

# *DIVISION of MEDICAL SCIENCES*

*Alumni Newsletter*

*Spring 2003*

## **Message from the Chairman**

Dear Fellow Alums,

We were holding our February 10th Working Committee meeting for which Dr. Harold Amos was expected to participate, as he always did. Harold did not attend so we all tried to determine if somehow he received incorrect information about that Monday morning meeting. It never occurred to us what really happened, that he had suffered a massive stroke over the previous weekend. Harold felt very strongly about our activities in support of the Division of Medical Sciences and was always pushing us, in his own gentle manner, to do more and better for the Division. I will miss Harold since he has been a steady, positive influence on us for decades. We will try to honor him by doing more and being better.

We look forward to seeing you at the June 4th alumni/ae seminar and keep an eye open for a possible summer social event.

Best regards,  
Dennis Vaccaro, Ph.D. '77

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## **Microbiology Department's Harold Amos Dies**

*Was Beloved Friend, Mentor, and First African-American Department Chair at HMS*

*(Reprinted with permission from Focus issue March 7, 2003)*

Harold Amos, the Maude and Lillian Presley professor emeritus of microbiology and molecular genetics at HMS, died Feb. 26. He was 84.

A faculty member for nearly 50 years, Amos made research contributions to the fields of animal cell culture, bacterial metabolism, and animal and bacterial virology. He was the first African American to chair a department at the Medical school and is remembered by generations of students and colleagues as an extraordinarily dedicated and caring teacher and mentor as well as a staunch advocate for minorities in biomedical science.

A native of Pennsauken, N.J., Amos graduated from Springfield College in Springfield, Mass. in 1941. He had gone there on an academic scholarship, something few African Americans received at that time. He served in the



U.S. Army Quartermaster Corps in Europe during World War II. Following this service, he earned an MA from Harvard University, then received his PhD from the HMS Division of Medical Sciences in 1952. From 1951 to 1952, he was a Fulbright scholar at the Pasteur Institute in Paris and, in 1954, he joined the Medical School faculty as an instructor in the Department of Bacteriology and Immunology. From 1968 until 1971, and again from 1975 until 1978, he served as chair of the department (now the Department of Microbiology and Molecular Genetics). He was named the Maude and Lillian Presley professor of microbiology and molecular genetics in 1975 and became emeritus in 1988. He also served as chairman of the Division of Medical Sciences from 1971 until 1975 and from 1978 until 1988.

"I remember Prof. Amos with great fondness. He was one of the most gentle and unassuming, but quietly effective, human beings I have ever had the privilege to call my teacher. My condolences to all of his friends and colleagues."

*Jeremy Thorner, Ph.D. '72*

"Dr. Amos has been an inspiration, mentor, and career counselor for young scientists and physicians-in-training for decades," said John Mekalanos, current chair of Microbiology and Molecular Genetics. "He has been the consummate teacher: available, approachable, knowledgeable, and wise. Members of the Department of Microbiology and Molecular Genetics are forever grateful that Harold

*Continued on pp. 3*

## An Abbreviated Saga of Renee Zlochover Dintzis and Howard M. Dintzis

By Renee Z. Dintzis, Ph. D. '53

Howard and I met as first year graduate students at Harvard Medical School in 1948. We were lab partners in the Biochemistry course offered to both medical and graduate students at Harvard. Howard was in the Department of Physical Chemistry and did his thesis with Larry Oncley. I was in the Biochemistry Department, and did my thesis with A. Baird Hastings, who was then chairman of the Biochemistry Department. There were less than a handful of women in either the medical school or graduate school in those days. Howard and I were married in 1951, and left in 1953 after completing our respective thesis projects and obtaining our Ph.D degrees. We've been associated with universities and medical schools ever since.

We somehow managed to change residence (not always to different cities) ten times in our first ten years of marriage! We were post-docs at Yale (one year), and the University of Cambridge (1954 -1956). At Cambridge, Howard worked with John Kendrew and Max Perutz and contributed to the first x-ray structure determinations of the myoglobin and hemoglobin molecules. Perutz and Kendrew later got a Nobel Prize on their work in this field. I worked with F.G. Young, then chairman of the Biochemistry Department, on aspects of steroid hormone metabolism. It was an exciting time to be in Cambridge. In Howard's department, Francis Crick was conjecturing about the DNA double helix, and in my department, Fred Sanger was working on the amino acid sequence of insulin.

We returned to the U.S. in 1956, and our son, the first of our three children, was born in 1957. I temporarily retired to raise our family. Howard went on to positions at CalTech and MIT. It was during this period that he did the Dintzis Experiment, which answered the question of how the protein chain is synthesized. He showed that the protein chain grew from the amino to the carboxyl end. When people notice the name tag on the coat of our youngest daughter, Suzy, (who is an MD/Ph.D. and a pathologist), they often ask her if she is related to Dintzis of the Dintzis Experiment. She insists that *she is* the Dintzis Experiment.

