

Lecture: 7

Science ,Technology and Society

Challenges: Cognitive, Legal, Ethical, Feminist and Ideological

Feminist Challenges

What can be feminist and ideological, ethical, legal and other challenges toward science, technology and society study? Prior to that, a few lines about what is feminism and what it has to do with science, technology and society.

If we look at the history of feminism, we find that the term feminism was coined in France in the 1880s by Hubertine Auclert, who introduced it in her journal, *La Citoyenne*, to criticize male predominance (and domination) and to make claims for women's rights and emancipation promised by the French Revolution. Historian of feminisms Karen O'Brien has demonstrated that since its first appearance the term has been given many meanings and definitions; it has been put to diverse uses and inspired many movement.

Feminism is a political movement with implications for reconstructing the whole gamut of social institutions. Drucilla Cornell defines feminism as a political, cultural, and economic movement aimed at establishing equal rights and legal protection for women (Cornell, Drucilla :1998). Feminism includes sociological theories and philosophies concerned with issues of gender difference.

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The pertinent question is, 'what feminists have to do with science?' What are the feminist, moral, legal, cognitive or ideological challenges to science and technology , and why?

Before I proceed to clarifying what actually is a feminist challenge to science and technology , I must acknowledge the fact that usually one comes across very common and stereotyped responses when confronted with questions like 'what feminism has to do with science and technology in general?' The so-called 'feminist approach to science', that is easily ridiculed and dismissed, is understood in the sense of a particular worldview that affects a particular section of society, women, for example. In this manner critics tend to underestimate feminist challenge to science as something akin to a Korean or a 'Blond' philosophy of science, for example. Hence comes the easy dismissal part.

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In this sense, a critic of feminist approach to science remains critical or rather dismissal of this so called absurd stand that non-cognitive values should make science valuable! It thus appears as if there is an unholy alliance between the two, science that is gender neutral, and feminism, that is gender biased! One way of looking at it is, while gender is determined by biology and science by nature, people manifests in their behavior their inner nature as determined by the presence of an X or Y chromosome. In this framing of the world, there are two genders and one science (Fox Keller:1982).

Prior to making an effort at exploring the nature of various challenges to science, technology and its impact on society, we must re- visit what is meant by science and technology as such. Most people would asses the value of science in terms of its successful applications in practically every field of human activity. “The computer may appear to be a "black box" to most of us, but it can do fascinating things. The generally successful space program holds us in awe. The ability to obtain images of the brain and other parts of the body without cutting them open defies credibility”. And the list goes on and on.

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While science as scientism insists on dispassionate value-neutral ‘view from nowhere’, it fails to accommodate woman’s ‘womanly concerns’ into its fold.

The idea that if we are to call something a science, we have to be able to assure that the knowledge produced by the sciences is really true knowledge, was common both to a man on the street and to the philosopher of science known as logical positivist. The positivist’s commitment to ‘maleness of reason’ keeps no provision for a woman scientist who has a feminist agenda of correcting woman’s position, her health and her subjugation, in a rational and enlightened manner, the way a scientist should proceed in this direction that differs the way of an uniformed layman.

This kind of positivistic interpretations of science could be characterized as extreme late forms of modern rationalistic interpretations, which, in certain respects, saw the phenomenon of science as a kind of logical and propositional enterprise focused upon theory and its subsequent verifications--or falsifications--and clearly framed in terms of modernist epistemologies. The knowledge women did acquire relative to their social stations was downgraded to intuition or non-inferential perception and the like. This effectively excluded certain kinds of epistemic practices from being seriously considered by those male philosophers developing theories of knowledge. Thus, certain values or forms of knowing were privileged over others in the development of theories of knowledge.

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The feminist wonders: ‘under what circumstance is scientific knowledge sought for the pleasures of knowing’. Is it a bias free and neutral quest for knowledge? For the increased competence, it grants us, for the increased mastery over our fate, under what circumstance does science seek to actually know nature dispassionately rather than dominate her?

