Graduation Comments to CBE Class of 2018

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Warmest greetings from Jeddah, Saudi Arabia. I mean “warmest” literally. Yesterday, upon exiting the grocery store, my classes fogged so much that I had to wait before biking home. Days like this here make me miss the to-die-for cool/warm climate of Berkeley. You too will remember and miss Berkeley weather.

First, heartiest congratulations on your achievement. Chemical Engineering is widely regarded as the most difficult of undergraduate subjects. We faculty agree! Your classes do not provide training but education, a way of thinking about the world around you, a philosophy of conservation principles. Do practice these principles with appreciation and skill. Importantly, do your best to make sure that these principles pass onto the next generation.

I remember my own university graduation so many years ago. It was an awful experience. I sat in an uncomfortable black gown on an uncomfortable folding chair resting on an uneven canvas-covered floor of a very large, hot field house. The entire university graduating class participated, thousands of us. We sat for many hours as one-by-one we walked across the makeshift stage to receive a rolled-up, blank piece of paper: endless hours of boredom. I vowed never to participate in that exercise again (Who could guess then that I would end up participating routinely in university graduations).

After the ceremony, my parents, neither of whom graduated from high school, greeted me warmly. My Mom remarked how proud my Dad was to see me walk across the stage. But, they both asked, what is Summa Cum Laude? I never told them, but I realized that graduation is not for you, but for those around you who have supported, encouraged, and hung-in-there with you. So today, make sure that you celebrate your loved ones to your very best ability, and keep celebrating them.

It is customary for graduation remarks to offer wise advice. Alas, after almost 75 years of living, I have no blue print. I am rather sure that no one has. However, as many of you know, I love to tell stories. You decide whether there is a moral, or not.

When I was 11 years old, my family lived in a small farming valley just south of Seattle. The soil was fertile, even black. Many vegetables were grown throughout the valley. My Dad loved sweet corn, but it had to be fresh. Every evening after work in season, he would stop by a farm, a mile or so up the road, and gather fresh corn from the field. He and the farmer grew to be friends. One day the farmer complained that he did not have enough help to get the cornfield picked each day. My Dad volunteered me to help.

At 4 am the next morning, I was at the farmer’s house. When he first saw me, he exclaimed, “Dear god, your father never told me you were a twerp. You can’t even reach the corn stalks, let alone pick into the trailer. However, I need help so you drive the tractor. You do know how to drive a tractor?” Now the tractor was a large John Deere with rear wheels much taller than I was. Hitched
to it was an even taller picking trailer. I had never sat on a tractor, let alone drive one. I could barely climb up into the seat and could barely reach the pedals. The farmer said, “OK, I will drive the tractor to and from the field and turn it around at the row ends. All you need do is to steer as we slowly move along the rows. I will pick, you drive.” After several weeks of climbing up and down off the tractor every time we came to a row end, I said to the farmer, “It takes time to switch drivers after each row. I have watched. I can turn the tractor and trailer into the next row.”

The next day, we come to the end of the first picking row. I take a deep breath and turn the tractor. One must turn sharply because the picking trailer is long and covers a wide berth. Turning sharply is accomplished by breaking one rear wheel, letting the other wheel roll freely. What I did not realize is that you must stomp hard on the single-rear-wheel break. I pressed lightly. The turn was too wide. The picking trailer made such a wide arc that it broke the electric fence keeping the cows out of the cornfield.

Now what? The farmer said: “You broke it, you fix it!” I remarked, “How do I do that?” “Well, you go out to the fence, take the broken wire, bend its two ends, and hook it back together.” I said, “But the wire is live. Shouldn’t we go back to the barn and turn off the power?” He retorted, “Nope, we are picking. You broke it, you fix it.”

Remember, we are in a valley south of Seattle. It rains a lot, even in the summer. What is missing from the story is that the wire fence was in ankle-to-knee deep water. So, I wade out into the cow pasture while the remaining pickers watch. I take the wire, bend it, and pull the two ends. But, every time I pull the wire ends to attach them, a current pulse hits, shocking me. I stiffen and drop the wire. Of course, the pickers are having great fun chuckling. This goes on for a while. I attempt pulling many times, each time ending in a shocking disaster. The pickers and the farmer much enjoy watching. I realize that no one is going to wade out into the cold lake and help. I broke the fence. I had to fix it.

OK, how to solve this dilemma, a typical late-night CBE 140 problem? There appears to be no solution and no one for advice (Sorry no Siri to query!). So, I reasoned to myself: how can I give myself the longest possible time between shocks? The answer: first shock yourself, then immediately pull the wires together: not an elegant solution but worth a try. After 4 or 5 tries, it worked. I waded back to the tractor, climbed up, finished the turn, and drove into the next cornrow. No one said a word. From then on, I did all the turns. By the end of summer, I was driving the tractor out to the field and back.

Are there any lessons? I learned two. First, I clearly was not cut out to be a farmer. Second, there is great satisfaction in solving apparently unsolvable problems, even under duress. I have been solving problems ever since. I love it. So with you: discover what you love and pursue it.

I cannot end without offering two adages that I repeat to myself often. They both come from a well-known Jewish scholar. The first is, “Do nothing out of selfish ambition. Rather, in humility value others highly.” People are more important than being right. It is OK to be wrong and even to fail.
The second was oft quoted to me by my dear colleague, Professor John Newman, “Whatever is true, whatever is honorable, whatever is just, whatever is pure, whatever is gracious, if there is any excellence, if there is anything worthy of praise, set your mind on these things.” Being around positive, caring, and thoughtful people is a joy.

God speed to you all. Don’t forget us here at Berkeley. I plan to be here to teach your children. Remember, it is OK for our plans not to succeed😊