

# Dean's Newsletter

June 17, 2002

## Special Commencement Issue

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On Sunday, June 16 , Graduation Exercises were held for Stanford University and for the School of Medicine. In addition to the University Commencement Ceremony, the School of Medicine held its own celebration and diploma-awarding event on the Dean's Lawn on Sunday afternoon. This year, the School presented 37 Master of Science degrees, 72 Doctor of Philosophy degrees and 92 Doctor of Medicine degrees. Among these, students received combined degrees, including nine MD/PhD degrees, two MD/Master degrees and one MD/MBA.

We all join together in extending our personal congratulations to each and every graduate and to their parents, families and friends. What a wonderful accomplishment by all.

### **Faculty Awards**

In addition to congratulating our students for their accomplishments, commencement is also a time to honor faculty who have made significant contributions to their education. Accordingly, I am pleased to list the teaching awards that were announced at the School of Medicine Commencement.

#### **The Arthur L. Bloomfield Award: In Recognition of Excellence in the Teaching of Clinical Medicine**

James Baxter, Medicine  
John J. Jernick, Family Medicine  
Erika Schillinger, Family Medicine

#### **The Henry J. Kaiser Family Foundation Award: For Outstanding and Innovative Contributions to Medical Education**

James Hallenbeck, General Internal Medicine

#### **The Henry J. Kaiser Family Foundation Award: For Excellence in Preclinical Teaching**

Neil Gesundheit, Medicine  
Seung K. Kim, Developmental Biology  
Julie Parsonnet, Health Research and Policy  
Robert Siegel, Microbiology and Immunology

#### **The Henry J. Kaiser Family Foundation Award: For Excellence in Clinical Teaching**

J. Edwin Atwood, Cardiovascular Medicine  
James Baxter, Medicine  
Sherry M. Wren, General Surgery

**The Franklin G. Ebaugh, Jr. Award: For Advising Medical Students**

Sherry M. Wren, General Surgery

**The Compassion in Medicine Award**

Elliott Wolfe, Medicine

**The Alwin C. Rambar-James B.D. Mark Award: For Excellence in Patient Care**

Michael D. Amylon, Pediatrics

**Stanford University School of Medicine Award for Graduate Teaching**

Timothy P. Stearns, Biological Sciences and Genetics

**Stanford University School of Medicine Award for Outstanding Service to Graduate Students**

Phyllis I. Gardner, Molecular Pharmacology and Medicine

Congratulations to all.

## **Address to the Graduates**

One of the traditions of the School of Medicine Commencement is a presentation by an elected member of the Graduate and Medical Student graduating class. This year, Lauren Ilyse Richie Ehrlich, graduating with a PhD in Immunology and Joel and Adeunice Sanchez Mata, graduating with MD degrees, spoke to the graduates and guests. Their remarks follow:

***Address by Lauren Ilyse Richie Ehrlich***

Let me start by saying Congratulations to my fellow graduate students of the class of 2002! We certainly did not matriculate as a single class, but we're here together at this moment to celebrate the culmination of our graduate careers. We've made it! We've made it through the bright-eyed bushy-tailed I'm going to publish at least on Science, Cell or Nature paper a year phase. We've made it through the post-qualifying exam nothing-is-ever-going-to-work-again slump phase. And we've made it through the final exhilarating phase of data collection, analysis, and thesis writing that enabled us to walk across this stage today.

But appropriately we're here at a "commencement" ceremony and not a "termination" ceremony. Even after all of these phases of graduate school, the next phase of our lives, the phase that will open our career paths, has yet to be determined. Some of us will continue in academics as postdoctoral fellows, reaching for that elusive faculty position so that we may continue to pursue basic research and train up-and-coming scientists. Some will go into industry to contribute to drug development and clinical trials. Others will enter the political arena of science advising where they may help to shape the very policy that enables us to carry out our research. And yet others will pursue myriad different careers.

