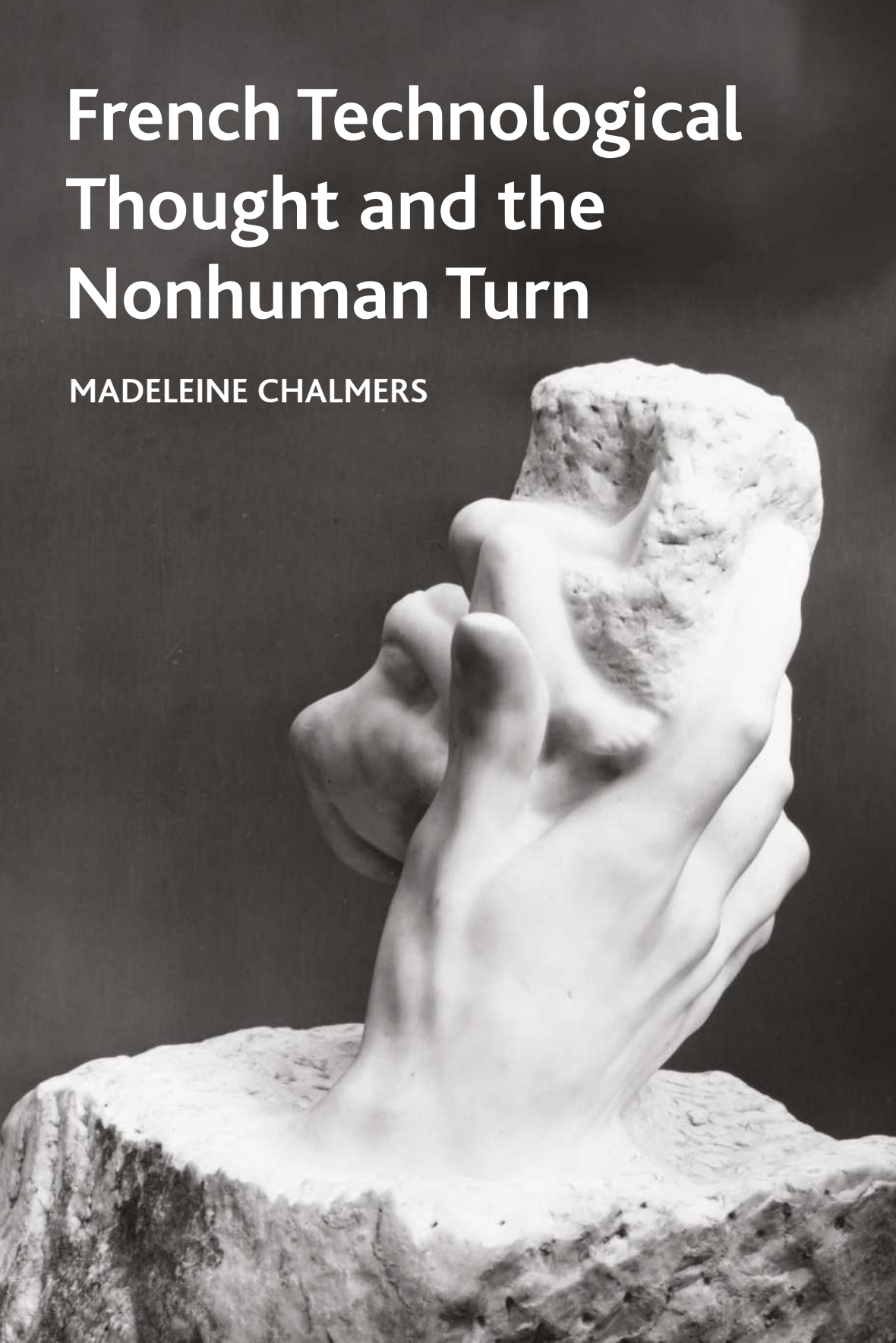
French Technological Thought and the Nonhuman Turn

MADELEINE CHALMERS



FRENCH TECHNOLOGICAL THOUGHT AND THE NONHUMAN TURN

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Series Editor's Preface

Two or more currents flowing into or through each other create a turbulent crosscurrent, more powerful than its contributory flows and irreducible to them. Time and again, modern European thought creates and exploits crosscurrents in thinking, remaking itself as it flows through, across and against discourses as diverse as mathematics and film, sociology and biology, theology, literature and politics. The work of Gilles Deleuze, Jacques Derrida, Slavoj Žižek, Alain Badiou, Bernard Stiegler and Jean-Luc Nancy, among others, participates in this fundamental remaking. In each case disciplines and discursive formations are engaged, not with the aim of performing a predetermined mode of analysis yielding a 'philosophy of x', but through encounters in which thought itself can be transformed. Furthermore, these fundamental transformations do not merely seek to account for singular events in different sites of discursive or artistic production but rather to engage human existence and society as such, and as a whole. The cross-disciplinarity of this thought is therefore neither a fashion nor a prosthesis; it is simply part of what 'thought' means in this tradition.

Crosscurrents begins from the twin convictions that this re-making is integral to the legacy and potency of European thought, and that the future of thought in this tradition must defend and develop this legacy in the teeth of an academy that separates and controls the currents that flow within and through it. With this in view, the series provides an exceptional site for bold, original and opinion-changing monographs that actively engage European thought in this fundamentally cross-disciplinary manner, riding existing crosscurrents and creating new ones. Each book in the series explores the different ways in which European thought develops through its engagement with disciplines across the arts, humanities, social sciences and sciences, recognising that the community of scholars working with this thought is itself spread across diverse faculties. The object of the

series is therefore nothing less than to examine and carry forward the unique legacy of European thought as an inherently and irreducibly cross-disciplinary enterprise.

Christopher Watkin
Cambridge
February 2011

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The engines of this book are my family – I dedicate it to them with all my love.

Note on Editions

Wherever possible, I have used unabridged authorised translations of French texts, detailing any modifications in chapter endnotes. Where these were not readily available, I have provided my own. French titles are retained, with English glosses on first mention. Bible quotations are from the New Revised Standard Version Catholic Edition.

Introduction: Unruly Technics

Two entangled bodies are cupped in the hand of a divine sculptor – a hand carved by other hands, from marble quarried by yet more hands. Nicks and scuffs melt seamlessly into polished expanses where the resistant material has been abraded into compliant smoothness, so that it is impossible to tell where one body ends and the other begins. God's hand is sinewy, with pads of flesh, nubs of knuckle, and clipped fingernails. His palm is a womb for the foetal furling of Adam and Eve's limbs; they are chips off the old block. Their amniotic intimacy evokes the human DIY project, when two people become 'one flesh' and have children.[1]

Yet Eve's angular elbows and braced back suggest a tenderness stretched taut; we cannot tell whether she is pulling Adam close, or pulling away towards greater definition. The cover image of this book is creation, but not as Genesis has it. Here, Adam and Eve are conceived together, her shape and face defined before Adam's, whose features and fingers are as yet whorls in the grain.[2] The marble is the crystallisation of heat, pressure, and the powdered bones of prehistoric sea creatures – the fossils that at least one Victorian believed 'God hid … in the rocks' in order to tempt geologists into rejecting Genesis's account of creation.[3] Auguste Rodin's hand of God is an unruly technics, caught in the act.

It is the product of technical processes which give shape to raw material, and it depicts those processes in action. But 'depicts' is not quite the right word. The sculpture is also an exegesis: it mobilises and interrogates a scriptural tradition. For Isaiah and Jeremiah, God is a potter; for the psalmist, 'my frame was not hidden from you, when I was being made in secret, intricately woven in the depths of the earth'.[4] The sculpture sparks recognition of an old story, but it is also a new and provocative rewriting. We apprehend it as a sensuous object that we want to reach out and touch, but also as an affective and intellectual conundrum. Like its two textures, it is 'both … and' – and it keeps on going.

Technics is not 'just' technology in the common understanding of tools or machines or interfaces as objects which we design, make, or use. It includes those things, but is not limited to them. Technics is everything that is mobilised in our interaction with the world and one another, from atoms and laws of physics to memories, feelings, and imaginings, and it is vectored through encounters with all the things around us. Technics is everything we overlook: the everyday process of making and being made by the world.

This book is a twenty-first-century project, emerging from a moment when critical theory and real-world technological developments are co-evolving. Centres at the universities of Oxford and Cambridge are devoted to the study of 'extreme technological risks', encompassing 'nuclear war, engineered pandemic, climate change, ecological collapse, or advanced artificial intelligence'.[5] Cyber-enabled election interference by foreign powers, the automation of labour, the use of deep learning in medical diagnostics, the proliferation of illegal activity on the dark web, the quantification of bodies and moods by wearable devices and their integration into an Internet of Things, the imbrication of social media into everyday interactions: we could point to any number of contemporary phenomena to highlight the extent to which technics is interwoven into the way we work, play, and dream. More prosaic technical relations affect us too, in every twist of a doorknob or stubbed toe.

Since I began work on this project in the late 2010s, the technological landscape has evolved at immense speed, but the accompanying conceptual frameworks have sometimes struggled to keep up. Within the humanities, a new body of work has emerged: a 'nonhuman turn' focused on 'decentering the human in favor of a turn toward and concern for the nonhuman, understood variously in terms of animals, affectivity, bodies, organic and geophysical systems, materiality, or technologies' and their entanglement.[6]

In view of the important place occupied by twentieth-century French technological thought in the nonhuman turn, this project looks to a group of late nineteenth- and early twentieth-century French writers and thinkers. This group brings together authors deemed marginal or critically unfashionable and others whom we think we know well, in order to trace a hidden lineage. I argue that detecting how these presences shape key facets of contemporary nonhuman theory can reconfigure the way we read those theories and think about technics now.

My study does not fly the flag of any named approach or existing philosophical, political, or literary-historical school. I operate with a large corpus, to identify a highly specific strand in French thought and culture which has radiated into non-French thinking in ways often

unacknowledged. This book is not an exhaustive history or roll call of major figures; it is an invitation for us to look beyond disciplinary categorisations of 'literature', 'philosophy', and 'theology' which can occlude their unique porosity in French culture.

I start where others have finished, with the assumption of what Arthur Bradley has termed 'originary technicity', the notion that human beings have always been technical, and constituted by that technicity.[7] Taking in Plato, Aristotle, Karl Marx, Sigmund Freud, Jacques Lacan, Jean-François Lyotard, Jacques Derrida, and Bernard Stiegler, Bradley's survey of the concept focuses on the ways in which these thinkers have sought to interrogate, elide, or reconfigure the supposed opposition between the human and the technical, understood as an inorganic machine or tool external to the human. In different ways, they posit a co-evolution, or form of entanglement of the human and the technical, so that it becomes impossible, even undesirable, to try to dissociate the two.

Bradley's argument is at once a recapitulation of some of the arguments made by Derrida, Stiegler, and Lyotard, and a probing of their solidity. Bradley considers that any attempt to think technics as such 'becomes an ironic, self-fulfilling *mechanism* … designed to produce, define and shape not simply "technology" but, more importantly, *what is not* technology'.[8] Despite their best efforts, the thinkers of 'originary technicity' produce theories which are '*not technical all the way down*' because 'something – or rather someone – always precedes or exceeds technicisation'.[9] Writing about technics always turns out to be writing about the human, or rather, writing the notion of the human into existence. In a sense, the first rule of technics is that we don't talk about technics.

My work is therefore not a theory or philosophy of technics, nor does it revisit debates about what constitutes the human or the technical. I do not draw hard distinctions between the terms that I use to describe the object of my study within this book. 'Technics' and 'technology' will appear, alongside their derivatives, due to the mixed usage of the terms by the critics and thinkers with whom I engage. Whether I refer to 'technics' or 'technology', the terms should be understood in the sense established in my opening paragraphs.

Readers might expect to see the names of André Leroi-Gourhan, Jacques Ellul, Georges Canguilhem, Maurice Merleau-Ponty, Derrida, or Stiegler in this work. However, I focus on another strand of French theory which nonhuman theorists such as Jane Bennett have identified as their conceptual family tree, running from Bergson through Deleuze to Latour, and I demonstrate that far from being straightforward 'continental philosophy' (if there is such a thing), this strand is an invasive species with Catholicism and literary experimentation as its taproot.[10]

Bruno Latour has argued that there is no separating out 'nature' and 'culture'.[11] Since the late 1980s, the actor-network theory that he developed with John Law has continued to grow in influence. At its core is a focus on how technologies and forms of knowledge emerge within specific material and epistemological environments, whether they be laboratories or production lines, in 'a very peculiar movement of re-association and reassembling'.[12] Within this dynamic of constant reconfiguration, humans and nonhumans – animals, raw materials, or equipment – are actors which come together in networks and act upon one another. Latour evens the ontological terrain; nonhuman actors are not subordinate to human actors, but rather share equal agential power. The approach of the actor-network theorist is a posture of humility. As Latour puts it: it 'is as if we were saying to the actors: "We won't try to discipline you, to make you fit into our categories; we will let you deploy your own worlds, and only later will we ask you to explain how you came about settling them."'[13] Central to this approach, then, is attentiveness to specific constellations of relations, in which every action is always already an interaction.

I will return to Latour at the very end of this book, but I leave him here for now, as the starting position of the nonhuman turn. In 2015, Richard Grusin provided a non-exhaustive catalogue of the directions that this plural critical orientation can take, encompassing the 'ontological, network, neurological, affective, digital, ecological, or evolutionary'.[14] What makes this a recognisable 'turn' is their united and explicitly 'Latourian' insistence that 'the human has always coevolved, coexisted, or collaborated with the nonhuman – and that the human is characterized precisely by this indistinction from the nonhuman'.[15] Within the constraints of this exercise, it is not possible to offer detailed readings of individual nonhuman theorists. It is therefore on this shared disposition, identified by Grusin, that I will focus.

The nonhuman turn is defined by what it is against, rather than what it is for. It is against 'human exceptionalism', 'the privileged status of the autonomous male subject of the Western liberal tradition', and such 'fundamental logical oppositions as human/nonhuman and subject/object'.[16] When Grusin evokes these 'fundamental logical oppositions', he is being somewhat coy. Bennett is less so. She presents these supposed 'binaries of life/matter, human/animal, will/determination, and organic/inorganic' as 'onto-theological' constructions.[17] The terms which Bennett employs here would suggest that it is Christianity that she has in mind, though she cites no particular religion, theological perspective, or critical work on religion. My readings in this book suggest that Bennett's is a reductive position. A fixation on dualisms is

perhaps not a property of western metaphysics but rather the product of a particular historical moment.

Philosophy and theology are held apart today, but for centuries they were intimately enfolded. For Charles Taylor, their separation – and a broader logic of separation and epistemological stratification – was born with 'Renaissance humanism, the scientific revolution, the rise of the "police state", the Reformation'.[18] These are the moments of shift towards what we now recognise as a secular disposition. Prior to the Reformation, 'the line between personal agency and impersonal force was not at all clearly drawn', and 'power also resided in things'.[19] Indeed, the medievalist Jason Crawford recently suggested that the ways in which writers of the nonhuman turn confront the world is an echo of this pre-Reformation, Catholic tradition. He suggests that 'the path to re-enchantment lies in the many terms and forms of life – *participation, incarnation, creation, apocalypse, community, contemplation, hope*' of the Christian lexicon.[20] The very vocabulary that critique has spent decades 'interrogating, demystifying, and defamiliarizing' is back in fashion.[21]

Latour captured the critical embarrassment surrounding religious belief when he began a lecture with a confession: 'my label – should I stay my stigma? – is even crasser: I have been raised a Catholic. … Religion, in my tradition, in my corner of the world, has become impossible to enunciate.'[22] Yet this tradition is always speaking, 'not … *of* things, but *from* things, entities, agencies, situations, substances, relations, experiences … which are highly sensitive to the ways in which they are talked about'.[23] It is this line of enquiry that I pursue. I engage with intuition, mysticism, and religious belief not as topics of anthropological curiosity, but as valid, specific, and muscular modes of thought, far removed from any nebulous spiritualisation of technics,[24] or the notion that technics is only the latest iteration of ideas, practices, and impulses historically cultivated by human beings in magic.[25] The genealogy that I trace, and which I argue shapes the nonhuman turn, is one that is rooted in a Catholic tradition, even as it subverts and twists and reconfigures it, shifting and blurring its terms and principles into secular shapes which nevertheless retain the odour of sanctity.

