1./ The Gender of Science

1.1 / The Role of Women in Knowledge Production

22 January 2024

Thomas Tari

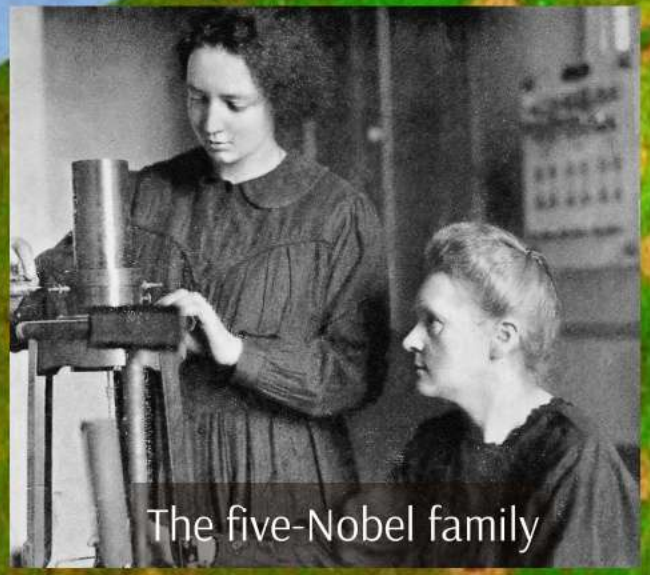
A Radioactive Superheroine

[...] Today I was reading about Marie Curie:
she must have known she suffered from radiation sickness
her body bombarded for years by the element
she had purified
It seems she denied to the end
the source of the cataracts on her eyes
the cracked and suppurating skin of her finger-ends
till she could no longer hold a test-tube or a pencil

She died a famous woman denying
her wounds
denying
her wounds came from the same source as her power.

Adrienne Rich, "Power", 1978

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


The five-Nobel family

Mobile X-Ray Units

Glowing skin

The 'Radium Girls' Scandal

Agnotology and Exotic Abortifacients

The Peacock Flower (from *Metamorphosis insectorum Surinamensium*, 1705)

Maria Sibylla Merian (1647-1717)

Sir Hans Sloane (Jamaïca), Michel Descourtilz (Saint-Domingue) : 'ill intentions' from a physician & planter view versus 'the refusal to breed became a political act'

Londa Schiebinger (2004)
Plants and Empire,
Colonial Bioprospecting in the Atlantic World,
Harvard University Press

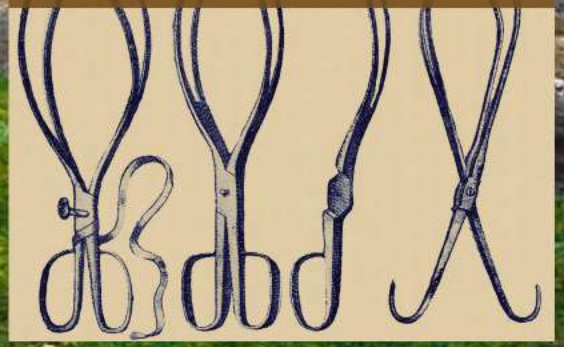
The Death of Nature

The Scientific Revolution

Nature Unveiling Herself Before Science, Louis-Ernest Barrias (1899)

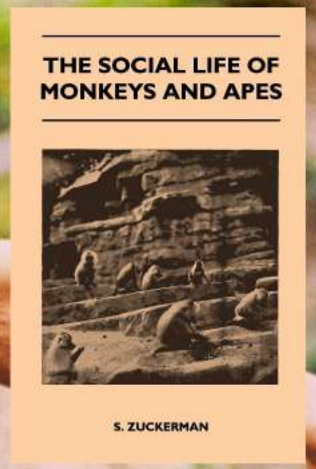
Production, reproduction, and the passive role of women (cf. midwifery)

