



The Future of Universities: Lessons from a 2600 Year History

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The History of Universities

- 1800 years when India was prominent (6th Century BCE to 12th Century AD)
- 700 years when Europe was prominent (12th century to the 19th)
- 100 years when the US has been prominent (early 20th 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?

A History of the University in Europe – Walter Rugg (CUP 1992)

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, Jagadala 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)

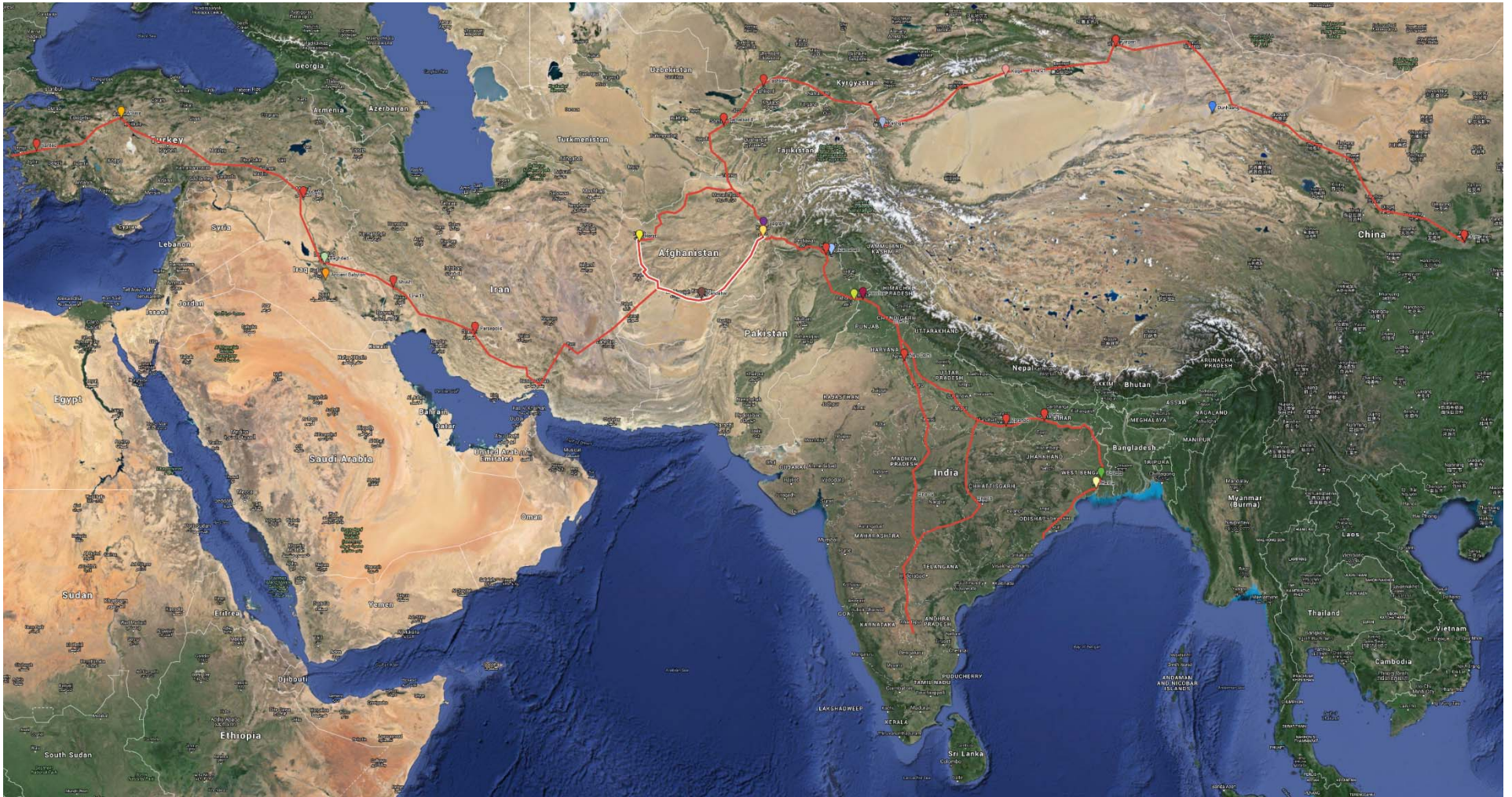
Europe and USA

- 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

	0	1000	1820	1998	0-1000	1000-1820	1820-1998
			(million)		(annual average compound growth rate)		
Western Europe	24.7	25.4	132.9	388	0.00	0.20	0.60
Western Offshoots	1.2	2.0	11.2	323	0.05	0.21	1.91
Japan	3.0	7.5	31.0	126	0.09	0.17	0.79
Total Group A	28.9	34.9	175.1	838	0.02	0.20	0.88
Latin America	5.6	11.4	21.2	508	0.07	0.08	1.80
Eastern Europe & Former USSR	8.7	13.6	91.2	412	0.05	0.23	0.85
Asia (excluding Japan)	171.2	175.4	679.4	3 390	0.00	0.17	0.91
Africa	16.5	33.0	74.2	760	0.07	0.10	1.32
Total Group B	202.0	233.4	866.0	5 069	0.01	0.16	1.00
World	230.8	268.3	1041.1	5 908	0.02	0.17	0.98

Source: Angus Maddison – OECD 2001

World GDP 1990 \$

Year	0	1000	1500	1600	1700	1820	1998
Total Western Europe	11,115	10,165	44,345	65,955	83,395	163,722	6,960,616
Eastern Europe	1,900	2,600	6,237	8,743	10,647	23,149	660,861
Former USSR	1,560	2,840	8,475	11,447	16,222	37,710	1,132,434
United States			800	600	527	12,548	7,394,598
Other Western Offshoots			320	320	300	941	1,061,537
Total Western Offshoots	468	784	1,120	920	827	13,489	8,456,135
Mexico			3,188	1,134	2,558	5,000	655,910
Other Latin America			4,100	2,623	3,813	9,120	2,285,700
Total Latin America	2,240	4,560	7,288	3,757	6,371	14,120	2,941,610
Japan	1,200	3,188	7,700	9,620	15,390	20,739	2,581,576
China	26,820	26,550	61,800	96,000	82,800	228,600	3,873,352
India	33,750	33,750	60,500	74,250	90,750	111,417	1,702,712
Other Asia	16,470	18,630	31,301	36,725	40,567	50,486	4,376,931
Total Asia (excluding Japan)	77,040	78,930	153,601	206,975	214,117	390,503	9,952,995
Africa	7,013	13,723	18,400	22,000	24,400	31,010	1,039,408
World	102,536	116,790	247,116	329,417	371,369	694,442	33,725,635

