



Entrevista com Martina Schlünder

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Martina Schlünder é estudiosa dos Feminist Science Studies, historiadora da ciência e da medicina, além de médica. Atualmente é Prof. II de STS no TIK / Universidade de Oslo (Noruega) e professora visitante no Instituto Max Planck de História da Ciência em Berlim. Durante sua bolsa Marie Curie na Universidade de Toronto, iniciou investigações sobre a virada tecnocientífica na história da reprodução no século XX. Em outros projetos abordou a história dos animais no surgimento da biomedicina, a cultura material de classificações e a vida e obra de Ludwik Fleck.

Entrevista concedida via correio eletrônico a **Isabela Cristina Rosa, Jéssica Bley da Silva Pina** e **Ana Carolina Rezende Fonseca**, respectivamente mestrandas e doutoranda da Linha Cultura e Ciência na História do Programa de Pós-Graduação em História da Universidade Federal de Minas Gerais.

[Revista Temporalidades]: Of all the purposes that the History of Science has which one would you highlight in your research which helped you most in your theoretical and methodological frameworks?

De todos os propósitos que a História da Ciência tem, qual que a senhora destacaria em suas pesquisas que mais lhe auxiliaram em seus enquadramentos teóricos e metodológicos?

[Martina Schlünder]: History of Medicine and Science became important to me during my education. When studying medicine you usually spend (better said: waste) a lot of time learning thousands of facts, especially for theoretical exams. It's difficult though to connect them with the lived reality of patients, of people suffering from the 'facts' you are forced to learn. You can compare this situation with students who want to learn swimming or bike riding by reading several books about it, then learn them by heart, then try apply what they've read. It won't work without substantial practical training. This was what we'd been lacking in our medical training. None ever



examined our technical skills or tried to teach us using conversational techniques. Medicine is fascinating precisely because you need to master so many different types of knowledge in order to be a good doctor, a good clinician. You need scientific knowledge, practical skills, you have to be socially competent and you constantly have to translate your knowledge from expert into everyday language. Our training didn't reflect that at all.

Then history of science, epistemology came into my life. It all happened in fall 1988, when a strike at universities spread all over Germany, the so-called UniMut strike (Mut means encouragement). Academic strikes are very rare in Germany; even more rare is the participation of medical students in strikes. But this time it was different. Our goal was a complete reform of medical education. The strike wasn't organized by unions, it was organized in a very grassroots style. Knowledge, its making, its distribution, its reproduction were at the center of the strike. Learning from peers, changing formats of teaching and learning, expanding the curriculum, encouraging interdisciplinary learning, these were the overall goals. For four months we were busy with thinking about thinking, and how to practice it differently. So we self-organized our teaching, and had mixed reading groups etc. This is how I came to read Foucault on the benches of a biochemistry lab, together with students from the philosophy and history departments. And then I read Ludwik Fleck's book, 'Genesis and Development of a Scientific Fact'. I found his book mind-blowing. He had most of the answers for my questions about facts, how they emerge, how to keep them alive, because they are very delicate entities/beings. His definition of facts as "events in the history of thinking" opened up a new world for me: facts have histories and they are social events too! His approach helped me to understand my problems with fact-based learning, since the epistemic nature of facts was never explained to me. Later, when I trained in clinical neurology, Fleck's epistemology helped me to understand my clinical routines, the daily epistemic conflicts in the hospital when, for instance, two senior officers explained the symptoms of a single patient quite differently from each other.

I've always kept this very practical approach to the history of science and medicine, to historical epistemology, even now after having left medicine and the hospital long ago. Historical and epistemological knowledge once helped me to understand my daily professional life. It illuminated me, it helped me to learn and practice medicine in a better way. I think that history of science (understood as history of knowledge) is very helpful to understand our societies, so very based and entangled in practices of knowledge. I think it's from this personal background that I'm interested to bring theory, concepts and the practices of the empirical world together. Overall, I don't want to get lost in academic tribalism: I don't want to set the material turn against the



linguistic one or the history of ideas against the practical turn. I'm interested in connections, in material semiotics, in assemblages, just to name some concepts that stand for these forms of connectivity. I take a great interest in experimenting with formats in research and in publishing. It is crucial how we write/tell stories about the world, about ourselves as researchers, and about how to include those whose stories haven't been told yet.

[RT]: What have the *Science Studies* brought about new proposals for gender research?

O que os *Science Studies* têm trazido de novas propostas para as pesquisas em gênero?

