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Feminist Para-Ethnographies: A Proposition for a 'Critical Friendship' Between Embodied Experiences and Microbiome Science

Andrea Núñez Casal

For more than a decade, I have been aware of colonies of Escherichia coli (E.coli) populating my urinary tract, a bacterium found in mammals and birds, plants, and soil. My bladder and kidneys were in a constant circuit of pain–remission for several weeks for years. Countless prescriptions of nitrofurantoin, trimethoprim, norfloxacin, ciprofloxacin (i.e. antibiotics), paracetamol, naproxen, ibuprofen (UK), buscapina (Spain), Uro-vaxon (found and bought in Brazil), Uronid (Spain). Ferrol (Spain): three days in the hospital. London, UK: scan done, three cystoscopies cancelled. Doctors told me that my recurrent UTI (urinary tract infection) was probably a consequence of a weakened immune system. This came at a time when I did not know the meteoric emergence of a new scientific area of biomedical research yet: the human microbiome.

Contrary to my recurrent UTIs, my pregnancy came at a time when my research on human microbiome science was relatively advanced. By that time, I had gathered all the data and I was in the process of analysis and writing up. This period was interesting from an intellectual viewpoint. On the one hand, in human microbiome studies, pregnant and breastfeeding female bodies are biomedically valuable due to the major shifts in microbial communities in both the woman's and the infant's body. On the other hand, pregnancy carries an increased risk of UTI, especially for those women with (unexplained) recurrent UTIs. According to classical immunological theory, in pregnancy, the immune system weakens in order to tolerate the fetus. And this is the reason why infections are more common. What might be a minor and very mild infection in non-pregnant women might become serious and with long-term consequences for the pregnant woman and the fetus. Prenatal infections are associated with preterm delivery, stillbirth, and sepsis, to name a few. Importantly, there is an unknown burden of antimicrobial resistance (AMR) on women's health, especially in poorer countries.

'All matters of fact require, in order to exist, a bewildering variety of matters of concern.'¹

'Matters of fact' refers to scientific hypotheses, theories and experiments posed as 'objective' and represented by the 'hard sciences'. 'Matters of concern', on the other hand, refers to interpretations, beliefs, opinions and speculations regarded as subjective and represented by

¹ 'Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern', *Critical Inquiry* 30, no. 2 (January 2004): 247, <https://doi.org/10.1086/421123>.

the humanities and social sciences. In this piece, I ask: How to co-generate a ‘critical friendship’² between ‘matters of fact’ and ‘matters of concern’? In response to this question, I introduce a theoretical proposition and methodological tool aimed at knowledge-practices of co-existence, care and decoloniality, what I call ‘feminist para-ethnographies’³. This piece draws on my embodied experiences of urinary tract infections (UTIs), (mostly) feminist literature on scientific knowledge production⁴ and some vignettes from my ethnographic fieldwork on the vertical transmission of microbes. I argue that ‘feminist para-ethnographies’ complements what ‘evidence-based biomedicine’ fails to register and see through the realisation of what Denise Riley calls ‘socialised biology’⁵, which refers to biology ‘lived within particular lives.’⁶

Feminist para-ethnographies is a method of registration, documentation and interpretation of embodied experiences of health and disease as part of medical diagnostic and therapeutic data, offering a de-medicalised approach. As Anderson and Mackay sustain, in relation to autoimmunity, (embodied) biographies are an indispensable part of the efficacy of more conventional medical treatments.⁷ My proposition has very much to do with the ‘ethnographic turn’ Mol and Law call for as part of a ‘multi-voiced form of investigative story telling.’⁸ This requires the research design of tools in order to record, document, and provide situated accounts of embodied biological experience or ‘socialised biology.’⁹ In doing so, the knowledge, practice, and experience of clinicians, microbiologists, immunologists, as well as psychologists, midwives and other health workers are crucial.

My proposition of ‘feminist para-ethnographies’ is a reformulation of Holmes and Marcus’s concept of the para-ethnographic – ‘a way of dealing with contradictions,

² Nikolas Rose, ‘The Human Sciences in a Biological Age’, *Theory, Culture & Society* 30, no. 1 (1 January 2013): 3–34, <https://doi.org/10.1177/0263276412456569>.

