

Continuity and Chaos

What do you as the highs and lows of your years at Michigan?

Michigan's Rose Bowl victory (yea...)
Michigan's Rose Bowl loss (boo...)
The campus filled with computers (yea...)
The Wiffletree burns down (boo...)

Some memories of my own past...

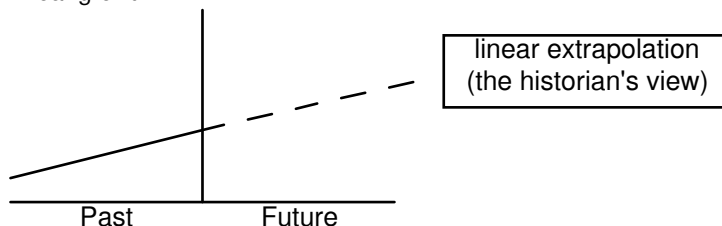
Actually, the task brings back memories, since it was almost precisely 25 years ago that I was in your position as a graduate...
It was a time of optimism in America... the Camelot of the Kennedy administration...
Indeed, Martin Luther King, Jr. himself was the commencement speaker at my graduation...
We graduated with boundless confidence...
In fact, I chose to go into the exotic field of nuclear engineering because I really wanted to "make the deserts" bloom... and create a limitless source of energy for mankind...
In fact my first job out of college was in the deserts of New Mexico at Los Alamos, developing nuclear rocket engines designed to power the first manned flight to Mars and beyond...
Unfortunately, although when man stepped on the moon, America stepped out of the space race...and the rockets we developed were never used...
In a sense I was 30 to 40 years ahead of my time...
So too, the American society I entered underwent extraordinary changes...
the war in Vietnam
Watergate
the drug culture...
In a sense, America lost its innocence...
And then the shock as our nation began to encounter limits for the first time...
the environmental movement...
the trade deficit...
Japan, Inc...
I don't know whether my choice of a career would have been different if I could have predicted the future... but perhaps it is useful this evening to engage in a process of futuring...to speculate a bit about the world you will be entering...

What would I predict about your future...

21st Century Themes
Demographic change...
Globalization...
Age of knowledge...
Dramatic change...

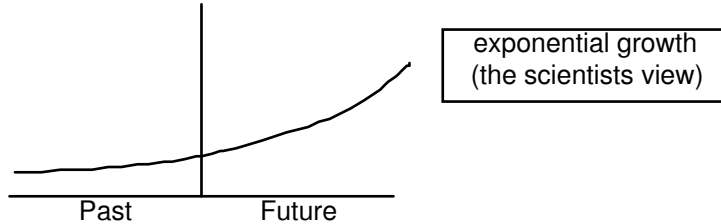
Contrasting models of change...

Need some very clear examples here
Linear growth



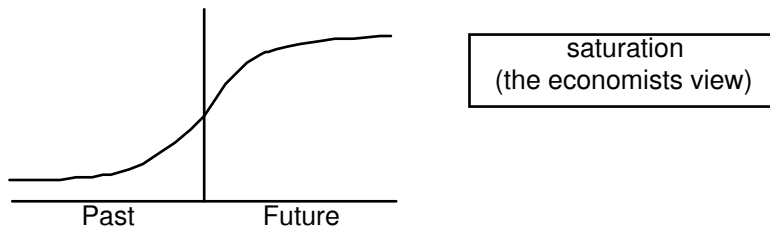
("here we go again...")
 Most of us have been trained to think in terms of
 change as a linear, causal, and rational process.
 We have been taught that by looking back to the past,
 we can simply extrapolate to predict the future.

Exponential growth



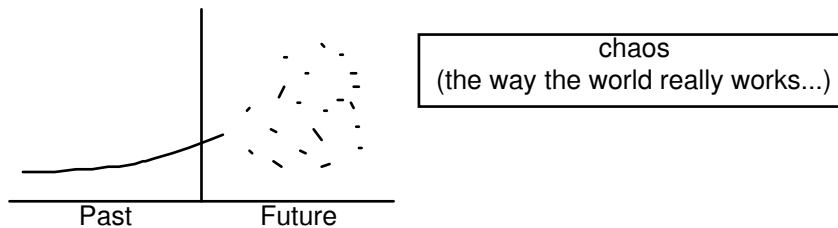
("doom and gloom...")
 Growth in world's population...
 Growth in knowledge...

Saturation



("not to worry...")
 Parkinson's Law...
 Sooner or later, we run out of the necessary resources...

Chaos



("surprise, surprise!!!")
 The real world...
 highly nonlinear
 frequently discontinuous
 usually stochastic, random, chaotic...

Kuhn...

Post-modernism...

Some implications

Bad news:

Must prepare for a future of continual change...

Good news:

Since nothing is predetermined, you can
 control you own destiny...

Butterfly effect...the air motion created by the
 flap of a butterfly's wing can determine the
 earth's climate...

Importance of Fundamental Values

Alternative Introduction

How does one prepare a commencement address...

Actually, it is rather easy...

Since there is really only one commencement address...

Although it has been given millions of times...

in millions of different ways...
The basic message is still the same...
You tell the graduates that their education
has prepared them to go forth into a
world in which they, and they alone,
will have the power to shape their
future...to control their destiny.
Then you throw in some advice on how to
go about doing this...
although is traditional for graduates to
totally ignore this advice.
The only real challenge is to figure out how to
say this once again...in yet a different way...
and to keep it under 15 minutes!!!

My past...

The year was 1964...
Camelot
Civil Rights
MLK...I have a dream...
Space race (Apollo)
Vietnam heats up
Free speech movement at Berkeley
Beatles invade US
Folk music
Chubby Checker...the twist
Bonanza
James Bond
Soviet sabre rattling (Cuban missile crisis)
What we expected...
Surprises
Shift of focus from Europe to Asia
Social turbulence
Concern for environment
Assassination/terrorism
Silicon chip, microcomputer

Your future...

The year is 1989...
A kinder, gentler time...
Racism, pluralism
The earth is still in trouble...
Greenhouse effect, ozone hole
Biodiversity
Toxic waste
Chernobyl
Asia dominates (Japan, Inc)
LA Law, Miami Vice
Indiana Jones...
Challenger disaster...
space race grinds to a halt...
Mickie Mouse is 60...