Gender Gap in Science Meeting
ICTP, 4-8 November 2019

Some aspects of research by social scientists on the gender gap in science

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IUHPST
International Union of History and Philosophy of Science and Technology

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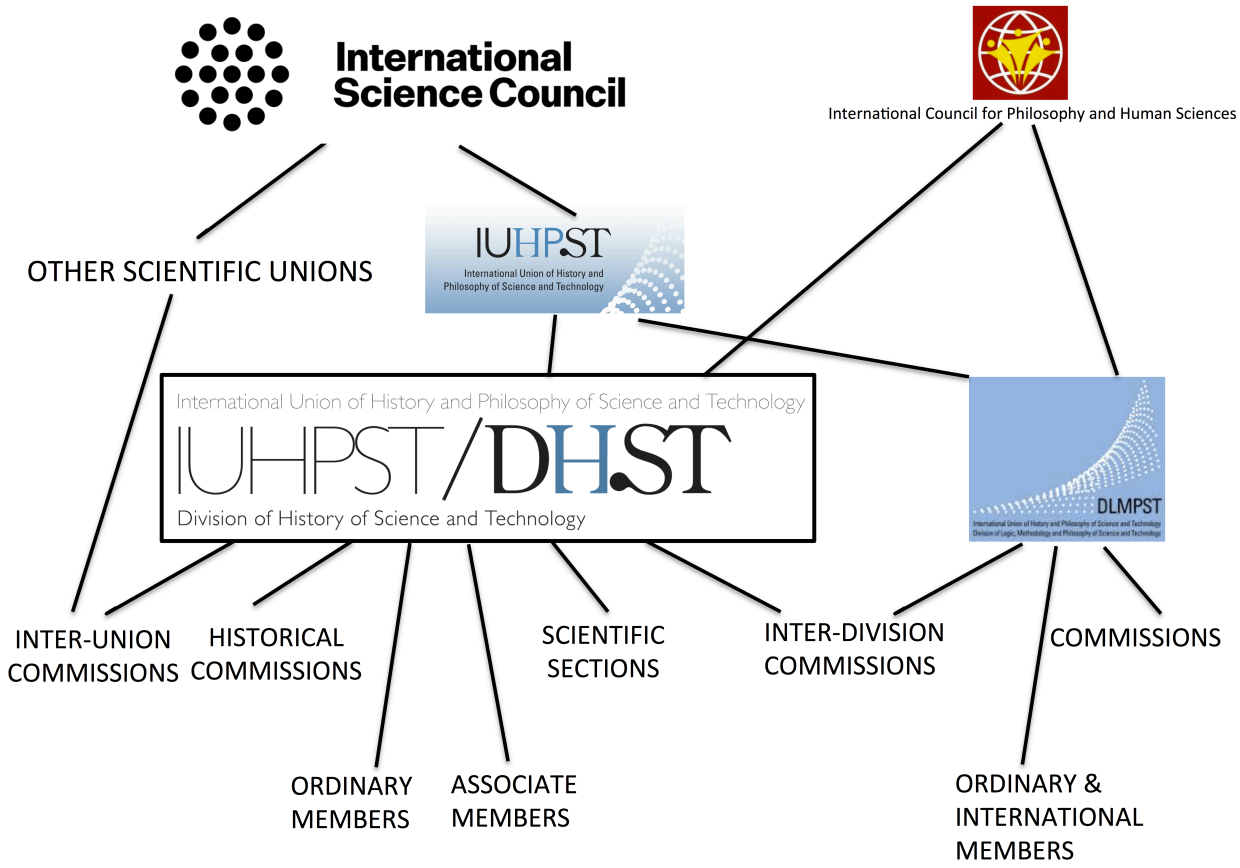


Several disciplines — a field

- History
- Philosophy
- Sociology
- Anthropology

…

- Social Studies of Science
- STS: Science & Technology Studies (Science, Technology and Society)

Science and Technology Studies

- Historians, sociologists and scientists.
- Scientific knowledge, technological systems, and society.
- Scientific facts studied as products of scientists' investigations, which are socially conditioned, rather than objective representations of nature.

http://sts.hks.harvard.edu/about/whatissts.html

Science and Technology Studies

- The nature and practices of S & T
  - Social institutions possess distinctive structures, commitments, practices, and discourses that vary across cultures and change over time.