The roots of my genealogy lie in France in the late nineteenth century: a nation fuelled by fertiliser, explosives, dynamos, and electricity; moved by pedal power, steam, coal, hydropower, and petrol; fed from refrigerators[26] and electric ovens.[27] New industrial processes to produce aluminium,[28] iron,[29] and vast mineral wealth,[30] were all made in France. The French thrilled to the terrifying automobile exploits of Amédée Bollée, the airborne escapades of Charles Blériot and Roland Garros;

but also to the unveiling of Citroën's front-wheel drive and 2CV at the *Salon de l'auto*. The Universal Exhibitions in Paris drew crowds in their millions to visit the *Palais des machines*. But as we have seen, technics is not confined to mechanical machines. In his lament for his century, Edmond About declared: 'we live in a century of steam, electricity, gas, guano, crinoline, rubber, photography, drainage and universal suffrage; and yet we are less cultured, less artistic'.[31] My writers give the lie to About's assessment, while maintaining his eclecticism.

The first part of this book situates my corpus in the historical and cultural context of the spiritual crisis of the *fin de siècle*, and establishes the leitmotif of my argument. I begin with an agnostic, a Catholic, and an atheist: Ernest Renan, Ernest Hello, and Émile Zola. These three writers allow us to work through this period's intellectual tendency towards synthesis and a form of exegesis which reads and interprets the world itself as expressive, in the same way as words. I argue that across the poles of belief that these authors embody – from atheism to Catholicism – technology is not just a symbol, but a vector for ontological questioning and transformation. The word that I use to capture this dynamic is 'technologos'.

At first glance, this term might appear to be a simple iteration of Steven Connor's coinage 'technography'. Connor understands this as a reciprocity between technology and text: 'the acts and arts of imagining, and the spectrum of comportments and affective investments they convoke, are essential to the ways in which machines are … brought to and kept in existence, made liveable, and even, often, loveable'.[32] It is a relationship that works both ways: 'machines are also what connect us to our feelings and the way in which we work on them and imagine them at work in and on us'.[33] Technography is constantly morphing: 'technology – the idea of technology, the feelings engineered in the idea of technology – is the self's manner of writing, or making itself known to itself'.[34] Ultimately, then its focus remains on the human self as the central sphere of influence, with technics as its ontological accessory.

By contrast, the technologos as I conceive of it is rooted in a very particular commingling of the rhetorical logos and the sense of the Logos drawn from Catholic theology: the person, the relation, the encounter with Christ as way, truth, and life. I argue that, in the technologos, a logic of sacramentality is at work, a logic of grace that also diffuses into secular writing. At the heart of it is the relationship of potential and actual, and the question of who or what gives people and things the power to act and participate in the actions of others. The technologos has an exegetical quality: it both interprets the world, and is articulated in terms which revive Catholic images, narratives, and experiences

in subversive ways. In my second chapter, Jean Richepin, Villiers de l'Isle-Adam, Marcel Schwob, and Alfred Jarry filter the figures of Christ and his mother Mary, stigmata, mystic theology, and the instruments of the Passion through the prism of technicity in order to unpick the relation of the potential and actual, the concrete and the metaphysical. Chapter 3 offers a reading of Charles Cros's twin pursuits in fiction and technological invention, with a particular focus on the ways in which his writings in both fields were diffused in a variety of shared conceptual – and political – spaces. This chapter allows me to probe the ways in which fictional and speculative scientific writing interact, forming a reservoir of ideas which wait to be activated.

The second part of this book, 'Apocalypse', lifts the veil on the relationship between technicity and thought. Chapter 4 offers a close reading of Didier de Chousy's forgotten scientific novel, *Ignis* (1883), which may (or may not) have been ghostwritten by Cros. Christian eschatology meets the teleologies of dominant scientific theories of the time – geology, thermodynamics, and evolution – and biblical typology, in a supercharged capitalist and imperialist fever dream. It confronts us with the political ambivalence of technics, and highlights the way it is intertwined with fictionality, in ways which challenge our conventional logics of cause and effect. I argue that the uchronic temporality of *Ignis*, which is at once counterfactual and speculative, opens up the present as a contested time for thinking technics, and questions the linear temporality of past, present, and future.

On the basis of Jarry's own reading of *Ignis*, Chapter 5 brings together Jarry and Henri Bergson to theorise the relationship between 'what is' and 'what might be' through the perspective of virtuality. In particular, I focus on the way that both writers explore the role of the past in shaping our experience of the present and our field of action for the future. Their conclusions are fundamental to my reading of Raymond Roussel in Chapter 6. I trace the evolution of Roussel's algorithmic composition process to present his novel, *Impressions d'Afrique* (*Impressions of Africa*, 1910) as a process of technological emergence, operating on the cusp between potentiality and actuality. Reversing a critical tendency to focus on the hermetic quality of Roussel's work, I place close readings of episodes from the novel alongside twenty-first-century software theory to highlight Roussel's openness to the inspiration of the mundane and contingent in the elaboration of his imaginary machines.

'Ontotechnics' (Chapters 7 through 9) marks the integration of the technologos into new ontologies. André Breton's Surrealism(s) serves as the ultimate synthesis of the unruly technics written out by

these authors. At its heart lies Breton's lifelong admiration for Cros, Villiers, Jarry, and Roussel. In Chapter 7, I re-evaluate Breton's shifting relationship to automatism and the automatic in the light of his attachment to the nineteenth century to draw out the ways in which his Surrealism is also a comprehensive technics rooted in the tradition of the technologos, subject to tinkering and retuning as Breton kept pace with historical and political changes. This informs Breton's theorisation of the Surrealist object. In Chapter 8, I explore how Breton's work shaped the philosopher Gilbert Simondon's thought. I argue that Simondon, who has undergone a major revival as part of the nonhuman turn, extends Breton's intimations about subject–object relations, desire, and chance, into a fully fledged ontology. In doing so, I also draw out the explicit spirituality of his work, which has received little critical attention.

In Chapter 9, I turn to Gilles Deleuze, whom I approach in his capacity as a reader of Jarry, Roussel, Bergson, and Simondon. Working synthetically across his work, I trace the influence of these authors in shaping the distinctive ontology which Deleuze puts forward in both his single-authored texts, and his collaborations with Félix Guattari. Deleuze represents the final historic moment in my genealogy, as my final chapter reconnects us with his direct heirs in the nonhuman turn. In a coda, I return to our century via Latour to suggest how re-rooting the theories of the nonhuman turn in the tradition of the technologos can open up new perspectives for reading and working with this theoretical material.

This approach marks a departure from studies of other literary interactions with the technological. Proto-science fiction has enjoyed a revival in French research circles, with a number of recent studies bringing forgotten texts back into the light, with particular attention to modes of diffusion and their role in the popular dissemination of scientific knowledge.[35] While I do draw on texts which might fit into this category, labelling them as such imposes a particular kind of reading, with a particular set of expectations. Similarly, approaches drawing parallels between specific technologies in the 'real world' and literature are stimulating.[36] However, I cannot help but feel that fiction is playing second fiddle to the 'real' in these formulations. It mirrors or imitates or reflects or parallels, but the traffic only seems to flow one way – and one technological form is made to stand as the key to a whole era. It is perhaps with the trend in media theory towards 'geologies' or 'archaeologies' that my methodology has the most in common.[37] What unites such approaches is a common interest in 'how fantasies of media become part of the real technological projects'.[38] I share this orientation

towards digging down to the historic sediment of the ground on which we stand. However, my project broadens its scope further than these studies – which tend to focus on one category of technical object – by thinking technics in its broadest sense.

The authors I examine work with the most basic tools, react to cutting-edge technologies with extreme scenarios of future development, or imagine bizarre and impractical contraptions. In their texts, they combine media technologies of recording and communication, transportation, perpetual motion, they work with wood, metal, rubber, and electricity. And yet, these apparently diverse objects are explored in a coherent way as manifestations of technics. Furthermore, my authors draw no line between art and life, framing the act of writing as itself a technical act – both in the basic form of putting pen to paper, and in the way that it wrestles with the matter of the world and with language. They imagine new technical forms which become real decades later, or reconfigure existing ones in ways which expose their underlying logics. Their writing is diffused across a variety of technical media, from hand-produced journals to newspapers and books.

Throughout, my methodology is one of close reading, following the twists and turns of vocabularies of potentiality, virtuality, and actualisation, as they shift in tenor from Catholic scholasticism to poststructuralism, from fiction to the tradition of conceptual thinking which we find in the 'French theory' of the 1960s–1980s and its present-day Anglo-American heirs. The watchwords of this unruly technics are love and time. At its core is a firm statement that avant-garde fiction and contemporary ideas intertwine recursively in the fabric of our technological reality – affirming literature's continuing potential to provoke, create, and intervene in the world.

NOTES

1 Genesis 2.24.
2 In Genesis, Adam is formed from clay and animated by God breathing into his nostrils (2.7). Eve is then shaped from his rib (2.21–5).
3 Edmund Gosse, *Father and Son* (London: Heinemann, 1907), 120.
4 Isaiah 64.8; Jeremiah 18.6; Psalms 139.15.
5 'Managing Extreme Technological Risks', Centre for the Study of Existential Risk, last accessed 20 September 2020, https://www.cser.ac.uk/research/managing-extreme-technological-risks/. See also 'Research Areas', Future of Humanity Institute, last accessed September 20, 2020, https://www.fhi.ox.ac.uk/research/research-areas/#1511433364500-59f88e91-a024.
6 Richard Grusin, 'Introduction', in *The Nonhuman Turn*, ed. Richard Grusin (Minneapolis: University of Minnesota Press, 2015), vii.

7 Arthur Bradley, *Originary Technicity: The Theory of Technology from Marx to Derrida* (Basingstoke: Palgrave Macmillan, 2011).
8 Ibid., 9. Please note that, unless otherwise stated, all italics are original to sources.
9 Ibid., 15.
10 Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010), viii–ix.
11 Bruno Latour, *We Have Never Been Modern*, trans. Catherine Porter (Cambridge, MA: Harvard University Press, 1993).
12 Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network Theory* (Oxford: Oxford University Press, 2005), 13.
13 Ibid., 23.
14 Grusin, 'Introduction', x.
15 Ibid, ix–x.
16 Ibid., x–xi.
17 Bennett, *Vibrant Matter*, x.
18 Charles Taylor, *A Secular Age* (Cambridge, MA: Belknap Press of Harvard University Press, 2007), 61.
19 Ibid., 32.
20 Jason Crawford, 'The Trouble with Re-Enchantment', *Los Angeles Review of Books*, published 7 September 2020, https://lareviewofbooks.org/article/the-trouble-with-re-enchantment.
21 Elizabeth S. Anker and Rita Felski, 'Introduction', in *Critique and Postcritique*, ed. Elizabeth S. Anker and Rita Felski (Durham, NC: Duke University Press, 2017), 1.
22 Bruno Latour, '"Thou Shall Not Freeze-Frame", or, How Not to Misunderstand the Science and Religion Debate', in *Science, Religion, and the Human Experience*, ed. James D. Proctor (Oxford: Oxford University Press, 2005), 27.
23 Ibid., 29.
24 For an example of this approach, see Erik Davis, *TechGnosis: Myth, Magic and Mysticism in the Age of Information*, 2nd ed. (London: Serpent's Tail, 2004).
25 This seminal argument was first put forward in Lynn White, Jr., 'Cultural Climates and Technological Advance in the Middle Ages', *Viator* 2 (1971), 171–201.
26 Charles Tellier, *Histoire d'une invention moderne: le frigorifique* (Paris: Delagrave, 1910).
27 Pierre Rambaud, 'Les Lauréats du prix Nobel: Henri Moissan', *La République française*, 10 December 1906.
28 'Causerie scientifique', *Le Temps*, 21 May 1890.
29 J. Lebrun, 'Le Procédé Thomas et Gilchrist en Allemagne', *Mémorial de la Loire et de la Haute-Loire*, 26 June 1882.
30 'Direction de personnel et des mines', *Journal officiel de la République française*, 12 June 1880.

31 Edmond About, *Le Progrès* (Paris: Hachette, 1864), 356.
32 Steven Connor, *Dream Machines* (London: Open Humanities Press, 2017), 10.
33 Ibid., 14–15.
34 Ibid.
35 See Matthieu Letourneux, *Le Roman d'aventures: 1870–1930* (Limoges: Presses universitaires de Limoges, 2010); Julie Anselmini and Marie-Hélène Boblet, *De l'émerveillement dans les littératures poétiques et narratives des XIXe et XXe siècles* (Grenoble: UGA Éditions, 2017); *Le Roman des possibles: l'anticipation dans l'espace médiatique francophone (1860–1940)*, ed. Claire Barel-Moisan, Aude Déruelle, and Jean-François Chassay (Montréal: Presses universitaires de Montréal, 2019).
36 See Kai Mikkonen, *The Plot Machine: The French Novel and the Bachelor Machines in the Electric Years (1880–1914)* (Amsterdam: Rodopi, 2001); David Bell, *Real Time: Accelerating Narrative from Balzac to Zola* (Urbana: University of Illinois Press, 2004); Christophe Wall-Romana, *Cinepoetry: Imaginary Cinemas in French Poetry* (New York: Fordham University Press, 2013).
37 See *Media Archaeology: Approaches, Applications, and Implications*, ed. Erkki Huhtamo and Jussi Parikka (Berkeley: University of California Press, 2011) and Jussi Parikka, *What Is Media Archaeology?* (Cambridge: Polity Press, 2012).
38 Jussi Parikka, *A Geology of Media* (Minneapolis: University of Minnesota Press, 2015), 7.

Technologos

1. *The Technologos: A Sacrament of Synthesis*

'One can strip humanity of its current dogmas, but not of the efforts that those dogmas have produced throughout the centuries': Elme-Marie Caro's statement that we are shaped by what we think we have forgotten is the key to the most tenacious dynamic in late nineteenth-century writing.[1] That dynamic is one of synthetic reassembly. The bone-deep past is where we need to look if we want to understand who we are. For Caro, it also contains the seeds of renewal. This return to the past infuses the '"official" philosophy' perpetuated in the Third Republic's academic institutions, and the spiritualist philosophy which dominated the nineteenth-century philosophical landscape in France, and of which Caro was a part.[2] For English speakers, the term 'spiritualist' evokes seances, table-turning, and the whiff of charlatanism. In the French context, however, spiritualism designates a revival of 'the reality of Spirit as a metaphysical principle', sometimes accompanied by a reaffirmation of Catholicism or Catholic mysticism, and framed in opposition to positivism.[3] 'Too well-known in the nineteenth century to be truly well-known', is the assessment of Jean-Louis Vieillard-Baron, in his own fresco of the movement.[4] There are as many spiritualisms as there were spiritualists, and this chapter does not aim to offer an exhaustive account of thinkers such as Maine de Biran, Félix Ravaisson, Jules Lachelier, or Félicité Lammenais. Here, I want to draw together elements of the spiritualist and positivist movements to identify a shared late nineteenth-century aspiration to synthesis, and to examine how this innervates written exploration outside the sphere of *fin de siècle* academic philosophy.

