

Course: Science, Technology and Society

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Week: 10 (Social Shaping of Technology III)

Lecture: 30 (Capitalism, class, gender, city, machine, workplace III)

In the last lecture, we discussed a gendered socio-technical construction in the case of the smart house. Now, in the discussion on the social shaping of technology in contradistinction to the technological shaping of society is important and in this lecture, we will end with the section on the social shaping of technology that, if a technology is workable, if a technology, if a particular technology works well in a certain context, it does not imply that , it will work well in all other contexts.

, if, if one size fits all is the hallmark of a technologically deterministic society, then interrogating the one size fits all, becomes the hallmark of the social shaping of technology. That, no, this one size fits all is not applicable in the context of the development and application of a particular technology, And in this context, Nelly Oudshoorn points out the decline of the one size fits all paradigm or how reproductive scientists try , to cope with such postmodern phenomenon of technology.

, I am not going to discuss more on postmodernity as such, , , what does postmodernity refer to? Basically, postmodernity refers to the rejection of all grand theories. It may be Darwinian evolution of species or Marx's principles of dialectic and materialist conception of history or Freudian psychology of mind. , it rejects the grand theory.

Postmodernity propounds for multicultural ethos and so on. , this is not a course on sociological theory or political theory, where I will have to discuss postmodernity at length and in detail. What I am going to do here, I will discuss the work of Nelly Oudshoorn in the context of the decline of this one size fits all paradigm, a history of contradictory technology.

The decline of the one-size-fits-all paradigm: a history of contraceptive technologies

Otherring process of scientific discourse in biomedical sciences

- How did the identification of 'women' as 'the other' result in setting the female body apart in separate branch of medicine?
- The emergence of gynaecology and sex endocrinology in the late 19th and early 20th centuries established a discursive practice in which sex and reproduction became considered as 'more fundamental to woman's than man's nature.'

Have you ever heard of andrology? I repeat the question, have you ever heard of andrology? The very fact that, that andrology, the medical specialism concerned with the reproductive functions of men is still a cindrella profession compared to its bigger sister, that is gynaecology. That , , is one of the striking examples of the institutional and discursive processes of “othering”, If you look at this “othering” in the biomedical sciences. That is why , process of othering of scientific discourse in biomedical sciences.

Then, feminist discourses since the 1970s, 80s, 90s and so on, have provided major challenges to these othering processes of scientific discourse. The, purpose of this lecture is to show how major changes in the dominant paradigm of subject-object dichotomies emerged in one specific area of the biomedical sciences, that is the reproductive side. One must describe how the identification of women as the other result in setting the female body apart in, in separate branch of medicine, in a separate branch of medicine.

The emergence of gynecology and sex endocrinology in the late 19th and early 20th centuries established a discursive practice in which sex and reproduction became considered more fundamental to women's rather than man's nature. This is, important. Why do we think that the reproductive capacity is essentially tuned towards or it essentially related to only women's nature, not man's nature? That is why I, started with the question, have you ever heard of andrology? If gynaecology deals with the reproductive abilities or, reproductive sides of women, then andrology deals with , , reproductive side of aspects of men, in this sense.

It is, very important, that is why I said, , what Oudshoorn suggested, that the emergence of gynaecology and sex endocrinology in the late 19th and early 20th centuries established a discursive practice in which sex and reproduction became considered more fundamental to women's rather than man's nature. Then, , if we say that, no, it is considered, it is dubbed, it has been portrayed in a more patriarchal society, portrayed as more fundamental to women's rather than man's nature, then how we try to institutionalize women as the other, othering process of scientific discourse in biomedical sciences? What is , the institutionalization of women as the other? , there must be a shift in focus from similarities to differences. The, institutional process of othering in medicine has a recent history.

**The institutionalization of woman as the other:
shift in focus from similarities to differences**

The institutional process of othering in medicine has a recent history.

