

Stefanie Knauss, Theresa Wobbe, and Giovanni Covi (editors)
Gendered Ways of Knowing in Science: Scope and Limitations
Trento: Fondazione Bruno Kessler Press, 2012.
ISBN 978-88-905389-5-7

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This slim volume collects papers presented at the 2010 conference in Trento, Italy, entitled "Gendered Ways of Knowing? Gender, Natural Sciences, and the Humanities." Its aim is to interrogate and destabilize the concept of gender, with the particular aim of understanding and critiquing its impact on epistemology, practice, and discourse as they relate to science. Editor Stephanie Knauss closes the anthology by recommending that gender be taken as a question, rather than an answer. The spirit of this suggestion is present throughout, and threads together a number of perspectives and disciplines, through history, epistemology, science communication, postcolonial studies, anthropology, and science policy. Many of the papers endorse a politically unified, yet pluralistic, picture of gender, and call for us to refine and galvanize our critique and maintain its link to the concrete realities of gendered knowledge within science.

The book is organized along four interlocking themes. The papers in the first section address the history, meaning, and usage of the term *gender* and its link to epistemology; those in the second section examine specific case studies of gender as it affects the agenda, language, and communication of scientific research. The contributions in the third section recognize the centering of the "Western context" in science and gender studies, and explicate the limitations of this bias, and the final section turns a lens on the phenomenology of science as a gendered profession, and the future of gender as a tool for analyzing and stimulating scientific research. In this review, I will focus on a selection of the more philosophically interesting contributions to this anthology. I'll start by describing and offering critical reflection on two particular papers, and will then briefly summarize some of the later chapters, with the aim of representing the breadth of topics on offer.

Perhaps the most interesting contribution to the volume is the first paper: Barbara Duden's "De-gendering Ways of Knowing: Contemporary Paradoxes from a Historian's Perspective." Duden traces gender through its severance from sex as an emancipatory tool, to its adventitious resurfacing as the term has been appropriated and transformed from a political problematic into an "empty signifier of the good" (Fraser 2009, 4) that has been incorporated into the neoliberal agenda. Moreover, Duden charts the shift of its referent from women as a group to women as atomistic individuals, to the detriment of its political potential. Her paper both mourns and warns; gender has lost its way, and we should learn from its abuses as we negotiate its future.

Duden takes the example of "gender training" workshops, which promise to undo the negative effects of feminine gender traits on women's professional lives, yet do not address the concrete realities of day-to-day existence. Such workshops imply that gender oppression is the responsibility (and *a fortiori* it would seem, the *fault*) of each individual woman. Women therefore face an illusory choice; their social gender becomes their personal burden. Such a "gender regime individualises and privatises the formerly social gender into a personal property to be taken care of on one's own responsibility--by simultaneously silencing discussions about obstacles and obligations for women in the real world" (22).

More recently, statistical classification and economic modeling have been applied to gender, masking the individual experiences of women. Such models invariably mean that women are "conceptually annihilated," and gender is co-opted by those working in the pursuit of other goals (such as profit). The concept of "equal opportunity" has become synonymous with a new double bind, since the policies that are ostensibly designed to encourage gender equality result in economic reorganization that places new and additional burdens on women. Duden argues that the *real* aim of those claiming to strive for gender equality at the global policy level turns out to be part of a broader campaign to induce deregularization, competition, and marketization. Within this paradigm, women are "ghettoised in low-wage, deregularised part-time jobs mainly in the service sector and it is mostly them [sic] who do the increasing care work which is declared to be a private problem" (25).

Duden closes with a chilling summary. "Just as economic and political governance privatises the structural conflicts and disparities between men and women, feminist social science seems to have privatised and individualised social gender as gender identity---and henceforth women are made responsible for the optimal management of their gender and for the burden of their 'failure'" (26).

This should be seen as a call to arms. Gender was hailed as a foothold for liberation, but has been recuperated into the hegemony it was supposed to deconstruct. Our "theoretical abstractions" within feminist philosophy (for example, variations on the performative view of gender within postmodern feminism) have a lot to answer for. Emancipatory tools subsist on theoretical work, since they must be optimized and never be placed beyond critique, but we should not make them so fine-grained that they are sifted away and picked up downstream to be reified into new injustices. Theoretical work on gender must be embedded in praxis, or it is existentially vulnerable, and may entirely lose its force to achieve its motivating objectives.