- Impact and control of S & T
  - Risks, benefits and opportunities to peace, security, democracy, environment, human values

http://sts.hks.harvard.edu/about/whatissts.html

Gender in Science and Technology Studies

- How gender shapes the sciences as social institutions (structures, commitments, practices, and discourses)
- Reciprocally, how science and technology contribute to the construction of gender
- Both aspects are important to the Gender Gap in the Sciences

Looking at the life sciences

- The life sciences and their medical applications have some direct and very conspicuous impacts on individuals and society.
- Topics of research include medical technologies and the way they are put to use in ways that affect human bodies.
- The definition of what is male/female is a hotly debated issue.

The Gender Gap… in Population

- Natural birth sex ratio: ca 104-106 boys/100 girls
- Development of prenatal diagnosis, including sex discernment (obstetric ultrasonography, amniocentesis).
- Countries with high birth sex ratio include: China (118), India (110), Vietnam (111)
- Amartya Sen 1990 "missing women."
- Can a high birth sex ratio can be natural, or must it result from sex-selective abortion?
- Gender gap in population (under 20s): over 25 million in China, over 12 million in India.

Christophe Guilmoto,
"Sex imbalances at birth: trends, consequences and policy implications", 2011;
https://wayback.archive-it.org/all/20120604063319/https://www.unfpa.org/webdav/site/global/shared/documents/Guilmoto_Revised_presentation_Hanoi_Oct2011.pdf

Feminist critique of science and technology

- Focus on discourse and images
- Emphasis on use, “consumption”
- Deconstructing the “natural”
- “Natural facts” as produced by medical discourse and practices, but also by medical institutions.
- Reproductive medicine and related sciences have been a focus of these studies.
- A well-known example:
  Rayna Rapp, *Testing Women, Testing the Fetus: The Social Impact of Amniocentesis in America*. New York, Routledge, 2000.

Feminist epistemology

- Feminist epistemology: how gender does and ought to influence our conceptions of knowledge, the knowing subject, and practices of inquiry and justification.
- Situated knowledge: knower's social situation, in part determined by gender, determines her/his knowledge. Therefore,
- Gendered knowledge: ways in which what people know, or think they know, can be influenced by their own gender, other people's genders, or ideas about gender.
- Questions: What is it to know that I am a woman? What is it like to be sexually objectified? How can we arrange scientific practices so that science and technology serve women's interests?
- An element of context: the gendered conference campaign (early 2010s)

https://stanford.library.sydney.edu.au/archives/sum2004/entries/feminism-epistemology/

What role has science played in the constructions of gender stereotypes that we are fighting?

The DAST

From Chambers, D.W. (1983). "Stereotypic Images of the Scientist: The Draw a Scientist Test". Science Education. 67 (2): 255–265. doi:10.1002/sce.3730670213

- The Draw a Scientist Test
- Studies conducted since 1957
- By 1999, "the perception of scientists being male Caucasians working indoors with chemistry [was] still prevalent".

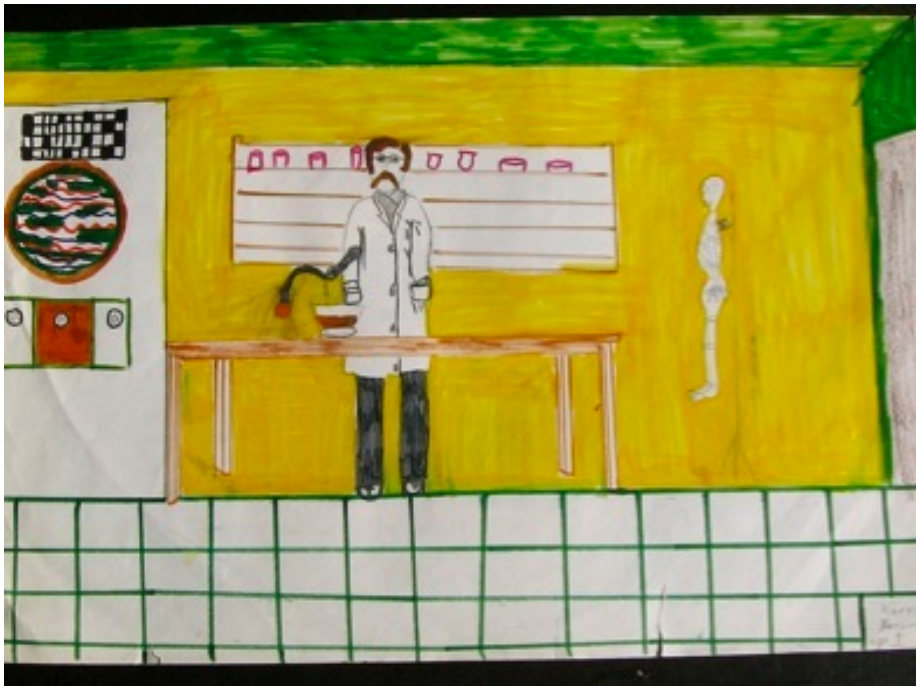
Kevin D. Finson, "Drawing a Scientist: What We Do and Do Not Know After Fifty Years of Drawings, " *School Science and Mathematics* 102,7 (2002):335-345