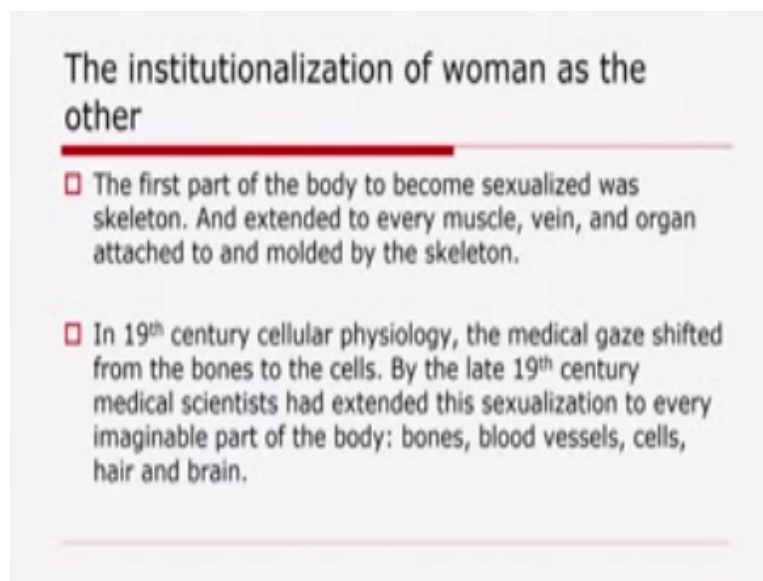
- ❑ Medical texts from the ancient Greeks described male and female bodies as fundamentally similar.
- ❑ 'One-sex model': female body understood as male turned inside herself – not a different sex.
- ❑ It was only in 18th century, biomedical discourse began to conceptualize the female body as other.

For, our postmodern minds, , those who reject all grand theories, it is hard to imagine, that, , for 2000 years' male and female bodies were not conceptualized in terms of differences. Medical texts from the ancient Greeks until the late 18th century described male and female bodies as fundamentally similar. Women had even the same genitals as men with one difference, theirs are inside the body and not outside.

In this approach characterized by Thomas Laqueur as the “One- Sex Model”-, the female body was understood as a male turned inside herself, not a different sex, but a lesser version of the male body. It was, only in the 18th century that biomedical discourse began to conceptualize the female body as the other. A body, because 18th century also is very important. In 18th century, it was also a marker of the change in the mode of production. You see, in 18th century we, saw industrial revolution, we witnessed critical thinking, modernity,

reasoning capacity, that is why it was, only in the 18th century that we find that biomedical discourse began to conceptualize the female body as the other. That is a body that was to be considered an essentially different, as essentially different from the male body.

The long established tradition that emphasized bodily similarities over differences began to be heavily criticized. In the 18th century, anatomists increasingly focused on bodily differences between the sexes and argued that sex was not restricted to the reproductive organs or as one physician put it, , I am quoting Oudtshoorn that “the essence of sex is not confined to a single organ, but extends through more or less perceptible nuances into every part.



The first part of the body to become sexualized was the skeleton. If sex differences could be found in the hardest part of the body, it would be likely that sex penetrated every muscle, vein and organ attached to and moulded by the skeleton.” That is what, , , Sciebinger also means. In, in 19th century cellular physiology, in , the medical gaze shifted from the bones to the cells. By the late 19th century, medical scientists had extended this sexualization to every imaginable part of the body, bones, blood vessels, cells, hair and brain. Only the eye seems to have no sex. That, what , in 19th century cellular physiology.

Biomedical discourse, thus shows a clear shift in focus from similarities to differences. This shift seems to have caused by epistemological socio-political changes rather than by scientific progress. In, the book “Making Sex”, Thomas Laqueur described this shift in the context of changes in the political climate.

The French revolution and new liberal claims in the 18th century led to new ideals about the social relationships between men and women in which the complementarity between the sexes was emphasized. This theory of complementarity taught that man and woman are not physical and moral equals, but complementary opposites. Women now became viewed as fundamentally different from and thus incomparable to men.

The theory of sexual complementarity was meant to keep women out of competition with men, designing separate spheres for men and women. In this theory, which came to be known as the doctrine of the two spheres, the sexes were expected to complement rather than compete with each other. The female and the male body became conceptualized in terms of opposite bodies with incommensurably different organs, functions and feelings.