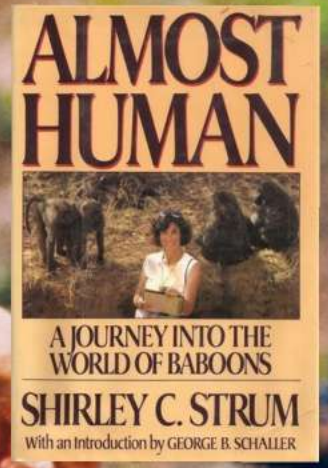
Obstetric Chamberlen Forceps

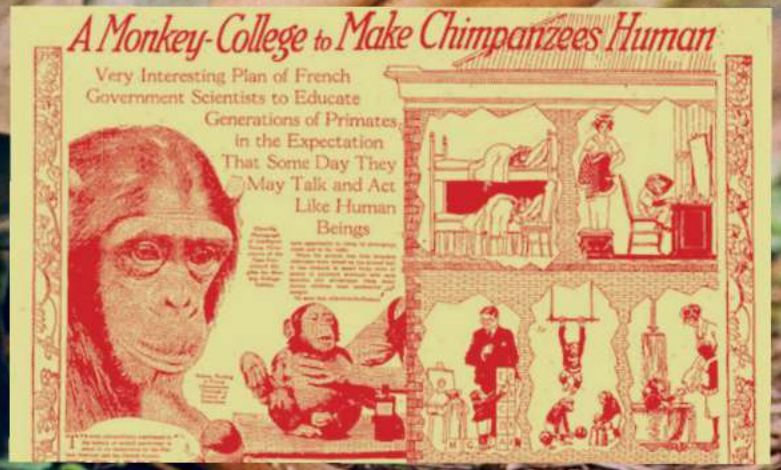


Carolyn Merchant (1980) The Death of Nature: Women, Ecology and the Scientific Revolution

Primatology is Politics by Other Means







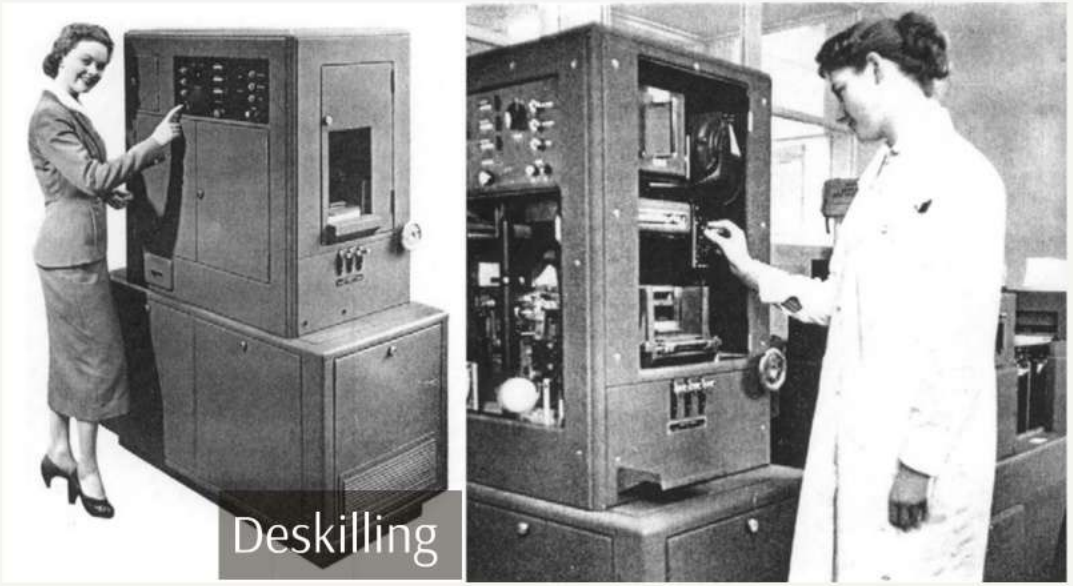
- Shirley Strum & Bruno Latour (1987). "Redefining the Social Link: From Baboons to Humans". Soc Sci Info.
- Donna Haraway (1989) Primate Visions: Gender, Race, and Nature in the World of Modern Science
- Chris Herzfeld (2005) Petite histoire des grands singes (translated in 2017) The Great Apes: A Short Story