https://doi.org/10.1111/j.1949-8594.2002.tb18217.x

How did this come about? Clues from history of science

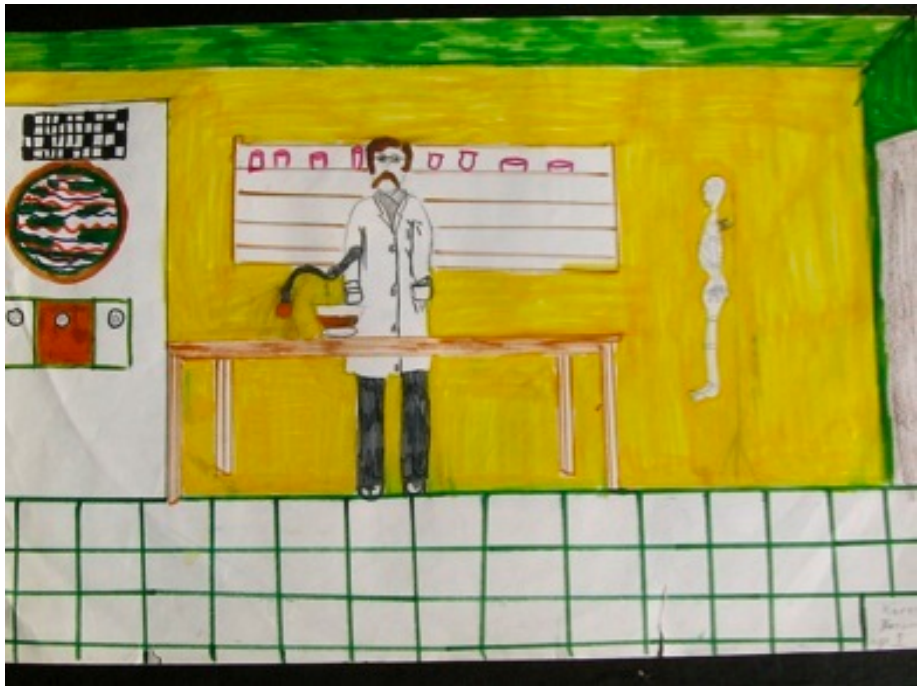
From Hieronymus Brunschwig's
Liber de Arte Distillandi (ca 1500)

A genealogy of learned Caucasian males?



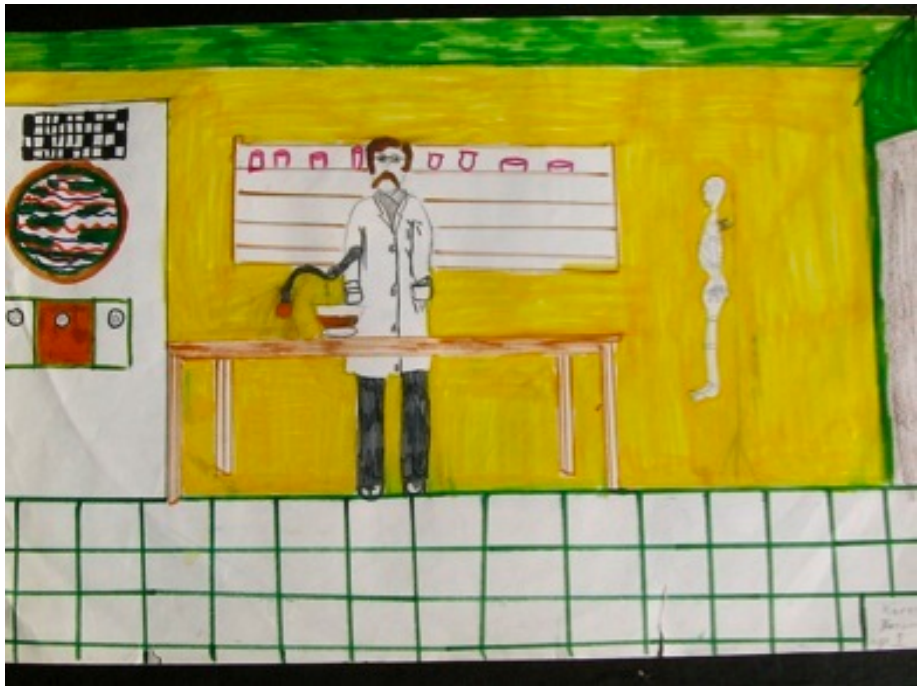
Or just a genealogy of learned men?

