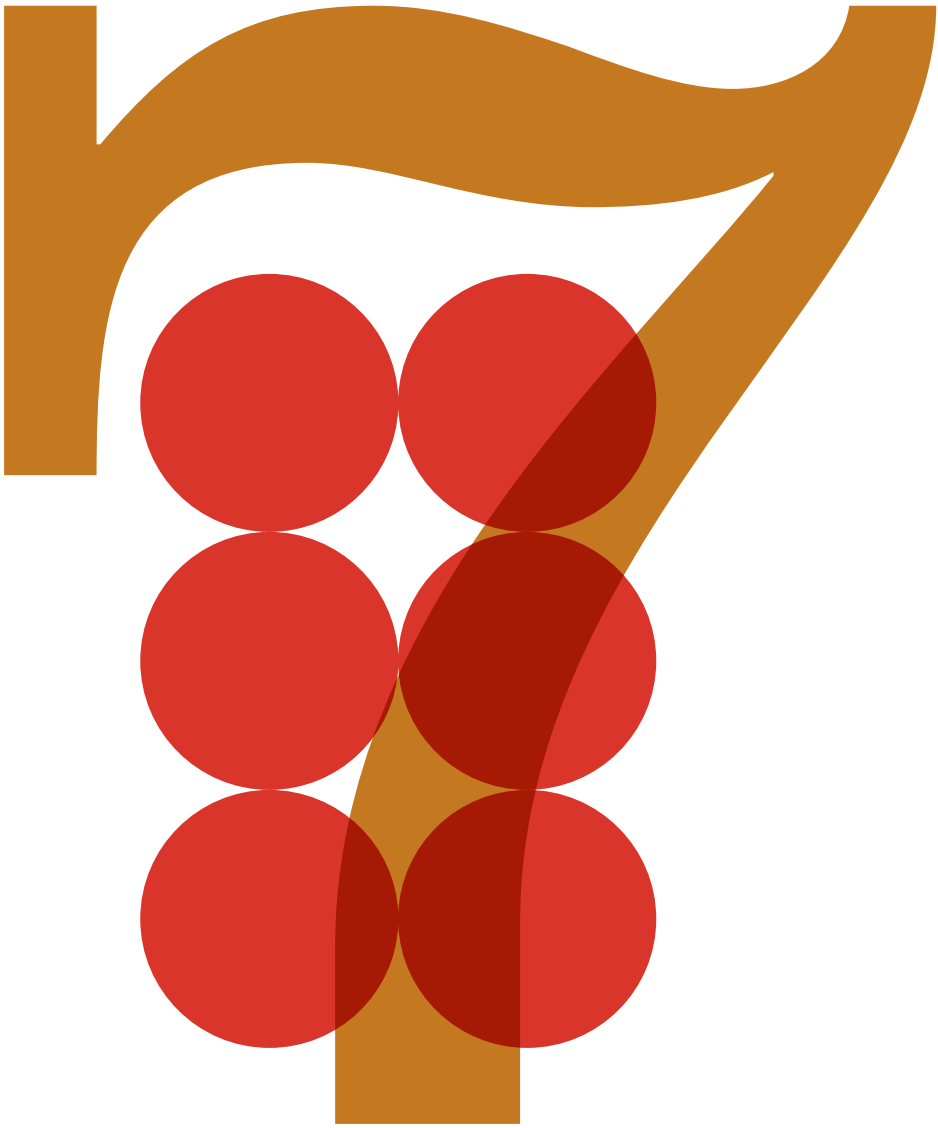

Conjunctions

humanatures, reproduction, disjunctions

edited by

STELLA SANDFORD

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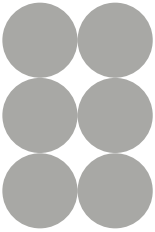

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Preface

STELLA SANDFORD

What is CRMEP? What has it been? And what is it becoming?

The times lead us inevitably to reflect on these questions, and the bringing together of the essays in this seventh volume of the CRMEP book series gives us a good occasion to do so. This volume includes a lecture first presented at a CRMEP conference, contributions drawn from CRMEP PhD students' work, essays from visiting researchers to CRMEP and contributions born out of the association of members of CRMEP with others' initiatives. Together they demonstrate that 'CRMEP' – an idea willed into existence by Peter Osborne in 1993 – encompasses a broader community of fellow travellers than just those who work or study (or who have worked and studied) under its auspices.

We have called this volume *Conjunctions* because the various themes which run through it – social and biological reproduction, the relationship between organic, social and technological life, the relations of all of these to sexuality and the relations between disciplines – do not form a unified picture, but they do reflect a particular state of relations between various fields in and adjacent to CRMEP as a historical project. Peter Osborne's 'Temporalities of Reproduction: Buffon–Quesnay–Marx' was presented to the 2024 CRMEP Graduate Conference 'Care,

Commons, Reproduction', the topics of which spoke to aspects of the doctoral research of several of the PhD student organizers. That conference drew together three concepts that animate much contemporary critical theory. Osborne's chapter in this volume investigates the transdisciplinary conceptual history of one of those terms – reproduction – as the theoretical background for understanding (among other things) the relation between the Marxist critique of political economy and the fields of Gender and Critical Race Studies. Katrine Høghøj, one of the CRMEP PhD students, addresses this same relation in a different way, via a critical discussion of the enmity between Marxist Social Reproduction Theory and 'intersectional' feminist theories of various kinds.

The problems – and the opportunities – opened by thinking about and within the relations between disciplines are central to both Aino-Marjatta Mäki's and Niklas Toivakainen & Salla Aldrin Salskov's essays – albeit in markedly different ways, from different standpoints and with different ends in mind. Nevertheless, the distinctive conjunction/disjunction 'philosophy and psychoanalysis' – the problematic of which Mäki, in particular, skewers – has been an abiding theme in CRMEP and one of the hinges of its collaborations with other research groups.

Osborne's essay also bears witness to another area of research developed within CRMEP in recent years: the relationship between the history of philosophy, the history of natural history and the history of the life sciences (often, but not exclusively, focusing on Immanuel Kant and his concept of race). This has developed alongside a growing concentration on environmental philosophy, plant philosophy and philosophy of biology (the conjunction of the latter – philosophy of biology – with modern European philosophy rendering it a little strange perhaps to the mainstream). CRMEP PhD student Finian Worrall's chapter in this volume is a direct example: the centring of environmental

philosophy – and particularly environmental ethics – in the context of critical analyses of capitalist forms and processes. Judith Bastie, a visiting researcher at CRMEP in 2023–24, connects this research constellation with a central figure in the modern European tradition, Michel Foucault. Foucault is of course well known from *The Order of Things* for his concentration on the history of natural history, but Bastie re-presents that focus here in light of the centrality to his work of botany and the history of botany, unearthing the surprising importance of plants to Foucault's later *History of Sexuality*.

This collection also includes contributions from outside of the direct orbit of CRMEP. The pieces by Edward Thornton and Isabel Jacobs were commissioned via a reading group on plant agency organized by Thornton – a group of which Bastie, Worrall and I are also members. As with other, more formalized collaborations, research in CRMEP has developed and expanded thanks to its associations with these kindred groupings. In different ways both Thornton and Jacobs look to the possibilities for an ecological Marxism. Thornton proposes that the metabolic interaction between 'man and nature', as Marx and Engels have it, includes symbiotic relations between humans and technological processes. Jacobs excavates and charts the little-known history of Soviet plant philosophy and proposes its 'morphological materialism' as a vegetal alternative to Soviet-state dialectical materialism.

As we look to the future, from the standpoint of a moment in which the vitality of research in CRMEP is so evident, it is not so much what happens within its current institutional frame but what happens – and will happen – outside or alongside it that provokes us to ask: What is CRMEP? What has it been? and What is it becoming?

CRMEP has led a chequered institutional life. But it has never been reducible to its place within the university and has

always exceeded its institutional ties. It has always retained a strong relative autonomy – which is ultimately, perhaps, what has so irritated the universities within which it has been located. Outside of its participation in state-mandated research competition – notably the REF – it has thrived on its collaborations and the personal and intellectual relations of its members with groups and individuals in other institutions – and kinds of institutions – in other countries and other disciplines. As one after another UK higher educational institution retrenches, and as the government averts its eyes from the ensuing social regression and overall educational diminution of the sector, it is time to ask: What if…?

Another CRMEP is possible. By the time of Volume 8, it will be actual.

Acknowledgements

Heartfelt thanks to all those friends and colleagues, from many different countries and contexts, who have supported us in so many ways – materially and spiritually – over the years.


IF ONLY
I WAS
A PONY

HUMANATURES

1

Technology and living matter: towards a political ecology of human–technology relations

EDWARD THORNTON

The purpose of this chapter is to effect the mutual problematization of two concepts: *technology* and *life*. Most of the argument will involve an assessment of the characterization of living matter supplied by John Dupré and Maureen O'Malley in their article 'Varieties of Living Things: Life at the Intersection of Lineage and Metabolism'. In this text, the two authors use the tools provided by a processual philosophy of biology to argue that 'matter is living when lineages are involved – directly or indirectly – in metabolic processes'.[1] Here I will draw attention to the many ways in which technological objects fulfil the two central criteria laid down by Dupré and O'Malley. My purpose is not to argue that technological objects should be considered as instances of living matter. Rather, my aim will be to direct our attention to the problematic intersection of human bodies and technological objects, and to suggest that any attempt to consider the biological and ecological relations of humans with their environment must pay special attention to the quasi-autonomous living nature of technological processes.

In the second half of the chapter I will, in addition, point to some of the ways in which such an account of the living

1. John Dupré and Maureen A. O'Malley, 'Varieties of Living Things: Life at the Intersection of Lineage and Metabolism', *Philosophy and Theory in Biology*, 1 (201306), 2009, pp. 1–25, p. 2.

processes of technology could inform a novel mode of political ecology. By showing that technological processes exist within the biosphere, rather than acting on it, I suggest a method for thinking a truly ecological Marxism, one which would extend Marx and Engels's claim that labour is 'the universal condition for the metabolic interaction between man and nature' by showing that labour involves symbiotic relations between humans and technological processes.[2]

Lineage-formation, metabolism and a process philosophy of biology

Dupré and O'Malley are not directly interested in technology. Their field of study concerns living processes – their emergence, sustainability over time and interaction. While they are particularly interested in the question of what it means for an entity to be living, their perspective 'assumes no sharp distinction between life and non-life'.[3] One way to understand this is to situate their analysis within Dupré's larger project of developing a processual philosophy of biology.

In his later work, especially, Dupré has argued for the necessity of adopting a process ontology in biology. His argument in 'A Manifesto for Processual Philosophy of Biology', co-authored with Daniel Nicholson, relies on three interconnected empirical motivations, namely the nature of metabolism, of life cycles and of ecological interdependence.[4] First, Dupré and Nicholson draw attention to the fact that 'organisms are open systems that must constantly exchange energy and matter with their surroundings', so that 'from a metabolic perspective, it is simply a matter of

2. Karl Marx, *Capital: A Critique of Political Economy, Volume I*, trans. Ben Fowkes, Penguin, New York, 1990, p. 290.
3. Dupré and O'Malley, 'Varieties of Living Things', p. 1.
4. John Dupré and Daniel Nicholson, 'A Manifesto for Processual Philosophy of Biology', in *Everything Flows: Towards a Processual Philosophy of Biology*, ed. John Dupré and Daniel Nicholson, Oxford Academic, Oxford, 2018, pp. 3–46.

fact that, in an organism, *everything flows*'.[5] Second, the authors consider the development of individual organisms, and the fact that 'all organisms undergo a characteristic series of morphological and behavioural changes over the course of their lifetime'.[6] This is true for multicellular life forms – their illustrative example comes from the development of the frog from a tadpole – but they note that 'cells have life cycles as well, which typically involve a growth phase that includes DNA replication followed by mitosis and cytokinesis'.[7] Taking life cycles into account as ubiquitous features of organisms shows that 'biological entities ... exist as temporally extended and temporally differentiated life cycles'.[8] Finally, Dupré and Nicholson draw attention to the general ecological interconnectedness of all living things, noting that organisms 'live in densely interconnected communities that provide many of the conditions of existence that enable the survival of their individual members', and that 'the environment in which each organism finds itself is partially constituted by the complex network of reciprocal interactions that the organism in question maintains with other organisms'.[9] Beyond the fact that organisms rely on one another as mutual members of ecosystems, which they co-constitute, Dupré and Nicholson also discuss the extent of symbiotic relations in the natural world, noting that 'it is becoming increasingly apparent that symbiosis is the rule rather than the exception in the biological realm'.[10]

We will return to this focus on symbiosis later in the chapter, and it is something which Dupré and O'Malley also discuss at length in the paper where they offer their criteria for living

5. Dupré and Nicholson, 'A Manifesto for Processual Philosophy of Biology', p. 17.
6. Ibid., p. 18.
7. Ibid., p. 19.
8. Ibid., p. 20.
9. Ibid.
10. Ibid. See also Lynn Margulis, *The Symbiotic Planet: A New Look at Evolution*, Weidenfeld & Nicolson, London, 1998; and S.F. Gilbert and D. Epel, *Ecological Developmental Biology: The Environmental Regulation of Development, Health, and Evolution*, 2nd edn, Sinauer Associates, Sunderland, 2015.

matter. Symbiotic relations come in many different forms. At one end of the scale there are those species that live in close contact with one another and aid one another with specific biological functions. The most obvious example here concerns the co-evolution of flowering plants and pollinators.[11] Beyond this, 'a plethora of bacteria and other microbes live in intimate extracellular liaison with plants, animals and fungi'.[12] These relations can become so entrenched that neither the animal nor the bacteria can survive without the other. For example, there is a type of bacterium named *Buchnera aphidicola* 'which lives in tight association with its aphid hosts ... and produces essential amino acids for them'; the bacteria live inside a special sac that the aphid has evolved to host them and as a result 'aphids and *Buchnera* coevolve and codiversify, meaning the phylogenies of associated lineages map onto each other'.[13] At the furthest end of the scale is endosymbiosis, in which one of the symbiotic partners moves within the cell wall of the other. The most famous example here concerns the endosymbiotic evolution of eukaryotic cells, where 'mitochondria and plastids functioned first as intracellular symbionts until most of their DNA migrated to the nucleus of the host over a billion years ago'.[14] In effect, all of the living cells of plants, animals and fungi contain organelles that were once free-living bacteria.[15]

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11. For the most insightful account of how far even this level of co-evolution can upset common notions of the individual, see Deleuze and Guattari's analysis of the relation between the wasp and the orchid: Gilles Deleuze and Félix Guattari, *Anti-Oedipus,* trans. Robert Hurley, Continuum, London, 2004, pp. 314–15. While they are not mentioned any further in this chapter, the argument presented here leads to some conclusions that fit particularly well with Deleuze and Guattari's conception of the 'mechanosphere' and of Guattari's concept of the 'machinic phylum' and of 'machinic heterogenesis'. See Gilles Deleuze and Félix Guattari, *A Thousand Plateaus,* trans. Brian Massumi, Continuum, London, 2004, pp. 77–9; and Félix Guattari, *Chaosmosis: An Ethico-Aesthetic Paradigm,* trans. Paul Bains and Julian Pefanis, Indiana University Press, Indianapolis IN, 1995, pp. 33–57.
12. Dupré and O'Malley, 'Varieties of Living Things', p. 9.
13. Ibid.
14. Ibid., p. 5.
15. For reference, see, Lynn Sagan, 'On the Origin of Mitosing Cells', *Journal of Theoretical Biology*, 14(225–74), p. 1967.

The general picture painted by Dupré and O'Malley's examples is one in which living things form collaborative partnerships, which over time can become so developed that the partners merge into a single organism. All organisms hold various relationships with other living things, such that they are constantly caught up in processes by which they are merging or separating from one another. Dupré and Nicholson sum up this position by claiming that 'the living world is a hierarchy of processes', and that 'the processes in this hierarchy not only compose one another but also provide conditions for the persistence of other members, both larger and smaller'.[16]

It is within this general framework that Dupré and O'Malley set out to answer the question, 'what does it mean for an entity to be living?' It is immediately clear that some of the usual criteria used to characterize the living are going to be insufficient. Most importantly any 'emphasis on autonomy is problematic ... because even paradigmatic biological individuals, such as large animals, are dependent on symbiotic associations with many other organisms'.[17] Another key issue facing any characterization of living things is a certain 'tension between reproduction and metabolism in discussions of life'.[18] Metabolism is commonly defined to be the composite of all those 'homeostatic mechanisms' in which 'nutritive material is built up into living matter, or protoplasm is broken down into simpler substances' and by which 'the organism's structural and functional status' is preserved.[19] The tension to which Dupré and O'Malley are drawing our attention arises because, if we take an organism to be a functional whole that uses metabolic processes to regulate its internal structure, then the whole in

16. Dupré and Nicholson, 'A Manifesto for Processual Philosophy of Biology', p. 3.
17. Dupré and O'Malley, 'Varieties of Living Things', p. 1.
18. Ibid.
19. Ann Boyce and C. Mary Jenking, *Metabolism Movement and Control*, Macmillan Education, London, 1980, p. 1.

question is almost always composed of various different genetic individuals working in unison. For example, while the human body certainly metabolizes in such a way that it regulates its own internal structure, only around 43 per cent of the cells in this body are genetically human, with the other 57 per cent made up of the body's microbiome.[20] This means that the organism considered from the point of view of its genetic replicability and the organism considered from the point of view of its metabolic integration do not coincide.

Dupré and O'Malley aim to overcome this tension by focusing less on the question of the individual and more on the question of matter. Furthermore, rather than choosing either the metabolic or the replication criteria as more important, they argue that matter should be considered as living when these two fundamental characteristics – namely 'the capacity to form lineages by replication and the capacity to exist as metabolically self-sustaining wholes' – intersect in it.[21] This means that 'matter is living when lineages are involved – directly or indirectly – in metabolic processes' but that 'the entities that form such lineages are not always, or even usually, the same as those that form metabolic wholes'. The result of this is a characterization of living processes that captures all of the complicated and interconnected examples of living things, but one in which 'we cannot assume the identification of living things with organisms'.[22] Interestingly, Dupré and O'Malley's characterization ends up including the notoriously contentious case of viruses among the living. Despite the fact that they do not form metabolic wholes, and that they cannot replicate by themselves, they do form lineages and they do play a role in the metabolic processes of the organisms with which they intersect, so they qualify as instances

20. R. Sender, S. Fuchs and R. Milo, 'Revised Estimates for the Number of Human and Bacteria Cells in the Body', *PLoS Biol*, 19 August 2016, 14(8): e1002533.
21. Dupré and O'Malley, 'Varieties of Living Things', p. 2.
22. Ibid.

of living matter. Going one step further than the example of viruses, Dupré and O'Malley ultimately view life 'as a continuum of variably structured collaborative systems', and their approach therefore 'leaves open the possibility that a variety of forms of organized matter – from chemical systems to ecosystems – might be usefully understood as living entities'.[23] The question I wish to consider is whether technological objects may be considered as living entities under Dupré and O'Malley's criteria.

Technology and lineage-formation

Technological objects – from stone tools to musical instruments and digital computers – do not arise at random, but develop along historical lines of adaptation. The internal combustion engine required the steam engine as a precursor, and the steam engine could never have come into being without the kettle. Each knapped flint tool was not created *ex nihilo*, but was made by replicating and developing the model provided by previous flint tools. In a very basic sense, then, technological objects form lineages of a kind. But do these lineages have characteristics sufficient to define technological objects as 'lineage-forming' in the sense required by Dupré and O'Malley's theory?

While Dupré and O'Malley do not further specify what they mean by 'lineage-formation', the biological concept of the lineage is relatively broad and can cover processes that occur at various taxonomic levels, from cell development within the ontogenesis of an individual to gene replication, to species survival. If the definition of a lineage is to function at all of these levels, and if it is to cover the great variety of evolutionary processes, from the lateral gene transfer of prokaryotes to the intermediary stages of multi-cellularity witnessed in complex structures such as

23. Ibid., p. 1.

slime moulds, then, as Makmiller Pedroso has shown, we must adopt a 'permissive account of lineage-generating entities'.[24] As Celso Neto explains in his article 'What is a Lineage?', 'the common feature among these lineages is that they are continuous lines of descent' which include both 'reproduction and trait transmission'.[25] According to a criterion as broad as this, technological objects certainly seem to qualify.

Of course, technological objects are not capable of reproducing – and thus of forming lineages – on their own, and always require human or other animal partners to construct them. But, once again, we find that autonomy in replication is too strict a criterion. It is not only contentious cases of life such as viruses that cannot reproduce on their own; a criterion for replication that included autonomy would also exclude a great number of things considered as paradigmatic cases of life, including most flowering plants which require pollinators for their fertilization. Samuel Butler makes this point evocatively in his novel *Erewhon*, in which he considers the reproduction of machines:

> Surely if a machine is able to reproduce another machine systematically, we may say that it has a reproductive system. What is a reproductive system, if it be not a system for reproduction? And how few of the machines are there which have not been produced systematically by other machines? But it is man that makes them do so. Yes; but is it not insects that make many of the plants reproductive, and would not whole families of plants die out if their fertilization was not effected by a class of agents utterly foreign to themselves? Does any one say that the red clover has no reproductive system because the humble bee (and the humble bee only) must aid and abet it before it can reproduce? No one. The humble bee is a part of the reproductive system of the clover.[26]

24. Makmiller Pedroso, 'Forming Lineages by Sticking Together', *Philos Theor Pract Biol*, 11(16) 2019, pp. 1–15, p. 2.
25. C. Neto, 'What Is a Lineage?', *Philosophy of Science,* 86(5), 2019, pp. 1099–110, p.1100.
26. Samuel Butler, *Erewhon; or, Over the Range*, Trübner, London, 1872, p. 206.

While biological cases suggest to us that lineage-forming entities must also carry within their bodies the information necessary for their replication (most often in the form of DNA), there is no reason to take this as a criterion for lineage-formation. What matters for replication is only that some information is stored and then utilized for the process of replication, and not where that information is stored. In the case of flint tools, the information required for their reproduction is held within human bodies, or perhaps in written language, but it is never absent altogether. In this sense, flint tools form a continuous line of descent, in which individual instances of the hand axe, to take the most common example of such a tool, rely for their creation on the pre-existence of earlier models and on the passing down of the information required for later replications. In doing this, hand axes show both reproduction and trait transmission.

To claim that technological objects are lineage-forming is not to claim that they are organisms, but only that they fulfil the criterion of living matter. Cells form lineages, while the organisms composed of those cells also form lineages at another scale, so that different 'levels of the biological hierarchy' can be thought of as 'lineage-generating entities'.[27] What is more, the exact processes and results of the lineages created at each scale need not be homologous. For example, while at the level of the organism we expect lineage formation to include relatively stable parent–offspring phases, 'lineage formation in microbial aggregates is more dependent on ecological factors and does not produce well-defined parent-offspring relations'.[28] Therefore, just because no single stone tool is the parent of any other, we should not resist the fact that processes of technological development include both reproduction and trait-transmission

27. M. Haber, 'Multilevel Lineages and Multidimensional Trees: The Levels of Lineage and Phylogeny Reconstruction', *Philosophy of Science*, 79(5), 2012, pp. 609–23, p. 612.
28. Pedroso, 'Forming Lineages by Sticking Together', p. 2.

and can therefore be understood as a particular category of lineage-formation.

Technology and metabolism

It is clear that technological objects are not – or at least are very rarely – metabolic wholes and that they are therefore unlikely candidates for being organisms. Many examples, such as that of the stone hand axe, have no 'interior' to speak of, and so it is difficult to understand what would qualify for a homeostatic management of such an internal structure. While more complicated examples, such as the internal combustion engine, do have a dynamic interior structure, they lack their own mechanisms for maintenance, and are only activated by external actions. We might also note at this point one of Simondon's insights regarding the difference between the biological and the technical individual: 'the living being resolves problems, not just by adapting, i.e. by modifying its relation to the milieu (like a machine is capable of doing), but by modifying itself, by inventing new internal structures'.[29] Such a comment seems to rule out a living consideration of technological processes, but in fact it only suggests that technological objects should not be understood as living *individuals*. The criterion laid out by Dupré and O'Malley, however, does not require living matter to constitute a metabolic whole or for it to be an individual being. On the contrary, their criterion only specifies that to be considered as an instance of living matter, an entity must be involved directly or indirectly in metabolic processes. On this criterion, technological objects fare much better. The involvement of technology in metabolic processes can be recognized in at least two different levels of

29. Gilbert Simondon, *Individuation in Light of Notions of Form and Information*, vol. 1, trans. Taylor Adkins, University of Minnesota Press, Minneapolis MN, 2020, p. 7.

metabolic activity, that of the human body and that of the social whole. I will turn to each of these two levels in turn.

Some technological objects, such as those put to use in either agriculture or the preparation of food, are clearly involved in the management of the metabolic processes of the human body. The embeddedness of the human body in its ecological context is managed by a series of technological scaffolds that determine which nutrients enter the body and in what form. As a mechanism for managing human body temperature, and therefore the speed of the chemical reactions happening within the body, both clothing and the built environment can also be understood as functioning as part of the metabolic unity required for the maintenance of human life. There is a deep sense in which the metabolic role played by technology in the survival of the human body is not accidental but structural. The role of technology in the speciation of the human has now been studied in great depth in the archaeological literature: Richard Wrangham has argued that the impact of fire as a method for preparing food was a key factor in allowing for the genetic separation of *Homo sapiens* from other hominids.[30] In a similar vein, Timothy Taylor has argued that the invention of the baby-carrying sling predated and made possible the great acceleration of human brain development – because it allowed for greater degrees of altriciality (birth at a stage of underdevelopment) – and thus that the human species has, from its inception, relied on technological prosthetics for both its development and its survival.[31]

One way of considering technological objects is thus as prostheses which are involved in managing and making possible human life, at least partially by being involved in the metabolic processes of the human body. This perspective fits closely with

30. Richard Wrangham, *Catching Fire: How Cooking Made Us Human*, Profile Books, London, 2010.
31. Timothy Taylor, *The Artificial Ape: How Technology Changed the Course of Human Evolution*, Palgrave Macmillan, London, 2010.

Bernard Stiegler's account of technics, in which, to take two central examples, fire is considered as a prosthetic stomach and writing as a prosthetic memory device.[32] Stiegler's approach borrows heavily from Georges Canguilhem's 'organology'. In his essay 'Machine and Organism', Canguilhem argued that 'machines can be considered organs of the human species' and that 'a tool or a machine is an organ, and organs are tools or machines'.[33] While such an approach recognizes the intimate relationship between technology and the living matter of our bodies, it also tends to treat technological objects according to the scale of the individual. Unlike our internal organs, technological objects also form their own developmental lineages, and their connections with any individual human are often contingent and ephemeral. For these reasons, we can also consider technological objects not in relation to the metabolic whole of the individual human body, but in relation to the metabolic functions of social wholes. Two theoretical approaches that may help us to consider this point are the theory of 'industrial metabolism' proposed by the economist Robert Ayres, on the one hand, and the nascent field of 'gene–culture co-evolution', on the other.

Ayres' approach draws on what he calls 'a compelling analogy between biological organisms and industrial activities' and defines 'the metabolism of industry' as 'the whole integrated collection of physical processes that convert raw materials and energy, plus labour, into finished products and wastes in a, more or less, steady-state condition'.[34] If we take seriously the idea that

32. Bernard Stiegler, *Time and Technics 1: The Fault of Epimetheus*, Stanford University Press, Stanford CA, 1998. See especially the section 'Who? What? The Invention of the Human', pp. 134, 180.
33. Georges Canguilhem, 'Machine and Organism', trans. Mark Cohen and Randall Cherry, in *Incorporations*, ed. Jonathan Crary and Sanford Kwinter, Zone, New York, 1992, pp. 44–69, p. 87.
34. R.U. Ayres, 'Industrial Metabolism: Work in Progress', in J.C.J.M. van den Bergh and M.W. Hofkes, eds, *Theory and Implementation of Economic Models for Sustainable Development: Economy & Environment*, 15, Springer, Dordrecht, 1998, p. 196.

technological objects fulfil the criterion for living matter given by Dupré and O'Malley, then we need not only think of this as an analogy. Technological objects are lineage-forming entities that contribute to the metabolic management of social wholes. This view connects us back to the careful consideration that Dupré and O'Malley give to the various scales of living matter. Much of their article is given over to the microscopic processes that operate within living organisms. They consider the nature not only of proteins and viruses, but of prions, plasmids and organelles. Many of these entities are not considered to be living things under more traditional definitions of life, because unlike cells they are not easily characterized as metabolic units. However, for Dupré and O'Malley, they are instances of living matter because of the metabolic processes that they help to compose at the scale of the human body. Following Dupré and O'Malley's approach suggests that technological objects may also be considered as living for the role they play in the metabolism of social wholes.

Outside of this essentially economic context, a new field of study concerning human–technology relations has been taking place in that of genomics, where the feedback loops between cultural development and species adaptation have been considered under the title of 'gene–culture co-evolution'. Such an approach considers culture to be 'a system of descent with modification', which develops alongside and in concert with the evolution of the human genome.[35] While the standard approach in this literature is to consider culture to be a system of information, some of the key examples taken of cultural inheritance and adaptation concern material technological objects, such as tools, clothing and modes of transport.[36] Combining this approach with the

35. P.J. Richerson, R. Boyd and J. Henrich, 'Gene-Culture Coevolution in the Age of Genomics', *Proc Natl Acad Sci USA* 107, 2010, pp. 8985–92, p. 8986.
36. Ibid., p. 8985.

concept of an industrial metabolism provides a new picture of technology and the way in which it is involved in metabolic processes. If we consider the speciation of the human to involve a certain symbiotic relation with technological objects that act as metabolic supports to the processes of the human body, then technological objects can be considered as living matters with their own lineages, which allow for the emergence of a new living process, namely the processes of social development that are most often studied in the fields of political economy, and not in biology.

Technology and the biosphere

So far, we have seen that a careful consideration of technological processes could place them within the category of living matter as it is defined by Dupré and O'Malley. We have also seen that, by taking a processual philosophy of biology perspective, we have been directed to consider technological objects not as external organs of human bodies, or as organisms on their own, but as portions of living matter that are engaged in living processes that exist at scales above that of the human individual. Before turning to my final comments, I wish to consider the largest possible scale at which we can consider the living processes of technological development, namely at the scale of the biosphere. By placing technology within its biospheric context, I also hope to point towards a novel conception of political economy, one that affirms Marx's contention that social forms are determined by their modes of production, but that also considers each of these modes of production as a specific way in which the relations between human life and the living processes of technology are symbiotically intertwined.

The concept of the biosphere was popularized by the great mineralogist and geochemist Vladimir Vernadsky, who used

it to name that energetic and material region between the Earth's crust and its outer atmosphere which contains all life. Importantly, Vernadsky considered this living envelope, which surrounds the globe, to be a significant geological force that has shaped the chemical composition of the Earth. In his view, the aggregate of all ecosystems on the Earth can be considered as one enormous system which takes in solar energy and processes it into a great variety of energetic, physical and chemical systems. As he writes, 'the biosphere may be regarded as a region of transformers that convert cosmic radiations into active energy in electrical, chemical, mechanical, thermal, and other forms'.[37] According to Vernadsky's own analysis, not all of the matter in the biosphere is living, but it is all caught up in living processes. Beginning with the transformation of solar energy into potential energy in photosynthesis, all living things create a web of processes that fill the seas and carpet the land: 'living matter creates innumerable new chemical compounds by photosynthesis, and extends the biosphere at incredible speed as a thick layer of new molecular systems'.[38]

Vernadsky's account of the biosphere does not use the concept of either metabolism or genetic lineage-formation.[39] In this respect, it is not clear how his analysis will fit with Dupré and O'Malley's processual characterization of living matter. Technological processes are also left unconsidered by Vernadsky as forces within the broader set of mechanisms that compose the biosphere. Despite these omissions, Vernadsky's holistic picture of the interconnectedness of all living processes in one global system for the processing of solar energy gives us a new

37. Vladimir Vernadsky, *The Biosphere,* trans. David B. Langmuir, Copernicus, New York, 1998, p. 47.
38. Ibid., p. 50.
39. Interestingly, Vernadsky does use the concept of metabolism once in *The Biosphere* (see p. 72). The editors of the English edition of Vernadsky's book suggest this shows the influence of an essay by Julius Mayer titled 'The Motions of Organisms and their Relation to Metabolism', in *Julius Robert Mayer: Prophet of Energy*, ed. R.B. Lindsay, Pergamon Press, Oxford, 1973.

perspective from which to view the ways in which technological processes may be considered as living matter. Technological processes emerge out of other living processes – most notably the evolution and adaptation of the human species – and they initially extend the chain of mechanisms that process and repurpose the solar energy converted by photosynthesis.[40] It is certainly the case that technological processes operate in the region of the biosphere, and that they use free energy to alter the chemical composition of the surface of the Earth.

Once again, the most obvious examples concern agricultural technology, or any of the modes of technology that directly manage the metabolic relation between humans and their ecosystems. When humans build irrigations systems, and use ploughs, harvesting machines and threshers to work the land, the chemical systems of that location are altered considerably. Industrial agriculture is an even more obvious candidate for a biospheric process: the nutrient cycles that naturally occur in any given ecosystem have been greatly altered by the invention of synthetic fertilizers. When the Haber-Bosch method for the production of ammonia – a nitrogen-rich fertilizer – was invented in the early twentieth century, the feedback loops by which nitrogen is returned to the soil by the breakdown of living matter were short-circuited. We now pour so much nitrogen into the soil during industrial agricultural processes that around 50 per cent of the nitrogen in our bodies was fixed in a fertilizer factory.[41]

This example is a useful one for combining the insights of Vernadsky and of Dupré and O'Malley, because it allows us to naturalize technology as part of the broader web of living

40. I say 'initially' here because the age of automation, and especially the burning of fossil fuels, creates a strange temporality in the biosphere, in which technological processes open up ancient stores of photosynthetic energy.

41. J. Erisman, M. Sutton, J. Galloway et al., 'How a Century of Ammonia Synthesis Changed the World', *Nature Geosci* 1, 2008, pp. 636–9.

matter: technological processes emerge as new lineages within the interconnected machinery of the biosphere; they also directly affect the metabolic whole composed of humans and their ecosystems. Such a perspective sees technological processes not as artificial additions to the biosphere, but as new lineages that emerge within the biosphere and form a living part of it. There was a time in the history of the biosphere before viruses had emerged, or before multicellular life, or before the endosymbiotic relation between bacteria had created the eukaryotic cells out of which we are composed. Each of these new organizations of matter extended the processing activities of the biosphere and created new physical and chemical systems on the surface of the Earth. The emergence of technology can be seen as just another such development.[42]

A processual philosophy of political ecology

The purpose of this chapter has been to complicate the relation between the concepts of life and technology, and to show how technological processes operate within that broader set of processes that we name as 'the living'. If technological entities form lineages and do metabolic work, then they are much closer to other living processes than they might first appear. At the close of this chapter, I want to make some final remarks about how such a characterization of the place of technology within living matter might affect the perspective of political ecology.

42. It is worth adding here a serious note of caution: while this conception of technology makes it a 'natural' part of the biosphere, this does not mean that it falls outside of ethical or political consideration, and it certainly does not mean that it is no longer a threat to human life. In fact, this position is congruent with the idea that the advent of technology, and the enormous shift that occurs in the biosphere when fossil fuels begin to significantly change the chemical makeup of the surface of the Earth, are leading to a global mass extinction. My hope is that this conception of the problem will aid rather than undermine the kind of environmental politics that is required to respond to this problem.

Perhaps unsurprisingly, Marx has a well-developed conception of the place of technology in the formation of social life. Marx's materialism immediately directs our attention to the physical processes of production that maintain any human society, and this includes the technological mechanisms of production. In his critique of Proudhon, Marx highlights both this materialism and the central role of technology:

> In acquiring new productive forces men change their mode of production; and in changing their mode of production, in changing the way of earning their living, they change all their social relations. The hand-mill gives you society with the feudal lord; the steam-mill, society with the industrial capitalist.[43]

Here Marx is responding to what he sees as Proudhon's implicit idealism by pointing not only to the fact that the material and technological processes of production in any society give rise to the social structures that it expresses, but also that, because of this, all social forms are only 'theoretical expressions' best understood as transient 'abstractions' of a dynamic material process.[44] Interestingly, however, in this quotation and elsewhere, Marx characterizes technology as a set of 'productive forces' that are essentially directed by the hands of humanity. Rather than recognizing the developmental processes of technology as constituting their own, living, world-historical force, technological objects are conceived as simple mediators of the true world-historical force, namely human *labour*. As Marx writes, labour 'is the universal condition for the metabolic interaction between man and nature', and technology is only a human mechanism for managing this interaction by directing or controlling the transhistorical force of labour power.[45]

43. Karl Marx, *The Poverty of Philosophy,* Foreign Languages Publishing House, Moscow, 1963, p. 122.
44. Ibid.
45. Karl Marx, *Capital, Volume I*, p. 290.

This characterization of technology as something existing in the hands of humanity, rather than as a living force of its own, also affects Marx's famous analysis of the 'metabolic rift' produced by capitalist modes of food production. In brief, Marx argued that, because the products of agriculture are transferred to urban centres, the nutrient cycles that replenish the soil of agricultural land are broken, leading to a crisis in soil fertility and a general alienation of people from the land.[46] In Marx's response to Proudhon and in his analysis of metabolic rift, both the forces and the effects of technology are only figured at a human scale. Technology is seen as something operating in human hands, giving rise to human social forms and causing crises of human survival and alienation.[47]

If, rather than starting with human social life, we begin at the scale of the biosphere and with the kind of characterization of living matter provided by Dupré and O'Malley, then we begin to see technology from a different angle. Technological processes have their own developmental logic and their own driving forces. They form lineages and they affect the metabolic relations of ecosystems. As two different elements of the biosphere, the development of human life and the development of technological processes live symbiotically alongside and intertwined with one another. To see technological processes as instances of living matter is to see each human society as a particular form of technology–human symbiosis. Be it the human–hand-mill symbiosis of feudalism or the human–steam-mill symbiosis of

46. See Karl Marx, *Capital, Volume III*, Vintage Books, New York, 1981, p. 949. See also John Bellamy Foster, *Marx's Ecology: Materialism and Nature,* Monthly Review Press, New York, 2000.

47. This characterization of Marx's conception of technology is admittedly very brief. For a much more detailed account of Marx's evolutionary theory of technology as 'the productive organs of man' and the important role played by Engels's focus on ecology, see John Bellamy Foster's *Marx's Ecology,* especially the section titled 'Marx and Engels: Labour and Human Evolution', pp. 196–207. Here we see both Marx's great insight into the role of technology and his tendency to reduce it to something outside of nature, lacking its own living force.

capitalism, each stage in the historical development of society appears as a moment in the development of the biosphere.

Dupré and O'Malley's account of living processes is not designed to provide a strict definition of life, which would give necessary and sufficient conditions for qualifying as living matter. In fact, their approach 'assumes no sharp distinction between life and non-life' and speaks of 'a spectrum of biological entities'.[48] Their approach, based as it is on a processual philosophy of biology, is designed to provide a fresh perspective on living processes, and one which allows us to sidestep some of the anthropocentric biases that lead us to assume that living things must resemble medium-sized mammals. What I have tried to show here is that, by taking up Dupré and O'Malley's challenge, we gain new perspectives on technological processes, on the strange symbioses of humans and technology and on the place of technology in the biosphere. Ultimately, my hope is that such a perspective will allow for novel insights in political ecology, which can treat technological processes as more than inert objects activated by human hands, and see them as forces with their own lineages, which we live alongside, and with which we form social-ecological, symbiotic wholes.

48. Dupré and O'Malley, 'Varieties of Living Things', p. 1.

2

Morphological materialism: a time-lapse of Soviet plant philosophy

ISABEL JACOBS

This chapter explores the largely uncharted territory of Soviet plant philosophy, proposing it as a new lens through which to view socialist culture and thought after the October Revolution.[1] It introduces the concept of 'morphological materialism' as a vegetal alternative to the state doctrine of dialectical materialism (diamat), which dominated official philosophy in the Soviet Union from the 1930s onwards. My aim is to sow the first seeds of a new mapping of Soviet philosophy from the point of view of plants, suggesting that this can disrupt the monolithic image of Stalinist dogma and state ideology that still prevails in historiography.

The chapter gathers some traces of a vegetal systems theory, as if reassembled in a series of time-lapse images.[2] It argues

1. I am grateful to Stella Sandford for having invited me to transform scattered notes into this contribution, and for her warm encouragement. Thanks to the Plant Agency Reading Group, whose discussions shaped many of those ideas, including Judith Bastie, Ed Thornton and Fin Worrall. The chapter grew from a talk I gave at the workshop 'Doing Philosophy with Plants' at Royal Holloway, University of London, in 2024. Thanks to all the participants for their valuable feedback, especially Dan Whistler. I also had the opportunity to discuss Vernadsky and *Kyivnaukfilm* with the Soviet Temporalities study group.