We left MIT in 1961, when Howard was offered the chairmanship of the newly created Biophysics Department at the Johns Hopkins Medical School. He remained in this position for thirty years. He still maintains a lab in the Biophysics and Biophysical Chemistry Department at Hopkins, and does research related to mechanisms of B-lymphocyte activation and inhibition. Since the B-lymphocyte is one of the key cells in the immune response, his research has branched off into a number of interesting areas, with important implications as to possible control mechanisms for treatment of autoimmunity and allergy, and to vaccine improvement. A number of Pharmaceutical companies have contributed to the support-

of his lab.

Although I had been doing research part-time in what was then the Anatomy Department of Johns Hopkins Medical School, I officially reentered the academic community in 1973, as an Instructor in the Department of Anatomy and the Department of Biophysics. I'm now an Associate Professor in the Department of Cell Biology. In addition to having done years of research in collaboration with Howard, I've always enjoyed teaching, and now devote most of my time to directing a Medical School and Graduate School course in Histology. In addition, I organize the lab sections in the Cellular Physiology segment of a Cells and Tissues course given to our first year medical students.

Our frequent discussions about our research and teaching at medical schools while our children were growing up must have rubbed off on them, since all three are involved in some aspect of health care. Our son, Bill, is a Pediatrician, our middle daughter, Joanne, is a Nurse Practitioner, and Suzy, as mentioned above, is a Pathologist. We are blessed with three much-loved grandchildren as well.

When not doing research or teaching, Howard and I enjoy traveling and hiking. We hope to be able to continue this way for a long time!!

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Amos has been our adviser, colleague, teacher, and friend.”

Amos devoted much of his time and effort to supporting and encouraging minorities in biomedical science

“Dr. Amos was a caring and wise mentor during my years as a graduate student and beyond and I am very sorry to learn of his untimely death. His legacy will continue to live and expand in each of us who have been touched by his light.”

*Roberto Patarca, Ph.D. ‘87*

and medicine. He supported the establishment of the Hinton-Wright Society in 1983, a graduate student body at the Medical school and HSDM that supports and encourages minority scientists in the Boston medical community. In 1999, he was awarded the first annual Harold Amos Faculty Diversity Award for his continuous contributions to diversity efforts at the schools.

The Harold Amos-Genevieve McMillan Scholarship Fund was established in 1999 to encourage African-American students pursuing medical careers, and in 2001, the Harold Amos Fund, an endowed graduate student fellowship for students in the Department of Microbiology and Molecular Genetics, was established by Amos’s many friends and former students.

On the national level, for more than a decade he directed the Minority Medical faculty Development Program of the Robert Wood Johnson Foundation, and he was instrumental in creating minority programs at the National Institutes of Health and the Federation of American

“Until his brief final illness, Dr. Amos delighted in working at the bench and in thinking and reading about scientific issues. He was an active participant at seminars, and especially enjoyed those where young scientists presented their work. His enthusiasm for the accomplishments of DMS graduates was boundless. Many of you are probably recipients of letters from Dr. Amos congratulating you on a paper that you had recently published, or a position or award that you had recently accepted. He maintained an impressive correspondence with DMS alumni, a networking mechanism that we will all have to work together to sustain.”

*Jocelyn Spragg, Ph.D. ‘69*

Societies for Experimental Biology.

Amos was one of the first two recipients of the Dr. Charles R. Drew World Medical Prize, awarded by Howard University to distinguished minority biomedical scientists. He was also awarded the Public Welfare Medal of the National Academy of Sciences in 1995, a doctor of science honorary degree from Harvard University in 1996, and a Harvard University Graduate School of Arts and Sciences

Centennial Medal in 2000. He was a fellow of the American Academy of Arts and Sciences and, in 1991, was elected a fellow of the American Association for the Advancement of Science and a member of the Institute of Medicine.

He also served on the President’s Cancer Panel and the National Cancer Advisory board, and for more than 30 years, served in various leadership positions with the American Cancer Society.

Amos was a resident of Beacon Hill, Boston. He is survived by one brother and four sisters, Dr. Howard R. Amos, Iola Thomas, Joyce Hester, Florine Williams, and Mrs. Margaret Johnson, who reside in New Jersey. A memorial service is being planned.

## **The Department of Microbiology and Molecular Genetics HARVARD MEDICAL SCHOOL**

**Cordially Invites You to Celebrate the Life of  
Harold Amos, Ph.D. Maude and Lillian  
Presley Professor of Microbiology and  
Molecular Genetics, Emeritus**

Friday, May 16, 2003  
American Academy of Arts and Sciences  
136 Irving Street  
Cambridge, MA 02138  
Memorial Service: 2:00 – 3:30 pm  
Reception Immediately Following

### **Memorial Gift Information**

Many have asked how to direct gifts in memory of Harold Amos. His family requests that gifts be made to The Harold Amos Fellowship Fund (for graduate students) and The Genevieve McMillan-Harold Amos Endowed Scholarship Fund (for medical students).

Please make your check payable to Harvard Medical School and indicate which fund you choose to support.