Muhammed ibn Umail al-Tamimi's (ca 900–960 CE) book *Al-mâ' al-waraqî* (The Silvery Water),



Mary the Jewess (Maria Hebraea or Maria Prophetissima), one of the founders of alchemy, ca 1st cent. CE?

Look harder…



Documenting women who engaged with the sciences

- Mary is not the only one… History of science has uncovered a large number of women who engaged in the sciences in all times and places.
  - Aganice (or Athyrta), Egyptian princess (ca 1900 BCE), worked on astronomy and natural philosophy.
  - Tapputi-Belatekallim (ca 1200 BCE), perfume-maker in Mesopotamia – earliest recorded distiller
  - Ban Zhao 班昭 (45 – ca 116 CE), historian, philosopher, politician, astronomer and mathematician
  - Hypatia (d. 415 CE) philosopher, astronomer, and mathematician (Alexandria)
  - …

Closer to us

Sophia Brahe (1556–1643), Danish astronomer and chemist; Isabella Cortese (fl. 1561), Italian alchemist; Loredana Marcello (died 1572), Venetian botanist; Tarquinia Molza (1542–1617), Italian natural philosopher; Catherine de Parthenay (1554–1631), French mathematician; Elinor Sneshell (fl. 1593), surgeon; Caterina Vitale (1566-1619), Maltese pharmacist and chemist[12]; Tan Yunxian (1461–1554), Chinese physician; Anna Åkerhjelm (1647–1693), Swedish traveller and archaeologist; Ann Baynard (1672–1697), British Natural philosopher; Aphra Behn (1640–1689), British translator of an astronomical work; Martine Bertereau (1600-fl.1642), French mineralogist; Agnes Block (1629–1704), Dutch horticulturalist; Elisabeth of Bohemia, Princess Palatine (1618–1680), German natural philosopher; Louise Bourgeois Boursier (1563–1636), French obstetrician; Titia Brongersma (1650–1700), Frisian archaeologist, poet; Margaret Cavendish (1623–1673), natural philosopher; Marie Crous (fl. 1640), French mathematician; Maria Cunitz (1610–1664), Silesian astronomer; Jeanne Dumée (1660-1706), French astronomer; Maria Clara Eimmart (1676–1707), German astronomer; Marie Fouquet (1590–1681), French medical writer; Eleanor Glanville (1654–1709), English entomologist; Elisabeth Hevelius (1647–1693), Polish astronomer; Maria Sibylla Merian (1647–1717), naturalist; Marie Meurdrac (c. 1610–1680), French chemist and alchemist; Elena Cornaro Piscopia (1646–1684), Italian mathematician and the first female PhD; Marguerite de la Sablière (c. 1640–1693), French natural philosopher; Jane Sharp (fl. 1671), British obstetrician; Justine Siegemund (1636–1705), German obstetrician; Mary Somerset, Duchess of Beaufort (1630–1715), English botanist; Elizabeth Walker (1623–1690), British pharmacist; Maria Gaetana Agnesi (1718–1799), Italian mathematician[1]:1; Geneviève Charlotte d'Arconville (1720–1805), French anatomist; Princess Charlotte of Saxe-Meiningen (1751–1827), German astronomer; Maria Angela Ardinghelli (1728–1825), Italian mathematician and physicist; Sarah Sophia Banks (1744–1818), British natural history collector; Giuseppa Barbapiccola (c. 1702–1740), natural philosopher, translator; Laura Bassi (1711–1778), Italian physicist[1]:20; Marie Marguerite Bihéron (1719–1795), French anatomist; Celia Grillo Borromeo (1684–1777), Italian natural philosopher; Jacoba van den Brande (1735–1794), Dutch founder of first all-female science academy; Maria Christina Bruhn (1732–1808), Swedish inventor; Margaret Bryan (c. 1760–1815), British natural philosopher; Elsa Beata Bunge (1734–1819), Swedish botanist; Lydia Byam (fl. 1797-1800), naturalist; María Andrea Casamayor (1700–1780), Spanish mathematician; Émilie du Châtelet (1706–1749), French mathematician and physicist[1]:52; Maria Medina Coeli (1764–1846), Italian physician.; Jane Colden (1724–1766), American biologist; Rosalie de Constant (1758-1834), Swiss naturalist.; Angélique du Coudray (1712–1794), French midwife; Maria Dalle Donne (1778–1842), Italian physician; Eva Ekeblad (1724–1786), Swedish agronomist; Dorothea Erxleben (1715–1762), German physician; Charlotta Frölich (1698–1770), Swedish agronomist and historian; Elizabeth Fulhame (fl. 1794), British chemist; Lucia Galeazzi Galvani (1743–1788), Italian physician; Sophie Germain (1776–1831), elasticity theory, number theory[1]:105; Clelia Durazzo Grimaldi (1760–1830), Italian botanist; Catherine Littlefield Greene (1755–1814), American inventor; Salomée Halpir (1718-fl. 1763), Lithuanian oculist; Caroline Herschel (1750–1848), German-British astronomer[1]:124; Catherine Jérémie (1664-1744), French-Canadian botanist; Christine Kirch (1696–1782), German astronomer; Margaretha Kirch (1703–1744), German astronomer; Maria Margarethe Kirch (1670–1720), German astronomer; Marie Lachapelle (1769–1821), French midwife; Marie-Jeanne de Lalande (1760–1832), French astronomer; Marie Paulze Lavoisier (1758–1836), French chemist and illustrator; Nicole-Reine Lepaute (1723–1792), French astronomer; Elisabeth Christina von Linné (1743–1782), Swedish botanist; Martha Daniell Logan (1704–1779), American horticulturalist; Eliza Lucas (1722–1793), American agronomist and indigo dye pioneer; Maria Lullin (1750–1831), Swiss entomologist; Catharine Macaulay (1731–1791), British social scientist; Anna Morandi Manzolini (1716–1774), Italian physician and anatomist; Marie Le Masson Le Golft (1750–1826), French naturalist; Sybilla Masters (1675–1720), patent for a corn mill; Lady Anne Monson (1726–1776), English botanist; Maria Petraccini (1759–1791), Italian anatomist and