Regardless of the path each of us chooses, we have the opportunity, and I would argue the responsibility to make important contributions in our fields. The last year has highlighted the importance of bio-medical research and policy in our society. From the stem cell debate and related cloning issues to increases in political and financial support for anti-bioterrorism efforts, we have seen biology-related issues enter the homes of Americans all over this country. Often it has been clear that there is public misunderstanding about the findings and promise of

biomedical research. We have been given an incredible gift: we have been given the opportunity to begin maturing as scientists at Stanford University. With that gift comes the responsibility to give something back to our society, be it in the form of additional scientific advances, political policy, or direct medical applications.

Fortunately, we have had the opportunity to learn from some of the brightest and most successful scientist in the world, who have shown us by example how to contribute both to scientific advances and to public policy. Our professors have taught our classes and led and shaped the laboratories in which we carried out our thesis projects. They have exemplified what it takes to be successful scientists. Perhaps most importantly, we have had the opportunity to learn from them as people. Many if not most of our professors have unique personality quirks that separate them from your average Joe or Jane. And for those of you who have witnessed the Microbiology and Immunology Christmas skits, you know that those quirks have not gone unnoticed. Yet these unique personality traits have often inspired us and pointed us toward what I consider to be one of the most important lessons in graduate school: a successful scientist is not one who follows meekly in the footsteps of past progress, but is rather one who pushes forward into uncharted territory. Science is not for followers (as my advisor Mark Davis has told me in the past); it is for people who are willing to take a risk, try something new, and perhaps discover something important. After all, weren't some of our most fulfilling graduate school moments those in which a new and perhaps improbable experiment actually worked? And how many of us went stubbornly forward with those experiments even though others doubted them? We are graduating today because we have learned to have the courage to think of a new question, dream up an experiment to address it, and actually carry that experiment to fruition. It is this independence and creativity, often associated with a certain amount of our own quirkiness, that our Ph.D.s acknowledge. And it is these traits that will allow us to go into our chosen careers with confidence that we can be leaders and that we can make a difference.

I think a fortune that I recently received in a cookie at the Szechwan Cafe sums up the outlook of a successful graduate student, and so I will close by paraphrasing it: We delight in doing what others proclaim can not be done.

### ***Address by Joel and Adeunice Sanchez Mata***

The excitement felt here today represents an acknowledgement of achievement and the culmination of years of learning. It represents the foundational step along the path to greater accomplishment. Today is our day to stand and be recognized. As we enter robed in formal academic regalia signifying academic success, we become part of a proud tradition of Stanford educated men and women who have pioneered discoveries and have left lasting contributions to their communities and to the lives of individual patients. We will be congratulated by friends, embraced by family members and applauded as we walk across the stage to receive our diploma. The celebration today symbolizes that we now possess the understanding, determination and compassion to be committed physicians, teachers and scientists.

Let me begin today by expressing how fortunate I am to have shared the last several years with you, peers who I consider to be the best group of medical students in the country. We have spent these past four, five and more years, learning the intricacies of medicine and how to respectfully care for others. We learned how to camp together the first days of medical school. We learned there are seemingly an infinite number of names to the vast components of the human body. We learned of the critical importance of biostatistics. We learned from Dr. Cross' kind and openhearted ways. We learned to mourn the loss of Dr. Glasgow, a great and eccentric individual and beloved Anatomy professor. We consistently experienced Dr. Wolfe's compassion; from him, we learned how to advocate and actively care for others. We have learned an approach, a style if you will, to the art medicine. We have learned where in the hospital to find free food, how to build strong relationships with Citibank and American Express and how to wipe out multiple savings accounts efficiently. We have learned to form bonds that will always tie us

together and will last a lifetime. Lastly, we have learned that all good things must come to an end.

As this day was fast approaching, we began to feel more and more nostalgic, filled with bittersweet anticipation. Our conversations invariably revert to stories of particular encounters with patients; we realized how unknowingly, patients contributed to our lives and have shaped the kinds of physicians we were becoming. These seemingly simple, largely unnoticed interactions brought with them a wealth of emotion and affirmation of why we chose this career path many years ago. It allows us to give back what others have given us. I remember one such patient.