³ Andrea Núñez Casal, ‘Feminist Para-Ethnographies: Embodied Experiences of Human-Microbe Relations as an “engaged” Research Approach for a “Microbiology Multiple”’, in *Transforming and Sustaining Health Research and Action*, ed. Stephen Hinchliffe, L Manderson, and M Moore (Palgrave Macmillan, forthcoming).

⁴ Vinciane Despret, ‘The Body We Care for: Figures of Anthro-Zoo-Genesis’, *Body & Society* 10, no. 2–3 (1 June 2004): 111–34, <https://doi.org/10.1177/1357034X04042938>; Latour, ‘Why Has Critique Run out of Steam?’; Isabelle Stengers, *The Invention of Modern Science* (Minneapolis: University of Minnesota Press, 2000); Isabelle Stengers, *Another Science Is Possible: A Manifesto for Slow Science*, trans. Stephen Muecke, 1 edition (Cambridge; Medford, MA: Polity, 2018).

⁵ *War In The Nursery: Theories of the Child and Mother* (London: Virago, 1983).

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⁷ Warwick Anderson and Ian R. Mackay, *Intolerant Bodies: A Short History of Autoimmunity*, 1st edition (Baltimore: Johns Hopkins University Press, 2014).

⁸ Annemarie Mol and John Law, ‘Embodied Action, Enacted Bodies: The Example of Hypoglycaemia’, *Body & Society* 10, no. 2–3 (June 2004): 59, <https://doi.org/10.1177/1357034X04042932>.

⁹ Riley, *War In The Nursery*.

exceptions, and facts that are fugitive'¹⁰ – as a feminist intersectional and situated practice that entangles the researcher's embodied experiences with 'fugitive' qualitative data in technoscientific claims and quantitative (microbiome) research. This dimension of feminist para-ethnographies takes up Riley's 'socialised biology' ethos of accounting for how 'biology is lived out' in all its embodied and, crucially, political sense.¹¹ Its core is based on the socialisation of care and the delivery of health justice through the transformation of silenced and private embodied experiences into shared, socialised, experiences.

Introducing 'Facts-Concerns': Pasteurianism vs Post-Pasteurianism in the Microbiology of Reproduction

The immunitary role and antimicrobial quality of the placenta have been a central dogma in gynaecology and obstetrics. The 'sterile womb paradigm' or, in other words, the placenta as the physical-reproductive barrier impeding contact between the fetus and microbes, has been debated for about 150 years, reaching scientific consensus in the second half of the twentieth century.¹² From this perspective, the immune system weakens in pregnancy to 'tolerate' the fetus, making pregnant women more vulnerable to infections. This discourse has dictated much of the public health campaigns and advice targeted at pregnant women. For example, contact with cat faeces during pregnancy might be dangerous because of the *Toxoplasma gondii* parasite. This parasite is able to cross the placenta and infect the fetus. The consequences can be lasting and include mental and physical developmental 'delays'. Pregnant women are also advised to avoid unpasteurised dairy products¹³, soft cheeses and patés, and any undercooked food to prevent listeriosis. Listeriosis is an infection caused by the bacterium *Listeria monocytogenes*, which 'lives' in vegetables, butter, and meat.

The exposure to the bacterium in uterus can lead to miscarriage, premature birth, or stillbirth. While these two examples are some of the more serious and dramatic cases of infection in pregnancy, the biomedical discourse that permeates public opinion (via public health campaigns) is that microbes, more generally, are particularly dangerous in

¹⁰ Douglas R. Holmes and George E. Marcus, 'Collaboration Today and the Re-Imagination of the Classic Scene of Fieldwork Encounter', *Collaborative Anthropologies* 1, no. 1 (2008): 596, <https://doi.org/10.1353/cla.0.0003>.

¹¹ *War In The Nursery*, 30.

¹² Maria Elisa Perez-Muñoz et al., 'A Critical Assessment of the "Sterile Womb" and "in Utero Colonization" Hypotheses: Implications for Research on the Pioneer Infant Microbiome', *Microbiome* 5, no. 1 (28 April 2017): 2, <https://doi.org/10.1186/s40168-017-0268-4>.