Among the most prominent spiritualists, though by no means necessarily representative of them, was the philosopher and minister of education Victor Cousin. His school of eclecticism judges 'with equity and even with benevolence all schools, borrows what they possess of the true, and

neglects what in them is false'.[5] Eclecticism offered a means to perfect the thought of the past by 'reuniting, and … fortifying by that reunion, all the truths scattered in … different systems'.[6] In synthesising the 'efforts' of those who came before us, Cousin suggested, we can understand ourselves and build a future on firm foundations. With radically different methods, the 'rival … syntheses of Cousin's spiritualism and Comte's positivism' shared one aim: to offer a true vision of the world.[7]

At this time, the French word *synthèse* described both the synthetic stage in logical reasoning and the surgical procedure of suturing a wound.[8] Its re-emergence at this 'decadent' moment in French culture, amid jostling political and literary narratives of decline and creative renewal, is not coincidental. France was wounded – a body politic divided on God, labour, government, and the merits and perils of words. Jean de Palacio's reading of the fortunes of the written word in the period acts as a counterweight to mine in this chapter. He draws on Paul Bourget's definition of decadence as a process of decomposition in which 'the unity of the book breaks down to give way to the independence of the page, then the page breaks down to give way to the independence of the phrase, and the phrase to give way to the independence of the word'.[9] For Bourget, this is analogous to the decomposition of society; the loosening of the ties which bind words to one another in sentences also loosens the ties which bind us to one another. On the basis of this, de Palacio offers a panorama of the fortunes of the isolated Word as its power and fullness wane. It becomes hieroglyphic, then telegraphic, and ultimately concludes in silence.[10]

Yet, as Patrick McGuinness has identified, writers such as Anatole Baju claimed the term *décadent* to describe themselves as 'a progressive force engaged in cultural resistance against a sclerotic civilization'.[11] The relationship between politics and poetry which McGuinness describes is a counterintuitive one, in which a writer's anarchic forms do not necessarily equate to an anarchist politics, and the aspiration towards total escape from the world is irrevocably entangled with the gravitational pull of total absorption in it. The lyric poet that he describes is 'a balloonist, jettisoning anything that might impede his rise, and rising', but 'it is only on the descent that you really stop and look, to notice that what you saw getting smaller and smaller as you rose becomes larger and larger as you fall'.[12] There is beauty all the way up, and down.

I recognise the sense of spiritual, literary, and temporal crisis which de Palacio articulates, but the mode of processing which I identify is more in sympathy with McGuinness, albeit with a different focus. Technicity has entertained a close but ambivalent relationship with

the French avant-gardes of the late nineteenth and early twentieth centuries: a relationship of simultaneous appropriation, incorporation, and rejection. At one stage or another, every member of my corpus has been described as avant-garde. Today, a movement like Surrealism seems historically rooted and kitsch to the public imagination; Salvador Dalí's artistic journey from the Crucifixion to the Chupa Chups wrapper prompts wry smiles. However, as the name suggests, avant-gardes are one step ahead, but they also have something behind them, the weight of history at their backs. I argue that a particular group of writers sought to reactivate and retool Catholic stories and forms from the past in order to accommodate the present, and understand their futures.

If the Third Republic was born with Léon Gambetta's daring balloon ascent to raise the troops to defend Paris,[13] then it is perhaps appropriate that the writers I explore here take something that grounds as they lift off into the future. Blown by the winds of technological change, their ballast is the patched bag of historically charged words they use to react and interact with its changing moods, to hold it all together in synthesis and – someday, somewhere – achieve a safe landing.

The word which I use to capture this is 'technologos'. I propose this term as a conceptual receptacle which allows us to see how religious and non-religious writers in the late nineteenth century mobilise a particular set of associations when they write about technology. I begin by tracing the interconnected meanings of the term 'logos', before turning to the work of Ernest Renan to highlight how those facets come together to form the technologos. This concept is then worked through in texts by Ernest Hello and Émile Zola, two writers at opposite ends of the political and philosophical spectra. They interweave technics, words, and bodies, to move us beyond the habitual binary divisions of nineteenth-century historiography and its '-isms' (idealism and materialism, or religion and secularism), laying the foundations for the distinctively French school of writing about technics.

WHO'S AFRAID OF THE LOGOS?

When capitalised, Logos refers to Christ as the Word of God; in its lower-case form, to a secular or rhetorical 'word'. These two senses are always rubbing off on one another. In this section, I feel the grain of the term, beginning with the Christian understanding, before moving towards non-Christian usages. My reading here operates within the contexts of nineteenth-century revivals of medieval and materialist thought, invoking the mystic tradition to highlight the expansion of understandings of reason and language.

The 'Word' whose theological roots innervate de Palacio's reading is the original statement of creative authority: the Word of God, the Logos of the New Testament Greek. John the Evangelist stated that

> In the beginning was the Word, and the Word was with God, and the Word was God. He was with God in the beginning. Through him all things were made; without him nothing was made that has been made. In him was life, and that life was the light of all mankind.[14]

In his commentary on these lines, Meister Eckhart argues that the Logos is in a process of constant becoming: 'the Word "in the beginning" is always being born, is always already born'.[15] This Logos in turn speaks the world into Creation, in Genesis: the 'first cause of anything is its idea, the Logos'.[16] But that Word is also a body in time. In Christ's incarnation, the 'Word became flesh'.[17] Poles met: 'heaven on earth, earth in heaven, man in God, God in man, one whom the whole universe cannot contain now enclosed in a tiny body'.[18] The body of Christ achieves what McGuinness's balloonist in motion cannot, holding together earth and sky. All the way up and down, the grammar of Catholicism is set in motion by this 'both … and'.

The Logos is dynamic and lived as an encounter, and so there is relationality at the heart of the Trinity, and within the Bible itself. Catholic tradition has always held that 'Scripture – the multiplicity of its authors and its long historical genesis notwithstanding – is *one* book having a real, intrinsic unity in the midst of its various tensions'.[19] In the third century, Origen of Alexandria highlighted that the Word of God incarnate in Christ and the Word of God written in the Gospels needed to be understood together. The allegoresis which Origen applies to his readings of Scripture thereby becomes participation in a sacrament, becomes eucharistic.[20] The images that a text employs are not things to be set to one side once we have seen 'through' them. In his commentaries on Scripture, the terms by which God and souls are described are always kept in play:

> Those fish which are taken up into the nets, die. … But those who are caught by the fishers of Jesus … die to the world and to sin, and after this dying … are given life by the WORD of God. … If you then have come up out of the sea and been caught in the nets of the disciples of Jesus, turn away from the sea; forget it; go to the mountains – the prophets, and to the hills – the just, and lead your life there.[21]

The terms of the parable are kept up – the 'you' addressed after the second ellipsis is addressed as a fish caught in a net, and the figurative mountains and hills are simply placed alongside what they represent. Where Origen could have invited us to live 'according to what the

prophets and the just say', he instead invites us to 'lead your life *there*' (my emphasis). In this example, Origen creates a space for us to inhabit that has a foot in the world as we see it, and another in the world as God sees it. He maintains the universe of the parable, which is rooted in the everyday, at the same time as interpreting it. The visible world is not devalued simply because it points to the invisible. On this understanding, the written word, and most especially the figurative word, are participants in the same reality as the divine. The twelfth-century *Scala Claustralium* describes the practice of reading Scripture (*lectio divina*) as a sensory encounter, in which both reader and text are transformed: '[r]eading brings the substantial food to the mouth; meditation grinds and chews it; prayer tastes it, and contemplation is the sweetness itself that delights and restores'.[22] There is no separating out the sweetness from the food, or from the act of consumption which unlocks it.

I am returning to the Church Fathers because this is what happened in the Church in 1879. Pope Leo XIII's encyclical *Aeterni Patris* sought to revive Catholic scholarship through a return to Scripture, patristics, and – above all – Thomas Aquinas. At a time when the Church was buffeted by the rise of positivism, what Leo prized in Aquinas was his apologetic flair for 'distinguishing … reason from faith, while happily associating the one with the other'.[23] The *Summa Theologiae* is a *disputatio* of questions, answers, and objections, in which Aquinas mobilises the Old and New Testaments, Church Fathers, and Muslim and Greek philosophers. Leo points to the conclusions of the First Vatican Council, that '[f]aith *frees* and saves reason *from error*'.[24] The religious did not see faith as being locked in mortal combat with rationality.

Nor is the logos confined to the religious sphere. Two years before *Aeterni Patris*, Friedrich Lange's history of materialism was translated into French.[25] André Lefèvre traces a comprehensive history of materialist thought and its diffusion into France, from the pre-Socratics (Parmenides, Anaxagoras, Empedocles, Leucippus, Democritus, Plotinus, and Heraclitus) through the Enlightenment and into his present day, with an analysis of positivism and the experimental method of Claude Bernard. Lefèvre conceives of his book as a rebuttal to Lange, whom he describes as 'a sort of mystic nihilist, the champion of a religion of the future: he sacrifices all systems to materialism so that he can burn a more richly dressed victim on the altar of the ideal'.[26] The materialism which Lefèvre proclaims is no unified school, nor does he ever provide a definition of the term (or of the 'idealism' he is attacking, for that matter). Despite the disagreements between the various thinkers that Lefèvre invokes, the picture that emerges over the course of five hundred pages is of a world in which everything is matter and

that matter can neither be created, nor destroyed, only reconfigured. Nevertheless, in the works of those who found his school of thought, we find reference to *logoi*. In Heraclitus, for example, we find a '"logos-textured world" in which our experiences are laden with meaning', a meaning which 'conceals a deeper structure and reality', or *hypostasis* – the same term used to describe the individual Persons of the Trinity.[27] We could say that pre-Socratic living is its own form of *lectio divina*.

This is what another Church Father, Justin, points to when he writes that those 'who lived by reason are Christians, even though they have been considered atheists: such as, among the Greeks, Socrates, Heraclitus, and others like them'.[28] The word which Justin uses for 'reason' is 'logos', referring to the logical mode of persuasion in Aristotle's *Rhetoric*. It was in this mode of rational thought that Church Fathers like Augustine were trained and which they deployed in an apologetic context: Book IV of Augustine's *On Christian Doctrine* is entitled 'The Christian Orator'.

We can now see how the Logos and the logos fold together in western thought. Yet the logos is not just about rationality as we might see and recognise it in the positivism of a Lefèvre, or the *disputatio* of an Aquinas – that is, as something set out with deductions and 'therefores' and proofs. John Henry Newman wrote of logic that 'its chain of conclusions hangs loose at both ends; both the point from which the proof should start, and the points at which it should arrive, are beyond its reach; it comes short both of first principles and of concrete issues'.[29] When we form a logical argument that is based on words, ideas, and even seemingly empirical evidence, there always comes a moment where we take something on faith. For Newman, this is because 'our most natural mode of reasoning is, not from propositions to propositions, but from things to things, from concrete to concrete, from wholes to wholes'.[30] While he does not invoke mysticism explicitly, the emphasis on the experiential quality of this 'illative sense' cannot help but recall that tradition.[31]

It is important to be precise. Mysticism is often employed loosely to mean 'spiritual, not religious', esoteric, occult – or, at least, not Catholic. Atypical forms of spirituality certainly thrived or were revived in the *fin de siècle*: in one year, Jules Bois inventoried new branches of neo-pagans, three types of Buddhist, theosophists, satanists, humanists, Gnostics, Swedenborgians, and devotees of Isis.[32] It is also true that throughout French nineteenth-century occult literature, the term *synthèse* surfaces with reference to the tarot, pentacles, triangles, and other charged forms and numbers which reveal a principle of underlying unity and communication between the visible and invisible worlds.

The occultist Papus exhorted his readers: 'unite the physicist's method to that of the metaphysician and you will give birth to the analogical method, the true expression of the ancient synthesis'.[33] However, when I refer to mysticism, it is the Catholic tradition that I have in mind.

In the late nineteenth and early twentieth centuries, there was a trend in French theology towards exploring the ways in which Catholicism could engage with and be revitalised by secular modes of thought, from historical biblical exegesis in the case of Alfred Loisy to contemporary philosophy in the case of Maurice Blondel. Alongside and within this so-called 'modernist' orientation, there arose sustained interest in the practice of medieval mystics among scholars and most particularly amongst the laity.[34] The scale of this medievalism cannot be underestimated. As David Matthews highlights in his description of a twenty-first-century inventory of the phenomenon, '*La fabrique du moyen âge* is a collaborative volume limited to the impact of the Middle Ages on nineteenth-century French literature. It nevertheless extends to 1,100 pages written by nearly 70 contributors.'[35] In a 'liberatory medievalism',[36] the lived encounter with Christ in mystic communion became a counterweight to the drily intellectual Thomistic revival.

In the late fourteenth-century 'Mystic Theology of St Denis', the author tells us that the person who wants to apprehend God as such is like a craftsman faced with a block of wood to carve:

> While the block is still completely whole, the image may exist inside himself through the sheer power of imagination, but … he must always use his skill and his tools to remove all the outward parts of the wood that surround the image and prevent it from being seen.[37]

The principle is apophatic: stripping away everything that God is not, in order to be able to uncover what God is, which is 'above all speech and all understanding', 'incomprehensibly above all affirmation and denial'.[38] Catholic mysticism is this *via negativa*, but it is also the positive spiritual exercises of '[r]apture and rhetoric' manifest in the corpus of mystic poetry explored by Michel de Certeau.[39] The 'rapture' of mystic ecstasy takes the individual out of themselves, time, and language. However, their emergence from that privileged instant sparks an outpouring of allegorical words. These have to be read with our illative sense tingling, obeying a different kind of logic. It does not matter to the mystic that words are not enough, because there is the understanding that they never will be. The effort to come close, through the myriad facets of allegory and its proliferating images, is an offering on its own. It reinstates the referential bond, not between word and thing in neat and seamless overlap, but between the word and *something*.

The logos is an elastic term that articulates both a mode of thinking and arguing persuasively from evidence and experience, *and* a way of being – the deep (divine) structure of the universe, whether in the person of Christ the Logos or the pre-Socratic life force. The logos in technologos is the infolding of all these facets: the sacred and secular, the allegorical, the rhetorical, and the mystic. To corral Catholicism, and relegate it to the sidelines of nineteenth-century culture as a 'Revival',[40] is to overlook what Caro in the nineteenth and Giorgio Agamben in the twenty-first century identify: that it is easier to forget ideas than to shed their consequences.[41] This is not a retrospective mass conversion; I am not interested in pinpointing authors' personal beliefs. Rather, I want to show that authors read and write technics in the late nineteenth century with the forms and functions of the logos as I have set them out above – and to suggest why this might be the case.

ERNEST RENAN: THE LOGOS OF THE LOGOS

Within days of one another, Newman entered the Catholic Church and Ernest Renan left it.[42] It is in the work of Renan that we perhaps find the most eloquent example of a synthesis between the Christian Logos and the secular logos. In *La Vie de Jésus* (*Life of Jesus*) (1863), Renan wrote an account of Christ the man, rather than Christ the Son of God. He drew particularly on John's Gospel, which is markedly different in tone and style to the synoptic Gospels of Matthew, Mark, and Luke. Observing this difference, Renan presents John as providing 'compositions designed to cover with the authority of Jesus certain doctrines dear to the author'.[43] Writing amid the 'syncretic philosophy' of Asia Minor, Renan argues, John synthesises early Christian practice with the life of Christ to provide an argument that will persuade non-believers.[44] We could say that John is writing the logos of the Logos.