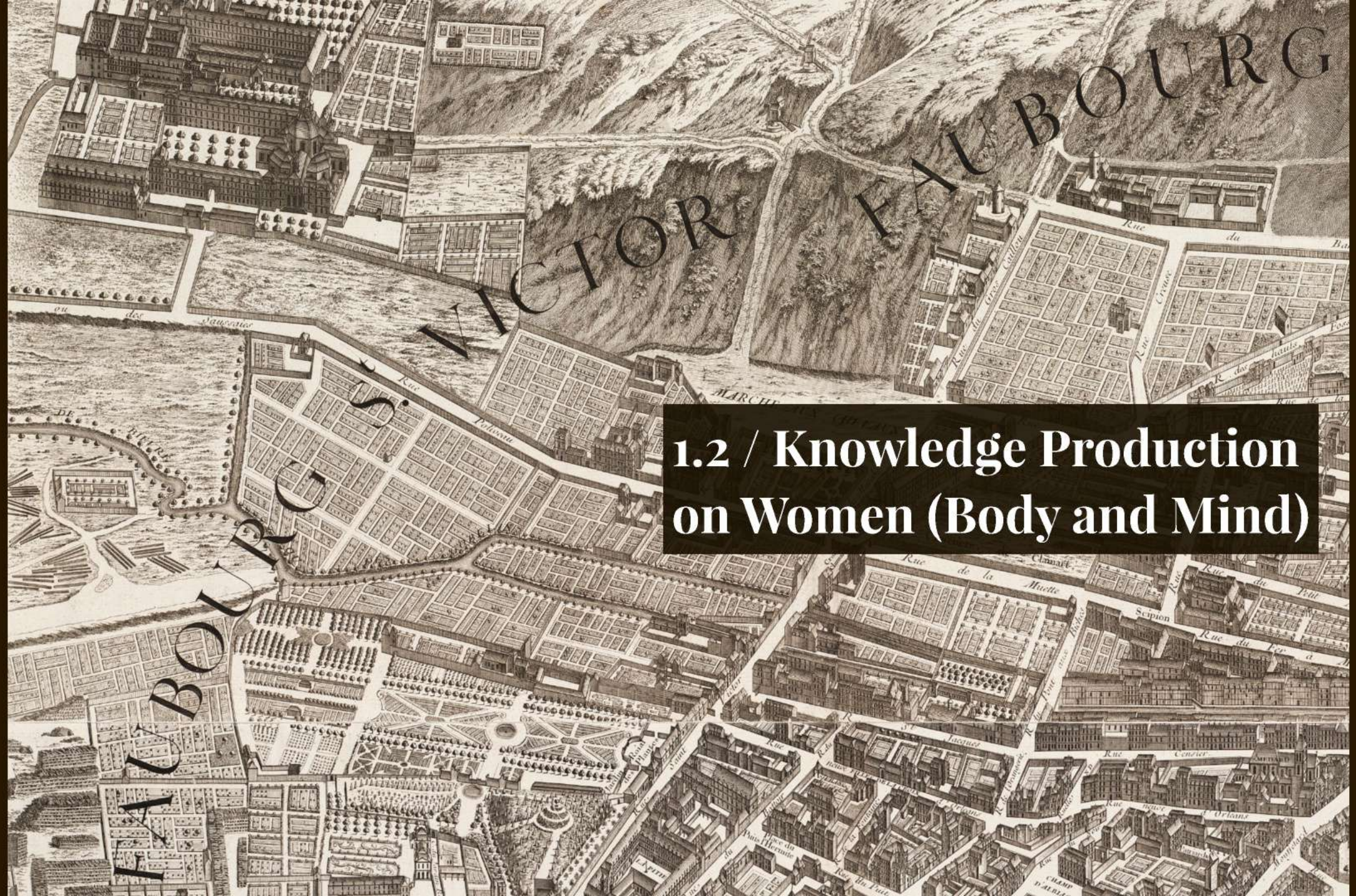
First perspective on the science and society: the social structure of scientific work