¹³ Heather Paxson, 'Post-Pasteurian Cultures: The Microbiopolitics of Raw-Milk Cheese in the United States', *Cultural Anthropology* 23, no. 1 (2008): 15–47, <https://doi.org/10.1111/j.1548-1360.2008.00002.x>.

pregnancy. Even in cases in which there is little or no evidence on the effect of viruses and bacteria on pregnancy and fetuses, like the case of influenza, for example, the recommendations are to get the flu jab or to avoid close contact with sick people.

New evidence in human microbiome research using molecular techniques, however, suggests that the womb, the placenta, and the umbilical cord are not microbial free.¹⁴ This new theory, known as the ‘in utero colonisation’ hypothesis proposes that the placenta harbours its microbiome.¹⁵ Likewise, fetuses acquire microbial communities not at birth during the passage from the birth canal to ‘world’ but rather, microbial acquisition and exposure occurs prenatally, in utero.

‘Interdisciplinary Solutions’ to Biome Depletion

One of the aspects that attracted me to documenting and following human microbiome science was its marked interdisciplinary ethos. My ethnographic fieldwork of ‘indigenous’ microbes and the microbiology of modes of delivery at birth were both formed of interdisciplinary teams of physicians, microbial ecologists, architects, and bioinformaticians. Both studies examined the influence of ‘modern practices’, with a special focus on antibiotics, cesarean sections and processed foods. With regards to the microbiology of reproduction, one of my ‘epistemic partners’¹⁶ expressed that ‘C-section, precludes the newborn from obtaining the original inoculum, and further impacts ... exerted via bottle feeding, antibiotics, processed foods, etc. ... disrupt the microbiome transmission and sustainability’.¹⁷

To compensate for the lack of microbial exposure in babies born via caesarean section, this team of scientists pioneered a (markedly post-pasteurian) technique of ‘microbial restoration’ (or re-embodiment) known as ‘vaginal seeding’. This technique consists of the relatively simple practice of inoculating neonates with maternal vaginal flora immediately following a caesarean section delivery. Gauze swabs are placed in the mother’s vagina. After the caesarean birth, the gauze is rubbed onto the baby’s skin. The idea is to mimic the vertical transmission of microbes in babies born by vaginal delivery. In this way, microbiome

¹⁴ Lisa J. Funkhouser and Seth R. Bordenstein, ‘Mom Knows Best: The Universality of Maternal Microbial Transmission’, *PLoS Biology* 11, no. 8 (2013): e1001631, <https://doi.org/10.1371/journal.pbio.1001631>; Perez-Muñoz et al., ‘A Critical Assessment of the “Sterile Womb” and “in Utero Colonization” Hypotheses’.

¹⁵ Perez-Muñoz et al., ‘A Critical Assessment of the “Sterile Womb” and “in Utero Colonization” Hypotheses’.

¹⁶ Holmes and Marcus, ‘Collaboration Today and the Re-Imagination of the Classic Scene of Fieldwork Encounter’.

¹⁷ M G Dominguez-Bello, ‘Genomics and Global Health in the Context of Transculturation.’ (Infectious Disease Genomics and Global Health, Hinxton, United Kingdom, October 2013).

scientists believe that immunity response to inflammatory diseases, asthma and allergies are boosted.¹⁸

In spite of the optimism, the open post-Pasteurianism of vaginal seeding makes it a controversial method of microbial restoration. There is no scientific consensus yet, mainly because of the lack of clinical trials. A Danish research group on the issue reported that the main risk are serious infections in newborns¹⁹. Overall, the current medical recommendation advises against it²⁰.

What this example of interdisciplinary solution to biome restoration shows is that the immunitary logic of Pasteurianism (i.e. fear of microbes, fear of infection) dominates not only clinical practice but the possibilities of research innovation through, for instance, more clinical trials on a (post-Pasteurian) technique such as ‘vaginal seeding’. But vaginal seeding is also interesting because connects to care as sustainable methods of biome restoration in healthcare,²¹ of ‘staying with the trouble’.²² In fact, it can be framed as ‘social medicine’; as a universal and public microbiome initiative.