Renan waited until 1890, the acme of decadent crisis, to publish his own attempt at a logos of the Logos: *L'Avenir de la science* (*The Future of Science*), based on notes penned in 1848. In it, he articulates a need for

> a *scientific philosophy* which would no longer be a system of vain and empty speculation, aiming at no real object; … a science which would no longer be dry, barren, exclusive, but which in becoming complete, would become religious and poetic.[45]

For Renan, our originary immanence and entanglement in the world was followed by the development of scientific modes of thought, which established an analytical distance between the human subject and the world. For Renan, science is and always has been 'technique', a technics

with material effects as it splits phenomena apart.[46] Now, Renan argues, this analytic movement will culminate in the synthetic reassembly of its fragments, within a framework of true and deep knowledge. Whereas '[a]nalysis is powerless to create', Renan argues, the synthetic moment will recover the lost unity of humanity's early sacred texts to create a new religion – a term which Renan claims as synonymous with *synthèse*.[47] Etymologically, both terms bind together; in the 'sacred books' we find the reunification of the human community and its fields of experience.[48] As I have written elsewhere, 'although it articulates disbelief, the fabric of Renan's language betrays a deeprooted emotional connection with religion, becoming "resonant with recent receding"'.[49] Renan's speculative and synthetic arc seeks a replacement Logos: a surgery of the soul, capable of binding together the past, present, and new beginning in a secular reworking of John's Gospel, which will humanise God and infuse the spark of the divine into the human.

In different ways, Ernest Hello and Émile Zola tackle the notion of what this nineteenth-century logos that synthesises science and religion might look like, and they place technics at its heart.

ERNEST HELLO: SACRAMENTAL STEAM TRAINS AND MINES OF MERCY

Léon Bloy provides a lapidary portrait of the Catholic mystic and polemicist Hello:

> rejected by the Catholics who could not forgive him his occasional sublimity, unnoticed by the non-Catholics whom he did not address, forever exterminated in advance by his transcendently grotesque physical appearance, Ernest Hello carried within him … the fiercest originality imaginable.[50]

Though forgotten today, Hello was an icon for the decadent generation, with J.-K. Huysmans, Remy de Gourmont, and Barbey d'Aurevilly saluting not only his religious fervour but his original mode of expression.[51] Writing in 1870, Hello remarked that 'the discoveries of contemporary science resemble the century from which they burst forth. They have a distinctive character, the character of universality and of symbolism.'[52] This observation comes in the context of reflections on the development of railways, photography, and telegraphy: three very different technological inventions. Yet Hello sees what they have in common. In his framing, nineteenth-century technology – in whatever form – points to something beyond itself. It emerges at a particular moment in time – a symbol coalescing from desires and doubts – but it resonates far beyond that context. In Hello's hands, the movement of a

train through the power of ephemeral steam becomes a visible sign of the victory of spirit over matter.

Hello's conception of technology is a theological one, and it is indissoluble from the well-documented crisis of faith which gripped French society in the nineteenth century. Auguste Comte's positivism, which continued to resound in the 1870s, studied only what could be empirically verified through observation. All 'absolute notions' or thoughts about 'the origin and ends of the universe' or the 'intimate causes' of phenomena – or, to put it briefly, God – therefore had to be abandoned.[53]

Yet for Catholics, Christ is 'the Alpha and the Omega, the first and the last, the beginning and the end'.[54] For Hello, then, these technologies have emerged at this point in time for a very Christian reason. In spite of its association with positivistic science, technology is an accomplice in the nostalgia for an infinite. It thus becomes an echo of divine creation and a stimulus to religious belief. Not only that: the steam train becomes sacramental, the outward sign of an inward grace, 'given, not because we have done good works, but so that we might be able to do them', as Augustine puts it.[55] The visible and tangible points to the invisible and intangible, the material to the immaterial, so that in baptism, the water and oil become the index of a spiritual adoption and conversion of life. As Margaret Deanesly summarises, the 'sacraments are instrumental causes of grace, producing grace in the soul: the soul is a potentiality, and grace is in the act'.[56] Grace is effective; it acts and in doing so makes it possible for us to act too.

How does Hello's evocation of the 'symbolism' of technology relate to the sacramentality I am proposing? Karl Rahner's gloss of Aquinas is helpful. He suggests that 'the grace of God constitutes itself actively present in the sacraments by creating their expression, their historical tangibility in space and time, which is its own symbol'.[57] In ancient Greek, a *symbolon* was one half of a seal, broken in two to agree a contract, and brought together with its pair to ascertain that its bearer was the original signatory. 'Symbol' here is therefore not to be understood as something that is 'merely' symbolic, an abstraction of 'the real thing'. The sacrament is rather what Rahner terms the 'expression' of an inward change and renewed relationship with God, a mode of expression whose eloquent form points to the nature of that inward change wrought by God's grace. In a popular anecdote, the Curé d'Ars evoked the words of a farmer, who described his contemplation of Christ in the consecrated eucharist as a sustained and mutual gaze: 'I LOOK AT HIM AND HE LOOKS AT ME'.[58] The Eucharist does not stand in for Christ, it is his Real Presence under the appearance of the host and chalice, by

which the communicant is nourished. The act of consumption expresses the nature of the relationship between God and his people, one of generosity and intimacy, at once immanent and transcendent.

In telegraphy, Hello argues that 'matter, through electricity, seeks to enter a state of ecstasy'.[59] The material human finger on the telegraph key sends up a prayer that waits for an answer, encoded in meaningful but seemingly immaterial electrical signals. Telegraphic ecstasy lies in the transcendence of physical distance in search of mystic communion. The index finger of the telegraph operator is that of Adam reaching out for God on the ceiling of the Sistine Chapel.

Indeed, the relationship between the intangible and the embodied is at the core of Hello's argument. In *Philosophie et athéisme* (*Philosophy and atheism*) (1888), Hello offers a lengthy quotation from the prominent Catholic theologian Gioacchino Ventura di Raulica's 1851 lecture on the theme of the Incarnation, which paraphrases Saint Augustine:

> … my word, wishing to make itself known to you, speaks in my voice, unites itself to my voice. In a sense, it becomes incarnate in my voice, becomes my voice. In the same way, the Word of God, wanting to make itself known to humanity, united itself to the flesh, became incarnate, was made flesh.[60]

The analogy between the human act of speech in which thought becomes sound, and the divine act of speech in which word becomes flesh, is at the core of Hello's understanding of unity. It is dynamic, a reaching out for contact with the other rather than a homogenisation. He quotes Ventura di Raulica again: 'the word which I have just uttered became audible without becoming separate from my spirit. In the same way, the Word of God became visible and did not leave His Father.'[61] The logos/Logos draws speaker and listener into communion – they exist as separate persons but indissolubly bound in common understanding. The logos/Logos is at once an anchor and a dynamic process of exchange, of unity and diversity.

John Durham Peters has placed John's Gospel and this same portion of Augustine in parallel. For Peters, the Gospel stages the risk of misunderstanding which is inherent in communication: in chapter after chapter, the 'witness of truth is taken as a scandal' and those who hear Jesus fail to *hear*, in the sense of understanding.[62] But the Gospel is also a guide to interpretation, for Peters: '[r]ight understanding … comes from catching the tenor without tripping on the vehicle. We are to dwell in the metaphor's meaning, not its mechanics – to discover the *logos* within the flesh.'[63] Peters separates the figurative from the literal, the form from the content. He prioritises the former over the latter. Reading the same passage of Augustine as Hello, he declares that

'[e]mbodiment is at best an expedient of exhibition, not of ontological importance', and that for 'Augustine, the sign is a passive vessel that suppresses itself for the sake of what it carries'.[64] Peters is wrong. Neither John nor Augustine are writing or thinking in abstract terms: 'the Word' is not a metaphor, the incarnate person of Christ is not a vessel that is secondary to what fills it. The Word and Christ are real, embodied presences, hypostases of God.[65] For John, Augustine, and Origen, this is the ultimate reality and truth of their universe. Hello experiences the world as an allegory. Every meal is a *lectio divina*: when he eats, this is a 'natural transubstantiation' in which bread becomes part of his flesh, pointing to and confirming the spiritual transubstantiation of the Eucharist.[66] Accordingly, when he writes about technics, Hello is not rejecting it, but rather claiming it as God's choice, and framing human invention as the fruit of grace.

Grace is freely given, never earned. Of Marguerite-Marie Alacoque and her visions of the Sacred Heart, Hello wrote, 'no one would have dreamt of choosing her'.[67] Like his 'physiognomy of the saints', in which grace is written in the features of the blessed, technological innovations are the outward signs of a knowledge economy in which 'the sciences constitute Science',[68] the edifice of true knowledge which we will possess when we see God 'face to face' (1 Corinthians 13.12). Science's concern with truth is entirely compatible with Christian revelation because, for Hello, Christ is 'the way, and the truth, and the life' (John 14.6). These technological discoveries are intervening now, in the nineteenth century, as a reminder and gloss of that history of salvation. As Hello puts it, 'scour the last eighteen hundred years for a history without Christ: you will not find it, because it does not exist'.[69] Faced with the emergence of positivism and its aspiration to progress, Hello seeks to present the nineteenth century as a new chapter in the linear time that we experience, but also a part of time as God experiences it, as 'the whole of time in one simultaneous present'.[70] Life, science, and art echo the unity in diversity of the Trinity (one God in three persons). Though different, each human endeavour yields 'everywhere applications of the same Truth'.[71] For Hello, science with a capital 's' is not simply the accumulation of knowledge, but the wisdom to see it true, as a whole uncorrelated by human perspective.[72]

He describes this in terms of matter and form: 'Science … is a spirit which proceeds from the beings it studies, as matter, and from their intelligence, as form.'[73] This vocabulary is based on the medieval metaphysics of Aquinas. A reader's primary association when faced with 'forme' in French or 'form' in English is shape and texture. When we think like this, form becomes the lineaments of a thing: the way

in which it presents itself to us to our senses. However, this is not the Catholic understanding. In Catholic terminology, those lineaments are accidental forms, not substantial ones. Hello's gloss makes this clear. He invites us to imagine breaking a coffee bean down into its component parts, or accidental forms. It would be impossible to reassemble it and make it exactly the same bean. Even if it looked and felt exactly the same, it would be missing its substantial form, 'that *something* … that is absolutely distinct from the separate substances which presented themselves to you one by one when you broke down its body'.[74] The bean's form is what makes it *this* bean and not another, its principle of individuation. This might include qualities like shape or texture, but cannot be reduced to them. For Hello, this is where materialism like Lefèvre's goes wrong. Despite its insistent focus on matter, it neglects the one 'invisible virtue … which individualises it'.[75] Matter is to form as potentiality is to actuality, Hello tells us.[76] These are the same terms as those at work in Deanesly's description of the soul's encounter with grace. The soul is the form of the body – its individuating principle – and grace brings about its perfection.

The notion of grace has, of course, made its way into aesthetics, as 'the combination of a graceful movement and the sense of something bestowed'.[77] For Hello, one place where grace is lacking is the novel which, alongside technology, is the other crystallisation of the nineteenth century spirit. Century and medium co-evolve as the novel form – whether Romantic or Balzacian – becomes 'humanity's attempt to give the world some flavour in the absence of God'.[78] In its indulgence and glorification of all-consuming passion, the novel becomes a masochistic weapon, which his contemporaries turn upon themselves in order to feel something, anything:

> It wants to drink and make others drink the heart's blood. Since blood spilt in this way does not quench him, the reader, increasingly bored, and still mistaking the torture for the cure, cries out: More! More! And the Novel keeps on pouring, and the abyss keeps on growing, and the boredom increases, like a wound that you deepen merely for entertainment.[79]

This is the word as wound and weapon. Whereas Romantic texts such as Goethe's *The Sorrows of Young Werther* (1774) or Chateaubriand's *René* (1802) invite the imitation of destructive passion and self-annihilation in passive narratives of fate, Hello argues for the quality of mercy. Mercy intervenes, unearned and transformative: 'do you not think that the true drama … the drama which wants to be an act and to act, would have mercy as its keystone?'[80] For Aquinas, God is the *actus purus*, fully and perfectly itself: the 'being' and 'acting' of Hello's

act of mercy.[81] Narrative fatality is an attempt to give human life without God a form and structure when those ever-flowing sources of grace which defy logic – like the apparition of the Sacred Heart – are the true precious metals or fuel for which art should be mining. As Hello puts it: 'beneath old humanity's faltering steps sources of life are opening which are not dug by the hand of man, but by the hand of God. It is not *progress* which has opened them; it is all-powerful, invincible mercy.'[82] In contrast to the wounding knife of the novel, we find the gentle excavation of grace; life, instead of death. For Hello, contemporary technology is a symbolic manifestation of the Word, the originary Logos, which inscribes it into the (literal) nuts and bolts of life. The contemporary novel is a misguided attempt to recreate a secular version, but now technology and literature must come together in a different way, in a *lectio divina* which can refocus our attention on the divine and renovate the world.

ÉMILE ZOLA: BOOKS, BOMBS, AND CHASUBLES

Barbey d'Aurevilly remarked that 'the entire universe knows Zola, but when it comes to Hello … no one knows his name'.[83] Everything seems to oppose them, not least Zola's choice of monumental novels as his privileged form. Zola's quasi-manifesto *Le Roman expérimental* (*The Experimental Novel*) (1880) draws extensively on Claude Bernard's *Introduction à la médecine expérimentale* (*Introduction to the Study of Experimental Medicine*) (1865). Bernard argues that in experiments we imagine from the basis of what we know, form a hypothesis, test it, observe, and draw conclusions based on those observations and the pre-existing body of proven knowledge. In time, this method will build up a body of knowledge allowing us to understand the causes of medical conditions, in order to regulate them. Zola's explicit extension of this method to his own practice as a writer analysing social ills establishes a synthesis akin to Hello's synthesis of science, art, and life. It is my contention that, like Hello, Zola goes beyond the conventional literary categories of simile and metaphor, to access a form of secular sacramentality. The definition remains identical to Augustine's: grace is the power to act. It is the conferring agent who changes.

Zola's œuvre is replete with Catholic imagery. In *Le Rêve* (*The Dream*) (1888), this militant atheist created a world of expiatory Christian suffering in which the sacrificial death of a devout innocent (the aptly named Angélique), offers pardon for the hereditary sins of her aristocratic husband.[84] Like the Virgin Mary she is assumed into heaven, so that her husband is left holding 'simply a soft and tender form', the

'bridal robe'.[85] There is no irony in Zola's observation that Angélique, the 'exquisite vision that came from the Invisible had returned to the Invisible'.[86] Like Hello's steam train or telegraph, the visible woman is the material index of salvation, her faith its instrument. Nor is it any coincidence that Angélique is a seamstress, suturing together the visible and the invisible in the chasubles she embroiders, inspired by her reading of Jacques de Voragine's medieval hagiography, the *Légende dorée*: '[u]nder her hands, silk and gold seemed animated; the smaller ornaments were full of mystic meaning; she gave herself up to it [*s'y livrait*] entirely, with her imagination constantly active and her firm belief in the infinitude of the invisible world'.[87] When Zola says that Angélique 's'y livrait', the pun on the French *livre* (book) is intended. In her synthetic stitching she is reading and writing her own technologos, her own sacred book; it is an allegorical and sacramental practice.

Claire White's reading of the novel eschews any mention of Catholicism: the words 'religion', 'Catholic', 'Catholicism', and 'church' do not appear once.[88] Her approach places Zola in opposition to an undefined 'idealism', which she assimilates to any kind of disposition towards dreams, imagination, and – presumably – religion.[89] Literally and metaphorically, this misses the heart of the novel. While Zola's preparatory notebooks leave no doubt as to his desire to critique Angélique's piety,[90] he began his career as a writer of devotional poetry, and his relationship to Catholicism must be given serious consideration throughout his œuvre as a whole.[91] Sophie Guermès is right when she states that 'Zola is a novelist who bases the entirety of his oeuvre on what he calls science … in order to found a "new religion". God may be dead, but religious need outlives him.'[92] However, I would argue that Zola's case is more than a subversive but conceptually straightforward replacement of religion, or even Christianity understood in general, non-ecclesiological terms. It is a new technologos.