Making women visible
(in science as elsewhere)

Biography

- The most popular genre, so possibly a good way of bringing female images into the mind of children before they "draw a scientist".
- Biography can be and often is a way of celebrating its subject:
  - Eve Curie, *Madame Curie*, 1937.
- Autobiographies and memoirs:
  - Yvonne Choquet-Bruhat, *Une Mathématicienne dans cet étrange univers*, 2016.

Yvonne Choquet-Bruhat at IAS, Princeton (1951)

"After an unfortunate attempt with a colleague's wife, we hired a 15 year old girl to come and look after Michelle after school. Michelle and the baby-sitter were very happy with this. When the baby-sitter was away, Léonce sometimes replaced me. Fortunately, one can do mathematics anywhere, so that the presence of our daughter did not hinder my work. I had, by the way, noticed when taking tea in the common room that some colleagues were sitting there, absorbed in playing that game of Chinese origin called go. One of them once told me, as I was leaving the common room before the baby-sitter left: "Obviously, a women can't be a mathematician, she has to look after her children. I snapped back: 'She can't stay late to play go.'" (p. 99).

The difficulties and limits of biography

"In the past, biographers and their publishers routinely squeezed female scientists into stereotypical roles — the frump, the whore, the enchantress, the underdog or the power behind the throne. Even Brenda Maddox, who criticizes Watson for his chauvinistic attitudes, played on gender stereotypes in choosing the subtitle *The Dark Lady of DNA* for her biography of Franklin. Is it not sufficiently fascinating that Franklin's skilled research was crucial for Watson's fame?

Current writers, male and female, are keen to distance themselves from old-fashioned approaches. Still, to boost their book's appeal, they emphasize the singularity of their subjects. It seems that being an ordinary woman with a stellar scientific career is simply not enough: to be marketable, she must also be odd. Dust jackets entice purchasers by rebranding an overlooked character as a unique female individual — in other words, as a weird woman.

Converting female scientists into publishing opportunities may sell books, but it does the cause of equality in science no favours."

Patricia Fara, "Women in science: Weird sisters?" *Nature* 495 (2013): 43–44.

On retelling women scientists' lives

- There are as many ways of being a woman scientist as there are women scientists.
- Celebrating is a perfectly respectable goal, but it is not the goal of historical research.
- Documenting is one of the goals of historical research.
- Prosopography enables one to make up for the limit of sources available, and also brings in the social dimension.

Prosopography

- Patricia Fara, *A Lab of One's Own: Science and Suffrage in the First World War*, 2018.
- Claire L. Evans, *Broad Band. The Untold Story of the Women Who Made the Internet*, 2018.
- Dava Sobel, *The Glass Universe. How the Ladies of the Harvard Observatory Took the Measure of the Stars*. 2016.
- Margot Lee Shetterly, *Hidden Figures: The American Dream and the Untold Story of the Black Women Who Helped Win the Space Race*. 2016.
- Nathalia Holt, *Rise of the Rocket Girls: The Women Who Propelled Us, from Missiles to the Moon to Mars*, 2017.
- Isabelle Lémonon-Waxin, *La Savante des Lumières françaises. Histoire d'une persona : pratiques, représentations, espaces et réseaux.* PhD dissertation (Paris, EHESS), 2019.
- Annette Lykknes and Brigitte Van Tiggelen (eds.), *Women in Their Element. Selected Women's Contributions to the Periodic System*, 2019.