[MS]: Good question: Feminist science studies, of course! But then, I'm not sure if you can declare it a 'legitimate offspring' of (institutionalized) science studies. It started more as a protest and resistance against male-dominated epistemology if you think of Evelyn Fox-Keller's, Sandra Harding's and Donna Haraway's work on epistemology and objectivity, for instance. It had surely been inspired by the women's movement in the 1970s and 1980s. But even today most of the women and gender studies programs do not include a lot of courses on technoscientific problems in feminism – if at all. So the 'grand partage', the great divide between nature and society is built into the structure of women and gender studies too. Maybe it is more apt to say that feminist science studies emerged from the interstitial grounds between women and gender studies and science studies. Besides some feminist philosophers like Sandra Harding and Helen Longino it was a number of women, having been trained in and/or still working in the natural sciences, who became influential in beginning what later became this field (like Donna Haraway, Evelyn Fox-Keller, and much later Karen Barad – just to name a few icons of the field). So, from a historical perspective the field has many different origins: some scholars were busy examining the status and the history of women and of gender in the (natural) sciences, others were concerned about the gender bias and the invisible gendered nature of epistemology. And then there were those who wanted to change practices in sciences, since they would like to return/continue working in the (natural science) labs, but labs that work in different settings. This is still an ongoing issue (see Banu Subramaniam's work, for instance 'Ghost stories for Darwin' that won the Ludwik Fleck Prize of the 4S Society two years ago).

The field may be small compared with others in science studies, but it is definitely thriving and quite diverse (a sign of its vitality, in my opinion). You can experience it at every annual meeting of the Society for Social Studies of Science (4S) or look at the list of the winners of the Ludwik Fleck Prize that is annually awarded by the 4S to outstanding books in the field. Without checking



the list I can name Judy Wajcman, Jain Lochlann, Banu Subramaniam, Michelle Murphy, Isabelle Stengers, and Helen Verran as being among the winners in the last decade. I think it's similar if you look at the list of the Bernal prize winners which is awarded for outstanding contributions to the field of sciences studies: Hebe Vessuri, Lucy Suchman, Sandra Harding, Adele Clarke, Evelyn Fox-Keller are among the prize winners of the last six or seven years. Four years ago a new journal "Catalyst" (<https://catalystjournal.org/index.php/catalyst>) was founded, explicitly dedicated to explore and analyze feminist technoscience issues.

Technoscience as a concept – as practices you simultaneously think with and against – is almost a signpost and synonym for North American feminist science studies. It works differently in Europe intellectually as well as institutionally. In Germany for instance, women and gender studies are often organized in centers and not in institutes. Women and gender studies bring an astonishing wealth of interdisciplinary knowledge to their program, but they often do not have the same institutional power as other fields. Also the situation of women in German academia is still desperate (especially compared to the US but also to other EU countries https://ec.europa.eu/research/swafs/pdf/pub_gender_equality/she_figures_2015-final.pdf)

Intersectionalism has considerably influenced research and understandings about gender in the field more recently. It's not enough to study gender inequalities independent from other forms of injustice and oppression. In order to address issues of non-binary, non-white, non-middle class women, it is necessary to investigate how gender, class, and race/ethnicity intersect. So the field is developing through an increasingly more complex analyses of gender and the productive tensions between feminist politics, gender research and the challenges that are brought to field by the growing LGBTQIA+ community.

What I think remarkable is that the field still seems to thrive best in non-traditional settings, in these interstitial spaces I've already mentioned. Let me give you an impressive example. I have spent the last three years at the TRU, the Technoscience Research Unit <https://technoscienceunit.org/>, a feminist science studies center that is part of the Women and Gender Studies Institute at University of Toronto. It has been very small – from an institutional perspective, a one-room office — founded and directed by Michelle Murphy who has a cross appointment in the history department and at the Women and Gender Studies Institute. For a couple of years the TRU served as an informal, interdisciplinary platform for feminist science studies in the greater Toronto area. Through its monthly meetings, the Technoscience Salon, it attracted a lot of different people: scholars of different fields and disciplines, artists, and activists.



Meanwhile the TRU has evolved into a bigger lab with its own offices and working space for its members. It connects institutes and disciplines (women and gender studies, history, school of information, anthropology etc.) at University of Toronto but also scholars from other universities, and activists, especially from environmental justice groups, from First Nations, data justice scholars, and civic tech activists. This is not only about colloquia or monthly meetings for exchange. The goal is to create a new form of lab, a new working space for collaborations in mixed settings: between disciplines, institutes, and universities but also beyond the academe. The aim is to create new spaces of care even in the otherwise rather hostile environments of entrepreneurial universities, in times of surging old and new forms of racism and sexism. What I would like to emphasize is that this is not only about new intellectual concepts of gender construction or political strategies, it also includes us as scholars: how do we want to practice our research on intersecting forms of injustice and strive for more equity? At the TRU lab we have jointly written and discussed a lab book, our code of conduct: how do we share ideas, how do we want to collaborate, how do we protect our space, how do we want to tell/publish our research, through what media, platforms, and journals? Can we develop different formats and narratives to talk about gender in an intersectional approach?

