

OLOC Confronting Sexism Series July 18, 2023 Highlight Notes

An Anatomy of Institutions and their Impact on Girls and Women: Science

Patty O'Donnell

Throughout the history of science, well-established theories supposedly explained why women are inferior to men and thus why it is justifiable to exclude them from activities that are traditionally regarded as masculine, including scientific practice itself. The prejudices that emerged from such 'scientific' accounts explain to a significant degree the biases and discriminations women continue to face today.

Usually when we think of women in science, we know that they have been persistently excluded and their work has been disregarded by or even stolen and credited to male scientists. There was for some period of time some sciences were regarded as feminine such as chemistry and gynecology, but it was common belief that women should not be participating in the production of scientific knowledge. As is often the case, this story begins with the ancient Greeks. Up until the Scientific Revolution, Aristotle's natural philosophy constituted the basis of how the West understood the world. Aristotle argued for the cognitive and moral inferiority of women. To him, the female body constitutes 'defective matter' whose sole purpose is to accommodate the growth of the male seed. In this context, ancient and medieval medicine understood the female body as an imperfect copy of the male one, with its reproductive organs representing failed, imperfect, or even amputated approximations of male ones. Perhaps the most astonishing example of a scientific theory that allegedly supports the inferiority of women is Darwin's theory of evolution. Darwin believed that the male members of a species develop more advanced cognitive and bodily abilities because of their unique role in the survival of their species and in the selection of sexual partners. As such, males have evolved to be smarter, more creative, more energetic but also polygamous and aggressive.

Here are seven hysterical ideas about women that were once scientific dogma.

- Those pesky wombs cause all sorts of problems
- A vibrator could solve all our problems
- Doctors should be careful not to excite women's passions "too much"
- Speaking of your womb, did you know it could fall out if you run too much?
- Women are basically small men but weirdly, our brains are totally different
- Periods make women even less fit

So why did scientists get things so wrong when it came to understanding sex differences? One could argue that these are just examples of bad scientific practice. But this is only part of the story. Scientists drew – and still draw – sexist conclusions not because their theories do not adhere to empirical standards, but because scientists want to support sexist claims. Just think about how that male dominance has impacted the way the scientific community has represented women – both in terms of female participation in and contribution to science.

Women researchers are cited less than men. Women's scientific contributions are often undervalued and cited less often than those of their male counterparts, including in neuroscience, astronomy, medicine—and, according to two new studies, physics. Over citation of men researchers is primarily driven by other men researchers which has also been seen in political sciences.

Another identifier is the "first-mover advantage." The researchers found that among similar papers—as determined based on the body of literature cited—those authored by men were published before those from women authors. The consequence is that men can establish themselves in the field earlier than women do, which allows them to grow their network and ultimately get more recognition.

One major example of sexism in science was Rachel Carson who was a marine biologist, author and conservationist. Her scientific accuracy and thoroughness outlining the dangers of chemical pesticides made her book *Silent Spring* a powerful warning of the growing danger of unrestricted use of chemical pesticides and herbicides. She had the clarity in seeing the pesticides for what they are – biocides, that is, killers of life – not any men... Rachel accused the chemical industry of spreading misinformation and the public officials for accepting industry claims uncritically. Rachel stirred controversy in the entrenched male institutions and agencies which she challenged. Chemical and agribusiness industries, and also staff in the United States Department of Agriculture, sought to discredit her as a Communist, hysterical woman, a fanatic. Her writing was “too emotional” and therefore, unscientific. She was the object of the banal and belittling stereotype of the little old lady in galoshes who worried about birds. Seriously ill with breast cancer, Rachel died two years after the publication of *Silent Spring* on April 14, 1964, in Silver Spring, Maryland – she never talked about her cancer and did not put it out there even when she was harassed by the chemical companies.

Another example: Just yesterday on the Google Doodle: Eunice Newton Foote’s 204th birthday. Eunice Newton Foote was the first to discover the alarming effects of carbon dioxide in the atmosphere in **1856**. Today known as the “greenhouse effect.” She observed the temperatures of outdoor air vs. various gases when heated and found out that CO₂ and water vapor heated up more and took much longer to cool back down. Her research was largely ignored for almost 100 years. Eunice was the first to plant a seed of interest in the issue of climate change.

