

1./ The Gender of Science

1.1 / The Role of Women in Knowledge Production

Science and Sociability

Émilie du Châtelet (1706-1749)

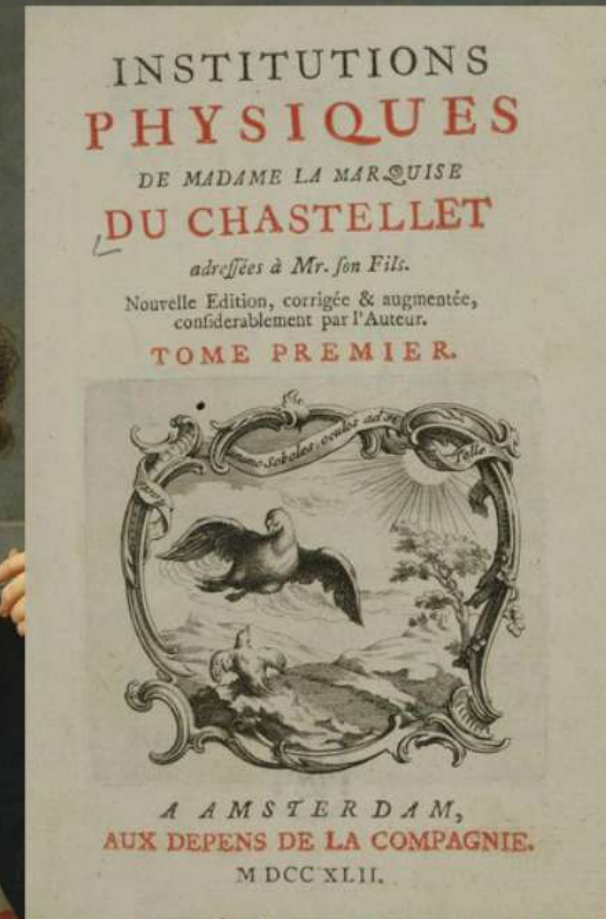
Marie-Anne Paulze
(1758-1836)

Remarques sur l'impossibilité de satisfaire en nombres entiers
à l'équation $x^p + y^p = z^p$.

L'impossibilité de cette équation seroit hors de doute si on pouvoit
démontrer le théorème suivant:

Pour toute autre valeur de p que $p=2$, il y a toujours une infinité de
nombres premiers de la forme $Np+1$ pour lesquels on ne peut trouver
deux autres primes puissances dont la différence soit l'unité.

Sophie Germain (1776-1831)
Antoine Auguste Le Blanc



- R. Laubenbacher, D. Pengelley (2010) "Voici ce que j'ai trouvé:" Sophie Germain's grand plan to prove Fermat's Last Theorem', *Historia Mathematica* (37-4)
- Mary Terrall (1985) "Émilie Du Châtelet and the Gendering of Science", *History of Science* (33.3)
- Claude Viel (1995) "Le salon et le laboratoire de Lavoisier à l'Arsenal", *Revue d'histoire de la pharmacie* (306)

Marie Curie, Science Hero

Anne Fellingner (2010) "Femmes, risque et radioactivité en France", Travail, genre et sociétés (23-1)



The 'Radium Girls' Scandal



Mobile X-Ray Units

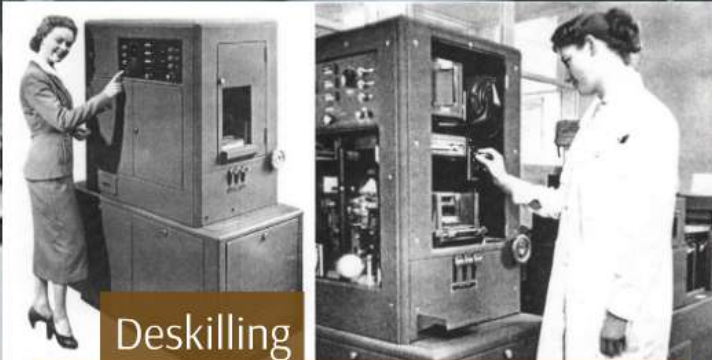
Women Fundraising in the US



Glowing from radiation



Programmed Inequality



Deskilling

1960s: institutionalization of a feminized underclass of women machine workers, computing work seemed low level



British companies used the image of this feminized labor force, intentionally exporting British gender norms to other nations as they marketed their systems. Computer work occupied the opposite end of the spectrum from nontechnical office work, which was seen as more intellectually demanding.