[RT]: In your article (*Lächerliche Erkenntnisse*) you address the smiley attitude that the public has when talking about sexuality, gender and the body. Given this, we want to know: can gender research be taken seriously?

No seu artigo "*Lächerliche Erkenntnisse?! Kann man Geschlechterforschung wirklich ernstnehmen?*" (*Insights risíveis: é possível pesquisar gênero seriamente?*), a senhora aborda a postura risonha que o público tem ao se falar sobre sexualidade, gênero e corpo. Diante disso, desejamos saber: as pesquisas em gênero podem ser levadas a sério?

[MS]: Yes absolutely! The title seems so provocative. But of course it's a rhetorical question. It reflects my perplexity about the practices of brushing gender topics off: laughter, half amused, half embarrassed, no or almost no discussion and that's it. This is what I witnessed and experienced again and again in colloquia and conference panels; at least in what you could call mixed settings, i.e. when co-panelists, colleagues, the audience were not feminist, not experts or not used to discussion on gender and sexuality. It is amazing to observe how these mechanisms of exclusion still work: formerly feminists were not invited to the mainstream, now you are invited to speak but there is no discussion; this is another kind of silence. And then there are the journals and the rejection rates for feminist papers when authors try not to publish in particular feminist periodicals.



Of course, no editor today would embarrass himself through open sexism, but of course there are ways to avoid publishing feminist papers: playing on formalities, even after super positive reviews you're not published because the paper didn't follow a guideline, a format etc. Is segregation a solution, is becoming expert a solution, publishing only in your (small) community, looking for a niche? I still ponder about these questions.....

In my paper I was interested in the frictions of laughter and affect and emotions more generally. Laughter is never neutral, so how can you use it for your purpose, how can you appropriate it or how can you use it as a hermeneutical tool? I wanted to investigate how affect works among scholars – often we just turn things into research objects and project them to others as if we wouldn't be involved. I wanted to break with this habit.

What I want to avoid by all means is the impression that humour and laughter are not serious things, so the opposition of laughter/humour and sincere, serious research does not work for me at all. At the contrary, there is a beautiful piece from de Certeau on Foucault's laughter as a hermeneutical tool. In science studies the same is true for Helen Verran's work (for instance her piece on "Staying true to laughter in African classrooms"). Helen describes her gut feelings, her discomfort in certain situations when she was teaching math teachers in Nigeria as an epistemological path to discover that there are indeed different ways of counting and imagining and doing numbers. Her book on "Science and an African Logic" is a wonderful exercise in comparative epistemology in a reflexive mode. At the same time it demonstrates why social constructivism doesn't work.

Another example is Ludwik Fleck's book from 1935. You can't understand this book and its full impact and significance when you read the English translation since it totally misses the dimension of humour and wit in his epistemology. In the German original (Fleck's mother tongue was Polish and he grew up in a multilingual society dominated by Polish and German) Fleck makes endless fun of German philosophy, of idealism, of the logical positivism of the Vienna Circle. He does so with the help of a genuine trait of the German language, the easy way to build compound nouns. So he comes up with all these compound words containing thinking. He mixes thinking with a lot of different activities and modes that usually are kept apart, at least by philosophers of science, for instance thinking and collectives, thinking and emotions and moods, thinking and materiality etc. In this way he deconstructs the concept and practice of thinking und simultaneously turns it into something very fresh, very new. English readers can't understand that since the English translators thought that Fleck couldn't master the German language. Reading the English translation you could misunderstand Fleck's witty epistemology as an obsession with thinking as



cognition and as pure cognition, as something immaterial, happening inside one's head, whereas for Fleck thinking happens between people and between people and things, and your head, your feet, your hands, your whole body and the environment is involved too.

[RT]: How has the History of Science through the approach of a comparative epistemology, clarified how the techno-scientific turn in the 20th century has changed the interpretation of human reproduction? How does the construction of the feminine /menstrual cycle dialogue with this theme?

Como o viés da História da Ciência, através da abordagem de uma epistemologia comparativa, esclarece como a virada tecnocientífica no século XX mudou a interpretação da reprodução humana? O que a construção do ciclo feminino dialoga com esse tema?