It is important to point out that microbiome science is sustained through (neocolonial) practices of bioprospecting the microbial diversity from non-Western(ised) communities, societies, and locales²³. This crucial aspect of microbiome science would need further space for elaboration, but I would like to remark the fact that ‘microbiome’ therapeutics (including the aforementioned methods or ‘solutions’) are only applicable to medical conditions affecting rich nations (i.e. inflammatory, autoimmune, and metabolic diseases)²⁴. My concern is: how to secure the social contract (especially for the disadvantaged) of this kind of microbiome initiatives? Where is, or what is the role of, the social? Who would bring the social agenda, particularly in the sense of inequalities in health and disease, to the forefront of these microbiome initiatives?

¹⁸ M G Dominguez-Bello, Personal Communication, 28 January 2014.

¹⁹ ‘C-Section Mums Warned about Dangers of “Vaginal Seeding”’, nhs.uk, 23 August 2017, <https://www.nhs.uk/news/pregnancy-and-child/c-section-mums-warned-about-dangers-vaginal-seeding/>.

²⁰ T. Haahr et al., ‘Vaginal Seeding or Vaginal Microbial Transfer from the Mother to the Caesarean-Born Neonate: A Commentary Regarding Clinical Management’, *BJOG: An International Journal of Obstetrics and Gynaecology* 125, no. 5 (2018): 533–36, <https://doi.org/10.1111/1471-0528.14792>.

²¹ Rodney R. Dietert and Janice M. Dietert, ‘The Microbiome and Sustainable Healthcare’, in *Healthcare*, vol. 3 (Multidisciplinary Digital Publishing Institute, 2015), 100–129.

²² Donna J. Haraway, *Staying With the Trouble: Making Kin in the Chthulucene* (Durham: Duke University Press, 2016).

²³ Andrea Núñez Casal, ‘The Microbiomisation of Social Categories of Difference: An Interdisciplinary Critical Science Study of the Human Microbiome as the Re-Enactment of the Immune Self’ (doctoral, Goldsmiths, University of London, 2019), <http://research.gold.ac.uk/26597/>.

²⁴ Andrea Núñez Casal, ‘The Microbiomisation of Social Categories of Difference: An Interdisciplinary Critical Science Study of the Human Microbiome as the Re-Enactment of the Immune Self’ (doctoral, Goldsmiths, University of London, 2019), <http://research.gold.ac.uk/26597/>.

Beyond Ethical and Socio-Legal Implications (ELSI) frameworks, the social can no longer be elicited from the biological in so-called ‘interdisciplinarity’ microbiome research. The main question I ask in this piece is: how to foster a ‘critical friendship’,²⁵ but a ‘critical friendship’ able to generate assemblages between ‘matters of fact’ and ‘matters of concern’²⁶. What is important are alliances between the sciences and the social sciences and humanities in which the social is, first of all, included; second, re-valued; third, listened to.

I would like now to turn to how the social sciences approach the ‘factualities’ around the microbiology of reproduction. In doing so, I examine my postpartum experience as a ‘matter of concern’ through the lens of feminist literature on reproduction, mainly drawing on the work of feminist anthropologist Emily Martin.²⁷

‘Producing’ Humans

It is 3 September 2016. I am in labour. I arrived at the University College London Hospital (UCLH) maternity department in the afternoon, after waiting at home with mild contractions for several hours. It is Sunday and the maternity unit seems very quiet, with very few staff and patients. I am quickly moved to the birth centre, which is located on the fifth floor of the hospital. I can barely walk. The warm voice and hands of the midwife on rota comforted me while in the elevator. We enter the birth centre. My room looks like a spartan hotel room, although the big bathtub (for a waterbirth) makes a difference. A midwife comes every fifteen minutes for fetal heart rate monitoring. The transducer is placed against my abdomen to hear the fetus’s heartbeat. This is the third time the midwife comes to perform the auscultation. Complications started. I realise that I am bleeding heavily. Most worrying, she cannot detect the fetus’s heartbeat. We rushed to the labour ward.