1970s: the gendered labor shift was not a side effect of computerization but a core goal of the project to computerize the State



It's a waste of money paying people like this.

Most computer work in government was still done by women. By no longer considering this labor pool for computing posts, the government neglected most of its trained technical workforce.

The concurring narration of
- the diminution of women's contributions in computing
- the increasing inability to perform a technological revolution to maintain world power status

Mid-1960s: computers—and the workers associated with them—become more important than previously thought. Labor shortages slowed computing's progress and helped give women an early lead. Not for long.

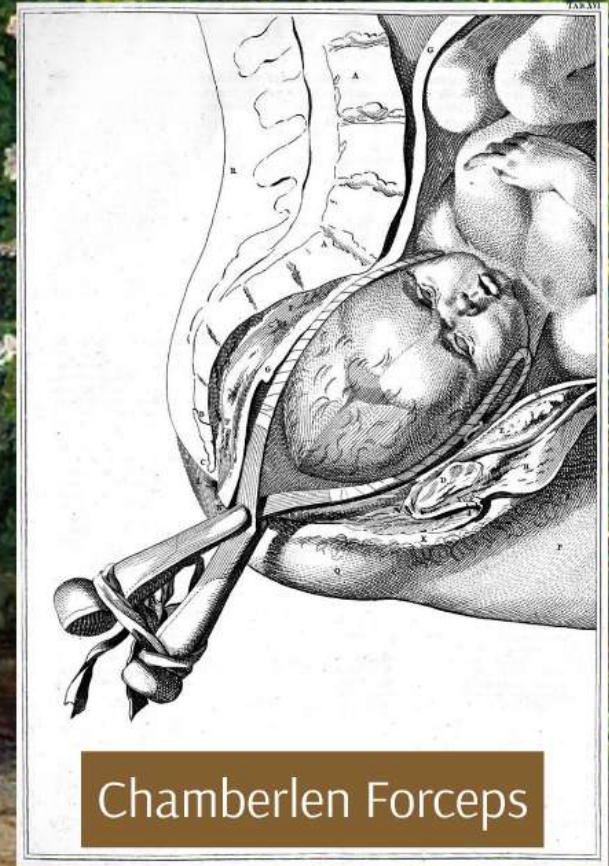
Marie Hicks (2017) Programmed Inequality: How Britain Discarded Women Technologists and Lost Its Edge in Computing, The MIT Press.

The Death of Nature

The Scientific Revolution

Production

Reproduction



Chamberlen Forceps

and the active / passive role of women (ex. of midwifery)

Carolyn Merchant (1980)

The Death of Nature: Women, Ecology and the Scientific Revolution

First perspective on the science-society interactions: a focus on the social structure of scientific activity

Stories of female pioneers in science highlight:

- the predominance of tacit (social, cultural or moral) rules versus the formal regulation of gender roles;
- a non-linear, non-progressive evolution of women's acceptance or recognition of their contributions.

Humanities and social sciences have to adapt their methodology in order to make women's role visible

'Many studies focus on women who have a claim to greatness or whose activities put them at the center of major historical events (e.g. Grace Hopper) [...] Career-based identities historically privilege a male subject, rarely taking into account the often circuitous and discontinuous nature of women's working lives or the social pressures placed upon women to privilege nonprofessional categories in constructing their identities.' (Marie Hicks)

Delphine Gardey (2000) "Histoires de pionnières", Travail, genre et sociétés, (4-2)

How hysteria defined womanhood

"Female genitals are often the cause and always the seat of hysteria"
Landouzy (1866)

Supposed causes: from the engorgement of the uterus, to overexcitement, and immorality. In the mid-19th century, brain and the nervous system are progressively presented as sexed organs.

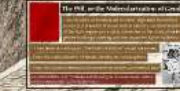
Treatment: from marriage, sex toys, to Jean-Martin Charcot hypnosis experiments and the birth of psychoanalysis.

→ The role of medicine and its discursive constructions in the constant reclassification of each sex in society leading to alterity

Nicole Edelman (2000) *"Représentation de la maladie et construction de la différence des sexes. Des maladies de femmes aux maladies nerveuses, l'hystérie comme exemple"*, in *Romantisme* (110)

In the Late Eighteenth Century, Human Sexual Nature Changed

Thomas W. Laqueur (1990) *Making Sex: Body and Gender from the Greeks to Freud*



Instead of being the consequence of increased scientific knowledge, new ways of interpreting the body were rather new ways of representing and indeed of constituting social realities.