2. I use the metaphor of the time-lapse to suggest a form of rewriting the history of philosophy that is itself inspired by the temporality of plant growth, often made visible to the human eye through the time-lapse technique which makes slow motions appear faster. The discovery of time-lapse by avant-garde film-makers in turn influenced

that plants actively decentre the relationship between political economy, philosophy, culture and scientific experiment within the Soviet context. In contrast to diamat's scientifically reductive and anthropocentric view of nature, plant philosophy incorporates ecological energetics, metabolic theories, Goethean morphology and systems thinking, highlighting the potential for a socialist plant philosophy rooted in biophysical cooperation. My time-lapse survey suggests that a focus on plants reveals a hidden line of creative and more-than-human deviations from dialectical materialism. It aims to demonstrate that Soviet plant philosophy both enriches and challenges the current 'vegetal turn'[3] in philosophy; it is simultaneously detour and shortcut into contemporary debates on human interactions with plants, posthumanist ecologies, plant agency and new materialism. Soviet plant philosophy suggests that vegetality is at the roots of all life, fusing the planetary and the microscopic into one social-material metabolism.

One of the leading figures of the vegetal turn in philosophy, Michael Marder, himself emerged from a post-Soviet milieu. In 2013 Marder attended a conference in St Petersburg dedicated to the Russian Heideggerian philosopher and plant thinker Vladimir Bibikhin, whose seminar 'The Woods' (*Les*)[4] struck Marder with an 'accidental proximity' to his own plant thinking. The Russian term *les* – similar to the Greek *hylē* – means both forest and the material of wood, preserving 'the ambiguous interplay of … a living ecosystem and dead matter'.[5] Returning to Bibikhin's forest, according to Marder, is a journey toward

biologists and plant thinkers such as Jakob von Uexküll. On plant time, see Michael Marder, *Time Is a Plant*, Brill, Leiden, 2023.

3. See Marcello Di Paola, ed., *The Vegetal Turn: History, Concepts, Applications*, Springer Nature, Cham, Switzerland, 2024.

4. Vladimir Bibikin, *The Woods*, trans. Arch Tait, Polity Press, Cambridge, 2021.

5. Michael Marder, 'The Proximity of the Wood(s)', *Stasis*, 3(1), 2015, p. 474. The Russian word for 'plants', *растения*, derives from the same root as the verb 'to grow' (*расти*) – evoking plasticity, movement and development – whereas the English 'plant' suggests a being that is fixed in the ground and rooted in one place.

the 'non-philosophical (wooden) source of philosophy' itself.[6] Marder's own vegetal womb, he reveals in the talk, is Moscow's Moose Island (*Losiny Ostrov*), Europe's largest national park, at whose edges Marder grew up. The Russian forest, an imaginary imbued with religious, mythological and nationalistic symbolism, is the terrain from which Marder's own plant thinking arose.[7] Interpreting Bibikhin, Marder states:

> A tree strives up, grows up from a fragile shoot, and becomes stronger, thanks to its becoming stone-like on the outside. It relies on the remains of its own nutritive process, living on its dying away, and it nourishes itself, among other things, on its own waste – for instance, fallen leaves or acorns that have rotten away into compost. In a similar sense, we, humans, rely on our world, taken in the existential sense of the word, looking for support in the results of the dying away, which is ours, human, and that of the wood(s), transformed into construction materials. Except that in the process of constructing our world we forget that that from which we are building – both matter itself and the labor of the bygone generations – has also created and, in some sense, continues to create its world around and within us.[8]

Dissolving the split between human life and nature, the forest poses a foundational entanglement with the woods – that is, with the life of matter (*hylē*). In Bibikhin's plant existentialism, infusing Heideggerian ontology with Russian conservatism and animist metaphysics (a pungent brew), human bodies are trees among trees, deeply enmeshed with matter: 'Together with my proximate one, the body ..., the entire world's wood is given to me, the wood, into which it grows along with other bodies, with which it is linked essentially in the same manner as parts

6. Marder, 'The Proximity of the Wood(s)', p. 475.
7. For a critical investigation of Russian ecology, particularly the reception of metabolic theories of soil, see Mieka Erley, *On Russian Soil: Myth and Materiality*, Cornell University Press, Ithaca NY, 2021.
8. Marder, 'The Proximity of the Wood(s)', p. 467. On *hylē* as a concept of vegetal materialism, see Thomas Nail, *Matter and Motion: A Brief History of Kinetic Materialism*, Edinburgh University Press, Edinburgh, 2024.

of one body are bound to one another."[9] Marder suggests that every cell of our body is a forest; becoming-plant, humans are immersed in matter as the substance into which they grow. As Bibikhin writes, 'matter feels everything, but it does so as though in a dream; life happens when matter awakens'.[10] Co-inhabiting the same milieu of forest, swamp and steppe, across the Soviet empire, the thinkers presented in this chapter traverse another path of plant philosophy – not a return to the mystical origins of human life but the building of socialism as a revolutionary, collective and more-than-human transformation of matter.

Roots and shoots

Plants are entwined with the revolutionary imaginary of Soviet philosophy, revealing a line of thinking that is non-anthropocentric, dynamic and posthumanist. Rooted in the soil and striving to the sky, plants symbolize the material embeddedness of ideas. Radical philosophy, literally rooted in the earth, transforms society from the ground up, with its shoots reaching towards the sun as an infinite resource of energy to fuel a classless society – the deferred dream of state socialism. Soviet plant thinking is still largely defined by the environmental catastrophes that John Bellamy Foster has likened to an 'ecocide' under Soviet imperial rule.[11] These included mass famines in Ukraine and Kazakhstan following agricultural collectivization, the decline of biology under Lysenko,[12] widespread air and water pollution, the

9. Bibikhin cited in Marder, 'The Proximity of the Wood(s)', p. 478.
10. Ibid., p. 479.
11. See John Bellamy Foster, 'Late Soviet Ecology and the Planetary Crisis', *Monthly Review*, 67(2) 2015, https://monthlyreview.org/2015/06/01/late-soviet-ecology-and-the-planetary-crisis; accessed 16 April 2025.
12. The Ukrainian agronomist Trofim Lysenko (1898–1976) was the most notorious figure in Soviet plant thinking. Born into a peasant family, Lysenko rose to fame under Stalin, rejecting Mendelian genetics (as 'bourgeois' science) in favour of his own Lamarckian pseudoscience. Loren Graham's *Lysenko's Ghost: Epigenetics and Russia* (Harvard University Press, Cambridge MA, 2016) is the most useful recent study of Lysenko and his legacy, including a problematic revival in Putin's Russia. Implemented

degradation of Lake Baikal, the Chornobyl nuclear disaster, soil erosion and the recent drying up of the Aral Sea. The last was driven by invasive irrigation projects and an aggressive cotton industry, both part of Khrushchev's Virgin Lands campaign. Less well known is a large-scale attempt at protection and natural research following the October Revolution, including the world's biggest reforestation programme and the fostering of natural steppe reserves.

Askania-Nova, a UNESCO Biosphere Reserve in southern Ukraine, near Kherson, was a key stage for Soviet plant debates. After the Revolution, Askania-Nova, Europe's largest and most diverse wild steppe, became a *zapovednik* (nature reserve). Home to hundreds of plant species, Askania-Nova was a hub for innovative plant research, pioneered by Vernadsky, Stanchinsky and Sukachev.[13] In *The Biosphere* (1926), the Russian-Ukrainian biologist and mineralogist Vladimir Vernadsky sowed the seeds of Soviet plant philosophy. Popularizing the term 'biosphere', coined by Eduard Suess in 1875, Vernadsky describes the surface of the Earth as a self-contained ecosystem, a 'holistic mechanism'[14] of planetary life. He went to Paris after the Revolution, where his lectures at the Sorbonne in 1922–23 were closely followed by Pierre Teilhard de Chardin and Édouard Le Roy.[15] In his Sorbonne lectures, Vernadsky argued:

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across the Soviet empire and South East Asia, Lysenkoism caused mass starvation, including the Great Chinese Famine (1959–61). Under Lysenko's iron rule, hundreds of Soviet scientists were executed. One of Lysenko's most fervent opponents was Nikolai Vavilov, geneticist and founder of the world's largest plant seed bank in Leningrad (it survived the siege due to the institute's staff refusal to eat the seeds). Brutally persecuted by Lysenko, Vavilov died of starvation in prison.

13. Lenin championed ecological conservation, establishing over thirty *zapovedniki* by 1933. Heavily damaged during World War II, Askania-Nova faces renewed threats today from Russia's large-scale invasion of Ukraine since 2022. The conflict has devastated steppe lands, polluted rivers and targeted the country's energy grid. In Askania-Nova, Russian soldiers have caused significant harm, using the reserve as hunting grounds, digging trenches and inflicting damage with tanks and fires.

14. Vladimir Vernadsky, *The Biosphere*, trans. David B. Langmuir, Copernicus, New York, 1998, p. 40.

15. Through Le Roy, Vernadsky was introduced to the idea of a *noosphere*, first used by Teilhard de Chardin in *Cosmogenesis* (1922). Expanding Darwin's evolutionary theory to a cosmic level, Vernadsky suggested that the third stage in the Earth's evolution

> In most of their works studying living organisms, the biologists disregard the indissoluble connection between the surrounding milieu and the living organism. In studying the organism as something quite distinct from the environment, the cosmic milieu, … they study not a natural body but a pure product of their thinking.[16]

Revolutionizing the biology of his time, Vernadsky introduced the organicist, systemic and dialectical notion 'biosphere'. Vernadsky's plant philosophy reached far beyond the borders of the Soviet Union, shaping in particular the development of French epistemology and ecology. Enthused readers of *The Biosphere* included Georges Bataille and Georges Ambrosino, who grounded their concept of 'general economy' in the excessive circulation of energy in the biosphere. Vernadsky's thought influenced *The Accursed Share* (1949) and Bataille's vision of life as a plant-fuelled, solar excess of self-creation.[17] Vernadsky's biosphere theory incorporates the anti-individualistic tenets of Soviet Marxism, which views the individual as an ensemble of social relations dialectically entwined with its milieu.[18] He defines life as the creation of 'the colors and forms of nature, the associations of

– following the *geosphere* (inanimate matter) and the *biosphere* (living matter) – was the *noosphere* (intelligent matter). Anticipating current debates on AI, Vernadsky's noosphere is a planetary system of intelligence emerging from the mastery of nuclear processes by which humanity begins to create its own resources through the transmutation of matter.

16. Cited in Vernadsky, *The Biosphere*, p. 30.

17. On Vernadsky and Bataille, see Jon Auring Grimm, 'The Movement of the Whole and the Stationary Earth: Ecological and Planetary Thinking in Georges Bataille', *Journal for Cultural Research* 29(1–2), 2025, pp. 4–21. For an alternative genealogy of solar communism in Bataille, see Isabel Jacobs, 'Solar Sacrifice: Bataille and Poplavsky on Friendship', *Journal for Cultural Research* 29(1–2), 2025, pp. 204–19. Vernadsky also left clear traces on Thomas Nail, who defines plants as 'star-eaters' ('On the Geology of Plants', in Di Paola, *The Vegetal Turn*, p. 32) nourished by the luminous waste of a dying sun. For Nail, vegetality is 'a becoming Earth of the Sun and a becoming Sun of the Earth in the same tensional movement that materially courses through their pressurized bodies' (p. 32).

18. Systems thinking, entanglement, synthesis and collectivity have a long tradition in pre-Soviet philosophy. Soviet organicist theories of life can be viewed as an extension of late-nineteenth-century Russian religious philosophy, which criticized Western individualism, crude positivism and a strict nature–culture divide. Russian philosophers such as Vladimir Solovyov emphasized instead the interconnectivity of subjects: a personality (*личность*) and, by extension, non-human forms of life, are born from a communal web of entanglements, or what Russian Orthodox thinkers called *соборность* (a spiritual–material communion of life).

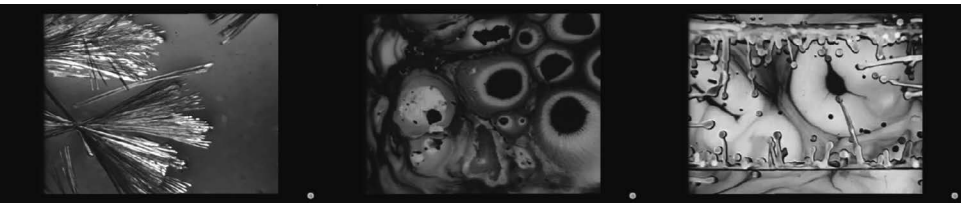

FIG. 1 Stills from Feliks Sobolev, *Biosphere! Time of Realization* (*Биосфера! Время осознания*, 1974).

animals and plants and the creative labor of civilized humanity' on the Earth's crust.[19] Planetary life is a dynamic entanglement between different organisms and the biosphere as a geological force forming the planet. In Vernadsky's solar philosophy, plants occupy a special place; they convert sunlight, seen as cosmic energy. Plants have their own energetics shaped by rhythm and repetition, metamorphoses and the multiplication of matter. And for Vernadsky, morphological evolution on Earth has a cosmic origin in the Sun as the energetic centre of life. The primary medium of solar energy, plants create life by transforming solar rays into an active force nourishing the entire biosphere.

Vernadsky envisioned how plants engulf the planet like a film that makes the Earth look green when seen from space – even 'the surface of the ocean is covered by a continuous layer of green life'. The Earth is covered by a 'green apparatus which traps and transforms radiation ... as continuously as the current of solar light that falls upon it'.[20] Green plants create the energetic conditions for life by continuously providing oxygen to other living matter in the biosphere, including animals and humans. While all 'living matter' participates in the activity of the biosphere, 'only one part of life, green vegetation, the carrier

19. Vernadsky, *The Biosphere*, pp. 57f.
20. Ibid., pp. 126, 59.

of chlorophyll, makes direct use of solar radiation' through photosynthesis. The 'whole living world is connected to this green part of life by a direct and unbreakable link'.[21] Sun rays 'are transformed by living matter – autotrophs – into the bodies of living matter and free energy, which in turn transforms the conditions of life within the biosphere'.[22] For Vernadsky, life is not accidental but a terrestrial reflection of solarity, a cosmic force mediated by plants.[23] In his solar metaphysics, plants create a perfect equilibrium of life:

> Solar radiation and the living green matter of the biosphere, taken together, constitute a system of this kind. When solar radiation has produced the maximum work, and created the greatest possible mass of green organisms, this system has reached a stable equilibrium.[24]

The biosphere, a totality of life forms, embodies this cosmic equilibrium. The ecosystems that have influenced Vernadsky's vision were the virgin steppe in Askania-Nova, which he compared to a green ocean, and the Russian forest where 'the trees are reinforced by herbaceous vegetation in the soil, by mosses and lichens which climb their trunks and by green algae'. While the steppe allows direct access to the workings of the biosphere, he wrote, the cultivated forest requires extensive human energy to counter the 'green weeds' which are 'constantly shooting up'.[25] Steppe and forest, two contrasting milieus, thus pushed Soviet plant philosophy to extremes: on the one hand, the exploitation and domination of nature; on the other, conservation and socialist science.

Askania-Nova was also a breeding ground for ecological energetics, pioneered by Vladimir Stanchinsky, a biologist

21. Ibid., p. 58.
22. Grimm, 'The Movement of the Whole', p. 11.
23. On Soviet solar politics, see Isabel Jacobs, 'Sunstruck: Oxana Timofeeva, Solar Politics', *Radical Philosophy* 213,October 2022, pp. 107–10.
24. Vernadsky, *The Biosphere*, p. 75.
25. Ibid., p. 78.

FIG. 2 The 'Biosphere reserve' Askania-Nova, Kherson Oblast, Ukraine.

researching energy transfers in ecological communities by applying Vernadsky's biosphere concept to steppe life. Stanchinsky viewed the uncultivated steppe as a holistic ecosystem where all living communities interact. He studied the microclimate, plant weights and soils, believing the grasslands in Askania-Nova to be an ideal setting to measure the flow of energy across organisms and trophic levels. He saw the biosphere as a dynamic, balanced system, if untouched by human interference. Similarly, Vernadsky, anticipating debates on the Anthropocene, argued that humans disrupt the energetic balance of the biosphere.

Another steppe theorist in southern Ukraine, Vladimir Sukachev, coined the term 'biogeocoenosis', a socialist alternative to Arthur Tansley's ecosystem concept.[26] For Sukachev, every

26. In response to Vernadsky's biosphere, Sukachev expanded the concept of biocoenosis, coined by the German zoologist Karl Möbius in 1877, to 'biogeocoenosis' in 1947. In *Fundamentals of Forest Biogeocoenology* (1964), Sukachev defined biogeocoenosis as the constant interaction between 'natural phenomena (atmosphere, mineral strata,

organism, including plants, exists in dialectical unity with its environment, functioning as a living community in constant evolvement.[27] Through their dynamic interaction, organism and milieu recursively transform each other. Fusing Russian cosmist ideas with post-revolutionary discourses on energy – encapsulated in Lenin's ambition of constructing communism through electrification (ГОЭЛРО) – early Soviet plant philosophy viewed life as an energetic and metabolic interplay between organisms and the biosphere.[28]

Morphological monism

The growth of Soviet plant philosophy was tied to a turn toward systems thinking in post-revolutionary philosophy of the 1920s, catalysed by the Russian reception of Goethe and Ernst Haeckel. German biology was immensely popular in the young Soviet Union, where 'ecology' and 'morphology' were incorporated into Soviet epistemes of socialist life-building, such as *tektology*, Alexander Bogdanov's proto-cybernetic systems theory of organisms. Transforming Aristotle's biology, Goethe developed morphology as a method cutting across scientific disciplines, which was taken up by Haeckel as a general study of forms of organisms in metamorphoses.[29] Goethe's morphology, placing the individual

vegetable, animal and microbiotic life, soil and water conditions) ... among themselves and with other natural phenomena, ... being in constant movement and development' (cited in Foster, 'Late Soviet Ecology').

27. Sukachev's community ecology influenced Lenin, who read his book *Swamps: Their Formation, Development and Properties* (1926).

28. Vernadsky is often associated with Russian Cosmism, a religious-scientific movement that promoted orthodoxy, space exploration and transhumanism (see Boris Groys, ed., *Russian Cosmism*, e-flux, New York, 2018). Associated with thinkers such as Alexander Bogdanov and Andrei Platonov, cosmism was a key influence on early Soviet culture, particularly *Proletkult* (Proletarian Culture). In addition to his links to cosmism, Vernadsky was an early proponent of exploiting nuclear energy. He also played a key role in the Soviet atomic bomb project in the 1930–40s, conducting research with uranium and nuclear fission at his Radium Institute.

29. For an excellent introduction to the twentieth-century reception of morphological thinking, albeit omitting its important Soviet afterlife, see Eva Axer, Eva Geulen and Alexandra Heimes, *Aus dem Leben der Form: Studien zum Nachleben von Goethes Morphologie in der Theoriebildung des 20. Jahrhunderts*, Wallstein Verlag, Göttingen, 2021.

into a larger whole, provided Soviet plant thinkers with a method of analysing socialist life as it dynamically unfolds in the biosphere.[30] In 1938 Vernadsky worked on an introduction to a Soviet edition of Goethe's scientific writings.[31] The text was only published in 1946, a year after his death. At the height of the Great Terror, Goethe's writings on plants were politically explosive: they challenged Lysenkoism, which dominated Soviet debates on genetics from the 1930s onwards.[32] The Goethe essay reveals Vernadsky's efforts to develop a plant philosophy that was not reducible to the state doctrine of dialectical materialism.

Vernadsky saw Goethe as the father of socialist science rather than a predecessor of Darwin, infusing morphology with Marx's metabolic materialism.[33] The development of experimental botany, Vernadsky states, was 'inextricably connected to Goethe's ideas about the metamorphosis of plants, about the significance of the interstice, the crown leaf, etc.'[34] He identified Goethe's

30. One of the most famous Soviet morphological works is Vladimir Propp's *Morphology of the Folktale* (1927), which transposes plant thinking onto Russian fairy tales. Propp's morphology significantly influenced French structuralism, in particular Claude Lévi-Strauss.

31. On Vernadsky's Goethe, see Jeremy Adler, 'The Whirlwind of the Biosphere: On Vernadsky's
Goethean Cosmos – An Introduction to Vernadsky's Goethe Essay', *Publications of the English Goethe Society*, 93(2), 2024, pp. 132–42; and Larisa Poluboyarinova, 'Vladimir Vernadsky's "Thoughts and Observations on Goethe as a Naturalist": Its Prehistory and Reception', *Publications of the English Goethe Society,* 93(2), 2024, pp. 143–7. While Adler offers some valuable contexts for Vernadsky's reading of Goethe, he underestimates the importance of socialist ideas. Rather than an 'alternative to the prevailing Marxist-Leninist ideology' (Adler, 'The Whirlwind of the Biosphere', p. 137), Vernadsky's vision of the biosphere fuses Goethe, Darwin and Marx with modern science and Russian Cosmism. Poluboyarinova retraces an underground reception of Vernadsky's Goethe essay by Mikhail Bakhtin via the Leningrad biologist and geneticist Ivan Kanaev. In exile in Kazakhstan, Bakhtin reworked Vernadsky's Goethe in his fragments on the *Bildungsroman* in 1933–35.

32. Vernadsky collaborated on the project with the German-Russian Marxist biologist Max Levien (1885–1937), who was arrested and shot in 1937 for his anti-Lysenkoist stance (Poluboyarinova, 'Vladimir Vernadsky's "Thoughts and Observations on Goethe as a Naturalist"', p. 145).

33. Vladimir Vernadsky 'Thoughts and Observations on Goethe as a Naturalist', *Publications of the English Goethe Society*, 93(2), 2024, p. 165. On metabolic materialism, see John Bellamy Foster, *The Dialectics of Ecology*, Monthly Review Press, New York, 2024. On the Soviet context more specifically, see Elena Fratto, 'Metabolic Modernities: Digestion, Energy Transformations, and the Making and Unmaking of the World in Early Soviet Literature', *Russian Review* 83, 2024, pp. 378–98.

34. Vernadsky, 'Thoughts and Observations', p. 178.

concept of life with his own thinking, developing morphology into an organicist theory of the biosphere.[35] In Vernadsky's eyes, Goethean morphology meant 'not only the manifestation of visible form, but also the simultaneous, endlessly changing, internally dynamic contents'.[36] He emphasized that Goethe studied *living organisms*, particularly plants, with all his senses rather than relying on microscopes to make 'visible the cellular construction of some organisms and the monocellular world of others'.[37] For a morphologist, plant forms are just one manifestation of a larger cosmic whole arranged in series that intersect and correlate:

> Minerals, plants, animals, mountain formations, terrain, biocoenosis, the geographic and geomorphic landscape, geochores, rivers, lakes, waterfalls, clouds, manifestations of movements of the atmosphere, seas, volcanoes, mineral sources, stars, the sun, nebulae, and other concrete, distinct phenomena of nature appeal first and foremost in *themselves* to the naturalist.[38]

While an analytic approach to plant life may overlook important features, Vernadsky believed that Goethe's 'synthetic approach can offer new information'. Similar to 'Whitehead's philosophy of the organism or Smuts's holism', Vernadsky argues, morphology describes 'not a mechanism, but ... an organic whole' – an approach that strongly affected Vernadsky's monistic vision of ecology. The biosphere, in morphological terms, is 'a unity of all living things ... that may be explained in such apparently independent facts as the horns of a bull or the empty sinuses of the human skull'. In his comparative osteology, Goethe made a

35. Vernadsky claims that Goethe's morphological ideas met a fertile ground in pre-revolutionary Russia where they were discussed long before 'the German morphologists of the twentieth century paid attention to them' – for example in Iakov Borzenkov's lectures on comparative anatomy ('Thoughts and Observations', p. 159). He even claims that Goethe's research was largely funded by the Russian imperial court (ibid., p. 166).
36. Vernadsky, 'Thoughts and Observations', p. 193.
37. Ibid., p. 192. Vernadsky also remarks how Goethe never wore glasses even though he was severely short-sighted, aiming for an immediate and indivisible perception of the whole.
38. Ibid., p. 164.

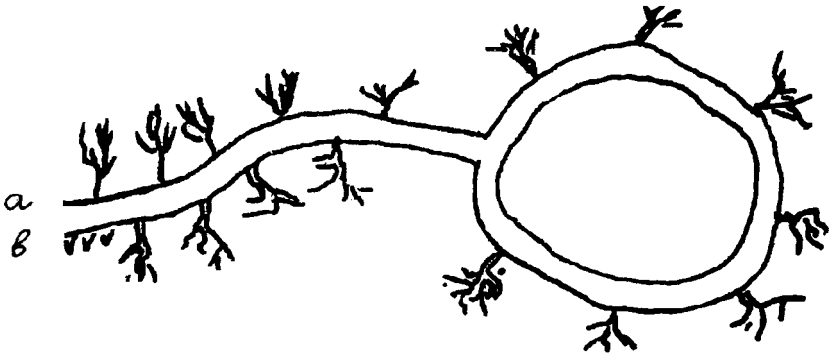

FIG. 3 Child's drawing from Sergei Eisenstein's *Montazh.*

connection between the skull and the spinal cord: while there is no 'genetic connection between the two', they are related on a *morphological* level.[39] The earth's shell is the envelope of all living forms, 'always in a state of growth and creation (*im Werden*)'.[40] As a living organism, the biosphere undergoes sucessions of transformations, as described by Goethe in *The Metamorphosis of Plants* (1790).

For Vernadsky, the 'plasticity of plant forms in relation to their environment' also reflects 'this environment in the plant families'.[41] Soviet morphological materialism thus becomes a '*socio-scientific study of life*' which 'conceives of the universe as a living body composed of organic waves which thread their way throughout the entirety' of reality.[42] Morphological notions of plasticity and metamorphoses cut across artistic and scientific discourses in the decade after the October Revolution, shaping embryology, psychology, botany, neurology and avant-garde

39. Ibid., pp. 197, 198, 194, 196, 179. Read through the prism of Goethean morphology, Andrei Platonov's somatic placing of consciousness in the spinal cord in *Happy Moscow* (1933–36) seems not incidental, but as a direct response to the widespread circulation of morphological thinking in early Soviet art and science.
40. Vernadsky, 'Thoughts and Observations', p. 189.
41. Ibid., p. 186.
42. Adler, 'The Whirlwind of the Biosphere', pp. 141, 136.

film.[43] In his 'anatomical-morphological work', Goethe studied plants 'in their free, living state' as '*living* subjects'.[44] Vernadsky argues that the radical 'seed' of Goethe's morphology is the primacy of activity (*Tat*) over theory, which came to fruition only in the Soviet experiment – which, following Marx, went to the *root* of things. Goethean science, in Vernadsky's eyes, prefigured 'the correct distribution of the wealth of the people and the correct use of productive power – both natural and social' under the Bolsheviks.[45]

Another thinker inspired by Goethe's notion of activity (*Tat*), relating it to Marx's *Tätigkeit*, was the psychologist Lev Vygotsky, known as the founder of cultural-historical activity theory.[46] Vygotsky's notion of activity (*deiatel'nost'*) captures collective and embodied processes of mediation between humans, tools and their social and natural milieu. Drawing on Marx, Vygotsky

43. Morphological thinking, viewing life as a movement of forms, lends itself to cinema. The metabolism of nature, a socialist work-in-progress, dissolves an individualized perspective, as reflected in Soviet avant-garde art, notably Sergei Eisenstein's films. His theory of montage, as Elena Vogman has traced, was inspired by the director's readings of Goethe's *Metamorphoses of Plants* (*Sinnliches Denken: Eisensteins exzentrische Methode*, Diaphanes, Zurich, 2018). His first memory, Eisenstein recalled in his diary, was the close-up of a lilac branch. The plant's multitude of perspective and rhythmical swaying inspired his interest in montage. Instead of the human viewpoint (two eyes), Eisenstein's films create an organic multitude of viewpoints, superimposed by rhythm and collision. In Eisenstein's notebooks, plants are a recurring motif to conceptualize rhythmic oscillation, expression and the relation between inside and outside (see Vogman, *Sinnliches Denken*). In his studies of embodied *gesture*, Eisenstein drew once more on Goethe's plant morphology, particularly the dialectics between eccentric expansion and contraction, opening and closure; and the spiralling movement of the plant body as a movement of pulsing. Like Deleuze and Guattari after him, Eisenstein found in plants a source to think about circular time, the collapse of linearity and a movement of growth without beginning or end. On Eisenstein's montage as a morphological tool, see Elena Vogman, 'Eisenstein's *Capital Diaries:* An Introduction', *October* 188, Spring 2024, pp. 3–20. Eisenstein's morphology left traces in Soviet experimental and popular science film, such as Artavazd Peleshyan's eco-cinema and the Kyiv School of Popular Science Film (*Kyivnaukfilm*), especially Feliks Sobolev's *Biosphere! Time of Realization* (1974) and Anatolii Borsiuk's *Grass Roots* (1981).

44. Vernadsky, 'Thoughts and Observations', p. 169.

45. Ibid., pp. 157, 180.

46. For an excellent study of Vygotsky's philosophy, see David Bakhurst, *The Heart of the Matter: Ilyenkov, Vygotsky and the Courage of Thought*, Haymarket Books, Chicago IL, 2024. A selection of Vygotsky's writings had been edited by Myra Barrs and John Richmond, *The Vygotsky Anthology: A Selection from His Key Writings*, Routledge, London and New York, 2024). For an overview of Soviet activity and its contemporary afterlife, see Alex Levant, Kyoko Murakami and Miriam McSweeney, eds, *Activity Theory: An Introduction*, Ibidem Verlag, Stuttgart, 2024.

viewed the person as a social microcosm in constant flux. A key influence on his enactive morphology was the German psychologist William Stern (1871–1938), who became famous in the 1920s for his studies on the development of his own children, including the future philosopher Günther Anders. Vygotsky described Stern's 'personalism' as encompassing the 'solar system and the ant, the tram driver and Hindenburg, a table and a panther'.[47] Vygotsky, by contrast, was invested in studying the specificity of the human mind. Criticizing Pavlovian reflexology, he proposed a morphological approach to thinking, concerned with series and chains of associations. Vygotsky compared child development to growing a plant, highlighting the importance of 'loosen[ing] the soil before planting seeds'.[48] For Vygotsky, the mind was *plastic*, with 'neural substance' resembling wax:

> Our brain and our nerves, possessing enormous plasticity, readily alter their finest structure under the influence of one or another type of stimulation, and if the stimulation is strong enough … retain memory traces of these changes. … The same thing happens with the trace made by a wheel on soft earth: a track forms, which bears the imprint of the changes made by the wheel and facilitates movement of the wheel along this track in the future. Similarly, strong or frequently repeated stimulation lays down new tracks in our brain.[49]

Those traces form according to morphological, not mechanistic patterns. Similar to Propp, Vygotsky exemplifies his morphological method in reading a fairy tale by Pushkin as a series of motifs: 'An oak, a gold chain, a cat, songs – all these things exist in reality; it is only … the combination of all these elements that is fantastic. … in the enchanted hut the idea of chicken legs is combined with the idea of a hut, and so forth.'[50] Imagination

47. Barrs and Richmond, *The Vygotsky Anthology*, p. 47.
48. Ibid., p. 6.
49. Ibid., pp. 117f.
50. Ibid., p. 120.

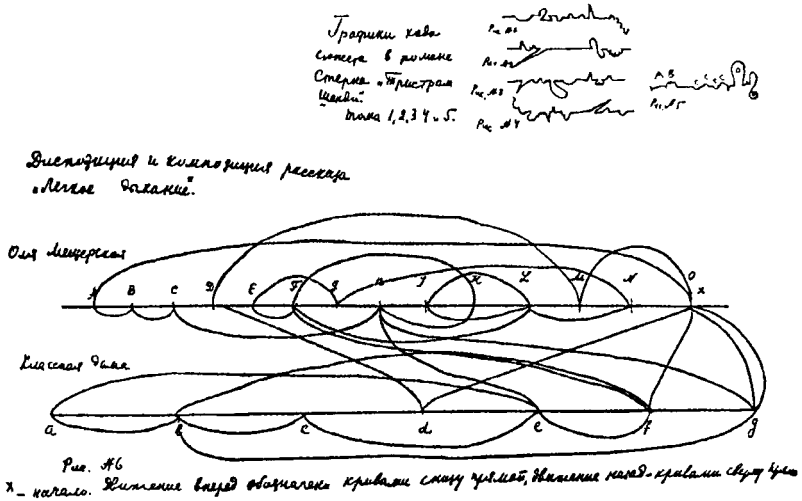

FIG. 4 Vygotsky's schema of Bunin's 'Gentle Breath'.

constructs chains from material supplied by reality. In his morphological analysis of Ivan Bunin's story 'Gentle Breath' (1916), he suggests that 'the events are connected in such a way that they lose their turbidity'. Threaded into free chains of associations, 'they untie the threads connecting them' and 'free themselves of the conventional bonds in which they are presented to us in actuality'.[51] Seriality opens up reality into an open plasticity of potentially endless combinations.

Morphological materialism views life as a constant 'whirlwind' of transformations, where 'every living being is not an individual, but a multitude, ... an assembly of living beings'.[52] Within this multitude of life, each part is connected to the whole according to the morphological patterns of seriality and assemblage. Not only living matter but the biosphere as a whole is

51. Ibid. p. 16.
52. Goethe cited in Adler, 'The Whirlwind of the Biosphere', p. 140.

in constant change. The first attempt to synthesize morphology, energetics and thermodynamics was the Bolshevik revolutionary and philosopher Alexander Bogdanov, whose *Tektology: The Science of General Organization* (1912–17) was a proto-cybernetic systems theory investigating how nature and labour intersect in different forms of organization. In Bogdanov's tektology – a term gleaned from Haeckel – human and nonhuman activity in the biosphere create metabolic processes of energy transformation. For Bogdanov, 'all structures and systems – living and inert – engage in metabolic activity with one another to preserve their equilibrium'.[53]

Using Marx's concept of metabolism (*Stoffwechsel*), Bogdanov's tektology analyses how parts and wholes interact. For Bogdanov, metabolism described the entangled processuality of biosocial labour and bodies, the inorganic and the organic, the individual and the collective. Plants actively engage in those 'metabolic exchanges and transformations (*obmen veshchestv*) with one another'.[54] *Tektology* offers 'a cybernetic understanding of the organism–machine relationship, guiding a Marxist explanation of how living and artificial systems converge and arrange themselves into a mode of production'.[55] It strives for a universal theory that spans political economy, the human body, labour and the environment. Similar to Vernadsky, Bogdanov views the biosphere as a system in a natural equilibrium.

Tektology marks a shift from a human-centred epistemology to a perspectivist framework in which plants actively participate in the revolutionary reorganization of knowledge. As a sort of morphological monism, tektology analyses form changes across parallel series. For Bogdanov, echoing Goethean morphology, matter is structured into 'series, complexes, and systems', where

53. Fratto, 'Metabolic Modernities', p. 380.
54. Ibid.
55. Maria Chehonadskih, *Alexander Bogdanov and the Politics of Knowledge after the October Revolution*, Springer Nature, Cham, 2023, p. 64.

perspectivism becomes central: 'everything relates, and everything is relative'.[56] For instance, the series of labour organizes the worker's hands, tools, materials and environment into a processual whole. Unlike diamat, which aims to sublate contradictions, tektology studies the dynamic interaction of series in a self-organizing system – an energetic metabolism composed of machinery, organisms and labour. For Bogdanov, communism is the collective 'development of the plasticity of life'[57] where living beings adapt to their environment through labour, with all life forms, cells to humans, sensing, reflecting and self-organizing. In Bogdanov's philosophy, the human holds no special status; it simply marks a different degree of organization. Bogdanov defines plants as living machines with the ability to regulate and repair themselves.[58] What is at stake in Bogdanov's tektology is a socialist ontology of living organisms embedded in a socialist whole.

Becoming-plant

Where Friedrich Engels in *Dialectics of Nature* (1883), a key text for diamat, sees a grain of wheat negating itself in a plant, tektology examines relational processes, such as the 'contact of grain with the activities of soil, ... the interaction between living and inorganic activities'.[59] Tektology does not describe one single type of agency but recognizes distinct forms of 'organizedness' (machines, humans, plants) within the biosphere. Bogdanov's material collectivism dissolves physiological boundaries, fostering biophysical cooperation between humans, animals and plants. Soviet biologist Boris Kozo-Polyansky, who reinvented cell theory, emphasized 'the synthesis of organisms into symbiotic

56. Chehonadskih, *Alexander Bogdanov*, p. 30.
57. Ibid., p. 48.
58. While Bogdanov replicates mechanistic perspectives, viewing plants as machines, he does not put them in hierarchy as a life form 'lower' than animals or humans.
59. Chehonadskih, *Alexander Bogdanov*, p. 67.

systems' as the motor of evolution.[60] Kozo-Polyansky's *Symbiogenesis: A New Principle of Evolution* (1924) envisions 'a palm tree peacefully growing by a brook, and a lion, hidden in the bushes ... ready to pounce on an antelope'. What makes the palm tree peaceful and the lion violent? Anticipating contemporary research into symbiosis, co-evolution, reciprocity and mututalism, Kozo-Polyansky explains:

> A palm tree is peaceful and passive exactly because it is a symbiotic system; because it contains an entire crowd of tiny green toilers, the chloroplasts. They work and feed it. And a lion feeds itself. But let us imagine that a chloroplast is placed in every one of a lion's cells, and I do not doubt that this lion will then calmly lie next to the palm, and the only other thing it might need would be a little water with mineral salts in it.[61]

By becoming a plant, the lion evolves into a peaceful comrade of the antelope. This reflects Bogdanov's view of systems as dynamic equilibria (*podvizhnoe ravnovesie*), where organisms engage with their milieu in recursive interactions, each acting as both mould and material.[62] Bogdanov's tektology was not just idle theory: as director of the world's first Institute of Blood Transfusion, Bogdanov experimented with blood transfusion, aiming to transform his body into an immortal bio-social machine. Through blood transfer, Bogdanov tried to increase the collective immunity of bodies and transfer vitality and physical traits by breaking down the boundaries of individual organisms. His own attempts to become a comradely plant failed – he died of a contaminated transfusion in 1928.

As Bogdanov's experiments with blood transfusion suggest, he envisioned the communist body as plastic and permeable.

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60. Ibid., p. 83.
61. Cited in Chehonadskih, *Alexander Bogdanov*, p. 83.
62. In a way, such a view is of course not too far removed from dialectical materialism. Bogdanov, too, saw the relation between plant and environment as *dialectical-material*: Each plant is enclosed in its milieu and simultaneously acting upon it.

New Soviet Beings could be created out of the molecular self-organizing of matter. One of the aims of Bogdanov's tektology is collective life-building grounded in 'biophysical cooperation'.[63] In the first book of *Tektology*, the 'law of the leasts' guides Bogdanov's idea of a planned economy where all resources are evenly distributed, contributing to a social and ecological equilibrium. Bogdanov explains his vision through the lens of agriculture, drawing on Justus von Liebig's organic chemistry:

> Plant growth requires a whole number of measurable conditions: the energy of light, warmth, water, carbonic acids, oxygen, salts of potassium, magnesium, ferrum, nitrous and phosphoric compounds, etc. Liebig established that crop yield is determined by that one of these conditions which is available in the relatively least amount.[64]

This vision of socialist planning as an intelligent system of equitable distribution radically anticipated Soviet debates on cybernetics and automation from the mid-1950s onwards.[65]

Bogdanov's dream of placing a chloroplast in every cell, turning people into comrade-plants, found its most resonant expression in the work of Andrei Platonov. Like Bogdanov, Platonov was actively involved in the *Proletkult*, a radical organization of proletarian culture, envisioning a planetary communism that involved humans, animals, plants and machines. In Platonov's texts, all living organisms make up one

63. Chehonadskih, *Alexander Bogdanov*, p. 89.
64. Cited in Chehonadskih, *Alexander Bogdanov*, p. 89.
65. On Soviet cybernetics, see Slava Gerovitch, *From Newspeak to Cyberspeak: A History of Soviet Cybernetics*, MIT Press, Cambridge MA, 2002. In the 1980s the Siberian cybernetician Olga Burmakova – the only woman in this time-lapse; a systematic account of Soviet plant philosophy must bring women botanists and plant thinkers from the margins and footnotes to the main stage – worked on reconciling economic planning with the protection of Lake Baikal. Threatened by a new railway cutting through the permafrost, enabling Moscow to exploit the natural resources in the east, the ecosystem of Lake Baikal not only required protection, Burmakova thought, but could also help model an economic plan. See Troy Vettese and Drew Pendergrass, *Half-Earth Socialism: A Plan to Save the Future from Extinction, Climate Change, and Pandemics*, Verso, London, 2022. Based on the local networks between plants and their environment, Burmakova modelled a 'territorial production complex' able to tie economic production to the specificities of plants and natural conditions – a creative adaptation of vegetal systems theory to the needs of a socialist command economy (Vettese and Pendergrass, *A Plan to Save the Future from Extinction*).

poor, labouring, more-than-human body, embedded in nature while aiming to overcome it – projecting itself into the emptiness of the vast Soviet steppe. Platonov's novel *Chevengur* (1927/28), banned until perestroika, explored the violent extractivism of post-revolutionary agricultural transformation. *Chevengur* drew on Platonov's work in Russian peasant communities.