One morning, while hurriedly following my team during morning rounds of my four-week rotation of Internal Medicine, I was assigned an elderly woman with a chronic medical condition. Upon entering the room with the team, I went to her bedside, outstretched my hand and introduced myself in a polite, yet professional manner, "Eunice Mata, medical student." "Francisca," she replied with a heavy Spanish accent and a warm smile "it's a pleasure to meet you." Although both hands held the bed sheets over her shoulders, I could see she had a stout build. She had beautiful long silver-white braids that bordered her round, dark brown Indian face. Her many wrinkles made her look much older than her seventy-two years, I thought to myself. When she smiled, her brown eyes all but disappeared into thick lines, reminding me of my own grandmother.

The rest of the team quickly introduced themselves and she was told, while team members approached from both sides of the bed, in one word "Francisca unless you have any objections we are going to examine you now." At the head of the bed, with stethoscopes drawn, we quickly positioned our instruments over the appropriate points for a thorough cardiac exam. (Place hand in air as if auscultating.) Following the attending physician's experienced lead, we re-positioned our stethoscopes every couple of seconds, tracing a cutaneous map of atria, valves and ventricles (move your hand appropriately). More concerned with moving at the appropriate time and in the right direction, I did not always give myself the opportunity to listen. I was sure I was the only medical student who had not yet learned how to do a thorough cardiac exam. Wait a moment, I thought, I think I hear something, or is it my hand moving while touching the stethoscope, me shifting position or am I applying too much pressure or not enough pressure? Is my breathing really this loud? I stopped all motion and held my breath and focused on what might be a faint woosh-woosh. In my excitement, I failed to realize that mine was the only stethoscope still touching the patient's body.

"Well, what do you think of the murmur?" asked my supervising attending.

Ok, I thought to myself, so there must have been a murmur. Avoiding eye contact, I repeated the description to the only murmur I could remember, "Ahh, 2 out of 6 systolic murmur, non-radiating, loudest at the left sternal border-I think." There was a silent pause as (place your hand up, as if auscultating). In an attempt to redirect the group's attention, I focused on repositioning my instrument. "Try listening over here," was the response as the attending moved my stethoscope to a new position (reposition your hand). "It's faint but you should be able to hear it." "Ahhhhh, ok, un-huh, now-wait, ok, I must have missed it the first time"-- a phrase I became quite familiar with when practicing physical exams with attendings.

Upon finishing the exams Francisca was told the medical plan for the day and was asked if she had any questions. She smiled. We all exchanged glances and began filing out, first the attending and next the resident. As I exited the room last, I noticed a peculiar look on her face. It wasn't until I returned later that morning that I realized that the quizzical look meant that she did not understand much of her hospital plan. As it turns out, Francisca spoke very little English and was embarrassed to tell us, so I explained the plan again in terms she could understand. Over the next couple of weeks, as expected, her hospital course gradually improved and my morning visits became a welcome part of my daily routine. Some mornings, our discussions of medical plans would stray and she would talk to me about her grandchildren and great grandchildren and

how she dreamed they would someday become doctors too. Experiences in her past reminded me of stories I'd heard passed down in my own family. Tales of how my own grandmother, Aurelia, in her mid-twenties had taken seven days to cross parts of the Sierra Madre on foot, pregnant with my uncle, Jesus, my mother, who was then 2 and her three other children.

Some mornings Francisca would cry, sometimes out of apprehension of planned invasive procedures, other days while expressing her fear and frustration regarding her medical condition. Those mornings, I would sit at her bedside, listen and hold her hands, trying to convey some sense of comfort and security.

As the weeks went by our relationship strengthened and I knew it would be difficult to say goodbye. I thought of different ways of how best to say goodbye and wish her the very best of luck. The morning of my last day as I sat at her bedside, we each expressed how much we enjoyed having become friends. Over the course of the month, I gave her the freedom to express herself fully and she allowed me to better define the kind of doctor I wanted to be. We both cried. I assured her that things were going to be okay and she would have wonderful caring doctors looking after her health. As I rose to leave, she said to me, after taking hold of my hand and holding it over her heart, "Eres mi angel", "you are my angel." For the next several days I had a smile on my face, not for the difference I had made in Francisca's life, but for the change she had made in mine.