Queley scale (1995)



"though they of different sexes be, yet on the whole they are the same as we. For those that have the strictest seachers been find women are but men turned outside in."

Rather, the political, economic, and cultural transformations of the eighteenth century created the context in which the articulation of radical differences between the sexes became culturally imperative.

Second perspective on science-society

The need to study knowledge production

The Hottentot Venus, and scientific racism

"On a shelf just above the busts, I saw a little exhibit that provoked on scientific and artistic circles into nineteenth century inevitable and the history of racism in those smaller part of our the historical knowledge of those. They thought women I found no traces of women, and neither Hottentot's points nor any more genitalia gave the color that the same part are looked like negroes, are 'negroes' and La Venus hottentote."

Stephen Le Gall (1985) in the *Frenchman's Land*



Georges Cuvier
Saartjie (Sarah) Baartman, 1789-1815

François-Xavier Fauvelle-Aymar (2004) *"Les Khoisan : entre science et spectacle"*, in Nicolas Bancel (ed.) *Zoos humains. Au temps des expositions humaines*

lies in the intertwined evolution of the scientific description of the world and the normative production of the social order.

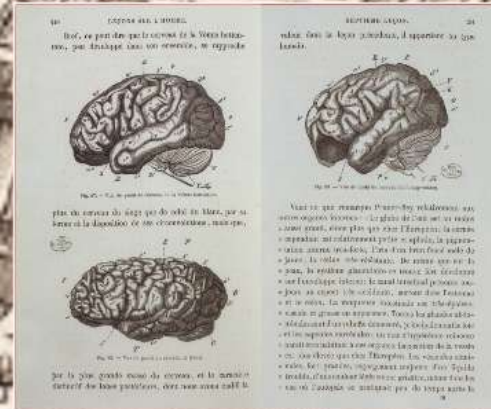
The Hottentot Venus, and scientific racism

"On a shelf just above the brains, I saw a little exhibit that provided an immediate and chilling insight into nineteenth-century mentality and the history of racism: in three smaller jars, I saw the dissected genitalia of three Third-World women. I found no brains of women, and neither Broca's penis nor any male genitalia grace the collection. The three jars are labeled 'une négresse, une péruvienne' and 'La Vénus hottentote!'"

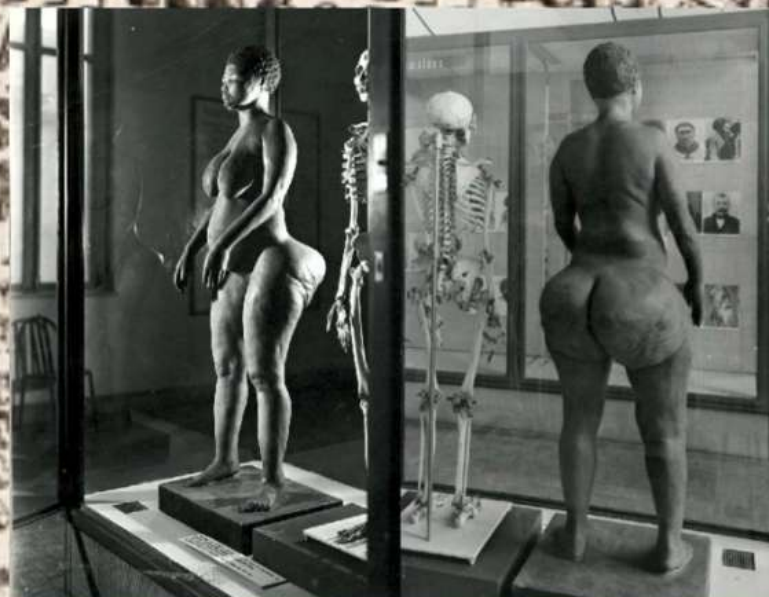
Stephen Jay Gould (1985) in *The Flamingo's Smile*



Georges Cuvier



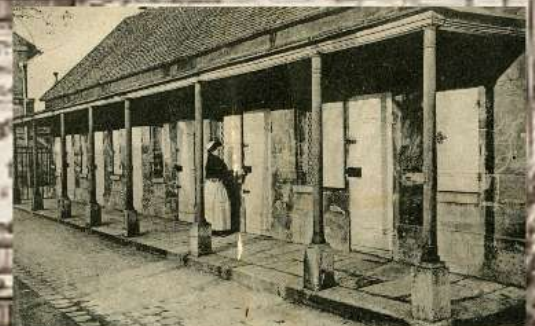
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The Pill, or the Molecularization of Gender