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 [...] 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.' (Mar Hicks)

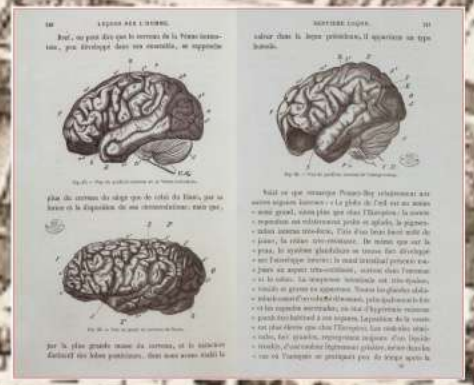
Mar Hicks (2017) Programmed Inequality: How Britain Discarded Women Technologists and Lost Its Edge in Computing (MIT Press)





1.2 / Knowledge Production on Women (Body and Mind)

The Hottentot Venus, and scientific racism

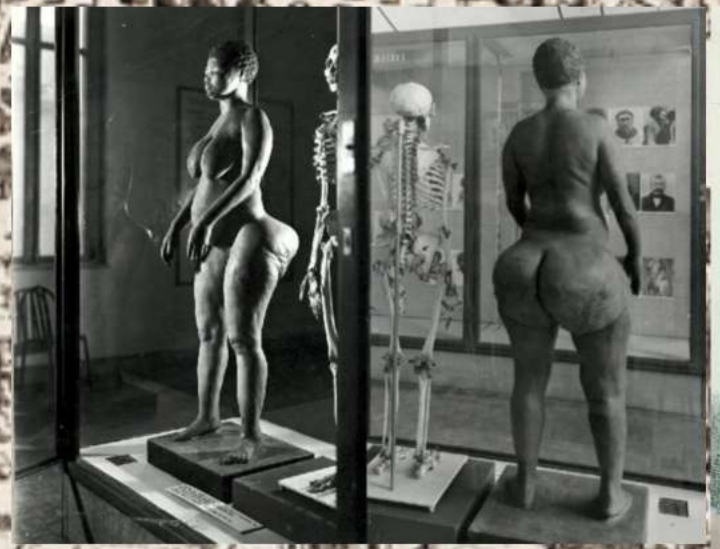


Georges Cuvier

Saartjie (Sarah) Baartman, 1789-1815

"On a shelf just above the brains, I saw a little exhibit that provided an immediate and chilling insight into nineteenth-century mentalité 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



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

How hysteria defined womanhood

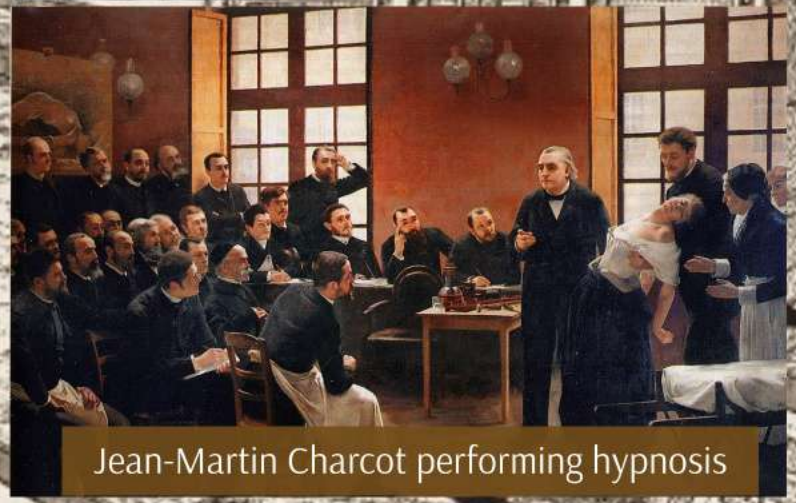
'Sometimes, in the middle of a silent night, the residents of the Saint-Marcel and Saint-Victor quarters (nearest the hospital) would hear a clamour rise up, a sort of savage groaning at regular intervals. It was 'the cry of the hospital'.'