Sally Tatnall

Not enough has changed... women were not included in clinical research: women are more biologically complicated, and they are usually the prime caretakers of their children with too much time demands to participate in research. The National Institutes of Health (NIH) just 20 years ago established the Office on Women’s Health – they had been excluding “subgroups” for years. In 2010, US Senator Barbara Mikulski stated that the “aspirin a day to prevent heart issues” came out of a study of 10,000 men – no women – and was told that the study area did not have a “ladies room” so they were not included. But the outcome of the study applied to both men and women. Progress, strides? Usually the same old, same old which also applied to most animal clinical studies, used only males. In 2014, the NIH enacted a policy to have both sexes included in studies. The most responsive/quickest studies have been only for men such as AIDS research. NIH is now looking at women of color and trying to understand these subgroup studies. 50% of the STEM (Science, Technology, Engineering and Mathematics) workforce are women and 11% of that are women of color. Need to look at the intersection of sex and race challenges and conditions. Women of color experience more discrimination and biased attitudes and stereotypes than white people and men of color. This is so current! Statistics are now showing that well prepared critical advances with population concerns are cited more; division of the scientific pool is better to address science and technology. Health disparity is rampant regarding race and ethnicity. Health research needs to be done for Black and Latina women.

Reeni Golden: Patents of Women

Mary Dixon Keis 1809: weaving straw with silk, the very first patent to a woman

Tabitha Babbitt 1813: circular saw

Josephine Cochrane 1887: first commercially successful dishwasher

Elizabeth Maggie 1904: Monopoly the game

Katharine Burr Blodgett 1935: invisible /non-glare glass

Sarah Mather 1845: aquascope for underwater viewing
Maria Beasley 1880: life raft
Judy Reed 1884: dough rolling machine - first patent by a black woman
Sarah Goode 1885: folding cabinet bed
Miriam Benjamin 1888: gong and signal chair
Margaret Knight 1890's: flat-bottomed paper bags
Anna Connelly 1896: fire escape with external stairs
Mary Anderson 1903: car windshield wipers
Hedy Lamarr 1941: secret communication system
Nancy Johnson 1943: hand-cranked ice cream maker
Grace Hopper 1944: first computer and computer software programming
Maria Telkes 1947: first ever home that was entirely heated by solar power
Virginia Apgar 1951: Apgar scale to assess newborns
Bette Nesmith Graham 1956: liquid paper
Ruth Handler 1959: Barbie doll
Marie Van Brittan Brown 1966: Closed-circuit tv
Stephanie Kwolek 1966: Kevlar with over 200 uses such as bulletproof vests
Yvonne C. Brill 1967: hydrazine resistojet propulsion system which keeps communication satellites from falling out of orbit

Comments/Statements:

- There are million of patents by women.
- I'm not sure how to bring this up without giving increased airtime to male voices in this Lesbian Feminist space. Cunning, baffling, powerful, and patient illnesses of the patriarchy; it even caught me! And I have been practicing Radical Feminism for a half century. Because of that, I first thought that we'd been sent something to read that was ugly. But then I read it and, it was from a male ally validating our experience. So, then I was "grateful" that a male is taking up our cause. I got totally caught in this cunning, baffling, powerful - and patient – disease of the patriarchy. It reminded me of decades ago: my sister was asked if her husband was "babysitting" while she was away and she replied, "No he is not babysitting, they are his children."
- Part of the health field – science is not considered regarding women's feet and what they wear on them: high heels which are wrong because they put their backs in an unnatural position. Men wear flat shoes... How do we go about teaching people how to look after themselves?
- Woman scientist, Roslyn Franklin discovered the DNA double-helix was taken over/took credit by Watson and Crick. The book, "Her Hidden Genius" tells of how she was ignored until recently.
- The other million of patents "by men" – had women been running the show climate issues probably would be taken care of; women have more compassion and not "being the ruler/boss"; women should take over. Drives her nuts that in the Women's National Basketball Association you do not see any short hair on any of the women; the women coaches wear high heels!
- If women would have been allowed in the research field from the start, we would have figured world hunger, homelessness; community needs are understood; would not have established Artificial Intelligence and other types of technology.
- As a nurse, created papers on lesbian health issues and changing healthcare for the "invisible" women – lesbians and nurses; in undergraduate and postgraduate, lesbian research by lesbians was done but it just sat on the shelf – it was relevant and useful.