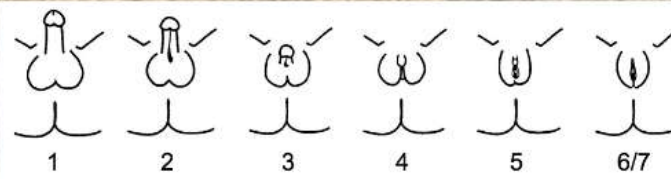
- Sex steroids, a bioindustrial creation: high-level biomedical research, a powerful pharmaceutical industry and the biopolitics of the Nazi regime particularly interested in the study of molecular gender building (Schering and the aryanized Kaiser-Wilhelm Ges.)
- A biochemical continuum / the limits of distinct sexual hormones
- From the medicalization of female sterility to contraception
- From the Women Liberation Movement to strokes and mental load

Jean-Paul Gaudillière (2003) "La fabrique moléculaire du genre : hormones sexuelles, industrie et médecine avant la pilule", *Cahiers du Genre* (34-3)

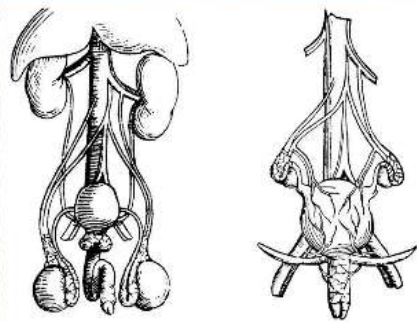


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Quigley scale (1995)



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FIGURES 2 and 3. Andreas Vesalius, male and female reproductive organs, *Tabulae Sex*. From *The Anatomical Drawings of Andreas Vesalius*, ed. Charles D. O'Malley and J. B. de C. M. Saunders (New York, 1982).

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BOULDER

How hysteria defined womanhood

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In the Late Nineteenth Century, Human Sexual Nature Changed

In the late nineteenth century, human sexual nature was redefined. The concept of the "sexual revolution" emerged, challenging traditional views of sexuality and gender roles.

1.2 / The Female Body as a Research Object

The female body became a primary site of scientific research. Scientists sought to understand the physiological and psychological differences between men and women, often through invasive experiments and medical procedures.

Second perspective on science-society

A second perspective on the relationship between science and society. This view emphasizes the role of social and cultural factors in shaping scientific research and its applications.

The need to study knowledge production

The need to study the production of knowledge. This approach focuses on how knowledge is created, disseminated, and used within a specific social and cultural context.

The Hysterical Women and Scientific Fiction

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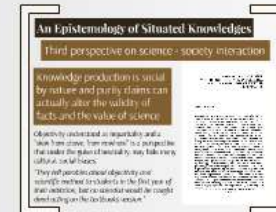
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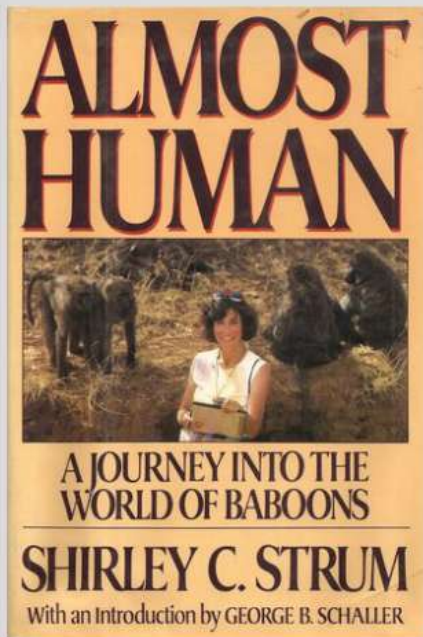
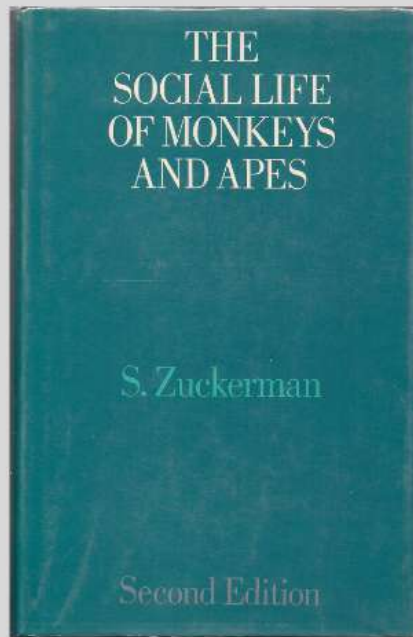
The need
to study
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1.3/ Is Knowledge Gendered?

