** (Ph.D. with Burkhard). He related the following interesting story:

"Yes, I was responsible for getting Myron Jacobson to K-State. He was in my first Biochemistry course that I taught here at Univ. of Wisconsin-Platteville in the spring of 1965. He was a good student and a chemistry major. I asked him what he intended to do after graduation and he said go to grad school. Here it was in March or so and I told him that applying for graduate school was very late. I asked what area he would be interested in and he said he was enjoying biochemistry very much and that might be a good option for him. I told him that I was sure I could get him into one grad program and might even get an assistantship for him with one phone call. He told me to try. I called the department (I don't even know who, probably Dr. Mitchell). He was accepted and even went for summer school as I recall. The rest as we would say, is history. Now he credits me with not only giving him a good career but also his wife, Elaine, whom he met there." Dwight Klaassen was for many years a professor and administrator at UW-Platteville. He has also been very involved with their local chorale society, serving in recent years (since 1994) as President and administrator.



Sharon and Dwight Klaassen

Haobo Jiang '94 (Ph.D. with Kanost) was in attendance at the 50th, along with his wife **Yang Wang '94** (M.S. with Kanost). They are in the Department of Entomology at Oklahoma State, and continue to study the role of insect hemolymph proteins in immunity.

Currently residing in Arizona, **Maryam Hazegh Azam '93** (Ph.D. with Reeck) has since gotten an M.D. and is studying diabetes, specifically ketoacidosis.

Richard Cate '79 (Ph.D. with Roche) was in town just one week too early for the reunion celebration. He is now retired from Biogen and a visiting scientist at Boston University and at INSERM in France, where he continues to study systems that fascinate him. He gave a talk on anti-Mullerian Factor (a growth factor).

Another of the early departmental alumni attending the reunion was **Frank Toman '67** (Ph.D. with Mitchell), who was for many years a professor at Western Kentucky University.



Judy and Frank Toman

Graduating at the same time the department was formed was **S.K. Dube '61**, who received his degree through the Chemistry department with Phil Nordin as advisor. We got a very nice long letter from him at the time of the reunion. He is a faculty member at University of Maryland, Center for Agricultural Biotechnology, particularly interested in flavonoids.

Randy Corfman '79 (Ph.D. with Reeck), who once painted houses alongside Rich Cate, flew in for the reunion from Minnesota, where he is medical director of a large reproductive health lab.



Mike Kanost, Randy Corfman, Subbaratnam Muthukrishnan, Asha Muthukrishnan and Jerry Reeck

Visiting two weeks after the symposium was **Wenxia Song '91** (Ph.D. with Rintoul) who has had a very successful career at University of Maryland, studying relationships of T & B cells in the immune system. She gave a talk on this area, focused on actin dynamics in B cell activation.

Unfortunately, **Mike and Elaine Jacobson** could not get free of their university and corporate obligations in Arizona, to attend the reunion in mid-week. They serve on the Advisory Board of the Johnson Cancer Center at K-State, and have been very supportive of the Biochemistry Department.

Of all the alums in attendance, **Brenda Oppert '91** (Ph.D. with Takemoto) probably had the shortest distance to travel (closer than the football stadium). She works at the USDA Center for Grain and Animal Health Research, which has recently added arthropod-borne diseases to its purview, and changed its name to reflect that. Brenda focuses on gut proteases of insect pests, functional genomics, and strategies for improved control by inhibiting insects with materials such as BT toxin.



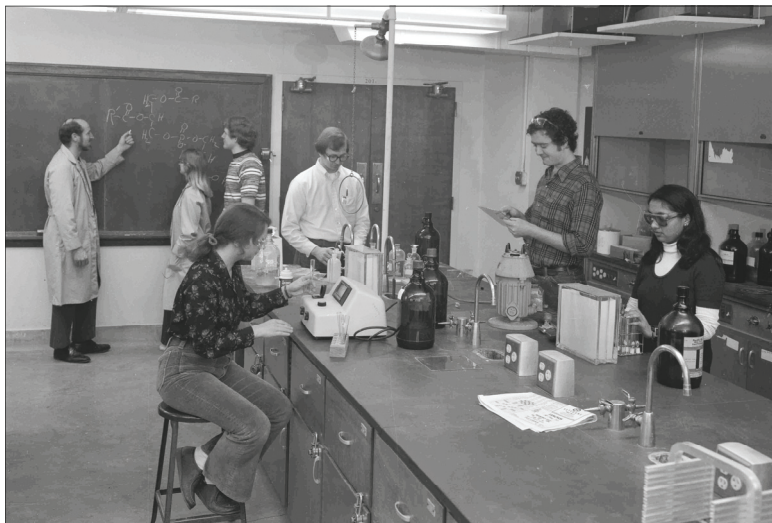
Brenda Oppert

Paul Cerpowicz '96 (Ph.D. with Ochs) has been teaching at East Georgia College (a two-year college) for the past 8 years or so and says he loves it very much. He's mostly been teaching general chemistry and organic chemistry (enrollment is not high enough to allow for a biochemistry course). His wife, Joelle, is a food scientist/registered dietician, who teaches at Georgia Southern University. Her research focuses on developing new, healthy, and unusual food products (ever hear of "okra" brownies???), and Paul has collaborated with her on some research projects. Nearly seven years ago, they adopted three siblings from Poland: Anita (now 10), Karolina (now 9) and Oskar (now 8). Paul couldn't attend the reunion as his wife was in Italy on a research project and he had "kid duty" that week.