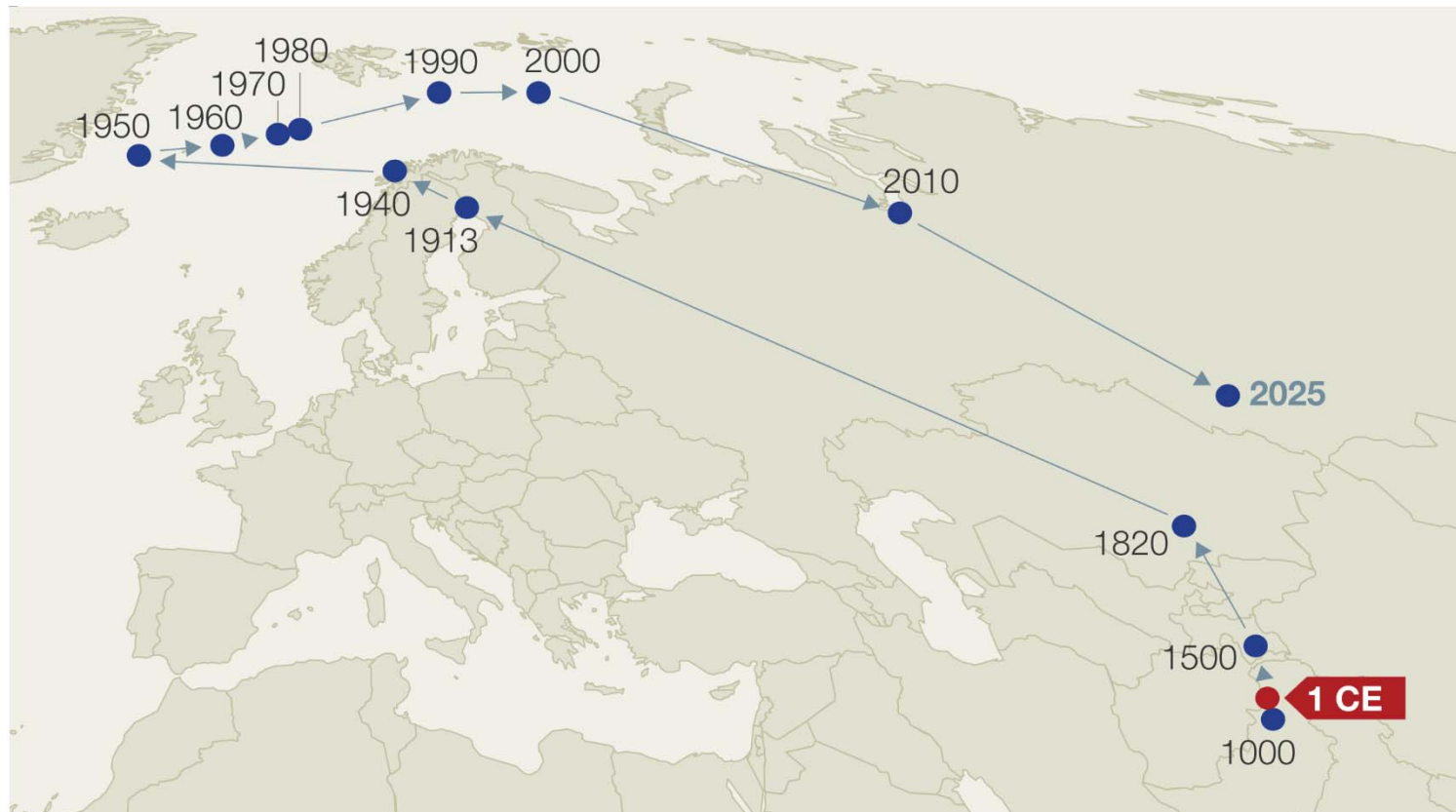
World GDP Shares

Year	0	1000	1500	1600	1700	1820	1870	1913	1950	1973	1998
France			4.4	4.7	5.7	5.5	6.5	5.3	4.1	4.3	3.4
Germany			3.3	3.8	3.6	3.8	6.5	8.8	5.0	5.9	4.3
United Kingdom			1.1	1.8	2.9	5.2	9.1	8.3	6.5	4.2	3.3
Total Western Europe	10.8	8.7	17.9	19.9	22.5	23.6	33.6	33.5	26.3	25.7	20.6
Eastern Europe	1.9	2.2	2.5	2.7	2.9	3.3	4.1	4.5	3.5	3.4	2.0
Former USSR	1.5	2.4	3.4	3.5	4.4	5.4	7.6	8.6	9.6	9.4	3.4
United States			0.3	0.2	0.2	1.8	8.9	19.1	27.3	22.0	21.9
Other Western Offshoots			0.1	0.1	0.1	0.1	1.3	2.5	3.4	3.2	3.1
Total Western Offshoots	0.5	0.7	0.5	0.3	0.2	1.9	10.2	21.7	30.6	25.3	25.1
Mexico			1.3	0.3	0.7	0.7	0.6	1.0	1.3	1.7	1.9
Other Latin America			1.7	0.8	1.0	1.3	2.0	3.5	6.7	7.0	6.8
Total Latin America	2.2	3.9	2.9	1.1	1.7	2.0	2.5	4.5	7.9	8.7	8.7
Japan	1.2	2.7	3.1	2.9	4.1	3.0	2.3	2.6	3.0	7.7	7.7
China	26.2	22.7	25.0	29.2	22.3	32.9	17.2	8.9	4.5	4.6	11.5
India	32.9	28.9	24.5	22.6	24.4	16.0	12.2	7.6	4.2	3.1	5.0