I use this story to illustrate how seemingly commonplace, day-to-day experiences will define the way we practice medicine. Each patient gives us the opportunity to reaffirm to ourselves and to others the kind of doctor we aspire to be. Each act and interaction define the type of physician are becoming.

Poet Robert Penn Warren once said, "A poem is not a thing we see; it is, rather, a light by which we may see." Our diploma, you see, is much the same thing. Not a thing we frame and look at, it's an avenue, a ticket that allows us to serve others in constructive ways, and in turn, potentially gives tremendous meaning to our daily lives. We are now vehicles to guide others to health and well-being. Our challenge is to strengthen the health of all communities so that everyone can share in the opportunities of the 21<sup>st</sup> century.

This ceremony today really has only one purpose, to honor us, our friends and our families. With their help and support we have committed long hours to the study of medicine; they have enabled us to overcome the obstacles of frustration and self-doubt, and to experience the joy of discovery and growth. Our families give us the gift of the realization that we too can make a difference. While celebrating our accomplishments, let us celebrate and thank our parents, our teachers and our mentors; today represents an affirmation of what they have recognized and nurtured in us for many years.

Congratulations, friends. What a joyous and challenging experience it has been to share with you!

## **2002 Commencement Speaker Professor Irv Weissman**

*It is a great pleasure to introduce Irv Weissman, the Karel and Avice Beekhuis Professor of Cancer Biology, Pathology, Developmental Biology and, by Courtesy, Biological Sciences, as our 2002 Commencement Speaker.*

*Professor Weissman has been deeply interested in science, medicine and research since he was a high school student in Great Falls, Montana. Although he never forgot his Montana roots, he has also become a deeply committed member of the Stanford community for over four decades. He arrived at Stanford in 1960, just one year after the School of Medicine moved from San*

*Francisco to the Palo Alto Campus. This was a time of great excitement at Stanford Medical School, with new opportunities to align science and medicine through what was then known as the Five Year Plan. His education at Stanford Medical School shaped his career and empowered him to change the face of modern medicine.*

*Professor Weissman has had an extraordinarily distinguished career as a scientist, entrepreneur and advocate. These intersecting activities share a common thread: the quest for human stem cells both as a means to elucidate fundamental mechanisms of health and disease and, of course, as potential therapeutic tools to treat or prevent human ailments. As often happens, the quest began many years ago with fundamental questions, in this case the progenitor origin of human lymphocytes. This led to the discovery by Professor Weissman of the first human hematopoietic stem cells a decade ago. The dividend of his research is the new field of human stem cell biology. The fruits of his efforts now intersect biology, medicine, ethics, religion and politics in some ways reminiscent of the struggle surrounding Copernicus and Galileo.*

*Professor Weissman's research has been deeply respected and valued. He has won numerous accolades and awards including election to the National Academy of Sciences and just last month, he was named the California Scientist of the Year. In addition to his published research, he has founded three companies, lead numerous national advisory groups including most recently, the National Academy's Committee on Cloning, and has become a public spokesperson on stem cells and cloning. He is a world-renowned leader and advocate who is helping to shape both the science and public policies regarding stem cells and medicine. It is a great pleasure to welcome Professor Irv Weissman as our 2002 Commencement Speaker.*

