

Narrating Women in Science: Case of Janaki Ammal

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Abstract

The paper looks at the discourse of women in science and zooms in on the figure of Janaki Ammal, juxtaposing the narrative strategies that are deployed by two writers to narrate her story. Anchoring the argument on the narration of this figure, the paper argues that the discourse of women in science should make a distinction between state and nation, which would also allow one to reconfigure the relation between science and politics. The last part reflects on the contemporary debates around March for science to locate the argument on the contemporary.

Keywords- *Women in science, Narrative, Political, State, Nation, March for science*

INTRODUCTION

Since 2001, the Indian government has indulged in various initiatives to promote women in science.' Some of its initiatives include declaring the year 2001 as the Women's Empowerment Year, organizing in 2002 an exhibition titled Leelavati, exhibiting the life stories of Indian women in science and later publishing it as a book titled Leelavati's Daughters (2002) [1] which depicts the status of the Indian women in science and technology and offers role models to the younger generation. The government also formed committees to examine Indian women's access to and retention in scientific careers in 2002 and constituted a National Task Force for Women in Science in 2010. These initiatives illustrate the emergence of the discourse Women 'women in Science' in India, which is also actively advocated by practicing women scientists.

However, the phrase 'women in science' invokes a tendency whereby a given empirical entity called 'women' is added into an already given entity called 'science.' Often times this 'add and stir' method fails to grasp how the two entities/concepts are understood. Moreover, as a standalone method, it reaffirms the hierarchy between the two entities. The 'in' in 'women in science' turns women into a subset of the larger set called 'science.'

On the other hand, this need to challenge the given meaning of the two terms 'science' and 'women' could either invoke anger in some or could be dismissed as irrelevant by others. Since both 'science' and 'women' are considered to be categories that are beyond reproach. While 'women' is a category that is natural, 'science' is understood as to how we understand the 'natural'; the two, therefore, are thought to be beyond

questioning, existing out there as indifferent to the political, social, and cultural milieu. Consequently, it is argued that in any political, social and cultural milieu, science will exist as it is, and so will women.

Feminist Science Studies: Locating the field in India

Feminist scholarship for the past few decades in India and elsewhere has constantly tried to de-naturalize the category of the woman. Gender identities, it is argued, is not a historical, biological, a priori but is constructed by our language, social and cultural reality which renders their meaning contingent [2]. On the other hand, ‘science & technological’ to have been brought into the fold of the ‘social’ [3]. It is argued that science/scientific/technological too cannot be understood in isolation from the social, political and cultural. This formulation of ‘gender’ and ‘science’ as necessarily contingent then gives way to multiple levels at which the problem of ‘Women in Science’ ought to be understood.

The exclusionary nature of scientific institutions and the low number of women in science have been a subject of contention for few women studies scholars in India [4][5][6][7]. *Feminists and Science vol.1&2* (2015 & 2017) is the most recent intervention by feminist scholars to evaluate science in terms of its practices, institutions and organizations, the gates of which are still closed for most of the researchers interested in the field [8]. In the two volumes, it is the feminists who are interrogating the discourse of science, scientific organizations, and practice of ‘science’ to argue that scientific disciplines, as well as the scientific discourse that governs both our everyday life and institution, does not exist in a vacuum but is

constantly intersected by the particular social and cultural contexts. Therefore, there is nothing natural about the way science is organized, practiced and institutionalized.

It should be noted that this thesis has not emerged recently. Participation in social movements such as the People’s Science movement, Narmada Bachao Andolan, Women’s Health Movement, and recently emerging critiques of surrogacy and other reproductive technologies etc. have enabled Feminist intellectuals and activists alike to bring forth the political, social and cultural undertones of ‘science’ and the scientific discourse. However, the uniqueness of the two volumes does not lie in interrogating the sites where ‘science’ explicitly goes wrong after it has been brought into the political, social and cultural world. Instead, it is in the attempt to open those locations of ‘science’ that actively produce a reified image of ‘science’ for the outside world. These are the locations that are otherwise closed to the outside world. Thus, one finds throughout the pages of the two volumes varied critiques of scientific institutions, the gendered framing of different disciplines, pedagogic practices that produce a gendered representation of ‘science’ and the scientists, and largely the question of epistemology itself which is to ask what is it that science claims to know, and how does it know and who is the ideal subject of knowledge? If science is about understanding the natural, how is this act of understanding itself constructed and mediated, and what is the relation between that which is to be known and the medium via which it is known? However, *Feminists and Science Vol. 1&2* is located in a discourse that has only recently started focusing upon the scientific institutions and practices, the

gates of which are still closed for most of the researchers interested in the field. The discourse in India is still governed by the question of 'why so few?' which is being answered differently by Feminists and Science Vol. 1& 2 and various government initiatives listed at the beginning of the first section. For the government, the answer is limited to the question of numbers and is located outside of the scientific practice; for feminists, the answer lies in understanding the social and cultural embeddedness of scientific practice and is inherent in the structures of scientific institutions and practices itself. In both cases, the focus is on the exclusions that the government hopes to correct through questions of producing adequate representation, and the feminist discourse redresses by interrogating both the gendered representation and the exclusionary nature of the organization, institution and practices itself.

