

Commencement Address June 12, 2010

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Dean Rudnick, Chairman Coroniti, members of the faculty and staff, graduates and distinguished guests. What a wonderful day!

Thank you Professor Rudnick for inviting me to speak today. It is truly an honor for me to be here. Thank you also Joe for giving me the most difficult homework assignment I have had in years.

First, my congratulations to you graduates. You have accomplished a lot and deserve to be proud. I know it wasn't easy. Let me also recognize your families. Your support and encouragement have no doubt been very important in helping "your graduates" reach this day. You have my respect and admiration.

I have a special feeling for Joe Rudnick. I worked with his father Izzy when I was a Physics graduate student in 1960. Ironically Joe, it was 50 years ago on June 9th that I received my Masters Degree, with your Dad on the stage.

It was also in 1960 that I was admitted to the Physics PhD program. I had an important decision to make. After much soul searching I had decided to go to business school. My goal was to one day be a Vice President of R&D. When I told Izzy of my intention, and reasoning, he genuinely encouraged me. He saw the need for this combined background while many of my other professors felt that I was "abandoning the faith". Isadore Rudnick was not only an outstanding physicist; he was a fine, sensitive human being and a considered counselor.

About ten years ago I contacted Joe to establish a Physics Scholarship honoring Izzy. We created the Rudnick-Abelman Scholarship. It is targeted at helping financially stressed undergrad and graduate Physics students. To date we have had 23 recipients. It has made a difference to their lives. My congratulations to today's recipients.

I have a real appreciation for what it meant to be financially thin. When I emigrated from South Africa we had a family net worth of about \$2000. I needed numerous \$1.00/hour part time jobs, to build my tuition account.....about \$65/semester at UCLA and then \$400/quarter at Stanford.

I date myself further when buildings are named after my professors. Kinsey Hall, the old Physics building was named after Lee Kinsey, my theoretical mechanics professor. Knudsen Hall was named after Vern Knudson (later the UCLA

Chancellor) with whom I worked on the acoustic design of the Dorothy Chandler Pavilion at the LA Music Center.

I remember Dr Knudsen telling me about his 1920's work in on the Hollywood Bowl. There were no sophisticated instruments at that time, so to check the sound, as the original 8000 seat bowl was carved out, Vern would position himself at various locations to determine how well he could hear a BB pellet dropped on to a kettle drum. And the resulting acoustics were outstanding.

One of my contemplated PhD projects was the analysis of atmospheric effects on the propagation of low frequency sound. Our lab a line of sight between the top of Dykstra Hall and the top of Los Angeles City Hall. Of course in those days the maximum building height, driven by seismic requirements, was 150 feet...about 13 storeys....and LA City hall was the only exception at 454 feet.

My first electronics text was Seely's book on electronic tube circuits. My work with Izzy on shock wave propagation which I did in the anechoic chamber, was done with WW II donated navy electronics..... all vacuum tube of course !!! This must sound like the Bronze Age to you.

Reading the Department's Annual Report, I am amazed at the depth and level of research being done today. The work by members of your faculty and students in helping realize the dream of harnessed fusion....the Large Hadron Collider.....the tokomak....the National Ignition Facility.....What a far cry from the original Lawrence cyclotron which many of my classmates worked on in the late 50's. The conventional wisdom in those days was that Fusion was at least 10 years away!

Whether or not you pursue a career in the Physical Sciences, your Physics education will come in to play every day of your working life. At least to the 80% level, I attribute my business success to my 5 ½ years in the Physics department at UCLA. As you look back decades from now, I know that you will feel the same.

Your curriculum has taught you how to think; how to synthesize complex inputs in decision making; how to problem solve with quantitative, logical reasoning; how to probe and how to think creatively. It is a curriculum that is based on fact. It is pure and it demands clarity of thought. You may not feel differentiated today, surrounded by so many smart colleagues with similar backgrounds but I guaranty you, with your Physics platform, you will see the difference when you enter the work force.

You don't have to look much further than our recent mortgage crisis and economic meltdown to see the difficulty that many have had in connecting the dots to see the consequences of their decision making. It was propagated largely by well intentioned government programs; short term thinking of the banking community; fundamentally flawed assumptions; and risks nobody really understood. Would

this have happened with moral, logical thinking Physicists “running the place”? You would have known better.

The wonderful thing about your education is the contemporaneous knowledge base that you now have. In my working life I saw an unbelievably rapid evolution of technology. In October 1957, the day that Sputnik was launched, my Atomic Physics Professor, Harold Ticho predicted that this would trigger a US space race. And in 1958 we saw the birth of NASA, the cornerstone of our current technology economy.

I saw the evolution of semiconductor technology from the diode to today's high powered multicore processors; the birth of the scanning electron microscope; the rapid evolution of highly sophisticated spectroscopy instrumentation; the evolution of communications from land line dial up to the iPad. We saw the birth of the laser; the first US passenger jet; the first landing on the moon; the launch of Hubble; and the Mars Pathfinder with its alpha proton spectrometer for conducting chemical analysis of the Martian surface. We saw the development of light weight composite materials for the transportation industry; automobiles with 100 microprocessors, a mile of communications circuitry and upward of 70 million lines of code and also the totally paperless design of the Boeing 777.

My Physics education prepared me well to not only understand these developments but to be active in many of them. And your Physics background is your passport to be part of this continuing story. Whether you enter the world of air and space, the world of medical devices; biophysics, alternative energy sources; instrumentation or communications.....you will have an opportunity to make a difference. You can make this world a better place.