- Other patents by women: Annie Malone created hot combs for Black women; Madame Walker, first female self-made millionaire, a Black woman entrepreneur who promoted and sold the hot combs and other hair products for Black women.
- Before retirement, worked with NIH scientists where there were many talented women and men, but the women work more collaboratively where the men were territorial and competitive.
- Nursing was a pretty interesting journey from then she started and the programs that were developed to be professionals, furthering education; developed a PhD program for nurses at different universities; public health nursing. Many times, the students had better ideas, championed them and championed each other.
- It is funny that at 14 years of age in New York City, passed a science and math test to attend a “science” school which was only for boys and was told she could not attend that school because there were no girl bathrooms. Scientists could not figure out a bathroom for girls???
- Worked in a variety of US states and joined groups in each and found a “Ladies Aid” group that provided assistance through their “Christmas Store” for those not making a living wage in the community; also held a community dinner. Without women, this world would be a disaster.
- Sir Francis Bacon was called the Father of Science because supposedly began the invention of the scientific method and established the Academy of Sciences but stated that the purpose of science was to shake nature to her core; this is the purpose of male science to have power over nature, patriarchy; create war which is dedicated to developing instruments of destruction and that is where the money goes; physics at the universities – systemic sexism by the funding agencies for research to reinforce the connection as science seen as power over; cloning created by men, Artificial Intelligence will be the third extinction; nuclear war, climate change – men lack a moral compass.
- Nursing not getting credit as human science – nurses do research. They ask questions that are appropriate to the phenomena of interest. So, this may not be the so-called “scientific method,” because that may not be the appropriate method to use for the phenomena of interest. According to the School of Graduate studies, her dissertation in nursing in 1987 was the first Feminist dissertation at Case Western Reserve University, not just from the School of Nursing, but also within the university as a whole.
- Madame Walker and Annie Malone worked in St. Louis Missouri and there is a parade each year honoring them and supports a children’s charity.
- Women in charge – have a moral compass instead of towards power; the issues of hunger, mental health are worked on by women and men tend to ignore these issues; and regarding mental health for women, they were told “it was all in your head.” We would not be in the horrendous state we are in with women in charge; would not fund the millions of dollars on the military; women are more caring to people.
- An engineer managing an engineering department of a company regarding medical implant units such as the defibrillator which was tested in the United Kingdom, but cellphones just started to be around, and they triggered the pacemaker. Her group of men “fixed it” but did not keep the data on how to fix it, then men said it was not a problem, but she asked, what about the rest of the world’s pacemakers?
- Men do stuff but women are relational – relate to each other, to the community. Will we get to the point where women can fix the world? We have what it takes to heal.
- Women are socialized to be relational.

- Attacked by a rooster doing his thing to protect the hens; but it is more than, the difference between men and women and aggression, the testosterone; there are too many men in the population and got in control.
- Were things different after World War I and II where so many men were killed or injured – did it change the balance? Women did make gains during those wars but when the men came back, they were pushed back into the “home.”
- Llamas are the same roosters – the males are disruptive so keep them away from the females.
- I am woke – DeSantis drives me crazy. What is the opposite of woke? Snoozer. A child gets more genes from the mother than the father so who should be in charge? Hordes of men took over, conquered, and took bits from each civilization; architects and developers shaped the space/aesthetics for the underclasses to manage and keep them lesser.
- People have struggled to learn the beginnings of patriarchy and Angela Saini has written about it; the intersection piece is right on.
- Question: we know what is going on, when are we going to do “Part 2” and how to make it different?
- It is not where we are – lesbians are already making changes; need to credit each other for each piece of the work even if it is tiny; daughters and granddaughters are carrying it on.
- Women have been coming into all aspects of government and businesses working together, bringing it all together, working smart. There are so many things to fix that men screwed up. We would do better without men; support the women now in government and businesses to not put up with the greed of the male species.
- Organize, organize, organize; recognize allies; write letters.
- Yes, echo organizing – of course change is good; we are in deep trouble, forces are overwhelming, feel so alone in their perception; utter manipulation of the media – right and liberal media are owned by the rich – oligarchy; they own politicians; it is really bad with climate change, war.
- Do a search and look at the base in the war we are in regarding “wokism” – trouble in greediness, US Supreme Court, Trumpism; back at the beginning of the women’s movement – we woke up.
- Artificial Intelligence – language is a trap; ruled a narrow definition of who we are; scientific method is objectivity; definition of intelligence lacks wisdom which is greater than intelligence; Mr. Oppenheimer creator of the atomic bomb – “I have become a death destroyer of worlds.”

From the Chat:

- I really enjoyed and appreciated the “reports” and the comments. Learned a lot; was also validated by stories.
- Again. THE Scientific Method is not the only way and not necessarily the best, or even the appropriate way to research the questions that need to be asked. And nursing is a science as well as an art. So please do not disappear our sister nurses over the centuries. Nightingale was a noted scientist of her time.
- Please read “The Patriarchs: The Origins of Inequality” by Angela Saini
- Brain dead!
- Thanks to everyone for this event. Good discussion and insights.
- Very thought-provoking conversation today. Thanks!

Email after the session:

The rate of sexual assault and harassment of women engineers and STEM PhD's is only 25% compared to 50% for women in medicine. This has long persisted even though the 55.6% of entering medical students are women getting more of most types of bachelor's and master's degrees. Now after Dobbs, equality will be delayed not decades but centuries, if women aren't able to use over-the-counter contraception.