[MS]: Our understanding of reproduction is so essentialized. It is understood as completely biological, as something happening in bodies, especially in female bodies. It's as one-dimensional an idea as the logical positivists had about thinking. Of course, reproduction takes place in bodies, but also between them and in living environments, in different cosmologies. You need more than one epistemology to investigate reproduction. I was very inspired by Michelle Murphy's concept of 'distributed reproduction' in my own research on the history of reproduction. The title of my project, "1+1=3," points to reproduction's particular economies: it never adds up but strives for excess and transgression. Michelle has worked a lot on environmental issues and reproduction, about endocrine disruptors for instance. She also has a wonderful book about seizing the means of reproduction. Reproduction is all about relations, a distributed process, that connects bodies with nature, the land, its culture, its cosmology. That reproduction is so much more than biology and bodies becomes clear when you look into the understanding of reproduction in different cultures and societies. Two of my collaborators are anthropologists of reproduction, Alexandra (Sandra) Widmer works on Vanuatu and the Pacific islands, whereas Johanna Goncalves has lived with Yanomami people in Venezuela. Both investigate how people live in translation by managing different cosmologies: how to translate biomedical interventions into Yanomami's ideas of fertility, or how Pacific islanders have negotiated western ideas brought from missionaries to the islands with their own understanding of reproduction.

That reproduction is treated in these essentializing ways is also an effect of the technoscientific turn in reproduction, i.e. turning it into an scientific object that seems to be completely malleable and today, in the 21st century, easy to manipulate: use the pill (or whatever



there is on the still growing market of contraceptives) if you don't want the kids now, freeze your eggs or embryos until you think it's time to take them out of storage, if you can't conceive go for help to reproductive medicine or shop globally on the surrogate market. These technical solutions are of course not available for all of those in need, on the contrary, but they meanwhile dominate the way we think about reproduction, since global capitalism and the idea of the technological fix have such an enormous impact on our perception. This is one reason why feminist science studies need an intersectional approach to the analyses and study of reproduction, since otherwise it all magically ends up again with the goals of white, middleclass liberal feminism prioritizing choice and individual reproductive rights. The latter are utterly important, but it doesn't help without putting them in a framework of reproductive justice. Activists (and I'm more familiar with their work in North America, and only a bit in Brazil after my first set of interviews that I could do this year) have done amazing work in this field, be it indigenous women, asian women, women from black and hispanic communities. I think, we as scholars can learn a lot from this incredible work.

The fascination with ARTs (assisted reproductive technologies) like in vitro fertilization, embryo transfer, or storing of reproductive substances – whether for later use, for research, for exchange or even commercial trade – is very much at the center of social science (sociological, bioethical, anthropological) research. For my historical investigation I was looking for a something different, something that takes ARTs as a late development into account without putting it into the center, or without a teleological pattern (so that the development of these techniques seem unavoidable). And after looking deeper into the sources of reproductive physiology I realized that the underlying epistemological concept of the reproductive sciences is in fact the menstrual cycle.

Within this model hormones made perfect sense, and it is the cycle that is in the center of research of clinical medicine in the first half of the 20th century. How it could be tweaked and twisted, simulated or faked is at the very heart of contraceptive as well as fertility research at this time. It is still today, not so much as an object for research, but as the basis for all settings of ART treatments. The menstrual cycle was accepted as the physiological concept of reproduction shortly before World War I; first ideas emerged at the turn of the twentieth century when menstruation underwent a change of meaning, from a pathological bleeding that was lacking a physiological explanation to a normal phenomenon. The menstrual cycle is as essentialized as reproduction itself. Of course there has always been knowledge that women bleed periodically, but this is a different phenomenon than putting it into a historical new physiological concept like the menstrual cycle. Menstruation is a fascinating topic, under-researched historically, still a taboo, even in the enlightened sexually liberated west (see for instance this article from The Guardian



<https://www.theguardian.com/world/2018/may/23/otago-university-seizes-and-destroys-copies-of-student-magazine-that-depict-menstruation>, that was published today, while this paragraph was being written). In Brazil menstrual suppression is a dominant form of (a hidden) contraception; historically it has intimate links to the population planning programs of the Rockefeller Foundation. At the same time it is much more than just contraception, it plays well into ideals and aesthetics of femininity and of course it is linked to the taboo of menstruation.

Comparative epistemology plays an important role in my conceptual framework. However, I can see the tensions with the history of science, since the discipline itself seems to be at a crossroads. Institutionally it is an accepted part of history departments; at the same time it disappears more and more from the discourse of institutionalized science studies (if you look, for instance, at the programs of STS meetings or journals like *Social Studies of Science* or *Science, Technology and Human Values*). This has been quite different from the 1970s., when all these societies and institutions came into being, or if you consider a program like ‘Historical Epistemology’ that has been the framework of the Max Planck Institute for the History of Science in Berlin for the last 20 years.