That is what Laqueur Thomas Laqueur said. This, this change is visible in medical language as well, which Laqueur in "Making Sex" in 1990, he mentioned that, this change is visible in medical language. , organs that had shared a name, ovaries and testicles were now linguistically distinguished. Organs that had not been distinguished by a name of their own, the vagina, for example, were given one. Following this, , the female body became the medical object par excellence. Foucault in 1981 suggested this, Michel . That the female body became the medical object par excellence emphasizing women's unique sexual character.

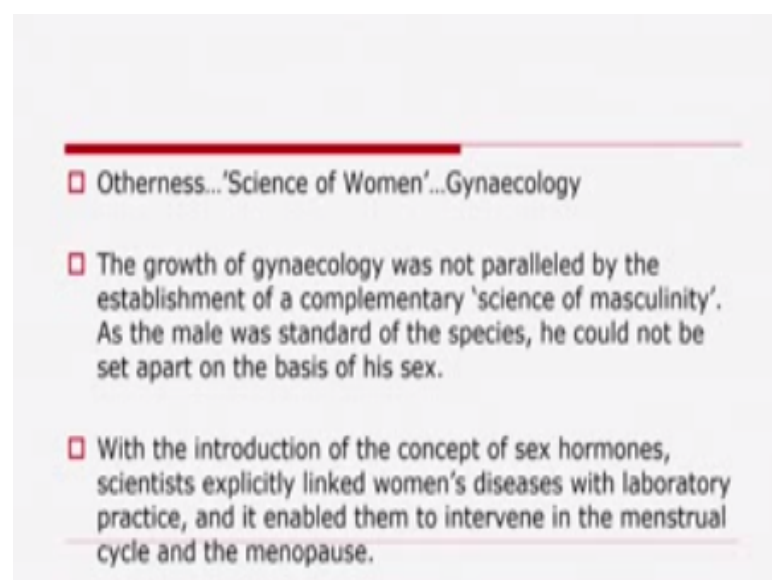
Medical scientists now started to identify the ultimate cause of women's otherness. The , the medical literature of this period shows a radical naturalization of femininity in which scientists reduced women to one specific organ. In the 18th and 19th centuries, scientists set out to localize the essence of femininity in, in different places in the body.

Until the middle of the 19th century, scientists considered the uterus as the seat of femininity. This, conceptualization is reflected in the statement of the German poet and naturalist Goethe. , , I am just trying to look at different, dimension here in the works of Nelly Oudtshoorn

In the middle of the 19th century, medical attention began to shift from the uterus to the, ovaries, which came to be regarded as largely autonomous control centres of reproduction in

the female animal, while in humans, they were thought to be the essence of femininity itself. In the late 19th century, the search for the cause of women's otherness eventually led to setting women's bodies apart in a medical special regime that is called gynaecology. In a, Moscucci once pointed out that, he pointed out how “the belief that the female body is finalized for reproduction defined the study of ‘natural women’ as a separate branch of medicine.”

With the emergence of gynaecology, women became identified as a social group, as a special group of patients. The turn of the century, the turn of the 20th century witnessed the founding of societies, journals and hospitals specifically devoted to the diagnosis and treatment of the female body. Women thus became set apart in the discursive and institutional practices of the biomedical sciences.



The growth of gynaecology was not paralleled by the establishment of a complementary science of masculinity. As the male was, the standard of the species, he could not be set apart on the basis of his sex. This, institutional process of othering was continued and reinforced by the rise of sex endocrinology or discipline devoted to the study of sex hormones that emerged in the 1920s and 1930s.

Oudtshoorn in the book “Beyond the Natural Body” described how the very existence of gynaecology facilitated a situation in which the new science of sex endocrinology focused almost exclusively on the female body. The by then established gynaecological practices had

transformed the female body into an easily accessible supplier of research materials, convenient guinea pig for tests and an organized audience for the products of sex endocrinology. Both laboratory scientists and pharmaceutical firms depended on these institutional practices to provide them with the necessary tools and materials to transform the hormonal model of the body into a new set of disease categories, diagnostic tools and drugs.

Sex endocrinologists integrated the notion of the female body as a reproductive body into the hormonal model, but not without thoroughly changing it. They provided the medical profession with tools to intervene in features that had been considered inaccessible prior to the hormonal era. The, introduction of diagnostic tests and drugs enabled the medical profession to intervene in the menstrual cycle and the menopause, thus bringing the natural features of reproduction and aging into the domain of medical intervention.