Representations

From Chambers, D.W. (1983). "Stereotypic Images of the Scientist: The Draw a Scientist Test". Science Education. 67 (2): 255–265. doi:10.1002/sce.3730670213

Social representations

"Ways of knowing" characteristic of social reality that emerge in daily life during interpersonal communication and are directed toward comprehension and control of the physical-social environment.

Common sense theories on key aspects of the world that allow individuals and groups to represent it and master it.

https://www.igi-global.com/dictionary/the-impact-of-the-impact-of-meta-data-mining-from-the-sorecom-as-de-rosa--library/43213

A very short history of representations of women mathematicians

In the 21st century

Comments on Maryam Mirzakhani (1977-2017) in the social media

- On her being awarded the Fields Medal (2014):
  - “Na die Dame geht schon mehr als Mann durch, als als Frau.”
  - “Considering her present appearance I could well imagine that she soon no longer can be assigned to the female sex. Whatever, who likes it.”
- On her death (2017):
  - “A genius? Yes. But also a daughter, a mother and a wife.” (Firouz Michael Naderi)

In the 18th century

On Emilie du Châtelet (1706-1749)

- Mme du Deffand
  - "Imagine a tall lean woman, with no bottom, with no hips, a narrow chest, two little tits that are barely visible, big arms, big legs, huge feet, ..."
- Voltaire, on her passing away:
  - "I have lost a friend (*un amy*) of twenty-five years, a great man who had the sole fault of being a woman, and whom all Paris mourns and honours."

Jenny Boucard & Isabelle Lémonon, "Women in mathematics: historical and modern perspectives". Réflexions sur les femmes en mathématiques. 2018, hal-02049374

Émilie du Châtelet (1706-1749)

- Studied with Maupertuis (1698-1759) and Clairaut (1713-1765).
- *Dissertation sur la nature et la propagation du feu* (1738).
- *Institutions de physique* (1740); translated into German and Italian.
- Member of the *Accademia delle Scienze dell'Istituto di Bologna* (1746); not the first woman there.
- French translation of Newton's *Principia Mathematica* (1749, publ. 1756, 1759).

In the 19th century, in the 20th century…

- On Sofia Kovalevskaya (1850-1891):
  - "A female genius with a man's brain."
  - If a woman has mathematical talent, it is as if she had a beard." (Paul Julius Möbius)
- Emmy Noether (1882-1935):
  - "We Göttinger mostly called her 'der Noether'"(B.L. van der Waerden, 1944)

Jenny Boucard & Isabelle Lémonon, "Women in mathematics: historical and modern perspectives". Réflexions sur les femmes en mathématiques. 2018, hal-02049374

Discourses on women and science in the nineteenth century

Botany and women's education in England

Priscilla Wakefield's (1751-1832) *An Introduction to Botany; in a Series of Familiar Letters* (1796) introduced the Linnean system of classification of plants:

> Till of late years, [botany] has been confined to the circle of the learned, which may be attributed to those books that treated of it, being principally written in Latin: a difficulty that deterred many, particularly the female sex, from attempting to obtain the knowledge of a science, thus defended, as it were, from their approach.

Sam George, *Botany, Sexuality and Women's Writings, 1760-1830. From Modest Shoot to Forward Plant*, 2007.

The sex life of plants

- Linneaus's system of classification of plants was based on the number and arrangement of their sexual organs.
- Erasmus Darwin's (1731-1802) poem *The Love of the Plants* (1791).

Janet Browne, "Botany for Gentlemen: Erasmus Darwin and 'The Loves of the Plants'", *Isis* 80, 4 (1989): 592-621. .

Images of women in *The Loves of Plants*

Janet Browne, "Botany for Gentlemen: Erasmus Darwin and 'The Loves of the Plants'", *Isis* 80, 4 (1989): 592-621.