PLEASE TELL US ABOUT YOURSELF!

Email us at biochem@ksu.edu to let your friends know what you're up to. Please include your name, degree obtained, graduation year, position/title, any life changes and personal activities.

A Look Back in Time



PHOTOS COURTESY K-STATE PHOTO SERVICES

(Left) 1975: Bill Klopfenstein and students in a lab course. (Right) 1978: Jerry Reeck and research group.



CANCER CENTER AWARDS

Six biochemistry undergraduate students have earned cancer research awards through K-State's Terry C. Johnson Center for Basic Cancer Research. Recipients included **Leonie Bossman**, **Kendra Miller**, **Kyle Steuber**, **Jammie Layman**, **Corey Wells** and **Jared Wilmoth**. The program was created to promote undergraduate participation in laboratory research and to encourage students to consider careers in research and medicine. The students are awarded \$1,000 stipends for conducting the research in the mentors' laboratories, faculty mentors also received \$1,000 for research expenses.

Debabani Ganguly (Chen), **Weihong Zhang** (Chen) and **Jian Gao** (Chen) received Johnson Cancer Center Travel Awards and attended the Biophysical Society Meeting in Baltimore, MD in March 2011.

GRAD STUDENT AWARDS AND SCHOLARSHIPS

Alvaro Herrera (Tomich) was awarded a Hedgcoth Graduate Travel Award and presented a poster at the Experimental NMR Conference in Pacific Grove, CA in April 2011.

Hui Li (Zolkiewska) and **Sara Duhachek Muggy** (Zolkiewska) received Graduate/Postdoctoral Travel Awards and presented posters at the ASBMB annual meeting in Washington, DC in April 2011.

Meera Kumari (Muthukrishnan) received a Philip Nordin Memorial Graduate Travel Award and will be presenting a poster at the Entomological Society of America Annual Meeting in San Diego, CA in December 2011. She received a graduate student summer 2011 stipend from the Terry C. Johnson Center for Basic Cancer Research. Meera presented posters at the 2011 Arthropod Genomics Symposium in Kansas City, MO.

Sujata Chaudhari (Muthukrishnan) received a K-State Arthropod Genomics Center travel award and attended the Entomological Society of America Annual

Meeting in San Diego, CA in December 2010. She won first place with her oral 10-minute paper presentation. Sujata also presented posters at the 2011 Arthropod Genomics Symposium in Kansas City, MO in June 2011.

Sinu Jasrapuria received a travel award from the K-State Arthropod Genomics Center and attended the Entomological Society of America Annual Meeting in San Diego, CA in December 2010.

Ting Zhang (Zolkiewski) and **Hui-Chuan Wu** (Zolkiewski) both received Hedgcoth Graduate Student Travel Awards and presented posters at the ASBMB annual meeting in Washington, DC in April 2011.

Samuel Molina (Takemoto) received a Hageman Graduate Student Travel Award and traveled to the Oxygen 2011 conference in Switzerland in January to present a poster. Samuel has also been awarded a Kansas State University Research Foundation Fellowship. He has also received a travel award to attend the 25th Anniversary Symposium of the Protein Society: Protein Science in Boston, MA in July, 2011 and the International Gap Junction Conference 2011 in Ghent, Belgium in August.

Dear alumni and friends,

We hope you will keep in touch with us and your former classmates by contributing to our newsletter. Would you please take a minute to send us your news about you, your career, and your family?

The Department of Biochemistry would also like to thank you for your generous support. Your donations allow us to offer scholarships, improving our ability to recruit and retain outstanding and deserving students. General funds supplement the department's operating budget to enhance the quality of education and research experiences we can provide to our students and to attract and support new faculty.

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Q53097 Hedgcoth Biochemistry Graduate Scholarship Account
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Graduate Student Travel to Scientific Meetings

F81556 Philip Nordin Memorial
Awards for Graduate Student Research Travel

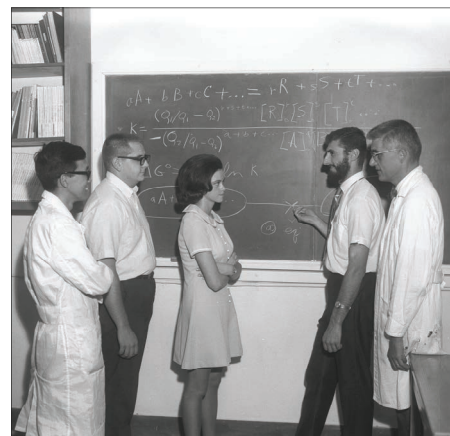
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Photos from the Past



PHOTOS COURTESY K-STATE PHOTO SERVICES

(Top) 1970: Ken Burkhard and students.
(Middle) 1975: Tom Roche and Model E analytical centrifuge. (Bottom) 1978: Larry Davis.

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