The, introduction of the concept of sex hormones not only changed the medical treatment of the female body, but also redefined the existing social configurations structuring medical practice. In this, , , , the field of sex endocrinology generated a set of social relationships that did not exist prior to its emergence. What changed in this episode according to Oudtshoorn was the question of who was entitled to claim authoritative knowledge about the female body.

The hormonal model enabled gynaecologists to draw the female body more and more deeply into the gynaecological clinic. Gynaecologists, however, had to share their increased medical authority with another professional group, that is, the laboratory scientists. With the introduction of the concept of sex hormones, scientists explicitly linked women's diseases with laboratory practice.

The, study of women as the other, thus became extended from the clinic to the laboratory and thereby firmly rooted in the heart of the life sciences.

Development of the first physiological means of contraception focused exclusively on women

- ❑ Margaret Sanger, a women's rights activist and pioneer for birth control in the United States of America, believed that the most important threat to women's independence came from unwanted and unanticipated pregnancies.
- ❑ Sanger was very explicit about what type of contraceptive had to be developed: it had to be a 'universal contraceptive' that could be used by all women, regardless of colour, class, age, or educational background.
- ❑ These early ideas on contraception set the stage for reproductive paradigm – 'One Size Fits All'

Now, if you, look at development of the first physiological means of contraception focused exclusively on women, before, coming to one size fits all, let us discuss one interesting argument, , , which Oudtshoorn has mentioned, that Margaret Sanger, , a women's rights activist and pioneer for birth control in the United States of America, believed that the most important trait to women's independence came from unwanted and unanticipated pregnancies. Margaret Sanger was very explicit about the type of of contraceptive technologies or what type of contraceptive had to be developed.

One Size Fits All

- ❑ The adage 'One Size Fits All' of 1960s and 1970s became the cornerstone of R&D in contraceptives.
- ❑ The quest for universal contraceptives can be considered as the ultimate consequence of the process of othering.
- ❑ Classifying woman as the other directs the attention to similarities among women. Consequently, the design of medical technology does not have to take into account the diversity of its users.

It had to be a universal contraceptive that could be used by all women regardless of colour, class, age or educational background. These early ideas on contraception set the stage for reproductive paradigm, that is, one size fits all. Why we should do with this kind of thing, that one size fits all? The adage that one size fits all of the 1960s and 1970s became the cornerstone of R &D in contraceptives.

Bearing in mind this short history of the process of othering in the biomedical sciences, it will be no surprise that the development of the first physiological means of contraception focused exclusively on women. The history of the contraceptive pill indicates how the process of othering required an emphasis on similarities among women. That is how , , remarkably this time the choice to focus on women rather than men was not made by the medical profession or laboratory scientists, but as we discussed that how an outsider rather, outsider, , not in a literal sense, but in a more figurative sense, in a more metaphorical sense.

Margaret Sanger was not a laboratory scientist or is it does not belong to a pharmaceutical form, but the way Sanger was very much explicit about the type of contraceptive or what kind of contraceptive, what type of contraceptive had to be developed for Sanger, it must be a universal contraceptive that could be used by all women regardless of color, class, age or educational background. This, this one size fits all and this is important and , we are trying to discuss this. These, early ideas on contraception set the stage for the reproductive paradigm of the 1960s and early 1970s.

The quest for universal contraceptives can be considered the ultimate consequence of the process of othering. Classifying women as the other directs the attention to similarities among women. Consequently, the design of medical technology does not have to take into account the diversity of its users. This is important.

Then the history of the contraceptive pill, , therefore reads as an intriguing story of how scientists try to construct similarities between women. This is very obvious in the text that Pincus and his colleagues published reporting the clinical trials of the pill.