However, dominant representations of women scientists within government initiatives continue the gendered hierarchies. To interrogate the role of women in science in nation-building, one has to interrogate both structural constraints implicit in science and what one means by nation-building. We often tend to use 'nation' with 'state', obfuscating the analytical difference between the two. The meaning of 'state' is pretty straightforward, states are 1) tied to territory, is a sovereign that is, it monopolizes certain functions such as legitimate use of force within its territory, controls the money, law, information. Nation, on the other hand, is ambiguous. It has been defined as an 'imagined communities' [9]; it can sometimes overlap or spillover the boundaries of a state, but more often suggests something more than the rule of the state, a 'nation' can challenge

the sovereignty of a state. In a very basic sense, it brings together a group of people that can be bound together by a shared religion, ethnic identity, language, cultural practice etc. Simply put, nation $\neq$ state, states can have multiple nations within them, and some nations may not have a state [10]

This distinction is important in order to understand what it means to think about the role of women in nation-building because the role of women in science can serve two purposes. One, it can legitimize that side of the state-institutions that are associated with sovereignty and the infrastructures of force and control. Thus, the discourse of more women in science can be accepted and promoted by the sovereign state to continue the 'science, as usual, ignoring the challenges posed to state-science projects by popular movements. Science subservient to the 'state' serves the state, not its citizens and can sometimes be deployed for undemocratic purposes. On the other hand, the role of women in nation-building would be to interrogate the unqualified association between state and science, to question some of the scientific and technological projects that merely further state sovereignty rather than strengthen democracy.

This distinction between state/nation is important to understand in order to situate the narratives of women in science, and how they are written, and how the role of women in science is imagined and articulated. I hinge my argument on an analysis of narrative strategies deployed to write the figure of one woman scientist in India and how her story has been narrated differently by these two forces of nation-building and strengthening state-sovereignty— that can sometimes converge or diverge depending on the context - implicit in the

‘women in science’ discourse. I look at two texts, namely, CV Subramanian’s bibliographical article on Edavaleth Kakkat Janaki Ammal or EK Janaki Ammal published by the Indian Academy of Science as part of their ‘The Women Scientists of India’ [11] and a research article on EK Janaki by Vinita Damodaran [12].

By a narrative analysis of these two texts, *I intend to show that the role of women in science for nation-building is not just about adding women to existing institutions and state structures to continue the business of science as usual, but that which also contests, democratically, the past, present and the future of the nation. This is the difference between building the nation with women as partners and merely adding the women into the given hierarchies of state-science infrastructures.*

NARRATING JANAKI AMMAL

CV Subramanian article tells us that Janaki Ammal was born on 4th November 1897 in Tellichery, Kerala, in a cultured middle-class family. He then goes on to narrate, chronologically, how her life was shaped up framed within questions such as where she studied, worked, giving in his own words, a ‘cradle to cremation’ account of her life. After giving this account, the author brought a personal touch and described Ammal using gendered terms such as ‘a quiet, unassuming and unobtrusive but active and dynamic...bearing her greatness lightly’. Her greatness, however, is recited only through an account of her work, career path, and scientific contribution, giving an account of a ‘life in science well-lived,’ which was indeed remarkable given that the discourse of career women was missing during those times. Her desire to stay unmarried is

explained merely by presuming a ‘total dedication to her mission.’ It is only in the end that the author writes in one line that “when required, she did not shirk fighting for a cause or for a right.”

The cause or the right that she fought for is mentioned in another article by Vineeta Damodaran, whose text is situated in the scholarship of gender and science whose focus is not merely on the personhood of Janaki Ammal but what her story told us about the configurations of gender, race and science in the 20th century. Thus, by situating her, scholars situated at the nexus of gender and science also tell us about the structures that make or break successful people and how success can be understood in multiple and contingent ways. Damodaran doesn’t begin from the chronological account of Ammal but with an account of WL Thomas’ Man’s role in changing the face of the earth (Chicago, 1956) where she first encountered Ammal. The volume, Damodaran tells us, emerged in 1955 and 1956, which were critical watershed years in the evolution of post-war environmental history. Thus, while the previous narrative ends with just one-liner about the cause that Ammal fought for, Damodaran’s piece begins with the precise cause that Ammal stood for. The phrases such as “total dedication to her mission” or ‘life lived in science’ are given colour and shade by Damodaran as she situates Ammal and her contribution to indigenous and gendered environmental approaches to land-use history. Situating Ammal thus, the author is able to argue that while in dominant accounts science and nation are built through an emphasis on scientific industrialism, in the 1950s the vision for India’s national future sprang from many sources, such as ecological as is illustrated by Ammal’s story and