'Female genitals are often the cause and always the seat of hysteria'

Landouzy (1846)

Hysteria shows how medicine and its discursive constructions played a role 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)

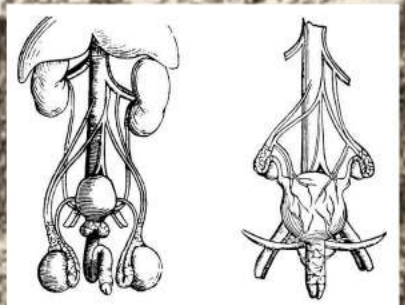


Jean-Martin Charcot performing hypnosis

In the Late Eighteenth Century, Human Sexual Nature Changed

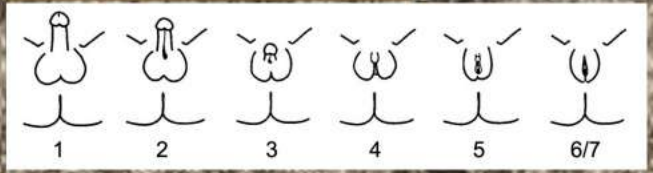
Thomas W. Laqueur (1990) Making Sex: Body and Gender from the Greeks to Freud

'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.'



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).

Quigley 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.'

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 (34-1)

1.2 / Knowledge Production on Women (Body and Mind)

Second perspective on science and society:

The need to study knowledge production

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

How hysteria defined womanhood

Sometimes, in the middle of a silent night, the residents of the Saint-Marcel and Saint-Victor quarters (nearest the hospital) would hear a clamour rise up, a sort of savage groaning at regular intervals. It was 'the cry of the hospital.'

'Female genitals are often the cause and always the seat of hysteria'

Landouzy (1846)

Hysteria shows how medicine and its discursive constructions played a role 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)

Jean-Martin Charcot performing hypnosis

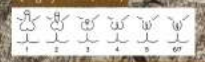
In the Late Eighteenth Century, Human Sexual Nature Changed

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.'

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.

Quigley scale (1995)



'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.'

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 mentalité 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 brains nor penis nor any male genitalia grace the collection. The three jars are labeled une negresse, une peruvienne, and La Vénus hottentote."

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

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 exhibitions humaines'

1.3/ Gendered Knowledge and Objectivity

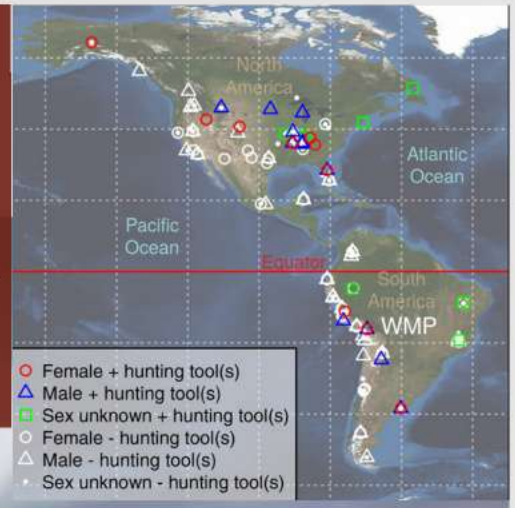
A Gendered Myth of the Origins

'The first cultural device was probably a recipient. [...] It is hard to tell a really gripping tale of how I wrestled a wild-oat seed from its husk'

So long as culture was explained as originating from and elaborating upon the use of long, hard objects for sticking, bashing, and killing, I never thought that I had, or wanted, any particular share in it. The society, the civilization they were talking about, these theoreticians, was evidently theirs; they owned it, they liked it; they were human, fully human, bashing, sticking, thrusting, killing. [...]

