

Dean's Newsletter

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Fifty Years for Stanford Medicine in Palo Alto

On Friday, May 29th the School of Medicine celebrated the Fifty Year Anniversary of its 1959 move from San Francisco to the Stanford Campus. We also had the opportunity to honor three remarkable individuals who helped shape the medical school and medical center during the past 50 years and whose contributions continue to influence its on-going transformation into the future. Comments about these three pioneering leaders, Dr. Robert Glazer, Dr. Larry Crowley and Mr. Lorry Lokey, are noted later in this Newsletter. In my introduction to the award ceremony I briefly reviewed some of the factors that led to the decision to move the medical school to the Stanford campus and the impact this had on Stanford Medicine. I also touched on some of the individuals and decisions from earlier in our history that set the stage for the bold step the School of Medicine and Stanford University took in 1959.

To a significant degree history is a reflection of the experiences of individuals and of the influence of external forces on individual goals at specific points in time and place. Individuals with vision shape institutions. A lack of vision in a changing environment results in passive and reactive responses rather than proactive decision-making and can thus passively impact institutions. To a degree Stanford Medicine as we know it today is the result of a conjunction of internal and external forces that began to emerge in the mid-1940s. At that time the School of Medicine, which had become part of Stanford University in 1908, was in need of restoration and renewal. Indeed, when Donald Tressider became President of Stanford in 1943, he learned of a plan to restore the Medical School campus in San Francisco through a major fundraising campaign (the "Endowment Campaign") that had been put together by his predecessor Ray Wilbur (who had served as Dean of the School of Medicine prior to becoming President of Stanford).

Because the necessary funds had not been raised, Tressider (who like David Star Jordan and Ray Wilbur before him, held an MD degree) appointed a committee to assess the plans for the medical school.

In 1946 this committee, led by Dr. Harold Faber (a pediatrician) recommended that the Stanford Medical School in San Francisco be restored and renewed. There was much support for this by the clinical faculty, whose practices were located in San Francisco. However, in the absence of funds, no progress was made, and in 1948 President Tressider put the medical school plans “on hold” for the next five years. Shortly thereafter, President Tressider and Loren “Yank” Chandler, who served as Dean of the Medical School from 1933-1953, became interested in integrating the medical school into the university, despite major objections from the clinical leaders and faculty. They toured a number of other medical centers, including Illinois, Cornell, Duke and Michigan, and, as a result, concluded that plans to move the medical school could not proceed until greater clinical opportunities for teaching and patient care activities were available in Palo Alto.

In 1948, Wallace Sterling succeeded Tressider as President of Stanford and soon thereafter the future of the medical school was raised once again. In 1951, the Board of Trustees affirmed the recommendation of the Faber Committee to renew and restore the medical school in San Francisco. A year later, in 1952, Sterling appointed yet another committee to evaluate the future of the medical school. It included a number of prominent faculty leaders, including Yank Chandler (Dean), Arthur Bloomfield (Professor of Medicine), Windsor Cutting (Professor of Pharmacology), William Greulich (Professor of Anatomy), Henry Kaplan (Professor of Radiology), William Northway (Professor of Medicine), Victor Richards (Professor of Surgery) and Lowell Rantz (Associate Professor of Medicine). The Sterling Committee once again surveyed the options and opportunities and once again affirmed prior decisions to keep the medical school in San Francisco.

But behind the scenes President Sterling and the Board of Trustees undertook a parallel process that resulted in the announcement, on July 15, 1953, of the decision to move the School of Medicine to the Stanford campus in Palo Alto. Clearly this was a visionary decision. But it came with a cost: the clinical faculty leaders in San Francisco reacted very negatively, and most would elect not to move to Palo Alto. And it was not met with a great degree of enthusiasm by clinical physicians practicing in Palo Alto, who viewed the coming of Stanford as a threat to their own futures. Nonetheless, the decision was made and the future of Stanford Medicine was defined – with the result that 50 years later, the School of Medicine is one of the leading research intensive medical schools in the world, a destiny that almost surely could not have been accomplished if the conventional wisdom of the time to leave the school in San Francisco had been followed.

With the decision to move the School to the Stanford campus made, many other important decisions followed. Among these were: the need to construct a new medical center on the Stanford campus; the development of a new curriculum for medical education; and further development of the full-time faculty program that had begun

earlier in the century and that had been endorsed by the Flexner Report of 1910. In 1956 Edward Durrell Stone, an internationally recognized architect in the 1950s, received the commission to design the integrated medical school and hospital facilities (the latter done in conjunction with the City of Palo Alto). Work soon commenced on a major renewal project that cost \$22 million at the time of its completion in 1959. While there is considerable debate today about the utility and design of the ED Stone complex, at the time it was viewed by many as “state-of-the-art,” with its attempts to provide a rustic setting that echoed, in part, the sandstone feeling of the main campus.

Acknowledging herewith that the design left many problems, it did accomplish one unique and critically important goal: it brought together the medical school and teaching hospital into an integrated whole, while locating them proximate to the university campus and especially the Schools of Engineering and Humanities and Sciences. Indeed, it was this unique co-location that gave Stanford its character. This type of integration is not typical for US medical schools and medical centers, but it has defined Stanford and helped create and foster opportunities for basic, clinical and translational research, often interdisciplinary, that would not otherwise have been possible or achievable.