At the ward, my midwife nervously asks me to wear a belt which monitors and records contractions and fetal heartbeat electronically. She insists on antibiotic administration. I reject it. I do not have masochistic tendencies, but I have not taken any medications during all the pregnancy. I have been very careful and done lots of research on how to prevent UTI and other common illnesses in pregnancy.

I am in labour, which is not a medical condition. I am not a patient because I am not sick. But my wish is not translatable to what Annemarie Mol (2008) describes as the ‘logic of choice’, the dominant healthcare approach in richer nations based on (Enlightened) rationalism and neoliberal individualism (i.e. patients as consumers), simply because I am not a patient. And things are starting to go wrong. Unwillingly, I am becoming a patient.

²⁵ Rose, ‘The Human Sciences in a Biological Age’.

²⁶ Despret, ‘The Body We Care For’; Latour, ‘Why Has Critique Run out of Steam?’; Stengers, *Another Science Is Possible*.

²⁷ *The Woman in the Body: A Cultural Analysis of Reproduction: With a New Introduction*, 1st ed. (Boston: Beacon Press, 2001).

This idea of the pregnant woman as being untrustworthy in her decisions or feelings during labour links with what feminist anthropologist Emily Martin argues in *The Woman in the Body* (2001). She insightfully shows that biomedicine does not capture (or erase, I would say) women's embodied experience of menstruation, birth, and menopause. In doing so, science creates, recreates, and reproduces binarisms. As she writes:

Usually we do not hear the story, we only hear the 'facts', and this is part of what makes science so powerful. But women - whose bodily experience is denigrated and demolished by models implying failed production, waste, decay, and breakdown have it literally within them to confront the story science tells with another story, based in their own experience. ... When women derive their view of experience from their bodily processes as they occur in society, they are not saying 'back to nature' in any way. They are saying on to another kind of culture, one in which our current rigid separations and oppositions are not present.²⁸

Embodied experiences advance other kinds of cultures. A culture that contrasts with the dominant ideology of evidence-based biomedicine, rooted in the confrontation between objectivity and subjectivity. In binarism. This is to say that the study of women's embodied experiences of reproductive processes not only translate into health disparities but in possibilities (e.g. resistance). It is in this sense that embodied experiences can be read through the lens of Federici's figures of *The Caliban and the Witch* (2004)²⁹. Caliban, the 'anti-colonial rebel', is a symbol of 'the proletarian body as a terrain and instrument of resistance to the logic of capitalism'³⁰. The witch embodies 'a world of female subjects that capitalism had to destroy: the heretic, the healer, the disobedient wife, the women who dared to live alone, the obeah woman who poisoned the master's food and inspired the slaves to revolt'.³¹

In a different context, feminist writer and poet Denise Riley argues that British developmental psychology, relied on unemployed mothers³². This has to do with the fact that developmental psychology understands 'socialisation' (through the mother) as a 'linear

²⁸ Martin, 197, 200.

²⁹ Silvia Beatriz Federici, *Caliban and the Witch*, 2., rev. ed (New York, NY: Autonomedia, 2014).

³⁰ 11.

³¹ 11.

³² *War In The Nursery*.

process' and the social self as a 'cumulative progress'³³. This is sustained in the belief that babies are born closer to biology and then get 'more and more social' through time.³⁴ Riley refers to this idea as the 'priority of the biological', a precondition for the opposition between the biological and the social, the individual and society, nature and culture or, in Latourian terms, between 'matters of fact' and 'matters of concern'. For Riley, instead, 'the individual is always already social, always there'³⁵, and she proposes 'socialised biology' as a concept to undo binarist thinking.