If it is a human thing to do to put something you want, because it's useful, edible, or beautiful, into a bag, or a basket, or a bit of rolled bark or leaf, or a net woven of your own hair, or what have you, and then take it home with you, home being another, larger kind of pouch or bag, a container for people, [...] – if to do that is human, if that's what it takes, then I am a human being after all. Fully, freely, gladly, for the first time.

Ursula K. Le Guin (1988) The Carrier Bag Theory of Fiction



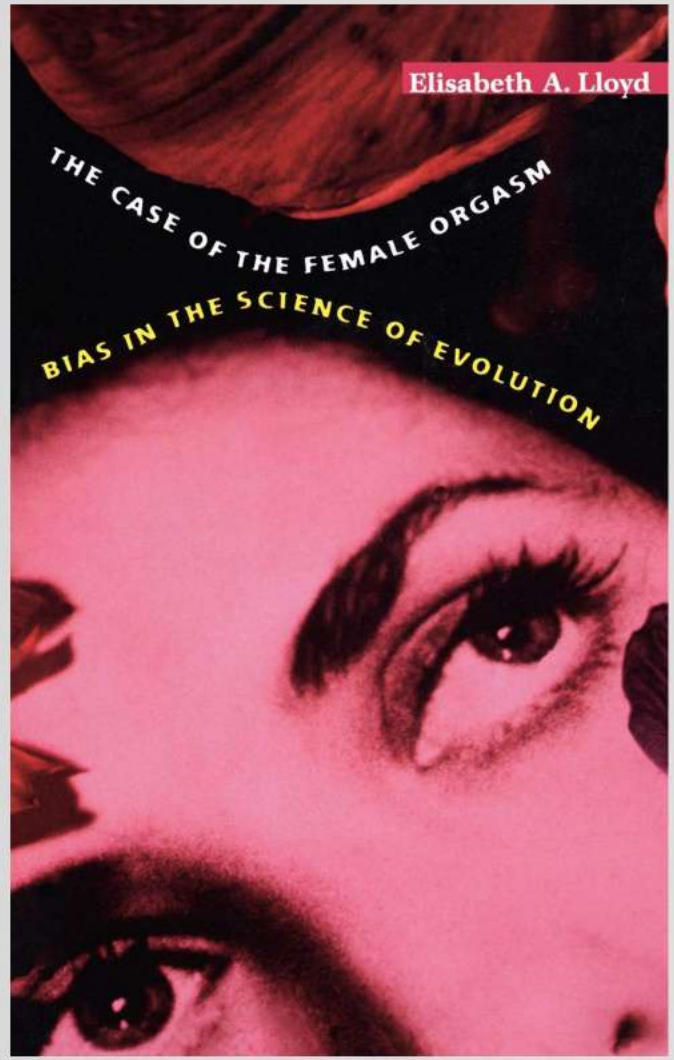
'early big-game hunting was likely gender neutral'

Haas R et al. Female hunters of the early Americas. *Sci Adv.* 2020 Nov 4;6(45)

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)

A bias in the science of evolution



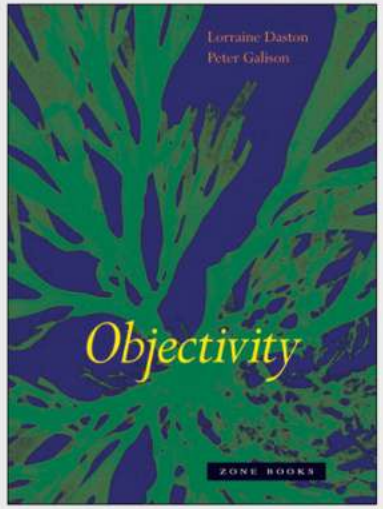
faulty assumptions in the scientific literature:
- that female orgasm is tied to reproductive success [an adaptationism]
- that female orgasm should be examined only as it appears w/ intercourse
- that sexual intercourse evokes the same response in men and women, orgasm
- that female sexual interest or response is dictated by hormones in early hominids
- that female nonhuman primates do not have orgasm [orgasm is a uniquely human trait]
- that the natural place for female orgasm is in heterosexual copulation
- that female orgasm induces a sucking motion of the uterus