In the 1920s, stationed in Southern Russia as an electrical engineer and land-reclamation expert, Platonov oversaw the draining of swamps, the digging of ponds and the construction of a hydroelectric power plant. Struggling against drought, Platonov witnessed horrific poverty and starvation, with some people living off old cabbage and grass. Platonov's brother and sister, aged fourteen and twelve, had died from eating poisonous mushrooms during a devastating famine in 1921. The novel portrays the fictional town of Chevengur, where communism has already been fully realized – only the Sun works, creating a microclimate which makes trees grow and grasses flourish. The steppe grasslands represent the comradeship of living plants. Platonov's plant-comrade is a dualistic, nonhuman being that he calls, with a neologism, *dubekt*, fusing the idea of a doubled subject with the oak tree (*dub*).[66] Platonov's vegetal *dubekt* is both halved and multiplied – it is the deterritorialized and uprooted subject of the Revolution. The vegetal *dubekt* has no fixed place; it is exiled from the soil.[67] *Chevengur* is a dark eco-socialist dystopia set in the steppe, the raw material for Platonov's planetary socialism. Revolution, for Platonov, is a force of nature – like the grass that breaks through the soil when it grows.

66. For a vegetal reading of *Chevengur*, see Isabel Jacobs, 'Communism and Back Again: Andrei Platonov's Chevengur', *e-flux Notes*, March 2024.
67. On the agricultural origin of many of Platonov's neologisms, see Chehonadskih, *Alexander Bogdanov*, p. 182.

New Soviet plant

In Platonov's 'On the Improvement of the Climate' (1923/26), we read: 'Man is not only Columbus, he is also the mechanic of his planet. Siberia without ice! A warm country on the shores of the Arctic Ocean!'[68] After revolutionary climate change, the biosphere can finally reassemble under communism. Platonov's early visions of terraforming and geo-engineering reached the highest echelons of the Soviet government: in the second half of the 1940s Stalin proposed his large-scale Great Plan for the Transformation of Nature, aiming to improve agriculture in steppe and forest. Stalin's ecological programme combined invasive agricultural reform and irrigation with reforestation. His ambitious plan, largely unrealized, aimed to improve crop yields while reversing anthropogenic climate change in deforested areas. The main character of the Great Stalin Plan was the infamous Lysenko, whose pseudo-scientific plant philosophy was implemented top-down, violently replacing the morphological paradigm, as it had been developed by Vernadsky, Stanchinsky and Sukachev in Askania-Nova. In the 1930s Lysenko raided the steppe research institute, eventually ordering Stanchinsky's execution. He repurposed the nature reserve for his Institute of Acclimatization and Hybridization, marking a dark endpoint of early experiments with plant philosophy.

Lysenko planted hundreds of trees in dense 'nests' – where comrade-plants of the same species (class) would give each other a helping hand to grow toward a bright future; in reality, the majority of Lysenko's nests died within a year. Drawing on Lamarckism, Lysenko's vegetal ideology was an eclectic synthesis. Lysenko considered Mendelian genetics bourgeois idealism and claimed that modifications of an organism during

68. Andrei Platonov, 'Ob uluchsheniiakh klimata', http://platonov-ap.ru/publ/ob-uluchsheniyah-klimata; accessed 7 March 2025.

its lifespan, its 'experience' and environmental factors, can be passed on to the next generation – which is, at least to some extent (although based on entirely different premises) also argued in epigenetics.[69] He was inspired by Pavlov and Ivan Michurin, who saw no contradiction between Lamarck and Darwin – just two sides of the evolutionary coin. Lysenko affirmed a 'Socialist Darwinism' that projected class struggle onto evolutionary theory. Fusing Michurin's plant science with Darwin's *The Origin of Species* and Engels's *Dialectics of Nature*, Lysenko tried to 'prove' that environmentally induced features in organisms become heritable. Sharing some ground with morphological materialism, Lysenko saw the living organism interacting with its environment as one unity of life. This view suited Soviet propaganda of the New Soviet Man (swiftly incorporating biosocial eugenics) and Stalin's collectivization of agriculture. Lysenko's plant thinking was rooted in agricultural experiment: manipulating the environmental conditions of plants, such as temperature and sunlight, Lysenko redefined heredity as an 'internalization' of environmental conditions, similar to what Vygotsky had called, using a plant metaphor, 'ingrowing' (вращивание) – the 'transplantation' of social activity into the organism.

Transforming the environment, for Lysenko, resulted in a new genetic make-up, producing comrade-plants superior to capitalistically produced crops. Agronomic techniques, such as grafting, vernalization and the summer planting of potatoes, were employed as both basis and evidence of Lysenkoism. *Vernalization* describes the process of accelerating the maturation of plants by exposing them to cold until their 'habit' changes. It was introduced to millions of hectares of collective farms from the mid-1930s onwards. Through vernalization, Lysenko claimed, the plant acquired new features, thereby transforming

69. On epigenetics, see Graham, *Lysenko's Ghost*.

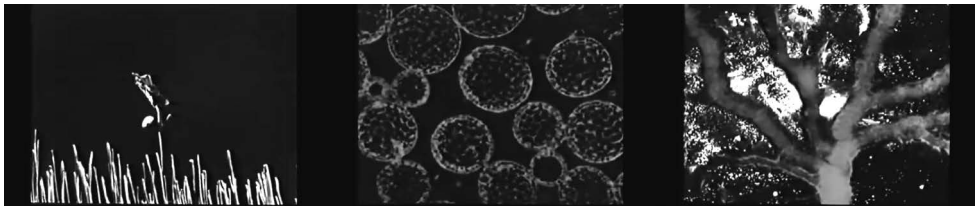

FIG. 5 Stills from Anatolii Borsiuk, *Grass Roots* (Корни травы, 1981).

its own development and conditions of life. Vernalization thus 'breaks' the fatal heredity of a plant. Vernalization was combined with experiments in hybridization, grafting and cross-breeding, striving to achieve what Michurin had called 'broken heredity', in order to speed up plant growth and increase yield. The socialist engineering of plants, Lysenko insisted, could transform evolution itself. But unlike Vernadsky's holistic vision of the biosphere, Lysenko's plant philosophy is grounded in anthropocentrism. In a report at the Academy of Agricultural Sciences in 1948, with Stalin present, he claimed humans could force any plant to change its form.[70] After Stalin's death, Lysenko faced growing backlash from the scientific community, with Sukachev being elected as president of the Moscow Society of Naturalists (MOIP) in 1955.

The Thaw period marked a return to the creative Marxism of the 1920s, including a revival of morphological materialism. This shift away from Stalinist dogma to an opening of Soviet philosophical discourse was epitomized by the work of Evald Ilyenkov, who fused Spinoza, Hegel and Marx with Vygotsky's activity

70. Lysenko's speech was discussed globally, causing the 'Lysenko affair' in France that transposed Cold War divides onto the philosophy of science, as explored in Dominique Lecourt's controversial *Proletarian Science? The Case of Lysenko*, New Left Books, London, 1977. Drawing on unpublished material from Michel Foucault's archives, Judith Bastie and I have recently begun to research Foucault's engagement in the debate. Our analysis of how his critique of Lysenkoism has shaped Foucault's work on sexuality, psychiatry and the archeology of knowledge is forthcoming as 'Vegetal Epistemologies: Foucault, Lysenko and (Soviet) Marx', *Genealogy+Critique*. See also Bastie in this volume.

theory.[71] Similar to Vygotsky, Ilyenkov conceptualized personality as a node of social interrelations.[72] In his Spinozist philosophy of the 'thinking body', Ilyenkov argued that we do not see with our eyes but through a collective body shaped by the totality of social activity. Ideals are 'transplanted' – another vegetal image – into us not through sensory perception but through our dynamic interactions with others.

These ideas were further developed in Ilyenkov's work with deaf-blind children in the radical school of Zagorsk, where he nurtured a new type of personality rooted in one communal body. Ilyenkov's vision of a cosmic expansion of consciousness, arguably inspired by Vernadsky's biosphere, found its culmination in the 1968 sci-fi book *On Idols and Ideals* which developed a critical stance on cybernetics and machine thinking. Ilyenkov's posthumanist stories feature non-human thinking machines, such as a brain on spider legs, a lazy flying saucer, a deaf ear, a brainless set of hands and a sticky film of mould. In their communist gatherings, machines and plants celebrate the overcoming of the human. In this thought experiment, the very concept of thinking becomes unstable. Can those vegetables think? And do machines think? Can they be comrades? On their journeys through the cosmic biosphere, the New Soviet Person eventually encounters intelligent extraterrestrial comrades:

> In the age of cosmonauts ..., couldn't a highly organized and thinking being not have some kind of physical appearance completely unexpected by you? Why couldn't it look like an octopus, a mushroom, an ocean, like a mould spread out over the stones of some far-off planet? Must it have a nose and two eyes?[73]

71. For a systematic interpretation of Ilyenkov's philosophy, see Bakhurst, *The Heart of the Matter*; on Ilyenkov's life and work, see Isabel Jacobs, 'Evald Ilyenkov (1924–1979)', *Filosofia: An Encyclopedia of Russian Thought*, 2024.

72. On Ilyenkov's ecological thinking, see Isabel Jacobs, 'Evald Ilyenkov's Ecology of Personality', *Journal of the History of Ideas Blog*, November 2023, www.jhiblog.org/2023/11/20/evald-ilyenkovs-ecology-of-personality; accessed 17 April 2025.

73. Evald Ilyenkov, *Ob idolakh i idealakh*, Sobranie *sochinenii*, vol. 3, Kanon+, Moscow, 2020, p. 276.

Opening a door to nonhuman consciousness, Ilyenkov insists that thinking is not reducible to human bodies, neural networks or measuring brain waves. We think through many organs, including our bodies, hands, tools and friends. Ilyenkov's critique of technocratic capitalism grew from the soil of morphological materialism, which envisions communism as a more-than-human reassembly of matter. Communism, Ilyenkov concludes, 'is not a fairy tale about some bright future, but a real movement of modernity'.[74] As this chapter has aimed to trace in a time-lapse, this alternative modernity – Soviet socialism, as it gradually emerges from the long shadow of the twentieth century – might offer a radical departure from both the rigid orthodoxy of dialectical materialism and late capitalist postmodernity. Only by continually shifting our perspective might we finally become comrades with plants.

74. Ibid., p. 495.

3

Rachel Carson and the ecological imperative

FINIAN WORRALL

The publication of Rachel Carson's *Silent Spring* in 1962 marked a formative moment in the modern environmental movement. Ostensibly a critique of the widespread use of the pesticide dichlorodiphenyltrichloroethane (DDT) in commercial agriculture, *Silent Spring* also offered a damning account of the human in nature, a moral and political call to arms articulated in the language of ecological science. Widely recognized as the text that propelled environmental issues into the public discourse, it was perhaps the first book to capture our peculiarly modern sense of environmental apocalypse, to give voice to a new fear growing in the popular imagination, that 'along with the possibility of the extinction of mankind by nuclear war, the central problem of our age [is] the contamination of man's total environment'.[1]

To furnish her critique of 'Man Against the Earth', as the book's original title put it, Carson drew on the most recent theoretical insights from ecology, a science whose future political significance was as yet unknown. The theory of nature proposed by ecosystem ecology in the 1960s – composed of imbricated

1. Rachel Carson, *Silent Spring*, Hamish Hamilton, London, 1962, p. 7.

biophysical systems, connected by material flows and powered by solar energy – allowed Carson to trace the passage of harmful chemicals like DDT across local and global ecosystems. I suggest in this essay that ecology also offered Carson a normative view of 'man's' relation to nature that underpins the provocative, apocalyptic message of *Silent Spring*. Granted that ecology provided Carson with the concrete *facts* of environmental destruction, I argue that it also offered her the grounds for a novel range of environmental *values*, which continue to inform the basic tenets of the environmental or 'ecological' movement today.

This chapter therefore addresses a central problem of environmental philosophy: namely, the relation of science to morality and politics, their interdependence and their co-determination. How has ecology conditioned – in a historical-epistemological but also a logical-deductive sense – our understanding of what is at stake or under threat in environmental destruction? Are scientific theories and observations mobilized in support of already established moral and political values, or do values 'flow' from science, which shapes and transforms them, provides them with their significance and even their intelligibility? And what happens to our ethical-political views if and when the science changes? To approach these questions, this chapter proposes a reading of *Silent Spring* alongside a short theoretical history of early ecology, noting the confluences between them. At the same time, I draw out the more fundamental logical and metaphysical basis of Carson's environmentalism, such as the ideas of holism, balance and teleology in nature.

The ethics of *Silent Spring*

Carson never makes any explicit ethical arguments in *Silent Spring*, apparently preferring to rely on the facts of pesticide

use alongside 'simple appeals to widely held values'.[2] As Linda Lear notes in her biography of Rachel Carson, this was in part a product of the social and epistemological constraints surrounding the book's release.[3] The case made in *Silent Spring* was polemical and based on new, widely unknown research. It had to appeal to a general public and combat the criticism expected from government scientists, lobbyists and policymakers. As a woman and with no PhD or institutional affiliations, Carson was forced to bracket her moral, political and religious convictions in favour of a more rigorous and objective writing style to be taken seriously and to protect herself from potential litigation.[4] That she was still labelled a 'hysterical female', a 'bird and bunny lover' and a 'communist' only attests to the validity of these concerns.[5]

Still, Carson does make occasional moral assertions that provide clues as to what, for her, is at stake in the debate over pesticides. She writes for instance with regard to an extensive pesticide program in Illinois:

> Incidents like the eastern Illinois spraying raise a question that is not only scientific but moral. The question is whether any civilization can wage relentless war on life without destroying itself, and without losing the right to be called civilized.... By acquiescing in an act that can cause such suffering to a living creature, who among us is not diminished as a human being?[6]

Condensed paragraphs like these contain multiple overlapping and sometimes conflicting moral claims, in this case regarding the meaning of 'civilization' and the precarity of its existence, as well as the worth of nonhumans both for humans and in themselves. The language is emotive and politically charged:

2. P. Cafaro, 'Rachel Carson's Environmental Ethics', in R. Pickett, S. Palmer, C. Armesto and J. Callicott, eds, *Linking Ecology and Ethics for a Changing World*, Springer, Rozzi, 2013, p. 164.
3. L. Lear, *Rachel Carson: Witness for Nature*, Henry Holt, New York, 1997.
4. Ibid., p. 398. See also L. Lear, 'Rachel Carson's Silent Spring', *Environmental History Review*, 17(2), 1993, p. 30.
5. Lear, 'Rachel Carson's *Silent Spring*', p. 36.
6. Carson, *Silent Spring*, p. 82.

pesticide use is characterized as a 'war on life' waged by 'civilization'. But without full explication and argument it is difficult to know what for Carson is morally significant in pesticide use. Is it the harm to humans, to nonhumans, or to society or 'civilization'? Should nonhumans be spared of suffering because of their usefulness or worthiness to humans, or because of their own intrinsic worth? In short, Carson never really tells us *why* we ought to oppose pesticide use, although it is on this fundamental philosophical basis that her environmental politics rests.

Without this justification, *Silent Spring* loses its political importance – it is 'just' a collection of facts, like a textbook or a catalogue. This at least is the conclusion that follows from the traditional philosophical distinction between fact (which describes how the world is) and value (about how the world ought to be). Facts are never sufficient to form moral conclusions, on this view; no description of pesticides, of their concrete effects on human health or wildlife, is enough to conclude that pesticides ought not to be used. But perhaps *Silent Spring*, though it does not itself make any ethical arguments, relies implicitly on arguments made elsewhere? Perhaps its aim is to inspire moral sentiment by appealing to *already established* values regarding for instance human health, the suffering of animals and the preservation of American wildlife and wilderness. This is something like the orthodox reading that I want to challenge in this chapter, made for instance in a recent article by philosopher Philip Cafaro, who suggests that Carson's moral account 'rests on a triple foundation of human health considerations, the moral considerability of non-human beings, and the value to humans of preserving wild nature and a diverse and varied landscape'.[7] Such values are complementary and widely held by the American public (or at least by those likely to read *Silent Spring*). All that

7. Cafaro, 'Rachel Carson's Environmental Ethics', p. 164.

remains is for Carson to direct public attention to the facts of pesticide use to highlight its moral implications.

I want to contest this common-sense view by looking closer at some of the arguments Carson makes in *Silent Spring*, since while I agree that Carson does not ever tell us why we ought to oppose pesticide use, I do not agree that Carson 'just' presents the facts of pesticide use, or that *Silent Spring* 'lacks' moral argument. Nor do I think that Carson relies on already established values to make her case; indeed, many of the claims Carson makes often *conflict* with already established or widely held values regarding the worth of humans and nonhumans. The more radical reading I will propose is that the 'facts' of pesticide use *themselves* always already contain normative ideals regarding humans and their relationship to nature. As we will see, this is chiefly a result of the ecological theoretical language in which these facts are articulated. Facts, after all, are never simply the product of observations isolated from explanation or theory. Ecology, by theorizing the place of the human organism in its environment, contains implicit political and moral claims regarding our actions and their unforeseen consequences, not just for human or nonhuman well-being but for the state of the environment itself.

Chains, systems, wholes

Carson's main concern in *Silent Spring* is to advocate for the regulation of pesticides, herbicides and other agricultural and industrial chemicals. When used in commercial agriculture to poison weeds and insect pests, such chemicals are stored in the fatty tissues of organisms and carried up 'food chains' to predators like birds and fish.[8] These chemicals further contaminate

8. Carson, *Silent Spring*, p. 19.

human food and water supplies and have even been found in human breast milk.[9] Carson showed that although the 'web of life'[10] means pesticides like DDT have an effect far beyond their intended victims, they do not need to be directly consumed but can be carried across the planet by rivers, oceans and atmospheric currents, famously ending up in the reproductive systems of Antarctic penguins.[11] The 'silent spring' from the book's title is the imagined result of this process, where 'a strange blight' brings 'a shadow of death' to the American countryside, where 'only silence lay over the fields and woods and marsh'.[12]

Central to Carson's book is the concept of the 'food chain' or 'food web', first developed by Charles Elton in his book *Animal Ecology* in 1927. Elton describes how organisms are connected to each other through a dependency on food, where plants are eaten by herbivores eaten by carnivores, in turn eaten by decomposers after they die.[13] Each organism occupies a 'niche', a specific role in relation to other organisms dictated by its size and capabilities determining what it eats and what are its enemies.[14] Elton's conceptual terminology was adapted for use in radiation ecology, a field which emerged in response to the problems of radioactive waste and fallout after World War II.[15] Founded and funded by the Atomic Energy Commission, the primary goal of radiation ecology was to track the movement of radioactive isotopes between different species in contaminated ecosystems.[16] Scientists discovered that predators accumulated radioactive isotopes in surprisingly high quantities, a discovery that led to

9. Ibid.
10. Ibid., p. 52.
11. W.J. Sladen, C.M. Menzie and W.L. Reichel, 'DDT Residues in Adelie Penguins and a Crabeater Seal from Antarctica', *Nature*, 210(5037), 1966, pp. 670–73.
12. Carson, *Silent Spring*, pp. 3–4.
13. C. Elton, *Animal Ecology*, Macmillan, New York, 1927, p. 56.
14. Ibid., p. 63.
15. C. Kwa, 'Systems Ecology and the Management of Ecosystems', *Science and Nature: Essays in the History of the Environmental Sciences*, ed. Michael Shortland, British Society for the History of Science, Stanford in the Vale, 1993, p. 213.
16. Ibid., p. 219.

an understanding of how substances are distributed across and carried up food chains.[17]

Later ecologists in the 1940s and 1950s, such as Raymond Lindeman, Eugene and Howard Odum and G. Evelyn Hutchinson, further developed Elton's ideas into a subdiscipline known as 'ecosystem ecology'. Lindeman's influential paper 'The Trophic-Dynamic Aspect of Ecology' was among the first to attempt to quantify the food chain concept by measuring the exchange of energy and materials between plants and animals.[18] He drew on developments across physical sciences like thermodynamics, cybernetics and systems theory to explain ecosystems in non-vitalistic, holistic terms. Energy in the form of sunlight is captured by plants via photosynthesis and passed to consumers and decomposers, at each stage being transformed into heat and lost to space through respiration. By observing the transfer and transformation of energy between organisms and their environments, Lindeman could conceive of Cedar Bog Lake, where he conducted his study, as one large ecological system or 'ecosystem'. The parts of this system are both living and non-living: sunlight, soil, air, water, even the decomposing bodies of dead organisms, all play an important role. All living things depend on the flow of energy and matter to metabolize and reproduce and thus depend not only on the other organisms of the food chain but also on non-living features of the environment. Indeed, as Lindeman notes, it becomes difficult from this perspective to separate the living community from the non-living environment, especially if what is being prioritized is the flow of energy and matter.[19] Lindeman quotes Oxford botanist Arthur Tansley, who coined the term 'ecosystem' in 1935:

17. Ibid., pp. 219–20.
18. R. Lindeman, 'The Trophic-Dynamic Aspect of Ecology', *Ecology* 23, 1942, pp. 399–417.
19. Ibid., p. 399.

> The more fundamental conception is ... not only the organism-complex, but also the whole complex of physical factors forming what we call the environment or the biome. ... It is the systems so formed which, from the point of view of the ecologist, are the basic units of nature on the face of the earth. ... These 'ecosystems', as we may call them, are of the most various kinds and sizes. They form one category of the multitudinous physical systems of the universe, which range from the universe as a whole down to the atom.[20]

The ecosystem – the complex of organisms and their non-living environment – is thus the 'basic unit of nature' for ecologists. These 'physical systems' are stacked in terms of scale, from the size of an atom to the planet to the entire universe, and are interlinked by common functions and shared parts. When Tansley mentions the atom in the quotation above, it is in a sense closer to that of the New Physics of the twentieth century than the atomism of classical physics. The atom here is not simply a low-level 'part' of the universe, its ultimate cause and explanation. It is itself a system, a set of relations between protons, neutrons and electrons that is 'greater than the sum of its parts', in that it only exists once its parts achieve a functional unity. The rules which govern the actions of neutrons or electrons are necessary but not sufficient for learning about the functioning of the atom, which has its own large-scale laws. Similarly, the neutron or electron depends on the entire atomic system for its own functioning and cannot be fully understood unless it is connected to the other parts of the system and oriented towards the functioning of the whole. Removing a neutron from an atom to study it in isolation would fundamentally alter the system and the behaviour of the neutron itself – in this case, with fatal consequences. In the words of Levins and Lewontin, the relationship between a system and its parts is 'dialectical', in

20. Arthur Tansley, quoted in Lindeman, 'The Trophic–Dynamic Aspect of Ecology', p. 400.

that the parts make up the system and the system conditions the behaviour of the parts.[21]

This 'holistic' view of nature, in which natural systems are integrated wholes composed of but not reducible to the behaviour of their parts, is a central theoretical premiss of both scientific ecology and the political 'ecological' movement. Influenced by the ideas of Charles Darwin, ecology was the first discipline to theorize the organism–environment relation as a whole, and was thus seen to challenge the dominant reductive and mechanistic methodology of classical biology, which focused on physiology and the mechanics of bodily processes.[22] Ernst Haeckel, who coined the term 'ecology' in his *Generelle Morphologie der Organismen*, defined it as 'the comprehensive science of the relationships of the organism to its surrounding environment'.[23] Similarly, almost a century later, Eugene and Howard Odum defined ecology in their seminal textbook *Fundamentals of Ecology* as 'the study of the interrelation of organisms to their environment'.[24] In other words, ecology is aimed primarily at the relationships between living and non-living things. It does not reduce living things to non-living parts or vice versa; indeed, ecology claims to transcend such divisions. As Lindeman suggests, part of the theoretical importance of ecology is that it moves beyond the strict boundaries of physics, geology, climatology or biology, which study matter and life independently, toward a more 'holistic' approach that conceives of living and non-living things as interrelated parts of a greater system.

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21. R. Levins and R. Lewontin, *The Dialectical Biologist*, Harvard University Press, Cambridge MA, 1985.
22. See Carolyn Merchant's paradigmatic critique of classical science and celebration of ecology in her essay 'The Death of Nature', *Environmental Philosophy: From Animal Rights to Radical Ecology*, ed. Michael Zimmerman, Prentice Hall, Saddle River NJ, 1993.
23. E. Haeckel, *Generelle Morphologie der Organismen*, vol. 2, Georg Reimer, Berlin, 1866, p. 286.
24. E.P. Odum and H.T. Odum, *Fundamentals of Ecology*, 2nd edn, W.B. Saunders, Philadelphia PA, 1959, p. 4.

The holistic method of ecology figures prominently in Carson's work, especially in her early 'Sea Trilogy', which drew on ecological theory as much as it contributed to it. Consider for instance this passage from *The Edge of the Sea*:

> To understand the life of the shore, it is not enough to pick up an empty shell and say 'This is a murex,' or 'That is an angel wing.' True understanding demands intuitive comprehension of the whole life of the creature that once inhabited this empty shell: how it survived amid surf and storms, what were its enemies, how it found food and reproduced its kind, what were its relations to the particular sea world in which it lived.[25]

Thus, understanding the physiology of an individual organism is insufficient for an understanding of its behaviour and of the greater system of which it is part. An atomistic, reductive method will not provide a full picture of coastal life, which in its highly complex and relational nature must be studied as a broader, more comprehensive ecological whole. This alternative 'holistic' method – intuitive, non-reductive and dialectical – lies behind the insights which Carson deploys to great effect in *Silent Spring*, allowing her to propose a view of nature as a series of integrated and organized wholes that function according to their own irreducible large-scale laws. It enables Carson, at a practical level, to trace the circulation of harmful chemicals like DDT between organisms where, along with other nutrients and minerals, they eventually pass to predators at the top of the food chain. But, at the same time, holism offers Carson the conceptual and analytical grounds on which to base her particular ethical-political position.

Carson's chief concerns in *Silent Spring* are with human health and the suffering of nonhumans. But it is an oversimplification to claim that Carson's moral opposition to pesticide use is only on biocentric or enlightened anthropocentric grounds. To define

25. R. Carson, *The Edge of the Sea*, Houghton Mifflin, Boston MA, 1988 [1955], p. 7.

these terms: *biocentrism* is when I believe that nonhumans ought to be protected because they have intrinsic worth (beyond my uses for them), whereas *enlightened anthropocentrism* is when I believe that nonhumans ought to be protected for my interests and uses (for example, I find them beautiful and inspiring; seeing them suffer is unpleasant to me, etc.). When Cafaro claims that Carson's activism rests 'on a triple foundation of human health considerations, the moral considerability of non-human beings, and the value to humans of preserving wild nature and a diverse and varied landscape', he is claiming that Carson's activism is (implicitly) justified on biocentric and enlightened anthropocentric grounds.

Yet Carson's moral opposition to pesticide use is not just founded on the worth of individual insects or penguins or even on the worth of individual humans. Instead, I argue that what Carson values is the ecological whole to which both humans and nonhumans belong. In other words, hers is not simply a *biocentric* ethics which places intrinsic value on individual organisms but an *ecocentric* ethics that values the whole of which the individual organism is a part. It is not the damage to this or that individual organism that concerns Carson but the effect that pesticides have on the entire system of biotic and abiotic relations. Indeed, Carson never suggests that pests in commercial agriculture ought not to be harmed; she admits for example that in the case of intensive agriculture, which undermines nature's 'built-in checks and balances … control of some sort becomes necessary'.[26] It is because pesticides like DDT spread well beyond their intended victims, killing further species and ultimately undermining the stability and integrity of the ecological whole that Carson suggests that they ought to be opposed.

26. Carson, *Silent Spring*, p. 9.

In this case, the holistic methodology of ecological science comes to shape Carson's consideration of humanity's ethical relationship to nature – of what kinds of harm are morally significant or insignificant, of which beings deserve to live and which deserve to die. According to ecocentrism, the death and suffering of individuals are *necessary* for the continuation of the ecosystem and therefore morally insignificant to the extent that they do not affect ecosystem integrity and stability. As I will argue later, what is important to ecocentrists is that such death and suffering accord with the 'normal' or 'natural' rate of ecological processes, and that these processes are not 'disrupted' by 'unnatural' or 'synthetic' chemicals produced by 'man'. It is worth emphasizing here that this ecocentrist position for the most part *conflicts* with the established values of Americans living in the early 1960s. The notion that the needs and desires of humans ought to be subordinate to the welfare of the ecological whole contradicts widely held anthropocentric views of the instrumental relation of humans to natural resources. Moreover, for wildlife conservation groups at the time, like the Audubon Society, it was the suffering and demise of individuals and species that most concerned their members and not the preservation of 'systems' or 'ecological wholes'. It is only in the wake of *Silent Spring* that 'environmental' laws and advocacy groups concerned chiefly with the preservation of ecosystems emerged.[27] Much environmental policy and activism today can be called 'ecocentric' in so far as they aim chiefly at preserving and maintaining whole ecosystems rather than individual organisms or resources favourable to humans.[28]

27. For example, in the United States, the Environmental Defense Fund 1967, the National Environmental Policy Act 1970, the Natural Resources Defense Council 1970, UNESCO Man and the Biosphere Programme 1971, and the United Nations Conference on the Human Environment 1972.

28. For example, the Convention on Biological Diversity, the European Union Natura 2000, and the United Nations Decade on Ecosystem Restoration.

Balance as the natural *telos* of ecosystem development

To illustrate Carson's ecocentrism, consider the following passage from *Silent Spring*:

> The bitter upland plains, the purple wastes of sage, the wild, swift antelope, and the grouse are a natural system in perfect balance. Are? The verb must be changed – at least in those already vast and growing areas where man is attempting to improve on nature's way.... Few seem to have asked whether grasslands are a stable and desirable goal in this region. Certainly nature's own answer was otherwise.[29]

Carson here exchanges Elton's 'food web' for the more complex notion of a 'natural system' understood as an integrated set of relations between organisms and the environment that is 'in perfect balance'. Crucially, this balance is under threat: that 'the verb must be changed' – presumably from 'are' to 'were' – implies the process of degradation has already begun. 'Man', in attempting to improve on 'nature's way', has undermined nature's balance, in this case by clearing brush for grazing. Because the man-made grassland ecosystem is contrary to the 'goal' of the region, 'man' risks an outcome that is neither 'stable' nor 'desirable':

> the whole closely knit fabric of life has been ripped apart. The antelope and the grouse will disappear along with the sage. The deer will suffer, too, and the land will be poorer for the destruction of the wild things that belong to it. Even the livestock which are the intended beneficiaries will suffer; no amount of lush green grass in summer can help the sheep starving in the winter storms for lack of the sage and bitterbrush and other wild vegetation of the plains.[30]

What is significant for Carson in this case is not simply the clearing of sagebrush from the plains – or, rather, it is not sagebrush *itself* that Carson is interested in protecting, even if it

29. Carson, *Silent Spring*, p. 54.
30. Ibid., p. 55.

is the only thing directly harmed through human intervention. What is at stake is the knock-on effect that clearing sagebrush has on the 'fabric of life', on the broader ecological community. That clearing sagebrush impinges on the well-being of antelope, grouse and even introduced livestock follows from the holistic principles of ecological science, which stress the unity and interdependence of individual organisms within an ecosystem.

Indeed, this unity and interdependence is intrinsic to the 'ecosystem' concept, which must exhibit a certain degree of coherence and integration to be defined as such. Eugene and Howard Odum, for instance, define an ecosystem as

> any unit that includes all of the organisms (i.e., the 'community') in a given area interacting with the physical environment so that a flow of energy leads to clearly defined trophic structure, biotic diversity, and material cycles (i.e., exchange of materials between living and non-living parts) within the system.[31]

According to the Odum brothers' definition, if a loose collection of organisms does not display any 'clearly defined' organization, it cannot be considered an 'ecosystem', much like a loose collection of organs cannot be considered a body. An ecosystem must display an organic unity similar to an organism itself, in which all the organs work together to produce the functional body. Indeed, the first theories of ecological communities from the early twentieth century were predicated on this 'organismic' view of nature, most famously the 'superorganism' conception developed by Frederic Clements.[32] Clements claimed that any community of plants (an 'association' in his words) developed in a way that was comparable to the development of an individual organism. As the organs in a body are functionally related, Clements believed that the members of an association were closely

31. Odum and Odum, *Fundamentals of Ecology*, p. 8.
32. F. E. Clements, 'Nature and Structure of the Climax', *Journal of Ecology*, 24(1), 1936, pp. 252–84.

integrated and organized, that each plant or plant species served a purpose within the association, and that the association as a whole could be understood using a similar logic to physiology.[33] Clements claimed that the evolving association eventually reaches a 'climax state' in which it displays a high degree of stability and integration.[34] In this sense, Clements imagined the plant community as equivalent to an organism that 'arises, grows, matures, and dies'.[35]

This teleological view of nature, where communities have an inherent tendency to reach higher, more developed states, is made possible only through the attribution of an organic unity to the community as a whole. It is only by viewing organisms as highly integrated and interdependent that it is possible to imagine the collective evolving towards a preconceived end. Clements's view of communities as 'superorganisms' eventually fell out of favour towards the mid-twentieth century and was replaced by Tansley's 'ecosystem' concept, which attempted to rid ecology of its vitalism by describing communities in terms closer to physics and engineering. But even within this highly physicalist conception of nature, the evolutionary *telos* suggested by the organismic view is retained. In the definition by the Odum brothers above, for instance, ecosystem development 'leads to clearly defined trophic structure, biotic diversity, and material cycles'. And although the driving force of this process is the 'flow of energy' that passes through the ecosystem, a self-organized, functional unity is still presumed to be the principal goal or outcome of system change. Ecosystems display, in Eugene Odum's words, 'a strategy of development ... directed toward achieving as large and diverse an organic structure as is

33. C. Elliot, 'The Legend of Order and Chaos: Communities and Early Community Ecology', in K. deLaplante, B. Brown and K.A.Peacock, eds, *Philosophy of Ecology*, *Handbook of the Philosophy of Science*, vol. 11, North Holland, Oxford, 2011, p. 74.
34. F.E. Clements, *Plant Succession*, Carnegie Institution of Washington, Washington DC, 1916.
35. Ibid., p. 16.

possible within the limits set by the available energy input and the prevailing physical conditions of existence'.[36] The outcome of this 'strategy' is mutualism and cooperation between organisms and a 'balance' in the relations between organisms and their environment. Organisms evolve, regulating their growth and reproduction in accordance with environmental factors like the storage and release of nutrients, and eventually the system as a whole reaches what the Odums call 'homeostasis', a state of maximum efficiency and mutual benefit.[37]

This teleological understanding of ecosystem development is fundamental to Carson's normative claims regarding human destruction of ecosystems. If these systems 'naturally' tend towards highly stable, integrated and efficient states, then obstructing this tendency – for instance by destroying key species like sagebrush – could have potentially catastrophic effects on the system and its remaining inhabitants. It thereby becomes possible to judge which actions are desirable or undesirable to the extent that they facilitate or hinder the internal telos of the ecological whole. Again, what is significant in such cases is not simply the effect of human interference on individual organisms but the condition of the *ecosystem itself*. This sort of moral judgement cannot result from established biocentric or enlightened anthropocentric values. Rather, it depends on the description of nature as a balanced, integrated and teleological whole by ecologists like Clements and the Odum brothers. What emerges with or alongside this scientific description are moral and political judgements regarding the 'ideal' ecological state and human behaviour towards it. I will return to this point shortly.

36. E.P. Odum, 'The Strategy of Ecosystem Development', *Science* 164, 1969, p. 266.
37. Odum and Odum, *Fundamentals of Ecology*, pp. 25–6.

'Man' versus 'nature'

'Man' occupies an important but ambiguous place in Carson's schema. On the one hand, 'man' is part of ecosystems in that he is threatened by ecological disaster as much as any other species. 'Man, however much he may like to pretend the contrary, is part of nature', Carson writes. '[He cannot] escape a pollution that is now so thoroughly distributed throughout our world.'[38] It is precisely because 'man' is part of ecosystems that his harmful technologies are able to penetrate and spread across ecological networks and endanger even his own life. On the other hand, it is because 'man' stands apart from ecosystems that he is able to intervene in their development – that is, that he can be said to 'disrupt' the progression of ecosystems to homeostasis. For this reason, humans (and the by-products of their actions) are simultaneously described as natural and unnatural by environmentalists: they are 'natural' as another thread in the 'fabric of life', and 'unnatural' in so far as they cut across other threads, obstructing the intrinsic end of ecosystem development.

This paradox is clear in Carson's book. The famous first chapter, 'A Fable for Tomorrow', nostalgically describes a small American town 'in harmony with its surroundings'.[39] When 'an evil spell'[40] settles on the community, livestock perish, humans become sick, and birds and wildlife disappear: 'the people had done it themselves'.[41] Much like the story of 'The Fall' from the book of Genesis, the ontological status of humankind suddenly changes once it acquires a power and responsibility that pit it against the workings of nature. Carson explains in the following chapter:

38. Carson, *Silent Spring*, p. 154.
39. Ibid., p. 3.
40. Ibid.
41. Ibid., p. 4.

> The history of life on earth has been a history of interaction between living things and their surroundings. To a large extent, the physical form and the habits of the earth's vegetation and its animal life have been moulded by the environment. Considering the whole span of earthly time, the opposite effect, in which life actually modifies its surroundings, has been relatively slight. Only within the moment of time represented by the present century has one species – man – acquired significant power to alter the nature of his world.[42]

The first line of this quotation is grounded in the theoretical insights of ecology and evolutionary biology and it leads quickly into the subtle, quasi-metaphysical claims in the next few lines. As opposed to 'life', whose modification of its surroundings is 'relatively slight', 'man' has acquired the technological power to radically alter the world. He does this, Carson explains later, by creating 'synthetic' chemicals, or by 'tampering with the atom' to produce 'unnatural' radiation.[43] These chemicals when used as pesticides or herbicides are strongly opposed by Carson to 'natural' or 'biological' methods of pest control like introducing predators or multi-crop farming.[44] The use of 'natural' and 'unnatural' in this case seems to stem from a normative necessity, a way to point out, as philosopher Ted Toadvine puts it, that 'something wrong needs fixing'.[45] While it is obvious that humans are part of local and global ecosystems, 'endorsing our own seamlessly natural status would seem to entail that everything that we do and create – from nuclear waste to plastic trees – would be just as natural as anything else'.[46]

In this reading, Carson resorts to the inherently normative but unjustified language of 'natural' and 'unnatural' to articulate a qualitative difference between human technologies and the

42. Ibid., p. 5.
43. Ibid., p. 6.
44. Ibid., p. 9.
45. T. Toadvine, 'Naturalism, Estrangement, and Resistance: On the Lived Senses of Nature', in *Ontologies of Nature*, ed. M. Oele and G. Kuperus, Springer, New York, 2017, p. 182.
46. Ibid.

techniques of other living beings. After all, Carson is wrong when she says that 'life' modifies its surroundings 'relatively slightly'. One dramatic counter-example is the Great Oxygenation Event in the Proterozoic, when cyanobacteria that evolved the ability to photosynthesize released huge amounts of oxygen, creating today's oxygenated atmosphere and destroying the anaerobic majority of life on Earth.[47] Of course, the selective stress that resulted led eventually to the development of eukaryotes, who used the poisonous oxygen in the atmosphere as a resource, and without whom complex multicellular beings like animals and plants would never have evolved.[48] It is not, then, the empirical fact of the destruction of living beings with chemicals (like oxygen) that is 'unnatural' or even 'evil', which is why *Silent Spring* does not stop at the facts of environmental destruction but goes on to employ a more normative, quasi-metaphysical discourse of 'man' versus 'nature'.