Riley's concept is key for my proposition of feminist para-ethnographies as material-semiotic devices to register 'socialised biology'. Embodied experiences are in fact a form of resistance against the medicalisation of reproduction, against the control and domination of women's bodies. Yet my argument is that, although this type of analysis offers valuable critical reflection, it has an important limitation: this kind of critique does not build alliances that assemblage and gather.³⁶ Similarly, Isabelle Stengers has recently expressed her concerns regarding the humanities' 'self-proclaimed privileged' critical standpoint.³⁷

Becoming Available

In building alliances and a 'critical friendship'³⁸ between (my) embodied experiences and microbiome science, between 'matters of fact' and 'matters of concern' more broadly, feminist philosopher and animal studies scholar Vincianne Despret's concept of 'becoming available' is an extremely insightful and valuable notion through which to explore how 'human and non-human bodies become more sensitive to each other'.³⁹ For Despret, the definition of beliefs and expectations in terms of 'availability' help to 'overcome the great dividing-up that results from the "will to make science"'.⁴⁰ By focusing on availability, both the subject and the world are 'active and both are transformed by the availability of the other. Both are articulated by what the other 'makes him/her make'⁴¹. Furthermore, Despret's availability is fundamentally a caring practice. As she puts it:

³³ 33.

³⁴ 33.

³⁵ Riley, 33.

³⁶ Latour, 'Why Has Critique Run out of Steam?'

³⁷ Stengers, *Another Science Is Possible*, 126.

³⁸ Rose, 'The Human Sciences in a Biological Age'.

³⁹ Despret, 'The Body We Care For', 114.

⁴⁰ 125.

⁴¹ 125.

The experimenter, far from keeping himself his body, he involves his knowledge, his responsibility and his future. The practice of knowing has become a practice of caring. And because he cares for his young goose, he learns what, in a world inhabited by humans and geese, may produce relations.⁴²

I would like to illustrate Despret's proposition of availability with a short vignette of how I became available to new relations and new identities with microbes.

Over time, I noticed a bodily pattern: A few days before suffering a UTI, a herpes simplex virus (HSV-1), physically manifested as a cold sore on either my upper or lower lip. I interpreted this biological occurrence not as an isolated fact without relation to other body parts (i.e. bladder, kidneys) but as a 'message' or 'sign' delivered by the virus. I wondered: was there a relation between these two microbial communities (i.e. E. coli and herpes simplex) harboured within my body?

Herpes simplex virus is a life-long infection. Its persistent form is in a latent state in the neural ganglia, a group of nerve-cells bodies of the nervous system. Periods of reactivation or viral replication are characterised by periodic recurrence or outbreaks, which produce cold sores. I believed that the herpes virus in its activated form through the appearance of a cold sore had a meaning: the beginning of a UTI. I was also certain that both infections were closely related to my impaired immunity in periods of either emotional and/or physical stress.

The singularity of my experiences, I argue, allows experimentation and attunement in microbe–human relations beyond evidence-based biomedicine and the rigid precepts of scientific objectivity. My 'becoming available' to new (non-pathogenic) relations, to different ways of becoming-with microbes, is not just mediated by my decade-long embodied experiences as a 'patient' or 'sufferer' of UTIs (what belongs to 'matters of concern') but also by my knowledges-practices as an academic-to-be (what belongs to 'matters of fact'). This is to say that both, my embodied experiences (concerns) and my academic practice (facts?), are indissociable (facts-concerns) parts of 'becoming available' to microbes. This, in turn, brings up issues related to the situatedness of social scientists, as to how researchers' embodied experiences participate in knowledge production.

Likewise, in devising how 'human and non-human bodies become more sensitive

⁴² 130.

to each other'⁴³, I supplement Despret's notion of 'availability' with what philosopher of science Isabelle Stengers calls 'connoisseurs'⁴⁴. Connoisseurs are 'agents of resistance against a scientific knowledge that pretends it has general authority; they partake in the production of what Donna Haraway calls 'situated knowledges'⁴⁵. As she continues:

Connoisseurs are not advocates of 'alternative' knowledge, looking for professional recognition. But their interest in the knowledges produced by scientists is different from the interest of the producers of these knowledges. It is for this reason that they can appreciate the originality or the relevance of an idea but also pay attention to questions or possibilities that were not taken into account in its production, but that might become important in other circumstances.⁴⁶

Bringing together Despret's 'availability' and Stengers's 'connoisseurs' demands to reconfigure the role of connoisseurs through the inclusion of embodied experiences. I suggest that embodied experiences as part of connoisseurs' repertoire make 'available'⁴⁷ new subjectivities and identities, new ways of knowing and making knowledge, and crucially, new forms of (health)care (e.g. medical diagnosis and therapeutic data).