Mail your check to:

Attn: Harold Amos Memorial Gifts  
Harvard Medical School  
Office of Resource Development  
401 Park Drive, Suite 22  
Boston, MA 02215

## Focus on the 1950s

### *Updates and News from Alumni of classes 1950-1959*

**Daniel Steinberg, M.D., Ph.D. '50:** Dr. Steinberg is Research Professor of Medicine at the University of California, San Diego. He received his M.D. degree from Wayne State University in 1944 and his Ph.D. in Biological Chemistry from Harvard University in 1950. Dr. Steinberg became involved in research on lipids and lipoproteins very early in his career at the National Institutes of Health, where he worked for 17 years. During his years with the National Heart, Lung, and Blood Institute he and his colleagues helped establish the central role of hormone-sensitive lipase in controlling mobilization of fat and showed that the hormones regulating it worked by way of cyclic AMP-dependent protein kinase. While at the NIH, he succeeded in identifying the precise metabolic error leading to a neurologic disease characterized by accumulation of an abnormal tissue fatty acid, phytanic acid. In 1968 he moved to the University of California, San Diego, and began to concentrate his efforts on the mechanisms underlying atherosclerosis. He and his colleagues headed one of the centers involved in the landmark Lipid research clinics trial of the effectiveness of lowering cholesterol levels to prevent heart disease. They were also awarded one of the first large grants for research on arteriosclerosis under the Specialized Centers of Research program of the NIH. Over the past decade he and his colleagues have put forward and supported, with a number of lines of evidence, a new hypothesis with respect to atherogenesis. In brief, they suggest that the low density lipoproteins, the main carriers of cholesterol, only become maximally atherogenic after they have undergone modification by an oxidative process. This hypothesis has proved to be strongly heuristic and many laboratories around the world are now engaged in exploring it further.

Dr. Steinberg and his colleagues have published over 400 papers relating to lipid and lipoprotein metabolism and atherosclerosis.

Dr. Steinberg has received a number of honors, including the Duff Lectureship of the American Heart Association in 1982, the Mayo Soley Award for the Western Society for Clinical Investigation in 1984, and the Lucian Award from McGill University in 1987. He was elected to the National Academy of Sciences in 1982, to the American Academy of Arts and Sciences in 1986, and to the Institute of Medicine in 1995. In 1988 he received the Distinguished Achievement Award of the American Heart Association Council on Arteriosclerosis and in the same year the first Award for Scientific Achievement from the National Cholesterol Conference. In 1994 he received the Distinguished Achievement Award from George Washington University. In 1995 he received the Bristol-Meyers Squibb Award for Outstanding Cardiovascular Research and was invited to give the Conner Memorial

Lecture for the American Heart Association. He was the Levi Professor of Medicine and Aging at the University of California San Diego until 2000, when he became a Research Professor Emeritus.

**Ray Kent Brown, Ph.D. '51:** Biochemist, physician, and educator. Born in Columbus, Ohio, April 7, 1924 to Ray Stemen and Grace (Nunemaker). Married Gertrude Lydia Harris on January 25, 1947. Had three children, Kimberly Brown, Kitene Kading, and Kevin. Married Dorothy Skinner on March 19, 1998. Received a bachelor's degree in 1944, a medical degree in 1947, and a master's degree in 1948 from Ohio State University and a Ph.D. in 1951 from Harvard University.

- 1947-1948 Intern, Boston City Hospital
- 1951-1953 Senior Assistant Surgeon, USPHS, Bethesda, MD
- 1953-1959 Assistant Director Div. Labs and Research, NY State Department of Health, Albany
- 1959-1963 Associate Director Div. Labs and Research, NY State Department of Health, Albany
- 1954-1956 Assistant Professor of Biochemistry, Albany Medical College
- 1956-1961 Associate Professor of Biochemistry, Albany Medical College
- 1961-1963 Professor of Biochemistry, Albany Medical College
- 1963-1996 Professor, Chemistry Department, Wayne State University School of Medicine
- 1963-1987 Professor, Biochemistry Department, Wayne State University School of Medicine
- 1996-present, Professor Emeritus, Wayne State University School of Medicine

Member of the Highland Township (Michigan) Planning Committee, 1968-1996. Served with the U.S. Army, 1943-1945, and with USPHS, 1051-1953. Member of the American Society of Biological Chemistry, received the Travel award in 1958, 1961, and 1964. Also a member of the American Association of Immunologists, the Biochemistry Society of Great Britain, and the American Chemists Society.

**Cornelius F. Strittmatter, Ph.D. '52:** I formally retired from the Wake Forest University School of Medicine (formerly Bowman Gray School of Medicine) in 1989, after 28 years of service- 17 as head of the Department of Biochemistry. Continued professional association with the institution is primarily through the strong Emeritus Faculty Association there. Living in Winston-Salem is very pleasant, and an active involvement over the years in the rich cultural life here, especially with the North Carolina

School for the Arts and the Symphony Orchestra, has been very rewarding. Carol and I try to be good citizens through working with a number of civic organizations. Travel, mainly abroad, has been a major activity, and we provide appropriate ethnic dinners for those hardy souls who don't fall asleep during my travel slide shows. There are also frequent outings to visit our daughter, Clare, and her family in Atlanta.