Another reading of Carson's narrative of life on Earth is that what Carson opposes in environmental destruction is not the fact of anthropogenic environmental modification but its extraordinary speed and scale – that an enormous quantity of ecosystems are being destroyed in a relatively short span of time. Put differently, it is not a *qualitative* difference that sets 'man' apart from 'nature' but a *quantitative* one. In this reading, *Homo sapiens* is no more ontologically significant than any other species except in its use of technology, which has rendered it highly competitive and dangerous. And, despite the inflated consequences of their actions, humans are no more 'unnatural' than the cyanobacteria which caused the Great Oxygenation Event or any other 'invasive' species that disrupts ecological balance and integrity. This reading accords with ecologists like the Odum brothers as well as

47. L. Margulis and D. Sagan, *Microcosmos: Four Billion Years of Microbial Evolution*, University of California Press, Berkeley CA, 1986, p. 99.
48. J. Gross and D. Bhattacharya, 'Uniting Sex and Eukaryote Origins in an Emerging Oxygenic World', *Biology Direct* 5, 2010, p. 53.

with more recent environmental accounts which tend to eschew terms like 'natural' or 'unnatural'. The popular environmental writer Elizabeth Kolbert, for instance, describes the contemporary environmental crisis as the 'sixth mass extinction event'; in other words, another extinction event in a long sequence including the Great Oxygenation Event.[49] Her book's subtitle, 'An Unnatural History', suggests that what marks these events out from the 'natural' or normal progress of Earth's history is their sheer speed and scale of destruction rather than some qualitative ontological difference between 'man' and 'nature'.

Ecological time and space

Over and above the concrete fact of biocide, however, ecological science still provides the yardstick by which ecological disturbance is measured and by which the actions of 'invasive' species (like humans) can be understood as contradicting the 'normal' or 'natural' programme of ecosystem development. For instance, the unusual speed of the destruction of the sagebrush plains in *Silent Spring* is calculated with regard to a prior nature existing before the colonization and industrialization of America. This temporal dimension of destruction is delimited by what philosopher J. Baird Callicott calls 'ecological time', 'defined by ecological processes such as ... succession and disturbance regimes'.[50] In other words, diagnosing ecological disturbance requires a 'normal' temporalization determined by ecological processes, since any other metric (for example, geological time) is insufficient. Twenty thousand years before the arrival of European settlers in North America, the sagebrush plains would have exhibited an entirely different ecological composition – namely, tundra populated

49. E. Kolbert, *The Sixth Extinction: An Unnatural History*, Bloomsbury, London, 2014.
50. J.B. Callicott, 'Postmodern Ecological Restoration: Choosing Appropriate Temporal and Spatial Scales', in deLaplante, Brown and Peacock, eds, *Philosophy of Ecology*, *Handbook of the Philosophy of Science*, vol. 11, p. 314.

by woolly mammoths and sabre-toothed tigers. Of course, the transition from these Pleistocene ecosystems to the relatively warm Holocene would have meant large-scale extinction, migration, adaptation and ecological transformation. But because the scale of this transformation accords with 'ecological time', it is ontologically and morally insignificant by the standards of ecocentric environmentalism.

If ecology offers Carson a 'normal' temporalization of nature by which the moral significance of human action is measured, it equally provides a spatial imagination in which nature is enclosed within a kind of permeable conceptual membrane. The limits of this membrane are determined by the integrity and stability of the ecosystem, by its internal balance that results from the fine-tuning of ecological evolution. Within the membrane, 'normal' or 'natural' ecosystem processes take place and the system progresses towards its final mature state. The teleological end of ecosystem development is thus inscribed into this total and enclosed whole – it is internal to the self-organized and self-directed functioning of the entire ecological complex and is defied only in so far as it is disrupted from the outside. In this way, ecosystems come to be understood as threatened by external 'abnormal' or 'unnatural' forces which undermine the system's internal order, for instance by 'invaders' that have not co-evolved with the system and can therefore outcompete the system's inhabitants, with disastrous effects on the system as a whole.

From this description of 'normal' or 'natural' ecological activity, Carson derives scientific justification for her condemnation of pesticide use. At the same time, ecology provides a means to determine whether human action is morally objectionable based on whether it contradicts ecological time or invades ecological space, thereby undermining the ecosystem's 'ideal' condition. Philosophers will object that this commits the 'naturalistic

fallacy', and I agree. Just because ecosystems tend to be stable, integrated and efficient when untouched by humans does not mean that they *ought* to be that way. A 'natural' ecosystem might be 'in perfect balance' but the corresponding question that remains to be answered is why balance is better and for what or for whom. Presumably Carson takes for granted why we would want ecosystems that are natural, healthy and balanced. This is precisely what is intriguing – and concerning – about the dependency of environmentalism on ecology. As science describes healthy and balanced ecosystems, these in turn become the paragon of nature and the ideal outcome of human action, transforming our moral intuitions and reorganizing modern politics and law.

Ecological science and environmental values

The problem here is that in narrowing the gap between fact and value, we lose sight of how ecological 'facts' are themselves constituted by their historical, political and theoretical context. As Helen Longino explains in her book *Science as Social Knowledge*, science is never purely objective but is shaped by social, political and scientific norms.[51] In line with Thomas Kuhn, Longino stresses the theory-ladenness of observation, the way in which facts are always made to cohere with theoretical paradigms and organized so as to support key hypotheses. These considerations determine which facts are deemed relevant and what interpretation of the facts is produced. As Hilary Putnam argues, the evaluation of evidence by its relevance or descriptiveness or the judgement of theories as 'coherent' or 'simple' presupposes a range of scientific norms which distinguish 'good'

51. H. Longino, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry*, Princeton University Press, Princeton NJ, 1990.

from 'bad' science.[52] In addition to these scientific norms – what Longino calls 'constitutive values' – are a range of 'contextual values' that arise from the social and political context in which scientific research is carried out. In this case, science is shaped by the background assumptions and even the moral and political convictions of scientists, which influence what questions are asked, what counts as good evidence, and which hypotheses are considered plausible.

The theory of nature as holistic, stable and teleological provided by early ecologists like Clements, Elton, Lindeman and the Odum brothers is pervaded by contextual values – background assumptions and political and moral convictions regarding nature and its relation to 'man'. The concept of 'stability' or a 'balance of nature', for instance, has a long history in the West from Ancient Greece through medieval Christian scholarship to modern Darwinian science.[53] Indeed, 'stable' ecosystems are, by definition, those ecosystems that are most appealing and useful to humans – they are more diverse and attractive, more productive and reliable. In other words, 'stable' and 'natural' ecosystems are those that best align with our modern human preconceptions of what constitutes useful, beautiful and pristine nature. When ecologists approach nature in the guise of a value-neutral observer, they bring these ideals and assumptions with them and organize their observations to suit both hegemonic social ideals and the prevailing theoretical paradigm.

There is no better evidence for this than the radical paradigm shift experienced by ecosystem ecology in the 1970s and 1980s. While mid-century ecologists emphasized flows of energy and

52. H. Putnam, 'Beyond the Fact/Value Dichotomy', *Crítica: Revista Hispanoamericana de Filosofía*, 14(41), 1982, pp. 3–12.

53. See, for example, F.N. Egerton, 'Changing Concepts of the Balance of Nature', *Quarterly Review of Biology*, 48(2), 1973, pp. 322–50; D. Botkin, *The Moon in the Nautilus Shell: Discordant Harmonies Reconsidered*, Oxford University Press, Oxford, 2012; D. Simberloff, 'The "Balance of Nature" Evolution of a Panchreston', *PLoS Biology* 7, 12(10), 2014, pp. 1–4.

matter controlled by feedback mechanisms in the manner of cybernetic machines, ecologists of the 1980s came to see ecosystems as a more disaggregated collection of individuals joined merely by physical interaction via functional relationships, for instance predatory–prey, parasite–host, symbiosis, and so on. An important article by Robert May cast doubt on the stability–diversity hypothesis by showing that mathematical models of ecosystems displayed chaotic behaviour despite having high degrees of complexity.[54] Another paper by Drury and Nisbet concluded that there was no determinable direction in ecological change, no progressive development of species diversity, biomass or integration, and no final 'climax' or stable equilibrium state.[55] These and many more studies served to call into question the kind of science which Carson relies on in *Silent Spring*.

The point here is not that Carson based her book on incorrect science and that for this reason the moral and political message of *Silent Spring* should be dismissed. It is that Carson – and much ecocentric environmental thought that follows her – is wrong to assume that ecological science by itself offers objective and sufficient basis for action – that is, that its description of 'normal' nature is enough to condemn human 'interference' and destruction of ecosystems. Beyond committing the 'naturalistic fallacy', the problem with sticking to the science without interrogating its intrinsic social and political assumptions is that the science in this case strongly determines our consideration of what is at stake in environmental crisis – its chief causes, threats and solutions. The major conflict that emerges from *Silent Spring*, for instance, is 'man versus nature', and its central concern is the physical condition of ecosystems. Environmental 'harm' is thus conceived as the destruction of ecosystems by 'man', where the

54. R. May, 'Will a Large Complex System Be Stable?' *Nature* 238, 1972, pp. 413–14.
55. W.H. Drury and I.C. Nisbet, 'Succession', *Journal of the Arnold Arboretum*, 54(3), 1973, pp. 331–68.

solution is a return to 'natural' or 'biological' methods of farming and pest control. In short, what is obscured are the social and historical conditions that produce ecological destruction in the first place. Carson does of course criticize the 'chemical industry' and the 'Industrial Age'.[56] But in so far as these are viewed as emerging from 'man', we lose sight of how environmental issues are produced by socially and historically determined relations of societies to their material environments – for instance, by the necessity for capitalist societies to constantly expand and prolong the accumulation of capital.[57] At the same time, the discourse of 'man' versus 'nature' overlooks the countless cultures and civilizations that have lived in relative harmony with their environments, as well as the disproportionate effects experienced by different societies as a result of environmental destruction.[58]

The solution to the problem as it is framed in *Silent Spring* is better science and tighter regulation of industrial chemicals rather than the dismantling of corporate control over agriculture. While widespread policy reforms have curbed the impact of pesticides like DDT on human health and wildlife, the agricultural and chemical industries have found ways to avoid making substantial changes to their industrial practices precisely by following Carson's recommendations and by coopting the language and ideas of *Silent Spring*. After the banning of DDT, for instance, the development of 'safer' pesticides like neonicotinoids and glyphosate (not without their own human and nonhuman health risks) have meant a dramatic overall increase in agricultural pesticide use.[59] By marketing themselves as 'sustainable',

56. Carson, *Silent Spring*, pp. 149, 153.
57. See M. Bookchin, *The Ecology of Freedom*, Cheshire Books, Melbourne, 1982.
58. A. Malm and A. Hornborg, 'The Geology of Mankind? A Critique of the Anthropocene Narrative', *The Anthropocene Review*, 1(1), 2014, pp. 62–9.
59. See F.R. Davis, *Banned: A History of Pesticides and the Science of Toxicology*. Yale University Press, New Haven CT, 2014; M. Mart, *Pesticides, a Love Story: America's Enduring Embrace of Dangerous Chemicals*, University Press of Kansas, Lawrence KS, 2018; C. Patton, 'A World Drenched with Pesticides: Rachel Carson's *Silent Spring*', *Origins: Current Events in Historical Perspective*, Ohio State University, 2022; https://origins.osu.edu/read/world-drenched-pesticides-rachel-carson-silent-spring.

'regenerative' and 'eco-friendly', agricultural corporations have maintained vast monocultures cultivated using industrialized, chemical-intensive methods.[60] Corporations and governments today promote the maintenance and restoration of ecosystems (often to the exclusion of local and indigenous people) only to expand ecologically destructive operations in other areas.[61] This is not to mention the political impact of the 'green' or 'regenerative' agricultural sector in the Global South over the course of the twentieth century, which by 'selectively appropriating demands of environmental, food safety, animal welfare, fair trade, and other social movements ... widen[s] the gap between privileged and poor consumers as it deepens commodification and marginalizes existing peasants'.[62]

Conclusion

A *Silent Spring* less occupied by the facts and more concerned with social critique may have pre-empted these problems. But then it would not have been the *Silent Spring* whose explosive popularity kickstarted the modern environmental movement.[63] As I have argued, Carson's strict adherence to the science of pesticide use and its dangers made *Silent Spring* a formidable weapon to be wielded by burgeoning environmental lawyers and activists against government complacency and corporate greed.

60. G. Cusworth, J. Lorimer, J. Brice and T. Garnett, 'Green Rebranding: Regenerative Agriculture, Future-pasts, and the Naturalisation of Livestock', *Transactions of the Institute of British Geographers*, 47(4), 2022, pp. 1009–27. See also A. Bless, 'The Co-Optation of Regenerative Agriculture: Revisiting the Corporate Environmental Food Regime', *Globalizations*, 2024, pp. 1–23.

61. J. Fairhead, M. Leach and I. Scoones, 'Green Grabbing: A New Appropriation of Nature?' *Journal of Peasant Studies*, 39(2), 2012, pp. 237–61. See also A. Dickens, 'Indigenous Peoples Bear the Brunt of Global Greenwash', *The Ecologist*, 2015; https://theecologist.org/2015/sep/23/indigenous-peoples-bear-brunt-global-greenwash.

62. H. Friedmann, 'From Colonialism to Green Capitalism: Social Movements and Emergence of Food Regimes',, in F.H. Buttel and P. McMichael, eds, *New Directions in the Sociology of Global Development*, Emerald Group Publishing, Amsterdam, 2005, p. 227.

63. After all, Murray Bookchin's book *Our Synthetic Environment* (Knopf, New York, 1962) made an explicitly social and political critique of industrial chemical use and was published a few months before *Silent Spring* with little public attention.

Ultimately, it was this adherence to the 'facts' – or, rather, their organization into a coherent theory of nature – that offered Carson the logical and epistemological grounds on which to oppose irresponsible pesticide use. By describing nature as holistic, stable and teleological, ecology shaped Carson's conception of what is at stake in environmental problems – namely, the invasion and destruction of natural ecosystems by man-made, synthetic chemicals. Such an approach to environmental problems excludes social histories of imperialism, capitalism and corporate power. Indeed, it is by adhering to ecological theory that a new agricultural regime has emerged over the twentieth and twenty-first centuries, one that employs 'ecological' techniques and wields 'ecologically responsible' language in order to strengthen corporate control over food production. Far from advocating for a dismissal of science in connection to environmental issues, this chapter recommends paying closer attention to science to uncover its dependency on social and political values. *Silent Spring* serves as an important reminder that a wholesale reliance on the 'facts' deprives environmentalism of its analytic basis for political action.

4

The disturbing sexuality of plants: on the archaeology of Foucauldian knowledge of vegetality

JUDITH BASTIE

> We are derisory, and in fact non-existent, compared to the sexual happiness of a fern prothallium.
>
> Notebook no. 8, Foucault collection, BNF

On 21 September 1969 Michel Foucault wrote eight pages in his notebook under the title 'Sexuality, Reproduction, Individuality'.[1] Plant generation occupied a central place. Faced with the diversity of plant modes of reproduction, human sexuality appeared 'involuted', or 'stunted'.[2] By stirring up the sexual happiness of this fern prothallium, Foucault was attacking the moralism and narcissism that 'Man' had shown towards his sexuality. He was questioning the way in which an appreciation of the biology of plant sexuality might reconfigure our understanding of the relationship between human sexuality, reproduction and individuality.

That same year, 1969, Foucault gave a lecture at Vincennes entitled *Le discours de la sexualité* (*The Discourse of Sexuality*). Lesson

1. These few notes are published at the end of the French edition of the Collège de France lectures *La sexualité* and *Le discours de la sexualité* of 1964 in Clermont-Ferrand, and of 1969 in Vincennes. See Michel Foucault, *La sexualité et Le discours de la sexualité*, Hautes Études, EHESS, Seuil, Gallimard, Paris, 2018, pp. 211–16.
2. 'We are beings with an involuted sexuality' and 'It is characteristic of man to claim for his species the final fulfilment of a sexuality which, before him, would have been sketchy or partial, whereas in fact he bears only a stunted sexuality; or rather he is the result of a reproductive process in which the gametophytic phase is absolutely reduced.' Ibid., p. 214.

6 was devoted to the biology of plant sexuality. Foucault was then preparing to leave the University of Vincennes to join the Collège de France; the research project he was going to present as part of his application was that of a 'History of knowledge of heredity'.[3] Once again, the question of plant generation was at the heart of his research.

Finally, the handwritten reading notes preserved at the Bibliothèque Nationale de France in boxes 39 and 45 bear witness to the quantity of work by botanists and plant biologists that Foucault consulted, read and annotated at the time.[4] These notes correspond to the preparation of the courses at Vincennes and his application to the Collège de France, and immediately precede the writing of *The Archeology of Knowledge*.

This chapter explores this little-known aspect of Michel Foucault's work. Based on his unpublished handwritten notes, lectures and publications from 1969 and 1970, I try to show that it is within a history of knowledge of vegetality that Foucault's archaeological programme unfolds. By taking an interest in the moment when sexuality burst onto the scene in the botanical sciences, Foucault was setting in motion a critical project of anthropological thought and justifying the necessity of the archaeological method.

The heuristic value of plants for the biology of sexuality

If plants are an important subject for a history of sexuality, it is first and foremost because plants have been the source of fundamental discoveries in the biology of sexuality. In Lesson

3. On this point, see the 'presentation of M. Foucault by himself during his application for the Collège de France': Michel Foucault, *Titres et travaux*, *Dits et Écrits*, vol. 1, Gallimard, Paris, 2001, text no. 71.

4. Many of the documents used here come from these unpublished handwritten reading notes, some of which were consulted in the Fonds Foucault at the Bibliothèque Nationale de France, and some of which were produced by the FFL (Foucault Fiches de Lecture) project; https://eman-archives.org/Foucault-fiches/objectifs-projet.

6, Foucault discusses Camerarius, a German botanist of the seventeenth century, who (according to some) developed the first theory on the sexuality of plants.[5] He discovered the presence of reproductive organs in plants. Camerarius noted that mulberry trees with pistil flowers only produced complete fruits (with seeds) when they grew close to plants with stamen flowers. He thus highlighted the so-called dioecious plants, in which the female sex (pistil) or the male sex (stamens) exists on separate individuals. He went on to discover monoecious plants, in which both male and female reproductive organs are present on the same individual, and hermaphroditic plants, in which both male and female reproductive organs are present on the same flower. He believed that hermaphroditism was the norm in the plant world. These theories were published in 1694 in a work entitled *De sexu plantarum*[6] and were to have a considerable influence on our understanding of sexuality. On the one hand, the notion of the sexual organ became operative to describe the phenomenon of sexual generation throughout the living kingdoms: the generalization of sexuality. The sexual organ becomes the means of reproducing living things, in animals and plants alike. Furthermore, the terms 'male' and 'female' can no longer be used to characterize only a single individual plant: the individual scale is not a relevant scale for understanding sexuality, since two different sexes can be found in the same individual. Finally, the division of the two sexes is no longer self-evident, and hermaphroditism is now considered normal in many living beings.

Almost a century later, Kölreuter applied Camerarius' discoveries about the sexual organs of plants. In particular, he conducted experiments on cucumber flowers and gladioli. He noted that if not visited by insects these plants remained sterile. In a handwritten note, Foucault cites Kölreuter's work. He reported the

5. Foucault, *Le discours de la sexualité*, p. 165.
6. Rudolf Jacob Camerarius, *De sexu plantarum,* Martin Rommey, Tübingen, 1694.

results of his experiments: in gladiolus, the pollen is large, heavy and sticky; it remains in the pollen cavity. So

> Nature is obliged to intervene by means other than the wind. The means are insects, especially bumblebees, which penetrate the flower and, when they leave, carry the pollen on their hairs. Then when they visit another flower, they leave the pollen on the stigma they find along the way.[7]

By highlighting the role of insects in plant reproduction, Kölreuter paved the way for new hybridization practices, including artificial pollination. From this point of view, Kölreuter's work was of central importance to the biology of sexuality and augured well for our understanding of heredity. It also redefined the concept of sexuality: there can be sex without there being a conjunction of two sexual organs. Sexuality involves more than the intimacy of two individuals; it is a matter of environmental conditions and requires the intervention of third parties.

This point was confirmed by the work of Sprengel, the originator of the theory of pollination. He documented the different adaptive strategies used by flowers (colour, smell, nectar quality) to attract the insects they needed to reproduce. In particular, he worked on the cross-fertilization of flowers: some flowers are unable to fertilize themselves, and the pollen contained in the stamens does not settle in the pistil of the same flower to fertilize it; fertilization only takes place if the pollen is deposited in the pistil of another flower of the same species. Plants that use cross-fertilization have an interest in ensuring that the insects that come to collect their nectar then deliver the pollen to the right plant. They use signals to achieve this. In a handwritten note, Foucault describes, according to Sprengel, a flower with a large yellow spot at its heart. He quotes: 'the bumblebee knows very well what this yellow spot means'.[8] For the bumblebee, the

7. FFL, SourceBoite_036–30–chem | Kölreuter. Sprengel. Rating b036_f0557.
8. Ibid.

spot is a signal, indicating the presence of nectar. For the flower, it indicates the presence of pollen, or the desired location of its destination. Foucault was quick to point out the importance of Sprengel's work for Darwin. These variations in the appearance of flowers correspond to evolutionary adaptations in the species that encourage its continuation. Here, sexuality is seen less as an individual accomplishment than as a general phenomenon aimed at the reproduction of the species. The individual is only one stage in the process; it is sexuality that achieves fulfilment through the individual.

But perhaps the most decisive botanical contribution to the history of biology is that of Matthias Jakob Schleiden, who developed the cell theory in the 1830s. In his work 'Essay on Phytogenesis', he defined plants as 'aggregates of individualized and independent beings which are the cells'.[9] Schleiden pooled his microscopic observations of plant tissues with those of the zoologist Theodor Schwann on animal tissues, and both were able to assert that the cell is the structural and functional unit of plants and animals. All living things in all kingdoms are composed of the same matter. The cell is the smallest unit of life and also the most fundamental. However, if Foucault refers to Schleiden in his work at the turn of the 1970s, it is not to attribute to him the discovery of the cell or the development of this whole area of biological knowledge known as cell biology. Foucault was interested in Schleiden for his research on plant generation. The German botanist was one of the first to systematize the use of the Weiss microscope in his studies of plants. He claimed to have been able to observe the formation of the embryo in the plant. He maintained that the embryo forms in the plant at the end of the pollen tube, and that it consists of a development of the ovule. The embryo is therefore only a stage in the development of the ovule

9. Matthias Jakob Schleiden, 'Beiträge zur Phytogenesis', in *Archiv für Anatomie, Physiologie und wissenschaftliche Medicin*, 5(2), 1838, pp. 137–76.

and is a function of its growth. Consequently, there is no sexual generation; in other words, no conjunction between two distinct cells. Foucault, who devotes a multitude of notes to Schleiden's theories on phytogenesis, reports: 'People see in Schleiden's theory a reason to abandon plant sexuality and any parallelism with animals.'[10] Foucault made Schleiden the centrepiece of his research into the biology of sexuality. In fact, at the beginning of the nineteenth century Schleiden found himself at the confluence of a number of controversies concerning the biological understanding of sexuality. These questions preoccupied not only botanists but a whole generation of biologists and contributed to a reconfiguration of the understanding of the relationship between life and sex, decisive for the advent of modern biology. When Foucault examined the notion of scientific truth at the end of the 1960s, and rethought the function of error for scientific knowledge, he did so in the light of these debates. Schleiden's theory of embryo formation was based on a set of facts accepted as true in the botanical sciences of the time; in other words, it conformed to the rules of biological discourse. In this sense, Schleiden was 'in the true'. And although he made a scientific error in considering that the embryo was only a stage in the development of the ovule already contained in the plant, and in rejecting the idea of plant sexuality, it has to be said that this was a 'disciplined error': an error that respected the discursive rules of early modern biology. In his inaugural lecture at the Collège de France, Foucault declared:

> Schleiden, … denying plant sexuality in the middle of the nineteenth century, but according to the rules of biological discourse, was only formulating a disciplined error.
>
> It is always possible that we are speaking the truth in the space of a savage exteriority; but we are only speaking the truth by obeying the rules of a discursive 'police' that we must reactivate in each of our discourses.[11]

10. FFL, Box_039–6–chem | Around Schleiden, Reference b039_f0180.
11. Michel Foucault, *L'ordre du discours*, Gallimard, Paris, 1971, p. 16.

For Foucault, it was Mendel who spoke 'the truth in the space of savage exteriority'. Gregor Mendel, a nineteenth-century Prussian monk and botanist, conducted experiments on pea plants. By studying the transmission of a series of seven characteristics to subsequent generations of peas (shape and colour of the seed, colour of the flower, shape and colour of the pod, location and size of the stem), he isolated three laws of heredity and laid the foundations of genetic knowledge. However, Mendel's work was not widely acclaimed when he published it in the second half of the nineteenth century. Foucault had these words for Mendel in his inaugural lecture at the Collège de France:

> Mendel was telling the truth, but he was not 'in the truth' of the biological discourse of his time: it was not according to such rules that biological objects and concepts were formed; it took a whole change of scale, the deployment of a whole new plane of objects in biology for Mendel to enter the truth and for his propositions then to appear (for the most part) correct. Mendel was a monster of truth, which meant that science could not talk about him.

Foucault's interest in the knowledge of vegetality thus takes different forms. First of all, and this is what we are concerned with here, knowledge of plant sexuality is decisive for biological knowledge of sexuality in general, both animal and plant. Understanding the phenomena specific to plant generation involves fundamental discoveries for the modern life sciences and makes it possible to redefine the very concept of sexuality. Second, we are going to look at it now, by taking an interest in the knowledge of vegetality Foucault found material to formulate his own epistemology of the living, or a way of emancipating himself from the Bachelardo-Canguilhemian heritage and its Althusserian revival.[12]

12. On this point, see the excellent 'Situation du cours', written by Claude-Olivier Doron for the edition of the Vincennes and Clermont courses on sexuality.

The archaeology of plant knowledge

At the turn of the 1970s Foucault was first and foremost known to his readers and followers as the author of *Les mots et les choses* (*The Order of Things*). Foucault was someone who criticized humanism with the tools of epistemology; who was known for having written the history of 'Man' as an object of knowledge, of science. But the very end of the 1960s saw the transition from an archaeology of the [human] *sciences* to an archaeology of *savoirs* (knowledge), biological knowledge especially, or knowledge of vegetation.

This shift from science to knowledge reflects a rejection of scientism, which was one of the tendencies of French epistemology, from Bachelard to Althusser via Canguilhem. For Foucault it was no longer a question of analysing the theories, concepts and internal rationalities of scientific discourse. Nor was it a matter of highlighting a context or historical contingencies that were external to scientific discourse and shaped it. It was a question of resituating this scientific discourse in the form of a 'positive unconscious of knowledge': a set of rules and postulates that order its practice, define the mode of formation of its objects, the place of its subjects and the conditions of demarcation of science itself in the field of knowledge.

While scientific discourse must distinguish itself from the wider field of knowledge to assert its own positivity, it nevertheless remains linked to it. In the preamble to Lesson 6, Foucault announced that his analysis would focus on the relationship between the scientific discourse on sexuality, the social or cultural formation that regulates these questions of sexuality, and a set of as-yet-untheorized practices concerning sexuality. In other words, we need to understand sexuality as 'a phenomenon that emerges simultaneously in different discursive stratifications'.[13]

13. Foucault, *Le discours de la sexualité,* p. 154.

Scientific discourse occupies one of these strata, in the midst of other strata such as everyday, literary, moral, religious or legal discourse.

The theoretical gesture of subordinating science to knowledge enabled Foucault to embark on a critique of Althusser based on the notion of ideology. In his 1969 lecture, he issued a call to 'demolish with the greatest care the idea that ideology is a kind of great collective representation that constitutes, in relation to scientific practice, its exteriority and its obstacle'.[14] If we need to understand the biology of plant sexuality in the light of the practices that preceded and extended it (hybridization, for example), if we need to understand human sexuality in its biological and social dimension, by also taking an interest in its institutions (marriage, for example), it is because there is porosity between the different strata of discourse. Science is not impervious to what goes on beyond the boundaries of its positiveness. It must therefore be admitted that it can also function in an ideological mode. Ideology is not the domain from which knowledge, in order to become science, would have freed itself once and for all; it is not the negative of science; ideology can be functional in the space of scientific knowledge.

> To attack the ideological functioning of a science in order to bring it to light and modify it is not to reveal the philosophical presuppositions that may inhabit it; it is not to return to the foundations that made it possible, and which legitimize it: it is to call it into question as a discursive formation; it is to attack not the formal contradictions of its propositions, but the system of formation of its objects, its types of enunciation, its concepts, its theoretical choices. It means taking it up again as a practice among other practices.[15]

14. Ibid., p. 132.
15. Michel Foucault, *L'archéologie du savoir*, Gallimard, Paris, 1970, p. 243.

The history of the science of plant sexuality cannot ignore the problem of ideology and its effects on the positive study of the phenomena of plant generation. The many controversies that have surrounded these questions, and the lively, even passionate, nature of the debates on plant sexuality, are a symptom of this. From the end of the seventeenth century, supporters of plant sexuality were strongly opposed to those who defended the 'intangible virginity of nature'.[16] On the one hand, there were those for whom plant reproduction involved phenomena similar to those of animal reproduction. In both animals and plants '[s]exual generation occurs when a living organism encounters a cell that cannot develop on its own; it must encounter another cell.'[17] On the other hand, there are those for whom generation is a stage in the growth of plants, and not a specific function. For the latter, sexuality is specific to beings of the flesh, to 'sinful animality'.[18] However, as Foucault states in *The Archaeology of Knowledge*, his intention is not so much to uncover the philosophical presuppositions of this science of plants, or the old moral themes that continue to haunt it, but rather to 'call it into question as a discursive formation'.[19]

In Lesson No. 6, Foucault seeks to 'show that it was the very disposition of naturalist discourse that stood in the way [of the recognition of a sexuality for plants]'.[20] He insists that 'it is from there – from this discursive practice in its specific regularity – that imaginary investments and the organization of ideological themes were possible'.[21] The specific layout of a discourse makes certain facts enunciable, able to be conceptualized and

16. Foucault, *Le discours de la sexualité*, p. 169. On this point, see also François Delaporte, *Le second règne de la nature. Essai sur les questions de végétalité au XVIIème siècle*, Paris, Editions Contemporaines, 2011.
17. Foucault, *Le discours de la sexualité*, p. 25.
18. Ibid., p. 167. 'In particular, the theme of vegetable innocence and sinful animality. The plant reflects that part of man that is violent, carnivorous and sexual.'
19. Foucault, *L'archéologie du savoir*, p. 243.
20. Foucault, *Le discours de la sexualité*, pp. 166–7. 'Disposition *ie* the mode according to which he forms his objects, his utterances, his concepts.'
21. Ibid.

problematized; and at the same time, through the interplay of a whole 'discursive police force', this layout does not allow other facts to be said – it relegates a set of elements to the realm of the unspoken. This is exactly what happened, for a long time, with the sexuality of plants. Sexuality was the unspoken part of the discourse on plant life. Hybridization could be practised, or a plant could be described metaphorically as male or female, without admitting that plants were capable of sexuality. Yet Foucault insists that for scientific discourse this unspoken fact is 'a functional principle'. Like ideology, '[t]he unspoken in a scientific discourse is not the effect of an imaginary masking, or of a conceptual defect; it is the effect of the rules specific to a discursive practice and brought into play in that practice'.[22]

Finally, the last point that makes Foucault's archaeological project operational stems from a reflection on the categories of truth and error in scientific discourse. By attaching a positive value to error, Foucault obliges himself to study the very structure of scientific discourse, in the temporality of its enunciation. We must not adopt the retrospective gaze of the historian, charged with a posterior truth; rather, we must place ourselves within the discourses in order to understand what made them functional in the moment that was theirs.

It is in this sense that Foucault admits that Schleiden – by making the development of the embryo at the end of the pollen tube a stage in the plant's own growth, and thereby disqualifying the possibility of a specific sexual function in plants – was committing 'a disciplined error': he remained in line with the naturalist discourse of the time. It was in this sense, too, that Mendel seemed to Foucault to be a 'monster of truth'; despite the fundamental nature of his discoveries on heredity, in his day he was not *in the true.*

22. Ibid.

In his inaugural lecture at the Collège de France, Foucault used the example of the botanical sciences to show that

> [All disciplines] are made up of errors as well as truths, errors which are not residues or foreign bodies, but which have positive functions, a historical efficacy often inseparable from that of truths.[23]

Thus, Foucault's exploration of the knowledge of vegetality, and the more specific field of the early biology of plant sexuality, led him to formulate a series of principles (concerning knowledge, ideology, the unspoken, error) for the study of scientific discourse. It is an attempt to forge a new epistemology, emancipated from the Bachelardo–Canguilhemian heritage, and contrasting with Althusser's project for a theoretical refoundation of science. It is also a gesture of critique, of questioning what 'we are, do, say and think'.[24] The mission of archaeology is to outline the contours of anthropological thought.

Plant sexuality versus anthropological thought

The whole point of Lesson 6 for Foucault is to find, in the very disposition of naturalist discourse, the reasons why it was not possible, until at least the eighteenth century, to conceive of plants as having sexuality. In so doing, he brings to light the series of transformations required to generalize the phenomena of sexuality to the plant world. These transformations, characteristic of the transition from a natural history to a biological science,[25] had considerable effects on the way in which 'Man' himself could envisage his nature and his place in the world. It is because this modern biological knowledge has shaken up a

23. Foucault, *L'ordre du discours*, p. 35.
24. Michel Foucault, 'Qu'est-ce-que les Lumières?', *Dits et Écrits*, vol. IV, Gallimard, Paris, 1994, text no. 339.
25. See also the section on the transition from natural history to biology in Michel Foucault, *Les mots et les choses*, Gallimard, Paris, 1966.

certain number of certainties and reassuring humanist beliefs that Foucault is committed to conveying it.

The first characteristic element of naturalist discourse that needs to be overcome to give plants a sexuality is the confusion of phenomena relating to growth with those relating to reproduction, or the continuity of growth and reproduction. From this point of view, the multiplication of a plant by cuttings, by suckers or by seed makes no difference in nature as far as naturalist discourse is concerned. Phenomena involving the multiplication of a plant by itself, its individual growth, or those involving sexual reproduction are treated as equivalent.

For example, Aristotle, then Caesalpinus and Gletdisch, thought that the plant produces its seed from the pith, its richest nutritive principle. The development of the seed is the result of nutrition, followed by growth, and *ultimately* reproduction. There is a nutrition–growth–reproduction continuum, with no specific reproductive function. In plants, seed production appears to be a stage in the individual's own development.

So, in order to assert the existence of sexuality in plants, we need to dissociate reproduction from other vital phenomena and analyse each according to its own specificity. Foucault writes that this will require us to

> reverse the relationship between the individual and sexuality: sexuality is not placed at the end of development but at the beginning. Sexuality precedes the individual. And it is not the individual who, having reached a certain point of maturation, gains access to sexuality and blossoms in it.[26]

This point gives rise to a critique of sexuality as an anthropological theme. 'Man', through his sexuality, is merely taking part in a much wider programme over which he has no control. We are not fulfilled by our sexuality; it is our sexuality that is fulfilled

26. Foucault, *Le discours de la sexualité*, p. 171.

by us. Our children do not prolong us; they merely introduce variations into the species. According to Foucault 'The function of anthropological thought is to preserve man from these discontinuities and to bring his death, others and history within his reach.' From this point of view, sexuality is understood by 'Man' as the possibility of a 'relationship with others through the family and death'; this is precisely what the modern biology of sexuality will compromise.[27] If we are to accept the existence of sexual generation in plants, we will have to dissociate growth and reproduction, and think of a specific sexual function, a function that cannot be summed up as a stage in an individual's own development: in this way we will also have to rethink the relationship between reproduction and the individual.

The second characteristic element of naturalist discourse that needs to be overcome to give plants a sexuality concerns precisely the status of the individual. In natural history, the individual is described as the sum of a series of characteristics; these characteristics belong to them alone. Foucault writes: '[the] general functioning of natural history implies that there are only similarities between individuals. No meta-individual biological reality ... no identical functions but similar results through analogous organs.'[28] An individual relates to another only in terms of his representation. The fact that two individuals look alike does not imply that there is any real affinity between them. Natural history only proceeds by juxtaposing a series of beings; it has no explanatory value. It is purely representative.

Since the individual is a self-sufficient whole, there can be no 'meta-individual' reproductive phenomena: for natural history, there are only individuals that reproduce. There is no reason to think that these individuals cannot reproduce autonomously, cannot be self-sufficient. And even in cases where naturalists

27. Ibid., p. 175.
28. Ibid., p. 168.

observe a conjunction between two sexual organs, what they are concerned with is always the determination of which is the active individual, which is the individual that is thereby completing a stage in its own development. For example, one of the most important debates among naturalists interested in generation was that between spermatists and ovists. The former assume that the active principle of reproduction is contained in the sperm, or male semen, and that the egg or ovum is nothing more than a passive host, a habitacle. The latter consider that the male semen provides nothing more than a mechanical impulsion, which triggers the development of the active principle of reproduction already contained in the egg. In either case, only one individual can be active. The second is at most an adjuvant, working towards the development of the first individual.

Furthermore, the attribution of the quality male or female to an individual is not indexed on the assumption by one or the other of a specific function. There is no necessary correlation between the sex of an individual and its sexuality. A plant can be described as 'male' or 'female' without there ever being any question of sexuality. Sex is not a function; it is a character. One plant may be called male because it is strong, and another female because it has beautiful colours; naturalist discourse makes metaphorical use of the notions 'male' and 'female'. And since sex relates to the essence of an individual, it is impossible, from the point of view of naturalist discourse, to envisage an individual being of both sexes. Each being occupies a clearly defined place in the cosmos. Naturalist discourse has set itself the task of documenting the place of things in the world.

Thus, to grant plants as well as animals a sexuality, it will be necessary to replace the idea that the individual was a unit of representation with the idea that the individual was an organism, an assembly of functional organs, the quality of which varied from one individual to another, and which could

nevertheless be compared in so far as they fulfilled similar functions. It was necessary to 'dissociate the sexual organs from the individual characteristics'; it was necessary to 'discover that the individual is not male or female as it is big or small, but there is a male–female sexual organization that can be distributed over one or more individuals'.[29]

Here again, human sexuality takes a hit. From a general biological point of view, there is no need for two individuals of opposite and distinct sexes for sexuality to exist. From the moment that there is a conjunction of two cells from sexual organs, there is sexuality. It does not matter that these organs are carried by two distinct individuals. Nor does it matter that an individual retains the same sex throughout its life. In some hermaphroditic plants, it is alternately the male or female organ that is active.

By restoring the concept of sexuality to its general biological meaning, Foucault relativizes the importance that 'Man' gives to his own sexuality and underlines the fact that a certain number of the norms that surround the theme of sexuality have in reality nothing to do with life itself. From the point of view of life, sexuality is not the same as love, conjugality, the reproduction of the same, the complementarity of the sexes, the continuation of the self. On the contrary, sexuality is an act of discontinuity. He writes: 'Sexuality separates the individual from his successors … The individual communicates with his descendants only through the identity of the stock (which is at a meta-individual level).'[30] Both sexuality and death constitute a limit-experience for 'Man'. Foucault describes as *reactionary*

> any philosophy that reacts to the epistemological structure of biology by trying to compensate for it, by mixing it with the epistemological structure of the classical age (continuity and

29. Ibid., p. 171.
30. Ibid., p. 174.

> representation) and by refusing … to see in death an absolute and insurmountable limit of the individual, to see in love something other than love and reproduction.[31]

Thus, in the third and final structuring point of the naturalist discourse outlined by Foucault – a point that will have to be overcome in order to conceive of a plant sexuality – it is still a question of the individual and 'its absolute and impassable limits'. This is the idea that the individual has no functional relationship with their environment. The individual is in the world like an apple is in a tree, like a flower in a garden, like a bouquet in a vase. They are resting upon their environment. The environment is a backdrop, and the individual is functionally detached from it.

From this it follows that, when naturalists studied a phenomenon such as flower fertilization, they always had to pinpoint the place where the stimulation occurred. The environment could not intervene; the field of individual action had to be circumscribed. Any significant vital phenomenon had to occur at the level of the individual, which was the only significant unit from the point of view of life. Fertilization was therefore understood as stimulation. A stimulus activated a pre-existing sexuality in the individual, a mechanical dimension of sexuality through fertilization: the male organ had to touch the female organ or vice versa. Consequently, the existence of sexuality could only be accepted in living beings with locomotion, the ability to move. In other living beings, sexuality was neither possible nor necessary. For there to be sexuality, according to the naturalists, there had to be a well-defined male and female sexual organ in distinct individuals, and each individual had to be able to move in order to find in the other sex that enabled it to fulfil its own sexuality.