Feminist Para-ethnographies

Feminist para-ethnographies aims at changing perspectives and methodologies in human microbiome science through the re-evaluation of embodied experiences of health and disease. Puig de la Bellacasa argues that soil as a living multispecies community requires different temporalities to those based on innovation, productivism, and profitability⁴⁸. Likewise, feminist para-ethnographies calls for a different way of making science. Here Isabelle Stengers' recent 'slow science' manifesto provides a helpful basis on which to build alternative knowledge practices of care and decoloniality based on alliances, therefore moving beyond the constraints of 'interdisciplinary' and 'objective' frameworks. But care as a feminist proposition in the sciences⁴⁹ and critical STS scholarship should not be

⁴³ Despret, 114.

⁴⁴ Stengers, *Another Science Is Possible*.

⁴⁵ 9.

⁴⁶ Stengers, 9.

⁴⁷ Despret, 'The Body We Care For'.

⁴⁸ 'Making Time for Soil: Technoscientific Futurity and the Pace of Care', *Social Studies of Science* 45, no. 5 (1 October 2015): 691–716, <https://doi.org/10.1177/0306312715599851>.

⁴⁹ H. Rose, *Love, Power and Knowledge: Towards a Feminist Transformation of the Sciences* (Bloomington, Ind: Indiana University Press, 1994).

confused with harmonious, idealised, and romantic visions of care that neglect the ‘troubles of interdependent existences’⁵⁰. It is ‘by staying in the thick of things, by analyzing care’s non-innocent politics that our responses can be slowed down enough to make them more care-ful’.⁵¹

It is important to remark that the ‘interdisciplinarity’ of feminist paraethnographies is not about generating ‘seamless knowledges and unified politics’ or ‘conceptual monocultures’⁵². It is not my purpose to erase the tensions, gaps, and discontinuities in the distinct ways of producing and enacting knowledges and practices in the sciences and the social sciences and humanities. In other words, feminist para-ethnographies does not try to ‘settle’ matters. Likewise, inspired by Wilson’s ‘gut feminism’, I would like to reanimate feminist theories ‘by an engagement with biology— particularly a phantastic biology and a biology of the periphery’⁵³. However, unlike Wilson’s proposition, feminist para-ethnographies is socially driven. That is, over experimentation, feminist para-ethnographies privileges the co-generation of knowledges-practices of engaged research, of social justice. After all, ‘care connotes attention and worry for those who can be harmed by an assemblage but whose voices are less valued, as are their concerns and need for care.’⁵⁴

It is in this sense that feminist para-ethnographies – the imbrication between microbes, embodiment and inequalities – as a tool to listen to and revalue devaluated embodied experiences has acquired an unprecedented importance amid the current SARS CoV-2 pandemic. In the absence of appropriate (health)care, dietary changes along with supplements from various medical traditions (e.g. Traditional Chinese Medicine (TCM), Ayurveda, homeopathy) have become part of a ‘more collaborative’ and ‘more caring’ bioeconomies⁵⁵ for those populations experiencing long-lasting symptoms and relapses of Covid-19 in order to address their multiple vulnerabilities and inequalities (i.e. healthcare, employment and childcare in convalescence). Giving voice to persistent Covid-19 online communities, the project *The Witch and the Microbe*⁵⁶ uses ‘feminist para-ethnographies’ to

⁵⁰ Maria Puig de la Bellacasa, “‘Nothing Comes without Its World’: Thinking with Care”, *The Sociological Review* 60, no. 2 (1 May 2012): 199, <https://doi.org/10.1111/j.1467-954X.2012.02070.x>.

⁵¹ Aryn Martin, Natasha Myers, and Ana Viseu, ‘The Politics of Care in Technoscience’, *Social Studies of Science* 45, no. 5 (1 October 2015): 12, <https://doi.org/10.1177/0306312715602073>.