While facilities are important in defining institutions, it is of course the quality of the individuals who occupy them that has the greatest impact. Here a challenge was replaced by an opportunity. With the decision of many of the Stanford faculty leaders to stay in San Francisco and the move of the school planned for 1959, the need to recruit new leaders became a major issue. A number of individuals played critical roles in this early recruitment process, most notably President Sterling, Provost Fred Terman (who played such a critical role in shaping Stanford’s role as an innovator and incubator), Robert Alway (who became Dean in 1957) and Henry Kaplan. Individually and together they helped attract the founding faculty leaders for the transition of the medical school – and quite a group this turned out to be, since its members not only shaped Stanford but also science and medicine around the world for decades to come.

They included Arthur Kornberg, who brought his whole department from Washington University to found a new Department of Biochemistry at Stanford. Shortly after his arrival, Dr. Kornberg won the Nobel Prize, creating immediate notoriety for Stanford. Dr. Joshua Lederberg was recruited from Wisconsin to found a new Department of Genetics. His decision to join Stanford was influenced, in part, by the fact that Kornberg had come to Stanford – and, since Lederberg had won a Nobel Prize in 1958, the newly “re-founded” school had two Nobel Laureates among its newly burgeoning faculty. Other important leaders who soon joined Stanford included Drs. Norm Kretchmer, who came from Cornell to lead Pediatrics, Hal Holman from Rockefeller University to lead Medicine, Robert Chase from Yale to lead Surgery and David Hamburg from the NIH to lead Psychiatry. Henry Kaplan and Avrum Goldstein, both of whom came from the San Francisco campus, along with a young surgeon, Norman Shumway, joined this remarkable group of leaders. Each of these individuals had remarkable careers in his own right, and both individually and collectively they helped shape the culture and fabric of Stanford Medicine as we know it today.

As is also well known, history runs in cycles and, not infrequently, issues seem to recur – sometimes more than once. Today, as we celebrate Fifty Years of Stanford Medicine in Palo Alto, controversy has again emerged around the plans to renew and expand the clinical facilities at Stanford Hospital & Clinics and the Lucile Packard Children’s Hospital – both of which have evolved considerably during the past 50 years. While the community in Palo Alto and beyond recognizes the unique importance of these medical facilities to their community and their own families, the Palo Alto City Council has seemed to do everything possible to derail the plans for moving forward with exciting new hospital facilities that would surely shape the future of medical care for decades to come. The current City Council of Palo Alto seems to be out of sync with the community and, worse, to have a need to layer the currently already extraordinarily expensive projects with requests that have little to do with the proposed plans. I won’t go into all the details here except to say that, not unlike some of the voices of the past, were those of the City Council to prevail, the future of Stanford Medicine would be negatively impacted and the benefits that would otherwise accrue during the decades ahead could be lost or severely diminished. Amazingly, even suggestions that the hospitals should be relocated to another site have once again found their way to the agenda.

This brings me back to the beginning of this story and our 50 Year Celebration. It was the courage and vision of a small handful of leaders – especially President Wallace Sterling and members of the Board of Trustees – who despite opposing forces made what in retrospect was the extraordinary decision to co-locate the School of Medicine and Medical Center into an integrated complex housed on the University campus. That same courage and vision today will sustain what has made Stanford Medicine unique and successful and will provide a home for future innovation and discovery, the education and training of leaders in science and medicine, and the translation of knowledge from research to the benefit of adults and children locally and globally. Sustaining the core values that has brought us to this momentous juncture in history will assure that Stanford Medicine will continue to be a beacon of hope and excellence well into the 21st Century.

Tributes to the 2009 Dean’s Medal Recipients

We were fortunate to have three distinguished members of the Stanford community introduce each of our 2009 Dean’s Medal recipients. Stanford’s President John Hennessy introduced Mr. Lorry Lokey; Professor of Biochemistry Emeritus Paul Berg introduced Dr. Robert Glaser; and Stanford President Emeritus and Professor of Biological Sciences Emeritus Donald Kennedy introduced Dr. Crowley. In their remarks they highlighted the many accomplishments of the awardees – which are also described below – but, more than that, they conveyed their deep respect, gratitude and abiding affection for these remarkable individuals.

- *Dr. Berg remarked of Dr. Glaser, “there is no more worthy a recipient [of a Dean’s Medal] than Dr. Glaser.” He went on to praise Dr. Glaser’s negotiating skills, his ability to solve problems “with great skill, forbearance and*

persistence,” his prolific scholarship, and his “lifetime of achievement to the University, to medicine and [to] the nation.”

- *President Kennedy described Dr. Crowley as a “peacemaker... a negotiator... an imaginative renovator of relationships...a resolver of new challenges... a family guy,” and, finally, as “one of the earth’s truly splendid people.”*
- *President Hennessy highlighted Mr. Lokey’s extraordinary generosity, not only to Stanford University and specifically the School of Medicine, but also to other institutions in other states. “Mr. Lokey is a visionary, he said, who understands key issues and whose farsightedness is a hallmark of his endeavors. He concluded by saying: “John F. Kennedy said, ‘we need men who can dream of things that never were’ – certainly Lorry Lokey is such a man.”*

We are deeply appreciative of all that Mr. Lokey and Drs. Glaser and Crowley have done for the School of Medicine – and for the world.