A perusal of these publications , according to Utsur that, they reveal a very telling picture. The women participating in the clinical trials have disappeared from the, from the stage. They were replaced quite simply by the number of treated menstrual cycles. In the 1958 publication of one of the first large scale clinical trials, Pincus concluded that, , in the 1279

cycles of the pill, the number of women during which the regimen of treatment was meticulously followed, there was not a single pregnancy. In the, in the 1959 publication in Science, which described all four field trials of the pill, it was reported, Pincus, I am quoting Pincus here. “We have recently collected and analyzed the data to November 1958 from these four projects and present here , the outstanding findings derived from this data, 830 subjects took the medication for a total of 8133 menstrual cycles or 635 women years, a popular writer also, , , Maisel also wrote about this, , in the, “Hormone Quest”, in the context of the West Indies, Caribbean island. And such, representative strategy clearly emphasizes the similarities between women. The use of such categories as cycle replaces the individual subject by the group, suggesting a continuity that did not exist in the trials.

That suggestion simultaneously affirms continuity while obscuring discontinuity by framing new scientific categories for data measurement. A representation in terms of cycles implies an abstraction from the bodies of individual women to the universal category of a physical process. Here, we see how scientific texts are not simply a reflection of the proceedings of research. Texts are a far stronger tool than that. They are a representation which creates a new reality. The discourse of, field researchers constructed women's bodies as universal with respect to their reproductive functions.

One Size Fits All

- ❑ The testing of hormones as contraceptives did not take place in the continental USA, where the laboratory research took place, but in the Caribbean Island.
- ❑ It was 'women of colour' from former colonial settings, who entered this history as guinea pigs of one of the most revolutionary drugs in the history of medicine.
- ❑ The choice to test hormones on women of colour only be made because scientists did not recognize any fundamental differences between women.

The construction of similarities between women is not just a matter of discourse. During the testing of the pill, similarities were literally created by the introduction of a specific regimen of medication. In one of the first clinical trials which Maisel carried out in the context of the

Caribbean island, the West Indies, she pointed out that women were quite distressed when they noticed that their menstruations ceased during the treatment with oral progestin. If these, were distressed, Pincus reflected, it would be very unlikely that women taking progestins for contraceptive purposes would experience similar reactions to secession. The, a contraceptive that, suppresses menstruation did not meet the requirements of a universal contraceptive. Pincus, , therefore, changed the medication. The pill should be taken for 20 days starting on the fifth day after menstruation as was the practice in the hormonal treatment of menstrual irregularities in the 1940s. This suggestion set the standard for the administration of progestins in all later trials and eventually for the use of the contraceptive pill in the 1990s. The of this regimen of medication was set by moral objections to any drugs that would interfere with menstruation.

Pincus was directly confronted with this norm by Shirl of the pharmaceutical firm which put the pill on the market. that the testing of hormones as contraceptives did not take place in the continental US where the laboratory research took place, but in the Caribbean island. This is also important.

This, research laboratory was located in the United States of America, but the research was conducted in the Caribbean. It was women of color from former colonial settings who entered this history as guinea pigs of one of the most revolutionary drugs in the history of medicine. The choice to test hormones on women of color only be made because scientist did not recognize any fundamental differences between women.

What Pincus tried to mention here that actually in view of the ability of this compound to prevent menstrual bleeding as long as it is taken a cycle of any desired length would presumably be produced. We had chosen our standard day 5 through day 24 regime in the expectation of that normal cycle length would occur. If you look at this, that concept such as normality and similarity are medical constructs rather than rooted in nature.

Pincus could have made a menstrual cycle of any desired length. He chose to make a normal menstrual cycle that subsequently became materialized in the pill. This diminished the variety of menstrual patterns among women.

One Size Fits All

- ❑ The concept of similarity functions as the cornerstone for the development of universal technologies, technologies that can be used by women all over the world.
- ❑ The theoretical assumption underlying the idea of universal technologies can be made to work everywhere because scientific knowledge is universal by nature.
- ❑ In the 1970s, scientists concluded that the development of - 'a magic bullet'- a perfect contraceptive had **failed**.

All pill users have a regular cycle of 4 weeks. The pill thus literally created similarities in women's reproductive functions. , these strategies, . important to understand. , the concept of similarity functions as the corner store for the development of technologies. the technologies that can be used by women all over the world.

That is an assumption. , the theoretical assumption underlying the idea of universal technologies can be made to work everywhere because scientific knowledge is universal in or appears to be universal in nature. In the 1970s, scientists concluded that the development of magic bullet, a perfect contraceptive had failed.

these are important discussions on one size fits all. Now, what we are, trying to do, whether we should modify technology to fit people or we should, or modify medicine to fit people or we should modify any pill to fit people or we should modify people to fit those pills. This is interesting.