Other Asia	16.1	16.0	12.7	11.2	10.9	7.3	6.6	5.4	6.8	8.7	13.0
Total Asia (excluding Japan)	75.1	67.6	62.1	62.9	57.6	56.2	36.0	21.9	15.5	16.4	29.5
Africa	6.8	11.8	7.4	6.7	6.6	4.5	3.6	2.7	3.6	3.3	3.1
World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Angus Maddison – OECD 2001

Centre of Gravity – From Urban World.

(Mckinsey Global



Located at The Smart Museum
University of Chicago – Richard
Howard Hunt. Why?



The Great Philosophers

INDIA

B.C.E.

Uddalaka (?8th cent.)

Yajnavalkya (?8th cent.)

Mahavira (599–527)

Buddha (563–483)

CHINA, JAPAN

Confucius (551–479)

Mo-tzu (480–390)

Chuang-tzu (4th cent.)

Mencius (371–298)

Hsün-tzu (298–238)

Han Fei-tzu (280–233)

EUROPE

Heraclitus (fl. 500)

Parmenides (b. 515)

Socrates (470–399)

Democritus (460–370)

Plato (428–348)

Aristotle (384–322)

Pyrrho (365–270)

Epicurus (341–270)

Arcesilaus (315–241)

Carneades (214–129)

Lucretius (99–55)

C.E.

