

Summer commencement 2004

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Thank you very much.

There are two places in the world where a procession is accompanied by frequent playings of the national anthem today. One is in Athens, and another is here.

I have a feeling that as I look across the graduates and I think especially of the deeply relieved parents, spouses and other family members in attendance, that the years that led up to this afternoon have in some cases seemed like a 400 meter dash. In other cases they've been more like the steeplechase with its water jumps and hurdles. And alas, in some cases I think you may feel that this is the end of a marathon. But whichever of these may in fact apply to you, let me suggest that today is a day when each and every one of you is going to win the gold medal. And on behalf of all of us here who respect, admire and love you, congratulations.

The graduates all received very detailed sets of instructions about exactly how to march and in what order and what to do when. They're smiling. That's the final test to see if you get your degree.

It reminds me of a story that I once heard about the problems that occurred in the back woods of Wyoming when there were a lot of grizzly bear sightings. The fish and wildlife folks had to put out a special bulletin for all people hiking in the back woods, warning them against the dangers of grizzly bears.

The instructions said that in order to make sure that you were not attacked by grizzly bears, it was important first of all, to wear clothing with lots of little bells attached to the outer garments, because the bells would ring. They're called bear bells and they would forewarn the bears of your coming and they would leave. But just in case that didn't work, hikers were urged to purchase aerosol containers of pepper spray. Just to do the job if the bells were not sufficient.

The memo went on and it said it also is helpful if you're hiking to be able to tell the difference between black bears and grizzly bears in the vicinity. You can tell the difference by making note of the droppings on the trail that you're hiking on.

Black bears, that are much less dangerous, will leave small, highly symmetrical, round droppings. In contrast, grizzly bear droppings can be readily identified by the slight smell of pepper and a proliferation of small bells.

What makes a story like that funny? What makes it funny is what I want to talk about with you this afternoon because what makes any story funny is that it includes the unexpected. It includes a surprise. It includes something that you didn't predict. And I'd

like to suggest to you that it is precisely surprise, the unexpected, the unpredictable that may be the most important central feature of a good life.

We learn to appreciate surprise very very early in our lives. One of the sweetest sounds I hear in this graduation and every graduation I attend is the lovely sweet sounds of babies in the audience. Some of the graduates have been busy doing things other than writing during the past few years.

What's the first game we play with every baby? What do we as adults insufferably do when we come into the company of a precious little infant? We start playing a universal game called peek-a-boo. We sneak up on this poor unsuspecting little child and go "peek-a-boo."

And what happens the first time we do it? Yes. The baby bursts into tears. And we feel terribly guilty. But somehow, punctuating the tears is a little bit of a giggle. And then you realize the baby wants you to do it again. And you go peek-a-boo again, and the baby cries again and then invites you in. And before you know it, you're peek-a-booing on demand...it's a little like TIVO. And the baby now in full control, is no longer crying but is laughing uncontrollably.

That my friend, is the beginning of the nurturing of surprise. Maturation, growing up, can be seen as a process of learning, not only to manage, but to plan a life that will include a certain modicum of surprise, of the unexpected, of chance, of the unpredicted.

And if you look at the history of so many of the fields in which you have all been trained, one of the sayings that applies to most of our fields is that lovely saying that defines something called serendipity. And the saying is "chance favors the prepared mind."

So many extraordinary discoveries in our society have occurred because something happened by chance. Something happened by mistake. Something appeared to be a failure. But a prepared mind saw it for an opportunity to be exploited and built upon.

Let me give a couple of examples. At the 3M Corporation, a scientist was experimenting with trying to develop a new kind of glue. And he laughed about the fact that he had created the perfect, awful glue. He had created a new kind of glue that didn't stick very well, that could never dry. And if you put it between two pieces of paper, all of it would stick to one of those pieces of paper and leave the other one unglued. Perfectly awful. It had none of the characteristics of a good glue. And he simply shelved it.

Except one of his colleagues was a choir director and needed a way to put notes in to his hymnal that would stick in the hymnal but wouldn't leave glue behind. And they realized they had invented post-its. They're ubiquitous throughout our lives. It was a failed experiment. Yet it was a prepared mind that saw that the failure was in fact, the basis for an important new innovation.

The truth is that they could get nobody to buy post-its. They put them out a dollar a pack. Nobody would buy them. And so for a year, 3M gave them away by the millions. Free. And a year later all of us discovered that we couldn't live without them.