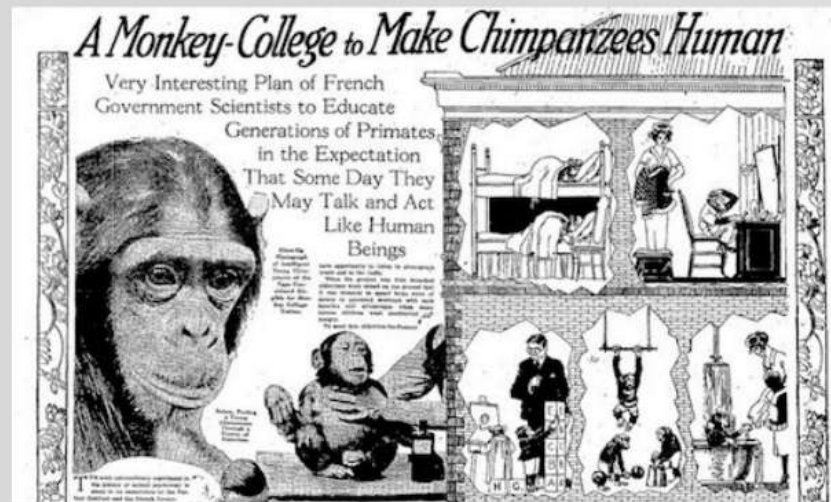


Science and Society - 2020 - Reims Campus
Thomas Tari - thomas.tari@sciencespo.fr

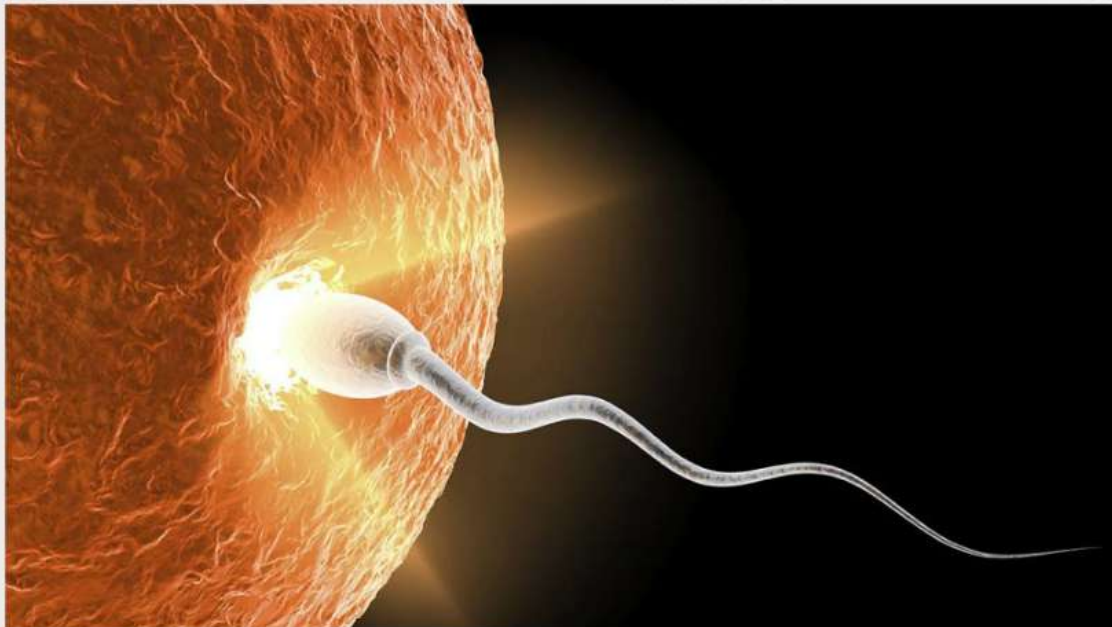
Primateology is Politics by Other Means



- Donna Haraway (1989) *Primate Visions: Gender, Race, and Nature in the World of Modern Science*
- Chris Herzfeld (2005) *Petite histoire des grands singes* (translated in 2017) *The Great Apes: A Short Story*



A scientific 'fairy tale'