But close to history, the history of science comes into conflict with the still persistent ‘grand partage’: I think there is no deeper interest in epistemology in other historical disciplines so there is not a lot of exchange about it, or challenges like the ‘ontological turn’ that is so hotly debated in STS, or to be more precise that emerged through STS scholarship. Apart from this there are ‘internal’ problems too, as a legacy of history of science’s own history. Let me just mention two of them: there is the very problematic hierarchization of different forms of knowledge in History of Science (I choose the capital letters to point to the institutionalized history of science with a canon) with scientific knowledge on the top and there is the dominance and very problematic legacy of Thomas Kuhn with its emphasis on ‘incommensurability’ as a necessary step for the emergence of scientific paradigms (which puts him in direct contrast to Ludwik Fleck). Here is not the space to go deeper into these problems (but see e.g. Deborah Coen’s paper (2012) on ‘provincializing Kuhn’). Of course, what turns out to be a jam today helped decades ago in becoming a discipline; partly the history of science is a victim of its successful institutionalization.



[RT]: What is the need and importance of decolonizing epistemology? How can L. Fleck help us in this? And the Feminist Science Studies?

Qual a necessidade e a importância de descolonizar a epistemologia? Como L. Fleck pode nos auxiliar nisso? E os *Feminist Science Studies*?

[MS]: There are as many forms of decolonizations as there are different forms of colonialism. Some of them are history, some, however have huge effects and impact for the present times. Others are ongoing. In the three years I lived in Toronto I learnt that for indigenous people, settler colonialism did not end with the independence of the white settler state from the European colonial nations. There are long lasting conflicts about landownership, about keeping treaties, about how to treat the land, i.e. conflicts about mining, logging, and pipelines, economic conflicts, right at the heart of capitalism or, better said, cosmopolitics. As a white european scholar I wonder what decolonization means for us, in the (former) colonial centers? If colonialism has been/still is a relation what kind of relationship do we want to create through decolonization? Whiteness is still the in/visible, not reflected European norm. And then, reducing racism to skin colors is also problematic in light of the long-lasting European history of racism against white people: antisemitism being only one example, the elaborated, racial hierarchy in Nazi Germany (between northern, western, southern, and eastern Europeans) another one.

Historically you can't deny that what historians of science call the 'Scientific Revolution' co-emerged with the *conquista* and then co-evolved with the European colonial project in multiple ways. So yes, science has been and is a colonial practice. How have these entanglements left its traces in the infrastructures of scientific thinking, in epistemic rules? How to think against your own trained system/infrastructure of thinking? Feminist science studies has done this quiet successfully; it went straight to the heart of epistemology by questioning objectivity, the position of the 'modest witness' and all the exclusions that it brings about.

Comparative epistemology is another way of decolonize epistemology. It's a concept by Ludwik Fleck, first published in 1935. It is an early attempt to decolonize epistemology by decentering western philosophical convictions, for instance the idea of thinking as a purely cognitive, individual, historically non-situated activity. The title is a provocation, an attack against the conviction of logical positivism that there is only one reality, one epistemology. It was impossible to think of epistemology in a plural form. If something is unique then you can't compare it with anything. It's singular. Fleck however understands thinking as a social process based on collaborative activities and as a practical skill. Since reality is not a given but emerges from practices, it exists in multiple ways that depend on ways of knowing and styles of thinking. In this way,



epistemologies are only possible in comparative ways and scientific truth exists only inside specific styles of thinking.

Fleck's ideas are linked to his experiences as a scientist but also on social experiences of growing up in a multilingual culture, of being marginalised, of his experiences of racism, being denied an academic career as a bacteriologist because of being Jewish. I previously mentioned the wit and the humour of his critique. He deconstructs thinking throughout his epistemology, but at the end you are not left with nothing; there is a new proposal for what could be done instead. This is what Helen Verran, another comparative epistemologist *par excellence*, calls a generative critique. "Decolonization is not a metaphor" is a paper by Eve Tuck and Wayne Yang. Yes, it is about practices. So things have to be done, thought, and written differently in epistemology, in science studies. The problem is how? Can we clean up the mess by purging or undoing history or is metabolizing the past another way of decolonization? I had this idea when I prepared the course at UFMG and started reading da Costa and the antropofago movement. It was a discovery for me, really mind-blowing. My Brazilian students were more sceptical since they know more about the contexts of the antropofagists. But this was a very good moment for me – among a lot of other revelations during the course – I'm most grateful for this experience. I'm still digesting it.

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