**John M. Foster, Ph.D. '54:** Went on to do postdoctoral research at MIT in 1954, working on energy metabolism in squid and lobster nerve fibers. In 1956, commissioned as 1st Lieutenant in the Army Medical Service Corps, serving as Chief of Clinical Chemistry at the 406 Medical General Laboratory in Japan for 15 months and then in the Research and Development Laboratory at Fitzsimons Army Hospital in Denver for 5 months. Became Assistant Professor of Biochemistry at Boston University School of Medicine in 1958. Research focused on energy metabolism in normal and leukemic human leukocytes. In January 1967, became Assistant, then Associate, Program Director of the Science Curriculum Improvement Program at the National Science Foundation in Washington, D.C. Contact with science educators across the country brought me in touch with the then embryonic Hampshire College, in Amherst, Massachusetts. In July 1969, I joined the faculty as Associate Professor of Biology and part of the planning staff. Hampshire, an experimenting institution dedicated to new departures in undergraduate liberal arts education, admitted its first class in September 1970. I became Full Professor in 1972 and spent the 1972/73 academic year as Dean of the School of Natural Science.

An adjunct appointment in Biochemistry at the University of Massachusetts enabled me to involve a number of my Hampshire students in research, studying structure/function relationships in the facultative phototroph *Chloroflexus auantiacus*. One sabbatical leave took me to Oregon State University, to climb 300-foot Douglas fir trees to study nitrogen flow in the canopy.

Outside of Hampshire, especially after retiring in 1994, my wife and I continue to enjoy hiking, camping, cross-country skiing, whitewater canoeing and travel. I am heavily involved in our local light opera company's annual Gilbert and Sullivan productions, where I sing in the chorus, work on construction of sets and props and serve as a co-producer. In summers I have also sung with the Berkshire Choral Festival in Massachusetts, Santa Fe and Canterbury, England. I continue to play my recorders, performing occasionally in our local church.

**John K. Inman, Ph.D. '56:** Forty-seven years have swiftly(?) passed since I received my Ph.D. from the Department of Physical Chemistry Related to Medicine and Public Health, a long-gone member of the Division of Medical Sciences (DMS). This department supported a

special University chair occupied by the late Edwin Cohn, whose group spearheaded the development blood plasma fractionation during and after World War II. My mentors were J.L. Oncley and the recently deceased John T. Edsall. This unforgettable experience included my marriage to Jeanne Jaques who worked in the same department with Douglas Surgenor. After receiving my degree and the birth of our first child, we moved to Lansing, Michigan where I worked at the Michigan Department of Health labs. Then I took a position at Ortho Pharmaceutical Corp. for several years before accepting a fellowship at the Johns Hopkins Medical School in the Department of Biophysics, led by former DMS graduate student Howard Dintzis. After two years there, I joined the Laboratory of Immunology at the National Institute of Allergy and Infectious Diseases, NIH, where I am still to this day, after nearly 38 years, working full time. My current work centers on design, synthesis and development of anti-HIV and anti-retroviral drugs that target the highly conserved nucleocapsid protein. My wife and I live in Bethesda near the NIH. Our 3 children and 7 grandchildren live not far away in Maryland.

**Carl D. Brandt, Ph.D. '58:** Research virologist. Born in Bridgeport, CT, Jan 19, 1928 to Carl Augus and Hildur (Wedberg) Brandt. Married Elsa Lund Erickson April 25, 1964; children: Karen & Erik. Received a B.S. from the University of Connecticut in 1949, an M.S. from the University of Massachusetts in 1951, and a Ph.D. from Harvard University in 1958. Was a Research Instructor in the Department of Veterinary Science at UMass, Amherst from 1949-1952 and again in 1954; a Research Virologist at Charles Pfizer & Co., Inc., Ind., 1958-1962; an Associate in the Department of Epidemiology, Public Health Research Institute, New York City. Research Associate in Virology research at Children's Nat. Medical Center, Washington, 1966-1979, Senior Research Associate, 1979-1986, Senior Scientist, 1986-1994, Retired, 1994. Instructor at Georgetown University Medical School, Washington, 1966-1969, Assistant Professor of Pediatrics, 1969-1974, Associate Professor, 1974-1994, Emeritus Professor, 1994. Contributed articles to professional journals. 1st Lieutenant in the United States Air Force, 1952-1954. Fellow, American Academy of Microbiology, Infectious Diseases Society of America, American College of Epidemiology. member of New York Color Slide Club (on the board of directors, 1965-1966), Silver Spring Camera Club (president, 1970-1971), Rock Creek Amateur Radio Association (president, 1985-1989). Avocations: photography, amateur radio.

**WEDNESDAY, JUNE 4TH**

**DIVISION OF MEDICAL SCIENCES SPONSORED ALUMNI  
SYMPOSIUM**

**3:00 pm - 5:00 pm**

**Cannon Room, Building C**

**“New Disease Therapies: The Role of Biotechnology”**

*A Panel Discussion, moderated by Dennis Vaccaro, Ph.D. '77, Chair, DMS Alumni Organization.*

*Speakers will include:*

**Dennis E. Vaccaro, Ph.D. '77 - Chairman and co-Founder, BioPhysics Assay Laboratory, Inc.**

“New Therapeutic Directions: Cellular Therapy for Cardiac Disease”

Dr. Vaccaro will discuss how new classes of biologically based therapies may alter or eliminate the use of conventional medicines and how new diagnostic technologies will assist in the development of these therapies.