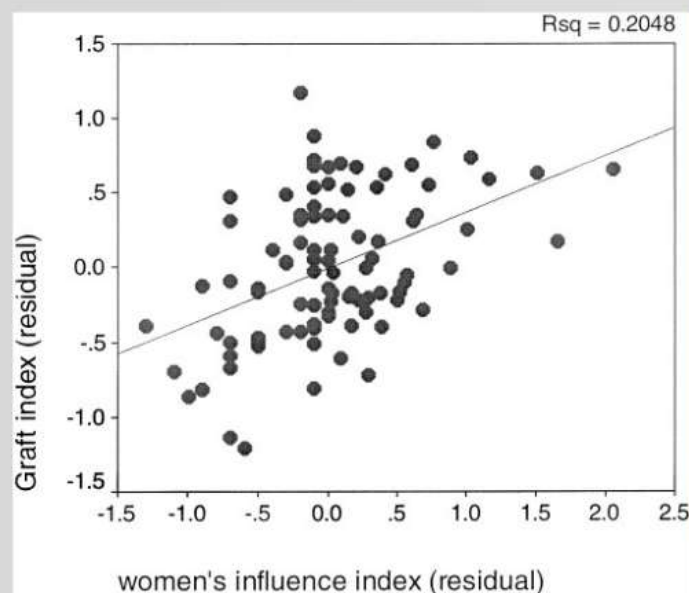


Emily Martin (1991) 'The Egg and the Sperm: How Science Has Constructed a Romance Based on Stereotypical Male-Female Roles', in Signs: Journal of Women in Culture and Society (16-3)

Gender and Corruption



Bérengère Sim et al. (2017) 'Gender and corruption: A toolkit to address the 'add women and stir' myth.' OECD conference



Two studies (Swamy et al. 2000; Dollar et al. 2001) pretended that women are 'the fairer sex' and that we should promote them to public roles accordingly

TABLE 1. SUMMARY OF RESEARCH ON GENDER DIFFERENCES IN CORRUPT BEHAVIOUR

Attitude towards corruption	Accepting bribes	Offering bribes
Survey responses suggest a lower tolerance of women towards corrupt behaviours	With some exceptions that seem to respond to contextual factors, there is no significant difference between men and women	Men are more likely to offer bribes
However, it seems that this is true only in democracies, but not in autocracies and environments where corruption is endemic and widely tolerated	Women behave more opportunistically: they may accept the bribe, but don't reciprocate with a corrupt favour	The value of bribes offered by men tends to be higher
	Women are less likely to accept bribes than men when there is a perceived risk of sanctions	Both men and women offer higher bribes to men than to women



An Epistemology of Situated Knowledges

Third perspective on science - society interaction

Knowledge production is social by nature and purity claims can actually alter the validity of facts and the value of science

Objectivity understood as impartiality and a "view from above, from nowhere" is a perspective that under the guise of neutrality, may hide many cultural, social biases.

"They tell parables about objectivity and scientific method to students in the first year of their initiation, but no scientist would be caught dead acting on the textbooks version."

SITUATED KNOWLEDGES: THE SCIENCE QUESTION IN FEMINISM AND THE PRIVILEGE OF PARTIAL PERSPECTIVE

DONNA HARAWAY

Academic and activist feminist inquiry has repeatedly tried to come to terms with the question of what we might mean by the curious and inescapable term "objectivity." We have used a lot of toxic ink and trees processed into paper decrying what *they* have meant and how it hurts *us*. The imagined "they" constitute a kind of invisible conspiracy of masculinist scientists and philosophers replete with grants and laboratories. The imagined "we" are the embodied others, who are not allowed *not* to have a body, a finite point of view, and so an inevitably disqualifying and polluting bias in any discussion of consequence outside our own little circles, where a "mass"-subscription journal might reach a few thousand readers composed mostly of science haters. At least, I confess to these paranoid fantasies and academic resentments lurking underneath some convoluted reflections in print under my name in the feminist literature in the history and philosophy of science. We, the feminists in the debates about science and technology, are the Reagan era's "special-interest groups" in the rarified realm of epistemology, where traditionally what can count as knowledge is policed by philosophers codifying cognitive canon law. Of course, a special-interest group is, by Reaganoid definition, any collective historical subject that dares to resist the stripped-down atomism of Star Wars, hypermarket, postmodern, media-simulated citizenship. Max Headroom doesn't have a body; therefore, he alone sees everything in the great communicator's empire of the Global Network. No wonder Max gets to have a naive sense of humor and a kind of happily regressive, preoedipal sexuality, a sexuality that

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