We see this most clearly in the protagonist of Zola's *Trois Villes* trilogy, Pierre Froment. In *Paris* (1897), the renegade priest – disillusioned by experiences in Rome and Lourdes – undergoes a conversion, via anarchism, to a new leftist vision of the world. Zola describes his state of mind and soul at the beginning of the novel as being a 'reopened wound', in need of *synthèse*.[93] He criticises the efforts of the Church to accommodate itself to the modern world, while failing in its most basic duty of charity to the poor and needy.[94] This failure of love manifests itself in highly material terms. The Basilique du Sacré-Cœur, rescued by Froment at the last moment from an anarchist bomb plot, dominates the novel. The wounded Sacred Heart seen by Marguerite-Marie Alacoque, to which the basilica is consecrated, is a source of disgust:

'what base and repugnant materiality, what a butcher's stall, with guts, muscles, and blood on display!'[95] In the suffering Christological body, Zola rejects the very materiality which Hello embraces.

Built by public subscription in expiation for the French defeat and the sins of the Commune in 1871, the basilica stands for mortification and hypocrisy. Like Froment, it is wounded, a 'wide and deep vessel' with a 'a nave half-barred by the scaffolding that blocked up the dome's cupola, which was still under construction'.[96] The bark of Saint Peter is breached, emptied of its cargo of mercy. Motivated by his own 'need to love',[97] Froment discovers and celebrates the liberated and luxuriantly procreating body as he falls in love with an uncorseted woman on his first bicycle ride. Zola's novel represents a shift in the spatial and temporal centre of faith: from the Holy See in Rome and the eternalism which allows the faithful to state that 'my age is the age of Jesus Christ, like all ages',[98] to Paris and a socialist-anarchist faith which is a work-in-progress.

Rather than destroying the Basilica with his bomb, Froment's brother-in-law resolves to harness the new energy processes involved in its making to power the industrial future: 'faced with the terrible explosive which he had discovered, Guillaume had the sudden idea to deploy it as a motive force'.[99] If the anarchist Mikhail Bakunin saw that the 'passion for destruction is a creative passion, too',[100] it is also possible to see in *Paris* a secular *felix culpa*: 'for as all die in Adam, so all will be made alive in Christ'.[101] Here, man is his own fall and his own redemption – both through technics.

I read the bomb in *Paris* as a sacramental technics, like Hello's steam train. A comparison with two seminal readings of Zola's technics will allow me to show more clearly what I mean by this. Jacques Noiray devotes the second volume of his exhaustive survey, *Le Romancier et la machine* (1981), to Zola. He argues that Zola's machines function as a 'platform for imaginary obsessions', mappable in a self-contained 'Zolian universe'.[102] However, he does not move beyond a catalogue of representations, built around Zola's zoomorphic and anthropomorphic metaphors: La Lison as a woman and as a beast to be tamed in *La Bête humaine*, for example. These figures of speech bring together two phenomena which share features, but are ultimately not the same. They retain separate identities. Noiray focuses on machines as objects standing for other objects, rather than thinking of technology as participating in a dynamic of relation and revelation.

In a different mode, Michel Serres connects the Rougon-Macquart and nineteenth-century thermodynamics, to dissolve epistemological and disciplinary boundaries between literature and science. For Serres,

'mythic discourse is a work of weaving, patching and connection .... Once the weaving is done, then we can talk about science.'[103] Serres offers a synthesis of parallel developments in literature and science, so that his Zolian universe is dominated by thermodynamics and information theory in their most entropic modes. Thus, in *Au Bonheur des dames* (1883), both the shop and the text are steam-powered machines of circulation and consumption at every level, from the human circulatory system to the movement of capital.[104] Serres has Zola's novels express the fundamental workings of the physical world, but the bomb-turned-motor of *Paris* does more. It does not illustrate or exemplify an acknowledged theory – it formulates something new.

For Zola, as for Hello, the contemporary moment is inscribed in deep time. He surveys the history of Christianity (the only history, according to Hello), and uncovers what he believes to be eternal truths about human destiny. *Paris* is set 'after eighteen centuries of ineffectual charity' and foresees the extinction of Catholicism in one thousand years time.[105] Froment's new world view is based on revelation: 'to him, these shared truths seemed blinding, irrefutable'.[106] His four evangelists are Comte, Charles Fourier, Saint-Simon, and Proudhon, and from 'the gospels of these social messiahs' he weaves – like Renan stitching a secular life of Christ from the Gospels – a synthetic view of a common message of care for the poor and social justice.[107] Zola's Froment finds in these common strands – which are not beliefs or ideas but 'truths' – 'the very foundation of the religion of tomorrow, the necessary faith which his century would bequeath to the next, for it to transform into the human religion of peace, solidarity, and love'.[108] In the bomb-turned-motor, he has the means of making this reality. Christ's sacred heart blazed with love for humanity in Marguerite-Marie's visions, a subterranean current of mercy; the bomb-turned-motor blazes with love for humanity in the crypts of the Sacré-Cœur, not as divine manifestation but as a material allegory and sacrament. For Hello, new inventions manifest the working of God's grace. For Zola, Catholic forms activate the old habits of faith: they make his ideas believable, and therefore possible. Zola's bomb-turned-motor plants the seed of potential revolution in the world of the novel, but also in the reader.

Earlier, I evoked the ceiling of the Sistine Chapel, beneath which Peter's successors are elected to the papacy. Peter is the 'rock' on which Christ builds his church.[109] The descendants of Zola's Pierre are the protagonists of the unfinished *Four Gospels*, and are named accordingly: Matthieu, Marc, Luc, Jean. These – like Comte's *Catechism of Positivism*, calendar of secular saints, and Chapel of Humanity – very consciously reappropriate Catholic motifs for anti-Catholic ideas, precisely *because*

they are Catholic motifs. The only difference is the agent of the transformative grace: God versus the human being. Analysing how Oscar Wilde, Zola, and Alfred Dreyfus were presented as Christ figures in nineteenth-century culture, Andrew Counter suggests that

> Christian vocabulary and iconography masks – poorly – a fundamental axiological vacancy. The problem with these references is thus not, finally, their specifically Christian allegiances, but rather their banality, their radical availability for all manner of contradictory and confused ones.[110]

Counter is looking through the wrong end of the telescope. The immediate association in the nineteenth-century mind of a gesture, look, or adjective with centuries of iconography, exegesis, and complex feelings about a childhood or ancestral faith – whether cherished, lost, or vehemently rejected – speaks not to 'vacancy' but to an unruly overflowing of sense and sensitivity. Nineteenth-century writers use Christology precisely because it is *not* empty. The fact that those images are mobilised to defend positions that seem incompatible with them is beside the point: their power is in the *effect* of their form, in what they are able to do to readers, and inspire readers to do. This is the grace that the secular technologos I have traced in Zola imparts.

In different ways, Renan, Hello, and Zola believe that if we could just get the story right, we might rediscover something to believe in and in doing so, change our world. There is one drive towards a synthesis that is perceived to be lacking, that will tell us who and where and when we are, and what we are supposed to do about it. At the heart of it will be a book, 'the new sacred book, of which all the arts … are begging to dream', which will enter into harmony with science.[111] In the book of which Hello and Zola dream, the worlds of art and the 'real' world interpenetrate: technics is at work in the writers' words, in the book as an object affecting the reader, and in the world with which that book interacts. All these kinds of technics are folded into one another, ontologically equal. This will be a consistent theme and modus operandi in this book.

In Hello, the everyday world is rich in significance, its every facet and novelty participating in the workings of God's grace, a stimulus to faith to be interpreted and savoured. In Zola, an imaginary object is offered to the reader to induce real change by acting as an emblem of hope. At this stage, I make no pronouncement on whether or not they worked: what grips me is the faith that infuses them and the love that is both their fuel and their gift. This allows us to summarise what I understand by the technologos: a mode of ideas-driven writing, which understands technology sacramentally, as the outward sign of an inward grace

(whether religious or secular); encompasses technology as a mode of relation to self, other, and world that manifests itself in interactions with concrete forms; is equally attentive to technology's abstract and material dimensions; integrates technology into a synthetic historical framework; and is intimately concerned with the effective reality of writing, and how it acts on the world.

The technologos is not a fixed entity, but a disposition – a cluster of tendencies and preoccupations which are interpreted and used by writers in different but resonating ways. In the chapters which follow, I track its life and afterlives.

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2. *Technics of the Fiat: The Metaphysical Machines of Jean Richepin, Villiers de l'Isle-Adam, Marcel Schwob, and Alfred Jarry*

Fiat is the third-person subjunctive of the Latin verb *fio, fieri, factus sum*: it means 'let it be made, let it be done'. It opens the Old Testament, in the *fiat lux* ('let there be light') of Genesis 1.3, and the New, in the *fiat mihi secundum verbum tuum* ('let it be done to me according to your word') of Luke 1.38, when Mary accepts her vocation as the mother of Christ, putting right Eve's act of disobedience in the Garden of Eden. The *fiat* is both the act of creation and an agreement to participate in that creation; the first cause and the self-abnegation through which that cause acts. It is the modality in which the Logos unfurls throughout the timeline of soteriology we saw in the previous chapter: the Word of the beginning in Genesis, and the Word incarnate announced to Mary, which Renaissance artists often depicted as a phylactery entering Mary's ear. Thus, when the American writer Henry Adams states that 'he could see only an absolute *fiat* in electricity as in faith', we should perhaps understand this less as an absolute decree than as a force acting in the subjunctive: a force that solicits a conductor or medium in order to be made manifest.[1] As Augustine puts it, 'He who created you without you did not wish to redeem you without you.'[2] Mary is not passive, she assents as a partner; she is not an empty vessel, she is 'full of grace'.

This quotation is drawn from Adams's account of his visit to the *Palais des machines* at the 1900 Universal Exhibition in Paris. His account highlights the immediacy of the relationship between Catholicism and technology in France, and places front and centre the figure of the Virgin Mary and her role in the history of salvation. I take it as a springboard to think in more detail about the modalities of the technologos, asking how the grace or potential to act that it imparts operates.

The 1900 Exhibition reused the hall which had been purpose-built for industrial displays for the 1889 edition. Visitors would have been greeted by a sculptural vision of the War in Heaven foretold by John:

the Archangel Michael defeating Satan in dragon form, his lance topped with a star, which recalls the star of Bethlehem at Christ's birth,[3] the Virgin's crown as she gives birth in the apocalyptic vision,[4] and the seven stars representing 'the angels of the seven churches' (Figure 2.1).[5] Climbing the stairs, they would have reached a platform beneath the vaulted ceiling of a cathedral of iron and glass (Figure 2.2). Neither French nor Catholic, Adams is struck most forcibly by the intertwining of those two identities in this exhibition of machines, and in particular the part of the exhibit devoted to the dynamo. For him, 1900 marks the moment of the dissolution of linear history in a dizzying moment of revelation akin to the establishment of Christianity. The forces which the dynamo mobilises are 'occult, supersensual, irrational; they were a revelation of mysterious energy like that of the Cross; they were what, in terms of mediaeval science, were called immediate modes of the divine substance'.[6]

He likens this motor of the new to Mary, and particularly her iconographical forms at Amiens and Chartres, and Lourdes – although '[a]ll the steam in the world could not, like the Virgin, build Chartres'.[7] The Virgin represents a power and fecundity alien to Protestantism.

Figure 2.1 'Vue intérieure de l'escalier du promenoir des machines', 1889. *Paris: Capital of the 19th Century*. Brown Digital Repository. Brown University Library, https://repository.library.brown.edu/studio/item/bdr:87051/

Figure 2.2 'Interior View of the Gallery of Machines, Exposition Universelle internationale de 1889, Paris, France', 1889. Photochrom print. Library of Congress, https://lccn.loc.gov/2001698576

Adams even draws her into relation with the figure of Venus, who was a 'goddess because of her force; she was the animated dynamo; she was reproduction – the greatest and most mysterious of all energies'.[8] Whether materially tangible, like the dynamo that Adams can hear and see and feel throbbing before him, or the Virgin whom he can see only as artists have represented her over the centuries, the mode of action is the same. It is the force of the *fiat*, and that force (as Adams's comparison of the Virgin and Venus emphasises) is one of loving creation – whether that love is *agapē*, *eros*, or a capitalistic desire to produce more, faster. Whether as '[s]ymbol or energy, the Virgin had acted as the greatest force the Western world ever felt, and had drawn man's activities to herself more strongly than any other power, natural or supernatural, had ever done'.[9] The dynamo and the Virgin are both effective agents of force: full of potential energy, offered for – and desiring – actualisation.[10]

This chapter will explore the technologos' manifestation through the optic of the *fiat*, encompassing crucial moments in Christian soteriology: Genesis (*fiat lux*), the Incarnation (*fiat mihi secundum verbum tuum*), and the Passion (*non mea voluntas sed tua fiat*, 'not my will but yours be done').[11] It does so through close readings of five authors.

Jean Richepin's 'La Machine à métaphysique' ('The Metaphysics Machine') (1876) establishes the leitmotifs and core ontological concerns surrounding the technologos. In this very short story, a polymath on the verge of insanity pursues the Absolute through mechanically induced ecstasy, achieved in the 'dark night of the soul' of mystic theology. In Villiers's *L'Ève future* (*The Future Eve*) (1886), a fictionalised Thomas Edison builds a gynoid with golden phonograph-lungs. The catalyst for the novel's plot is his close friend Lord Ewald's desire to transplant into his mistress a soul which would be the equal of her divine body, in which a petty and vulgar soul is currently 'astray'.[12] Edison declares that his gynoid will solve Ewald's dilemma by giving a replica Alicia a new 'soul' worthy of her body: a *nova Eva* to redeem the sins of Eve. In Marcel Schwob's 'La Machine à parler' ('The Talking Machine') (1892), the anonymous narrator is stunned by the invention of a monstrous mechanical leather mouth complete with tongue and throat, which utters the opening of John's Gospel. I also introduce the figure of Charles Cros, whom I discuss in greater detail in Chapter 3. In Alfred Jarry's *Le Surmâle* (*The Supermale*) (1902), André Marcueil is endowed with superhuman strength, culminating in an encounter with an experimental 'love machine'. His technologos is a new *arma Christi*, a new Passion.[13]

Breaking with a secular understanding of history as linear, these writers present seeming innovations – phonographs, bicycles, and gynoids – as typologies. Reading the Old Testament as an archetype of the New Testament, a prophecy which finds its fulfilment in Christ, has long been a cornerstone of Christian exegesis. In a seminal reading of the phenomenon, Erich Auerbach reminds us that for the Church Fathers, 'Moses is no less historical and real because he is an *umbra* or *figura* of Christ, and Christ, the fulfillment, is no abstract idea, but also a historical reality'.[14] In typology, as with Origen's allegory, 'the link … is the interpretation', a suturing thread.[15] A universal, preordained story works itself out in patterns of prophecy and fulfilment, prefiguration and materialisation, revelation and lived experience.

Taking each author in turn, I argue here that in the nineteenth century writers of conflicted faith – or none – reverse the narrative sequence of traditional theological typology, in which the past prefigures the salvation to come. They create new Christologies and Mariologies, in which the figure of Christ, and in particular Christ crucified, continues to manifest itself in new technological forms. Now, the supposedly new postfigures the one who, in the words of the *Gloria Patri* 'was in the beginning, is now, and ever shall be': forward motion with a backwards glance.

