Histories of Science - Technology

• Have evolved as separate research traditions
  – Separate societies, journals etc.
• Based on the differences in the establishment of Universities vs. Polytechnics
• Over the recent years more contact and discussion
• Even history of science is a very diffuse field
What does HoS do?

• Describes and explains the birth, growth, and possible decay of its subjects of study

• This is done with the help of historical sources

• ...And by using various explanatory factors

Explanatory factors in HoS

• Internalist – externalist factors
• Personal factors
• Social, cultural and political factors
• Ideologies and religious factors
• Economic factors, material resources
Explanation…

• Which aspects do need explanations?

• Which explanatory factors are the most important ones?

• How do we know which factors to count with?

From "traditional" view of science to constructivist approaches

"Traditional" historiography

• Whewell in search for the "one and only" method
• Sarton and Singer: history of science important only in relation to modern science
• Historiography as an ally to western values

Constructivist approaches

• STS = Science and Technology Studies
• Sociology of Science and Technology
  – Mertonian tradition
  – The strong programme
• Other new perspectives, such as gender etc.
The Dangers of Anachronism

• Evaluation from the present point of view
  – The "Whig history"
• Formalisation, modernisation
• Coherence
• Anticipation

• There is no perfect diachronism!

History of Technology

• Analyses the development of manmade technological culture and artefacts
• STS (Wiebe Bijker & Trevor Pinch)
  – Innovation studies
  – History of Technology
  – Sociology of Technology
Research trends in History of Technology

- "nuts, bolts and great men" ca. 1760-1920
- History of engineering, cultural criticism of technology 1900-1960
- Contextualism and externalism, 1950-1980
- System builders 1960 –
- Social construction of Technology 1980 –
- Cultural history of technology, 1980 –

System builders and large technological systems (LTS)

- Thomas P. Hughes
- "Systems are evolving cultural artefact rather than isolated technologies. As cultural artefacts they reflect the past as well as the present."
- How do inventions or small systems grow into LTS?
- System builders: inventor-enterpreneurs and manager-enterpreneurs

- INDUSTRIAL REVOLUTIONS: FROM CANAL SYSTEMS TO COMPUTER NETWORKS
Social Construction of Technology (SCOT)

• Trevor Pinch & Wiebe E. Bijker: The Social Construction of Facts and Artefacts 1987

• Relevant social groups define, which problems in techn artefact need solving / negotiation and what is a closure of a problem

Further readings

• Mika Kiikeri & Petri Ylikoski, Tiede tutkimuskohteena 2004
• Helge Kragh, An Introduction to the Historiography of Science, 1987
• R.C. Olby, G.N. Cantor, e.a.(eds.), Companion to the History of Modern Science 1990
• S. Jasanoff, G.E. Markle, e.a. (eds.), Handbook of Science and Technology Studies 1995
• Jan Golinski, Making Natural Knowledge. Constructivism and the History of Science 1996
• John M. Staudenmaier, Technology’s Storytellers. Reweaving the Human Fabric 1985
• Thomas P. Hughes, Networks of Power 1983
• Thomas P. Hughes, The American Genesis 1990
• Wiebe E. Bijker, Of Bicycles, Bakelites, and Bulbs. Toward a Theory of socio-Technical Change 1995
• David Nye, Electrifying America: Social meanings of a New Technology, 1990
• Tekniikan vaiheita, see Tekniikan historian seura http://www.ths.fi