**Kathryn Hall, Ph.D. '94 - Associate Director, Corporate Informatics, Millennium Pharmaceuticals**

Responsible for the Technology, Process and Knowledge Management direction of the Drug Safety and Disposition and Pharmaceutical Sciences Divisions at Millennium Pharmaceuticals.

**We are looking forward to hearing from the audience so please come and give us your ideas on new therapeutic directions and how biotechnology could be bringing these ideas into reality.**

## “One Peek at the Early Days in the Golden Years of Biomedical Science Following WWII”

*Autobiography by F.M. Richards, Ph.D. '52*

My father graduated from Yale in 1903 and was both preceded and followed at that institution by a number of grandfathers, uncles and cousins (all male of course). I was the black sheep in the family. After 2 uneventful years in the Army in the mid 1940s, I managed to get an undergraduate degree in Chemistry from M.I.T. As it turned out, I was to spend more years at Yale than all the rest of the Richards clan combined, but as an employee not as a student.

My choice of profession was controlled by my oldest sister Marianna Bovarnick (14 years my senior) by providing a second chemistry set when I was about 10 or 11. She and her husband Max were both biochemists trained in Hans Clark's department in Columbia P&S at 168th St. in New York. Max was also a certified pathologist, which was useful in lean times. The die was fully cast after a trip to P&S and the marvelous liquids boiling in reflux-condenser-equipped glassware and preBeckman pH meters, etc. (Much later these impressive labs were quite accurately reproduced by chance in the wonderful movie with Alec Guinness, “The Man in the White Suit.” Only the most stodgy of people could avoid being chemists after seeing that movie!) Because of these accidents of history, I never suffered the doubts of so many of the young, “What am I going to do with my life?”

My number 2 sister, Sally (11 years older), was a musician, but more importantly from my point of view, a sailor. She married Gifford Pinchot, who was also an MD with strong biochemical leanings, but also with an addiction to transatlantic and transpacific voyages in small sailing vessels. My father exposed all of his children to sailing in small vessels and emphasized the importance of 4 to 6 weeks away from science, or law in his case, each summer where the mental wheels were reoiled and all sorts of good ideas flowed out the next fall. Quite independently, this same attitude was impressed by Hans Clark on all his graduate students. I made quite sure he knew who I was by marrying his second daughter, Heidi. We produced 2 first class daughters, Sally and Ruth, but neither of them were scientifically inclined. Sally Wheatland, my second wife, produced a son, George, who has followed his paternal grandfather into the legal profession.

While I was at MIT, Marianna and Max were employed by the Harvard Medical School and located in the then Bacteriology Department. At the appropriate time for me to consider graduate school, they suggested that I go and have a talk with John Edsall, a distinguished biochemist in E.J. Cohn's Department of Physical Chemistry in the HMS, the only such department in a Medical School then or now.

There was no fuss and feathers in those days. The result of the talk with John was a trip of a couple of miles across the Charles River the next fall and after 4 years at Harvard, a Ph.D. in 1952. The latter was obtained under the direct supervision of Barbara Low who had just arrived from England having been hired by Edwin Cohn as an Assistant Professor with an expertise in X-Ray diffraction. She had played a major role with Dorothy Crowfoot (later Hodgkin) in the solution of the structure of penicillin which was dramatically important in the allied war effort. Cohn was a brilliant man. Although the solution of the structure of the first protein, myoglobin, by Kendrew and Perutz was still a decade away, he could see that the next major step forward in understanding proteins was going to require atomic level structures, and X-rays were the only game in town at that time. By good luck I had decided to take an elective course in X-ray diffraction in my senior year at MIT in the physics department. This was not any wisdom about the future on my part, but just that I enjoyed geometry, and crystals certainly provided lots of that.

It was necessary to think up something to do for a thesis since solution of the structures of protein crystals was not possible at that time. Howard Dintzis, another graduate student in the Cohn Department, was still several years away from his postdoctoral work in the Kendrew-Perutz lab in England where he would make major contributions to the formation of the heavy atom derivatives which eventually solved the “phase problem” for proteins. What could be done in the meantime was to accurately measure the dimensions of, and the number of asymmetric units in, the unit cell of any crystal. If the density of the crystal and its composition (protein and solvent) were known, a very accurate measurement of the protein molecular weight could be obtained. Developing the procedures and providing the numbers made up a thesis. One should remember at this time mass spectrometry was only starting to come into its own for organic compounds, no one could imagine getting proteins into the gas phase, and there was still grumbling that perhaps the peptide bond was not a major factor in the chemical bonding in native proteins. Frank Gurd, whom I had got to know in prep school and was now following through Cohn's department, got his Ph.D. 2 years ahead of me with a masterful thesis on lipoproteins under Larry Oncley. He and I were asked to take care of the physical biochemistry part of the then new program in the biomedical sciences that was set up to involve all of the preclinical departments in a big stew where the medical students were not supposed to worry about the departmental structure of the school, but get the big picture of human biology. After a year or two it was time for some postdoctoral R & R for both of us.