JEAN RICHEPIN AND THE DARK NIGHT OF THE MACHINE

Richepin may seem a strange place to begin, firstly because his critical life is one of transformation from *enfant terrible* to national treasure to perennial footnote. He gained notoriety in the 1870s for his sympathy for the Commune and admiring biography of Jules Vallès, and a tempestuous love affair with Sarah Bernhardt. In staid later life, as a member of the Académie française, the mainstream success of his stage plays brought him the opportunity to work – and flop – with the Ziegfeld Follies on Broadway.[16] Critical attention since his death has been non-existent, with the exception of one biography.[17]

The second cause for surprise might be because in *Les Blasphèmes* (*Blasphemies*) (1884), Richepin asserts that in addition to rejecting God, he rejects his 'avatars': 'the Concept of Cause, faith in a Law, the apotheosis of Science, the last religion of Progress'.[18] In this poetry collection, the Lucifer (bringer of light) crushed by Michael in the *Palais des machines* in 1889 and 1900, is a new deity. He confers the gifts of sex, technics, and poetry on Cain, Prometheus, classical materialists, and scientists. Richepin seems to be echoing Comte's assertion that we should consider 'as absolutely inaccessible and meaningless … the search for what are known as *causes*',[19] but all he has done is swap one cause for another. Like the secular authors of the previous chapter, the very form in which he couches his ideas precludes the complete abandonment of the divine and its literary manifestation. Lucifer's gift to humanity – 'writing' (*écriture*)[20] – can only become another form of 'Scripture' (*Écriture*), a 'Bible of Atheism'.[21] As Donna Haraway has remarked, '[b]lasphemy has always seemed to require taking things very seriously'.[22] Nowhere is this clearer than in Richepin's 'La Machine à métaphysique'.

Unreliably narrated in the first person by an archetypal self-taught 'mad inventor', the first third of the tale is a survey of the encyclopaedic systems of pre-Socratic philosophy, Greek atomism, neo-Platonism, and the scholasticism of Anselm and Aquinas. The forms of speculative thinking which the narrator has explored and found insufficient – from the poetic visions of Empedocles to the disputational model of Aquinas – present themselves as truth claims; they say, 'this is how things are, this is why, and this is why you should believe me'. This ambition towards total synthesis is precisely what appeals to the narrator; what frustrates him is its failure.

Rejecting eclecticism's optimistic belief that truth can be found through accommodation, Richepin's narrator proclaims the priority

of 'intuition' over 'reasoning' in metaphysical matters.[23] The absolute cannot be attained by moving deductively from general statements to specific manifestations, in accordance with the syllogistic logic which theologians derived from Aristotle. This is because, in the narrator's quest for the absolute, 'we are not going from the *known container* to the *contained unknown*. It is a question of positing the *unknown container*'.[24] With this statement, Richepin's narrator moves away from logical causality, and away from the logic of the sign put forward by Peters in Chapter 1, in which the familiar vessel is unimportant, serving only to conceal a true meaning which we must seek out. Here, it is the vessel that is divine.

The narrator's method here eschews the first two propositions of syllogism: 'if A is the case and B is the case …' and the causality of 'then it follows that …' to simply proclaim that 'C is this'.[25] The '*unknown container*' marks 'a substitution of the ground for the cause', coming closer to a Platonic logic.[26] We might think, for instance, of Plato's argument that 'it is by the beautiful that all beautiful things are beautiful',[27] or of the divine *ego sum qui sum*.[28] In Aquinas's hands, this latter phrase designates God as *actus purus* – fully realised, fully perfect.

There is one very literal 'unknown container' in the short story. The originary performative utterance of creation, 'Fiat lux!', appears as the short story's epigraph, placing it under the seal of the Word that is the Light of the World, and speaks light into existence.[29] However, it is attributed to '[u]n inconnu': an ambiguous noun in French which can refer to 'a stranger', 'an unknown person', or a mathematical unknown. The effect is seen, but not the cause. To see the cause requires another form of sight. In the framing proposed by Richepin's narrator, vision and evidentiary proof are decoupled from one another, so that 'proving something is meaningless; it has to be seen. You either see it or you don't.'[30] Seeing in the mundane sense is not believing; what is required is something of the order of revelation: an 'evident Apocalypse'.[31] This kind of vision comes as a grace, complete and unearned, for 'the difference between rational light and mystic light is the difference between light which can be separated by a prism and a purer light which the prism cannot separate'.[32]

John of the Cross wrote of the 'night of sense' and the 'night of the spirit', when he described how mystic union with God comes about after a period of 'aridities', in which God seems far away, and no spiritual effort we make seems to bring us any closer to him.[33] It is a painful experience of desolation, but John tells us that this is the time to set 'reasoning and meditation' to one side, in favour of 'contemplation',

because this is the time when God is most active within us: 'It is just as if some painter were painting … a face; if the sitter were to move because he desired to do something, he would prevent the painter from accomplishing anything.'[34] By the nights of 'sense' and 'spirit', the saint understands a period of cleansing of the habits and faculties of mind, body, and soul, which prepares us to receive God's grace.

It is in this light that we need to read the quest for the absolute in Richepin. Indeed, Richepin plays on the double meaning of the French *sens* as 'sense' and 'meaning', as his narrator nails, or crucifies, himself to the shape and texture of the written word:

> I repeat the word, the phrase, without imbuing it with any meaning; I nail … my spirit to the material contours of the word …; one fine day, the human meaning of this absurdity was obliterated, the form and sound of the word became symbols, and I understood the incomprehensible.[35]

There is a striking similarity between this passage and Rimbaud's account of his manipulation of language in 'Alchimie du verbe' ('Alchemy of the Word') (1873).[36] But while Rimbaud is sensitive to the phenomenological quality of words and plays on 'sense' like Richepin's narrator, his action is transitive: 'I regulated the form and movement of every consonant, and … prided myself on inventing a poetic language accessible to all the senses.'[37] If Rimbaud proposes a *fiat*, 'La Machine à métaphysique' is a *fiat mihi*.

Richepin's is an unorthodox *via negativa*. The senses are not surpassed, but rather transformed into a '*sensible Metaphysics*' that yields a new sense of sense: 'there is another sense, simultaneously internal and external, which grasps its object like the external senses, is immaterial like the internal senses, and has absolutely nothing in common with either of them: this is the SENSE OF THE ABSOLUTE'.[38] In this logic of the 'both … and' (which is also a 'neither … nor'), the 'sense of the absolute' is able to grasp materiality while being immaterial itself – a sense without a sense organ, attached to the body of the individual but operating beyond it. The narrator's source is the seventeenth-century Jesuit theologian Louis Thomassin.[39] He quotes and translates Thomassin's observation that 'the soul, restored to itself, alone, in full possession of its whole being and full potential, naturally perceives and SENSES that something, that sovereign principle which is INACCESSIBLE TO REASON'.[40] However, the narrator omits one crucial word from Thomassin's original Latin: *inenarrabile*, 'unnarratable'.[41] Richepin's narrator shares Rimbaud's aim to transcribe 'the inexpressible'; it is his method which differs.[42] This omission is the key to the particular mode of the technologos which Richepin enacts, which aims to narrate that experience of absolute force.

That force is the force of fecundity. In the moment of male orgasm, Richepin's narrator finds a 'microcosm of the absolute', as the individual dissolves back into the potential energy from which he came, yielding to the possibility of the creation of a new form.[43] Richepin uses the image of a wire melting in the heat of the electric current passing through it. In order to replicate and prolong this glimpse of the generative force, the narrator constructs an armchair with a dental drill attachment which locks his legs, arms, and head in place while allowing his wrist to move over a continuously rolling scroll of parchment.[44] The penetrative logic is reversed: the 'feminised' narrator's tooth will be drilled continuously until pain becomes ecstasy, obliterating all other thoughts and sensations which might distract from the experience of the absolute.

Acts of recording and inscribing are indissociable from the nineteenth-century practice of experimental science, with '"real-time" entries … jotted down in laboratories as events occurred'.[45] Richepin pushes such a logic to its extreme in his 'experimental science', writing on and with his narrator's body. We are most accustomed to seeing the words in the context of Claude Bernard's science and its appropriation by Zola. But it was in the bodies of some Catholic mystics that 'the experimental method advocated so enthusiastically by free-thinkers … was more effectively practiced', according to Antoine Imbert-Gourbeyre.[46] In *La Stigmatisation* (*Stigmatisation*) (1894), he argued that mystic ecstasy is a true experimental science – a deep and true knowledge acquired through deep and true experience, rather than observation of an experiment. Imbert-Gourbeyre read the marks on the bodies of stigmatics indexically: for him, these reproductions or recordings of Christ's crucified body pointed towards the existence of Christ's body itself. By contrast, Jean-Martin Charcot argued in texts such as *La Foi qui guérit* (*Faith Healing*) (1897) that these supposed miracles were due to suggestibility. Charcot was not denying faith or its capacity to mark or cure the body – quite the reverse. As with Hello and Zola's versions of the technologos, the difference lies in the agent. For Charcot, it was the patient who performed the miracle through faith; it was not the work of God's grace. Either way, mystic experience made its mark.

Richepin combines both the scientific and religious aspects of inscription. Taking every element of the technologos that I evoked in my previous chapter, he writes out a secular mysticism in which the final step in the ladder to the absolute is effected with and through an *imitatio Christi*, as the narrator moves from being figuratively 'nailed' to being literally nailed to a chair in an echo of the Crucifixion (*non mea voluntas sed tua fiat*). His alternative, mechanical crucifixion

effects the transformative experience whose fruits flow through the narrator's writing hand in an indexical recording. The machine and the man form one operation of painful grace, with the human a component as well as a patient. The narrator's output is presented as a series of broken words separated by dashes (like the index of a book), gradually degenerating as the narrator drills and writes himself to a telegraphic climax:

> Joy. – Horror. – Absolute. – Absolute. – Words? I see at last. –
> Inexcogitabile. – Mad. – Mad. – Mad.
> Joy. – Joy.
> Words to express? – Evident. – By Jove. – Yes.
> Enough. – Triangle. – Enough.
> Absolute. – Here. – At last. – Here. – Here[47]

The text almost seems to reprise the narrative in which it sits. There is a transition from language to vision ('Words? I see at last'), the impossibility of thought ('Inexcogitabile', Latin for 'incomprehensible, beyond understanding'), fears of madness, evidentiary proof ('Words to express? – Evident'), the proximity of pleasure and pain ('Joy – Horror'), a possible hint of the conventional artistic shorthand for the Trinity ('Triangle'), and a return to the deictic 'Here': except that this time we do not see where the index finger is pointing.

De Palacio's reading of 'La Machine à métaphysique' considers its view of language and the Apocalypse to operate 'outside all religious meaning', placing his focus on the mutilation and decomposition of language and body.[48] For him, the 'metaphysics machine' which mediates between the reader and the absolute fails, offering a literal analysis, a literal breaking down, but no synthesis. This is not necessarily a problem.

John of the Cross's poem about the dark night of the soul does not give us direct access to God – it can only hint – but his exegesis of his own poetry offers a practical toolkit of suggestions for cultivating the appropriate disposition for mystic experience. The Apocalypse *is* 'evident' in this text: something *did* happen and we can see its trace. In that sense, the index to a book we cannot read does exactly what it promised; like John of the Cross, it points the way. Richepin's narrator – a new sacrificial victim in a new Passion – places the expanded possibilities that technics can offer us at the heart of a secular mysticism.

CHARLES CROS AND THE ADVENT OF THE PHONOGRAPH

Almost a decade later, another needle drilled into a hard yet ultimately yielding material in order to leave a trace. Richepin's metaphysical

machine is the ontological blueprint for the phonograph patented by Thomas Edison in 1877.

Cros was an inventor without a laboratory, a 'a thief of sunlight who … re-enacted Prometheus's punishment between absinthes'.[49] Following his death, his close friend and fellow avant-gardist Alphonse Allais retraced how Cros 'invented' the phonograph, eight-and-a-half months before Edison. On 30 April 1877, Cros filed a 'Procédé d'enregistrement et de reproduction des phénomènes perçus par l'ouïe' ('Process for recording and reproducing phenomena perceived by the ear') with the French Académie des sciences, in the form of a *pli cacheté*, or sealed envelope, setting out a project for the construction of a machine similar in design to the phonograph. The *pli cacheté* was a bureaucratic oddity thanks to which anyone could 'deposit … their reflections in a specific field of science … which they considered worthy of preservation'.[50] It remain sealed until its depositor asked for it to be opened at one of the board's meetings, and had no legal status.[51] Cros's *pli cacheté* was opened at the Académie des sciences on 3 December 1877; on 19 December, Edison took out a French patent.[52] According to Allais, this latter document – which he deemed 'very long and very muddled' – detailed a form of 'a process indicated by Cros in his *pli cacheté* on 30 April'.[53] Cros had priority in this discovery, but no patent and no remuneration. Nevertheless, the phonograph was invented before it existed (or is it the other way round?)

The ontological indeterminacy of the phonograph and its capacity to remove the human voice from time, space, and the mortal coil have generated a well-worn critical narrative. For Steven Connor, the 'voice is … the ideal body, or the body idealized'.[54] It occupies a space between the 'ideal' and the 'material', and playing a recorded voice after the material body which produced it has perished pushes that logic to its limit. The deployment of sound technologies to tune into the spirit world is only the natural extension of the connection drawn between the disembodied voice that persisted after death and the immortal soul.[55]

The issues with these readings are clear.[56] I have already demonstrated that the dualities with which Connor works were by no means widely accepted by writers in my corpus. From Hello to Richepin, body and soul work together with technology, discovering new faculties in one another. The body does not need to be 'idealised' or the soul materialised, because such binary transformations do not convey the complex reality of body–soul and matter–form relations in Catholic theology, or human experience.[57]

In *L'Ève future*, the possibilities for new kinds of experience which technics affords (the grace of Richepin's machine) are explored in all

their conceptual density, exposing the reductiveness of these dualistic readings.

VILLIERS DE L'ISLE-ADAM AND THE WOMB OF THE WORD

I approach *L'Ève future* as three conceptual and affective grapplings with technicity. Each successive grappling becomes more complex, quite literally introducing more dissenting voices. In the first grappling, Edison focuses on the phonograph, exploring the relationships between word, reality, and recording. In the second, the monologue becomes a dialogue, as Edison and Ewald discuss form and matter in a technical context which builds up a Marian typology. After offering us a number of pre-existing intellectual and symbolic frameworks for understanding the gynoid Edison builds, a third party enters the discussion: the gynoid herself. The final conceptual grappling is with what we might term the technical *fiat*.

Grappling with the Phonograph

Edison's opening reflections on phonography focus on what it has missed by emerging in 1877 rather than millennia earlier: the '*Fiat lux!*', the creation of Adam and Eve, and the life and Passion of Christ, from the 'archangelic timbre of the Salutation' to Mary, to the sound of Judas Iscariot's kiss.[58] He reflects on an incident recounted in John 8.6–8:

> the divine Word … wrote but once – and that was on the ground. Doubtless he only valued in the vibration of the word that intangible *beyond* whose magnetism inspired by Faith can penetrate a syllable in the moment of its utterance.[59]

In John's account, we never know what Christ writes on the ground with his finger (an analogue version of the phonograph needle), as he tells the Pharisees who have condemned an adulterous woman to death that if they are without sin, they should cast the first stone. Edison concludes that the Logos is not interested in the logos, because it is the spirit in which words are offered and heard that matters, imbued and animated by faith. This is in direct contrast to John's Gospel – 'written so that you may come to believe'[60] – and to the correlation of word and Word which we saw in Origen. Villiers's Edison goes further, suggesting that the contemporary spiritual crisis means that biblical voices have lost 'the impressive character in which and with which the ancients' hearing clothed them – and which alone animated their

intrinsic meaninglessness'.[61] Edison appears to have provided us with a way of thinking in which we hear what we want, or are able, to hear.