## **LESSONS FROM A STANFORD MEDICAL EDUCATION** **Irv Weissman, MD**

Thirty seven years ago I sat where you now sit, having just finished a 5 year medical education in lock-step with my classmates. A few months before I had decided to take a less-traveled road (I was the only one in my class) and finish my formal clinical training to enter a career of biomedical research. I could not have made that informed choice had I not decided to apply to the new, unique 5 year MD program that Stanford instituted upon it's move from San Francisco to join the rest of Stanford University. Stanford was the only medical school to which I applied, because Stanford was unique in offering a curriculum that allowed students the time and the opportunity to explore all that a great university and medical school have to offer, and therefore to find their special talent. The lessons I picked up on the way, only a few from the formal classes, have stuck with me, as have my associations and collaborations with my Stanford fellow travelers. I loved the clinical years in med school, both for the patient contact, and more importantly, how the desire to treat patients well and rationally forced me to read more deeply, and to try to understand the diseases we were treating largely empirically. But I knew that empiricism would not keep away my growing frustration that we didn't know enough to advance treatments from knowledge of disease mechanisms. So I chose a career in biomedical research, and learned many lessons on the way. I hope today to pass on the lessons I've learned, and how the lessons learned might help you to find or use your talents as well.

I have spent 46 years directly engaged in biomedical research, starting in a small transplantation genetics lab in Great Falls, Montana. I have been an immunologist, and cancer biologist, and for the past 15-20 years a stem cell biologist deeply involved in biomedical science and medical translation. As time has gone by I am increasingly in awe of the complexity and efficiency of nature and of organisms like us. Let me be clear this is no mystical or religious view, but one grounded in the context of the view that the human body is a result of hundreds of millions of years of evolution. While I have heard repeatedly many distinguished scientists, usually near the end of their career, say that we know so much (in 1962, or 1976, or 1990, etc) that all the rest will be only dotting i's or crossing t's. **I couldn't disagree more.** I am firmly of the view that we are just now at the beginning of exploring how the body develops, functions, and what happens when

it malfunctions. It is you, not my generation, that will have the greatest opportunity to unlock the great secrets of health, the mind, and disease, and how the body regulates itself, regenerates its components, and simply endures. Imagine, I am a 62 year old man driving a 4 year old car that will be gone before it is 10. And I was one of the first occupants of the Fairchild science building, entering at mid-career, and now I'm told it has reached the end of its useful life and must be torn down and rebuilt; hopefully the leaders who make such decisions won't look too closely at me. I am still amazed that while I go through my 24/7 my body repairs itself continuously (from stem cells!), and while I sleep, my heart keeps beating and I breathe. These phenomena may seem ordinary to you, but they are extraordinary to me. And think of this: I am talking to you, you are listening to me, and all of us understand what was said. No neuroscientist has even the beginnings of an understanding of the complexity of this almost instantaneous set of perceptions, assembly of information, synthesis of assembled information, resultant learning, and the properties of mind that go into these events, much less the memories that will follow. Or to take the example further, one of my first patients in psychiatry as a medical student was to diagnose a patient that was silent and withdrawn. Over a week of meeting it came out he had been hearing voices, and these voices knew him well and tried to direct him. He had finally concluded that the voices came from alien powers, and in that observation departed from the path of understanding the world as most of us do; he became estranged from reality. About 10 years ago I read that perfectly rational patients hearing voices were studied by PET scan technology, and when the voices came on, deep brain centers fired. So incipient schizophrenics hear organized voices from self-firing foci without input from the ear, and then must deal with the fact that no one else is hearing them. I know a few well who have been made aware that these are like epileptic foci, and live with the voices with a little help from therapies; they live essentially normal lives, although the voices annoy them. These examples might seem far-fetched, especially from a stem cell biologist, but of this I am sure - these phenomena are rational, involving nothing more mystical than cells and molecules and their organization. These mysteries will be susceptible to understanding by biomedical science, and will certainly be useful eventually in medical practice.