The citations for the Dean’s Medals Awardees follow:

Robert J. Glaser, MD

Robert J. Glaser, MD, professor emeritus of medicine, is presented the Dean’s Medal in recognition of his many years of leadership and service to the School of Medicine, as well as his numerous achievements in medicine and longstanding commitment to medical education.

Dr. Glaser was born in St. Louis, Missouri, on September 11, 1918. He was inspired to begin a career in medicine after spending a significant portion of his childhood in and out of hospitals due to congenital health issues. He received his MD, magna cum laude, at the Harvard Medical School in 1943, and went on to train in Internal Medicine at Barnes Hospital in St. Louis and the Peter Bent Brigham Hospital in Boston, Massachusetts.

He began his career as a National Research Council Fellow in the Medical Sciences, Washington University, studying experimental Group A streptococcal infections and their link to rheumatic fever. Dr. Glaser’s extensive research in this area built an important understanding for him of the link between the basic sciences and the possibility of groundbreaking medical discoveries. When he moved to the University of Colorado in 1957 as Vice President for Medical Affairs, Dean of the Medical School, and professor of medicine, he carried this belief with him, and was instrumental in raising the bar on the quality of the faculty in basic sciences and other areas, as well as securing the funding for a new teaching hospital. He continued his career in administration from 1963 to 1965 as President of the Affiliated Hospitals Center, a consortium of Harvard teaching hospitals, and Professor of Social Medicine, moving to Stanford in 1965 as Vice President for Medical Affairs and Dean of the School of Medicine.

While at Stanford, Dr. Glaser played an integral role in interfacing with the city of Palo Alto to purchase their owned shares in the hospital, thereby making possible the development of Stanford Hospital & Clinics as a key part of Stanford Medical Center. During his tenure, Dr. Glaser also completed a comprehensive master plan for the School of Medicine, as well as building and strengthening academic programs throughout the school.

Dr. Glaser has also had a great impact on philanthropy through his leadership efforts with three medically oriented foundations: the Commonwealth Fund, the Henry J. Kaiser Family Foundation, and the Lucille P. Markey Charitable Trust. He has also served as a member of the Board of Trustees at the David and Lucile Packard foundation and the Packard Humanities Institute, and been a valued member of this community in many ways.

Lawrence G. Crowley, MD

Lawrence G. Crowley, MD, professor emeritus of surgery, is presented the Dean's Medal in recognition of his leadership contributions to Stanford University, the School of Medicine, and to the community as a whole.

Dr. Crowley was born in Newark, New Jersey in 1919, and received both his BA and MD from Yale University. He completed his residency in General Surgery at the Yale-New Haven Hospital, and had his first teaching position as an assistant professor of Surgery at Yale Medical School before moving on to spend ten years as a part-time assistant clinical professor of surgery at the University of Southern California School of Medicine (USC).

While at USC, Dr. Crowley managed to juggle his position at the university with a private practice in surgical oncology along with numerous community projects. His most notable community contribution was to Casa Colina, a former Polio rehabilitation facility. After polio was eradicated by the development of a vaccine by Jonas Salk in the early 1950s, Dr. Crowley worked with the board and persuaded them to broaden their services to care for patients of all ages with all kinds of physical injuries and disabilities. Casa Colina has been recognized throughout the nation as the first to introduce many of the modalities that are implemented in rehabilitative care today, as well as the first rehab center to offer a complete range of care for those with brain injuries and other neurological trauma.

Dr. Crowley first came to Stanford as professor of surgery in 1964, and left to become dean of the University of Wisconsin School Of Medicine from 1974 to 1978. He returned to Stanford as acting dean of the medical school, and in 1979 was appointed vice president for medical affairs at Stanford. Of his many contributions to the medical center, his efforts as a champion of the new

children's hospital are some of the most significant. Dr. Crowley and Lucile Packard both felt that the time had come to replace the Stanford Convalescent Home with a more advanced facility for children's care, particularly since the types of diseases affecting children now required far more than rest and recuperation. Dr. Crowley also argued strongly to attach the children's hospital to the existing Stanford University Hospital, rather than rebuilding on the original site of the convalescent home. During the last decade, the Lucile Packard Children's Hospital has grown to become one of the leading centers of excellence in pediatric medicine and surgery, and Dr. Crowley's foresight was instrumental in the success of this important partnership.

Dr. Crowley's other honors include the Certificate of Merit from the American Cancer Society and a Stanford University Distinguished Service Award, and the Lawrence Crowley, MD Endowed Professorship in Child Health was named in recognition of his contributions to Stanford.

Lorry I Lokey, '49

Lorry I. Lokey, '49 is presented the Dean's Medal in recognition of his humanitarian, philanthropic and leadership contributions to Stanford University, the School of Medicine, and the community at large.

Lokey, a native of Portland, Oregon, graduated from Stanford in 1949 with a degree in journalism and credits the university with jumpstarting his career. As a student, he started as a cub reporter for the *Stanford Daily* and eventually went on to become the editor, sparking a lifelong passion for reporting.