On the other hand, most of the observations in science made with the help of instruments are constructed or designed in accordance with the specifications provided by some theories. These theories, one may say, constitute the software of these instruments. Belief in the reliability of these instruments implies the acceptance of these theories, which have gone into the making of these instruments. Thus, observations presuppose prior theoretical commitments.

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“Observations in science need to be legitimized or ratified by a theory. We all know that Galileo used some telescopic observations to support his theory. His opponents did not consider telescopic observations accurate. It is not that they did not believe in the reliability of telescope. They had no problem in using telescope for terrestrial (of the earth) purposes. They opposed its extension to celestial (of heavenly) sphere where things like background, neighborhood, possibility of verification which are usually found in normal instances of perception are absent. They rightly demanded from Galileo a theory of optics which would justify the extension of the use of telescope from terrestrial to celestial sphere. Galileo had no such theory. But he rightly believed that in future such a theory could be formulated. Thus, Galileo believed that it was possible to justify the type of observations on which he was dependent. This instance brings out how observations need ratification or justification in terms of either an actual or a possible theory. In this sense too, our observations are theory laden.”
(Online:<http://www.egyankosh.ac.in/bitstream/123456789/25834/1/Unit-1.pdf> .accessed April 2010)

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Various practitioners of feminist epistemology and philosophy of science argue that dominant knowledge practices disadvantage women by (1) excluding them from inquiry, (2) denying them epistemic authority, (3) denigrating their “feminine” cognitive styles and modes of knowledge, (4) producing theories of women that represent them as inferior, deviant, or significant only in the ways they serve male interests, (5) producing theories of social phenomena that render women's activities and interests, or gendered power relations, invisible, and (6) producing knowledge (science and technology) that is not useful for people in subordinate positions, or that reinforces gender and other social hierarchies.

Our scientific endeavor thus leads us to encounter distinctions that our ancestors in their world of alchemy, astrology never made. We tended to trust those people who argue on basis of science - or who themselves are scientists than the ones who prefer a relativist position, be it a limited one of the feminist or of the post modernist. This becomes evident when we ponder deeply what may count as nature in the late 20th century? With the rise of modern science and technology, we moderns believe, the world changed irrevocably, separating us forever from our primitive, pre modern ancestors. The feminist perspective highlights some such related concerns like ,’ What does it mean to be modern? What difference does scientific method make save a careful distinction between man, nature and society, between humans and things? ‘

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There is strong feminist challenge to this way of understanding science, because the division of the world into two serves women poorly, it serves to exclude them from the domain of public life, of politics and of science. While science is believed to be the trademark of strong and pure objectivity, the feminists and the post modernists, along with others, have turned out to be its worst critics. Thus it becomes evident that the relationship between gender and science is a pressing issue not simply because women have been historically excluded from science, but because of the deep interpenetration between our cultural construction of gender and our naming of science.

What the feminist critic of science poses to do is a proposal for an alternate way of doing science. It is defined as a proposal for an alternate mode of knowledge, a challenge to a particular mode of doing philosophy. As such, it is not much different from what some other philosophers have been advocating so strongly for restoration of love-knowledge as against power-knowledge. Alan Soble observes: We get a taste of this antipathy in Bertrand Russell, whose *Scientific Outlook* voiced sixty years ago some of the concerns that animate Evelyn Fox Keller’s *Reflections and Secretes*.

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The common concern shared by both is how in the philosophical development of science the power impulse has increasingly prevailed over the love impulse as a result of which ‘science became sadist’. In the 1980s feminist philosophers Sandra Harding, Evelyn Fox Keller, and Carolyn Merchant set out to discredit Bacon, and the Scientific Revolution to which he contributed, by alleging that he had advocated "the rape and torture" of nature. Evelyn Fox Keller Keller’s *The Gender/Science Sysem* ,opens science to feminist critics without forcing it into relativism. Keller posits that science should be characterized by a plurality of views of what scientific inquiry should be. Nevertheless, one image that has come to predominate in modern times is objectivity, where objectivity means both emotional distance and control over the object of knowledge.