Nagarjuna (fl. 200)

Asanga (fl. 350)

Vasubandu (fl. 350)

Bhartirhari (450–510)

Dignaga (480–540)

Plotinus (205–270)

Sextus Empiricus
(3rd cent.)

Proclus (410–485)

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

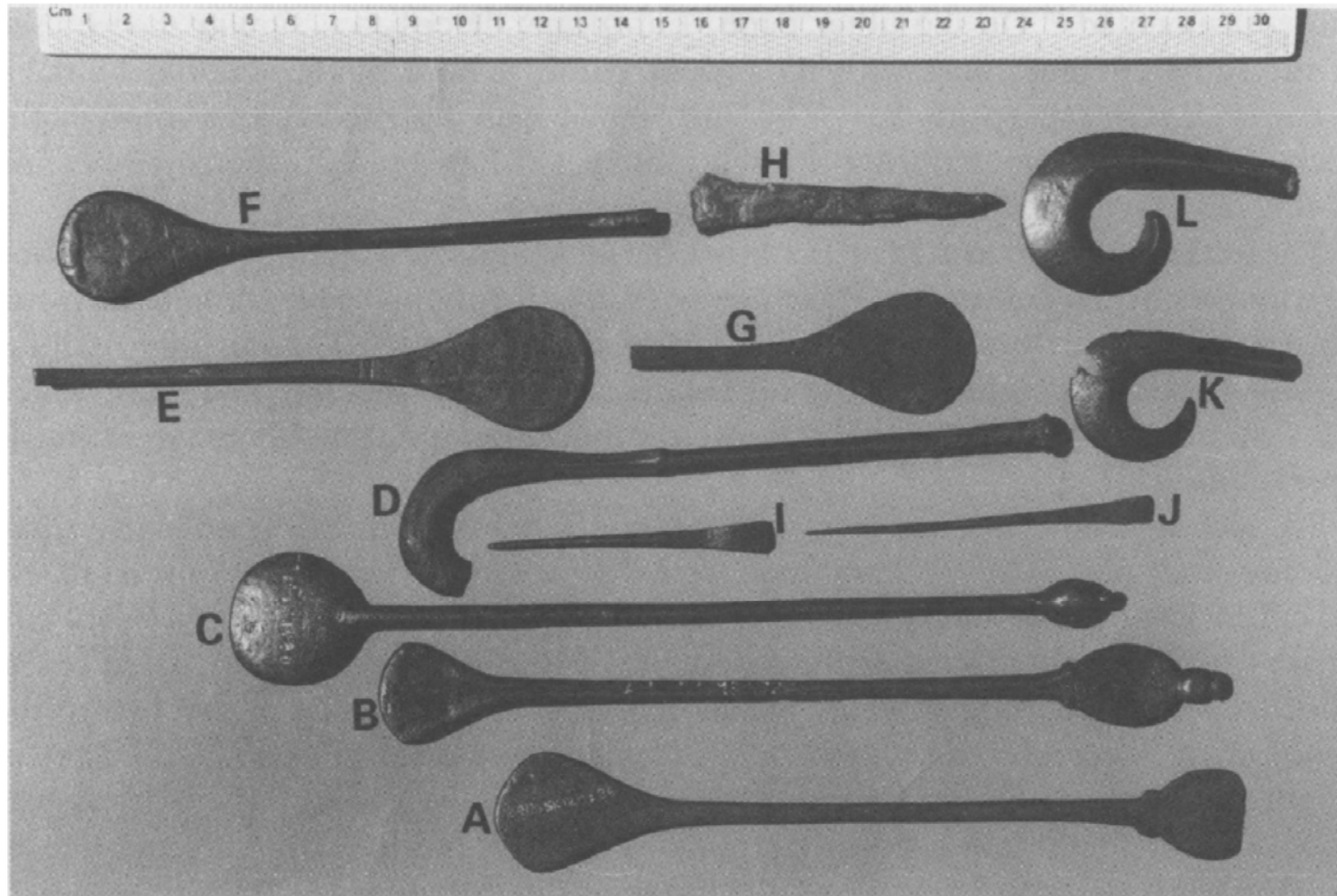
Education Hard to Evaluate

- 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

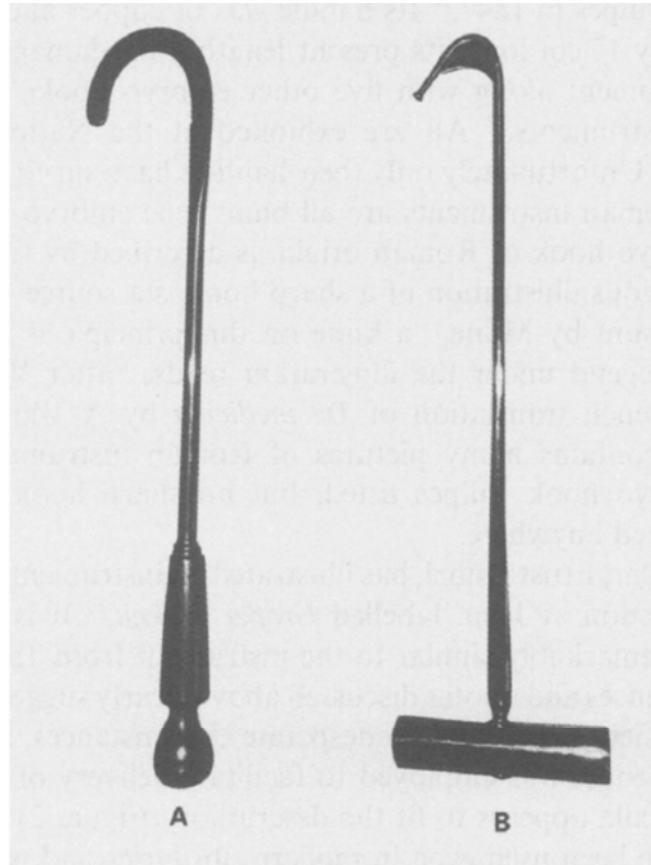


Figure 4: Modern decapitators. A: Ramsbottom's decapitating hook; B: Jardine's decapitating hook (Thackray Medical Museum, Leeds).

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

4-Peer Review – Global Conference

Charaka Samhita

- Among them were Angira, Jamadagni, Vasistha, Kasyapa, Bhrgu, Atreya, Gautama, Sankhya, Pulastya, Narada, Asita, Agastya, Vamadeva, Markandeya, Asvalayana, Parikshi, Bhiksu Atreya, Bharadwaja, Kapinjala, Viswamitra, Asmarathya, Bhargava, Cyavana, Abhijit, Gargya, Sandilya, Kaundinya(Iya), Varksi, Devala, Galava, Sankrtya, Baijavapi, Kusika, Badarayana, Badisa, Saraloma, Kapya, Katyayana, Kankayana, Kaikaseya, Dhaumya, Marica, Kasyapa, Sarkaraks, 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

काङ्कायनः कैकशेयो धौम्यो मारीचकाश्यपौ
शर्कराक्षो हिरण्याक्षो लोकाक्षः पैङ्गिरेव च १२

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.

अहो साध्विति निर्घोषो लोकांस्त्रीनन्ववानादयत्
नभसि स्निग्धगम्भीरो हर्षाद्भूतैरुदीरितः 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 ($1/6^{\text{th}}$ 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