If you look at this, , the emphasis on similarities in the development of medical technologies such as the pill is not unproblematic. It is very much problematic. The concept of similarity functions, that is what we discussed.

the concept of similarity functions , as the corner store for the development of universal technologies, technologies that can be used by women all over the world. That is what we, discussed, that the theoretical assumption underlying the idea of universal technologies can

be made to work everywhere because scientific knowledge appears universal by nature. The, case study of the pill exemplifies the failure of this claim.

Despite all the emphasis on similarities, the pill has not developed into a universal technology. The dream of making the ideal contraceptive for any woman, regardless of her scientific specific background was not fulfilled. The main acceptance of the pill had been among middle and upper class women in western industrialized world with one exception. At that time, it was China. Most women in countries of the south, that had adopted sterilization and intrauterine devices as means of contraception. Scientists may explain this failure by saying that women are to blame. , , what, Oudshoorn argues is that if anything is to blame, it is the technology. She suggests that we may be able to understand the failures of science and technology by adopting a social constructivist approach that emphasizes the contextual nature of science and technology in this perspective every technology contains a configured user consequently technologies cannot simply be transported elsewhere. This is important, she was trying to look at the social constructivist approach developed by Bijker and Pinch in the social construction of technological systems which we discussed earlier the SCOT approach and so on.

Modify technology to fit people, rather than modifying people to fit technology

- ❑ This drastic shift in the reproductive paradigm coincided with broader cultural changes in the late 1970s: the collapse of the dreams of modernity.
- ❑ The declining belief in grand theories and ideologies to understand and control the world led to a situation in which locality and individuality became of central concern in Western culture.
- ❑ The notion of differences became important theme. The crisis in modernity eroded the belief in one technological fix to improve the human condition.

And let us see this, such dramatic shift, such drastic shift in the reproductive paradigm coincided with broader cultural changes in the late 1970s and in the collapse of dreams of modernity. We can discuss these things at length and in detail if you look at the data discourses of modernity what are this the central political philosophical foundations of

modernity? The central philosophical and political foundations of modernity are four fold. In this context I am talking about European modernity not universal modernity. See every country, every region, every local, every village has unique constituents of modernity, unique qualities of modernity, unique factors of modernity, unique features of modernity.

When I say the collapse of the dreams of modernity the collapse of the dreams of European modernity there are four central political philosophical foundations of modernity or critical modernist paradigm in sociology. Holism or totality one, secondly, reflection of reflexivity, thirdly, rationality and fourthly, social movements. And this the universal adaption of such four central philosophical and political foundations of modernity were questioned because of the uncritical adaption of the modernization theory which mostly North America and Europe propagated in the 1950s and 1960s especially after the second world war.

What is that modernization theory? Modernization theory postulates that the less developed countries will make progress provided they follow the development pattern of the developed countries? Then one size fits all but the kind of the pattern of development which North America has used, if we follow, if we ape that model, if we mimic, if we copy that model then it will be a big problem for us and we have been witnessing in the context of India in the context of many other developing countries. That is why we see the emergence of dependency theory and later on dependency theory also was not without any limitation but in Latin America they tried to develop dependency theory by interrogating and rejecting modernization theory, the claims of modernization theorists especially in the United States of America as well as Europe.

That is why the claims which the protagonists of modernization theory made about industrialization, about development, about technology and so on, that one way to look at things, modernization theory also can be challenged on different counts. In sociology of development we discuss critical variable approaches, dichotomous approaches and so on to bring about a strong critique to the modernization theory. That is why when I say that this drastic shift in the reproductive paradigm coincided with the broader cultural changes in the late 1970s. That a particular country will make progress only if it follows the pattern of industrialization or the pattern of large projects guided by the principles of industrialization and so on. I think it also faced virulent criticisms in the 1960s 70s and so on. Those who wrote even in the Indian context Gandhi opposed this in "Hind Swaraj" when he said, if

India copies England it is my firm conviction that she will be ruined India cannot keep on aping the west for production or employment or poverty reduction and so on. India can sustain itself through villages. Gandhi mentioned this. E. F. “Schumacher in Small Is Beautiful” also mentioned this. That is why Gandhi once wrote “India lives in her villages.” That is why he was trying to look at a more self-reliant economy where more and more participation of the people will be there not more and more participation of machines.

