

## GRADUATION ADDRESS

Ceremony 18

Faculty of the Professions – Law School

Faculty of Science – All Schools

Wednesday 29 September 2010, 10.00am



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### SPEAKERS AND D.UNIV RECIPIENTS:

Professor Peter Colman

Professor Brian Matthews

#### Professor Peter Colman

My journey from studying physics at this University to the discovery of a new class of drugs for influenza has been travelled at the edge of physics, chemistry and biology, though my formal training in chemistry and biology did not extend beyond my first undergraduate year. The physics component of my research has its origins in a paper read to the Cambridge Philosophical Society on 11 November 1912. The reader was William Lawrence Bragg, born in Adelaide just 22 years earlier, and his seminal paper described what happens when X-rays pass through a crystal. Fifty years later X-ray crystallography had matured as a photographic technique to a point where one could literally see components of living things in atomic detail. In the last twenty years this atomic photography has transformed our approach to discovering new medicines - for influenza, for HIV and for cancer. To see is to understand, and understanding is the key to intervention, to improvement, to progress.

Our drug was aimed at, and hit, a part of the influenza virus that had never changed. But almost the very day we started to grow virus in the presence of the drug, changes in the hitherto unchanging drug-binding site emerged, reducing the drug's effectiveness. Drug resistance is the bane of drug discovery, especially for infectious diseases. Fresh approaches are needed to suppress the emergence of drug resistance, to slow natural selection's relentless if aimless march. It is scarcely possible to do research in the life sciences without encountering Darwin's big idea, and grappling with the depth of time over which evolution by natural selection produced *beings able to understand the underlying molecular basis of the process by which they arose* (paraphrasing R Dawkins, *The Ancestor's Tale*). But in the microbial world, the time between generations is short and the errors in copying the genetic material are many. Under such conditions evolutionary change happens literally before our eyes. I remain astonished that my path in science has allowed me to take photographs of a virus undergoing Darwinian selection by a drug that my colleagues and I discovered.

I take from my own story that the most important gifts I received from my education at Unley High School and at this University were how to learn and how to think. I am much more physicist than physician, but I have wandered farther from my major discipline than I could ever have imagined on the day I sat where you sit and accepted my undergraduate degree. I also had no training in entrepreneurship and the business world. Inhabiting that world was necessary when raising money to translate our discoveries into new medicines. Biota Holdings Ltd was floated in 1985 to do just that and survives today thanks to royalties from Relenza.

As you encounter the unexpected events of your own careers, remember this day and the mentors who got you here. Take the confidence of this graduation with you into those uncharted territories, believing that you can make a difference. A world-view that I can subscribe to is one put by David Landes in concluding his epic tome *The Wealth and Poverty of*

*Nations*, one of many books written at the recent turn of the millennium. Reflecting on events that led to the wide divergence of economic fortune and living standards in today's world he writes,

*The one lesson that emerges is the need to keep trying. No miracles. No perfection. No millennium. No apocalypse. We must cultivate a sceptical faith, avoid dogma, listen and watch well, try to clarify and define ends, the better to choose means.*

I congratulate you all, and wish you well.

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### **Professor Brian Matthews**

Chancellor, Vice-Chancellor, President, Distinguished Guests, staff, friends, and especially the new graduates.

(As you know) I grew up in South Australia and was a student at this University but have spent most of my career at the University of Oregon in the United States.

Oregon has always been known for its trees and its lumber industry. Let me start by telling what might be described as an "Oregon" joke.

[Tell Chain Saw Joke]

I'm well aware that I'm speaking to a smart audience, and I hope you won't be offended if I suggest that the chain saw is a metaphor for your degrees. In the joke the chain saw was intended to equip the logger to cut down trees. In your case, you have received your degrees which are intended to equip you for your future careers.

Don't expect, however, that having a degree is an automatic guarantee for success. I've had a number of very smart, well-educated people in my research group who went on to be very successful. Peter Colman is definitely one of them. At the same time I've had very smart people who haven't been successful at all. They didn't want to do the grunt work, or they got distracted, or they wouldn't take the time to ensure they really understood what they were doing.

In many respects, having a degree can be essential, but the more important lessons in life are learned separately.

Let me briefly tell the story of Steve Jobs, the founder of Apple. Steve Jobs was an adopted child. The one plea which his biological parents made to the adoptive parents was that their child should be given a good education. This was not easy because the adoptive parents were not financially well off. Nevertheless, they managed to send Steve Jobs to Reed College, which is a highly-regarded but expensive college in Oregon. After a year or two Jobs was bored and effectively dropped out. But he still felt much loyalty to his adoptive parents because he knew of the sacrifice they were making. Jobs noticed that the seminar notices and other announcements at Reed College were always done in beautiful calligraphy. He also found out that they were done by a faculty member who taught calligraphy and graphic design. Although not formally enrolled Jobs was able to sit in on these classes. It is thanks to those classes that we have the elegant design which characterizes all the Apple products.

This is more than enough advice for the students. Let me say a word to the other two groups who are here today.

First, there are the parents and friends who have encouraged and supported today's graduates. Let me paraphrase some advice given to students by Bill Gates, the Chair of Microsoft.

"Before you were born, your parents weren't as boring as they are now. They got that way from paying your bills, cleaning your clothes and listening to you talk about how cool you thought you were. So before you save the rain forest from your parent's generation make sure that your own room is clean and tidy."

Second, a word to the University Faculty. Someone, very likely a faculty member, said the following: "A University would be a great place if it weren't for the students".

That said, from my own experience I have always felt extremely fortunate for the education I received here as a student. In particular I would like to single out Harry Medlin. Harry was my Ph.D. thesis advisor. He got me started in research, pointed me in the right direction and could not have been more generous or more supportive. Without Harry Medlin there is essentially no chance that I would be standing here today.

Finally, back to the students. You have your degrees. Well done. Congratulations!

Go fire up that chain saw, make some noise, have some fun, and all the best for the future!