31. Ibid., p. 175.

If a female plant was found to bear fertile fruit when it was close to a male plant, it could be deduced that they had a certain liking for each other. The environment could not serve as a support for reproduction, and fertilization was understood as stimulation. And in so far as it was impossible for these cellulose beings to move, the question of sexuality did not arise. Sexual organs have no reason to exist if there is no possibility of them meeting. In a handwritten reading note, Foucault mentions the botanist de l'Écluse, who in the sixteenth century was studying the case of papaya trees, *Carica papaya*. Noting that female trees only bore papayas if they had grown close to male trees, de L'Écluse declared that they were united by 'mysterious affinities'.[32] For these affinities to be understood as sexuality, it would be necessary to admit that fertilization was not a simple stimulation, and that it does not boil down to the mechanical and localized meeting of two individuals with different sexual organs. Fertilization must be seen not as the result of stimulation, but as the transport of elements, and it must be admitted that the environment (wind, rain, insects) plays a decisive role in this. In a handwritten note Foucault wrote that in order to make plants sexual beings naturalists would have to 'dissociate fertilization from the spatial bringing together of the male and the female, that is to say: establish the indispensable existence of a material element, establish the methods or instruments of transport in an environment'.[33]

Through an analysis of naturalist discourse on the question of plant sexuality, using the tools of his *Archaeology*, Foucault brings to light the epistemological structure of the classical age (continuity and representation). He characterizes it in three points: continuity between growth and reproduction, sexuality subordinated to individuality, and fertilization understood as

32. FFL Box_045–2–chem | Before 1680. Rating b045_f0082.
33. Foucault, *Le discours de la sexualité*, p. 171.

direct stimulation. The epistemological transformations required to overcome this inherent disposition of naturalist discourse, which stood in the way of the conception of a plant sexuality, would result in a complete reconfiguration of the relationship between the individual, its sexuality and its reproduction. This brings us back to the few pages of Notebook no. 8 mentioned in the introduction – *Sexuality, Reproduction, Individuality*. The concept of sex is reworked from its more general biological meaning and distanced from its anthropological meanings. Sexuality is no more and no less than the phenomenon that allows certain cells to develop, generating a new individual, itself limited by its sexuality. This is the third reason for Foucault's interest in the knowledge of vegetality: to provide a hook for his critique of humanism, of sexuality as an anthropological theme. It's all about wounding 'Man', or a certain idea of 'Man', through life, through knowledge.

To conclude, the theme of plants, and Foucault's extensive reading of naturalists, botanists and plant biologists in the late 1960s, played a decisive role in the development of his archaeological programme. It was on the basis of the controversies surrounding plant sexuality at the end of the classical age that Foucault highlighted the epistemological transformations of the modern age and emphasized the subversive potential of the new biological knowledge for anthropological thought. It is in the singular element of naturalist discourse that he finds material to rethink the relationship between science and ideology, error and truth; and to reposition himself in relation to the history of science, or historical epistemology.

For the philosopher and the historian of science – or *archaeologist* – the plant object is of inestimable value: situated on the other side of the living kingdom, farthest from humanity, it constitutes the counterpoint to anthropological thought, its Other, its limit. It can offer refuge, but above all it allows us to

contrast: to reveal in filigree what characterizes our own thinking. Foucault assumes this gesture: by showing what we have been, what we have done or thought, he wants to give criticism 'the form of a possible crossing'.[34] Critical work, he writes, 'always requires work on our limits'. Sexuality is at the limit of the individual; for humans, it is a limit-experience. Plants are at the limits of the living world; for the anthropological subject, thinking about plants means experiencing their limits. For Foucault, then, plant sexuality appears as a formidable critical support. The very possibility of plant sexuality undermines the postulate according to which the sexual organ delivers the essence, or, let us say, the identity of the person who carries it; plant sexuality questions the dioecious norm, by making visible the vast majority of hermaphroditic individuals among plants; it disturbs ideas relating to the complementarity of individuals of opposite sexes; it puts into question the inescapability of sexual assignment or the invariability of sex in the same individual; it forces us to see in sexuality something other than love or reproduction.

In fact, in his reply to the Cercle d'Épistémologie at the end of the year 1970, Foucault declared, bringing to a close the period we have set out to illuminate: 'Knowledge is not there to console: it disappoints, it worries, it cuts, it hurts.'[35]

34. Foucault, 'Qu'est-ce que les Lumières?', text no. 339. 'The critical ontology of ourselves must be considered not as a theory, a doctrine, or even a permanent body of knowledge that accumulates; it must be conceived as an attitude, an *êthos*, a philosophical life in which the critique of what we are is both a historical analysis of the limits that are set for us and a test of their possible crossing.'

35. Michel Foucault, 'Sur l'archéologie des sciences, Réponse au Cercle d'épistémologie' in *Dits et Écrits*, vol. I, Gallimard, Paris, 2001, text no. 59.


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REPRODUCTION

5

Temporalities of reproduction: Buffon–Quesnay–Marx

PETER OSBORNE

Two sets of theoretical issues are at stake in the concept and problem of reproduction today.[1]

1. How are we to theorize the relationship between the concepts of production and reproduction within the 'total social process'? And, more specifically, what temporalities do they involve?
2. What is the relationship between the concept of reproduction within the history of the life sciences, on the one hand, and social and economic theory (and especially Marxism and Gender & Race Studies), on the other? Furthermore, how does the concept of reproduction help us to theorize the relationship between the Marxist critique of political economy and Gender & Race Studies themselves?

The two sets of issues are connected since the first question – 'How are we to theorize the relationship between production and reproduction within the total social process?' – raises the

1. This is a lightly revised version of a lecture delivered to the 2024 Graduate Conference of the Centre for Research in Modern European Philosophy (CRMEP), Kingston University London, 'Care, Commons, Reproduction', 24 May 2024.

matter of the extent to which what has become known as Social Reproduction Theory[2] is (a) to be considered a necessary 'supplement' to, or additive expansion of, Marx's account of capital accumulation within a more general theory of capitalist societies, or (b) requires a more fundamental theoretical revision of Marx's account of the total social process which would incorporate both Social Reproduction Theory and Marx's account of capital within a more overarching theoretical framework, mediating them more systematically within a refigured conception of history.

Connected to this question is that of the extent to which it makes sense to talk of a 'theory' of social reproduction, rather than something more like a general-theoretical framework constituted by concepts which require constant (re-)verification, modification and reinterpretation in relation to the results of empirical research, as its object, the total social process, constantly changes. Ultimately, what is at stake here, then, philosophically, for Marxism at least, is the extent of the applicability to socio-historical analysis of various of the systematic theoretical resources of German idealism; or, conversely, the extent to which those resources tend to foreclose the open historical dimension of such analyses. These are questions of methodology, and methodological self-understanding, under the general 'modern' conditions of the necessarily unfinished character – the often radically unfinished character – of systematic theoretical undertakings in general. In this context, let us recall that what we have as the circa four thousand published pages of Marx's *Capital*, Volumes 1–4, is a still largely draft version of Book 1 of what in 1858 was projected as a six-book *Critique of Political Economy*; the four-volume structure of which was only settled towards the end of the composition of the first edition of Volume 1, in October 1866. The ascent from the abstract to the concrete,

2. See Tithi Bhattacharya, ed., *Social Reproduction Theory: Remapping Class, Recentrering Opposition*, Pluto Press, London, 2017.

it seems, is a journey on which no single individual will ever arrive. This has significant implications for our understanding of the theoretical meaning of the basic categories of Marx's mature thought.

Before we get to Marx, though, let us begin with the apparent duality of the fields of usage of the term 'reproduction' in the life sciences, on the one hand (from mid-eighteenth-century natural history, through biology to evolutionary theory and beyond), and in economic contexts, on the other (from Quesnay and the Physiocrats through to Marx and his late-twentieth- and early-twenty-first-century interpreters). For in so far as the Marxian critique of political economy is to retain a meaningful relation to the materialism of the conception of history on which it was grounded, ongoing mediation of those two fields (life sciences and social and economic analysis) will be required. This mediation takes place primarily within the conceptual space of the problematic of reproduction.

Buffon's natural history

The duality yet interconnectedness of 'biology' and 'economics' is a product of the history of the academic division of labour and the transference of terms between disciplines at the moment of their formation, which continue to structure the theoretical meanings and functioning of the term 'reproduction' today. In the literature, the modern theoretical use of the term 'reproduction' is generally traced back, genealogically, to what is taken to be an emblematically first significant usage in mid-eighteenth-century natural history, in French, in volume 2 of Buffon's *Natural History* (1749). Following but significantly extending Abraham Trembley's 1744 use of the term to refer to the regeneration of limbs in crayfish claws and of polyps, Buffon used 'reproduction' to replace the Aristotelian 'generation' (meaning,

broadly, 'to come into existence') to produce an account of what Buffon himself called 'Reproduction in General'.[3] In extending the more literal Latinate usage of 'reproduction' (from *reproducer*e and *reproduction*, meaning 'to produce again', in the sense of copy) in this way, he thereby replaced 'generation' with a word the received meaning of which was broadly the very opposite of the way in which 'generation' had been understood.

The issue here is thus not etymological but historical-semantic: that is, it does not concern the recovery of, or truth to, some 'original' meaning condensed into the historical structure of the formation of the word, but rather new usages that carry new conceptual meanings by virtue of their place in new arguments, which become established and disseminated, in large part, via the cultural authority of particular texts – whether such usages be etymologically based or not.

In Buffon's case, this replacement was made possible by the way in which new observations and theories of 'generation as re-generation' (Trembley's crayfish claws and polyps) undermined the theological presuppositions of a previous, Christianized Aristotelian biological concept for which generation was (on François Jacob's canonical account at least) 'always the result of a creation, which, at some stage or other, required direct intervention by divine forces', and so was 'to some degree a unique isolated event'.[4] Instead, generation as 'reproduction' or 'the power [common to animal and plant] of producing its likeness' (Buffon's words) – *combining* old senses of production and reproduction within a new conception of reproduction

3. M. de Buffon, *Histoire naturelle, générale et particulière avec la description du Cabinet du Roi*, Volume II: *L'imprimerie Royale,* 1749, ch. II, 'De la Reproduction en général', pp. 18–41*;* Count de Buffon, *Natural History, General and Particular, Translated into English and Occasional Notes by William Smellie*, Volume 2, ch. 2, 'Of Reproduction in General', 2nd edn, W. Strahan & T. Cadell, London, 1785, pp. 16–38; For the significance of this moment within a broader semantic history, see Nick Hopwood, 'The Keywords "Generation" and "Reproduction"', in N. Hopwood, R. Flemming and L. Kassell, eds, *Reproduction: Antiquity to the Present Day*, Cambridge University Press, Cambridge, 2018, pp. 287–304.

4. Francois Jacob, *The Logic of Life: A History of Heredity* (1970), Princeton University Press, Princeton, 2022, pp. 19–20; cited by Hopwood, p. 288.

– understood the process more naturalistically, as a 'chain of successive existences of individuals, which constitutes the real existence of the species'. *Reproduction is the real existence of the species.* 'Reproduction' thus became the name for nature's 'methods' of 'renewing organized beings'.[5] The focus shifts from the individual to the species as the 'chain of individuals', thereby introducing a *new temporality of the succession of generations* as the medium of species as natural facts.[6] Subsequently, even more generally, reproduction would thus become conceived as 'the defining "aim" of life'; something it remains for Darwinian molecular biologists today.[7] To put it in the classical terms used by Étienne Balibar in his essay 'Reproductions': a combination of a naturalized *genesis* (coming into being) and *poesis* (a making, in the case of animals usually through sexual relations) are added to the sense of reproduction as *mimesis* (a copying) to replace the theological conception of genesis of the Aristotelian 'generation'.[8] As a result, life itself (that is, 'organized beings') acquired *periodicities* or *repetitive cycles* which require the production of new individual beings.

In its general modern sense, then, reproduction has its genealogical starting point in the transition from a largely theological natural history (within Aristotelianism's Christianized conceptual space) to the beginnings of modern biology, and also, it should be added, in parallel, within the modern history of medicine, where the emphasis on the sexual character of reproduction is more pronounced.[9] In the case of humans, this medical

5. Buffon, *Natural History*, vol. 2, p. 16; translation amended in line with that by J.S. Barr of the excerpt published in John Lyon and Phillip Sloan, eds, *From Natural History to History of Nature: Readings from Buffon and his Critics*, University of Notre Dame Press, Notre Dame IN, 1981, p. 170.

6. Arguably, this notion was already implicit in John Ray's introduction of the concept of species as a systematic unity in his *Historia Plantarum* of 1686. For the development of Buffon's concept of species, see Paul L. Farber, 'Buffon and the Concept of Species', *Journal of the History of Biology*, 5(2), Autumn 1972, pp. 259–84.

7. Hopwood, 'The Keywords "Generation" and "Reproduction"', p. 288.

8. Étienne Balibar, 'Reproductions', *Rethinking Marxism*, 34(2), 2022, pp. 142–61, p. 142.

9. There is now a large feminist literature in the history of medicine on this topic.

context introduced a conception of reproductive *practices*, with an ineliminable *social and political* dimension, opening up the possibility of technologies for the modification of such practices. This was crucial to the emergent concept of 'population' – the totality of the results of human sexual reproduction within a given territory posited as the object of possible governmental intervention – which, for Foucault, marks the constitution of modern economics as part of a wider bio-political paradigm.[10]

Production

'Production', on the other hand, in the sense of 'bringing forth' (literally, *pro-ducere*) some new thing – contained now *within* the new concept of reproduction – is a term that was initially closer to 'generation' than reproduction had been, and indeed remains closer to generation than it does to the naturalized sense of 'reproduction' within which it is contained. The difference being that with 'production' the sense of the 'coming into being' or 'bringing forth' of *individual* things was understood as always a result of some 'action, process or effort'. In this, its late medieval coinage in English followed its Stoic Latin usage. Production is a Stoic concept. According to the lexicographers, 'production' first acquired a distinctively modern usage, earlier than 'reproduction', in a context of drama, in the late sixteenth century, in its meaning of 'bringing a performance before the public'[11] – it is still used like this, of course – before increasingly being used in

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See, for example, Ludmilla Jordonova, *Nature Displayed: Gender, Science, and Medicine, 1760–1820*, Longman, London and New York, 1999.

10. See Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France, 1977–1978*, trans. Graham Burchell, Picador, New York, 2007, especially lectures 2–4; *The Birth of Biopolitics: Lectures at the Collège de France, 1978–1979*, trans. Graham Burchell, Picador, New York, 2008, lectures 2 and 3. For the argument that Buffon's model for 'reproduction in general' is actually vegetal, rather than animal, as a result of his overarching interest in the theorization of 'life', see Stella Sandford, 'The Vegetal Model: Buffon's General Theory of Reproduction', forthcoming in the journal *Philosophy and Biology*.

11. Cited in the *Oxford English Dictionary* in a usage from 1585.

an economic context to mean 'the process of *making or growing* goods to be sold'[12] or more broadly of 'goods available for use'.[13] More specifically, in this economic use, it refers to methods of turning raw materials into finished or semi-finished products: that is, 'making something out of something *already existing*'.[14] In this respect, it is contrasted with 'creation' (for which the model was God's *creation ex nihilo*) and thereby also with the Christianized 'generation'. This opposition between creation and production is one that Lamarck, for example, would come to stress, at the outset of the nineteenth century, in his theory of evolution.[15]

The standard modern, economic usage of 'production' can, in turn, be contrasted with Kant's innovative, alternative modern use of 'production' in the first edition of *Critique of Pure Reason* (1781) in his account of the 'productive imagination', where a mysterious spontaneity is identified as the source of the 'productive act' of transcendental synthesis in general; which is more akin to the creativity of the divine act of generation than to anything 'economic', although here it resides in the 'unknown' depths of transcendental subjectivity itself.[16] This further but differently distances the meaning of 'production' from 'reproduction' in its modern, post-Buffonian sense. Indeed, in Kant 'production' appears in explicit opposition to reproduction, in the differences between the productive and the reproductive imaginations, where the latter, associated in particular with the 'synthesis of reproduction', in the first edition of *Critique of Pure Reason*, retains its more literal Latinate sense of re-production as a form of repetition.[17] This is Kant's transcendental version of

12. 'Production', *Cambridge Dictionary*.
13. 'Production', *Merriam-Webster Dictionary*.
14. Susanne Lettow, 'Generation, Genealogy, and Time: The Concept of Reproduction from *Histoire Naturelle* to *Naturphilosophie*', in Susanne Lettow, ed., *Reproduction, Race, and Gender in Philosophy and the Early Life Sciences*, SUNY Press, New York, 2018, pp. 2–43, p. 24.
15. Ibid., p. 22.
16. Immanuel Kant, *Critique of Pure Reason* [1781; 1787], trans. Paul Guyer and Allen W. Wood, Cambridge University Press, Cambridge, 1998, A115–125, B150–152.
17. Ibid., A100–103.

the Lockean theme of memory as the ground of the continuity of consciousness. This sense of a 'reproductive' repetition as the means for the establishment of temporal continuity will be equally central to Marx, at a social level, in *Capital*, as the methodological starting point for his central concept of accumulation as 'expanded reproduction'.

It is through the contrast between the concepts of *productive* and *reproductive* imaginations that Kant introduced what would become a specifically modern concept of *artistic* production, via his associated account of genius and the 'original exemplar', thereby philosophically inaugurating the whole onto-theological Romantic tradition of creativity in the arts; the misplaced liberal-individualist version of which we continue to suffer today, in ever more ideological waves, from art schools through curatorial discourse to management theory.[18] In the late-eighteenth to early-nineteenth-century context, not only was a Romantic artistic 'production' differentiated from craft/*techne*, but craft itself was increasingly supplanted within the economic concept of production by a conception of work based on wage-labour. Wage-labour alienates the labouring subject from command over the structure of their production (production becomes a name for the labour process), once it is subjected to the quantification of time as a determinant of its value, measurable in units of 'linear' or chronological time. We can thus begin to see the emergence of two different temporal regimes, associated with the concepts of reproduction and production, respectively, with the temporality of production nonetheless functioning as an elaboration of one aspect of the temporality of reproduction itself.

18. See Peter Osborne, 'Creativity as a Transdisciplinary Concept', in Pier Paulo Bellini, Marco Stefano Birtolo and Rebeca Andreina Papa, eds, *The Creative Gesture*, Palgrave Studies in Creativity and Value, Palgrave Macmillan, London, forthcoming 2026.

REPRODUCTION	PRODUCTION
Succession	Linearity, Quantifiability
Periodicity (generational lifespan)	
Repetition	
Cyclicality	

FIG. 1

However – and this is the important bit – when the term 'reproduction' was first introduced as a concept into mid-eighteenth-century economic theory, at the moment of the birth of 'economics' as political economy, it was not merely in its literal, Stoic sense of 'production again or anew', but rather as a result of a quite specific transfer of Buffon's natural-historical usage.

Quesnay's natural economy

The transfer of the concept of reproduction from Buffon's natural history into the field of economics first appears in the second, 1759, version of the famous *Tableau économique* of Buffon's dinner companion, the Physiocrat François Quesnay (fig. 2), a decade after Buffon's use of the phrase 'reproduction in general' in volume 2 of his *Natural History*.[19] It refers there, in a *naturalistic*-economic usage (prefigurative of an certain ecological imaginary), to 'the renewal of nature in an economy of circulation and replenishment'[20] focused on the annual replacement of what consumption had destroyed. Later editions of Quesnay's early medical writings (he was the physician to Louis XV), preceding both the *Tableau* and Buffon's *Natural History*, had used the term 'reproduction' in Trembley's physiological sense of

19. François Quesnay, 'Appendix B, The "Second Edition"', in *Quesnay's tableau économique*, ed. Marguerite Kuczynski and Ronald L. Meek, Macmillan, London, 1972. For a comprehensive account of the background and context of this transition, critically appraising the recent literature on the subject, see Elisabeth Wallmann, 'All Production Is Reproduction: Physiocracy and Natural History in Eighteenth-Century France', *History of Political Economy*, 54(1), 2022, pp. 75–108.

20. Hopwood, 'The Keywords "Generation" and "Reproduction"', p. 295.

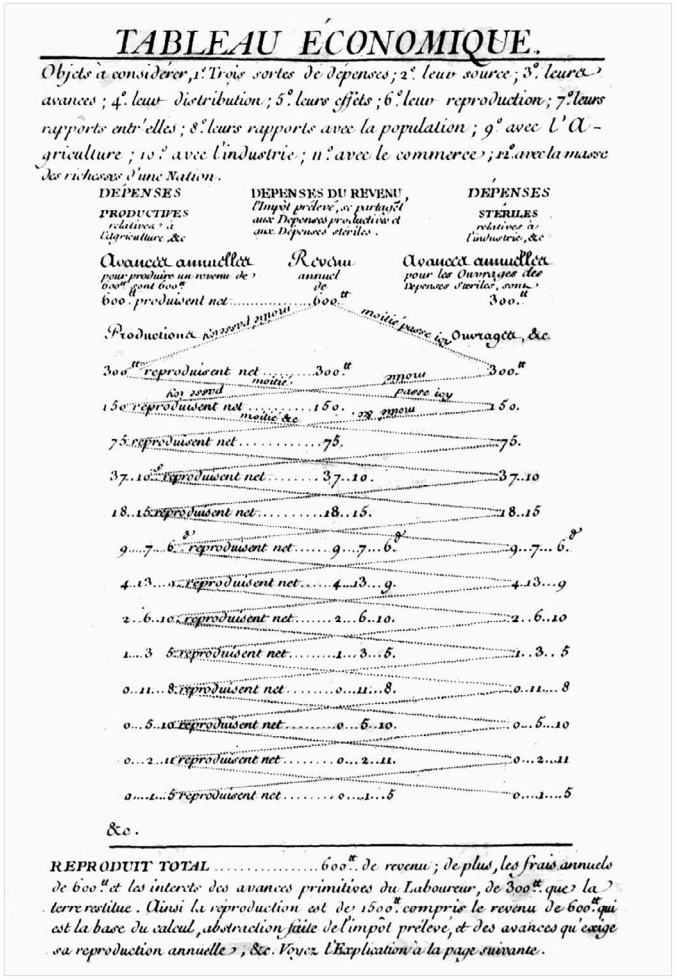

FIG. 2 Quesnay, *Tableau économique*, 'third edition', 1759. Hagley Museum and Library.

regeneration,[21] but in the 1759 *Tableau* 'reproduction as regeneration' acquired a specifically social sense, to refer to 'everything produced by a society in a given year' (that is, new goods), which was to be matched against everything consumed.[22] This socio-

21. Wallman refers us to the 2nd editions of Quesnay's *Essai physique sue économie animale* (1747) and *Traité des effets de la l'usage de la saignée* (1750).

22. Wallmann, 'All Production Is Reproduction', p. 80. Quesnay first used the term this way in his 1757 *Encyclopédie* entry 'Hommes', which, although unpublished for a century

economic use was, on the one hand, a simple extension of its naturalistic use, since economic production was taken to follow natural laws, but it was also explicitly 'governmental' since, on the conjointly medical and agricultural model that formed the practical context here, knowledge of these laws was understood to allow for beneficial intervention to improve the human condition. It was Quesnay's exclusive, physiocratic focus on land as the source of all wealth that made both this displacement and a focus on the production of value possible. For Quesnay, we might say – and this is my central point here – transferring Buffon's definition of the species to the economy: *reproduction is the real existence of the economy*. This is the crucial secret proposition of the *Economic Tableau*; crucial, that is, in its implications for a 'reproductive' reading of Marx's *Capital*.[23]

Marx's critique of political economy

In *Capital*, *Volume 1*, Marx takes up Quesnay's concept of reproduction into what Marx calls 'Simple Reproduction' (the title of Chapter 23), or at least, he claims to find the *source* of his own analogous but distinctively different concept of reproduction there, in Quesnay freed from the Physiocratic naturalism of value. In chapter 19 of *Capital, Volume 2*, Marx ascribes to the Physiocrats 'the first systematic conception of capitalist production'.[24] For Marx, though, rather than a real state of

and a half, circulated at the time among his intellectual circle in France; as did the first three versions of *Tableau*. For an account of the relations between the early versions of Quesnay's *Tableau*, see Charles Löic and Christine Théré, 'A Note on the Early Versions of the *Tableau économique*', *History of Political Economy*, 55(1), 2023, pp. 145–72.

23. Despite the (unattributed) borrowing of her title from Marx – 'every social process of production is at the same time a process of reproduction', see below – Wallman makes no reference to Marx, Marxism or the social reproduction theory that form the current context for the revival of interest in this late-eighteenth-century French moment of the Physiocratic formation of the modern discipline of political economy.

24. Karl Marx, 'The Physiocrats', in *Theories of Surplus Value (Volume 4 of Capital), Part 1*, trans. Emile Burns, Lawrence & Wishart, London, 1963, ch. 2, pp. 44–68; Karl Marx, 'The Physiocrats', in *Capital: A Critique of Political Economy, Volume 2*, trans. David Fernbach, Penguin Books/New Left Review, London, 1976, pp. 435–8, p. 436.

affairs, 'simple' reproduction – the return to the starting point of a process of circulation in which the value component at the outset and conclusion remain the same – is an analytical model from which to explain, *by contrast*, the specificity of capitalist production as a process of 'accumulation' through 'expanded reproduction'. For Marx, 'expanded reproduction' is the technical meaning of capitalist accumulation, of which, for Adorno, 'the new' is the 'aesthetic seal'.[25] In capitalist societies, the new is thus not opposed to reproduction (repetition) but is its specific medium. Here reproduction is not the reproduction of nature (as in Quesnay) but the reproduction of the value-content of production. This involves a new *temporalization* of production:

> Whatever the social form of the production process, it has to be continuous, it must periodically go through the same stages [*Stadien*] always anew [*stets von neuem*]. A society can no more cease production than it can cease to consume. When viewed, therefore, as a constant connection [*einem stetigen Zusammenhang*], and in the permanent flux of its renewal [*dem beständigen Fluss seiner Erneuerung*], every social process of production is at the same time a process of reproduction.[26]

Furthermore:

> If production has a capitalist form so too will reproduction. Just as in the capitalist mode of production the labour process appears only as a means towards the process of valorization, so in the case of reproduction it appears only as the means of reproducing the value advanced as capital, i.e. as self-valorizing value.[27]

Reproduction is the real existence of capital.

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25. Karl Marx, *Capital: A Critique of Political Economy, Volume 1*, trans. Ben Fowkes, Penguin Books/New Left Review, London, 1978, chs 24 and 25; *Capital 2*, chs 20 and 21. It is symptomatic of the structure of repetition here – but also a methodological tension – that *Capital 1*, ch. 23 and *Capital 2*, ch. 20 have the same title: 'Simple Reproduction'. Re. the 'aesthetic seal', see Adorno, *Aesthetic Theory*, trans. Robert Hullot-Kentor, Minnesota University Press, Minneapolis, 1997, p. 21.

26. Marx, *Capital 1*, Ch. 23, p. 711, translation amended. Karl Marx, *Das Kapital: Kritik der politischen Ökonomie, Erster Band* [4th edn, 1890], Karl Dietz Verlag, Berlin, 2008, p. 591.

27. Ibid.

Marx breaks this down into three main phases:

> The transformation of a sum of money into the means of production and labour-power is the first movement undergone by the quantum of value which is going to function as capital. It takes place in the market, within the sphere of circulation. [Note: capitalist production begins in circulation – PO.] The second phase of the movement, the process of production, is complete as soon as the means of production has been converted into commodities whose value exceeds that of their component parts, and therefore contains the capital originally advanced plus a surplus-value. [Third] These commodities must then be thrown back into the sphere of circulation. They must be sold, their value must be realized in money, this money must be transformed once again into capital, and so on, again and again. This cycle [*Kreislauf*], made up of successive phases, forms the circulation of capital.[28]

Production is one of three phases internal to the circulation of capital: not the first one, as people tend to assume, but the *middle* one of three.

So why am I citing these chunks of *Capital, Volume 1*? For two reasons. First, to introduce just some of the main temporal terms that make up the conceptual structure of *Capital*, whereby Buffon's general concept of reproduction is further elaborated with respect to flux, renewal, circulation and its phases (FIG. 3).

REPRODUCTION	PRODUCTION
Succession	Linearity, Quantifiability
Periodicity (generational lifespan)	
Cyclicality	
Repetition	
Flux	
Renewal	
Circulation	
Phases	

FIG. 3

28. Marx, *Capital 1*, ch. 23, p. 709, translation amended; *Kapital 1*, p. 589.

You can see how it quickly becomes quite complicated from just a few selected passages.

Second, and more importantly, because what we can glimpse here, still within *Capital, Volume 1* is the *theoretical primacy of reproduction over production* within Marx's famously 'productivist' critique. This has fundamental consequences too numerous to enumerate here. This primacy derives from the naturalistic basis of Marx's materialist conception of history – the need of human beings to reproduce themselves as natural, biological beings – that is, from the sense of reproduction as 'the real existence of the species' introduced by Buffon, and extended via its displacement by Quesnay into what I have proposed is the basic meaning of his *Tableau Économique*: namely, 'reproduction is the real existence of the economy'. In Marx's materialist conception of history, reproduction as 'the real existence of the species' takes place *socially* through reproduction as 'the real existence of the economy'. Indeed, this is its basic premiss: namely, that it is the social production of the means of life that distinguishes 'humans' from other animal species, once the collective production of the means of life generates new needs for the production of the means of production themselves. It is this 'production of new needs', according to Marx and Engels in *The German Ideology*, that is 'the first historical act'.[29] It inaugurates a new temporality: a social temporality that is also 'historical' in its expansion of human needs. The social appears here as an ontologically emergent aspect of human life, an evolutionary, species-specific response to biological imperatives. Note: it is not solely the collectivity of the 'production' of the means of life that is required (it can be said that other primates do this: the object of 'primate sociology'), but also the inauguration of

29. Karl Marx and Fredrick Engels, *The German Ideology* (1845–6), in *Collected Works*, Volume 5, *Marx and Engels: 1845–1847*, Lawrence & Wishart, London, 1976, pp. 31 and 42–3.

a developmental dynamic of the production of new needs out of the differential means of socially fulfilling existing needs. However, and this is my point here, the primacy of production as a differentiating feature of the human is *internal* to the more basic primacy of reproduction – the continuation of *biological life*, on both a daily and a generational basis – that is fulfilled here under specific social conditions. This expands the concept of the economy, anthropologically, to include all the conditions for the reproduction of human lives.[30] Methodologically, the crucial term here is 'condition'. I'll come back to this.

Marx recognized this, but then, within his self-understanding of the methodological limitations of *Capital* as a reconstruction of the dynamic structures of the capitalist mode of production based on an immanent critique of political economy, he came, crucially, *systematically*, to exclude certain of these social conditions: both 'internal' and 'external' to his model of capital, based on the economic history of Britain as a capitalist society. Here is the exclusion:

> The capitalist process of production, therefore, seen in connection or as a process of reproduction, produces not only commodities, not only surplus-value, it produces and reproduces the capital-relation [*Kapitalverhältnis*] itself, on the one side the capitalist, on the other the wage-labourer.[31]

The last part of this sentence involves an equivocal identification of (i) the reproduction of the social relation itself – a relation of power and exploitation – which is a consequence of the relation of '*separation* between labour-power and the conditions of labour',[32] of which the wage-form is *one* form (slavery within capitalism would be another), with (ii) the both daily and generational reproduction of the *lives* of capitalists, of wage-labourers,

30. Cf. Georg Lukács, *The Ontology of Social Being 2: Marx's Basic Ontological Principles*, trans. David Fernbach, Merlin Press, London, 1978, p. 5.
31. Marx, *Capital 1*, p. 724, translation amended; *Kapital 1*, p. 604.
32. Ibid., p. 723.

and also, but crucially unmentioned, the lives of all *un*waged others required for such reproduction. That is, not simply the 'structure' but its embodied 'bearers' (*Träger*) in an extended reproductive sense. Marx fails to incorporate the necessary labour of unwaged others, explicitly or systematically, into his account of capital, although the conceptual space for such an account lies dormant within his concept of reproduction, as the reproduction of the conditions of the capital relation.

From the anthropological standpoint of the continuation of the species through the reproduction of its individuals (sexually, albeit sometimes in a technologically assisted manner, IVF, etc.), we need to include (i) wage-labourers (including those unemployed, in the relative surplus population), (ii) capitalists (whose personal consumption decisions are by no means irrelevant), and (iii) all *un*waged reproductive labourers: classically, within families (as feminists have pointed out since the 1970s) but also those unwaged 'productive' labourers (generally but not exclusively in ex-colonies) upon whom particular processes of production depend for the components of their productions. This is the constitutive moment of colonial and post-colonial relations in not simply the formation but the reproduction of European capitalism; and subsequently its problematically global forms.[33] These are labourers whose labour tends to be most rigidly structured by racial and gendered differentials, dependent in large part upon the cultural heritage of patriarchal religions as well as colonial relations.

It was Althusser, most famously, who picked up on the extended consequences of the first, 'structural', meaning of this sentence of Marx's from the end of chapter 23 of *Capital, Volume 1*, regarding the reproduction of the social relation itself. 'The

33. See Morteza Samanpour, 'How to Incorporate Colonialism into Marx's *Capital*', in Peter Osborne, ed., *Futurethoughts*, CRMEP Books, Kingston upon Thames, 2024, pp. 166–92.

Reproduction of The Relations of Production' is the title of chapter 9 of his 1970 manuscript 'On the Reproduction of the Apparatuses of Production' (published belatedly, in 1995, as *On Reproduction*).[34] This text is historically important for its rejection of the so-called productivism of the analytical primacy of the productive forces. However, still in thrall to the topography of base and superstructure, despite their rethinking in terms of 'levels' or 'instances' within a theoretically novel conception of the 'social whole', Althusser explored this concept primarily via that of the ideological state apparatuses, within an expanded concept of the state. The book of which the manuscript was to have been a part was to be called 'On the Superstructure'. It focused on law and, especially, in competition with the sociological problematic of Pierre Bourdieu and Jean-Claude Passeron, in the wake of May 1968, 'the capitalist school'.[35] Today we would certainly have to include 'the capitalist university'. State education, along with the media, being understood to have displaced the family and the church as the primary mechanisms of socialization, unwaged labour within the reproductive function of the family was thereby occluded from this particular debate, as was the context of post-colonialism.

From the standpoint of our interests here, it is important to note that all of these sites of reproduction, outside of the waged labour-process itself, have their own temporal rhythms, associated with different forms of everyday life and cultural-historically structured stages of life and life practices – about which there is a huge literature in the sociology of time.[36] They

34. Louis Althusser, *On the Reproduction of Capitalism: Ideology and Ideological State Apparatuses* [1970/1995; 2011], trans. G.M. Goshgarian, Verso, London and New York, 2014.

35. Bourdieu and Passeron's 1970 book on the French educational system was itself entitled *On Reproduction*; translated by Richard Nice as *Reproduction in Education, Society and Culture*, Sage, London, 1977. Bourdieu's introduction effectively accuses Althusser of having stolen its ideas, since Bourdieu presented parts of it in Althusser's seminars.

36. See, in particular, the journal *Time & Society*, 1992 to the present, published by Sage.

are also important political determinations of wages themselves, in their cultural-historical aspects, of which gendered and racialized differentiations are predominant. Nor should we consider the multiplicity of social reproductive practices at stake here as being in any way self-contained or simply correlated to identities. Rather, from the standpoint of post-Kantian concepts of experience we can say that 'experience' is the *existential articulation of the pluralities of temporalities of reproduction through and within which any particular human individual lives*. These articulations are generally multiply contradictory, pulling in different directions, demanding constant mediation in various ways (think of your own lives); in the same way that the different sectors of the economy are relationally dynamic in its inherent tendency towards crises of disproportionality. Politics, we might say, is the attempt to actively intervene in the structures and relations of temporalities of reproduction, which include those of production itself as its middle segment.

Reading *Capital*, temporally

In conclusion, I would like to make two brief points about the implications of this analysis: one concerns temporal readings of the relations between the first three volumes of Marx's *Capital*; the other is more broadly methodological and follows from that reading.

Ever since Stavros Tombazos's groundbreaking 1994 book *Le temps dans l'analyse économique: Les Catégories du temps dans le Capital*,[37] there has been a tendency to accept that each of the three volumes of *Capital* corresponds to a particular socio-economic temporality, defined topically by the subtitle of each book: Book I. *The Process of Production of Capital*; Book II. *The*

37. Published in English as Stavros Tombazos, *Time in Marx*: *The Categories of Time in Marx's 'Capital'*, Brill, Leiden and Boston MA, 2014.

Process of Circulation of Capital; Book III. *The Process of Capitalist Production as a Whole* – or, *The Complete Process (der Gesamtprozess) of Capitalist Production* might be a better translation. This gives us: (i) a *linear* temporality of production; (ii) a *cyclical* temporality of circulation, reproduction or circuits ('circulation time', 'turnover time' and the 'times of reproduction' – simple and expanded); (iii) the time of *the complete process.* In line with the 'Capital logic' school of Hegelian interpretations of *Capital*, Tambazos calls this third time 'organic time'. This extends his mapping of Book II of *Capital* onto the treatment of reproduction as part of the category of 'life' in Hegel's *Science of Logic*, to the temporal structure of the life of an organism. This is a powerful and productive reading, but there are several problems with it, two of which I will mention here.

First, as we have already seen, within Marx's exposition in Volume 1, *production is already a part of reproduction*: the second phase in a three-phase circulation of capital. Its 'quantitative linearity' is thus always already a moment or segment or a cycle. Hence the repetition of 'simple reproduction' across Volumes 1 and 2; and also the appearance of 'The Working Period' and 'Production Time' within Volume 2 (chapters 12 and 13), rather than Volume 1. In fact, there is a constant criss-crossing of production and reproduction across the first two volumes of *Capital*, within the more general category of circulation. (Two chapters in Volume 2 even have the same title of 'Circulation Time', chapters 5 and 14.) When you look in detail at the internal structures of Volumes 1 and 2 of *Capital*, it is less a 'systematic dialectic' on the model of Hegel's logic than a wild and wonderful blend of systematicity and unresolved organizational chaos (though this might also be said, at times, of Hegel's *Science of Logic* itself).

Second, the treatment of the temporality of the 'complete process' as 'organic' is highly artificial and deeply dubious. This is not only because the game of mapping Hegel's *Logic* onto Marx's

Capital, at the level of the whole of each, is a badly misplaced formalism, but because, while the organicism of the category of 'life' in Hegel's logic makes sense as part of his overall system (on its way to the system transition from logic to nature), capital is a *social* form – a social relation, in fact – which is the product of particular, enormously complicated social histories. And whilst it may appear 'structural' in its analytically idealized 'simple reproduction', the developmental tendencies of capital are based on a logic of *surpluses* and *crises* which are the products of practical, conflictual socio-political responses to situations for which the medical model of the 'health of the organism' concerning profit, different forms of money capital, crises and ground rent (the contents of Volume 3) is wholly inadequate. The key word shared by the titles of all three books is *process:* a process that is presented as complexly structured, complexly contradictory and empirically open-ended.

What, then, does this mean for the systematic aspect of the presentation? First, it means (as Althusser saw) that it is radically non-Hegelian at the level of the whole; although (contra Althusser) Hegelian logical structures are deployed regionally to expound particular relations. As Jacques Bidet has put it: Hegel's logic has the productive status of an *epistemological obstacle* in Marx's critique of political economy.[38] The relevant Bachelardian category here is less 'rupture' than 'obstacle'. This reopens the exposition, methodologically, at the level of the whole, to conjunctural articulations of a more methodologically Kantian *serialism of conditions*, the relations between which are constantly shifting, not only historically, but also politically, as the spatio-temporal dynamics of capital itself expand and contract. Reproduction is the primary explanatory theoretical category,

38. Jacques Bidet, 'Hegel, an Epistemological Support/Obstacle', in *Exploring Marx's 'Capital': Philosophical. Economic and Political Dimensions* (2000), trans. David Fernbach, Brill, Leiden and Boston MA, 2007, pp. 183–92.

but its antithesis, 'non-reproduction' – as some call failures of reproduction[39] – is equally political important. This leads Marx to a new set of temporal categories, in his discussion of crises across Volumes 2 and 3 of *Capital*: minimally, (fig. 4):

REPRODUCTION	PRODUCTION	NON-REPRODUCTION
Succession	Linearity, Quantifiability	Interruption
Periodicity		Disjunction
Cyclicality		Disproportionality
Repetition		Crisis
Flux		
Renewal		
Circulation		
Phases		

FIG. 4

Not only is 'production' internal to 'reproduction', but reproduction contains within itself, as a permanent and repeatedly actualized threat, the possibility of non-reproduction: the going out of existence of those individuals the successive chain of which constitutes the 'real existence' of the species and the economy alike.