After graduation Lokey went to work at United Press (which later became United Press International), one of the country's major wire services. After a series of jobs in newspapers and public relations, he got the idea to start a new kind of wire service where, instead of going out and getting the news, the news would come to him.

He launched Business Wire in San Francisco in 1961 with \$2,000 of his own money. It quickly grew to become a news industry powerhouse, now distributing an average of 17,000 corporate and academic press releases a month. When Lokey sold the business in 2006 to Berkshire Hathaway, a company controlled by investor Warren Buffett, it was valued at roughly \$500 million.

A dedicated supporter of teaching and science, Lokey has donated roughly \$300 million to various educational institutions, including Stanford, the University of Oregon, Mills College in Oakland, the Technion-Israel Institute of Technology in Israel and his elementary school in Oregon.

He has recently made significant investments in science and biotechnology, believing they may offer the tools to put an end to major human ailments, such as heart disease and cancer. After the Bush administration limited federal funding for stem cell research in 2001, discouraging the study of these potentially powerful cells, Lokey turned his attention to this cutting-edge field.

Lokey's contribution to the School of Medicine—its largest single gift to date from an individual—has launched construction of the Lorry I. Lokey Stem Cell Research Building, a new stem cell laboratory facility on campus where scientists will probe the power of these elusive cells in treating conditions as diverse as cancer, stroke and diabetes. His generosity and commitment to this project speak to his personal conviction that stem cell research is incredibly important and that he wants to do all he can to help support its development—at both a basic and an applied level.

Five Years for the Stanford Cancer Center

On June 4th Martha Marsh, CEO of Stanford Hospital & Clinics, and I hosted a reception to celebrate the five -year anniversary of the opening of the Stanford Cancer Center. This event provided an opportunity to thank the many members of our community, both faculty and staff, who have contributed to the success of the Cancer Center. As a facility it provides state- of- the-art patient care in a compassionate, comforting and caring environment. But we also acknowledged that the treatments offered at the Center are – and will continue to be – shaped by the innovations and discoveries that our faculty make in understanding cancer and in developing new approaches to its diagnosis, treatment and prevention. This is where we excel. We also acknowledged the important milestone the Cancer Center achieved three years ago in becoming an NCI-Designated Cancer Center as well as the recent submission of our reapplication for this designation by our Cancer Center Director, Dr. Beverly Mitchell, the George E. Becker Professor in Medicine.

I want to acknowledge and express my appreciation for the important partnership the School of Medicine has had with the Stanford Hospital and Clinics at the Stanford Cancer Center and also to thank the wonderful contributions of our faculty and staff for the work they do to create knowledge and help patients facing the challenge of cancer.

Dr. Linda Clever Named Associate Dean for Alumni Affairs

I am very pleased to announce that Dr. Linda Clever will become Associate Dean for Alumni Affairs in September 2009. She will succeed Dr. Ross Bright, who has served admirably for more than 17 years. I would like to thank Dr. Bright for his extraordinary service to the School and Medical Center. During his tenure, the Alumni Association has become more inclusive– it now includes graduates of the MD, Masters, PhD and post-doctoral programs along with graduates of our training programs at Stanford Hospital and Clinics and the Lucile Packard Children's Hospital (see: <http://med.stanford.edu/alumni/>). Dr. Bright also championed and led the development of

a publication for alumni – *Bench & Bedside* – that has already generated a positive response and considerable interest from our alums. I am deeply appreciative of his many efforts and know they will shape the Alumni Association for many years into the future.

Dr. Linda Clever is well poised to succeed Dr. Bright as Associate Dean for Alumni Affairs. She has been an active and enthusiastic member of the Board of Governors and has a long history of highly productive interactions with the School as well as its students and faculty. Dr. Clever is a graduate of Stanford University and the Medical School and is Board Certified in Internal Medicine and Occupational Medicine. She has served prominently in the American College of Physicians, including service as Chair of the Board of Governors and Regent. She has been elected to the Institute of Medicine of the National Academy of Sciences and has served on numerous boards including the Stanford University Trustees. In addition to her many professional and personal activities, Dr. Clever's special interests include personal and organizational renewal, health care and the occupational health of women and health care workers. She brings considerable and notable skills as a leader in medicine and health care along with a deep commitment to Stanford, and I am pleased to welcome her as our Associate Dean for Alumni Affairs.

Another Warning About Protecting Patient Confidentiality

On May 15th the LA Times reported that the Kaiser Bellflower Hospital was fined \$250,000 for failing to keep employees from accessing the medical records of the mother who gave birth to octuplets in January (see: <http://www.latimes.com/news/local/la-me-privacy15-2009may15,0,2916906.story>). This is related to the two new laws aimed at protecting patient privacy and data security that I alerted you to in the December 15th Dean's Newsletter. Failure to comply with these laws can result in individual as well as institutional fines ranging between \$25,000 and \$250,000. Based on some recent observations I fear I need to call this your attention again, and I cannot underscore more strongly how important it is to heed these regulations.