We are just now seeing the potential of nano technology in the development and fabrication of nano electronic devices. The ability to move around atoms and molecules in materials development is astounding. The applications of nano technology are endlessand they will provide endless opportunities for you.

Researchers at Stanford have developed eTextiles in which batteries fabricated from conductive nano particles of Lithium Cobalt Oxide are woven into the thread of a tee shirt and which will hold 3 X the amount of energy required to power a cell phone. With your background you will be able to understand and be able to contribute to America's technology development. Yes, you will have productive, exciting and fulfilling lives. As you leave UCLA you have the tools to realize your dreams....to “achieve all that is possible”.

I have travelled from the Vacuum Tube to Mars....As you look back in the year 2060.....where will you have travelled? Imagine the advances that you will have experienced. Imagine the opportunities you will have to make them happen.

In 1960 I had absolutely no idea how my future would unfold....and most of my classmates were in the same boat. As you sit here today, you may have the same concerns....I wouldn't worry.

With your background, diligence and focus.....using the same skills you have used over the past few years....you will also look back and be amazed at the road you have travelled. Now, as you enter the workplace, the dynamics of your organizations and markets will play a much greater role in your lives than was ever the case in Westwood.

My goal today is to leave you with some key thoughts that I hope will help you in your future working lives. They are based on the lessons I learned ...many of them the hard way.

Most important.....know yourself..... Know what turns you on; what environment you thrive in and what stifles you? Get into a position that lights your fire. This has to be your most important goal. It is a prerequisite for success. According to a recent study the average professional will have between nine and thirteen different employers over a career. If your current environment is wrong for you, don't be afraid to change.....but do so for the right reasons.

You will certainly be faced with many major decisions as your career develops. You have shown that you have the skills to support very informed and logical decisions. Always determine as best you can the consequences of the varying alternatives. Then...once committed, move on with total confidence. You have done your homework; you have analyzed the alternatives and you have chosen an optimal path.....Now go out and make it successful! Use your skills. Don't take short cuts.

Dealing with job challenges and major decisions, can be made far easier if you have a sounding board. Have or find a mentor....someone who knows you; whose judgment you respect; who cares about you; who you can trust, who will be objective and who has the experience to give you perspective. And don't be afraid to ask. Early in my career I had a boss, who remained as my sounding board and mentor for over 20 years. Make this a key personal objective. My decisions...both professional and personal.....were far better for this.

We don't see it enough today, but I have always believed that especially in the business world....the Golden Rule applies.....Deal with others as you would be dealt with. Deal with the recipients of your work as you would be dealt with. And always let moral behavior be your guide in your professional and personal life. Conduct yourselves ethically and with virtue. This will define your reputation....and there is little that is more important. This doesn't mean shying away from conflict. It doesn't mean avoiding confrontation; but it does mean doing so with sensitivity.

Next...in your work, in your product and in your personal dealings, demand of yourself the highest standard of quality.... Care about the recipients of your work.....your bosses; your peers; your subordinates; your customers. Strive for a product or service that you would gladly pay for.

I had the privilege of working with John Wooden when I was on the UCLA Men's Athletic BoardQuoting Coach Wooden, "if you don't have the time to do it right, when will you ever have the time to do it over?"

There is a common theme in all that I've mentioned.....whatever your situation, always put yourself in the shoes of your audience.... and then respond accordingly. By getting this ability honed, over time, you will develop a "street sense"....an intuition. It comes from looking at the world not only through your eyes.....but also through the eyes of others...before you respond....before you decide.....before you act. The combination of Street Sense and Intellect will make you a far more effective professional.

Apply this thinking right at the onset; in a job interview. First, do your homework. Then think of all the questions a smart interviewer might ask you..... Anticipate these and know the answers. You'll be amazed how many high level candidates I have interviewed, who winged itand failed.

For those of you who enter the world of commerce, irrespective of what positions you assume, at your earliest opportunity learn about your market; meet your customers... become tuned to their needs. Your customers will always give you a critical assessment of your products and your company. As your future develops, customers are often the most important source of professional references. Remember that.

For your personal advancement.....put yourself in the mainstream of information... not just through Facebook or Linked In, but with the personal contacts you make.

How many times have you heard of people who got lucky in their careers? I have considered myself very lucky. But I have become convinced that in large part, luck derives from putting yourself in the mainstream of relevant information.... at conferences; product shows; technical meetings; from customers, colleagues, competitors and through early adopters in your field. This will heighten your probability of "getting lucky". Remember.....Information equates to Opportunity.

One last thought and it is underscored by the golfer Jack Nicklaus. Before every match; before every stroke; he visualized the match; he visualized the stroke. The result....one of the best records in golf history. Apply this concept in your professional life. Before a job interview; before a major presentation; on entering a new job;.....spend time to visualize the situation. Perhaps when you are in bed at

night....visualize the event in your mind....picture yourself in the situation. Do it over and over until you feel relaxed. When the time comes, you will be prepared. And you will perform.

We live in a loud and noisy world. A world of sound bites....a political world driven by an unaccountable media....a world of word-smithing and playing loose with the facts. You have come from a different cloth. Everything you have done in your curricula has required truth and accountability; it has required depth in thinking and quality; it has required the need to defend your thinking logically and soundly.

These assets are part of who you are....You Own them....use them. You are A “special few” and the world desperately needs what you have to offer. You can make a difference.

You have worked hard; you have shown your worth and today is your special day. The ball is in your hands. You have had a highly productive few years...Now go out and make the next 50 years just as productive. But never forget your UCLA roots.....

May your future be as fulfilling and happy as ever you dreamed, and your life’s journey filled with confidence, accomplishment and joy?

Thank you.

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