39. Chantal Jaq, *Transclass: A Theory of Social Non-Reproduction* (2014), trans. Gregory Elliott, Verso, London and New York, 2023.

6

The lived experience of real abstraction: race, gender and class in contemporary feminist paradigms

KATRINE HØGHØJ

In the past twenty years, two concepts from the heyday of the women's movement – *social reproduction* and *intersectionality* – have found their way back into the centre of feminist debates. Undoubtedly the most popular of these two concepts, 'intersectionality' has not only been hailed as 'the most important theoretical contribution that women's studies, in conjunction with related fields, has made so far',[1] it has become the formal identity of gender studies as a discipline, no longer defining itself in terms of gender alone but rather in terms of the inequalities of race, class, gender, sexuality and other categories.[2] Though the concept of social reproduction has by no means had the same broad impact, Marxist-feminist frameworks explaining gendered oppression with reference to women's role in reproducing labour-power have indeed undergone a revival with the general renewed interest in Marxism following the financial crisis of 2008–09. We see this resurgent interest in the increase in publications around care and the 'crisis of care', a reinvocation of Marxist-feminism's most infamous proposal, the abolition of the family,

1. Leslie McCall, 'The Complexity of Intersectionality', *Signs*, 30(3), 2005, p. 1.
2. See Tuija Pulkkinen, 'Identity and Intervention: Disciplinarity as Transdisciplinarity in Gender Studies', *Transdisciplinary Problematics*, *Theory, Culture & Society*, 32(5–6), 2015, pp. 183–205.

and in the development of the social reproduction perspective into a theory and a methodology, with followers referring to themselves as 'social reproduction theorists' and to their theoretical endeavour with the acronym 'SRT'.[3]

Though oftentimes opposed to one another as 'Marxist' and 'non-Marxist' respectively, the two theoretical frameworks to which these concepts have recently given rise, social reproduction theory and intersectionality theory, have a number of things in common. In so far as they define their object of study not as gender relations or the situation of women but as the interrelations of gender, race, class, ethnicity, sexuality and other categories, both frameworks are symptomatic of a dissolution of 'women' (women as such, women in general, all women) as a unified feminist subject. The initial critical gesture of intersectionality as an intervention in the women's movement of the 1960s and 1970s was to point out that women do not have shared interests and experiences simply by virtue of being women. In a contemporary context, intersectionality is paradoxically both a paradigm for feminist studies and an immanent critique of gender studies as a discipline. By downplaying gender, 'the identifying focus of the field', in favour of other categories, intersectionality identifies 'the discipline of gender studies by dis-identifying it', as Tuija Pullkinen puts it.[4] In contrast to intersectionality, social reproduction theory is not so much an intervention in feminist studies as it is an intervention in Marxist theory. However, similarly to intersectionality, recent social reproduction theory downplays gender, or rather the specifically

3. See among many others: The Care Collective, *The Care Manifesto: The Politics of Interdependence*, Verso, London, 2020; Kathi Weeks, 'Abolitions of the Family: The Most Infamous Feminist Proposal', *Feminist Theory* 0(0)1–21 (2021); M.E. O'Brien, *Family Abolition: Capitalism and the Communizing of Care*, Pluto Press, London, 2023; Sophie Lewis, *Full Surrogacy Now: Feminism Against the Family*, Verso, London and New York, 2019; Susan Ferguson, *Women and Work: Feminism, Labour and Social Reproduction*, Pluto Press, London, 2020; Tithi Bhattacharya, *Social Reproduction Theory: Remapping Class, Recentering Oppression*, Pluto Press, London, 2017; Lise Vogel, *Marxism and the Oppression of Women: Toward a Unitary Theory*, Haymarket Books, Chicago IL, 2013.

4. Pulkkinen, 'Identity and Intervention', p. 188.

gendered aspect of reproductive labour – the unpaid labour of the housewife, the specifically gendered subject that was at the centre of 1970s' debates around social reproduction – to emphasize multiple sites of social reproduction and a multiplicity of subjects of social reproduction. As Susan Ferguson explains, Lise Vogel's approach in *Marxism and the Oppression of Women* (1983), which laid the ground for contemporary SRT, 'allows for an expanded and diverse array of potential class subjects: all those who work to (re)produce the lives of workers – whether their labour is paid or unpaid, whether they do so within households, in state institutions, or as community organizers' rather than 'calling unpaid housewives the revolutionary feminist subject'.[5]

Second, although both intersectionality and social reproduction are transdisciplinary concepts, they have first and foremost been defined and engaged with by sociologists. In their contemporary articulations, intersectionality and social reproduction are primarily methodologies for sociological investigations. While intersectionality investigates '*how* intersecting power relations influence social relations across diverse societies as well as individual experiences in everyday life',[6] social reproduction theory is defined as 'a methodology to explore labor and labor power under capitalism'.[7]

Third, in contrast to the 'post-structuralist' suspicion towards experience that has marked some areas of feminism in the wake of Joan Scott's 1991 essay 'The Evidence of Experience', these frameworks have each in their own way emphasized the need to bring 'lived experience' back into the centre of feminist thought. While intersectionality scholars often emphasize the importance of seeing 'lived experiences as philosophically relevant'[8] or of

5. Ferguson, *Women and Work*, p. 111.
6. Patricia Hill Collins and Sirma Bilge, *Intersectionality*, 2nd edn, Polity Press, Cambridge, 2020, p. 1.
7. Tithi Bhattacharya, 'Introduction: Mapping Social Reproduction Theory', in *Social Reproduction Theory*, p. 31.
8. Vivian M. May, *Pursuing Intersectionality: Unsettling Dominant Imaginaries*,

including narrative and experience 'as valid sources for claim making',[9] social reproduction scholars call for a re-theorization of 'class as a lived experience, beginning with the acknowledgement that class never exists outside of the other fundamental relations of lived reality (i.e. race, gender, age, ability, etc.)'.[10]

In intersectionality theory, the reliance on 'lived experience' appears to be bound up with a commitment to a specific version of standpoint epistemology that sees knowledge as situated and derived from experience. Patricia Hill Collins explains this epistemic orientation in the following way: 'Individuals and groups differently placed within intersecting systems of power have different points of view on their own and others' experiences with complex social inequalities, typically advancing knowledge projects that reflect their social locations within power relations.'[11] This epistemic orientation seemingly has more in common with Donna Haraway's theory of 'situated knowledges' than it has with Marxist and Marxist-feminist traditions of standpoint epistemology. Whereas theories of standpoint epistemology like those of, for instance, Georg Lukács and Nancy Hartsock were predicated upon the idea of a basic antagonism between oppressor and oppressed that organizes society, the oppressed pole inhabiting an epistemic advantage, the initial critical gesture of intersectionality was to challenge the idea of *one* basic antagonism and a unified revolutionary subject by emphasizing how women of colour, especially, fall between the cracks of these antagonisms.[12] Adding a multiplicity of categories to those of race, class and gender, contemporary intersectionality

Routledge, New York, 2015, p. 33.

9. Ange-Marie Hancock, *Intersectionality: An Intellectual History*, Oxford University Press, New York, 2016, p. 128.

10. Susan Ferguson, 'Building on the Strengths of the Socialist Feminist Tradition', *Critical Sociology*, 25(1), 1999, p. 8.

11. Patricia Hill Collins, 'Intersectionality's Definitional Dilemmas', *Annual Review of Sociology* 41, 2015, p. 14; https://doi.org/10.1146/annurev-soc-073014–112142.

12. See Ashley J. Bohrer's discussion of standpoint epistemology in the Marxist and intersectional tradition. Ashley J. Bohrer, *Marxism and Intersectionality: Race, Gender, Class and Sexuality under Contemporary Capitalism*, [Transcript], Bielefeld, 2019, pp. 64–8.

theory, which is mostly no longer about women of colour specifically, operates with a multiplicity of standpoints, all of which are capable of achieving and producing specific types of knowledge through 'lived experience'.

In social reproduction theory, on the other hand, the invocation of experience as 'lived' appears bound up with a desire to overcome a hyphenated structuralism-functionalism that has, according to critics from within its own ranks, shaped significant work in the tradition of Marxist-feminism. In an effort to overcome a tendency towards reducing subjectivity and experience to mere functions of capitalism's overriding drive to create value, some contemporary scholars stress the need to conceptualize the economy not as a 'thing' or a structure but as a living set of social relations and to turn towards labour, seen as a sensuous, embodied, lived, creative experience.[13]

In both intersectionality and social reproduction theory 'lived experience' is not so much a concept as it is a floating signifier invoked to underline the *viscerality* and *non-vicariousness* of experience; a 'lived experience' is an experience that cannot be communicated but needs to have been lived to be understood. The aspiration towards a theory capable of encapsulating the full complexity of 'lived experience', however, seems to be in tension with a crypto-structuralist tendency in both theoretical strains: while intersectionality theory, on the one hand, seems to rely on a 'subject of lived experience', it simultaneously seems to imply the idea of a subject that is 'an effect' of vectors of oppression, and despite its declared aversion towards an 'Althusserian structuralism-functionalism', social reproduction theorists ground their analysis in the Althusserian theoretical framework

13. See Cinzia Arruzza, 'Functionalist, Determinist, Reductionist: Social Reproduction Feminism and Its Critics', *Science & Society*, 80(1), 2016, pp. 9–30; Ferguson, 'Building on the Strengths of the Socialist Feminist Tradition'; Susan Ferguson, 'Canadian Contributions to Social Reproduction Feminism, Race and Embodied Labor', *Race, Gender & Class*, 15(1/2), 2008, pp. 42–57.

developed by Lise Vogel in *Marxism and the Oppression of Women*. And, despite their craving for a concrete object, manifested in the emphatic insistence on experience as 'lived', as methodologies these two frameworks remain abstract.

The main aim of this essay is to unfold this seeming contradiction. I shall depart from the hypothesis that the signifier 'lived experience' as a point of reference in intersectionality theory is symptomatic of the same *anti-abstracting* desire that Marina Vishmidt has identified in feminist discourses on the vulnerable body. Just as with the discourse of 'bodies', the discourse of lived experience 'presents us with the possibility of a pseudo-concreteness that often accompanies theoretical projects intolerant of the (real)abstraction that organizes contemporary social life'.[14] And, just like the vulnerable body, lived experience is an abstraction in thought: it does not consider experience as a concrete unity of many determinations but instead abstracts it from the totality within which it is constituted. With reference to Marx's methodological reflections in the 1857 introduction to the *Grundrisse*, I shall make an attempt to explain how intersectionality as methodology, by parting from the 'real and concrete', ends up with a chaotic conception of the whole, or in other words becomes abstract. Thereupon, I shall argue that although social reproduction theory provides what intersectionality lacks in explanatory power, the theoretical framework elaborated by Lise Vogel is not capable of providing the concreteness of thought for which contemporary social reproduction theorists seem to be longing. Finally, I briefly sketch an alternative method for understanding the reproduction of gender under capitalism that in moving from the abstract to the concrete seeks to trace the unfolding of gender as a real abstraction.

14. Marina Vishmidt, 'Bodies in Space: On the Ends of Vulnerability', *Radical Philosophy* 208, 2020, p. 34.

The pseudo-concreteness of contemporary intersectionality

Almost two decades after the twentieth anniversary of Kimberlé Crenshaw's coinage of the term 'intersectionality', an anniversary that gave rise to a range of special issues, conferences and general discussions around the concept, critical engagements with intersectionality are probably even more numerous than embracings of the concept. In that context, it can sometimes seem as though intersectionality has become a placeholder for a variety of contradictory demands and qualifications. Intersectionality is criticized both for being too general and for being too particularist; for being overtheorized and for being theoretically underdeveloped; for putting too much focus on experience and for dismissing experience.

Social reproduction scholars have reproached intersectionality for being too focused on 'social location' or 'place',[15] for residing on the 'micro-level'[16] and for a 'downplaying of theory' and a 'resort to experience as the source of knowledge'.[17] According to these critiques, intersectionality lacks explanatory power when it comes to linking specific oppressions to their macro-level conditions of possibility, to understand them as constituting parts of the social whole. According to a specific subset of feminist critiques, intersectionality is, on the contrary, so overtheorized, general and abstract that it has become incapable of paying attention to the particular. Feminist scholars within science and technology studies, inspired by posthumanism and/or Deleuzian thought, have argued that intersectionality's commitment to a 'gridlock model of subjectivity' is incapable of capturing the

15. Johanna Brenner, *Women and the Politics of Class*, Monthly Review Press, New York, 200, p. 293.
16. Susan Ferguson, 'Intersectionality and Social-Reproduction Feminisms: Toward an Integrative Ontology', *Historical Materialism*, 24(2), 2016, p. 44, https://doi.org/10.1163/1569206X-12341471.
17. Martha E. Gimenez, *Marx, Women, and Capitalist Social Reproduction: Marxist Feminist Essays*, Brill, Leiden and Boston MA, 2018, p. 90.

liminality of bodily matter.[18] According to Dorthe Staunæs, intersectionality is a useful concept when it comes to covering the interconnections of categories such as gender, ethnicity, race, age, sexuality and class, but it does not 'include a consideration of how these categories work and intersect in the lived experiences of concrete subjects'.[19] Inspired by Wittgenstein, Toril Moi has argued that intersectionality is the epitome of a 'craving for generality' characteristic of contemporary feminist theory: in its very aspiration towards grasping the 'infinite differences among women in all their particularity' intersectionality produces 'a general theory (of difference, identity, language, power, and so on)' which reproduces a 'distance to actual human experience', 'a contempt for the particular case'.[20]

Perhaps these two lines of critique are simply directed towards different aspects of the 'intersectional tradition'. Intersectionality is indeed theoretically eclectic. From a different perspective, however, the two lines of critique can be seen as two sides of the same coin. What is being reproached from different theoretical perspectives is the *abstract character* of intersectionality theory. To unfold this argument, let us first recall Marx's methodological reflections in the 1857 introduction to the *Grundrisse*. Here, Marx states that though methodologically 'it seems to be correct to begin with the real and the concrete, with the real precondition', with the living population, this method on closer examination proves false.[21] The population remains an abstraction if we leave out the elements of which it is composed and the presuppositions

18. See Jasbir Puar, '"I Would Rather Be a Cyborg than a Goddess": Becoming-Intersectional in Assemblage Theory', *Interventions*, 2012, p. 5.
19. Dorthe Staunæs, 'Where Have All the Subjects Gone? Bringing Together the Concepts of Intersectionality and Subjectification', *Nordic Journal of Feminist and Gender Research*, 11(2), n.d., p. 1.
20. Toril Moi, 'Thinking Through Examples: What Ordinary Language Philosophy Can Do for Feminist Theory', *New Literary History*, 46(2), n.d., p. 196.
21. Karl Marx, *Grundrisse: Foundations of the Critique of Political Econonmy*, Penguin, London, 1993.

for these elements. The method of departing from the *actually concrete* can only produce *abstractions in thought*:

> [I]f I were to begin with the population, this would be a chaotic conception [*Vorstellung*] of the whole, and I would then, by means of further determination, move analytically towards ever more simple concepts [*Begriff*], from the imagined concrete towards ever thinner abstractions until I had arrived at the simplest determinations. From there the journey would have to be retraced until I had finally arrived at the population again, but this time not as the chaotic conception of a whole, but as a rich totality of many determinations and relations.[22]

According to Marx, the scientifically correct method would instead be to ascend from 'the simple relations, such as labour, division of labour, need, exchange value, to the level of the state, exchange between nations and the world market'. Thus, Marx outlines two methods: the method followed by economics at the time of its origin in which the full conception is 'evaporated to yield an abstract determination', and the scientifically correct method in which 'the abstract determinations lead towards a reproduction of the concrete by way of thought'. In the second method, the concrete understood as the concentration of many determinations and relations appears in the process of thinking as a 'process of concentration' not 'as a point of departure', 'even though it is the point of departure in reality and hence also the point of departure for observation [*Anschauung*] and conception'. Thus, the process of concentration by which 'thought appropriates the concrete, reproduces it as the concrete in the mind', is 'by no means the process by which the concrete itself comes into being'. The existence of an economic category such as exchange value does indeed presuppose the existence of a living population producing in specific relations, but it is by moving from abstract categories such as exchange value that we can achieve

22. Ibid., p. 164.

a conception of the population not as an abstraction but as 'a concentration of many determinations, as unity of the diverse'.[23]

These methodological reflections can perhaps help us understand how intersectionality can be reproached for being both too general to understand the particular case and too focused on the particular to grasp the social whole. When criticizing intersectionality, I think that it is essential to distinguish between an early version of intersectionality as a contextually specific critique and a response to a problem and a contemporary version of intersectionality as a methodology and as a theory of social identity. I thus want to make it clear that this critique is not directed towards Kimberlé Crenshaw or any of the black feminist interventions that are often referred to as 'proto-intersectional' but towards a specific contemporary version of intersectionality as a sociological methodology. The problem for intersectional methodology, appears to be that because it departs from *an imagined concrete* provided by the concept of lived experience it has only been able to move towards ever thinner abstractions. For instance, some critics from within intersectionality's own ranks have suggested that 'woman of color' has become an abstraction in contemporary intersectionality theory. Jennifer Nash writes that black women have become a 'symbol' within the field of US women's studies 'even if the field retains little interest in the materiality of black women's bodies'[24] and Jasbir Puar emphatically refers to 'woman of color' with the acronym 'WOC' to 'underscore the overdetermined emptiness of its gratiousness'.[25] Another example of such an abstraction within intersectionality theory is the very central, yet highly underdetermined, notion of a 'category of oppression' and the adjacent discussions over the number of categories and metaphors. In that context,

23. Ibid., p. 165.
24. Jennifer Nash, *Black Feminism Reimagined: After Intersectionality*, Duke University Press, Durham NC, 2019, p. 4.
25. Puar, '"I Would Rather Be a Cyborg than a Goddess"', p. 3.

intersectionality scholars have suggested that Crenshaw's traffic metaphor should be revised or made more nuanced by adding more roads to the intersection or 'a roundabout' in its centre,[26] to talk about lines, axes or vectors rather that roads, to see these as 'interacting' or 'interlocking', 'interwoven', 'intermeshed' or 'enmeshed' rather that 'intersecting'. These discussions are not only predicated upon a misreading of Crenshaw's metaphor, which was never employed to illustrate the constitution of social identity in general but only to visualize a contextually specific problem, but also have no real theoretical or political stakes.[27]

Despite the immense amount of ink spilled in discussions over the correct metaphor, it remains unclear what intersectionality scholars actually speak about when they speak about race, class and gender. As Martha E. Gimenez points out, though there are many competing theories of race, gender and class, intersectionality theorists often do not invoke a specific theory to define how they use these categories and to identify how they are related to the rest of the social system.[28] Instead they often insist on the *irreducibility, interrelatedness* and *simultaneity* of 'oppressions' but without specifying what exactly it is that is irreducible, simultaneous and interrelated.[29] Are we here dealing with the experience of sexist, racial or class-based oppression, or with their ontological basis – what intersectionality scholars

26. Ann Garry, 'Intersectionality, Metaphors, and the Multiplicity of Gender', *Hypatia* 26(4), 2011, p. 831.

27. Kimberlé Crenshaw originally coined the term 'intersectionality' to point to the problem of the illegibility of multiple oppressions in American anti-discrimination law and used the metaphor of a traffic intersection to illustrate this problem. Kimberlé Crenshaw, 'Demarginalizing the Intersection of Race and Sex: A Black Feminist Critique of Antidiscrimination Doctrine, Feminsit Theory and Antiracist Politics', *University of Chicago Legal Forum*, 1989(1), p. 149. Two years later Crenshaw pointed out that intersectionality was never offered as 'some new totalizing theory of identity'. Kimberlé Crenshaw, 'Mapping the Margins: Intersectionality, Identity Politics and Violence against Women of Color', *Stanford Law Review*, 43(6), 1991, p. 1244, https://doi.org/141.241.26.232.

28. Gimenez, *Marx, Women, and Capitalist Social Reproduction*, p. 90.

29. See for instance Anna Carasthathis's account characterizing intersectionality by what she refers to as the analytical benefits of 'irreducibility' and 'simultaneity'. Anna Carastathis, *Intersectionality: Origins, Contestations, Horizons*, University of Nebraska Press, Lincoln NE and London, 2016, pp. 54–8.

often refer to as 'systems of oppression'? Or are we dealing with race, class and gender as analytical categories? Intersectionality theorists sometimes seem to assume that these different levels – phenomenological, ontological and analytical – are isomorphic so that the fact that we operate with discrete categories necessarily means that these categories refer to actually discrete systems of oppression.

In her critical engagement with the idea of intersectionality, Susan Ferguson argues that intersectionality scholars, in insisting that race, class and gender are 'enmeshed' but yet expressive of discrete and irreducible systems 'without postulating or exploring an *internal* relation between these parts and the social totality', fail to 'return these conceptual categories to the messy-yet-*unified* experimental realm'. By treating what is *analytically* discrete as *actually* discrete, intersectionality theory, Ferguson argues, produces 'a one-sided and abstract accounting of reality'.[30] In other words, the intersectional method does not take 'the journey back' to experience in order to determine it, not as an abstraction, but as a concentration of many determinations and relations. As Martha E. Gimenez points out, '[e]xperience in itself' is 'suspect because dialectically, it is a unity of opposites; it is unique, personal, insightful and revealing, and, at the same time, thoroughly social, partial, mystifying, itself the product of historical forces about which individuals may know little or nothing about'. Therefore, to be fully understood in its broader social and political implications, experience cannot be abstracted from but needs to 'be situated in the context of the capitalist forces and relations that produce it'.[31] Instead of taking the journey back to experience, intersectionality reproduces a 'chaotic conception of the whole' in which oppressions intersect and inhabit each other in an apparently random way without any

30. Ferguson, 'Intersectionality and Social-Reproduction Feminisms', pp. 44–5.
31. Gimenez, *Marx, Women, and Capitalist Social Reproduction*, pp. 90–91.

necessary logic, to paraphrase Ferguson, or a 'social Newtonianism', as David McNally has argued, that is a conception of the social that sees axes and vectors of difference as ontologically separate and autonomous 'bits' that enter into external relations with other 'bits'.[32]

Lise Vogel's theoretical detour

Social reproduction theory does indeed offer a macro-level theoretical perspective explaining both gendered and racialized oppression with reference to differential positions in the processes necessary to reproduce labour-power. I thus agree with Gimenez and Ferguson that social reproduction theory can offer what intersectionality lacks in explanatory power: an explanation of the sources of inequality and their reproduction over time. Like intersectionality, however, social reproduction theory suffers from abstractness, but in a slightly different way.

Marxist-feminism has often been criticized for being functionalist; for granting agency to structures and systems while reducing subjects to mere functional constituents of the capitalist totality. According to Ferguson, anti-racist sociologist Himani Bannerji delivered a 'fatal blow' to social reproduction feminism in her 1995 critique by pointing to its 'systemic blindness to the experiential and to experiences of race and racism in particular'.[33] According to Bannerji, Marxist feminists have sought to diffuse 'two irreducibly different epistemological positions': a feminist analysis based on 'feeling/experience' and a Marxist analysis based on 'scientific and objective economic analysis' without properly theorizing their *mediation*, thus creating 'an

32. Ferguson, 'Intersectionality and Social-Reproduction Feminisms', 48; David McNally, 'Intersections and Dialectics: Critical Reconstructions in Social Reproduction Theory', in *Social Reproduction Theory: Remapping Class, Recentering Oppression*, Pluto Press, London, 2017, p. 274.
33. Ferguson, 'Canadian Contributions to Social Reproduction Feminism, Race and Embodied Labor', p. 45.

unbridgeable gap between self, culture and experience, and the world in which they arise'.[34] Committed to Bannerji's critique, scholars who are part of the recent wave of social reproduction theory such as Ferguson and Cinzia Arruzza, call for centring 'labour' over 'structures' or 'systems' for a theory of reproductive subjects as embodied, conscious agents rather than functions of socio-economic structures. Functionalism is, they argue, not a product of the concept of social reproduction as such but rather of a certain Althusserian-structuralist bias that has influenced significant work in the tradition. In the same breath, however, these scholars nominate Lise Vogel's *Marxism and the Oppression of Women*, a book that is explicitly and admittedly Althusserian in its reading of Marx and conception of theory, to be the seminal text within the field setting a new *non-functionalist* direction for Marxist feminism.[35]

Ferguson and Arruzza consider Vogel's account to be non-functionalist because it does not seek to localize an ultimate source or origin of women's oppression but instead uncovers a systemic logic on the level of social reproduction that sets the conditions for the subordination of women in capitalist society. To reveal this systemic logic, Vogel's analysis starts at an extreme level of abstraction with a series of reflections on what is necessary to replenish labour-power in *any society*. It then moves on to analyse what is necessary to reproduce labour-power in class societies, to finally analyse the reproduction of labour-power in the specific type of class society that is capitalism. Her main argument is that in class societies there is a potential contradiction from the point of view of the ruling class 'between its immediate need to appropriate surplus-labour and

34. Himani Bannerji, 'But Who Speaks for Us? Experience and Agency in Conventional Feminist Paradigms', in *Thinking Through: Essays on Feminism, Marxism, and Anti-Racism*, Women's Press of Canada, Toronto, 1995, p. 80.
35. Arruzza, 'Functionalist, Determinist, Reductionist', p. 11; Ferguson, *Women and Work*, p. 31.

its long-term requirement for a class to perform it'.[36] In so far as pregnancy and lactation involve several months of somewhat reduced capacity to work as well as a need to be maintained by others, it involves an increase in necessary labour at the expense of surplus-labour. In the long term, however, childbearing is necessary for labour-power, and thus surplus-labour in favour of the ruling class, to be reproduced. In capitalist society this contradiction is expressed in the contradictory role occupied by 'domestic labour', which is, from the point of view of the capitalist class, 'simultaneously indispensable and an obstacle to accumulation'.[37] The capitalist class will often, Vogel argues, attempt to reduce domestic labour by 'socializing' its tasks, for example by moving them to the profit-making sector or making them the responsibility of the state, but there is, she insists, a limit to this socialization for economic, ideological, political and biological reasons. Vogel makes it clear that this is a contradiction at a theoretical and thus abstract level that in reality can be solved in a variety of ways. This contradiction *shapes* women's situation in capitalist society but does not *determine* it.[38]

In the context of unfolding this argument, Vogel defines her social reproduction perspective as a distinct methodological approach. In contrast to the 'dual systems perspective' that sets out from observable, visible facts, the social reproduction perspective is, she says, characterized by 'theoreticism': it begins with a theoretical assumption about the relationship between the core workings of the capitalist mode of production to explore the potential implications of an empirical phenomenon – women's capacity to have children – for the processes of surplus-labour appropriation. In 'Domestic Labour Revisited', a 2000 essay published as an appendix to the 2013 republication of *Marxism*

36. Vogel, *Marxism and The Oppression of Women*, p. 151.
37. Ibid., p. 163.
38. Ibid., pp. 161–3.

and the Oppression of Women, Vogel elaborates on her theoretical approach by comparing theory to 'a sort of lens' that can be used for empirical investigation and political analysis. The lens itself cannot explain anything concrete; it is only by applying it to actual situations that knowledge about specific societies or historical situations can be produced. In adopting this conception of theory as a highly abstract enterprise, sharply different from history and severely constrained in its implications, Vogel explicitly follows Althusser's advice: 'find in it [*Capital*] a book of theory analysing the *capitalist mode of production*'. According to Althusser, the study of *Capital* must be abstract because the capitalist mode of production is '"invisible" (to the naked eye). "Invisible", *i.e. abstract*'. Vogel then describes her own work on domestic labour as an example of women's liberationist theorizing within this 'intentionally abstract framework' with the aim of contributing 'to the construction of a more satisfactory theoretical lens with which to analyse women's subordination'.[39]

In so far as it is motivated by a desire to revive Marxist/socialist feminism at a moment where it seems to have run its course, by providing a more sufficient theoretical foundation for the analysis of the reproduction of labour-power based on Marx's *Capital, Marxism and the Oppression of Women* can thus be compared to an Althusserian-style theoretical detour. Arguing that the development of Marxist/socialist feminism has 'been constrained by its practitioners' insufficient grasp of Marxist theory',[40] Vogel calls for a *return to Marx* and a more rigorous reading of *Capital.* In their introduction to the 2013 republication of *Marxism and the Oppression of Women,* Ferguson and McNally note that they find it 'unfortunate' that Vogel 'later adopted "Althusser's hyper-abstracted notion of "Theory"

39. Ibid., p. 187.
40. Ibid., p. 34.

uncontaminated by the empirical'.[41] This, the authors concede, does indeed commit the mistake of the 'unbridgeable gap' that Bannerji described.[42] However, this theoreticism is, as I hope to have demonstrated, not something that Vogel later adds on, as McNally and Ferguson seem to insinuate. Rather, theoreticism is the very condition of possibility for her main argument. In the original introduction to the book, Vogel explains that the abstractness of her analysis is exactly 'as it should be': 'Only in an analysis of an actual situation will abstraction spring to life, for it is history that puts flesh on the bare bones of theory.'[43]

As a result of this sociological Althusserianism, Vogel seems to ultimately reduce the concrete to the empirical. The concrete is something that can be reached through empirical observation; only 'the abstract' is an object of theory. In other words, Vogel does not take the journey back to the concrete in order to determine it as a unity of many determinations. Though many social reproduction scholars draw on other theoretical sources – including Hegelian Marxism, as we have seen in McNally and Ferguson's critique of intersectionality – this reduction of the concrete to the empirical still seems to mark the field. For example, when Tithi Bhattacharya, in her introduction to the text collection *Social Reproduction Theory: Remapping Class, Recentering Oppression*, suggests that at the heart of social reproduction theory is the 'thorny problem of reality itself': 'What is the logic of the relationship between us (subjects) and empirically apprehended facts (objects)?'[44]

In addition to this, I suggest that the particular form of theoreticism at stake in Vogel's methodological approach

41. Susan Ferguson and David McNally, 'Capital, Labour-Power, and Gender-Relations: Introduction to the Historical Materialism Edition of Marxism and the Oppression of Women', in *Marxism and the Oppression of Women: Toward a Unitary Theory*, Haymarket Books, Chicago IL, 2016, pp. xvii–xi, n. 36.
42. Ibid., n. 49.
43. Vogel, *Marxism and The Oppression of Women*, p. 9.
44. Bhattacharya, 'Introduction: Mapping Social Reproduction Theory', p. 59.

represents a regression with regard to her predecessors from the era of the domestic labour debates, at two points in particular. The first point concerns Vogel's understanding of the relationship between theory and practice, especially regarding the question of the family and its potential abolition. Vogel argues that feminists should not call for the abolition of the family and domestic labour because in the transition to socialism both will 'wither away' and with them 'patriarchal family-relations and the oppression of women'.[45] This subsumption of explicitly feminist demands to the workers' struggle represents exactly what feminists on the New Left, especially the black feminists later characterized as 'proto-intersectional', first reacted against: the idea that when the revolution arrives, women's oppression will magically disappear.

The second point, closely related to the first, concerns Vogel's conception of gender. At the basis of both the demand to abolish the family and the demand for Wages for Housework, there is a different articulation of the same demand: to *denaturalize gender*, to reveal the constructed nature of gender under capitalism as an anchoring of specific individuals in a specific sphere of social activities. The Wages for Housework analysis is based on the idea that for capitalism to be profitable, some of the work involved in reproducing labour-power must be performed for free, and to secure this it must be *naturalized.* As Silvia Federici puts it:

> Housework was transformed into a natural attribute, rather than being recognized as work, because it was destined to be unwaged. Capital had to convince us that it is a natural, unavoidable, and even fulfilling activity to make us accept working without a wage.[46]

Thus, according to this analysis, women do not perform housework because they are women; they become 'women' because

45. Vogel, *Marxism and The Oppression of Women*, pp. 181–2.
46. Silvia Federici, *Revolution at Point Zero: Housework, Reproduction, and Feminist Struggle*, PM Press, Oakland CA, 2020, p. 59.

they perform housework. Such a problematization of the category 'woman' is, however, absent in *Marxism and the Oppression of Women*, with women being defined simply as 'the 51 percent of human beings who have the capacity to bear children'.[47] By thus 'treating the collective subject "woman" as transparently obvious', to borrow Holly Lewis's astute formulation, Vogel has left us 'with a subject whose ontological boundaries are universal and ahistorical: women undergo changes, but who is and who isn't a woman is eternal'.[48] This taking for granted of the category 'woman' not only risks collapsing into exclusive gender essentialism; methodologically it also seems to assume what is to be explained.

Gender as real abstraction

In light of this, it would be interesting to reflect on what an intersectional method that moves from the abstract to the concrete could look like. This would be an approach that does not part from gendered, raced and classed individuals and their lived experience of oppression but rather moves from the abstract categories of 'gender', 'race' and 'class' to the concrete individuals constituted through these categories. The 2014 article 'The Logic of Gender' by Endnotes outlines such an approach, but only when it comes to the category of gender. As in Vogel's *Marxism and the Oppression of Women*, this article is committed to unitary theory, and just like Vogel the authors start at an extreme level of abstraction. Yet, in contrast to Vogel, the article does not part from a transhistorical conception of woman and a set of reflections on the reproduction of labour-power in *any society*. Instead, the authors are concerned with a form of gender

47. Vogel, *Marxism and The Oppression of Women*, p. 173.
48. Holly Lewis, *The Politics of Everybody: Feminism, Queer Theory and Marxism at the Intersection*, Zed Books, London, 2016, p. 125.

'which is specific to capitalism' and they assume from the outset 'that one can talk about gender without any reference to biology and prehistory'.[49]

Methodologically the argument moves from the most abstract categories to the most concrete: from defining gender as a separation between spheres to specifying the individuals assigned to those spheres. Endnotes begins from the presupposition that capitalism as a mode of production is structurally dependent on the relegation of some of the activities involved in turning means of subsistence into 'a functioning labour-power' – that is, a worker that shows up at the gates of the factory – to a sphere that is not directly mediated by the value-form. This *indirectly market-mediated sphere* (IMM) is not defined by the concrete activities that take place in it but rather by the relationship of these activities to exchange, the market and the accumulation of capital. Therefore the same concrete activity, cooking, cleaning, looking after children, and so on, can be either value-producing or non-value-producing according to whether it takes place in this sphere or in the *directly market-mediated sphere* (DMM).[50]

It is by examining the point where the separation between the IMM-sphere and the DMM-sphere intersect with the separation between the 'private sphere' (understood not just as the household but as 'the totality of activities inside and outside of the home') and the 'public sphere' (defined as 'an abstraction from society in the form of the state'[51]) that the authors seek to understand 'why humanity is still powerfully inscribed with one or the other gender'.[52] These spheres, Endnotes explains, work in concert: the state as the sphere of the political and the juridical is 'the real abstraction of *Right* separated from the actual

49. Endnotes, 'The Logic of Gender: On the Separation of Spheres and the Process of Abjection', *Endnotes*, September 2013, p. 3.
50. Ibid., pp. 5–7.
51. Ibid., p. 12.
52. Ibid., p. 3.

divisions and differences constituting civil society' that must exist to render 'citizens' *formally* equal so that they can appear as equal on the market, though they are anything but in 'real life'.[53] It is the anchoring of individuals in either the IMM or the DMM sphere secured by the public/private separation that defines them as belonging to one of two distinct *genders* demarcated 'by whether those individuals defined by the state directly exchange the labour-power commodity they bear within their person as their own property, or – if that exchange is mediated indirectly – through those with formal equality'.[54]

Now ascending to the concrete, the analysis moves on to consider which individuals have been assigned to each sphere. Historically the free worker as legal entity has been ascribed to those gendered male while those gendered female, being under the legal domain of their male partners, have not been granted the 'double freedom' to sell their labour power *as their own.* Therefore they have historically been anchored in the IMM sphere, carrying out the work of unwaged social reproduction. This anchoring of those gendered women in the indirectly market-mediated sphere has lasted long after differential freedom was juridically abolished in so far as 'the mechanism that reinforced this inequality in the "private sphere" of the economic – of the labour-market – was already so well established that it could appear as the enactment of some mysterious natural law'.[55]

In other words, the separation of spheres and the anchoring of individuals in one or the other, which marks them as belonging to one or the other of the two distinct genders, is an abstraction that has taken on a life of its own, making its basis in law superfluous. Gender differentiation is paradoxically maintained and

53. Ibid., p. 12.
54. Ibid., p. 13.
55. Ibid., p. 15.

reproduced through the 'sex-blind market'. Because women are coded as 'those who have children' and that this is constituted as a handicap, an activity that steals time away from labour, women are defined as '*those who come to the labour-market with a potential disadvantage*'.[56] This conception does not entail that women *are* the 51 per cent of the population that have children. This would be, the authors explain, to conflate the fact of having a biological organ, a uterus, the fact of actually going through a pregnancy and the fact of having a specific relation to the result of this pregnancy.[57] Rather, it means that anyone who passes as someone who could potentially go through a pregnancy is, due to 'the market-determined risk identified as childbearing "potential"', less competitive on the labour market. This abstract differentiation hence 'keeps those who embody the signifier "woman" anchored to the IMM sphere'.[58] Applying this analysis to the concrete configurations of gender in their historical moment – a moment of austerity following the financial crisis – Endnotes derives the concept of the *abject* defined as activities that were once organized by the state but have now become a mere cost and therefore lapsed into the sphere of unwaged indirect market-mediation. In other words, the abject designates an activity that has been *denaturalized* but recently *renaturalized.* This process of *denaturalization–renaturalization* means that gender as the anchoring in the sphere of IMM activities for those who have to deal with it is no longer experienced as 'some unfortunate natural fate', as it was in the past, but seen as it is: 'a powerful constraint'.[59]

This conception of gender as the anchoring of individuals in a specific sphere of social activities does not, I suggest, provide an exhaustive explanation of what gender is, how gendered

56. Endnotes, p. 15.
57. Endnotes, p. 16, addendum 2.
58. Endnotes,p. 15.
59. Endnotes, p. 25.

domination works under capitalism and what gender liberation might look like. Nevertheless, its methodological approach tracing gender as a real abstraction can perhaps designate a way to substantiate the intersectional methodology in a way that can make it less abstract. Could this methodological approach be used to account for other categories of difference as 'real abstractions' in order to not collapse into the same 'race blind' feminism of which intersectionality was initially a critique? If departing from class, race and gender as lived experiences has left intersectionality with ever thinner abstractions, could an intersectional methodology tracing the unfolding of class, race and gender as *real abstractions* lead us to a more concrete conception of experience?

An intersectional methodology that moves from the abstract to the concrete to understand 'categories of oppression' as *real abstractions* would substantiate what is often presented as the core claim of intersectionality but mostly left underdeveloped or simply unexplained by intersectionality scholars: the idea that 'experience' is influenced, shaped or structured by 'interrelating power structures' or 'vectors' or 'axes' or 'systems' or 'categories' of oppression, gender, race, class and so on – that is, *by abstractions*. Thus, it brings to light a tension between two different philosophical conceptions of subjectivity opaquely at stake in discourses on intersectionality: a *constitutive subject* of 'lived experience' and a *constituted subject* that is an 'effect' of structures of oppression and inequality.[60] Many Marxist-feminist critiques of intersectionality affirm that the idea is good but

60. Although this opposition is of course rather schematic, it can be seen as an opposition between what Étienne Balibar has described as a structuralist *destitution* of the subject; a 'deconstruction of the subject as *arch*e (cause, principle, origin) and reconstruction of subjectivity as an *effect* ... a passage from constitutive to constituted subjectivity' (p. 10) and the 'generative equation' – challenged by this conception – 'in which *the humanity of man*' – understood in for instance 'an existentialist way as the construction of experience' – 'is identified with the *subject* (or *subjectivity*' (p. 9). Étienne Balibar, 'Structuralism: A Destitution of the Subject?', *Differences*, 14(1), May 2003, pp. 1–21.

that the methodology is flawed. I agree; but if we consider intersectionality as a way of responding to problems rather than a methodology, intersectionality and social reproduction theory become supplementary critical perspectives rather than competing theories and methodologies. I suggest that, rather than rejecting intersectionality on the basis of it being theoretically underdeveloped, a more constructive path would be to develop what remains underdeveloped in intersectionality. This is an interesting project to pursue not simply in order to 'improve' intersectional methodology – perhaps it should rather be an occasion to call into question the idea of intersectionality *as* methodology – but because it could be a gateway into pursuing the project that Peter Osborne sketches out in his article 'The Reproach of Abstraction': a 'thinking of the idea of "actual abstractions" as the medium of social experience in capitalist modernities',[61] allowing for a *rethinking* of the relationship between abstraction, subjectivity and emancipation.

