The Future of Universities:
Lessons from a 2600 Year History

MIT
Cambridge, Mass. – 12th April 2016

Shailendra Raj Mehta
The History of Universities

• 1800 years when India was prominent (6\textsuperscript{th} Century BCE to 12\textsuperscript{th} Century AD)
• 700 years when Europe was prominent (12\textsuperscript{th} century to the 19\textsuperscript{th})
• 100 years when the US has been prominent (early 20\textsuperscript{th} century to now)
• Continuous history not been told
• Very similar problems have been solved
• Focus on high level innovations and lessons learnt
• Started with a simple question – why is the US so good in Higher Education?
The university is a European institution; indeed, it is the European institution par excellence. There are various reasons for this assertion.

As a community of teachers and taught, accorded certain rights, such as administrative autonomy and the determination and realization of curricula (courses of study) and of the objectives of research as well as the award of publicly recognized degrees, it is a creation of medieval Europe, which was the Europe of papal Christianity. This is shown in the first volume of our history.
University Timeline

- **Taxila** 6th Century BC
- Plato’s Academy founded 387 BC to 529 AD a total of 916 years
- Aristotle Lyceum 335 BC to 86 BC
- Alexandria at about the same time
- Alexandria (331 BC)
- Antioch (end of 3rd Century by Selucus Nicator)
- Pergamon (2nd Century BC)
- **Nalanda** – 1st to 5th Century AD
- **Valabhi** – 6th Century AD
- **Vikramshila, Odantpuri, Jaggadala and Somapura** – 10th-12th Century
- In China, Taixue, later called Guozijian was established in 3 AD,
- Nanjing University (National Central University) was founded in 259 AD.
- In Korea, Taehak was founded in 372 and Gukhak was established in 682.
- In Japan, Daigakuryo was founded in 671
- **University of Qarawiyyin** – Morocco in 859
- **Al-Azhar** 972 (law, philosophy, astronomy and logic, Islamic law and grammar)
Europe and USA

- Bologna 1088
- Paris 1150
- Oxford 1096
- Vicenza 1204
- Cambridge 1209
- And 60 others by 1499

- Harvard 1636
- College of William and Mary 1693
- Yale 1701
- Princeton 1747
- U. Penn 1749
- Columbia 1746
- Brown 1764
- Georgia 1785
- UNC-Chapel Hill 1789
- Michigan 1817
- MIT 1860
- Land Grant Colleges 1862 -
The First Information (and Trade) Superhighway
The First Information (and Trade) Superhighway
On the Uttarapatha – Grand Trunk Road

- Gopalpur
- Tamralipt – modern Haldia
- Navadvipa
- Kolkata
- Navadvipa
- Patna
- Varanasi
- Allahabad
- Meerut
- Delhi
- Amritsar

- Lahore
- Islamabad
- Taxila
- Peshawar
- Kabul
- Bagram
- Herat
- Kandahar
- Tamralipt to Kandahar – 3240 Km
- Tamralipt to Gopalpur – 450 Km
- Taxila to Herat – 400 Km
Persian Royal Road - Darius

- Book 8, Paragraph 98, of The Persian Wars by Herodotus.
- “Neither snow nor rain nor heat nor gloom of night stays these couriers from the swift completion of their appointed rounds.”
Civilizations Come Together

• Persian Achaemenid (Haxamanis or sakhamanas) Empire
  – Herodotus says Taxila was the 20th and richest province in the Persian empire (was part of it briefly)

• Greeks
  – Alexander
  – Democritus
  – Appolonius of Tyana
  – Pythagoras?
  – St. Thomas

• Chinese/Tibetan Travelers
  – FaXian 法顯 and Xuanzang 玄奘 Yijing 義淨; and others

• Indian
  – Maurya, Kushan and others
## World Population Over 2000 Years

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<td>(annual average compound growth rate)</td>
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Source: Angus Maddison – OECD 2001
## Population Shares

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## World GDP 1990 $

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<th>1600</th>
<th>1700</th>
<th>1820</th>
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<tr>
<td>Other Western Offshoots</td>
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<td>300</td>
<td>941</td>
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<tr>
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<td>920</td>
<td>827</td>
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# World GDP Shares