	Commonality of Interest	Public Good/Research Incentives/ Externalities	Access to Information	Promoting Competition	Length of Commitment	Ability/Willingness to Provide Resources
Shareholders	High	Low	High	High	High	High
Faculty	Conflict	High	Very High	Moderate	Moderate	Low
Trusts	Moderate	Moderate	Moderate	Moderate	High	Moderate
State	Moderate	High	Low	Moderate	High	High
Alumni	High	High	High	High	High	High

Top 20 US Universities – US News and World Report Rankings – 2010/2011

Rank	University	# of Trustees	Alumni	Alumni %
1	Harvard University	30	30	100%
2	Princeton University	42	38	90%
3	Yale University	17	17	100%
4	Columbia University	23	23	100%
5	Stanford University	31	28	90%
5	University of Pennsylvania	58	53	91%
7	Cal Tech	50	20	40%
7	MIT	73	57	78%
9	Dartmouth College	22	20	91%
9	Duke University	36	31	86%
9	University of Chicago	46	36	78%
12	Northwestern University	81	56	69%
13	Johns Hopkins University	63	42	67%
13	Washington U. in St. Louis	53	29	55%
15	Brown University	42	37	88%
15	Cornell University	64	55	86%
17	Rice University	24	14	58%
17	Vanderbilt University	56	45	80%
19	University of Notre Dame	49	39	80%
20	Emory University	41	32	78%

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

	Corporation	Government	University
Hire	Yes	Yes	Yes
Promote	Yes	Yes	Yes
Evaluate	Yes	Yes	Partial/Peers
Move	Yes	Yes	No
Assign Tasks	Yes	Partial	No
Observe Tasks	Yes	Partial	No
Monetary Incentives	Yes	No	No
Fire	Yes	No	No

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