Specifically, privacy of patient information is central to the care that we provide at Stanford. You cannot access any patient record unless you have treatment responsibilities for the patient or you have another permissible need to know (such as supervision of your residents or quality-of-care reviews). ***This applies whether the individual is a friend, a colleague or even a family member; it is mandatory that you have either specific documented permission or a treatment related need to know before you access the record.***

Both LPCH and SHC have increased their monitoring of access to patient records as a result of new federal and state mandates. As you know from my prior reports, under the new state law, if the Hospitals detect impermissible access to patient information, they are required to report it immediately to the State and to the affected patient(s), even if the person who accessed the record does not tell anyone else but viewed the record without a permissible reason. New federal law extends these reporting requirements to the School of Medicine (and any other part of the "HIPAA Covered Entity");

accordingly, privacy and security breaches will also need to be reported to the U.S. Department of Health and Human Services and to the affected patient(s). These laws are designed to increase the transparency of the practices of both institutions and individual health care providers, and, when a breach affects numerous patients, we will be required to report it to the media.

As I have noted, both federal and state authorities have new enforcement powers and can impose substantial penalties on both institutions and individuals, and state law permits patients to sue directly for a privacy breach – as is being done to the Kaiser Bellflower Hospital. Indeed, the State Department of Public Health is enforcing this authority, and in May, it imposed a fine of \$250,000 (the maximum) for failing to prevent inappropriate access to a patient's records. It also referred the matter to the state privacy office (California Office of Health Information Integrity) to determine if penalties will be imposed on the individuals involved.

If you have any questions about permissible access to patient information, please review the HIPAA privacy policies (found at http://hipaa.stanford.edu/policy_manual_university.html) or contact Dr. Todd Ferris, School of Medicine Privacy Officer (tferris@stanford.edu).

Professional Development Programs for Clinician/Educators

Dr. David Stevenson, Vice Dean and Senior Associate Dean for Academic Affairs, has let me know that the Clinician-Educator Professional Development Leave Program becomes available for use on July 1, 2009. A Clinician-Educator is eligible to participate in the program if he/ she is appointed as a Clinical Assistant Professor, Clinical Associate Professor or Clinical Professor and his/her percent time of appointment (also referred to as full time effort "FTE") is 50 percent or more and his/her term of appointment is for six months or longer. Further information about the program and the relevant documents for its use are posted on the Office of Academic Affairs' web site at http://med.stanford.edu/academicaffairs/C~E_Benefits.html.

In addition to the Professional Development Leave Program, benefits-eligible Clinician-Educators (i.e., those with appointments of fifty percent time or more and with terms of appointment of six months or longer) are also eligible to take five working days per year of paid conference leave. Information about this leave can also be found at the Office of Academic Affairs web site, http://med.stanford.edu/academicaffairs/CEs/CE_benefitsSummary.pdf.

If you have questions concerning these programs, please contact Jane Volk-Brew in the Office of Academic Affairs, volkbrew@stanford.edu or (650) 862-3971. Questions regarding reimbursement for the Professional Development Leave should be directed to Sue Kingston in Faculty Compensation, skingston@stanford.edu or (650) 736-8544.

I encourage Clinician-Educators to inform themselves of these opportunities and

to take advantage of them. Clinician-Educators are a key faculty group in advancing the mission of the School of Medicine, and their professional development is an important priority for the School - and for me.

The Department of Biochemistry's Update to the Executive Committee

On Friday, June 5th, Dr. Mark Krasnow, Professor and Chair of Biochemistry, provided an update on the department – a brief summary of which follows:

Fifty years ago this month, Arthur Kornberg, Paul Berg, Dave Hogness, Dale Kaiser, Bob Lehman, Mel Cohen and other members of the Medical Microbiology Department at Washington University moved here along with Buzz Baldwin from the University of Wisconsin to establish the Stanford Biochemistry Department. One of the key factors contributing to the success of the Department is the collegiality and friendship, and the remarkable stability of the faculty. With the exception of Mel Cohen who left early to found the Salk Institute, the founding faculty have remained together for their entire careers until Arthur's passing two years ago at age 89. And, in the entire 50 year history of the Department, only five of our 22 faculty have left. There are currently 10 full time faculty and five active Emeritus faculty, with \$21M grants (direct costs). We also have six affiliated faculty who greatly enrich our intellectual environment and teaching: Gil Chu, Jim Ferrell, K.C Huang, Chaitan Khosla, Sharon Long, and Raj Rohatgi. There are 65 graduate students and 45 postdoctoral scholars in the Department, plus the Stanford Genome Technology Center, Stanford Microarray Database, and Stanford Functional Genomics Facility.

Six months after he arrived to Chair the new Department, Kornberg, at age 40, received the 1959 Nobel Prize in Physiology or Medicine for his pioneering work on the biological synthesis of DNA (shared with Severo Ochoa for RNA synthesis). The arrival of Arthur and new Department helped recruit Josh Lederberg, who had won the same Nobel the previous year, to found the Genetics Department. This thrust the new Departments and Stanford Medical School into national prominence, setting the stage for a remarkable 50 years of progress that transformed the Department, School and all of biomedical research. In addition to two Nobel Prizes, two Lasker Awards, and two National Medals of Science, nine of the 10 members of the Department age 55 and older have been elected to the National Academy of Sciences, an unparalleled record.