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Source: Angus Maddision – OECD 2001
Centre of Gravity – From Urban World. (Mckinsey Global Institute)
Located at The Smart Museum University of Chicago – Richard Howard Hunt. Why?
# The Great Philosophers

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<thead>
<tr>
<th>INDIA</th>
<th>CHINA, JAPAN</th>
<th>EUROPE</th>
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<td>Heraclitus (fl. 500)</td>
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<td>Han Fei-tzu (280–233)</td>
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<tr>
<td>Dignaga (480–540)</td>
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</tbody>
</table>
Ben-Ami Scharfstein – History of Philosophy

• “For debate India was the most developed of traditions. The rules were more elaborately worked out than elsewhere, and the practice of debating had a deep, culturally pervasive influence.”

• Uddalaka, Janaka, Nachiketa and Maitreyi engage in the first known philosophical debate. Maitreyi is the wife of Nachiketa. The first woman philosopher.

• Amartya Sen makes the same point in Argumentative Indian
Rafael – Plato’s Academy
Nalanda
Intellectual Production

• Intense Intellectual Production
• 2010 books
• Manuscripts in India
• Greek Surviving Texts
• Intellectual Pursuits
• Compared to Modern Times
Universities are Very Special

• Three market failures, all at the same time
  – Externalities
  – Public Goods
  – Asymmetric Information
Overall

- Select
- Support
  - Access
  - Connect
  - Facilitate
- Transform
  - Knowledge
  - People
Innovations in Universities

• Indian System
  1. A True University – All subjects
  2. Residential
  3. Global – exported/imported ideas
  4. Peer Review
  5. Case Based Reasoning
  6. Financial Assistance
  7. Public Funding
  8. Endowments
  9. Certification/Degrees/Licensing
  10. Knowledge Repository
  11. Admission Standards
  12. Competing Centers
  13. Academic Freedom
  14. Corporate Form
  15. Women’s Education
  16. Centralized University

• European System
  1. Scientific Method/Europe
  2. Research Focus/Humboldt
  3. Learned Societies and Journals

• US System
  1. Unitary Control
  2. Alumni Governance
  3. Byah Dole Act
Take the Long View

- The University is one of the most complex and critically important social institutions
- Unique product of the human mind
- Similar challenges in all parts of the world
- Very little known about Asian and Arab innovations
- History is very instructive for contemporary issues especially in an institutional context
Education Hard to Evaluate

• Socrates makes part of the argument in Plato’s Dialogues:
• “When you buy food and drink from the merchant you can take each item back home from the store in its own container and before you ingest it into your body you can lay it all out and call in an expert for consultation as to what should be eaten or drunk and what not, and how much and when. So there’s not much risk in your purchase.
• But you cannot carry teachings away in a separate container. You put down your money and take the teaching away in your soul by having learned it, and off you go, either helped or injured.” (313d-314b).
1-All Topics Studied

• 18 Branches of knowledge
• **Theology** - 3 Vedas
• All accomplishments
• All Sciences
• Archery
• Five Knowledge Types
• Knowledge of all the Sciences
• Law
• **Liberal Arts**
• Local customs
• **Medicine**
• Managing Property
• Military Science
• Moral Law
• Practical uses of Science
Medical Instruments at Taxila – Naqvi (2003)
Decapitator from Taxila

*Figure 2*: An embryo knife or a decapitator excavated at Taxila.
Modern Instruments

Figure 4: Modern decapitators. A: Ramsbottom’s decapitating hook; B: Jardine’s decapitating hook (Thackray Medical Museum, Leeds).
2 - Residential

• Idea is to completely transform an individual by taking him (and later her) away from home
• Taxila had a few day scholars but the others only had residential scholars
3 - Global

• Taxila
  – Alexander
  – Democritus
  – Appolonius of Tyana
  – Perhaps St. Thomas