In their contribution, Maria Cristina Amoretti and Nicla Vassallo set out to show that it is *not* necessary to advocate feminist standpoint theory (FST) in order to defend and endorse the social aspects of knowledge practices and the social situatedness of knowers. They cite the essentialism upon which FST is ostensibly predicated as their main axis of critique, and offer a brief summary of the much-reported perils of essentialism within feminist theory. They emphasize that situated knowledge is distinct from standpoints and can be formulated without drawing on FST, and go on to recommend that the social situatedness of knowledge be maintained, but that we stop short of drawing on standpoint theory.

Amoretti and Vassallo claim that a standpoint must be predicated on an essence that justifies the unification of the epistemic agents in question. They go on to claim, without elaboration or justification, that such an essence must be "valorised, generalised, and idealised" in order to be able to ground epistemic privilege. They are not the first to articulate such a worry, and in all cases it is unfounded. If (as in, for example, the work of Sally Haslanger) the "essence" of womanhood is a body that is presumed to have particular reproductive capacities and is on that basis marked for gender oppression, then the claim that womanhood is being valorized is definitionally untenable. The authors are making the linguistic error of assigning epistemic *privilege* a positive valence. Besides, where the essence in question is widely understood to be socially constructed, yet is no less real for its social construction, flagging essentialism as a way to undermine FST falls flat. FST acknowledges womanhood as a socially constructed essence because the prevailing ideology has made it so, and FST is intimately linked to pragmatically grounded ideology-deconstruction.

Although they claim to be committed to an ideal in which we "democratise the various sciences" (70), Amoretti and Vassallo offer no strategy for doing so. We are told there is no need to privilege certain standpoints, for it is "sufficient to recognise the epistemic authority of every perspective" (70), but this surely begs the question, since without intentional deconstructive and *reconstructive* work, bare democracy merely carries over the power dynamics of the input structures: it is not enough to merely claim otherwise. The idea of privileging particular standpoints not only recognizes epistemic authority in a given domain, but also aims to correct the under-representation of particular standpoints in the overall discourse. Power-inverse weighting of perspectives is a counter-hegemonic strategy for democracy that acknowledges how power and oppression delimit the epistemological landscape.

Section 2 of the anthology directly confronts the ways in which science itself carves, advertises, and defends a gender binary. Catherine Vidal's "The Sexed Brain: From Neurosexism to Neuroethics" is a helpful, go-to summary of the way in which research in neuroscience---arguably the most critical bastion of the biological essentialist---produces and entrenches gender norms. Vidal's paper has an important and valiant aim: first, to use modern

scientific research outcomes---notably, brain plasticity---to debunk archaic extrapolations from biological determinism that still crowd public discourse and swaths of the scientific literature; second, to promote a positive image of science and of its power to emancipate.

Cerebral plasticity seems to indicate that brain function precedes brain structure, *contra* the received wisdom from traditional neurogenetic determinism. This bears on the "nature–nurture," biological–social debates, and provides a clear scientific basis for the idea that differing structures of adult brains, if observed, may be mirroring gender-differential treatment. Vidal cites a range of studies that debunk the widespread belief that there is any observed brain difference indicating capacity for multitasking, language, spatial orientation, and math skills, as well as the idea that sex hormones are correlated with risk-taking behaviors and moral judgment. The paper is an excellent resource for supplementing social-construction theses with thorough scientific studies. Throughout, she emphasizes the receptiveness of the media to studies---regardless of their quality---that appear to support biologically determined gender norms, as opposed to those that do not, or that alternatively indicate social construction.

She finishes by calling for "ethical reflection" on how these representations, and, more urgently, *misrepresentations*, affect society at large, and our understandings of sex and gender. This can be improved by better interdisciplinary dialogue, but we must also work to improve the way in which scientific studies concerning sex and gender are mediated to a lay audience. They should be accurate, up-to-date, balanced, and should anticipate and encourage cautious extrapolation. Findings about brain plasticity are decisive, and hugely important, and the public should have fair access to them, especially since they have a great impact on child-rearing, education, crime, matters of race and gender, and each of our personal destinies in countless other ways.

The third section of the anthology, "Going Beyond the Western Context?," is accompanied by an unexplained question mark. Whether this calls into question the tenability of the project against the tide of Western hegemony, or the ability of these Western academics' capacity (or right!) to be doing so remains ambiguous.