Each decade has been highlighted by a different research theme, alternating between basic discovery and technology. The 1960's were dominated by nucleic acid enzymology, culminating in 1967 in the enzymatic synthesis in vitro of an infectious phage by the Kornberg lab, which newspapers hailed as "creation of life in a test tube." That same year the Lehman lab reported the discovery of an

enzyme that could link DNA chains by phosphodiester bonds. Availability of DNA ligase and other nucleic acid enzymes set the stage for the recombinant DNA revolution of the next decade.

The recombinant DNA revolution was launched by two papers by the Berg and Kaiser groups in 1972 and 1973 that reported the first recombinant DNA methods and molecules. The development of many other methods of recombinant DNA technology followed including isolating genes by screening genomic libraries and mapping genes on chromosomes (Hogness lab), expressing recombinant gene products (Berg lab), and Northern blots for RNA and Western blots for proteins (Stark lab). At the end of the decade, Ron Davis and collaborators including David Botstein (who would later join Stanford as Chair of Genetics) described a method for construction of a genetic linkage map in humans using restriction length polymorphisms, laying the conceptual foundation for mapping and identification of human disease genes and current Genome Wide Association Studies. At the end of the decade, Paul Berg received the Nobel Prize in Chemistry for his studies of the biochemistry of nucleic acids, with particular regard to recombinant DNA (shared with Wally Gilbert and Fred Sanger for DNA sequencing). Although the 1970's were dominated by technology development, there were also many crucial basic biochemical discoveries including the isolation of the recombination enzyme RecA by the Lehman lab and identification of protein folding intermediates by the Baldwin lab that helped launch the DNA recombination and protein folding fields.

The 1980's saw the application of recombinant technology to biochemistry, genetics and virtually all biomedical fields, transforming basic biomedical science departments and blurring the boundaries between them. The Hogness lab opened the molecular biology of development and molecular biology of human color vision, the Kaiser lab pioneered the molecular biology of microbial motility and development, and the Brutlag lab pushed into bioinformatics. Hogness obtained a Markey grant to found the Department of Developmental Biology, and Berg lead the vision and fundraising for the Beckman Center for Molecular and Genetic Medicine. Although many in the Department veered far from Kornberg's love of enzymes and original vision for the Department, Jim Rothman, Suzanne Pfeffer, and their colleagues started the enzymology of vesicular trafficking and intracellular protein transport that transformed the field of cell biology.

The 1990's were highlighted by two technological revolutions. One was the application of laser traps and optical tweezers to biomolecules such as the myosin molecular motor by Jim Spudich and Steve Chu (Applied Physics Department) and their colleagues. This opened the field of single molecule biochemistry, and lead them to found and initially lead the Clark Center and Bio-X program, which bridged the medical school and rest of the campus. The other revolution was the invention of DNA microarrays by Pat Brown and colleagues, and their application to study gene expression with Ron Davis and colleagues. This activated the field of functional genomics and systems biology, and lead Ron to found the Stanford

Genome Technology Center with its 75 scientists and \$7M budget, and Pat Brown and collaborators to establish the Stanford Functional Genomics Facility and Stanford Microarray Database to store and distribute the technology and hordes of data that derive from such studies.

This decade has seen the application of the new technologies to many fields including microarrays and cancer and microbiology (Brown lab and collaborators), development (Krasnow, Davis and collaborators), and RNA binding proteins (Brown and Herschlag labs), and single molecule studies of RNA catalysis and folding (Herschlag lab and collaborators). It also saw a move of the Department into new and ever more complex areas of biochemistry and biology, including centromere/kinetochore assembly and chromosome segregation (Straight lab), the biophysics of cell movement and cell shape (Theriot lab), and the program of lung development (Krasnow lab). This pull of the Department into these challenging new areas far from classical biochemistry concerned Arthur, and several in the Department have also been concerned of the longer term consequences of students losing sight and interest in these classical approaches at a time when those approaches and level of analysis would soon become paramount again.

That time appears to be now. Genome-Wide Association Studies (GWAS) throughout the country and world in the past two years have initiated a revolution in human disease gene mapping. Over 250 new disease susceptibility genes have been identified. Studies to date have identified only a small portion (typically 5-10%) of the genes involved in the specific diseases studied, with many of the others likely to come in the near future by larger and more detailed studies including full genome sequencing, and many more to come from diseases not yet studied in this way. Some of the identified genes were previously implicated in the disease. However, most of the identified genes were not previously implicated. Some immediately suggest new hypotheses for disease pathogenesis and targets, but in many cases the identified genes have no known function. How are we going to set out understanding disease gene products that have no known function? That will involve a Back to the Future return to basics including classical enzymology to understand and characterize their biochemical functions and cellular and physiological functions. This revolution in human disease gene mapping will break down the final barriers between the basic and clinical sciences, just as recombinant DNA revolution broke down the barriers within the basic sciences during the past three decades. Basic scientists and clinicians will depend on each other during the next decades like never before.