• Chandragupta Maurya
• Kautilya
• Panini
• Charaka – composed Charaka Samhita. Chinese sources indicate that he was court physician of Kanishka at Taxila
Among them were Angira, Jamadagni, Vasistha, Kasyapa, Bhrgu, Atreya, Gautama, Sankhya, Pulastya, Narada, Asita, Agastya, Vamadea, Markandeya, Asvalayana, Pariksi, Bhiksu Atreya, Bharadvaja, Kapinjala, Viswamitra, Asmarathyra, Bhargava, Cyavana, Abhijit, Gargya, Sandilya, Kaundinya(lya), Varksi, Devala, Galava, Sankrtya, Baijavapi, Kusika, Badarayana, Badisa, Saraloma, Kapya, Katyayana, Kankayana, Kaikaseya, Dhaumya, Marica, Kasyapa, Sarkaraksa, Hiranyaksa, Lokaksa, Paingi, Saunaka, Sakuneya, Maitreya, Maimatayani along with the sages of the Vaikhanasa and Valakhilya orders and other great sages. They all, sources of spiritual knowledge, self control and restraint of mind, illumined with brilliance of penance like fire having done oblations, took their seats comfortably and held auspicious deliberations. Su1#8-14
Peer Review

• Afterwards, Bhela and the others also wrote their own texts and all of them, intelligent ones, presented their works before Atreya in the presence of a group of sages. The sages, on hearing the composition of benevolent topics were extremely pleased and approved it with the remark that they were properly composed.

• Su1#32-40
Thesis Defense

• The deep and affectionate sound of “well done!” expressed by the creatures with happiness in the sky resounded the three worlds.

ॐ हो सांविचति निर्धारो लोकांस्वीनन्यवानादयत
नमसि स्त्रियम् स्मरिते अपभ्रंशोऽहंविश्वासः
हरिहरादेशीरिति ॥ ३७
5-Case Based Reasoning – Precursor to the Scientific Method

• “We have seen how the Nyâya-sûtra model of good argumentation” Becomes “rule-governed theory of inference, and how writers in the West have interpreted what they have called the Indian ‘syllogism’.”

• “seeing it an early attempt at what is now called ‘case-based reasoning’ - one or more prototypical exemplars of a category, and reasons that some new object belongs to the same category on the grounds that it resembles in some appropriate and context determined manner one of the exemplars. “

• “medical diagnostics and legal reasoning.”

• From Jonardan Ganeri
6- Financial Assistance

• Taxila – meritorious students not turned away
7-Public Funding

• Other six had full support of students via private donations (including by women) and the state

• Nalanda had transferred to it the land revenue (1/6\textsuperscript{th} of the produce) of 200 villages

• The king of Java – Balaputradeva gifts 5 of those
8- Endowment

• Akshya Nidhi
• Eleemosynary Corporation
• ἐλεημοσύνη - compassion
9-Corporate Form

• All the universities even later Taxila were Buddhist universities
• Why? The Monastery, the first corporation, was a Buddhist invention
• Why? Buddha a Prince. Set out the rules in great detail including detailed voting procedures
• Survives till today
• It has been argued that the Christian monastery was based on influences from Buddhist monasteries in the Middle East
• First organized Christian monastery set up by Benedictines in 529 AD
Nalanda Seal
Copper Plate Inscription by Devapala on Behalf of Balaputradeva of Sumatra
10- Degrees

• Nalanda and others had Acharya, Upadhyaya, Pandit and Mahapandit

• Later many more

• The Tibetan system, based on the Vikramashila model had over a dozen
11-Knowledge Repositories

• Nalanda (from Tibetan sources) had three libraries 9 stories tall, into the clouds
12-Admission Standards

• Nalanda had a 10-20% selection rate after an interview with the top professors there
• Six *dwarapandits* at Vikramshila
13 - Competition

• Seven universities and many centres competed with each other.
14-Academic Freedom

- Description in the early 11th Century from Tibetan eyewitness accounts at Vikramshila
- Morning assembly with several thousand monks
- The king sits audience and nobody rises for him
- But everyone rises when the learned pandits come including Atisha. They even rise for a distinguished stranger.
- Very different relationship of church and state
- The state has no religion – the king has one
- But Hindu kings support Buddhist Universities!
- “All possible and impossible doctrines” thoroughly discussed
Atisha Dipankar
Immanuel Kant