participation in science. Ammal was not just 'living a life of science' but was carving out her own meaning and relation to science, society and politics. She played an active role in halting the Silent Valley project (1976), which was to provide power to Kerala, which would have resulted in the destruction of the Silent Valley, home to a wide variety of plants, mammals and birds. Her support helped sustained India's most important environmental movement of the decade, and in 1985, the silent valley was declared a national park pausing for short during the advent of scientific industrialism and ruthless development.

Looking critically at Amma's account, Damodaran is also able to weave out her positioning on the boundaries of caste and race that shaped her. Born of a mother who was an illegitimate child of a British officer and father who belonged to a 'tiyya caste' which Damodaran informs us is considered one of the 'lower castes' in Kerala, Ammal grew up in a large house acquiring English education, which was often the case among many Malabar Tiyyas' to offset cast deprivation. However, due to her mixed origins, referred to as 'mixed tiyyas' and perceived 'impure', the marriage alliances were hard to come by. Both caste and race positions played a role in structuring Amma's subjectivity and decisions that she took in life. The narration of such nuances of the social, that shape an individual, are missing from Subramanian's account and other accounts that narrate the life-history of Ammal, who emphasize the 'scientific' and the journey in science devoid of any consideration of the social and the political. To focus on narrative, how the scientific, social and the political is narrated, is also to recognize the blurred binaries between fact and fiction since it

suggests that fiction is not always false, and face is not always the truth and that the truth itself exists in the murky, contingent field with various other truths and ways of seeing.

Banu Subramaniam, writing in the context of US academia, notes a similar point as she critically looks at the metaphor of 'pipeline', which is used to describe flow in terms of access and retention of women in the machinery of science. However, she invokes another vision that the metaphor can summon. She writes,

"We could describe the pipes as long, dark, dingy, impenetrable tubes and masses of metal crisscrossing the terrain of industrial capital; pipes contain, constrain, limit, and cut off the oxygen from the travelers within. Imagining the regimented travels in pipes that give the travellers no agency in their journey, we might start cheering for the leaks and for those who escape the drudgery of pipe travel." [13]

I agree with Subramaniam when she further writes in the context of US academy that,

"Initiatives in the sciences (such as represented by the women in science policies) have historically been dominated by strategies to include women (that) have been governed by uninspired, regimented, and conformist notions about the conditions that foster a career in science." [13]

SITUATING SCIENCE AND POLITICS IN THE CONTEMPORARY

It is important to locate the arguments made so far in our contemporary dilemmas. One instance comes to mind that transcends state territories, suggesting that the arguments of this paper are not limited by state borders. One such example is 'March for Science', and the controversy that

ensued after the organizers posted the following message on their Twitter handle:

“At the March for Science, we are committed to highlighting, standing in solidarity with, and acting as allies with black, Latinx, Asian and Pacific Islander, indigenous, Muslim, non-Christian, non-religious, women, people with disabilities, poor, gay, lesbian, bisexual, queer, trans, non-binary, agender, and intersex scientists and science advocates. We must work to make science available to everyone and encouraging individuals of all backgrounds to pursue science careers, especially in advanced degrees and positions. A diverse group of scientists produces increasingly diverse research, which broadens, strengthens, and enriches scientific inquiry, and therefore, our understanding of the world” (March for Science, “Diversity”).

Jerry Coyne (University of Chicago) and Steven Pinker (Harvard U) rebuked the organizers for critiquing the sciences’ hegemonic and colonial norms. Pinker called the message a “compromise” equating goals of the March “with anti-science, PC/identity politics/hard-left rhetoric” (@sapinker, “Scientists’ March”). In the face of such criticisms, the organizers removed their initial tweet, which was commended by Pinker for discarding the “distractions” of their decolonial and liberatory commitments (@sapin-@sapinker, “Glad to See”).

The March’s current Mission Statement reads,

“We advocate for policies enabling equal access to education, scientific careers, and scientific benefits and work to support increasingly equitable scientific spaces. We amplify the work and voices of underrepresented scientists and

members of underrepresented communities” (March for Science, “Our Mission”).