Quoting from D.L.Nanney’s scholarly article, ”The Role of the Cytoplasm in Heredity”, Keller cites examples from bio and genotechnology :“One geneticist has described it in political terms: ‘Two concepts of genetic mechanism have persisted side

by side throughout the growth of modern genetics, but the emphasis has been very strongly in favour of one of these . The first of these we will designate as the “Master Molecule “concept. This is in essence the Theory of the gene, interpreted to suggest totalitarian government.”

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Keller continues : “The second concept we will designate as the “Steady State “concept .By this term ...we envision a dynamic self perpetuating organization of a variety of moleculous species which owes its specific properties not to the characteristic of any one kind of molecule but to the functional relationship of these moleculous species.”

The andocentric nature of scientific knowledge is not due, says Keller, to most scientists' having been and being male. Rather, psychological processes are reflected in the notion of static objectivity. Feminists claim that the so-called objective knowledge of science has a Eurocentric, ‘masculinist’ bias that needs to be rooted out. That science embodies a strong androcentric bias is inevitable. Objectivity is linked with autonomy and masculinity and the goals of science are power and domination.

Keller finds psychoanalytical theory, known as object relations theory, useful in this regard. Socially structured relational set up is the context of our early development, guided initially by parents of one sex, mother, this determines a maturational framework for our emotional, cognitive and gender development. Our cultural association of male with comforts of loneliness and separateness leads to a sense of alienated selfhood, of denied connectedness, of defensive separateness. The shift from competence to power and control in the psychic economy of the young child is a defense of separatism, a way of repudiating sameness, dependency and closeness with another person.” The male child achieves his final security by identification with the father ,a denial of the mother and a transformation of fear and guilt into aggression (Nanney,1057).”

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Keller identifies historical and psychological reasons for why we have a reductionist and mechanistic model. She argues that in the seventeenth century there was a fierce struggle between two methods of scientific inquiry. The one that ultimately won is a heterosexual fantasy of control and submission that makes science a masculine endeavor and makes women and nature appropriate objects of domination.

Keller's feminist object relation theory asserts that there are two sorts of autonomy, and correlatively there are two sorts of objectivity. Static autonomy results when the self is created in opposition to another, primarily the mother. Static autonomy is characterized by constant anxiety over the self's boundaries, and anxiety can be relieved only by attempting to control all those who attempt to break the boundaries.

On the other hand there is the impulse to union and feminine traits. Dynamic autonomy is created through differentiation but also through relatedness to others. It is characterized

by tolerance for ambiguous boundaries and a sense of self in a context of other selves. Static objectivity is predominately male; it radically separates the subject from the object of knowledge.

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Keller favors complex and interaction models of nature. Dynamic objectivity, by her account, can provide more accurate and reliable representations of nature than are possible through static objectivity.

Those who talk about “letting the material speak to you”, of allowing you what to do next, for them, discovery is facilitated by becoming a part of it. In this regard, Evelyn Fox Keller's exemplary scientific biography, *A Feeling for the Organism: The Life and Work of Barbara McClintock*, focuses on the life and struggle of Barbara McClintock, who won the Nobel Prize in Physiology or Medicine in 1983 for her research in corn genetics and her discovery of transposable genes. McClintock's struggle against patriarchy and her perseverance finally succeeded in getting other scientists to examine her unorthodox research and her distinctive way of knowing nature through connection and relationship rather than through abstract analytical power.

The question that should be vital for a feminist philosopher and scientist like Evelyn Fox Keller or a woman scientist like Barbara McClintock is: ‘is science beneficial’? Other feminist scholars have come forward to pose challenges to a particular way of doing science that bifurcated man and women, man and nature, fact and value. This has paved way for diverse ways of approaching science, technology and society study from different perspectives, including feminist one. It is because, if anyone, including a feminist critic of science, wants to raise this question, she needs a theory of knowledge that enables her to do so.