My postdoctoral year was spent in the Carlsberg Laboratory in Copenhagen, a mecca for American protein chemists at that time, with its Director Kaj Linderstrøm-Lang, a distinguished Danish protein chemist who was an artist, musician, and comedian as well as a superb scientist. That year I found and isolated Ribonuclease-S (S for subtilisin, Carlsberg's favorite protease), a proteolyzed version of pancreatic RNase-A. At Yale, my first efforts were to separate RNase-S into 2 parts with complete loss of catalytic activity. On mixing the 2 components, the enzymic activity was completely restored. It was and is a useful model system, and has occupied my laboratory and others for many years. The postdoctoral year is described in some detail in *Protein Science* 1:1721-30 (1992).

At just the right time, Joe Fruton, himself a Hans Clark product, was chairman of Biochemistry at Yale and offered me a faculty job. I accepted his kind offer which, in addition to providing a salary, solved the family undergraduate problem. For a starting junior faculty member, Joe also negotiated a priceless gift, in the form of a postdoctoral fellow, Paul Vithayathil, whom he could not accommodate in his own labs at that particular time. Paul got quickly up to speed and did most of the chemistry on the RNase-S system. (This was all by chemical modification and synthesis. The genetics tricks had not yet been invented.) A little later Marilyn Doscher arrived and proved that the RNase-S crystals were catalytically active in the crystalline state, thereby ridding the field of the skeptics who said that there was no reason to think that the crystalline form of an enzyme had any necessary relation to the biologically active species in solution. In a collaboration with Harold Wyckoff and a number of others in both our labs, the crystal structure of RNase-S was solved, only the third protein after myoglobin and lysozyme. The structures of a number of nucleotide complexes with the enzyme gave a pretty clear picture of the mechanism of catalysis.

Florante Quioco joined the lab as a graduate student and worked on the activity of crystals of carboxypeptidase-A. During these studies he found that he could lightly crosslink the crystals with glutaraldehyde so that they became completely insoluble but retained catalytic activity. We missed the possibility that such a product might be useful, quite apart from the interesting science, and thus missed an entry into the future industrial world which now produces at a profit various crosslinked enzyme crystals at the kilogram level. From here the lab moved along with lots of people doing first class jobs on a lot of different proteins.

At this point life for me turned a corner into what I was to find was real academia. President Brewster decided to turn the radiologically-inclined Yale Biophysics Department into the new field of molecular biology. He added as joint members several Yale faculty who were knowledgeable in the fields of genetics and microbiology,

and asked me to take on the chairmanship. Such recognition at a tender age seemed irresistible at the time (1963). If I had only known!

The life of constant committee meetings began and any personal research stopped. Just enough contact with the graduate students and postdocs was maintained so that they kindly allowed me to be a coauthor on most of the papers. Accepting invitations to give seminars seemed natural since the process made the PI the most common author in the lab. The seminars led to invited lectureships which, in turn, lead to membership on various external committees for other schools and institutions, for scientific societies, and for government agencies. Examples might be: 15 years as the Director of the Jane Coffin Childs Fund for Medical Research; the presidency of the Biophysical Society; the presidency of the American Society of Biological Chemists (now ASBMB); or the Chairman of the group assembled by NIH to "help" them in the investigation of the Gallo/Montangier debacle on who first isolated the AIDS virus, HIV. Such behavior, of course, can lead to prizes both national and international, and thus to membership in groups such as the National Academy of Sciences, the American Philosophical Society, and the American Academy of Arts and Sciences and so forth.

Today it also leads in another direction, the mixing of universities and the industrial sector. I personally believe this to be unfortunate in its present form. The goals of the organizations are very different. If you change locations completely, i.e. leave the university and start or join a commercial venture, as was common practice right after WWII in building up Route 128 in the Boston area, everything is fine. To try to do both simultaneously is not fine. Both professorships and senior business officers are full time jobs. Very few individuals can do both and do them well.

And then there is retirement. The academic disease of 'teacher burnout' is very real and is normally associated with elementary or secondary schools, but it happened to me. I was surprised to find it at the university where the jobs are usually considered cushy and fun. I made the mistake of trying to go back to the bench and work with "beakers and test tubes." It rarely works. You lose your touch. You should be satisfied with the wisdom you have collected, have developed over the years at great effort and could pass on, if only you could remember what it was!

## Alumni Updates

**Richard Hawkins, Ph.D. '69:** Stepped down as President of Finch University of Health Sciences/Chicago Medical School. He served as Executive Vice President from 1993 to 1998 and as President from 1998 to 2002. As President, he brought the University to a new level as an academic health sciences center, and overseeing an active period of institutional growth and development. He returns to what he most enjoys, research and teaching as a member of the University's faculty.

**Julie Glowacki, Ph.D. '73:** Julie Glowacki, Ph.D. (Biological Chemistry) has been appointed as Professor of Orthopedic Surgery, Harvard Medical School, and Professor of Oral and Maxillofacial Surgery, Harvard School of Dental Medicine. Her laboratory at the Brigham and Women's Hospital is concerned with mechanisms of skeletal disorders and aging and innovative procedures for bone and joint reconstruction.

**Crispin B. Weinburg, Ph.D. '80:** I recently became president and CEO of Biomedical Modeling, Inc., a Boston-area firm that produces highly detailed physical models for surgical planning starting from CT [computed tomography] and MRI [magnetic resonance imaging] scans. We donated the biomodels that surgeons at the University of California at Los Angeles used to plan the successful separation of Maria Teresa and Maria de Jesus [Quijé Alvarez], the twins from Guatemala who were born conjoined at the tops of their heads. As of this writing, both girls are doing well, giggling and smiling like normal one-year-olds.