Sandra Harding's paper, "Postcolonialism and Science: Gender Issues," describes the long infancy of the intersection between postcolonial science and technology studies (STS) and gender STS. Western sciences have been planned and developed with the interests of Western states, militaries, and corporations in mind, which places such studies at odds with both gender and postcolonial studies. Harding claims that their lack of unity is due to the conflicting assumptions that have been made about (a) the relevant social relations, (b) the relevant sciences, and (c) the imagined agents of social transformation. In terms of social relations in (a), Harding describes the way in which postcolonial STS tends to take men's progress as progress *simpliciter*, whereas feminist STS centers on the emancipation of Western women. In terms of the relevant sciences in (b), feminist STS invariably neglects non-Western science traditions, whereas postcolonial STS sidelines women's interests, since, in a postcolonial context, feminism is apt to be portrayed as a Western import (regardless of the plethora of exemplary resistance movements outside the Western context). As far as the imagined agents of social transformation are concerned in (c), neither movement envisions those typified by the other as being critical agents. These unhelpful assumptions reflect the broader problem with pursuing a single, one-size-fits-all model of scientific knowledge. Given the legacy of the sociology of scientific knowledge, it seems foolish and antiscientific to exclude non-Western and nonmasculine sciences from our understanding of the world; unification for unification's sake makes for an impoverished representation. Harding recommends something like FST or Anzaldúa's "borderlands" as a way of weighing perspectives and adjudicating dialogues, and making space for each cultural domain to develop its own STS.

Heidmarie Winkel's "Gender Knowledge in the Arab-Islamic Realm" makes clear that gender in the Arab-Islamic realm is not constructed primarily around sexual difference; rather, it is understood as "equitable reciprocity." This is an important fact for feminist philosophers working to define and destabilize gender for the benefit of all women. Winkel wishes to challenge the misguided notion, common in both popular discourse and the academic literature, that the Muslim woman is the archetype of gender oppression.

A central idea is honor, which is a metric of the communal well-being of the kin group, in which women play one part (the upholding of honor) and men another (the enacting of duty) as reciprocal expectations within social structures. This is not to claim anything as strong as equality, but rather to position both categories as actors within a social group. Individual rights do not make sense when people are so embedded in social structures: they have obligations to others, but so too do others have obligations to them. Western notions of gender as sexual dimorphism and the separation of public and private spheres are not adequate lenses for the Arab-Islamic realm, and perpetuate

the "imperialist" eye. Moreover, gender inequality has repeatedly been used to justify colonial intervention (cf. Lord Cromer—who condemned Islam in Egypt for its treatment of women while opposing suffrage at home in Britain, and more recently, the "war on terror"). Islamic reformers such as Muhammed Abduh recognized the historical subjugation of women as problematic, but recommended reforms in strict accordance with the notion of reciprocal complementarity. For example: violence against women and oppression more generally are repudiated because they are bad for society as a whole. Communal well-being---arising from social interdependency---becomes the marker of morality, rather than some variation on individual liberties. In conclusion, gender, as a category, needs greater fluidity in order to be more broadly applicable, and in order to avoid our making generalizations and comparisons that are imperialist, false, and of no use whatsoever to the majority of women.

The final section of the volume takes a practical turn, and explores the interface of gender and work, with a particular emphasis on workers in science sectors. Teresa Rees considers the measures that have been taken within the European science research sector to encourage gender equality. She notes the historical shift from emphasizing that *women* in science need to be fixed, through the idea that the *culture of science* needs to be fixed, to the more recent and controversial idea that the *knowledge itself* needs fixing. This last locus falls squarely within the remit of feminist epistemology. She notes that policy-makers have been persuaded to move away from victim-blaming "deficit" models and have begun to address the androcentrism of science disciplines, with research funding bodies finally confronting the gender research problem.

Rees notes that it is "curious that the scientific endeavour, with its attention to minimising bias through careful research design of sampling, through control groups, and through experiments designed to ensure a constant range of variables to test the effects of others appears so often to ignore the significant impact that gender has on so many facets of life" (205). Although social justice is, and should be, the primary concern in noting the androcentrism of science, we would also benefit from noting that "there is growing evidence that teams comprising of [sic] men and women produce better work" (207). She also notes that, at its most extreme, omitting critique of androcentrism from scientific research may mean that women die (consider the common failure to test medicines on women). Being "evidence-based" is a point of pride within science and should imply an equitable diversity of evidence. Rees concludes that gendered ways of knowing can, and have, been legislated and learned, and that such policies and practices should be pursued to all our benefit.

This is a fresh and engaging anthology, whose variously positioned authors present a mosaic of lesser-explored modern themes in how gender and science construct and deconstruct each other. More obvious, well-trodden issues such as the way in which androcentrism affects theory-construction and methodology within science, and the emphasis on "masculine" ideologies within epistemology (that is, atomistic, impartial knowledge), are sidelined to give voice to more nuanced aspects of the titular gendered ways of knowing. This seems to be consciously in keeping with the ethos of feminist epistemology, and means that this volume is likely to surprise every reader with something novel and important.

Reference

Fraser, N., 2009, "Feminism, Capitalism, and the Cunning of History", in *New Left Review*, 56, pp. 97-117.