Instead of discussing the nature of the ‘political,’ the critique merely admonished the organizers for any association (even of a liberal kind) between science and politics. While the organizers continue to support diversity, the ‘diversity’ itself is stripped of its democratic forces and becomes a matter of scientific professionalization and practice. Comparing two different accounts of Ammal’s life and an analysis of the narrative strategies deployed to recount her life in science suggests that science is only sharpened by political and democratic consciousness that can give any substantial meaning to the role of women in nation-building, where the meaning of nation is not exhausted by the sovereignty and territory of the state. The public debate that March for Science gave way to in India, however, revolved around the term ‘scientific temperament, which is often deployed to affirm the legitimacy of science as a panacea for all problems social, political and scientific, devaluing all other kinds of knowledge and value systems [14][15][16]. The use of ‘scientific temperament’ and ‘scientific’ is often used by Indian scientists to suggest that by doing science, which is mostly nationalist, supported by the state and the government, they are also thinking about the social, and what is right and wrong. However, Ammal’s story suggests that the relation between science and politics is not given by the state but something that has to be worked upon democratically. Political emerges at the moment when we challenge the given, top-down configurations of right or wrong, sense and non-sense, which can also generate new knowledge. The discourse of women in science thus has to

engage not only with how many women are participating in science but also what kind of (techno) science, practices of science and scientific infrastructure is being made available by the state. Persons in sciences have to make the practices of science more public to democratically develop science and knowledge that can serve mankind and not just the parochial interests of states, territories, and sovereignty.

CONCLUSION

The paper situates the limits of the current ‘women in science’ discourse and policy initiatives by interrogating the way the life story of Janaki Ammal, a woman in science, is narrated by two authors situated differently. By interrogating the narrative strategies deployed by the two authors, namely, CV Subramanian and Vineeta Damodaran. I have argued that the role of women in science shouldn’t be contained by the additive measures that insist on merely plugging those excluded into the already existing infrastructures of science and nation-state. Instead, the problem of ‘women in science’ can help interrogate the existing normative understanding of ‘science’ and its role in the nation-state, the relation that is often taken for granted and thus, demands interrogation, as the life story of Janaki Ammal’s suggests.

REFERENCES

1. Rohini M. Godbole, R. Ramaswamy, & Indian Academy of Sciences, eds., *Lilavati’s daughters: the women scientists of India*, Bangalore: Indian Academy of Sciences, 2008.
2. Judith Butler, *Contingent foundations: feminism and the question of “postmodernism.”* Feminists theorize the political, New York: Routledge, 1992.
3. Donald A. MacKenzie & J. Wajcman, *the Social Shaping of Technology*, Open University Press, 1999.
4. Maithreyi Krishnaraj, *Women and science: selected essays*, 1st ed (Bombay: Himalaya Pub. House, 1991).
5. J. Subramanian, *Perceiving and Producing Merit: Gender and Doing Science in India*. *Indian Journal of Gender Studies*, 14 (2007) 259–284. <https://doi.org/10.1177/097152150701400203>.
6. Neelam Kumar & Antoinette M. Burton, eds., *Women and science in India: a reader*, New Delhi: Oxford University Press, 2009.
7. Namrata Gupta, C. Kemelgor, S. Fuchs, & H. Etzkowitz, *Triple burden on women in science: A cross-cultural analysis*. *Current Science*, 89 (2005) 1382–1386.
8. S. Krishna & Gita Chadha, *Feminists and science: critiques and changing perspectives in India* (Los Angeles California: Sage, 2017).
9. Benedict Anderson *Imagined Communities: Reflections on the Origin and Spread of Nationalism*, Verso, 2006.
10. Judith Butler & Gayatri Chakravorty Spivak, *Who Sings the Nation-state?: Language, Politics, Belonging*, Seagull Books, 2007.
11. C. V. Subramanian, *Edavaleth Kakkat Janaki Ammal*. *Resonance*, 12 (2007) 4–9. <https://doi.org/10.1007/s12045-007-0056-8>.
12. Vinita Damodaran, *Gender, Race and Science in Twentieth-Century India*: E. K. Janaki Ammal and the History of Science:

- History of Science, (2013).
<https://doi.org/10.1177/007327531305100302>.
13. Banu Subramaniam, Ghost stories for Darwin: the science of variation and the politics of diversity, Urbana, Illinois: University of Illinois Press, 2014.
14. Rahul Siddharthan, Sundar Sarukkai's Claim that the "March for Science" Was Unscientific Is Farcical. The Wire, (2017).
<https://thewire.in/science/sundar-sarukkai-march-for-science-scientific-temper-fundamentalism> (accessed August 7, 2020).
15. Sundar Sarukkai, Debate: To Stop Superstition, We Need Viable Ethical Perspectives, Not More Science. The Wire, (2017).
<https://thewire.in/science/sundar-sarukkai-march-for-science-superstition-lynching> (accessed August 7, 2020).
16. Sundar Sarukkai, The march from yesterday. The Hindu, (2017).