The newly identified genes will provide new insights into the pathogenesis of human disease and new ways to diagnose and classify diseases and identify individuals at risk. They also provide new targets for drug therapies to treat the disease. These new targets come at a critical time for the pharmaceutical industry because despite the huge increasing investment in drug discovery, which exceeded \$25B in 2002, there has paradoxically been a continuously decreasing

number of new molecular entities approved (excluding the "me-too" drugs, minor modifications of existing drugs): less than 20 in 2002. Drug company chemical libraries are composed of hundreds of thousands of compounds, which depending on the assay can take days, weeks, or even years to screen to identify a compound of interest. But these libraries typically don't have enough diversity for the discovery of compounds with the target affinity and specificity necessary for an effective drug. What is needed is a library many orders of magnitude bigger and more chemically diverse than existing libraries, any many orders of magnitude faster ways to find the rare compound with the desired properties. Pehr Harbury and colleagues have come up with an ingenious way to do so, one that can be carried out by individual labs and scientists. It is based on the "DNA display" technology they described in 2004 in which chemical compounds are synthesized on DNA molecules that carry the information for the synthesis of the linked compound. This enables a rare molecule selected from the library to be amplified for chemical characterization or for additional rounds of selection. Their current library has 2×10^{10} billion compounds, five orders of magnitude larger than pharmaceutical libraries. This library can be rapidly screened for molecules that bind a particular target protein, or even a particular variant of the target, an important step towards personalized medicine. This technology is poised to transform the pharmaceutical industry, and could be the dominant technology of the next decade. Another important technology is being developed by our newest faculty member, Rhiju Das, and colleagues. They are using high throughput analytical approaches combined with computation to discover how sequence encodes the 3D structure of proteins, RNAs, and heteropolymers; such high throughput approaches may someday reveal the 3D structure of all RNAs and proteins encoded by the human genome.

A special aspect of our Department and important factor in our Department's success is the sharing of space, equipment, reagents, and especially ideas and technologies. Lab space is shared equally among all labs, and trainees are interspersed in lab rooms, facilitating social and scientific interactions and providing great opportunities for collaboration and synergy. Interactions are also encouraged through our annual retreat at which all faculty and trainees present their research to the rest of the Department, a bimonthly journal club with a student and faculty presenter, a regular seminar series of outside speakers, and a weekly meeting of the faculty to share recent research results and ideas. There is also a dominant spirit of sharing beyond the Department, such as the unfettered sharing of methods including recombinant methods and microarray technologies, and the establishment of the Public Library of Science journals by Pat Brown with Mike Eisen and Harold Varmus to facilitate rapid sharing of discoveries and data.

Teaching and training is a major interest and effort of the Department. We teach several required core classes for both first year medical students and first and second year graduate students, and many more specialized elective classes and some classes for undergraduates. There are many outstanding teachers including Kaiser Teaching Award winners Paul Berg, Gil Chu, Dale Kaiser, and Julie

Theriot. Three innovations for this year are: (i) a plan to incorporate a teaching lab including personal genotyping of first year medical students to help prepare for the upcoming revolution in personal genomics; (ii) a Biochemistry Consulting Service (like the Apple store "genius bar") in which students are presented with requests for advice from Stanford faculty and students encountering experimental and analytical problems in their research, and then work with biochemistry faculty to propose solutions; (iii) a week long "boot camp" for incoming graduate students to teach them methods in biochemistry, cell biology, and mathematics. Our most important teaching is the in-lab teaching of graduate students and postdoctoral fellows. We have been fortunate to have attracted an outstanding group of students and postdocs over the past fifty years, and are extremely proud of the success they have achieved in the Department and in their illustrious careers beyond. Many returned last fall to celebrate our 50th Anniversary Symposium, chaired by Suzanne Pfeffer and capped by a dinner at Frost Amphitheater attended by nearly 500, with entertainment by Jim Ferrell's band.

We are committed to increasing diversity in our Department and beyond. This year, under the leadership of Suzanne Pfeffer, we established the Stanford Biochemistry Founders' Award for Doctoral Excellence. The annual Award recognizes outstanding achievement by doctoral scholars as part of our commitment to advancing gender diversity in biochemistry and molecular biosciences. The annual Award also honors the contributions of our Department's founders. The four recipients (Jan Pawlicki, Shana Topp, Brooke Rosenzweig, and Lani Keller) were selected from a nationwide solicitation on the basis of quality, originality, and significance of their work, and hosted here for a symposium and celebration on May 22, where we got to know them and introduced them to our Department and Stanford. We plan to mentor them and hopefully recruit some to Stanford later in their careers.

Update on the Palo Alto VA

At a recent Executive Committee meeting, Dr. Larry Leung, Maureen Lyles D'Ambrogio Professor and Chief of Staff at the Palo Alto Veteran's Administration Hospital, provided the following brief update that I hope will be of interest to you.

Last year, the VA Palo Alto Health Care System (VAPAHCS) cared for more than 55,000 veterans -- from ages 19 to 104. Young amputees from Iraq and Afghanistan, Vietnam Veterans and POWs from World War II walked through the health care system's doors and were treated by Stanford affiliated doctors, residents and fellows. Research conducted at VAPAHCS and at Stanford University has helped these men and women in ways that only a few decades ago would have seemed impossible.

In addition to the 300-bed, acute care hospital at Palo Alto, the health care system also has inpatient divisions at Livermore and Menlo Park and six (soon to be seven) community based outpatient clinics from Monterey to Sonora. Only a handful of hospitals in the world provide the level and variety of specialty care

that is available to veterans including a Polytrauma Rehabilitation Center, traumatic brain injury program, two residential post traumatic stress disorder (PTSD) programs, a 41-bed spinal cord injury unit, the Western Blind Rehabilitation Center, a national teleradiology center, a War Related Illness and Injury Center and numerous others.