In the context of intersectionality, the stake of such a project is twofold: on the one hand it points to a political-philosophical problem for intersectionality; on the other to a political-intersectional problem for philosophy. The political-philosophical problem for intersectionality concerns the conception of individuation and relationship at stake in discourses on intersectionality. How can we think the relationsip between the 'specific' and the 'general' or the 'universal' through the lens of intersectionality? Drawing on the three-term typology offered by Peter Hallward in his article 'The Singular and the Specific', we could ask: is intersectionality a theory of the *specified*, the *singular* or the *specific*? Whereas, a 'specific individual', Hallward explains, 'is one which exists as part of a relationship between an environment and other individuals', a singular individual

61. Peter Osborne, 'The Reproach of Abstraction', *Radical Philosophy* 127, September/October 2004, pp. 21–8, p. 21.

'is fundamentally self-individuating, beyond relationality'.[62] A specified way of thinking about individuals, on the other hand, is to 'think of them as individuated by certain intrinsic, invariant and thus characteristic properties, innate or acquired'.[63] In principle and depending on the specific theoretical orientation it follows, intersectionality could be a theory of any of these three general modes of individuation. As I have suggested, the use of the signifier 'lived experience' seems to be symptomatic of a singularizing tendency in intersectional frameworks, of the 'anti-abstracting desire' or 'abstraction phobia' that Vishmidt describes in relation to the vulnerable body: 'the positing of something basic and fundamental as a substratum to all further thought, something which produces but is itself not produced, which conditions but is itself unconditioned'.[64] In so far as intersectionality replaces the triad of 'race, gender and class' with a list of categories concluding with an 'exasperated etc.', as Judith Butler puts it,[65] there appears to be a process of potentially endless differentiation and thus a singular orientation at stake in intersectionality. The challenge for intersectionality thus seems to be to conceive of forms of social mediation within a framework that relies on a potentially infinite differentiation between subject positions. For intersectionality as a theoretical framework to be able to conceive of subjects as co-constituting parts of a totality rather than self-constituting singularities, a theory of the *specific* rather than the *singular*, I suggest that a conception of abstraction is needed.[66]

62. Peter Hallward, 'The Singular and the Specific', *Radical Philosophy* 99, January/Februrary 2000, p. 8.
63. Ibid.
64. Vishmidt, 'Bodies in Space', p. 34.
65. Judith Butler, *Gender Trouble: Feminism and the Subversion of Identity*, London and New York, Routledge, 1989, 432.
66. In suggesting that abstraction is necessary to escape singularity, I am partly inspired by an argument that Jamilla M.H. Mascat puts forward in relation to Gayatri Spivak's figure of the subaltern. In 'Subalternity Reloaded: Singularity, Collectivity and the Politics of Abstraction', Mascat traces two trajectories in Spivak's work: a trajectory that aims to interrupt all-too easy theoretico-political *generalizations* by emphasizing the

The political-intersectional problem for philosophy concerns the status and limitations of the notion of the subject in the canon of modern European philosophy. If the initial critical gesture of intersectionality was to reveal how the use of an abstract notion of 'woman' as the subject of feminism functions as a placeholder for a specific type of woman, then intersectionality would equally problematize how the use of an abstract notion of the subject in philosophy functions as a placeholder for a specific type of subject. While a philosophical critique reveals a tension between different ideas of subjectivity at stake in discourses on intersectionality, a specific version of intersectionality could work as a critique of a particular idea of the subject in philosophy masquerading as universal.

'ungeneralizable singularity' (p. 1) of the subaltern and a pedagogico-political trajectory that 'pushes singularity beyond its limits in order to weave the collective "fabric" of multiplicity' (p. 2). The second trajectory concerns the possibility of a de-singularization of the subaltern through *abstraction* understood as 'the prerequisite for any *comparative* effort' (p. 11) on the one hand – and hence the basis for fostering political solidarity and common interests among individuals – and as a process of self-synechdochization which allows the subaltern to become part of a bigger whole, on the other (p. 12). Here, Mascat (through Spivak) thus confirms Osborne's point that abstractions are not forms of domination qua their abstractness; rather they are the pre-requisite for any form of connectivity. I do not want to suggest that Spivak is a thinker of intersectionality or that the gendered subaltern is a figure of intersectionality – perhaps the woman as subaltern is exactly what contemporary intersectionality cannot grasp due to its abstract notion of a 'woman of colour' – but rather that the argument that Mascat makes in relation to Spivak could be partly applicable to intersectionality. The crucial point is that intersectionality needs abstraction in order to escape the burdens of singularity. Jamilla M.H. Mascat, 'Subalternity Reloaded: Singularity, Collectivity and the Politics of Abstraction', *Cultural Studies*, 30(5), 2016.

DISJUNCTIONS

7

Is 'psychoanalytic experience' a concept?

AINO-MARJATTA MÄKI

Psychoanalytic experience (*expérience psychanalytique*)[1] was not exactly a *concept* for Lacan, but it was certainly a *problem*.[2] While the French twentieth-century psychiatrist and psychoanalyst Jacques Lacan did not 'invent' the idea of psychoanalytic experience, he reintroduced the question of it into the problematics of post-Freudian psychoanalysis, 'with a completely original content'.[3]

> What I try to outline in my discourse – which, although it reinterprets Freud, is nevertheless centred essentially on the particularity of the experience it describes – makes no claim to cover the entire field of experience.[4]

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1. The French term is specific in so far as the 'psychoanalytic experience' (*l'expérience psychanalytique*) is different from both the experience *of an* analysis (*l'expérience d'une psychanalyse*) and the experience *of* psychoanalysis (*l'expérience de la psychanalyse*).
2. Even at the end of his teaching, the problem kept engaging Lacan: 'I'm still at the stage of questioning psychoanalysis as to how it functions. How is it that it constitutes a practice that is still occasionally effective?' J. Lacan , *The Seminar of Jacques Lacan, Book 24: L'insu que sait de l'une-bévue, s'aile à mourre* (1976–77), ed. J.-A. Miller, trans. Dan Collins (unpublished manuscript, 2015), p. 53 [17 May 1977].
3. É. Balibar, 'Marxism and War', *Radical Philosophy* 160, March/April 2010, pp. 9–17, p. 9. This juxtaposition between 'concept' and 'problem' is borrowed from Étienne Balibar. He begins 'Marxism and War', by explaining how 'war' is for Marxism not a concept, but is introduced as a problem into its field, stretching historical materialism to its limits, while showing how it could not give an account of these limits.
4. J. Lacan, *Seminar XI: The Four Fundamental Concepts of Psycho-Analysis* (1964–65), ed. Jacques-Alain Miller, trans. Alan Sheridan, Norton, London, 1998, p. 72. In a lecture titled 'Conferencia del Coliseo' Jacques-Alain Miller underlines Lacan's point by stating that each psychoanalyst interprets what psychoanalysis itself means. Freud, in Miller's view, interpreted psychoanalysis first as a cure, Klein as communication, Jung as elevation, Anna Freud as pedagogy, and Lacan 'as an experience – as a logical deduction'.

Following Lacan's trajectory, this chapter does not try to construct 'psychoanalytic experience' as a concept in Lacan's teaching of psychoanalysis. Rather, it asks whether 'psychoanalytic experience' can be constructed as a concept for contemporary psychoanalytically oriented thought. In other words, can it function as a specific theoretically articulated problem that is put to work as such? The 'problem' that this work attempts to address is: how can one work with psychoanalysis within the academic discourse, while maintaining fidelity to the actuality of the psychoanalytic experience and the knowledge(s) constructed from it?

The use of the term 'psychoanalytic experience' here underlines that (1) the attempt to address 'psychoanalysis' in an academic form is not a simple affair, particularly (2) if the aim is to avoid collapsing 'psychoanalysis' into 'philosophy' (as mere theory) or to address it simply within psychotherapy research (that is, only as a form of clinical or therapeutic practice). For these reasons, this chapter addresses the specificity of this experience theoretically, attempting to determine it as a concept (the psychoanalytic experience), and pragmatically, as the grounding element of any psychoanalytic formation (the experience of an analysis). The general psychoanalytic postulate that the use of the term carries is as follows: there is no psychoanalyst without the psychoanalytic experience. This is applicable for any school of psychoanalysis. But the question remains, what to do with such a 'postulate' in an academic context?

Today psychoanalytic thought has to begin from an acknowledgement of the *pluralism*[5] of psychoanalytic theory. This means

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J.-A.Miller, 'Conferencia del Coliseo', Buenos Aires, 26 April 2008; published online by the ECF *Lacan Web Télévision*: www.youtube.com/watch?v=Pkuml-dmWwg.

5. Here 'pluralism' of psychoanalysis refers to the variety of psychoanalytic schools (each with distinct theory, clinical practice and training), whereas pluralistic practices (for example, integrative, multi-modal or eclectic) refer to those therapeutic approaches which conflate different therapeutic approaches within one practice (in a varied manner, either with a client or therapist focus).

that there exists a multiplicity of theoretical approaches to the clinical practice of psychoanalysis, to the extent that it is increasingly difficult to speak of psychoanalysis 'as such' even if the foundation of the discipline of psychoanalysis remains in Freud's clinical research and therapeutic invention. Furthermore, different contemporary orientations of psychoanalysis,[6] even within a particular school or theory of psychoanalysis, operate very differently, to the degree that at times their constituted clinical approaches – in the actuality of how psychoanalytic treatments take place as well as the discussions around them – appear as if they are not even the same therapeutic discipline. Hence the question of theoretical *specificity* carries a lot more practical weight in the varied fields of psychoanalysis. The argument that follows is that the *specificity* of psychoanalytic concepts, for each particular orientation of psychoanalysis, requires a reference to the psychoanalytic experience. However, 'specificity' in this sense cannot be reduced to stagnant definitions of psychoanalytic concepts. In relation to the psychoanalytic experience, specificity has to do with contingency and the constant *rearticulation* of psychoanalytic concepts, realized anew in relation to the logic from which they are drawn. In a way, then, this chapter asks: can we even speak of 'concepts' when we try to articulate psychoanalytic theory in relation to the actuality of the psychoanalytic experience?

The theoretical research from which this chapter draws was conducted in a department of philosophy, while the way to think of and work with 'psychoanalysis' comes from a particular orientation of Lacanian psychoanalysis.[7] The research was

6. 'Orientation' refers to the variety of psychoanalytic schools (for example Lacanian, Adlerian, Jungian, Kleinian) as well as to specific and distinct 'orientations' within each of them. The term names both the particular theoretical approach to clinical research (the collective work of a school of psychoanalysis), and the capability to orient clinical work psychoanalytically, in each encounter with an analyst (without a wild or solely psychotherapeutic approach to psychoanalysis).

7. The 'Lacanian Orientation' refers specifically to the teaching of the French psychoanalyst Jacques-Alain Miller, most notably during his Course at the Université de

conducted in the Centre for Research in Modern European Philosophy (CRMEP), alongside psychoanalytic work as part of the collective clinical research conducted in and around the New Lacanian School (NLS) and the World Association of Psychoanalysis (WAP).[8] The aim throughout this research has been to think from the *antinomic* relation between the university and the psychoanalytic school – as distinct approaches to knowledge and as actual ways to organize individuals around a discourse – but without aiming to resolve the impossibility of this very attempt. That is to say, in order to pose the question of how to think of psychoanalysis within academic discourse, without immediately collapsing 'psychoanalysis' into either 'theory' or 'clinical practice', it is necessary to articulate theoretically and to put to use the term 'psychoanalytic experience'. In this way the research responds to the contemporary socio-political demand for 'psychoanalysis' to renew itself, by arguing: 'not without specificity of the psychoanalytic experience'.

Psychoanalytic experience

> There is something truly remarkable here, which would be paradoxical if we gained access to it without having an awareness of the meaning [*sens*] it may take on *in the register of speech* [*parole*], which I am trying here to highlight as being necessary to the understanding of our experience.[9]

Paris-8 (1981 to 2011), and more broadly to the particular kind of Lacanian psychoanalysis practised in the schools of the World Association of Psychoanalysis (WAP). What is particular to the Lacanian Orientation of psychoanalysis is that the question of what exactly 'psychoanalysis' is never settles entirely. For this reason, to work as a psychoanalyst is, in a way, to never cease asking 'What is the psychoanalyst?' It is also a stake to which each analysand in formation must subjectively implicate themselves, in order for an analysis to take on a formative function, which goes beyond mere formal clinical training in psychoanalysis.

8. Throughout this doctoral research, I have been in psychoanalytic formation within the Lacanian orientation of psychoanalysis. I have been a psychoanalyst member of the NLS and the WAP since 2024, and a member of the London Society of the NLS since 2018.

9. J. Lacan, *The Seminar of Jacques Lacan, Book I: Freud's Papers on Technique (1953–1954)*, ed. Jacques-Alain Miller, trans. John Forrester, Norton, London, 1991, p. 14.

During the first lesson of his *Seminar* on 'Freud's Papers on Technique' (1953–1954) Lacan articulates what is essential for any concept of the psychoanalytic experience: the register of speech. The psychoanalytic experience, as a term, does not refer to the lived experience of an individual in therapy. In the first lesson of *Seminar III* (1955–1956), Lacan distances himself from an understanding of 'experience' as grounded on any empiricist notion of sense perception:

> Make no mistake, though, I'm not going to fall into the myth of *immediate* experience that forms the basis of what people call existential psychology or even existential psychoanalysis.[10]

For Lacan, the Freudian experience brings resources into play that are beyond immediate experience and 'cannot be grasped in any tangible fashion'.[11] The psychoanalytic experience is 'mediated' by speech and through language. To speak of the psychoanalytic experience is to underline that, for Lacan, psychoanalytic 'experience', first and foremost, (1) is *structured*, and as such can be reduced to its minimal formal elements (the presupposition of the 'signifier', for example, in its materiality, foregrounding the existence of the speaking being), and that (2) the experience of *a* psychoanalysis (necessary for there to be a psychoanalyst) takes place in the field of language and discourse, as an experience of speech, of the *speaking body* (*corps parlant*).[12] This means that the psychoanalytic experience, as an experience of speech, is necessarily to be considered in relation to what the term 'jouissance'[13] aims to capture for the conception of the

10. J. Lacan, *The Seminar of Jacques Lacan, Book III: The Psychoses* (1955–1956), ed. Jacques-Alain Miller, trans. Russell Grigg, Norton, London, 1993, p. 8.
11. Ibid., p. 8.
12. In *Seminar I* Lacan does not use the term 'speaking body' ([*corps parlant*), in so far as his theory of the 'subject of the unconscious' is prevalent; he only later shifts to emphasize the *effects of jouissance* ('real' effects of speech) on the living body by the signifier, distinct from the 'effects of meaning' (also brought forth by the signifier).
13. The term *jouissance* is functional for Lacan, rather than simply being a concept. It constitutes a doctrine which aims to speak, in discourse, of that which is beyond discourse and language. As such, it points towards the structural incompatibility between

speaking being (*parlêtre*).[14] The question of jouissance, or, more specifically, the question of 'how to act on jouissance from the field of language', is central to the psychoanalytic experience.[15]

During a talk given before the published *Seminar* begins –'The Symbolic, the Imaginary and the Real' (1953)[16] – Lacan underlines the necessity to maintain the question of what psychoanalysis is, what is brought into play in analysis, as a constant for 'those who try to formulate a theory of psychoanalytic practice [*expérience*]'.[17] The emphasis is again on the question of speech for the psychoanalytic experience, against any simple psychology or superstition and the idea that thoughts 'in themselves' bring about effects in the world (i.e. magical thinking):

> Of course, in analysis everything goes in this direction: we fall in with a certain number of the patient's more or less partial psychological views, we speak about magical thinking, we speak about all kinds of registers that indisputably have their value and are encountered in a very dynamic fashion in psychoanalysis. There is but one step from that to thinking that psychoanalysis itself operates in the register of magical thinking, and this step is quickly taken when one does not decide to first raise the primordial question: What does the experience of speaking involve? What is the essence and exchange of speech? And to raise at the same time the question of psychoanalytic practice [*expérience*].[18]

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language and a living body. For the psychoanalytic experience, it names the field that, for *a* speaking being, borders on pleasure, on the one hand, and on displeasure (suffering and pain) on the other. As a term it implies the corporeal dimension for the speaking body: that which animates living creatures but also causes havoc in any signifying relation.

14. In the eleventh lesson of *L'Un tout seul* (2011), Miller discusses the difference between the subject of speech and the *parlêtre* in relation to the dimension of 'having' a body (that enjoys itself). J.-A. Miller, 'L'Un tout seul' (2011), *L'orientation lacanienne: le cours de Jacques-Alain Miller* (1981–2011), Département de Psychanalyse de Paris-8, unpublished, Lesson XI, 4 May 2011.

15. In his own teaching, Miller articulates this question during his course *L'expérience du réel dans la cure analytique* (1998–1999). From there onwards, it becomes one of the key questions for the contemporary Lacanian Orientation, in so far as it has very direct implications for the psychoanalytic experience. It is a question that 'animates' the psychoanalytic experience.

16. Lacan gave this talk just before writing the seminal 'The Function and Field of Speech and Language in Psychoanalysis' (1953), which marked the public debut of 'Lacan's teaching'.

17. J. Lacan, 'The Symbolic, the Imaginary, and the Real' [1953], in *On the Names-of-the-Father*, trans. Bruce Fink, Polity, Cambridge, 2015, pp. 1–52, p. 7.

18. Ibid., pp. 8–9.

The English translation of the text reveals a tendency to confuse the term 'psychoanalytic experience' with 'psychoanalytic practice'. The argument here is that these two are not the same, not equivalent for one another. In French, the term *expérience* carries two senses, 'experience' and 'experiment', which continue to resonate in the use of the term in English.[19] The French physician Claude Bernard already noted these two senses of the French term in his book *An Introduction to the Study of Experimental Medicine* (1865). Bernard's project was of course distinct from Freud's (as well as from Brücke's school of physiology, from which Freud emerged),[20] distinct from Lacan's project and indeed from psychoanalysis in general. It was to define what conditions would be necessary for physiology to become part of an experimental science: 'a condition which, in turn, would allow medicine to exist free from doctrines, dogmas, systems and uncontrollable assumptions'.[21]

> In French the word *expérience* in the singular means, in general and in the abstract, the knowledge gained in the practice of life. When we apply to a physician the word experience in the singular, it means the information which he has gained in the practice of medicine. ... Subsequently the word *expérience* (experiment) in the concrete was extended to cover the facts which give us experimental information about things.[22]

During the first lesson of *Seminar III* (1955–1956), Lacan specifies that his conception of the 'Freudian experience' is 'in

19. An analysand recently recounted their experience: 'Psychoanalysis is like an experiment, not like therapy; you take the material things that occupy someone, shuffle them around and sometimes something sticks. For me it has had the effect that what was before completely unbearable has changed into something that is somewhat bearable.'

20. On Freud's early epistemology, see for example J. Tran The, P. Magistretti and F. Ansermet, 'The Epistemological Foundations of Freud's Energetics Model' (2018), *Frontiers in Psychology* 9, 1861. Doi: 10.3389/fpsyg.2018.01861.

21. González Recio, 'Who Killed Historical Positivism? An Approach to Claude Bernard's Epistemology', *Ludus Vitalis*, 7(22), 2004, pp. 61–82.

22. Claude Bernard, *An Introduction to the Study of Experimental Medicine* (1865), trans. Henry Copley Green, Dover, New York, 1957, p. 11.

no way pre-conceptual'.[23] This means that the psychoanalytic experience in line with Freud's invention is not 'pure experience', in so far as it is structured by 'something artificial'.[24] In *Seminar III* this is the analytic relation itself, as it is constituted by 'what the subject *recounts* to the doctor and by what the doctor *does with it*'.[25] It is by setting out from this initial mode of operation, a leap from speech to construction, that everything gets worked out.[26] Furthermore, Lacan is already moving away from an intersubjective understanding of the psychoanalytic relation as a form of communication, the notion prevalent in the first phase of his teaching. The analytic work is understood here to occur on two *distinct* levels.

The second important point in deploying the term 'psychoanalytic experience', is also already highlighted by Lacan in the first lesson of *Seminar I*: the singularity of the psychoanalytic experience (*la singularité de l'expérience analytique*).[27] This 'singularity'[28] concerns the changing status of the psychoanalytic symptom for Lacan, and later the 'knowing how to do with it' (*savoir-y-faire*)[29] drawn from the symptom's construction, in the course of an analysis taken to its formal – not therapeutic – end. In *Seminar I* Lacan points to Freud's 'nascent' (*germinale*) experience in psychoanalytic work, in so far as in his clinical practice Freud started from the complete *reconstruction* of the *subject*'s

23. Lacan, *The Psychoses*, p. 8.
24. Ibid., p. 8.
25. Ibid., p. 8, stress added.
26. Ibid., 8.
27. Lacan, *Freud's Papers on Technique*, p. 15. For the French, see J. Lacan, *Le Séminaire, Livre I, Les écrits techniques de Freud (1953–1954)*, ed. Jacques-Alain Miller, Éditions du Seuil, Paris, 1975, p. 22.
28. For the notion of the 'singular' within the discourse of the Lacanian Orientation, see for example, F.F.C. Shanahan, 'The Path of the Singular, a Singular Path', *LC Express*, 7(3), March 2024, pp. 2–6.
29. Lacan begins *Seminar XXIV* by asking what one identifies with at the end of analysis. He immediately delocalizes this question, away from identification as *the* analyst, as well as from the concept of the unconscious. Instead, he moves to situate the question as a concern with the status of the symptom at the end of an analysis. He asks, 'might it be a matter of identifying, by taking one's guarantees from a kind of distance, with one's symptom?' The symptom, as he further states, is what one knows (*connaît*) best. Lacan, *Seminar XXIV*, Lesson 16 November 1976, unpublished.

history (in distinction to the concrete or lived history or factual past of the individual). Lacan underlines the effect of this reconstruction, the *rewriting* of subjective history rather than merely remembering and reliving a set of past events, as the element that is 'essential, constitutive and structural for analytic progress'.[30] What was at issue for Freud, according to Lacan, was the understanding of an individual case. This is, he continues, what gives each of the five case histories their value. But the term 'singularity' also comes to name what in Freud's case histories goes beyond the limits of the individual. It also means that the character of this experience cannot be 'reproduced in its concrete reality'.[31] Lacan describes Freud's work as follows:

> It really was Freud who opened up this path of experience. This in itself gave him an absolutely unique perspective, as his dialogue with the patient demonstrates. As one can sense all the time, the patient is for him only a sort of prop, *or question*, or sometimes even a check, along the path that he, Freud, took alone. Hence the drama, in the true sense of the word, of his quest. The drama which, in each of the cases he gave us, ends in failure.[32]

Following the logic of Lacan's statement here, in so far as the reading of the term 'singularity' is at stake, this means in the first instance that Freud's work cannot be replicated as such. Freud does not construct a (universal) model for the psychoanalytic experience, but on the contrary – and as Lacan underlines – demonstrates his psychoanalytic 'quest', his questions as well as his failures. In this sense, the Freudian experience does not count as the natural number one from which the rest simply follow in an infinite and undisturbed concatenation. Freud's case studies are not *the* model for the psychoanalytic experience, regardless of whether a method is derived from them. On the

30. Lacan, *Seminar, Book I*, p. 12. It is to be noted that the 'subject' is neither the individual nor the ego, nor is 'subjective history' a matter of supposed objective reality.
31. Ibid., p. 15.
32. Ibid., stress added.

contrary, they should be read as demonstrating the earliest operation of the analyst as a 'function',[33] put to use by a particular analysand in the presence of a specific analyst. This, however, is not to say that Freud's case histories have ceased to teach about psychoanalysis, nor that the unique cases of Freud would not lend themselves also to some generality – 'since there is more than one psychoanalyst'.[34] But with Freud, as Lacan points out in *Seminar Book I*, 'the analytic experience represents uniqueness carried to its limit, from the fact that he [Freud] was in the process of building and verifying analysis itself'.[35] We cannot, as Lacan continues to emphasize, 'obliterate' the fact that it was the first time that an analysis was undertaken: 'doubtless the analytic method is derived from it'.[36] But, it is only a method for other people, in so far as Freud, for his part, 'did not apply a method'.[37]

A final point drawn from *Seminar, Book I* on the psychoanalytic experience continues to concern the question of therapy. For Lacan, a therapeutic approach is aligned with what *appears* to be 'harmonious and comprehensible' – escaping what is paradoxical in the human experience – but which nevertheless harbours some opacity.[38] In contrast, for the psychoanalytic experience it is 'in the antinomy, in the gap and in the difficulty

33. In his lecture 'Function and Concept' (in *The Frege Reader*, ed. Michael Beaney, Blackwell, Oxford, 1997) G. Frege discusses how the word 'function' was originally understood, then develops his theory of 'function' distinct from 'concept'. His starting point was what was called a function in mathematics. The answer, he explains, that we are likely to get to this question is: 'A function of x was taken to be a mathematical expression containing x, a formula containing the letter x' (p. 131). This answer, however, is not satisfactory for him, 'for here no distinction is made between form and content, sign and thing signified [*Bezeichnetes*]; a mistake, admittedly, that is very often met with in mathematical works, even those of celebrated authors' (p. 131). Rather, he argues, a function by itself must be called incomplete, in need of supplementation, or unsaturated, '[a]nd in this respect functions differ fundamentally from numbers' (p. 133). This description already allows for *the* (supposed) concept of the psychoanalyst to be distinguished from a 'function' an analyst operates for a singular speaking being (that which supplements a particular function).
34. Lacan, *Seminar, Book I*, p. 21.
35. Ibid.
36. Ibid.
37. Ibid..
38. Lacan, *Seminar , Book I*: p. 108.

that we happen upon opportunities of transparency'.[39] The term 'psychoanalytic experience' inscribes, from the very beginning of Lacan's teaching, a contradiction (for example, between language and a living body) as an opportunity of transparency, rather than as a problem to be overcome. It is, for Lacan, 'the point of view on which our method is found, and so I hope, our progress'.[40]

'*Temps Logique*' contra therapeutic experience

The German language, however, distinguishes between *Erlebnis* and *Erfahrung*, which both translate as 'experience' but differ in so far as the former implies knowledge from an event, from a specific experience (seen in the verb *erleben* in its meaning of 'to witness'), whereas the latter connotes knowledge gained through practice, a 'journey' of sorts (connected to the verb *fahren,* to travel; *erfahren*, to learn).[41] With this in mind, Freud's discussion in the Preface to the third edition of his seminal *Three Essays on the Theory of Sexuality* (1905), calls for some attention.[42] In this Preface (written in Vienna, October 1914), Freud distinguishes, on the level of the psychoanalytic experience, 'accidental factors' (*akzidentellen Momente*) from 'disposition' (*die Disposition*). He does so in a manner typical of his way of introducing distinctions that do not collapse into fixed binaries but rather introduce a supposed opposition that he extends to a variety of very precise interrelated articulations, opening their *difference* anew.[43] First, for Freud the composition of the text itself, the *arrangement*

39. Ibid.
40. Ibid.
41. This is what the prefix '*er*' also implies, to *gain* something by *going through*, rather than merely engaging in an activity.
42. I owe a mention to an NLS cartel with Maryam Shahidifar, Tuulikki Toropainen, and Alasdair Duncan: we undertook a close reading of the *Three Essays on the Theory of Sexuality* together.
43. S. Freud, *Three Essays on the Theory of Sexuality* (1905), in *The Standard Edition of the Complete Psychological Works of Sigmund Freud*, Volume VII, *1901–1905*, trans. James Strachey, Hogarth Press, London, 1953, p. 131.

of its topics, is drawn from the actuality of the psychoanalytic experience:

> The fact that this book is based upon the psychoanalytic observations [*den psychoanalytischen Erfahrungen*][44] which led to its composition is shown, however, not only in the choice of the topics dealt with, but also in their arrangement.[45]

Freud underlines how, throughout the entire work, the various *factors,* which have emerged not from the literature but rather from the analytic encounters themselves, are placed in a particular order of 'precedence' in so far as 'preference is given to the *accidental factors* [or, in other words, actuality], while *disposition* [or, in other words, logical structure] is left in the background'.[46] Freud thus inscribes the 'essence' of the psychoanalytic experience: the fact of contingency in relation to the fact of structure (inscribing 'in the background' the antinomic relation between the signifier and jouissance).[47] This means that even though the fact of structure ('disposition') grants knowledge(s) generated through the psychoanalytic experience some generalizability, contingency (also in its modality of surprise) nevertheless takes precedence:

> For it is the accidental factors [*Das Akzidentelle*] that play the principal part in analysis: they are almost entirely subject to its influence. The dispositional ones [*das Dispositionelle*] only come to light after them, as something stirred into activity by experience [*Erleben*]: adequate consideration of them would lead far beyond the sphere of psychoanalysis.[48]

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44. Again, the term 'psychoanalytic experience', and also the particularity of *Erfahrung*, are lost in the English translation, collapsing psychoanalytic practice into mere 'observation'. See S. Freud, *Drei Abhandlungen zur Sexualtheorie,* Fünfte, Unveränderte Auflage, Franz Deuticke, Leipzig and Vienna, 1922, Vorwort zur dritten Auflage (emphasis added).
45. Freud, *Three Essays on the Theory of Sexuality*, p. 131.
46. Ibid.
47. For further discussion on the *antinomic* relation between the signifier and jouissance, see J.-A. Miller, 'L'Un tout seul' (2011), *L'orientation lacanienne: le cours de Jacques-Alain Miller* (1981–2011), Département de Psychanalyse de Paris-8, unpublished.
48. Freud, *Three Essays on the Theory of Sexuality*, p. 131.

Structural factors of the psychoanalytic *Erfahrung* are activated through the contingent instance of *Erleben.* For Freud, in the *Three Essays on the Theory of Sexuality*, a similar relation holds between ontogenesis (the development of an organism) and phylogenesis (the development of organisms as the evolutionary history of a species).[49]

> The relation between ontogenesis and phylogenesis is a similar one. Ontogenesis may be regarded as a recapitulation of phylogenesis, insofar as the latter has not been modified by more recent experience [*Erleben*]. The phylogenetic disposition can be seen at work behind the ontogenetic process. But disposition is ultimately the precipitate of earlier experience [*Erlebens*] of the species to which the more recent experience [*Erleben*] of the individual, as the sum of accidental factors [*der akzidentellen Momente*], is super-added.

Disposition, or the phylogenetic 'structure', is the abrupt ('the precipitate') coming together of the species, rather than a natural given organizing individual organisms according to an uninterrupted gradual development due to an innate cause. The effect of time is underlined by Freud in relation to the 'accidental' in so far as *der akzidentellen Momente* in German inscribes not only an accidental 'factor' but also an unexpected instance of time into the supposedly uninterrupted concatenation of 'experiences'. Hence the alignment of *Das Akzidentelle* to contingency seems appropriate. The contingent can have an 'instantaneous' character in so far as it can refer to a sudden (however persistent) emergent (factor). But in relation to the psychoanalytic experience, it is aligned neither with the phenomenal experience of time (or historical time), nor with time in the sense of physics, but rather with what Lacan calls 'logical time' (*temps logique*).[50]

49. Freud borrows these terms from biologist Ernst Haeckel (1866), diverting instantly from his claim. See K. Sander, 'Ernst Haeckel's Ontogenetic Recapitulation: Irritation and Incentive from 1866 to Our Time', *Ann Anat*, 184(6), November 2002, pp. 523–33. doi: 10.1016/S0940–9602(02)80092–9. The importance of the question of ontogenesis, and its intricate relation to phylogenesis, for contemporary psychoanalysis from the point of view of Lacanian theory is currently being investigated by Emily Laurent-Monaghan

50. The conjunction *temps logique* is found both in Lacan ('Le temps logique et

In the article 'Logical Time and the Assertion of Anticipated Certainty: A New Sophism' (first published in *Cahiers d'art 1940–1944,* 1944), Lacan constructs his concept of logical time as having three constitutive moments: (1) instant of the glance (or seeing); (2) the time for comprehending; and (3) the moment of concluding.[51] Decades later, in his second constitutive intervention for the organization of his School, 'Proposition du 9 October 1967 sur le psychoanalyst de l'École', Lacan outlined psychoanalysis as distinct from therapeutics by further noting the structural effect of time in the psychoanalytic experience:

> In fact, we can forget its important raison d'être, which is to constitute psychoanalysis as an original experience, to *push it to the point where its finitude is revealed*, in order to allow the 'après-coup,' the effect of time, which, as we know, is radical for it. This experience is essential to *isolate it from therapeutics*, which does not distort psychoanalysis simply by relaxing its rigour.[52]

The distinction Lacan makes between therapeutics and psychoanalysis is based on his conception of logical time. According to him, the actuality of the psychoanalytic experience distinguishes itself as a finite experience in order to 'enable its retroactivity', an effect of logical time which is fundamental to it. It is fundamental in so far as what matters for the psychoanalytic process is not so much *when* something took place (as a

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l'assertion de certitude anticipee. Un nouveau sophisme', *Cahiers d'art, 1940–1944*, pp. 32–4) and in G. Bachelard (*Le rationalisme appliquée*, PUF, Paris, 1949, pp. 60, 96). For this reference, see the 'Conclusion' by Matt Hare in 'The Effective as the Actual and as the Calculable in Jean Cavaillès' (2022), *Noesis: L'objectivité en mathématiques/Objectivity in Mathematics* 38, 2022, pp. 213–35. Hare writes: 'I take the conjunction "logical time" to name a cluster of theoretical problems that arise around attempts to theorise an intrinsic "time' of reasoning or of science, one which would not be derived from "temporality" understood as indexing first-person temporal experience. The formulation of such theories of logical time tends to be constitutively negative: what is it at stake is *not* the phenomenal experience of time, *not* historical time, *not* time in the sense of physics, and so forth. But it remains unclear whether this median position occupied by a supposed "pure" time of reasoning is a consistent theoretical category' (private correspondence).

51. J. Lacan, 'Logical Time and the Assertion of Anticipated Certainty' [1945], *Écrits*, trans. Bruce Fink, Norton, London, 2006, pp. 161–75.

52. J. Lacan , 'Proposition du 9 octobre 1967 sur le psychanalyste de L'École' [1967], *Autres Écrits*, Editions du Seuil, Paris, 2001, p. 246, emphasis added.

mere representation of reality conflated to 'objective' time) as *in what order* events manifest themselves (implying a psychical and, as such, 'subjective' causality). This means that psychoanalytic experience is a finite experience, like any therapeutic experience attempts to be, but that its finitude cannot be known *a priori*. For the psychoanalytic experience, according to Lacan, 'time' is not measured as an 'objective' entity but, on the contrary, is subjective and 'measurable' only after the (logical) effect of it.

Lacan's conception of 'logical time' aimed to answer for psychoanalysis how 'rational' certainty can only be reached by introducing a cut; by breaking the successive effect of time with the 'moment of hesitation', inscribing in this way the subject (as the effect of the signifier which produces a gap, a break in the signifying concatenation) into this conception of material temporality (that is, the movement of signifying articulations and their libidinal effects for a speaking being) for the psychoanalytic experience. It introduces a retroactive finitude, while making it possible to arrive at *demonstrable* – and only as such 'objective' – certainty for psychoanalysis. It does this in contradistinction to the consecutive effect (continuous and formally infinite) of physical (real) time, which runs ahead without any breaks.

Therapeutic experience, in the light of this conception, cannot arrive at real (demonstrable) 'objective' certainty with regard to the logic of its effects (on patients). This is in so far as therapeutic activity aims for generality in terms of the normative (contra pathological) functioning it aims to restore for the individual patient. The therapeutic effect is supposed to be known *a priori*, pointing to a non-subjective (general) finitude for the therapeutic experience. Curiously, with Lacan, it is the inscription of the 'subjective' into the concept of time (formally introducing a break in the idea of movement) that allows for 'objective' certainty (for example, universal knowledge). But this is only in so far as the steps of rationalization can be formally demonstrated – that is

to say, without any individual interpretation or psychological experience.

In this sense, the term 'psychoanalytic experience' refers to a structural understanding of experience, which is distinct from a 'structuralist' approach to human psychology. The 'Proposition' (1967) constitutes a crucial example of Lacan's conception of the psychoanalytic experience. In just a few remarks, Lacan outlines how psychoanalysis is distinct from *therapeutics*, through this experience that cannot be reduced to either a purely rational deduction or a mere continuum of empirical observation. The element or idea of 'discontinuity' is therefore important with regard to the term 'psychoanalytic experience', particularly in so far as Lacan emphasizes the latter's distinction from therapy and clinical experience. The subject produced by this experience is not the result of an undisturbed process of individual progression or therapeutic utility because the cause-and-effect relation for Lacan is never without a 'gap' in between,[53] which in itself introduces the structural place for the Freudian unconscious – 'something that does not work'.[54]

A leap to the concept

To refine the theoretical scope of the term 'psychoanalytic experience' a letter from Louis Althusser to Lacan (4 December 1963), is helpful.[55] The letter is intriguing, not only because it outlines some of the themes Lacan takes up in his opening lesson of *Seminar XI* in 1964[56] – the letter and the

53. Cause // effect (and not cause ▸ effect).

54. For Lacan, in short, there is cause only 'in something that does not work'. And this is in so far as, by approximation, the Freudian unconscious is situated at that point, where 'between the cause and that which it affects, there is always something wrong'. Lacan, *The Four Fundamental Concepts of Psychoanalysis*, p. 22.

55. L. Althusser, 'Louis Althusser to Jacques Lacan' (Paris, 4 December 1963), in *Writings on Psychoanalysis*, trans. Jeffrey Mehlman, Columbia University Press, New York, 1996, pp. 151–8.

56. The seminar on *The Four Fundamental Concepts of Psychoanalysis* which began Lacan's teaching at the École normale supérieure, ENS, by the invitation of Althusser.

lesson in terms of their content are almost equivalent – but because in this letter Althusser articulates his view of Lacan's importance in taking seriously the *discontinuity* between theory and experience (in terms of a practice). This, however, does not lead Althusser to disclaim the clinical practice of psychoanalysis for its theory. On the contrary, he poses the question of the relation between them: how can one accede, from the very heart of a practice pursued or experienced, to its *concept*?[57] Lacan, in Althusser's view, does something remarkable, in so far as a 'leap' from experience (practice) to its concept (theory) is a matter which in itself requires some theorization. It is not, in fact, to be taken as a mere attempt at bridging a preexisting gap or closing in on the route between two opposing 'territories'. First, there needs to be a conception that distinguishes the practical realm of experience, which is strictly distinct from theory proper: 'One does not pass without a break from a practice to its concept, from experience to its concept.'[58] Second, 'theory' has to come from doing a particular theoretical work (for example, a systematic enquiry into the functioning of a certain problem in order to move it forward), against mere reflection (a retrospective turning back on prior experience), 'and in a sense this is why theoretical work is intrinsically connected to writing'.[59]

Althusser is not unaware of his position of 'exteriority'[60] to the psychoanalytic experience, and to the school of Lacan. In his relatively stark view, Althusser claims that before Lacan the theory of psychoanalytic practice (that is, 'psychoanalytic experience' as a 'concept' that inscribes a break in the subject–object relation that it founds)[61] simply did not exist; 'a common

57. Althusser, 'Louis Althusser to Jacques Lacan', p. 151.
58. Ibid., pp. 154–5.
59. Hare, private conversation.
60. 'that constitutes the witness that I am'. Althusser, 'Louis Althusser to Jacques Lacan', p. 151.
61. For Althusser's theory, the idea of the 'break' indicates the mutation of a

experienced but *unthought* practice'.[62] Althusser reads in Lacan's work the inscription of discontinuity between the experience of a 'lived' practice and the process of its formalization into a 'concept' (that is, its theory). Lacan, according to Althusser, has 'admirably' shown that problems of analytic technique cannot be resolved at the level of technique, 'that a *leap* was needed – the recourse to theory'.[63]

> It's an entirely different problem that concerns the transition from what I would call a 'practical truth' (which is practiced or experienced) to the theory of that truth or to its concept. Now this problem is, at bottom, a specific – and crucial – theoretical problem.[64]

In the final analysis, only theory describes and determines problems of technique. What does that mean? For Althusser, there is no pure and simple technique, which would be only technique, 'practiced by people without any idea of theory', and furthermore to whom that theory must be taught so that they can then reform their technique. The conflict, for him, is not between a 'pure' technique *without theory* and pure theory. There is no 'pure technique', which Lacan, as Althusser points out, has shown. Any technique in Althusser's view that wants to be pure technique is, in fact, an 'ideology' of technique – that is, 'a false theory'.[65]

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pre-scientific problematic into a scientific problematic. This is already the case in his description of Lacan's contribution to the history of psychoanalysis. In his own work, Althusser established the contours of the double function of the 'epistemological break' in Marx's theory, which divided Marx's thought into two essential periods: the 'ideological' period before, and the 'scientific' period after the break in 1845. See also Althusser, 'Louis Althusser to Jacques Lacan', p. 154.