What I am saying is that the study of humans in the context of nature is just at the beginning, and that those who will commit to this adventure are coming in at just the right time. But I want to re-frame what I'm saying in the context of a biomedical education, and where you are at the end of one stage of training, on the edge of going from competency to mastery of your subject. I want to step back and say that **collectively our job, our responsibility, is to end the tragedies of premature incapacity, premature morbidity, and premature death of our current and future patients.** Some of you will do so by gaining mastery in some field of biomedical science, others by translating discoveries and principles (medical, scientific, economic, etc.) to advancing medical practice, and still others by incorporating these translations into what you have learned and will continue to learn into direct medical practice, hopefully as a lifelong exercise. But you need to know what you are up against. In my view, nature and disease are relentless forces that operate independent of what we think or hope. In order to be effective in understanding nature and overcoming diseases, we must go forward with the knowledge and principles you are now adopting and will amplify. There is no room in this venture for self-deception or self-interest; neither can influence what is true. Our observations must become increasingly more accurate, and we have to temper our enthusiasm over our nascent discoveries and insights with an acquired habit of self-criticism. Although money, fame, and/or patient adulation can be motivators, they are not helpful, as they have historically, and will in the future simply serve to divert you from what you are best at doing. Finding your talent and practicing it will keep you engaged, and usually other desired rewards follow anyway.

At least since Stanford moved from San Francisco to Palo Alto it has committed itself to provide a unique graduate medical education and opportunity. We have sought to be a leader in advancing medical sciences, in providing a scholarly approach to all we do, in providing for our patients the highest standard of medical care, and in attempting to be leaders in the translation of medical discoveries. With your class, as with others, we **intended** to admit those who by their actions before medical school had demonstrated concretely that they possessed the capabilities and motivation to take advantage of these goals. After you came here, we intended to provide for you

the education, and independently the opportunities to do all of these. If jointly we have been successful, you will have taken advantage of your opportunities, and you will also recognize the equivalent values of 1) the role of science and scholarly inquiry in advancing medical knowledge and practice, 2) the role of medicine in revealing the reality of human disease as well as treating it, and 3) the role of translational medicine in moving discoveries from the bench to the patient. Hopefully you will have chosen role models that exemplify these values and practices. I certainly did. I think you will find that these role models got where they did by a combination of traits we all should recognize: commitment, responsibility, integrity, and idealism.

You who are about to be MD's are about to take an oath that has its roots in the Hippocratic Oath, taken by physicians for centuries. Like you, I took a similar oath. I am constantly reminded of the wisdom of that oath, and how it has guided much of my own career. It is important that you realize that this is a **commitment**, a commitment of physicians that the care of their patients is their **first consideration**. For those of us who are physician-scientists, I would say that this is a commitment to the health of the patients who could benefit from the translation of our findings. When I think of this commitment, I don't have to go far. Today you are honoring Stan Schrier, who is my role model for commitment; nothing else ever comes first for Stan. He was a legend when I entered medical school, and he is a legend today. And Harry Oberhelman, who in his late 70's (I think) outperforms and outlasts a fraction of his age. And of course there are many others on our faculty.

This year I reread the oath (The Stanford Affirmation) when I needed guidance on a difficult issue. I was chairman of the panel of the National Academies on Human Reproductive Cloning, and the related subject of Nuclear Transplantation to produce human embryonic stem cells for research and therapy. My panel had determined that reproductive cloning was dangerous medically, poorly feasible scientifically, and in terms of the human participants in the exercise the cloned fetus and the mother that carries it carried the almost certain probability of fetal death and maternal morbidity. In fact any such research violates several specified recommendations of the Nuremberg Code, articulated in 1947 by the US Military Tribunal Number 1 at the Doctor's Trial, which, by the way, I believe should be required reading for all medical graduates. The Panel considered also the production of embryonic stem cells by nuclear transplantation, a procedure wherein the nucleus of a somatic cell is transplanted into the enucleated egg from a pre-defined donor, the diploid cell is then electrically stimulated, and allowed to progress to the preimplantation blastocyst, a stage of development of about 150 cells. The inner cells can then be cultured to produce pluripotent stem cell lines, cells which at the single cell level can either self-renew and expand their numbers, or be caused to differentiate to daughter cells that represent all cell types in the body, albeit arranged in a disorganized fashion. These daughter cells can be transferred to newborn immunodeficient mice, and there they undergo normal differentiation specified by their own genes and stage of commitment, and the adequacy of the environment into which they are placed. Thus, for the first time, if this were allowed with human tissue sources, one could prepare pluripotent cell lines representing each genetically determined human disease, which is most diseases, and even from each cancer, which has undergone its own life history of somatic mutations that specified cancer development. While such a procedure is abhorrent to some for moral, ethical, or religious reasons, it had to be recognized that it could lead to breakthroughs that will change biomedical science and medicine itself, much like the recombinant DNA revolution in the 70's (begun at Stanford by Paul Berg and Stan Cohen) led to technology and therapies that save tens of thousands of lives today. This was recognized by my panel, and we voted unanimously that the promise of such research was so great, and the risk to human participants (egg donors) so minimal, that such research should go forward. But when I testified before the Senate, and before the President's Council on Bioethics I realized that several MD's were the advocates of a complete ban on such research. Further, the Brownback and Weldon bills that ban such research also propose penalties including up to 10 years in jail and a 1 million dollar fine for any physician who would prescribe for a patient a remedy coming from anywhere in the world that is derived from nuclear transplantation embryonic stem cell lines. In today's Stanford Affirmation you will take the oath that you "will treat any who need my ministrations, without regard to religion, nationality, race, politics, sexual orientation, or social standing." When I