Other facts about VAPAHCS:

- Approximately 90 UTL/MCL/Research faculty members, most full-time, are based at VAPAHCS with representation from virtually all Stanford clinical departments (except pediatrics). Several hold division chief or significant administrative appointments at Stanford in addition to their VA appointments. Joint recruitments of faculty have included appointments in biostatistics, medicine, neurosurgery, orthopedics, pathology, psychiatry, surgery and urology.
- VAPAHCS hosts a robust and diverse research program, which last year received more than \$51 million to support research centers in geriatrics, mental health, health services (treatment effectiveness and clinical decision making), rehabilitation (Bone and Joint Center) and a Cooperative Studies Program Coordinating Center (management of VA multicenter clinical trials).
- There are two NIH Director's Pioneer awardees based at VAPAHCS, Dr. Thomas Rando (Neurology), and Dr. David Relman (Medicine), and one Crafoord Award winner, Dr. Eugene Butcher (Pathology).
- VAPAHCS shares residency and fellowship training programs with Stanford and funded 140 resident slots last year.
- VAPAHCS has more than \$1.4 billion in the pipeline for major construction projects. New buildings on the Palo Alto campus alone include an acute care psychiatric facility (2010), an ambulatory care center (2012), a Polytrauma and blind rehabilitation center (2012) and a basic science research facility (2013).

VAPAHCS is rated as one of the most complex and best performing VA facilities in the nation and is universally recognized as a flagship hospital for our veterans. Stanford University plays a big part in that and should be proud of its role in providing world-class medical care, research and mental health care to those men and women who deserve nothing less than the best.

2009 McCormick Faculty Awards Accepting Applications

The Office of Diversity and Leadership of the Stanford University School of Medicine invites applications for the 2009 McCormick Faculty Awards. The McCormick Funds were established to support the advancement of women in medicine and/or medical research directly, or by supporting the mentoring, training and encouragement of women pursuing the study of medicine, in teaching medicine, and engaging in medical research. Awards are unrestricted and will be for \$30,000 per year for two years. The committee expects to make three awards each year. Proposals should be submitted electronically to Jennifer Scanlin in the Office of Diversity and Leadership at: jscanlin@stanford.edu by 5pm on August 31, 2009. Further information can be obtained at: http://med.stanford.edu/diversity/faculty/09mccormickcall_apps.html

Skills Building Workshops

Thursday, June 18, 2009

5:30 – 7:30 pm

Alway Building M112

The Office of Diversity and Leadership and the Office of Academic Affairs is pleased to offer a workshop on the “Reappointment and Promotion Process in the Clinician Educator Line.” The workshop will be offered on Thursday, June 18th, 2009, from 5:30 to 7:00pm in the Alway Building, M-112 <http://campus-map.stanford.edu/index.cfm?ID=07-307>. This workshop will present information and discussion about the reappointment and promotion review process. Topics to be covered include: Clinician Educator reappointment and promotion criteria, the A & P Process, the candidate’s evidentiary contributions to the recommendation file and the Clinician Educator professional development leave program. This workshop will be interactive, with panelists responding to questions from participating faculty. Attendance is limited to the first 60 individuals to register.

If you are able to attend, please register for this workshop at this link:

<http://reggie.stanford.edu/signup.asp?2290>. For upcoming workshops please visit our website at <http://med.stanford.edu/diversity/>

Awards and Honors

- *Dr. Stanley Falkow*, the Robert W. and Vivian K. Cahill Professor, added another honor to his long list of accomplishments on May 22nd when he was awarded an honorary degree from the University of British Columbia, Vancouver, Canada. Congratulations to Dr. Falkow!
- *The Stanford School of Medicine’s Office of Communications & Public Affairs* has won five medals in the national competition sponsored by the Council for the Advancement and Support of Education (CASE). These included a gold medal for the Office’s for the offices news releases along with four silver medals. This is a

great tribute to the leadership of Paul Costello, Director and the excellent staff who comprise the Office of Communications and Public Affairs.

- ***Dr. Shreyas Vasanawala***, Assistant Professor of Radiology and Co-Director of Pediatric MRI at Lucile Parkard Children's Hospital, and his collaborators, were awarded the Caffey Award for Outstanding Basic Science Research Paper at the annual meeting of the Society for Pediatric Radiology in Carlsbad, California on April 24, 2009. His collaborators included Marcus Alley, PhD; Richard A. Barth, MD; Brian Hargreaves, PhD; John Pauly, PhD; and Michael Lustig, PhD.
- ***Dr. Thomas Krummel***, Emile Holman Professor and Chair of the Department of Surgery, Susan B. Ford Surgeon-in-Chief at LPCH, and Professor, by courtesy, of Cardiothoracic Surgery, has received the "Outstanding Achievement in Medicine Award" from the Santa Clara County Medical Association at an awards ceremony held on June 2nd at the Fairmont Hotel in San Jose, CA. This award is given to a physician member of the Association who, during his/her medical career, has made unique contributions to the betterment of patient care, for which he/she has achieved widespread recognition.

Congratulations to all!