**Colleen Buggs, M.D., Ph.D. '98:** Received a Robert Wood Johnson Minority Faculty Development Award. She is completing her pediatrics residency at University of Chicago and will begin postdoctoral research this summer.

## Report from the 2003 Alumni Events in California

In what has become an annual tradition, HMS-DMS Alumni events were held recently in California. On Saturday, March 8th, Dan Federman, M.D. '53, Senior Dean for Alumni Relations and Clinical Teaching, and George Thibault, M.D. '69, Director of the Academy at HMS, were in Santa Monica for a lecture, reception and dinner. The following day, Dean Joseph Martin joined Dean Federman at the St. Francis Yacht Club in San Francisco. Dennis Vaccaro, Ph.D.'77, Chairman of the DMS Alumni Association, chatted with local graduates and enjoyed getting feedback on the DMS Program.



*Dr. Vaccaro, Ph.D. '77 and Dean Martin*



*Dr. Vaccaro, Ph.D. '77 and Dr. Tien-wen Wiedmann, Ph.D. '63*

## Paths to Diversity – an Update

*by Jocelyn Spragg, Ph.D. '69*  
*Faculty Director of Minority Programs*

Two years ago, this newsletter contained an article describing several initiatives to increase the diversity of DMS ("Paths to Diversity," in Volume IV, Number 1). As this update of diversity activities is written, DMS acknowledges with profound gratitude the many contributions of Harold Amos to these initiatives. It was Dr. Amos who in the 1980's created, and until his death co-chaired, the DMS student and faculty Minority Recruitment Committee

As part of Dr. Amos's leadership role in advising and mentoring all students, he envisioned and helped establish the DMS Office of Minority Programs, which directs the Summer Honors Undergraduate Research Program (SHURP), and provides administrative support for the Four Directions Summer Research Program (FDSRP) and for the Minority Biomedical Scientists of Harvard (MBSH). SHURP and FDSRP are both programs designed to help meet the University's goal of increasing diversity in its student populations, by providing research opportunities to students who will benefit from spending the summer in the environment of a major research institution. MBSH is a group open to all Harvard and Boston-area science graduate students and research fellows and is dedicated to providing opportunities for career development to members of groups under-represented in the sciences.

Together with the late Dr. Clifford Barger, Dr. Amos developed the DMS Postdoctoral Research Fellow Interview Initiative, now administered by the DMS Office of Minority Programs. This initiative brings finishing graduate students from other schools to meet with DMS faculty who may be interested in recruiting them as postdoctoral research fellows. Dr. Amos was a tireless and enthusiastic advisor and mentor for all who were affiliated with all of these programs. While his loss is deeply felt, his wisdom and influence will remain for years to come.

Since the 2001 diversity report, the group of SHURP alumni, spanning the years from 1991 to 2002, has grown to 249. Over 97% are continuing in science careers beyond college, including close to 70 in PhD or MD/PhD programs. Thirty-two are in or are graduates of Harvard programs. In the 2003-2004 admission cycle, seven SHURP students were admitted to DMS PhD programs and three to HMS MD programs. It is too soon to know how many will matriculate at Harvard; however ten SHURP admissions in a single year is a record.

Over the last five years, an average of 12% of the entering DMS class have been members of under-represented minority groups. While this percentage is less than their representation in the general population, it raises the question about the pool size from which graduate programs can recruit new matriculants. This is not an especially straightforward number to generate. One way to attempt an assessment of the pool size is to use available data to calculate the percentage of students receiving bachelor's degrees in the biological sciences who are members of racial or ethnic groups under-represented in these fields.

According to the most recent available National Science Foundation data, this number was 14.7% in 2000. If one subtracts the number of these students who apply to medical school, or who enter master's programs, then the maximum size of the pool becomes closer to 7.5% of bachelor degree recipients. This calculation does not eliminate individuals entering other science careers, such as allied health professions, or teaching, or individuals who would not meet the most rigorous graduate school admissions criteria.

Thus, DMS may be matriculating a diverse group of graduate students at a rate that is approximately 60% greater than the maximum pool in the population. In addition to intense competition for these students, an additional challenge is a negative stereotype of Harvard held by some undergraduates and their faculty advisors. One positive outcome of SHURP is that most students report being very pleased with their summer here, and that DMS and HMS faculty and staff are quite friendly and supportive. Perhaps a direct result of this personal experience is the fact that increasing numbers of SHURP students, as well as colleagues from their home schools, have been applying to Harvard MD and PhD programs in recent years.

What is happening to the under-represented students who come to the Division as graduate students? In the past five years, a total of 33 have received the PhD degree. During the same 5-year period, only 7 have left, all in good academic standing, to pursue other interests. Over half of the recent PhD graduates are continuing research training in academic settings such as Caltech, MIT, the University of Chicago, the University of Washington, St. Jude Children's Research Center, the Harvard School of Public Health, the University of New Mexico, the University of Michigan, Harvard Medical School, Washington University, and the Scripps Research Institute. Others are pursuing careers in science writing, educational software development, health policy administration, or are MD/PhD graduates completing their clinical training.