However, he also posits that 'reciprocal action is the essential condition of all reality'.[62] This is different to the unidirectional infusion of meaning into the 'intrinsic meaninglessness' above. Scholarship has long signalled Augusto Vera's French translations and commentaries on Hegel as a major influence on Villiers, and it is in Vera's translation of the *Logic* that we find the term 'reciprocal action' (*réciprocité d'action*). The two terms involved in this reciprocal and causal relationship are moments of a third term: the Hegelian 'Notion', an actual substance. Vera's commentary emphasises the way that dependence on reciprocal action folds cause and effect into one another: 'there is but one and the same cause which denies itself as substance in its effect, and only becomes a real and independent cause by producing the effect'.[63] 'Cause' and 'effect' become terms of convenience that we apply to 'the processuality of a substance becoming actual', imposing a linear narrative of agent and patient on a more complex process.[64] Vera's commentary describes this substance in Thomistic terms, as 'that movement through which it actualizes itself as an immovable and immobile manifestation of itself', but converts the Thomistic terminology of potential and act into a 'passage from possibility to reality'.[65] In the context of Edison's remarks, this reciprocity means that those biblical voices and unhearing contemporary ears are causally bound together in the making real of sense, but it is impossible to establish an order of priority. The biblical voices inspire faith in their listeners, but also require it before they can be actualised into sense, made real.

Within the space of a few pages, Edison contradicts himself again. He argues that if he recorded God's voice, '*the next day, there would not be a single atheist left on Earth!*'[66] All of a sudden, the recording has probative value; acting as the most persuasive testimony of all, it can bring about belief, regardless of pre-existing faith. And yet, this statement is immediately followed by a description of God not as a transcendent or eternal reality but as 'the most sublime conception possible', with 'every conception only having its reality according to the will and intellectual vision particular to each living being'.[67] Edison describes depriving oneself of the thought of God as an affective and spiritual impoverishment, as if faith were a matter of aesthetic and philosophical taste, or a choice.

The phonograph needs a listener, collaborates with that listener to make sense, has probative value for that listener, but also derives its efficacy from that listener. At different stages in this monologue, Edison presents these four aspects as though each on its own were the definitive

answer to the question of the Logos' (and technologos') being – but he has effectively constructed a logical loop which provides no answers, and only takes us back to where we started, with the mystery of the encounter.

Edison's discussion of phonography is the prelude to Ewald's description of the mismatch between Alicia's body and soul, her form and content. Edison seeks to remedy the situation with his android replica, Hadaly, by giving her a pair of golden phonograph lungs – a redemptive recording of poetic perfection proffered by the finest pens. Ewald's imagination will make every repetition seem fresh. Yet, through Edison, Villiers warns us from the outset that Edison's plan to 'change the record' will fail.

Grappling with Form and Matter

As Edison unveils his prototype gynoid to Ewald, Villiers shifts from the speculative, disputational mode of the novel's opening to a typological framework. Edison describes the process of creating the android as a '*transubstantiation*'.[68] The sacred mystery by which the real presence of Christ is made manifest in the host and chalice in a redemptive sacrifice is appropriated to describe the scientific creation of an *illusion* of presence in the mechanical android Hadaly. Materiality is sanctified by the phonograph. However, on the same page, the transubstantiation becomes, by turns, an incarnation, an annunciation, and a new Genesis. Edison announces to the android Hadaly, 'here is the form in which you will be made flesh' and Hadaly echoes with a version of the Marian *fiat*: 'may it be according to his will!'[69] Hadaly will be made incarnate – like Christ – but she is also presented as the Virgin, mother of Christ. Then, we are told that just as Eve was created by God from Adam's rib, Adam now creates his own Eve, 'a Being *made in our image*, and who will therefore be to us WHAT WE ARE TO GOD'.[70] This smorgasbord of Catholic preoccupations requires considerable unpacking.

Edison's enthusiasm lies in a misogyny prompted by the suicide of a friend caught up in an unhappy love affair. In Catholic theology, Mary is the *Nova Eva*: her obedience redeems the disobedience of Eve, bringing the 'Word … made flesh' into the world to redeem the sin of the Fall. Marian devotion was at its peak in late nineteenth-century France, in ways which rippled across the religious and political spectrum. The 1854 promulgation of the doctrine of the Immaculate Conception received overwhelming support from the laity, and Gustave Flaubert wrote that 'it encapsulates the emotional life of the nineteenth century'.[71] Litanies addressed Mary as a vessel, tower, house, and ark: the womb of the Word. In his dream of a future womanhood freed

from the demands of sexuality by artificial reproduction, Comte sought 'the utopia of the Virgin-Mother, destined to endow positivism with a synthetic summary equivalent to that with which the institution of the Eucharist provides Catholicism'.[72] In Villiers's version, the word is incarnate in the womb of the ideal machine.

However, the assimilation of transubstantiation to the Incarnation is an ancient heresy.[73] Transubstantiation in Catholic theology brings about a transformation of substance; only the accidental form remains earthly. By contrast, the Incarnation is a hypostasis, in which Christ is fully God and fully man, the Second Adam. The first is transubstantial so that the accidental appearance of the host (its species) remains the same, but its substance changes wholly and completely; the second articulates the consubstantiality of the Trinity, one *ousia* in three *hypostases*. Their conflation in Edison's account extends the conceptual confusion of the novel's opening, in which words oscillate between vessel and index, cause and effect, actual and potential.

It is only through mapping these positions that a reductive approach can be avoided. These sections of the novel have fostered critical perspectives which have, without exception, sustained dualism as though it were the structuring element of the narrative. They posit dualisms of the ideal and material, sense and non-sense,[74] the natural and artificial,[75] the human and the machine.[76] But to take at face value the dualisms alluded to in the debates between Edison and Ewald is to overlook the coexistence of multiple overlapping and not easily reconcilable perspectives throughout the novel. The one argument that no critic has put forward is that Villiers is actually criticising the prolific flow of philosophical perspectives that he presents here, undermining them by setting them against one another. Affirmation and counter-affirmation succeed one another, and we look for the 'real' idea in the gaps: the mystic *via negativa* is reconfigured as intellectual war of attrition. Villiers's characters present their viewpoints in apodictic terms, but as Edison's monologue revealed, this is no guarantee of conceptual stability. Edison and Ewald chip away at one another's received notions, laying the ground for Villiers's ultimate tour de force: the moment when Hadaly 'takes flesh' and speaks for herself. It is at this point that metaphysical oppositions of ideal and material, natural and artificial, are shown to be inadequate in the face of a new form of being.

Grappling with the Technical Fiat

Edison and Hadaly's perspectives on her mode of being differ, but they both draw on notions of love and desire, the same forces at play

in Adams's dynamo and Richepin's metaphysical machine. Edison's vision of Hadaly is of 'a Being in limbo, a possibility', in whom he will force 'the Ideal to manifest itself, for the first time, *to your senses*, TANGIBLE, AUDIBLE AND MATERIALISED'.[77] At the same time as softening metaphysical oppositions with a vocabulary of limbo and becoming, Edison maintains a dialectic between ideal and material, in which emergence is determined by desire. Edison argues that 'the being whom you love in the living woman and who, for you, is the *only* REAL part of her, is not the being who *appears* in this human passerby, but the being of your Desire'.[78] The emphatic capitalisation highlights the difference between the real (which is also the ideal) and the material world which surrounds us. The android will be brought into being by that same desire: it will be reality incarnate, more real than real.

But Hadaly is no easy incarnation of the ideal; she is not a beautiful vessel into which the 'right' contents can be poured. When she reveals herself, she evokes the state between dreaming and waking, in which the figures from our dreams sometimes seep into our waking lives, until we reason them away. As Hadaly describes it, these figures are an insight into the infinite realm of imagination, in which

> every man in whom, *at this very moment*, the seed of a prior election ferments, and who already feels his acts and ulterior motives weaving the future flesh and form of his rebirth, or … continuity, … is aware, within and around himself, first and foremost of the reality of another ineffable space of which the visible space in which we are locked, *is only the figure*.[79]

We could associate Hadaly's view with a number of nineteenth-century '-isms': occultism, pantheism, or Platonism. Even Hippolyte Taine's positivism held that 'our external perception is a dream of the inside which finds itself in harmony with the things outside us', 'external perception is a true hallucination', and each human being is 'a verbal entity and metaphysical phantom'.[80] To give into the temptation to label Hadaly's account, however, is to destroy the delicate ambiguity that Villiers keeps in play, and which refuses to conform to any fixed school of thought. The '*figure*' she invokes could be read as pointing to a Platonic realm of ideal forms beyond the visible world. Yet there is a temporality to her emergence: there are 'ulterior motives', and a 'rebirth'. The '*figure*', I suggest, is also a *figura*, pointing forwards to the world to come. According to Hadaly, our dreams – those potential events – are present in the objects around us: 'they reveal themselves in the leafy branch of a shrub, in the contours of an object, using the shadows to become incarnate … in everything around you'.[81] The 'shadows' are Auerbach's *umbrae*. As Hadaly

describes it, everyday things are prophetic and active, pointing to and making the world. She tells us, 'I called myself forth in the thought of what [*ce*] created me; while it believed it was acting purely of its own accord, it was also secretly obeying.'[82] The impersonal 'what' makes Edison and Ewald vectors rather than human agents. Their desires are at work in bringing forth Hadaly, because they had to be: her form wanted to crystallise.

Earlier in the text, Edison admits that we fool ourselves when it comes to the material objects we make:

> The labourer casting a bullet says to himself … unconsciously: 'This is all up to chance! It might be a waste of lead.' He finishes the bullet, whose soul is veiled from him. But if he could see gaping, sudden and fatal, the human wound that this bullet among others is … destined to gouge out, and which is therefore virtually part of its casting, the steel mould would fall from his grip.[83]

Neither the bullet nor Hadaly are ideas or ideals coming to inhabit an empty material shell; they are form crystallising, with all its virtual possibilities. The Logos was always a statement of relation, an invitation to an encounter. The *fiat* was a 'let it be' of abnegation as much as a command. Technicity here is not about transcending the world in front of us, but about participating in its timely coming-to-fruition.

In the penultimate chapter of the novel, Edison attempts to reason away Hadaly's departure from the pre-engraved script of her phonograph lungs. He reveals that his assistant, Sowana, who assisted in the creation of the android, is in fact a woman, placed in a therapeutic hypnotic state by Edison after her adulterous husband's suicide. Charcot lectured on the connection between spiritualism and an increase in cases of female hysteria, and Edison's descriptions of Sowana fuse the two vocabularies.[84] He describes Sowana as 'spiritualised' and capable of speaking through Hadaly through an electrical connection.[85] Sowana's death at the end of the novel suggests that a mysterious transmigration of her spirit has taken place: 'a Soul I do not know has superimposed itself on my work'.[86] However, the 'incorporation' which Edison points to only happened when Hadaly was a prototype, before her 'incarnation'. In the first noun, something is folded into an already-existing body; in the second, something takes flesh. The difference is key.

Edison dissects Hadaly in front of Ewald before her 'incarnation', but once she has come into being, he can no longer pinpoint her. Raphaël Drouart's engraving is useful in thinking through this (Figure 2.3). At first glance, it appears straightforward. But when we look closer, we see that if the two open halves of the gynoid were folded back together, they

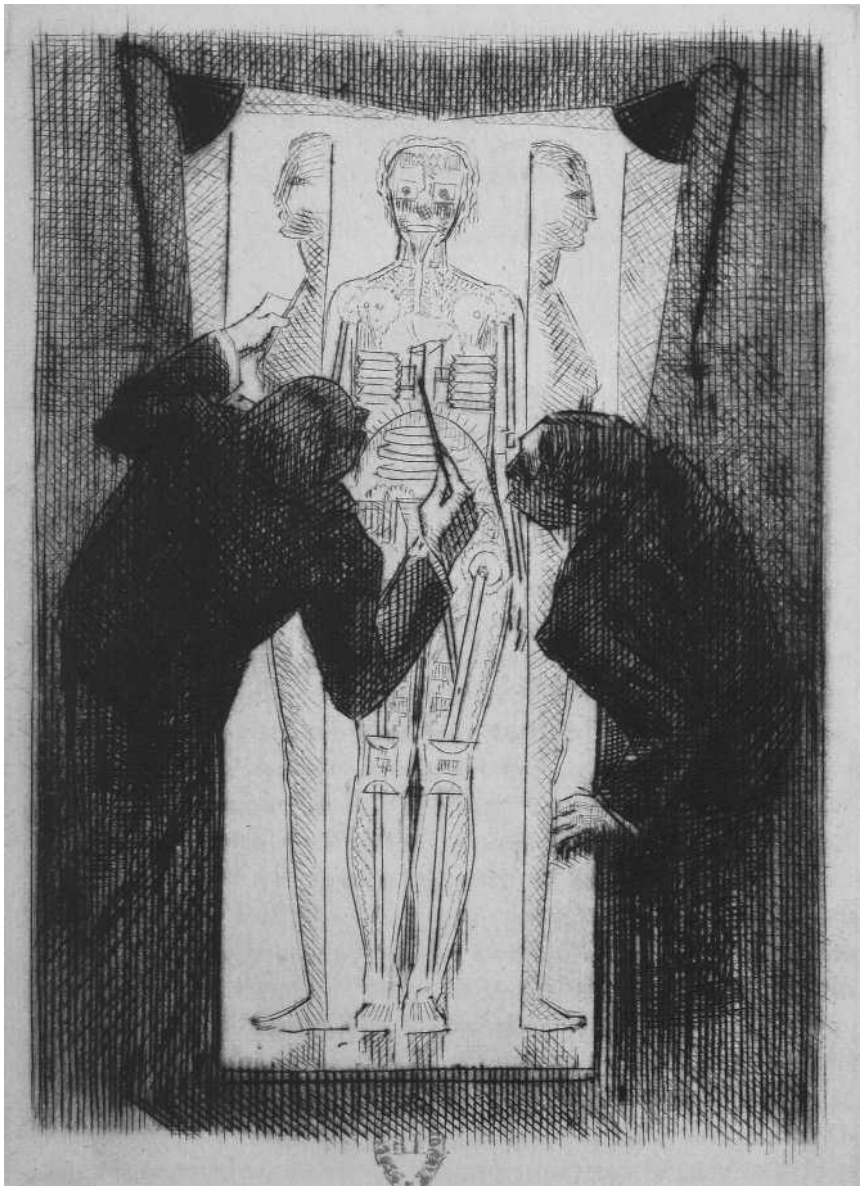

Figure 2.3 Edison and Ewald analyze the phonograph lungs of the Hadaly prototype.
Raphaël Drouart. Untitled engraving. In Villiers de l'Isle-Adam, *L'Ève future* (Paris: Henri Jonquières, 1925), unnumbered plate. Paris, Bibliothèque nationale de France.

would not make the humanoid face we expect. The eyes on the outer casing should not be visible in this position, if the two halves of the face are to align. Hadaly refuses to cohere on Edison and Ewald's terms.

At the end of the novel, Edison sees Hadaly as a hybrid presence: a metal body, with the timbre and tone of Alicia's voice, and possibly Sowana's soul (which Edison describes as overlaid but not fully integral). In the three component parts which Edison proposes, she captures the muteness of the purely mechanical, the palpable absence of the phonographic voice which traces the contours of a vanished presence, and the reanimating of a spiritual presence and consciousness. She is these component parts – but she is also none of them. Edison is capable only of analysis, not synthesis. As we saw in Chapter 1, '[a]nalysis is powerless to create'.[87] His argument here is no more convincing than his earlier attempts to describe or justify the process at work.