⁵² Elizabeth A. Wilson, *Gut Feminism* (Durham: Duke University Press Books, 2015), 171.

⁵³ 171.

⁵⁴ Maria Puig de la Bellacasa, ‘Matters of Care in Technoscience: Assembling Neglected Things’, *Social Studies of Science* 41, no. 1 (1 February 2011): 92, <https://doi.org/10.1177/0306312710380301>.

⁵⁵ Vincenzo Pavone and Joanna Goven, eds., *Bioeconomies* (Cham, Switzerland: Springer International Publishing, 2017).

⁵⁶ “The Witch and the Microbe: Lingering Covid-19 Embodiments, Food cultures, and Microbial Science”, accessed 7 July 2020, <https://www.microbesembodimentinequalities.com>.

document, analyse and interpret the embodied experiences of prolonged Covid-19 (~+60 days) on various digital networks. Together with these online communities, it co-develops a ‘lived’ archive of the resulting ad hoc remedies, dietary and bodily practices used to live with/recover from the lingering symptoms of the disease. Here, what I call ‘microbiology multiple’ brings microbes and people into the ‘science of microbiology’ instead of the opposite. It focuses on embodiment and collective action rather than on a more interpretative dimension of health and wellbeing with(out) microbes.⁵⁷

Conclusion: Feminist Para-ethnographies, Resistance

Capitalism occludes care, it invisibilises it. Capitalism naturalises care by situating it in the sphere of maternal love. Care, or ‘unwaged reproductive labour’ in Federici’s terms, was a necessary precondition for the development of capitalism in Europe⁵⁸. Recent feminist literature, however, confers a new meaning to care, situating it in the sphere of resistance. That is, care can also be understood as an anti-capitalist and decolonial practice.

‘Understanding caring as something we do extends a vision of care as an ethically and politically charged practice, one that has been at the forefront of feminist concern with devalued labours [e.g. childcare, domestic work]’.⁵⁹ Ironically, as I am writing these last few paragraphs, I am drowning myself in the perversities of academia. Being a single mother and only carer of a small child in a foreign country at the same time that a so-called ‘early-career researcher’ is not merely challenging but infuriatingly impossible. The social of the social science looks like a facade when the domesticity and care work and theory collide.

In conclusion, in this piece I have developed Despret’s notion of ‘becoming available’⁶⁰ as a necessary precondition of feminist para-ethnographies. I have developed the proposition of feminist para-ethnography as ‘critical friendship’ method or tool⁶¹ for ‘connoisseurs’⁶²; connoisseurs as ‘mediums’ or ‘agents’ through which to ‘become available’ and realise ‘socialised biology’, that is biology ‘lived out by the individual in a social form...lived within particular lives’⁶³ Feminist para-ethnographies as the realisation and

⁵⁷ Stephen Hinchliffe et al., ‘Healthy Publics: Enabling Cultures and Environments for Health’, *Palgrave Communications* 4, no. 1(15 May 2018): 1–10.

⁵⁸ *Caliban and the Witch*.

⁵⁹ Puig de la Bellacasa, ‘Matters of Care in Technoscience’, 90.

⁶⁰ Despret, ‘The Body We Care For’; Vinciane Despret and Brett Buchanan, *What Would Animals Say If We Asked the Right Questions?* (Minneapolis: University of Minnesota Press, 2016).

⁶¹ Rose, ‘The Human Sciences in a Biological Age’.

⁶² Stengers, *Another Science Is Possible*.

⁶³ Riley, *War In The Nursery*, 43.

materialisation of ‘socialised biology’ is a social justice proposition to restore biome depletion across social classes and groups in order to alleviate health disparities resulting from microbiome science. In feminist para-ethnographies, the de-medicalisation and socialisation of care are the principal elements of biome restoration. This involves the re-embodiment of microbes by revaluing and de-individualising embodied experiences, turning them into shared bodily experiences (i.e. socialised biology). In this way, feminist para-ethnographies offers a window of opportunity to remodel the individualistic rhetoric of microbiome science⁶⁴.

⁶⁴ Núñez Casal, ‘The Microbiomisation of Social Categories of Difference’.

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