62. Althusser, 'Louis Althusser to Jacques Lacan', pp. 15, 154.
63. Ibid., p. 152.
64. Ibid.
65. Ibid.

Correct distance, vis-à-vis 'mathematical experience'

If 'psychoanalytic experience' is a framing device, aiming to delimit as well as to make apparent certain problems within, discussions on psychoanalysis – expressing thereby a new way of looking at psychoanalysis 'and therefore a way of looking at a *new* psychoanalysis'[66] – what do we gain by aligning this term to another notion from the field of philosophy of mathematics: 'mathematical experience'?[67] Posing such a question prior to engaging in the very attempt requires caution, since such an engagement may in fact cause more confusion than provide added clarity. A similar 'caution' is not alien to discussions in the field of philosophy of mathematics. Brice Halimi describes the problem faced by any philosophy of mathematics in situating philosophy at the *correct distance* from mathematics:

> too close and philosophy will end up being nothing more than an illustrative paraphrase of the concepts and results of mathematics; too far away and philosophy of mathematics merges into a general theory of abstraction – of both abstract objects and the conditions under which they can be known – with the risk of losing the specificity of mathematics, particularly mathematics as symbolic activity.[68]

Could we say that in the field of psychoanalytically invested academic writing, the term 'psychoanalytic experience' indicates,

66. This paraphrases Wittgenstein's discussion of a new way of looking at calculation, in L. Wittgenstein , *Philosophical Grammar*, ed. Rush Rhees, trans. Anthony Kenny, Blackwell, Oxford, 1974, p. 438.

67. *L'expérience mathématique* was, as Paul Cortois points out, the title Cavaillès had in mind for a book he wanted to write about the specific characteristics of mathematical knowledge. See Paul Cortois, 'The Structure of Mathematical Experience According to Jean Cavaillès', *Philosophia Mathematica*, 4(1),1996, pp. 18–41.

68. B. Halimi, 'Logic, Cavaillès's Sought-After Science', *Revue de métaphysique et de morale*, 106(2), 2020, pp. 145–164.

The stake for the kind of philosophy of mathematics that matters for Halimi is to distinguish it from 'philosophy of mathematical practice' (PMP) and, on the other hand, from a general theory of knowledge. It could be said that the idea here is also not to implement a kind 'philosophy of psychoanalytic practice'. On PMP, see for example, J. Carter, 'Philosophy of Mathematical Practice – Motivations, Themes and Prospects', *Philosophia Mathematica* III, 27(1), 2019, pp. 1–32.

or *is*, the very distance between 'psychoanalysis' and 'philosophy', 'psychoanalysis' and 'psychotherapy', and even between 'psychoanalysis' and the academic discourse as such? As a 'concept' it is, then, a *measure* of practical commitment in the field of theory.[69] It underlines how one does not get away from simply stating that 'clinical' (plainly practical) concerns are not relevant in the field of theory. It proposes an antinomic conjunction between a theory of psychoanalysis and its application as 'therapeutics' – worked anew each time the 'concept' is put to work. And it also takes us beyond such an appellation. For this, a brief discussion of the concept[70] of 'mathematical experience' (*l'expérience mathematique*), constructed by the French philosopher and historian of mathematics Jean Cavaillès (1903–1944), may prove to be useful.

In 'The Structure of Mathematical Experience According to Jean Cavaillès', Paul Cortois describes mathematics, for Cavaillès, as a body of knowledge growing and changing under the pressure of *open problems* that are first and foremost *internal* to its own development. This description presents 'mathematics' as a structured body knowledge that moves under a contradiction: its development necessitates an open form for internal and, as such, enclosed problems. However, this contradiction is not resolved by extending the reach of solutions to problems in other fields of knowledge. The tension is held 'within' mathematics. There is a precise resonance here with how the term 'psychoanalytic experience' functions as locating and sustaining similar tensions in the field of psychoanalysis (for example, with the idea of the unconscious as a construction *from within* the psychoanalytic experience). Furthermore, for 'psychoanalytic experience', *a*

69. That is, theory has to come from somewhere; it cannot be mere reflection.

70. The term 'concept' is used here in a broad sense to mean a conception of something specific. The question of the concept in Cavaillès is a matter for those invested thoroughly in his philosophy of mathematics. See, for example, M. Hare, 'The Philosophy of the Concept and the Specificity of Mathematics', in Peter Osborne, ed., *Afterlives: Transcendentals, Universals, Others*, CRMEP Books, Kingston upon Thames, 2022.

problem (a symptom) is open to the extent that it manifests itself regardless of specialist knowledge, but the trick is to 'capture' it in speech and put it (and *a* knowledge constructed of it) to work in the process of an analysis. For this, an analyst must learn to speak a language of the analysand. And it is precisely the question of *how* to hold open some margin within academic writing for any articulation of such processes, against the collapse of the entire field of 'psychoanalysis' into 'psychology', or just another set of theories on subjectivity, enjoyment and language.

For Cortois, the crucial steps in mathematical development – the *moments solennels* in the history of mathematics, as Léon Brunschvicg called them – often occur due to 'unpredicted encounters' between theories seemingly far remote.[71] The role that Cavaillès, according to Cortois, gives to the 'post-foundational' philosopher of mathematics is to give an analysis and description of these mechanisms of mathematical abstraction, 'making intelligible the very character of mathematics as an experience, an *adventure* of conceptual progress'.[72] Mathematics is the paradigm case, for Cavaillès, of a 'self-correcting process of intrinsic conceptual innovation'.[73]

The character of mathematics as an *unpredicted* adventure of conceptual progress serves to demonstrate how 'invention' is not alien to conceptual (structured) process if it remains open to an 'encounter'. For Cavaillès, however, the requirement of inserting *any new insight* into a freely growing system of demonstrative concatenations subject to no other test than mathematical practice excludes the dependency of mathematics on any 'external loan'.[74] Instead, for Cavaillès, mathematical thought is constructive, 'in the sense that existence is always dependent on the possibility of *some form of actualization*'. But it is not, as

71. Cortois, 'The Structure of Mathematical Experience', p. 5.
72. Ibid., p. 4; emphasis added.
73. Ibid.
74. Cavaillès in ibid., p. 4.

Cortois also says of the mathematical experience, constructivist, 'since the set of means of actualization and effective attainment are never founded or definable of fixed principles or restrictions'.[75] Similarly, the question of the (generating) act realizing the object, and the contingent *cause* of the problem 'without an initial term' speaks to the psychoanalytic experience:

> The [mathematical] objects attained are engendered by acts, but we have no way of keeping a control on the set of actualizing mechanisms since the necessity of the acts involved is dictated by the objects already brought into existence (and the problems internal to them) and the interactions of these objects and problems with the ones that are about to be generated. Thus the generating acts themselves are characterisable only in terms of the reality of the objects generated. Perhaps this involves a kind of regress, but for Cavaillès, then, this regress is typical for the very being of mathematics as a never-ending concatenation of concepts without initial term.[76]

Psychoanalysis is not a never-ending concatenation of concepts. However, the term 'psychoanalytic experience' does imply generating acts that themselves are characterizable only in terms of the reality of the objects generated. For example, the 'unconscious' that matters for the psychoanalytic experience is the one constructed within it from the real effects of speech that go beyond the grasp of language. In this sense the term can only be a framing device. It delimits and focuses discussions on psychoanalysis, drawing out the conceptual contours of a discourse put to practice in the actuality of the psychoanalytic work.[77] And if it calls for fidelity to this actuality, it does so in order to realize anew the theoretical concepts inscribed into its practice. In this

75. Ibid.
76. Ibid., p. 5.
77. This notion of 'work' is not without what Éric Laurent referred to as 'un-work' in the article, 'Private Language, Private Jouissance' (delivered at PULSE held in Paris on 2 May 2010): 'The issue is not to work, it is to *un-work*; ... The connection with jouissance is beyond any possible work.' E. Laurent 'Private Language, Private Jouissance' [2010], *Hurly-Burly* 6, September 2011.

way the term proposes a means to think *from* the incompatibility between academic discourse and psychoanalysis, in a way that does not merely state an impossibility, nor advance without any attention or sensitivity to this problem. The overall aim, therefore, of the theoretical effort in this chapter is to further the possibility of clarifying *how* this incompatibility can come to contribute to a conception of 'psychoanalysis' as a distinct discipline that pertains to its own logic of operation.

8

Sense and sexuality: Wittgenstein, psychoanalysis and queer theory

NIKLAS TOIVAKAINEN &
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Can there be a radical social critique, if we mean by this a critique that would go all the way to the sources or to the roots of 'the social'? The question invokes a picture which seems to trap us. For how are we to disentangle the very means by which we are to formulate our critique from the very sociality – its conditioning structures – we aim to expose and critique? And if we cannot disentangle our critique from 'the social', would not any critique thereby precisely lack *radicality* – and would this not entail that any, as it were, 'positive' features of a discursive critique ultimately and inevitably in fact ended up contributing to the reproduction of the social reality we sought to critique? The sober voices of Enlightenment optimists might attempt to calm such deep suspicions about the possibilities of discursive rationality by pointing out that it is our discursive capacity that has enabled the awareness of a need for social critique. We are not, in other words, trapped and determined by 'the social'; discursive rationality has a dimension to it that *transcends* that which is in need of, and can be the object of, critique.

It is not that one cannot or that one has no right to be convinced by such reassurance. The question is, rather, what the appeal of such a reassurance is. For it certainly does not

constitute a knock-down argument – or, if it does so, one has already been *drawn* by its appeal. One might, in other words, simply take any such reassurance as Enlightenment blackmail[1] and hold that the appeal of a belief in discursive reason is underpinned by an anxiety about the negativity entailed by the idea of radical social critique; a critique, and a negativity, which 'the social', perhaps our very subjectivity, might not survive.

Contemporary queer theorist Lee Edelman belongs to those who have most insistently followed this path of *negativity*, not shying away from the radically disruptive implications entailed for 'the social' by it. In this chapter we critically examine some of the defining philosophical ideas informing Edelman's theory by juxtaposing them with key elements in both the 'early' and the 'late' Wittgenstein. In our reading of Wittgenstein, we suggest a somewhat novel way of understanding the relationship between his 'later' philosophy and psychoanalysis, which in turn will allow us to pinpoint the trouble we have with Edelman's account.

Edelman's radical queer critique and the inexpressible in Wittgenstein's *Tractatus*

At the heart of queer theorist Lee Edelman's definition of queerness – mainly derived from Lacanian psychoanalytic theory – we find the claim that queerness proper is identified as what Edelman calls 'ab-sense': that is, a pure negativity or pure indifference (non-differentiation), which is, according to Edelman, 'a priori absent from being' – 'being' being 'symbolically' constituted.[2] In this way queerness is assigned to the (theoretical) realm of the Lacanian 'Real'.[3] Conversely, only by

1. Cf. Michel Foucault, 'What is Enlightenment?', in P. Rabinov, ed., *The Foucault Reader*, Pantheon Books, New York, 1984.
2. Lee Edelman, *Bad Education: Why Queer Theory Teaches Us Nothing,* Duke University Press, Durham NC, 2022, p. xiv.
3. See, for instance, Jacques Lacan, *The Sinthome: The Seminar of Jacques Lacan, Book XXIII*, trans. A.R. Price, Polity Press, Cambridge, 2016.

'absenting' the 'ab-sense' feature of reality – only through a negation of negativity as such – does the symbolic structure (differentiation) sustaining being come into being.[4] Consequently, the order of symbolic being, the authoritative power upholding the order of being, necessarily represses (and suppresses) the pure negativity or nondifferentiation looming beneath each symbolic differentiation. What is repressed, however, inevitably resurfaces or returns – as both Freudian psychoanalysis and everyday experiences tell us. Queerness, with its declared connection to the Real, to the repressed as such, manifests this eruptive return, Edelman contends, in 'an enjoyment in excess of the pleasures associated with the good, [and] figures meaning's collapse and the encounter with ab-sense'[5], 'any enjoyment', that is, 'that seems to threaten a world'.[6] Edelman here (implicitly) ascribes queerness a universal property – a contradiction in terms, one might say.[7] Queerness is in this way omnipresent, looming in or beneath each individual's identity and self-understanding, while specific cultural and historic contexts, with their specific normative structures, *contingently* – yet as a necessary feature of any culture – force some individuals ('woman', 'black', 'gay', etc.) to 'embody' the repressed ('nonnormative') negativity precisely because they occupy positions that potentially threaten the *sense* of the prevailing world by not fitting into it.[8] In its radical form, social critique cannot, consequently, contribute any positive content. 'Queer theory teaches us nothing', as the subtitle of Edelman's latest book proclaims. Rather, it contributes to the withdrawal from the reproduction of the social into a primordial negativity.

4. Edelman, *Bad Education*, p. xiv.
5. Ibid., p. 20.
6. Ibid., p. 19.
7. Cf. Heather Love, 'Review of Lee Edelman's *Bad Education*', *Critical Inquiry*, 17 November 2023.
8. Edelman, *Bad Education*, pp. 19–20.

Edelman's notion of queerness *qua* the (Lacanian) Real as that which necessarily exceeds all attempts at symbolic representation has, we suggest, an interesting affinity with Ludwig Wittgenstein's (in)famous closing lines in *Tractatus Logico-Philosophicus* (henceforth *TLP*), 'Whereof one cannot speak, thereof one must be silent'.[9] The affinity here would, of course, consist in the fact that both Edelman and the 'early' Wittgenstein (in *TLP*) seem to propose that there is perhaps not *a something* but a *reality*, or an essential feature of reality that we cannot signify as such; a reality more real than anything we can signify *as* real. On the other hand, this affinity, or proximity, also comprises an important, decisive even, difference between the two, one worthy of consideration.

Whereas for Edelman the inexpressible comprises a pure negativity of sense, an 'ab-sense', something that can, nevertheless, somehow erupt into the symbolic in the form of an enjoyment that disrupts and threatens the being of the world, for Wittgenstein the unsayable does not form a contrast or opposition to, a disruption of, sense. Rather, in *TLP* the inexpressible *is* the sense of the world: 'the sense of the world must lie outside of the world'.[10] Wittgenstein is certainly in agreement with the Edelmanian–Lacanian idea that meaning and sense cannot be grounded; that any symbolic structure contains a hole, or a lack with respect to the grounding of sense. But in contrast to Edelman, *TLP* simply observes that the structure of logical properties, or the logical form of propositions (in general), cannot be said, explained or represented. This is for the simple (logical) reason that one cannot represent – that is, 'say' – what the 'form

9. Ludwig Wittgenstein, *Tractatus Logico-Philosophicus; with an Introduction by Bertrand Russell*, Routledge, London, 2005. In his seminar XIX, Lacan himself suggests a close affinity between his notion of 'the real' and Wittgenstein's closing lines in *TLP*. Jacques Lacan, *...or Worse: The Seminar of Jacques Lacan, Book XIX*, trans. Jacques-Alain Miller, Polity Press, Cambridge, 2018.

10. Wittgenstein, *Tractatus Logico-Philosophicus*, 6.41 The *Tractatus* consists of numbered remarks. We will refer, as is conventional, only to the number of the remark and not to the page number.

of representation', the sense of propositions, is, as it is exactly by way of the forms of representation that we mean what we say.[11] Any account, explanation, representation or theory of the sense of propositions presupposes the sense of the explanatory proposition or theory itself. So, while it certainly is possible to define one's uses of words, to explain them, the *sense* of this and of any proposition must, according to *TLP*, 'show itself'[12] – and, we might add, with reference to Wittgenstein's later thought, that it shows itself *in/as our understanding of the proposition*, an idea to which we return below. Consequently, and pace Edelman, the inexpressible does not, in the Tractarian universe, 'threaten' the structures or the sense of the world as such. Rather, the inexpressible *shows* itself *as* the sense of the world. There is no logical room for an encounter with 'ab-sense' in *TLP*. What lies outside of sense is 'simply nonsense',[13] non-thought *disguised as thought*, under the *pretence* of making sense. The unsayable is *not* an *other* to sense, not absolutely indifferent to sense.

The intersubjective nature of sense: from *Tractatus* to *Philosophical Investigations*

Much has been written about what Wittgenstein thought were his 'grave mistakes'[14] in *TLP* and how his second major book, *Philosophical Investigations* (Henceforth *PI*), combatted, perhaps even overcame, some of these mistakes, putting forward a new understanding of language and meaning, and of philosophy. For the purposes of this chapter, it will suffice to focus on one aspect – one that we nonetheless believe to be crucial, if not essential. Moreover, we argue that this aspect is also essentially connected

11. See, for example, ibid., 2.172; 2.174.
12. See, for example, ibid., 4.022; 4.461; 6.12; 6.522
13. Ibid., *Preface*.
14. Ludwig Wittgenstein, *Philosophical Investigations*, trans. G.E.M. Anscombe, P.M.S. Hacker and Joachim Schulte, rev. 4th edn, Wiley-Blackwell, Malden, 2009, Preface.

with Wittgenstein's interest in psychoanalysis (specifically in Freud's writings), an interest that grew on him especially in the early 1930s when he was beginning work on *PI* and continued to the end of his life in the early 1950s.[15]

Regardless of his critique of Freud's theory and despite his warnings against the temptations to misunderstand psychoanalysis produced by psychoanalysis itself,[16] Wittgenstein nonetheless reportedly told his close friend in the mid 1940s that he was 'a disciple' and 'a follower of Freud'.[17] At first glance, however, one might certainly wonder in what such a discipleship might consist. Not only does *PI* seem to lack any theoretical rigour and any explicit reference to psychoanalytic theory and concepts. It also lacks the one thing one would expect to find in a work by a disciple of Freud, namely the question of sex and sexuality. Can one be a follower of Freud without talking about sex? Perhaps not. Yet, given the way sex(uality) inflated itself in Freud's theory to every corner of human life – that is, given Freud's observation that one cannot think a human life without thinking of it *as* sexual, and the reasons for why this was so – it is not unambiguously clear that *PI* does not discuss the question of sex.[18]

While *PI* completely lacks the words 'sex' and 'sexuality', or any explicit reference to them, Wittgenstein nevertheless

15. See, for instance, Ludwig Wittgenstein, *Lectures & Conversations on Aesthetics, Psychology and Religious Belief*, ed. Cyril Barrett, University of California Press, Berkeley CA, 1989; Brian McGuinness, 'Freud and Wittgenstein', in *Wittgenstein and His Times*, ed. B. McGuinness, Blackwell, Oxford, 1981.

16. McGuinness, 'Freud and Wittgenstein'.

17. Wittgenstein, *Lectures & Conversations on Aesthetics, Psychology and Religious Belief,* p. 41.

18. Much has been written about Wittgenstein's relation to psychoanalysis. For instance, McGuinness, 'Freud and Wittgenstein'; Gordon Baker, 'Wittgenstein's Method and Psychoanalysis', in G. Baker, *Wittgenstein's Method: Neglected Aspects*, Blackwell, Oxford, 2004; Jacques Bouveresse, *Wittgenstein Reads Freud: The Myth of the Unconscious*, trans. Carol Cosma, Princeton University Press, Princeton NJ, 1995. However, the focus in these works is more or less exclusively on Wittgenstein's 'therapeutic' method and its affinities with the method and aims of psychoanalysis. Notwithstanding the importance of such readings, we nonetheless claim that not taking into account the absence of sex in Wittgenstein's writings, or not attempting to place the question of sex in relation to Wittgenstein's philosophy/writing, leaves a deeper understanding of both Wittgenstein's relation to psychoanalysis and of the insights gained from this relation uncharted.

opens his book with an element that lies at the epicentre of the psychoanalytic universe, namely with a *primal scene.* To be more precise, *PI* opens with a *primal scene* of language acquisition, one that is posited as a picture of 'the essence of human language'.[19] This scene, which raises fundamental questions about meaning and sense, can and should be understood, we contend, as a primal scene in a double sense. It is a primal scene in that it constitutes a primal picture or mythology *and,* simultaneously, functions as the primal scene of the work itself, the scene from which the work springs to life, to which it constantly responds, and which it therefore never can leave behind but constantly reiterates as a symptom.[20] In other words, a primal scene in the Freudian sense.[21] There is also the following feature of the primal scene of *PI* that connects it to Freud: the scene locates the question of language and meaning as inescapably intersubjective, which is, arguably, the decisive difference to *TLP* where the defining relationality is between a (transcendental) subject and propositions (logical form). Even more so, the opening scene of *PI* is primal – and Freudian – because it places the question of 'the essence of human language' in the primary relation between infant and caretaker; it is a scene taken from Saint Augustine's *Confessions*[22] depicting the first instance of language acquisition as one in which the infant Augustine is ostensively trained by his parents to correctly learn the name of objects in order to be able to communicate his desires.[23] As we shall argue, it is precisely

19. Wittgenstein, *Philosophical Investigations*, §1. Like *TLP, PI* consists of numbered remarks. We refer only to the numbered remarks and not to the page numbers.

20. See Niklas Toivakainen, *Self, Other, and the Weight of Desire*, Palgrave Macmillan, London, 2023, ch. 5.

21. See, for instance, Jean Laplanche, *Life and Death in Psychoanalysis*, trans. J. Mehlman, Johns Hopkins University Press, Baltimore MD, 1976; Tomas Geyskens, *Our Original Scenes: Freud's Theory of Sexuality*, Leuven University Press, Leuven, 2005.

22. Augustine, *Confessions*, trans. Vernon J. Bourke, Catholic University of America Press, Washington DC, 1966.

23. The quoted passage reads as follows: 'When grown-ups named some object and at the same time turned towards it, I perceived this, and I grasped that the thing was signified by the sound they uttered, since they meant to point *it* out. This, however, I gathered from their gestures, the natural language of all peoples, the language that by

by invoking such a primal scene that *PI* binds the question of meaning to what can be called 'love' and thereby to sexuality in the psychoanalytic sense. Moreover, as we try to suggest, Wittgenstein's peculiar treatment of the question of the 'essence of human language' may even show us something that becomes displaced in Freud's own thoughts and something that might encourage us to rethink Edelman's identification of queerness *qua* the Real in terms of the disruptive as such.

We have elsewhere[24] discussed in detail the way in which the opening scene of *PI* unfolds and reiterates itself throughout the work and the particular way in which the question of meaning raised by the scene resists any grounding and exhaustive explanations, as well as in what sense, or how and why, the question of love emerges as central. We shall refrain from rehearsing all the arguments here and simply attempt to give a quick account of the essential parts. As mentioned, the scene from Augustine's *Confessions* depicts ostensive training as the primal form of language acquisition, a point that is reiterated in a few remarks following the opening paragraphs in *PI* when Wittgenstein makes the observation that when children learn the most basic forms of uses of words, they are taught this not by way of explanations or definitions but by way of training.[25] The emphasis on *training*, as opposed to ostensive *definition*, is as relevant as it is self-evident, for what it does is to remind us that sense and meaning will always exceed any explanation or definition, precisely because explanations and definitions are ultimately preceded by 'training'. We have already in the opening remark

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means of facial expression and the play of eyes, of the movements of the limbs and the tone of voice, indicates the affections of the soul when it desires, or clings to, or rejects, or recoils from, something. In this way, little by little, I learnt to understand what things the words, which I heard uttered in their respective places in various sentences, signified. And once I got my tongue around these signs, I used them to express my wishes.' *PI*, §1.

24. See Toivakainen, *Self, Other, and the Weight of Desire*; Niklas Toivakainen, 'What Was Already There: On Scepticism and the Fundamental Reference of Signification', *Nordic Wittgenstein Review*, special issue, *Moral Understanding*, 2025.

25. Wittgenstein, *Philosophical Investigations*, §5.

of *PI* been presented with the idea that when trying to account for the meaning of words 'explanations', inevitably, 'come to an end somewhere'.[26] This repeats the point made in *TLP*, namely that we cannot ultimately 'say' what the sense of a proposition is. *PI*, however, forcefully reminds us that the reason for this lies in the fundamentally intersubjective nature of meaning, and, even more so, due to the primary infant–caretaker relation in which the meaning of the world is inaugurated. In other words, explanations (of meaning) come to an end somewhere because at this point of 'somewhere' the very sense of what things mean is not grounded on explanations but shown in training.

But how exactly is this training-cum-learning supposed to be achieved? As Wittgenstein points out, the very success of the most primordial forms of ostensive training already presupposes something, namely a shared – let us call it primordial – form of sense and/or understanding – or recognition – between infant and caretaker/teacher.[27] For any pointing at a thing/object to *be* such a pointing presupposes that it is taken as, *understood* to be, exactly such a pointing (and not just, say, a finger/movement in the air – which in its own right would, of course, already presuppose an understanding or recognition of the other as doing something).[28] Put in the terms of *TLP*, the *sense* of the pointing must, ultimately, 'show itself'. But whereas *TLP* can only logically exclaim, because of its disavowal of the intersubjective nature of meaning and sense, that such a showing must be present, in *PI* the sense shows itself, in its primordial form, both as and in an always-already present attunement or address[29] between us, here between infant and caretaker. We say 'always-already' because

26. Ibid., §1.
27. Ibid., §§ 28–36.
28. Lacan makes the same observation in his discussion of Augustine's treatment of ostension. See Jacques Lacan, *The Psychoses: The Seminar of Jacques Lacan, Book III*, trans. R. Grigg, W.W. Norton, New York and London, 1993.
29. Wittgenstein, *Philosophical Investigations*, §§ 241–242. See also Toivakainen, 'What Was Already There'.

the infant is always-already someone for the caretaker, someone addressing the caretaker – even in its prenatal stage.[30] It is this address, the inescapable significance others have for us, which ignites, inaugurates and forever determines the path of the infant's life and/as its responses to the address.

Wittgenstein avec psychoanalysis: on issues infantile and adult

The peculiar thing with the picture or primal scene of the origin of sense and meaning – as it manifests in the picture of the infant–caretaker relation – is the *entanglement* between something undetermined and something determinate which such a scene inevitably contains. For, on the one hand, we seem to be forced to say that the world of the infant is not one of specified, determinate, fixed, normative, meanings. Rather, the infant finds itself in what we might call a polymorphous domain of meaning and sense; everything is loaded with meaning and anything that invokes an address will excite a sense of meaning, yet more or less without any clearly identifiable specifications or determinate objects/things. On the other hand, and because the very thing that always-already situates the infant in a universe of sense is *the address of the other*, this polymorphous primal scene is not *in fact* completely, consistently, undetermined. That is, the polymorphous landscape of proto-meaning – if we are allowed such a term – is in its origin already injected with adult determinations which, nonetheless, from the outset inform themselves in enigmatic ways.

Yet, as constantly alluded to in *PI*, the entanglement works both ways; that is, indeed, what an entanglement is! For the universe of adult meaning, its determinations, is not 'total' in

30. See Toivakainen, *Self, Other, and the Weight of Desire*, ch. 5.

itself either, but rather always retains something of the order of polymorphous proto-meaning.[31] That is to say, while (adult) language use certainly has normative standards and rules, these do not constitute, or govern, not to mention ground, meaning. Ultimately, and fundamentally, in language use we say things to each other and the sense, the meaning of what we say must in the end answer to our *understanding* of *each other*; an address and understanding that is, primordially, already there in the very origins, in the primal scene of language, and inseparable from the way in which we address each other as such. We say what we say to each other and we understand what we understand. Rules do not give or constitute *sense*, which is not to say that we need not learn 'the rules of language' in order to talk in a *specific* language with each other – and a language is always a specific language. On the other hand, it is at this very point that the dialectics of our fundamental entanglement (between the adult and the infant realms of sense and meaning) demands that we simultaneously remind ourselves that language and sense are always also diachronic, in that our primary scene of *human* language does not allow for two infants constituting the world of sense. Rather, the primal scene is one in which the infant is *taken care of by someone* who already possesses language, because human infants cannot survive without caretaking. As we might put it, language, the realm of sense and meaning, cannot be accounted for by polymorphous proto-meaning alone, while it is just as true that polymorphous proto-meaning, and thereby sense as such, cannot be accounted for solely by the determinate structures of established 'adult' language either. Language and its sense *is* an entanglement of these two; an entanglement of the differentiation, that is, of the address *between* self and other.

31. See, for instance, the famous 'rule-following paradox' in Wittgenstein, *Philosophical Investigations,* §201.

Although Wittgenstein does not use the term, we have obviously made use of the term 'polymorphous' here to indicate what we believe to be an important affinity between Wittgenstein's characterization of meaning and sense and Freud's famous identification of infantile sexuality as 'polymorphously perverse'.[32] Our claim is that the picture of meaning and sense that, as we have suggested, emerges out of the primal scene of *PI* follows more or less exactly the same logic as Freud's idea of the nature, or 'essence', of human sexuality, precisely because both posit the questions of origin and essence in and through primal scenes of the same kind. It is this, we contend, that is the unexplored feature of Wittgenstein's Freudian discipleship.

Infantile sexuality is polymorphous, Freud holds, because more or less anything in the infant's life can function as the 'source' for sexual stimulation and enjoyment: '[Freud] is eventually led to the position that every function and, finally, every human activity, can be erotogenic.'[33] What is key here, and simultaneously connects to our discussion of meaning and sense, is that the infantile polymorphous perversion is ultimately *sexual* because of its relation to the caretaker. It is *sexual* because those forms of pleasures and enjoyment attached to or associated with the erogenous stimulations of infancy set the constitution for what will one day become the individual's 'adult' sexuality; adult sexuality will forever, regardless of the modifications involved in maturation, be embedded in a polymorphous perversion. However, as argued by Laplanche, the decisive factor here is not only that the psychic space of infantile sexuality will one day be replaced by adult sexuality – that is, sexuality proper. Rather, what ultimately determines infantile sexuality as *sexual* is the caretaker's inevitable understanding or perception of it as

32. Sigmund Freud, *Three Essays on the Theory of Sexuality*, in *The Essentials of Psychoanalysis*, Vintage Books, London, 2005.
33. Laplanche, *Life and Death in Psychoanalysis*, p. 21.

(proto-)sexual. Consequently, while infantile sexuality lacks the determinations of adult sexuality in one sense, it will nonetheless always-already be injected with or ascribed features of, a sense of, adult sexuality through the (sexual) messages coming from the caretakers' own sexuality. In other words, infantile sexuality will always-already contain elements/messages of 'adult sexuality', which, just as in our depiction of infantile polymorphous proto-meaning, are at the outset enigmatic. As with meaning and sense, sexuality – in the Freudian sense – constitutes an unbreakable entanglement between infantile polymorphous perversion and the determinations pertaining to the normative worlds of adults: none of these two are complete, consistent, whole, in themselves. Rather, they always-already flow into each other, as it were.

It must also be noted that the affinity between our Wittgensteinian picture of meaning and sense and Freud's picture of sexuality holds just as well for the other defining term of infantile sexuality, namely 'perversion'. If Freud 'discovers' that perversion is universal in human sexuality – manifest for example in dreams, fantasies, jokes and in everyday 'normal sexuality' – it might equally well be said that perversion is universal in human language and communication – manifest not only in arts and poetry, but just as much in the everyday use of language. But perverse in what sense? Well, in the precise sense in which Freud designates it, namely as something that does not serve, even something that deviates from, a vital function.[34] Infantile sexuality, as conceived by Freud, 'ends up by undermining and destroying the very notion of a biological norm'.[35]

However, simultaneously as the 'sexual order' deviates from (and can thus work against) the 'vital order', the former order also

34. Freud, *Three Essays on the Theory of Sexuality*; Sigmund Freud, *Instincts and Their Vicissitudes*, in *The Essentials of Psychoanalysis*, Vintage Books, London, 2005.
35. Laplanche, *Life and Death in Psychoanalysis*, p. 23.

replaces and sustains the latter. Perversion, as it were, carries the vital order with it: 'What is perverted is still the instinct, but it is a vital function that is perverted *by* sexuality.'[36] Certainly human infants feel, say, hunger, and that is the impetus for eating. Yet this vital behaviour or instinct is always-already accompanied by an excess of enjoyment: the satisfaction of the vital need will always be exceeded by and in fact subordinate to sexual enjoyment – the 'sensuous sucking' – paralleled by the satisfaction of vital needs. Sexual enjoyment, in turn, will inseparably, despite its supposedly 'autoerotic' character, be tied to the other, the caretaker, who provides this satisfaction and enjoyment, who answers to the *demand* of the infant.[37] A disturbance in the field of sexuality, in the love relation between infant and caretaker, may easily result in behaviour that works against the survival instinct; for example, a disturbance in eating habits. In other words, this fundamental relationality, with its field of sexuality and love, is not only what potentially deviates from the vital instinct, but also what sustains it because the very purpose, or sense, of human life will forever be determined by it. And precisely in the same sense that 'adult sexuality' continues to be polymorphous, despite its more stable structures and objects of desire, it continues to be, ultimately, perverse.[38] Disturbances in love relations can lead to all kinds of deviations from vital functions: it is only because of relatively stable structures of love and recognition that we sustain ourselves, our purpose in life. Without these, or as responses to disturbances in these, vital needs (can) become empty, devoid of meaning and difficult to sustain.

The very same logic pertains, we argue, to meaning and sense – that is, to language – as well. Certainly, language, or

36. Ibid.
37. See Jacques Lacan, 'The Subversion of the Subject and the Dialectics of Desire in the Freudian Unconscious', in *Écrits: The First Complete Edition in English*, trans. B. Fink, W.W. Norton, London and New York, 2007.
38. Laplanche, *Life and Death in Psychoanalysis*, pp. 48–65.

communication, serves the preservation of human life. However, it can just as well work against it – this we know all too well. It can do both of these precisely because the very sense of language and communication rests on the way, or ways, in which we are fundamentally addressed by each other. That is, the world of sense opens up, so to speak, for the infant as always-already tied to the address of and from the other/caretaker, and any *purpose* which language and communication serves or can serve will inescapably be tied to the sense, to the moral-existential weight, of this address. This is why we might say, with psychoanalysis, that the address, and thus its accompanying order of sense, perverts the vital order, forever determining it along the lines of love relations. There is, in other words, a continuous element of 'perversion' in adult language use, precisely because it is from adult language, from the adult address, that the infant first encounters this 'perversion' of its 'vital order': the 'perversion' is already there in adult language.[39]

Conclusion

It is now time to return to Edelman's account of queerness and to the question of the unsayable, to that which escapes all forms of symbolic representation, or symbolic 'being'. To reiterate, Edelman insists on what he takes to be Lacan's definite stance that sex is the bone in the throat of ontology in that sex is, originally, completely devoid of sense. The symbolic differentiation of sex, the passage of sex as 'ab-sense' to the domain of sense and meaning, *forces*, according to Edelman, a negation of sex's original pure negativity, its pure 'ab-sense'. This, Edelman holds, coincides with 'incest in psychoanalysis' in so far as incest constitutes, or would constitute (if it was not 'prohibited', i.e.

39. This is the logic of 'primal repression' in psychoanalysis. See ibid., and also Alenka Zupančič, *What is Sex?,* MIT Press, Cambridge MA, 2017.

impossible in the order of sense) a 'radical nondifferentiation'.[40] That is, incest in (Lacanian) psychoanalysis refers to the impossibility of any absence – in the order of sense – of the differentiation of infantile (polymorphous perversion) and adult (normatively differentiated) sexuality.

However, it is precisely at this point, we claim, that Edelman confuses the logic of the Real. For what needs to be noted here is that in the strictly Lacanian sense the order of the Real resides *not* in the supposedly lost purity of infantile polymorphous perversion, that is, in a form of enjoyment and being unaffected by the normative-symbolic order of adult sexuality. For, as we have seen, in the Freudian scheme infantile sexuality is always-already entangled with adult sexuality; neither one is whole or consistent in themselves. Rather, the Real – as the bone in the throat of ontology – resides in or as the very gap or incommensurability *between* things infantile and adult, which at the same time is the very thing that constitutes the differentiation as such. This is the point of negativity that cannot be symbolically represented as it is the very point sustaining the conditions for symbolic representation. Only that which is differentiated can be symbolically represented. Yet, while Edelman certainly is, on a theoretical plane, aware of the topological point of the Real in Lacan's theory ('pure negativity'), his identification and qualification of queerness (as coinciding with the order of the Real) retains too much of a reactionary position in order to appreciate the radicality of the issue at hand.

For when Edelman writes, for instance, that queerness manifests in 'an enjoyment in excess of the pleasures associated with the good',[41] or that 'infinitely mobile as an epithet for strangeness, out-of-jointedness, and nonnormativity, queerness colors any

40. Edelman, *Bad Education*, p. xv.
41. Ibid., p. 20.

enjoyment that seems to threaten a world',[42] he both theoretically and humanly confuses the order of the Real as in strict *opposition* to human teleology and normativity. However, the only thing that, strictly speaking, could *as such* be nonnormative is the phantasmatic picture of infantile sexuality/enjoyment as complete or independent in itself – a form of enjoyment prior to, and as such independent of, the normative dimensions pertaining to the reality of the caretaker: a notion of sex(uality) as completely decoupled from the caretaker. In the Freudian scene, however, the nonnormativity of infantile sexuality is also always-already conditioned by, contains, the normativity of adult sexuality: sex or sexuality *is* an entanglement. To the extent, then, that queerness is supposed to be associated with '*any* enjoyment that seems to threaten a world', Edelman's characterization of queerness seems to picture a form of enjoyment, built on the phantasm of infantile polymorphous perversion as complete in itself. That is, an enjoyment completely *indifferent to the reality of the other*. Consequently, Edelman seems to be claiming that radical social critique must be indifferent to the reality of the other.

We have, however, tried to argue that what can be deemed the order of the Real – the gap between things infantile and adult – is not, cannot be, indifferent to the reality of the other. Rather, we argue, the real is the point at which, as one might put it, the reality of the other, the other's address, is everything – which is to say that it is not, cannot be, any specific or determinate thing *in* 'the world'. For, as we have tried to show, by utilizing elements from Wittgenstein's later work, the very gap constituting the differentiation and simultaneously the entanglement between infantile and adult sexuality, between the polymorphous order of sense of infants and the order of adult meanings, which sustains the symbolic order, *is* the *address* as such between self and other.

42. Ibid., p. 19.

Certainly, this address as such cannot be captured by, nor identified as, any particular norm or set of norms. But not because it, or the Real *qua* address as such, is *opposed* to these norms or has nothing to do with them. Rather, the address is ultimately what gives them sense. 'Thou shalt not kill', just as any other norm, would be, *per impossible*, utterly senseless to us if not for the inescapable relevance of the other.[43] But this only means that our understanding of norms and of their purpose/aim/function is entangled not so much with our *knowledge* of the address as such as with our *openness* towards it, towards the reality of others.[44] This certainly makes any form of social critique more demanding than if we could simply refer to, and disrupt, structural traits – which is not to say that structural problems are not what we should focus on. The problems and difficulties we have with the relevance of others, the claim they make on us, is what structural problems are ultimately about. This is why any intellectual challenge pertaining to social critique is both paralleled with and underpinned by a moral–existential challenge. As we all know – do we not? – even the most intellectually sophisticated critiques and theories can be both informed by morally problematic sentiments (like *ressentiment*) and be blind to the moral reality underpinning human conduct and its reasons. If there is to be a radical social critique, it cannot be one that disavows the significance of the other, but rather the opposite. The possibility of a radical critique, we claim, must go through the reality of the address, the claims it exercises on us. This means that 'the social' – as the structures of normativity – is not-all.

43. Cf. Emmanuel Levinas, *Totality and Infinity: An Essay on Exteriority*, Duquesne University Press, Pittsburgh, 1969.

44. See, for instance, Joel Backström, *The Fear of Openness: An Essay on Friendship and the Roots of Morality*, Åbo Akademi University Press, Åbo, 2007; Hannes Nykänen, 'Repression and Moral Reasoning: An Outline of a New Approach in Ethical Understanding', *SATS*, 16(1), 2015, pp. 49–66; Fredrik Westerlund, 'What Is Moral Normativity? A Phenomenological Critique and Redirection of Korsgaard's Normative Question', in S. Heinämaa, M. Hartimo and I. Hirvonen, eds, *Contemporary Phenomenologies of Normativity: Norms, Goals, and Values*, Routledge, New York, 2022.

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Conjunctions, London, October 2024.

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If Only I was a Pony, West Reservoir, Woodberry Down, London, 2025.

REPRODUCTIONS

Jagvida Sawika, *Victory of the Active Forces of the Intellect Over a State of Irrationality and Chaos*, acrylic on paper, 2011 – *Transformations: Modernity in the Third Polish Republic*, National Museum Kraków (NMK), February 2025.

DISJUNCTIONS

Alexandra Birken, *Aprilia*, 2013 – Hamburger Kunsthalle, November 2024.

PHOTOGRAPHS Peter Osborne

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