No. of males (stamens)	No. of females (pistils)	Image
		I. One male and one female
1	1	A virtuous, timorous beauty (*Canna,* 1:39)
1	1	Disdained by husband, two beds divide (*Cupressus,* 1:73)
1	1	Betrayed by the appearance of progeny after clandestine relations (*Osmunda,* 1:93)*
1	1	Gentle, tender as a lamb (*Polypodium,* 1:247)*
1	1	Retiring, pursued by plighted swain (lichen, 1:293)*
1	1	Intrepid wife seeking her spouse (*Ulva,* 1:353)*
1	1	Hapless lover, killed by snow and cold (*Tremella,* 1:373)*
1	1	Sings of her secret loves (*Fucus,* 4:159)*
1	1	Awakened by enamored lover (*Muschus,* 4:259)*
1	1	Impatient for her lover (*Conferva,* 4:269)*
1	1	Chaste daughter who avows her love to husband (truffle, 4:297)*
1	1	Strikes a talisman that charms husband (*Caprificus,* 4:327)*
1	1	Blooming bride (*Byssus,* 4:357)*
1	1	Playful bride (*Conferva,* 4:363)*

		II. More than one male and one female
2	1	A pitying beauty who soothes in turns (*Collinsonia,* 1:51)
2	1	Tearful, calls her faithless lover (*Vallisneria,* 1:341)
2	1	Baleful queen-sorceress (*Circaea,* 3:6)
3	1	Has unjealous husbands (*Iris,* 1:71)
3	1	Two houses hold a fashionable pair (*Osyris,* 1:75)
6	1	Ensnares with harlot smiles and wily charms (*Gloriosa,* 1:119)
6	1	Folds her infant in her arms (*Tulipa,* 1:171)
6	1	A tall beauty who casts her shadow on distant lands (*Draba,* 1:219)
6	1	Playful beauty (*Galanthus,* 4:103)
8	1	Chaste, saintlike (*Tropaeolum,* 4:43)
10	1	Haughty maid wooed by brothers (*Genista,* 1:57)
10	1	Stalks with gloomy dignity (*Dictamnus,* 3:184)
10	1	A beauty guarded by fond brothers (*Cassia,* 3:343)
10	1	African beauty in transparent clothes (*Hedysarum,* 4:237)
20	1	Wild priestess/seer (*Laurocerasus,* 3:39)
20	1	Breathes her virgin vows (*Cerea,* 4:15)
100	1	Desdemona, won by sooty monster (*Plantago,* 1:77)
many	1	Gigantic nymph reigning over puny lovers (*Kleinhovia,* 1:157)
many	1	Queen of the coral groves (*Zostera,* 1:231)
many	1	Queen of the seraglio (*Mimosa,* 1:267)
many	1	Nymph encouraging factory operations (*Gossypia,* 2:85)
many	1	Fair (*Nymphaea,* 2:163)
many	1	Leads a sprightly troop (*Cistus,* 2:301)
many	1	Keeper of fragrant treasures (tea, 2:473)
many	1	Amazonian beauty (*Arum,* 4:187)

Another science not for women

Richard Polwhele (1760-1838), clergyman, poet, topographer and naturalist.

Note to his 1798 poem 'The Unsexed Female'

> Botany has lately become a fashionable amusement with the ladies. But how the study of the sexual system can accord with female modesty, I am not able to comprehend. […] I have several times seen boys and girls botanizing together.

Joseph Black *et* al. (eds), *The Broadview Anthology of British Literature Volume 5: The Victorian Era*, Second Edition, 2012, p. 140.

Mary Wollstonecraft, *A vindication of the rights of woman*, 1792.

The reserve of reason […], so far from being incompatible with knowledge, it is its fairest fruit. What a gross idea of modesty had the writer of the following remark! 'The lady who asked the question whether women may be instructed in the modern system of botany, consistently with female delicacy? – was accused of ridiculous prudery nevertheless, if she had proposed the question to me, I should certainly have answered – They cannot.'* Thus is the fair book of knowledge to be shut with an everlasting seal!

*John Berkenhout, *A Volume of Letters to his Son at the University*, 1790.

The Medical Viewpoint

The case of Dr Edward Clarke

- Edward H. Clarke (1820-1877), MD (U Penn), Professor of Materia Medica at the Harvard Medical School (1855-1872).
- *Sex in Education, or A Fair Chance for the Girls*, 17 editions, 1872 to 1892.
- Argument: Intellectual demands placed on boys too hard for girls; they lead to "physiological disasters," "nervous collapse and sterility."
- Several medical cases supporting his argument.

Zschoche, Sue (1989). "Dr. Clarke Revisited: Science, True Womanhood, and Female Collegiate Education." *History of Education Quarterly* 29(4): 545-569.