- Frederick William II, King of Prussia issued a letter on the 1st of October 1794 accusing Kant of distorting the teaching of the Holy Scripture.
- Kant defends himself in the Preface to the “Conflict of Faculties” and asks for faculty to discuss, debate and write “according to the best of their knowledge and conscience”
Freedom of Science

• Max Weber notes “The Freedom of Science, exists in Germany within the limits of political and ecclesiastical acceptability” (Althoff and Weber).
15-Women’s Education and Democratic Access

• Several Women’s Colleges at Vallabhi
• Three women who build this great institution
• Separate colleges within the monastery for women
• All castes, religions and regions free to join
16-Centralized Structure

- Nalanda, Vikramashila, Vallabhi, Odantapuri, Jagaddala, Sompura all centralized as opposed to co-location of scholars
European and American Innovations

- European System
  1. Scientific Method/Europe
  2. Research Focus/Humboldt
  3. Learned Societies and Journals

- US System
  1. Unitary Control
  2. Alumni Governance
  3. Byah Dole Act
17-Scientific Method

• The university did not have “a major or formative role in the scientific revolution” (Roy Porter) but appropriated it
18-Unity of Research and Teaching

- The German Model of Humboldt
19 – Learned Societies

- Again the university plugs itself in seamlessly
- Uses them for peer review
20-Unitary Governance

• US model
# 21 - Alumni Control

<table>
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<th>Commonality of Interest</th>
<th>Public Good/Research Incentives/Externalities</th>
<th>Access to Information</th>
<th>Promoting Competition</th>
<th>Length of Commitment</th>
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<td>Emory University</td>
<td>41</td>
<td>32</td>
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</table>
22- Bayh Dole Act

• Economist calls it the “Possibly the most inspired piece of legislation to be enacted in America over the past half-century was the Bayh-Dole act of 1980”.

• University the beneficiary of IP
University

- Started in India during the time of oral traditions
- Palm leaves
- Paper
- Books
- Radio
- TV
- Internet
Overall

• Select
• Support
  – Access
  – Connect
  – Facilitate
• Transform
  – Knowledge
  – People
Some Principles

• Never in the 2600 year history of universities has there been a for profit university that has amounted to much
• Private, not for profit works well, however
• Diversity of perspective is very important in transformation
Changing Delivery Form

- Correspondence Courses (1890-1920 and beyond)
- Open University
- Radio lectures
- TV lectures
- You Tube
- MOOCs
MOOCs

• Very good at support
• More focus on selection and transformation
Foucault’s Askesis-Edward McGushin

• “At the Collège de France from 1982 to 1984, Michel Foucault devoted his lectures to meticulous readings and interpretations of the works of Plato, Epictetus, Seneca, and Marcus Aurelius, among others.”

• Not, “to develop a new knowledge of the history of philosophy; rather, it was to let himself be transformed by the very activity of thinking”.

• So we see “Foucault in the last phase of his life in the act of becoming a philosopher”.

• “Here we see how his encounter with ancient philosophy allowed him to experience the practice of philosophy as, to paraphrase Nietzsche, a way of becoming who one is: the work of self-formation that the Greeks called askesis.”
Hadot – Philosophy as a Way of Life

• “Almost all the schools advocated the practice of askesis”
• Including the Cynics, Pyrrhonians, Epicureans and the Stoics
• Leading a life of the spirit
• Socrates, Plato and Aristotle
• The University in India was deeply grounded in the life of the Spirit
Spiritual Exercises

In his Seventh Letter, Plato declares that if we do not adopt this way of life, life is not worth living; and this is why we must decide right now to follow this "wonderful path."

"living every day in such a way as to become master of oneself as much as possible."

As Paul Rabbow has shown, it does seem that certain spiritual practices, spiritual practices which have left traces in many passages from the dialogues, were in use in the Academy.
### Three Major Organizational Forms

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Contact

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• +91 99100 52841