BHARATHIDASAN UNIVERSITY

Tiruchirappalli- 620024,
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Programme: M.A. History (Integrated)

Course Title : History of Science and Technology in India

Course Code : CC12

Unit-V

Big Vs Small Debate

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Definitions of science and technology

- ***Scinece***: systematic and organised knowledge obtained by observation and testing of facts about physical and natural laws and society
- ***Technology: s***cientific study and use of mechanical arts and applied science or application of mechanical arts and applied science for the manipulation of material

- To start with-let me refer to 10days power block out in BDU- which explains human’s close relationship on technology

Reciprocality between society and emergence of disciplines

- Why at certain time and context, some knowledge systems emerge and what are their objectives?
- From the emergence of Christianity down to emergence of Bt technology, society has its says.
- From *4th* century AD to 20th century AD—at various times in history society had its own reasons to produce certain ideologies, theories of knowledge and disciplines.
- ***Scholasticism*** as societal ideology in medieval ages, ***Humanism*** and ***realism*** in Renaissance, *theoretical* and ***observational science*** in scientific revolution, ***experimental science*** during industrial revolution, ***Rationalism*** in enlightenment, ***neo-medievalism*** during romanticism, ***deconstructionism*** during post-modern times.

Definitions

- *History* of science is discipline that would help to understand humans attempt to understand the mysteries of inner and outer world and their attempts to comprehend their surroundings to live and survive in it over the course of time
- History of technology: is a discipline that helps us to understand human's attempts to manipulate material for human betterment.

Why HST is emerged as discipline?

- After the four centuries Baconian utilitarian philosophy of science-human efforts to understand nature and utilise nature led to the industrial revolution.
- Industrial revolution is a perfect example of marriage between capitals, experimental science and technology.
- It was this marriage-seemed necessary for the progress of the human kind-had inherited positives which dominated the mind of human for two centuries, while its negatives, though recognised from the beginning, were ought to be ignored for the greater good of the human
- But the two hundred years of exploitation of the nature with industrial technology, the negatives of the IR began to emerge from dark and pose challenges to the very positives of technologies of IR, applied science-conflicting with societal morality, corporate or (Bad) Science-creating artificial wants for profiteering.

- For the western society- comprehending the role of science and technology in the evolution of human society, its negative and positive aspects to determine their role in designing the future.
- From 1950s, realisation of understanding the role of science and technology in the crisis of civilisation (increasing inequalities between countries, communities, gender and environmental destruction, science and technology for profiteering, science and violators of human rights)
- engineers of the Western Europe and North America, for example, history of technology, made its beginning in 1958 Advisory Committee on Technology and Society that grew out of the Humanistic-Social Research Project of American Society for Engineering Education.
- this realisation targetted the engineering education which is responsible for designing technology for human developemnt
- Survey condcuted on engineering circullum in 1952-55 in US, it was recommended that one course in term throughout the four years of engineering degree course be devoted to non-technical studies.

- Growing interest among the students and teachers on the pervasive influence of technology in modern society-demanded growth of coruse on understanding the relationship between technology and society.
- Interdisciplinary courses have emerged-technical and non-techncial instructors share the duties of bringing both technical and human aspects technology/soceity relationship.
- Out of this concern, there was Sciecne, Technology and Socieity (STS) studies as an inter-disciplinary movement by socially progressive professors in discipliens such as philosophers, ethicists, rains the awarness of engineers and applied scientists of the social and cultural effects of their technological practices.
- The second subculture with the leadership from historians (melvin Kranzberg, thomas p hughes and sociologists (Wibie J Bijker, Treve K. Pinch) as a respons to similar concerns expressed by humanities and social sicence students
- This sub culture use empreicial methods to describe the priactice of sciecne and engineering (technology), demonstarting the social process in the construction of technical and scientific knowledge.

- STS consists of two cultures- Activists and academicians.
- Young scholars entering into the field of STS studies as they see sciecne and technology as problematic in society and seek intellectual understanding that can assist them to meliorate the problems-through the co-operation of scholars and activists-
- This cooperation between intellectual thinking and social practice could gradually blur the line (in today's anti-technological movements you have peoples scientists who were once professional engineers and scientists)
- Social constructivism and sociology of science and technology
- Sociology of science and technology-informs us on the role of soceity and its reciprocality with sciecne and technology.

For East History of Science and Technology

- for the non-western society-History of science and technology- was historical necessity to establish historical equilibrium between the west and the East.
- Opposing the Eurocentrism and Imperlialistic understanding of sciecne and technology in the non-european world.
- Its a combined effort of the social sciecne community-i.e Asian and African historians of sciecne and technology and sociologists of sciecne and technology.
- Joseph needham's of History of Sciene in China, Claude Alvare Home Faber: History of Sciecne and Technology in India and China, Susanta Goona Tilake-Mining Civilisations

For the west, HST is also justification of Imperialism and Colonialism

- Empires and Science and technology-from 15th century AD to 20th century AD
- Science and Technology as Tools of Empire or Imperialism in reaching over seas (ships and astronomy) conquering (guns and military weapons), consolidating and controlling colonies
- ST as tools of utilising acquired lands in Asia and Africa for maximising economic benefits (agricultural sciecne, forestry, botany, estate economy)
- for marketing S&T goods in colonies (transfer of western technology corporations to east for business in science and technology –in electrical goods, machine tools,
- for understanding geography, natural richness of colonies