sought guidance from that oath, I interpreted that to mean that as an MD biomedical researcher, I must leave at the door my own personal politics, religion, ethics, etc, so that meaningful research and therapies can be generated. In my view, therefore, either as a physician or a physician-scientist, the passage of these bills would require us to fail to honor our oaths, as there will be a time when you will have to deny current and future patients therapies that could have been in our grasp.

After commitment comes **responsibility**. When you develop a new finding or insight, you can let others know and act on it or not, or you can take the view that you are responsible for taking it as far as it can go. Here we have several role models. One of mine was my mentor, Henry Kaplan, who not only showed experimentally that radiation had the possibility to treat cancers, but took the responsibility with Stanford physicists like Ed Ginzton to help develop high energy linear accelerators that could deliver their ionizing radiation in the tumor, and not the skin. With colleagues that included Saul Rosenberg, Henry developed the therapy model which in their clinical trials changed Hodgkin's Disease from an universally lethal to a readily curable disease. It took amazing insight and courage to carry this all the way from discovery research to clinical therapies, and established radiation oncology as a mode for therapies with curative intent that is now world-wide, and for several kinds of cancers. I could have cited Norman Shumway for developing through research the practice of heart transplantation, or Paul Berg and Stan Cohen who not only pioneered the recombinant DNA revolution, but helped to establish biotechnology companies that translated these discoveries. And they and other molecular biologists had the integrity to question the safety of what they were doing in the lab to call for a moratorium on doing their research until it could be shown to be safe for those who made recombinant microorganisms. In all of these cases the insights, courage, and responsible action of these investigators led to medical practices, not previously possible, that now saves tens of thousands of patients each year.

It is important to re-state the issue of integrity. In addition to finding your talent, you have to develop core values of honesty and integrity, so that you have a center that will hold when all else seem to be flying away. Make no mistake that when you have assumed responsibility (with little or no oversight) your integrity will be tested, and usually when you are unprepared. This happens in the science that goes on in your own labs, with the patients you treat, in the companies you advise or establish to translate your discoveries, and in the quest for fame and prizes. There is no doubt that there will be times when you make mistakes, or discover them. It is then that you should remember your oaths and your standards.

Finally, I want to preach idealism. It is too easy to give way to cynicism, or to pursue objectives that promise rewards for you at the cost of your commitment to patients. We are now in a crisis in medical care in both academia and the private sector, where managers, administrators, legislators, and clerks who have not taken the oaths you have taken look to medicine as something other than a right of all citizens. It will take courage, commitment, integrity, and idealism if we are to carry the lessons learned here into careers in medicine and the biomedical sciences. There is one way to counter cynicism, or boredom, or acquiescence to the will of the managers. Find your talent, and practice it for life. You will be happier, and society will benefit.

### **Special Newsletter Announcement**

During the summer months the Dean's Newsletter will depart from its every other week schedule to a more irregular reporting schedule. Regular biweekly issues will resume after Labor Day.