Miss E---

"Miss E--- had an hereditary right to a good brain and to the best cultivation of it. Her father was one of our ripest and broadest American scholars, and her mother one of our most accomplished American women. They both enjoyed excellent health. Their daughter had a literary training, -- an intellectual, moral, and aesthetic half of education, such as their supervision would be likely to give, and one that few young men of her age receive. Her health did not seem to suffer at first. She studied, recited, walked, worked, stood, and the like, in the steady and sustained way that is normal to the male organization. She seemed to evolve force enough to acquire a number of languages, to become familiar with the natural sciences, to take hold of philosophy and mathematics, and to keep in good physical case while doing all this. At the age of twenty-one she might have been presented to the public, on Commencement Day, by the president of Vassar College or of Antioch College or of Michigan University, as the wished-for result of American liberal female culture." (p. 140 of the 1875 edition)

“Just at this time, however, the catamenial function began to show signs of failure of power. No severe or even moderate illness overtook her. She was subjected to no unusual strain. She was only following the regimen of continued and sustained work, regardless of Nature's periodical demands for a portion of her time and force, when, without any apparent cause, the failure of power was manifested by moderate dysmenorrhoea and diminished excretion. Soon after this the function ceased altogether; and up to this present writing, a period of six or eight years, it has shown no more signs of activity than an amputated arm. In the course of a year or so after the cessation of the function, her head began to trouble her. First there was headache, then a frequent congested condition, which she described as a "rush of blood" to her head; and, by and by, vagaries and forebodings and despondent feelings began to crop out. Coincident with this mental state, her skin became rough and coarse, and an inveterate acne covered her face. She retained her appetite, ability to exercise and sleep. A careful local examination of the pelvic organs, by an expert, disclosed no lesion or displacement there, no ovaritis or other inflammation. Appropriate treatment faithfully persevered in was unsuccessful in recovering the lost function. I was finally obliged to consign her to an asylum.”

Not only the sciences, but all intensive study is dangerous for women

A nightmare of the past?

Depicting “the” human body

Susan C. Lawrence and Kae Bendixen “His and Hers: Male and Female Anatomy in Anatomy Texts for U.S. Medical Students, 1890–1989”, *Social Science & Medicine* 35:7 (1992): 925–934.

- In the century from 1890-1989, anatomy texts have remained consistent in the disproportionate use of male figures or male specific structures to illustrate and to describe human anatomy.
- The use of gender references in chapter headings and subheadings, male-specific terms in discussions of shared anatomical structures, and female to male homologies all combine to present the normal human body as male.

Lawrence and Bendixen's conclusion

"Anatomists have produced a powerful and authoritative science of the human structure that is vital to advanced work in various areas of medical research and medical practice. Seeing how the normal human body is routinely depicted as male, or male-centered, in illustrations and language hardly invalidates mainstream anatomical knowledge. Yet becoming aware of how much 'his' anatomy dominates 'hers' in texts designed for medical students exposes unnecessary genitalia, useless comparisons, careless inaccuracies and errors. More important, this process reveals how far Western culture is from creating a non-gendered human anatomy, one from which both male and female emerge as equally significant and intriguing variations, and with which the medical student can comfortably "visualize his [sic] patient's anatomy." "

Surely, there has been progress in the past decades?

Susan Morgan, Odile Plaisant, Baptiste Lignier, and Bernard J Moxham, “Sexism and anatomy, as discerned in textbooks and as perceived by medical students at Cardiff University and University of Paris Descartes”, *Journal of Anatomy* 224,3 (2014): 352–365.

“Contemporary textbooks of anatomy and surface anatomy were evaluated to ascertain whether they were gender-neutral. The evidence of this, and previous studies, suggests that, both in terms of imagery and text, many textbooks lack neutrality. To further investigate such matters, we provided second-year medical students studying at Cardiff University (*n* = 293) and at the Paris Descartes University (*n* = 142) during the 2011–2012 academic year with a questionnaire inviting them to address the possibility that social/gender factors hinder the dispassionate representation of anatomy. Ethical approval was obtained from both Cardiff and Paris universities. Eighty-six percent of the students at Cardiff and 39% at Paris Descartes responded and provided data for analysis. The hypothesis tested is that medical students perceive a gender bias that is reflected in the books they read and the tuition they receive. Our findings suggest that, while students recognise the importance of gender issues and do not wish to associate with sexism, most are unaware of the possible negative aspects of sexism within anatomy. In this respect, the findings do not support our hypothesis. Nevertheless, we recommended that teachers of anatomy and authors of anatomy textbooks should be aware of the possibility of adverse effects on professional matters relating to equality and diversity issues.”

Some concluding remarks

- “The past is a foreign country; they do things differently there.” (L.P. Hartley, *The Go-Between*)
- Scientific progress does not in itself guarantee the raising of the level of gender awareness.
- The social sciences have developed tools that are very effective for highlighting gender biases and gender gaps.
- Let us all use them!