That is why when you look at these things, Gandhi is important in this context. Schumacher is very important in this context and so on. In this sense we are talking about the collapse of the dreams of modernity, the claims of modernity or critical modernist paradigms in sociology, . I am not looking at that how Latin America, Africa, Asia they try to conceptualize modernity. I am trying to look at how when I say the collapse of the dreams of modernity I refer to especially European and North American modernity. It collapsed. The declining belief in grand theology and ideologies to understand and control the world control the world led to a situation in which locality and individuality became of central concern in western culture.

post modernity try to reject grand theories. It cannot have any ideological inclination where you will not find that you are looking at a nation in its totality rather a nation as getting fragmented into various locales. This fragmented imagination, if you want to make India develop then you must be able to look at the economically, socially, politically weaker states, regions, villages to develop, educationally backward regions to develop. that is why a nation cannot be examined in its entirety because a nation is a composite product of many things and post modernity why did they do this? It is not very over simplistic, it is very important precisely because post modernists tried to look at each locale, individual in a more situated manner, in a more context specific manner. , the kind of strategies of development which may be required for a for a city like Mumbai or Delhi they must be different in the context of north east India, they must be different from the they must be different in the context of Jammu and Kashmir, they must be different in the context of Bihar, Odisha, Jharkhand, Chhattisgarh because they are different cities all together, they are different states all together, they are different regions all together. Even within the north east India let me tell you that we must have different strategies of development for different states in Assam, from different states in north east India. See there are very unique states. North east India cannot be reduced to only a single state. That is why, why post modernists did this because they tried

to interrogate the way a society, a nation, a local has been homogenized. That is a huge contribution which post modernists made that no let us not homogenize culture, let us not homogenize patterns of thinking, let us not homogenize our practices. If you want to eat in spoon and fork, I want to eat in hand does not imply that your practice is superior to my practice or my practice is inferior to your practice. They are culturally mediated.

If one fails to understand this and tries to homogenize, it is not a part of post- modernist tradition. That is why the declining belief in grand theories and ideologies to understand and control the world led to a situation in which locality and individuality became of central concern in western culture. This homogenizing tendencies must be interrogated. The notion of differences became an important thing. The crisis in modernity eroded the belief in one technological fix to improve the human condition. This is very important. That now if you look at this, it is time to reflect on the meaning of the shift in reproductive paradigm. It is also important to look at the ambiguities involved in the the ambiguities involved in the way the history of biomedical sciences has treated both these fears gynecology and andrology separately or similarly. one must strike a critical balance and the way technology has been set in a more patriarchal society, in a more racial structure. We have discussed if you look at the social setting of technology from the very beginning we have discussed political control of the technological systems in the context of the construction of the New York bridge by Robert Moses as it reflected the kind of racial prejudice and class bias. If you look at the way we have discussed Do Artifacts Have Politics?, Technology As Knowledge then Social Shaping Of Technology by Donald Mackenzie and Judy Wajcman what you generally find that t technologically deterministic society is not going to help us if we want to modify technology to fit people. we should not try to modify people to fit technology. Then if we try to modify people to fit technology then we are trying to homogenize cultures, cultural practices and so on. Rather we should be able to modify technology to fit people and and therein in lies the significance of different technological systems you may witness. It in the context of biotechnology, nanotechnology, information technology, I mean information and communication technologies and so on. for this course we have zeroed in on to discussing only information society by David Lyon. We will start with , Alvin Toffler in the next lecture to discuss what kind of issues and illusions which the information society brings in. We will start with first Alvin Toffler in the context of the third wave, then we will go to James Martin we can discuss Daniel Bell, we will discuss David Lyon and then we will discuss reception of modern science in India in the context of how science or scientific knowledge was

democratized or popularized in India by building different scientific institutions in India starting with the Ascetic Society of Bengal in 1784 and then we will discuss science policies in India starting from 1958, 1983, 2003 and 2013.

Thank you.