Chance favors prepared minds.

Lets take a more prominent example. Louis Pasteur was doing research on cholera. It was back in about 1870. And he realized if you infected chickens with the germs from cholera (the germ notion was brand new at the time) you could give them cholera. And so he instructed one of his colleagues to take some old cholera cultures and infect some chickens so they could do research on them.

Trouble was, the old cholera culture didn't work. The chicks got sick for a little while and then they were healthy again. Failed experiment. A month later, they got a new culture, a much stronger culture of cholera. And Pasteur said to his assistant, "infect a large group of chickens with cholera so we can study them. And by the way, be sure you use those other chickens in the failed experiment because we might as well use all the chickens we've got."

And what did they discover happened? The chickens who'd previously been in the failed experiment, because they'd gotten the cholera strain that was old and weak, didn't get cholera. And Pasteur recognized that he'd invented a vaccine against one of the most deadly diseases known to mankind. He later expanded that to Anthrax and other diseases and it was the basis for much of what keeps the world healthy today. But it was an accident.

It isn't only in mathematics I guess, that two negatives can make a positive. Here were two failed experiments. But a prepared mind looked at them and found a positive finding.

The lesson here is a very straightforward lesson that is a uniquely American lesson. It's a lesson of a nation that treats entrepreneurship and risk taking as a virtue and not as a liability. And that is, there is no great shame in failure if you can learn from your mistakes. It is not for us to make a mistake, forgive and forget. But rather to make mistakes, forgive and remember. Because we have an obligation to learn from those errors.

But being that kind of risk taker, seeking surprise...that alone isn't enough. At the heart of our work is the recognition that we are moral actors who responsible for everything that we do.

I was doing some studies with engineers a few years ago and I asked a group of them to define what an engineer was. The definition they came up with was, an engineer is somebody who uses math and the sciences to mess with the world. And then they added, and once your mess with the world, you're responsible for the mess you've made.

Reminded me of the quote Bob Woodward had of Colin Powell, saying to the president, “remember the principle of Pottery Barn: you break it, you own it.”

The recognition that you are being educated to take the kind of risks that will lead you to be capable of successfully messing with the world is terribly important. That’s what the Ohio State University has prepared you to do as future teachers, as future scientists, as engineers, as nurses, as physicians, as scholars of literature and of biology. But never forget, that once you start messing with the world you are responsible for the mess that you’ve made. And that indeed you have to play your messing so you anticipate those messes well in advance.

So let me suggest three principles. The first: Plan what you do very carefully, but at the same time, remain open to great surprises. You never know when they’re waiting.

Do you realize that ten years ago, if you were looking for information, you couldn’t google it? Less than 10 years! If you had something to sell or buy, there was no E-bay that you could use? You couldn’t TIVO a TV program? Just go on and on and think of the things that somebody, within the last 10 years ago, surprised us with? Who needed Fed-Ex until we had it? And who can live without it now that we do?

These are the kind of surprises of messing with the world that you are now capable of. But I assure you they were planned carefully by people who are also open to surprise and the unpredictable.

Take risks but always learn from your failures. Don’t be discouraged by them. If you don’t fail it will be much harder to learn.

And finally, do mess with the world but do take responsibility for the mess you’ve made.

Let me leave you with my favorite blessing. It comes from Shakespeare’s last play, The Tempest.

The Tempest is a wonderful play. As you may recall it opens with this horrible storm and shipwreck. And the castaways are thrown together on this island and have a whole series of adventures. And Prospero, the character that Shakespeare may have modeled after himself, at the end of the play, is ready to bless his daughter Miranda and her loved one Ferdinand, and send them back by boat on the same treacherous sea to the mainland where they can leave their lives.

And the blessing that Prospero wishes for them is a very simple one that I wish for you.

He wishes them calm seas, auspicious gales.

He wishes them this optimal blend of stability and terror. Of predictability and surprise. Of the everyday calm and the auspicious shock of chance and innovation.

That's the good life, my friend. That's what I wish for all of you. Calm seas and auspicious gales.

And if in that context you can take this mantle and mess with the world in ways that the world needs messin' with, you will leave behind a legacy far more substantial than the whiff of pepper and a proliferation of small bells.

Congratulation. God bless you all.