Elisabeth A. Lloyd (2006), The Case of the Female Orgasm, Bias in the Science of Evolution. Harvard University Press

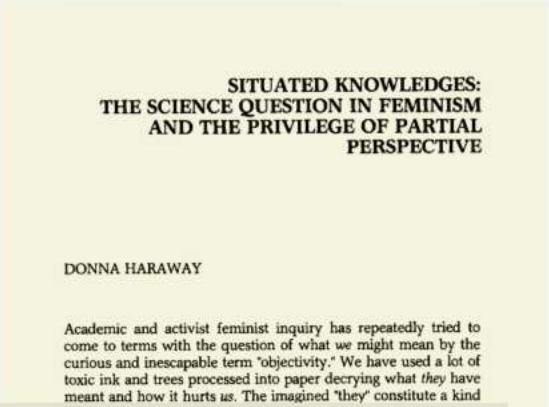
An Epistemology of Situated Knowledges

Third perspective on science and society:

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



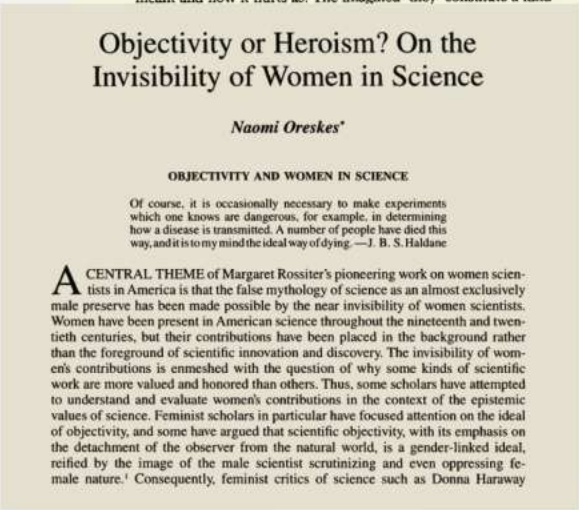
Objectivity understood as impartiality and a "view from above, from nowhere" is a perspective that under the guise of neutrality, may hide many cultural, social biases. It has an history and the 'mechanical' objectivity is outdated.



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



Objectivity or Heroism? On the Invisibility of Women in Science

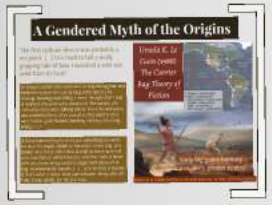
*Naomi Oreskes**

OBJECTIVITY AND WOMEN IN SCIENCE

Of course, it is occasionally necessary to make experiments which one knows are dangerous, for example, in determining how a disease is transmitted. A number of people have died this way, and it is to my mind the ideal way of dying. —J. B. S. Haldane

A CENTRAL THEME of Margaret Rossiter's pioneering work on women scientists in America is that the false mythology of science as an almost exclusively male preserve has been made possible by the near invisibility of women scientists. Women have been present in American science throughout the nineteenth and twentieth centuries, but their contributions have been placed in the background rather than the foreground of scientific innovation and discovery. The invisibility of women's contributions is enmeshed with the question of why some kinds of scientific work are more valued and honored than others. Thus, some scholars have attempted to understand and evaluate women's contributions in the context of the epistemic values of science. Feminist scholars in particular have focused attention on the ideal of objectivity, and some have argued that scientific objectivity, with its emphasis on the detachment of the observer from the natural world, is a gender-linked ideal, reified by the image of the male scientist scrutinizing and even oppressing female nature.[1] Consequently, feminist critics of science such as Donna Haraway

1.3/ Gendered Knowledge and Objectivity



Thanks for listening and interacting!
Tomorrow lecture: '*A Politics of Things*'