The Division's Postdoctoral Research Interview Initiative has proceeded at a modest rate, perhaps in large part because of its dependence on personal communication and networking. To date, five individuals have visited as part of

this initiative, and all five have been offered and have accepted postdoctoral research positions with Harvard faculty.

If you, your colleagues, or students are interested in learning more about the current graduate programs and diversity activities in DMS, please visit our web site, at [www.hms.harvard.edu/dms/](http://www.hms.harvard.edu/dms/) or email <[shurp@hms.harvard.edu](mailto:shurp@hms.harvard.edu)>. Online applications for SHURP and FDSRP may be found at: [www.hms.harvard.edu/dms/diversity](http://www.hms.harvard.edu/dms/diversity).

## DMS Fundraising Update

### **Fiscal Year 2002:**

DMS Annual Fund \$7,975

DMS Financial Aid Fund \$2,220

Harold Amos, Ph.D. Fellowship Fund \$3,595

### **Fiscal Year 2003 (as of March 31, 2003):**

DMS Annual Fund \$4,401

DMS Financial Aid Fund \$2,045

Harold Amos, Ph.D. Fellowship Fund \$6,475

Thanks so much to all of you who participated in our new fundraising efforts. If you haven't yet done so, please consider making a gift before our fiscal year ends on June 30th. You may use the enclosed envelope, or make a credit card gift on-line at: [www.hms.harvard.edu/ord/](http://www.hms.harvard.edu/ord/).

## Thank you for filling out the DMS Questionnaire!

The faculty committee reviewing the current DMS programs to consider how best to prepare our students in the coming decades thanks the many alumni who completed the online questionnaire in December and January. The 180 alumni who filled out the form represented several decades and provided extensive comments which were thoughtful and will be useful. We are delighted with the response and with the reflections, ideas, and suggestions conveyed. The extent of narrative replies will require some effort on our part before we can draw conclusions.

What we can say at this time is that the respondents had many positive comments about their experiences here over a period of most of the twentieth century plus the earliest years of the twenty-first, and all had suggestions for improvements or for features we should try to retain. Your time spent on this is much appreciated. In addition, a similar questionnaire was available for current students. Some 231 current students, representing all levels, replied with similarly extensive and thoughtful information. We are pleased with the response and strong interest in what Harvard can contribute to the education of future biomedical scientists. We will continue to accept comments you may wish to send regarding what we have done and what we should do.

*Tom Fox*

*Director of Graduate Studies*

Please send any additional comments to:

[dms\\_alumni\\_office@hms.harvard.edu](mailto:dms_alumni_office@hms.harvard.edu) or

DMS Alumni Office

HMS

260 Longwood, MEC 435

Boston MA 02115

## *New DMS Alumni Directory*

Please help us as we compile a new DMS Alumni Directory and fill out the form on the last page to verify your information. Thank you to all those who have already sent in their forms.



## HMS/HSDM/HSPH ALUMNI

## APPLICATION FOR BORROWING PRIVILEGES

Return application to:  
 Privileges Desk  
 Francis A. Countway Library of Medicine  
 10 Shattuck St.  
 Boston MA 02115  
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PLEASE CHECK IF THIS IS A RENEWAL

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FIRST NAME:				MI	LAST NAME:					
MD	PhD	DMD	MPH	MS	Other:	Dr	Mr	Ms	Mrs	Miss
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STREET:						PHONE:				
CITY:				STATE:		ZIP:				
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I hereby apply for borrowing privileges at the Francis A. Countway Library of Medicine and certify to the following information:

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I understand that my borrower's card is NON-TRANSFERABLE and agree not to allow anyone else to use it for any reason. Furthermore, I understand this card is for my personal individual use only and not for any business or corporate use. I assume full financial responsibility for the use of this card, including payment of any fines for overdue books, and charges for lost, damaged, or unreturned books that are borrowed on this card.

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Office use:

APPL. TAKEN BY:	PROCESSED BY:
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Erica MacDonald  
Staff Assistant  
Division of Medical Sciences  
260 Longwood Avenue, T-MEC 435  
Boston, MA 02115  
617-432-3372      FAX: 617-432-2644

Full Name: \_\_\_\_\_

Degree: \_\_\_\_\_ Year: \_\_\_\_\_ Program: \_\_\_\_\_

Current Title: \_\_\_\_\_ No. years in this position: \_\_\_\_\_

**Business Address:** \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Publish in Directory?                      Yes                      No

**Home Address:** \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Email: \_\_\_\_\_

Publish in Directory?                      Yes                      No

Preferred Contact Address:    Business    Home

Important information we should know (or news to share with your fellow alums in our DMS Alumni Newsletter): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

May we print this in the next Newsletter?    Yes    No

Do you have information for a "missing" DMS graduate?

Name: \_\_\_\_\_

Address: \_\_\_\_\_  
\_\_\_\_\_

Other: \_\_\_\_\_

Fold

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Fold

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Return Address

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Harvard University  
Division of Medical Sciences Alumni Office  
260 Longwood Avenue MEC 435  
Boston, Massachusetts 02115