Hadaly is ultimately lost at sea as Ewald attempts to bring her back to his ancestral seat. The chapter in question is headed by an epigraph which refers to the Flood in Genesis – a typology for the Church as bark of St. Peter, and for the Virgin Mary.[88] It would be easy to see in this a divine punishment, but we have learnt to be wary of the stated positions in Villiers's text. The 'silence' which Edison is left with as he contemplates mystery is not the punishment, but the last grace wrought by the mystery that is Hadaly.[89] It shakes Edison from intellectual complacency, as he looks to the stars and the clouds which obscure them, with a sensitivity and attentiveness to the active and the unknown, and to those hidden possibilities in technics that are waiting to be actualised.[90]

MARCEL SCHWOB AND GOD ON RECORD

Richepin and Villiers point towards but do not describe the absolute; Marcel Schwob does. The temporality of technical emergence and the relationality which is suggested in Hadaly, but not fully explicated, is at the core of his thinking on the phonograph, which I trace here in three moments. I begin with his 1891 article 'Le Verbe' ('The Word'), a resonantly titled piece which offers a profound reflection on the advent of the phonograph and its ontological ramifications. Though Jewish, Schwob turns to a Christian vocabulary in 'Le Verbe', highlighting the emergence of the technologos as a concept whose ontological heft extends beyond the confines of personal faith. Linking this into Schwob's speculations on the nature of God, and in particular the interplay of divine transcendence and immanence in a form of cosmic intertextuality, I then offer a reading of 'La Machine à parler' – a text in which Schwob provides an exegesis and recycling of the very words of 'Le Verbe'.

'Le Verbe' emphasises the indexical relationship between the record and the thing recorded which phonography seems to institute. Whereas photography is 'a pact made with light', in phonography, at stake are 'the same sonic vibrations, identical to those which the lips that are now decomposed could produce'.[91] The sound itself makes the mark, with no intermediary between needle and wax; there is physical contact as air expelled from the mouth drives the stylus to create the groove in the wax. The phonograph does not simply record words, it accurately records and preserves the vibrations of thought itself. But there is something odd about Schwob's verbs in this sentence. The vibrations happen in the present tense ('are'), and are identical with what lips *could* produce. However, those lips are no longer in existence ('now decomposed'). Where we might expect a 'which they could have produced' or 'had produced' to bring the sentence into temporal harmony, Schwob gives us an eerie non-time – the sounds that emerge from the phonograph are identical to the hypothetical future articulations of something that no longer exists.

What looks like a straightforward affirmation of the phonograph's indexicality as a recording device actually decouples the phonograph from memory and linear time. Nor is it in tune with contemporaneous spiritist enthusiasm for the device, which used the phonograph to listen to 'spirit voices' in real time. Instead, the phonograph plays out potential, creating words from ashes and building impossible relationships.

Schwob describes the phonograph as if it were a necessary development, akin to Hadaly's formation. He writes that 'prophets of the bizarre, like Charles Cros, had foreseen it, sensed it coming, almost formulated it', attributing to these inventors a kind of technological intuition; a faith, grasping at something that has not yet come to be.[92] This is not a Connor-style technography, dreaming a machine into existence. Prophets announce what is going to happen, but they do so with sure knowledge. When John the Baptist announces the coming of Christ, Christ has already come.[93]

We should, perhaps, not be surprised to find that Schwob situates the phonograph in relation to the divine Logos. He paraphrases Goethe's *Faust*,[94] and its protagonist's musings about the appropriate vernacular translation of the 'Verbum' of John 1.1: 'is it intelligence, is it sensibility, is it will, is it action?'[95] Goethe's Faust selects action.[96] Schwob extends this notion of word as act by turning to Edgar Allan Poe's 'The Power of Words' (1850). In this philosophical dialogue between two angels, Poe imagines the moment of originary divine creation, when 'the first word spoke into existence the first law', followed by divine withdrawal.[97] That divine act is mirrored in the smallest human gesture:

> … no thought can perish, so no act is without infinite result. We moved our hands … and, in so doing, gave vibration to the atmosphere … This vibration was indefinitely extended, till it gave impulse to every particle of the earth's air, which thenceforward, *and for ever*, was actuated by the one movement of the hand.[98]

From this web of intertexts – Gospel, Goethe, and Poe – Schwob weaves his own cosmogony. Thus, he argues that 'speech could not be lost … its vibrations brought other universes into being'.[99] The phonograph does not preserve something ephemeral; it participates in the word as an act with never-ending ramifications.

Alexandre Gefen has presented Schwob's theory of language as inherently intertextual. Like Edison's design for Hadaly's phonograph-lungs, nothing truly original is ever created: 'art is the individual and subjective reinterpretation of a common fund'.[100] The notion of a 'common fund' risks evoking the idea that we dip into a pool of words and reconfigure them as we will. I argue that Schwob proposes something different. In 'La Différence et la ressemblance' ('Difference and Similarity') (1892), Schwob invites us to imagine that 'God speaks: so the universe is his language.'[101] Within that language, 'words are the sign that things exist. And those things are signs of the incomprehensible.'[102] This does not mean that words and things are not important. As human beings we are God's 'own words, come to awareness of what they carry within them, attempting to reply to us, to reply to him'.[103] For Schwob, human beings are divine potential actualised, thoughts transferred into speech. As separate words, we are held in the thought of God. Recorded forever, we are 'joined in the phrase of the universe, which is itself joined to the glorious period which is one in His thought'.[104] The world is a self-conscious divine language (or logos), in dialogue with itself. The universe is a phonograph, playing and listening to what was recorded at the moment of divine creation, over and over. The words that we are and utter are fully realised acts. Schwob imagines us as part of the divine *actus purus*, whose nature is to be participatory and always ongoing.

It is in this light that we need to read 'La Machine à parler'. In this first-person narrative, Schwob acts as his own recording device, literally placing the words of 'Le Verbe' into the mouth of a demonic inventor, in a narrative which undermines itself from the inside. While the inventor explicitly quotes Schwob's article, he does so in a 'torrent of speech which reached my ears only as a muffled sound'.[105] As 'speech' becomes 'sound', the narrator (an avatar of Schwob) does not recognise his own thoughts conveyed in the voice of the stranger. A more conventional reading, à la Connor, might suggest that Schwob's argument in favour

of the creative power of language is deployed, through exact quotation, as a weapon against that very idea. Indeed, the inventor proclaims the Gospel affirmation a lie. He has touched speech organs in dissection theatres, and does not believe. Through his experimentation with his own voice, the inventor has boiled it down to its purely material components, and – he claims – removed his own soul by erasing nuance from his voice, those fluctuations which might indicate emotion.[106]

In terms akin to Gefen's, the inventor argues that recording technology exposes the fiction of literary creativity. Far from being spontaneous, language is revealed as only ever a copy or imitation of others, old words rearranged. It does not generate or make new; the performative quality of language enshrined in the *fiat lux* is a myth.[107] In mockery of the creative power imputed to words in Poe's dialogue, the inventor boasts that where recording technology brings recorded voices back to life after their owners' deaths, he removes life from the voice altogether: 'if it is true that the voice creates universes in space, then the universes that I make it create are stillborn worlds'.[108] Generating a speech which undermines itself, his technology produces an absence of life and potential. As if to reinforce this perversity, the machine is a grotesquely inflated set of speech organs, evoking the female genitalia of Gustave Courbet's alternative Eve in *L'Origine du monde* (1866): 'a giant, distended, spotted throat whose folds of black skin dangled and swelled … then at the red bottom of the abyss … an immense fleshy lobe quivered, retracted and swayed'.[109] All of human language and thought has been reduced to its material form of pronunciation, condensed to a set of pianistic keys which a voiceless woman plays.[110] Their sounds break over the narrator like an assaultive tidal wave: 'the Ds and Ts surged forth from beneath the tough upper mass of leather as it drew back'.[111] Although the consonants the machine articulates are recognisable, they are not familiar. Language is produced, but phonetically unsynthesised; the technologos cancels itself out.

The inventor has an ultimate proof for his theories. The machine utters the following: 'IN THE BEG-IN-ING WAS THE WOR-D'.[112] Blasphemously reprising the opening of John's Gospel in order to empty it of meaning, this divinely inspired phrase is produced here with great mechanical effort: 'the tongue worked away and the articulated phrase exploded in a roar'.[113] However, the machine is only able to stutter 'WOR-D WOR-D WOR-D'.[114] Within seconds, it explodes. The narrator expresses an aporetic scenario:

> I could not tell whether the machine had refused to utter the blasphemy, or whether the word-operator had planted a seed of destruction in the mechanism: for the little mockery of a woman had disappeared, and the

> man … was furiously fluttering his fingers in front of his mute mouth, having lost his voice once and for all.[115]

On the one hand, the machine has succeeded; it has done what the inventor promised, achieving the paradox of creating real rather than symbolic destruction. It has made *something* happen. But in so doing, it has also given the lie to the inventor's claim that words are meaningless and ineffective. Gefen has argued that Schwob rejects any synthesis, focusing on difference and alterity.[116] It is true that we can see in the machine's sonic decomposition an extreme, negative version of Rimbaud or Richepin's attentiveness to the shape and sounds of language, bringing about an irretrievable analysis that defies recomposition – de Palacio's decadence of the word culminating in loud silence. But to leave it at that would be to overlook the self-dialogue between 'Le Verbe' and 'La Machine à parler', to give into the inventor and suggest that Schwob argues against himself.

What is crucial to understand is that the blasphemy is not the fact of the machine uttering these words without faith, or even in mockery. Its blasphemy is impossible to convey in English translation. It lies in the *passé simple* tense of 'FUT' which Schwob employs. This means 'was' in French, but its aspect is one of completion. The English translation, 'in the beginning was the Word', does not convey what the New Testament Greek ἦν, the Vulgate Latin *erat*, and the *était* of the French vernacular Bible do. Their imperfect tenses convey that the Word acted at the beginning, and that it is still here and acting now. The machine's inability to sustain itself, to keep on going, is a vindication of the technologos worked through in 'Le Verbe' and 'La Différence et la ressemblance'. The role of the silent female figure in this potential sabotage is discreet but suggestive. Described as virginally ugly, this potential saboteur of the verbal vulva is another kind of Marian figura or *novissima Eva*, an agent of mercy and salvation, full of grace and restoring the word to its efficacy in her reaffirmation of the Logos. As Hello might have said, 'no one would have dreamt of choosing her'.[117]

Schwob writes another new Eve in his apocalyptic short story, 'L'Incendie terrestre' ('The World on Fire'). Amid the destruction, a boy and girl find refuge in a wooden boat, 'the primitive tool'.[118] Creative force blossoms amid the ruins: 'And in that ancient craft, in the first instrument of life below, they were a young Adam and a little Eve. … "Let us love one another", she said'.[119] In a doomed beginning at the end of the world, primitive technology offers a refuge: an echo of Eden in hell on earth. In this return to fundamentals, the boat becomes a proto-phonograph. The technologos becomes the

very condition of possibility for life; it provides the curved contours and surfaces on which voices can resonate in new variations. In Schwob's ark, the flood which overwhelms Hadaly and hushes the discordant voices of *L'Ève future* is redeemed. Richepin's 'unknown container' becomes a simple 'container' at the human scale – technics an allegory for the divine.

ALFRED JARRY AND CHRIST ON A BIKE

It is Schwob's protégé, Jarry, who pushes this logic the furthest. Christological references pepper his œuvre, but in this context, I draw together aspects of five very short texts, and one novel, *Le Surmâle*, to show how he makes technics not only a catalyst or allegory, but a retrospective hermeneutic key and a prospective Second Coming. I begin by highlighting how the form of exegesis that he sets out in 'Linteau' ('Threshold') (1894) functions as a form of technologos. I then focus on Jarry's passion for the Passion, reading his fascination with its iconography, a short text called 'La Passion comme course de côte' ('The Passion as a Hillclimbing Race') (1903), and *Le Surmâle* alongside one another as a new Christology of technics.

In 'Linteau', Jarry sets out his vision for a mode of unsutured writing, of 'ideas left ajar, without the adornment of their usual companions'.[120] Jarry's is a synthesis in which differences are held together without concealing the wound. Like Richepin's narrator and his 'evident Apocalypse', Jarry's author writes in a 'unique moment when he saw EVERYTHING'.[121] The Jarryesque text is one of overflowing and ever-productive meaning: 'any meanings readers find are planned, and they will never uncover all of them; and the author might point out meanings that are … unexpected, belated, and contradictory'.[122] Like God, who is omnipotent but grants free will to his creation, Jarry's authorship simultaneously occupies the eternal space of meaning, and punctual intervention. However, there is one difference. The value of the moment of authorial revelation lies in its fleeting quality, and its constant openness to rediscovery and reworking: 'it is essential to forget – *timeo hominem*… – in order to twist the stylus in one's brain and chisel out the new work'.[123] Jarry is celebrating perpetual creativity, the perpetual pouring-out of words. The image that he uses recalls the phonographic needle and cylinder, re-reading and re-deepening the same groove. The repetition of the phonograph (which is itself never identical, as the needle wears away at those grooves and distorts the sounds) becomes the model for creativity and a form of newness which is the uncovering of the old and its simultaneous reinvention.

Jarry takes forward Villiers's intuitions of the virtuality of objects and Schwob's intertextual universe to produce his own form of technologos in *L'Ymagier* (1894–5). This short-lived journal, co-edited with Remy de Gourmont, combined contemporary and medieval engravings and woodcuts with text, and was produced by Jarry's own hand on a press in Gourmont's home. The work is a testament to Gourmont's attachment to medieval religious writing and symbolism, evidenced in his 1892 anthology, *Le Latin mystique* (*Mystic Latin*). In his preface to the volume, J.-K. Huysmans praises the works of Aquinas and John of the Cross, and laments that 'the gift of grace essential for birthing a mystic work' is no longer in evidence in contemporary writing.[124] However, *L'Ymagier* is not a literary and iconographic mausoleum. It provocatively mixes reproductions of early modern woodcuts and stained-glass windows, macaronic antiphons, and works by contemporary artists like Paul Gauguin and Émile Bernard, packaging them with misattributions, in ways which blur the boundary between old and new in 'Linteau'-like fashion.[125]

In his writings and engravings for this publication, Jarry demonstrates a fascination with the *arma Christi*: the Cross, Nails, Crown of Thorns, and other instruments which accompany the events of the Passion. Since the Middle Ages, the *arma Christi* have been represented and understood in art as Christ's own weapons of salvation and victory over death, the instruments of his suffering, 'weapons and shields … for their *viewers'* protective use', and 'symbols of their viewers' own actual or potential sins, possessing the hurtful power to crucify Christ anew'.[126] In the Passion, instruments of torture are also the instruments of salvation; to suffer for others is to love them. Figure 2.4, from a fourteenth-century text by Thomas le Palmer, illustrates this. From top to bottom, its central column retells the events of the Passion (the Last Supper, Christ's flogging, Peter's betrayal, the Crucifixion) and culminates in the Resurrection, as Christ emerges from the tomb. The weapons which surround it contribute to the suffering depicted in that central column, but are also necessary for its ultimate image of triumph over death. Double-edged, they are symbols which index a material reality, but also enfold within them a history and a multiplicity of meanings.

Jarry devotes an article in issue 4 of *L'Ymagier* (July 1895) to the nails with which Christ was crucified.[127] The article is headed by a fifteenth-century woodcut which returns us to Origen's concept of allegory. It depicts a lamb being placed on an altar by a group of men in fifteenth-century garb. The ram sacrificed by Abraham in place of Isaac is a type for Christ, the Lamb of God sacrificed for humanity on the

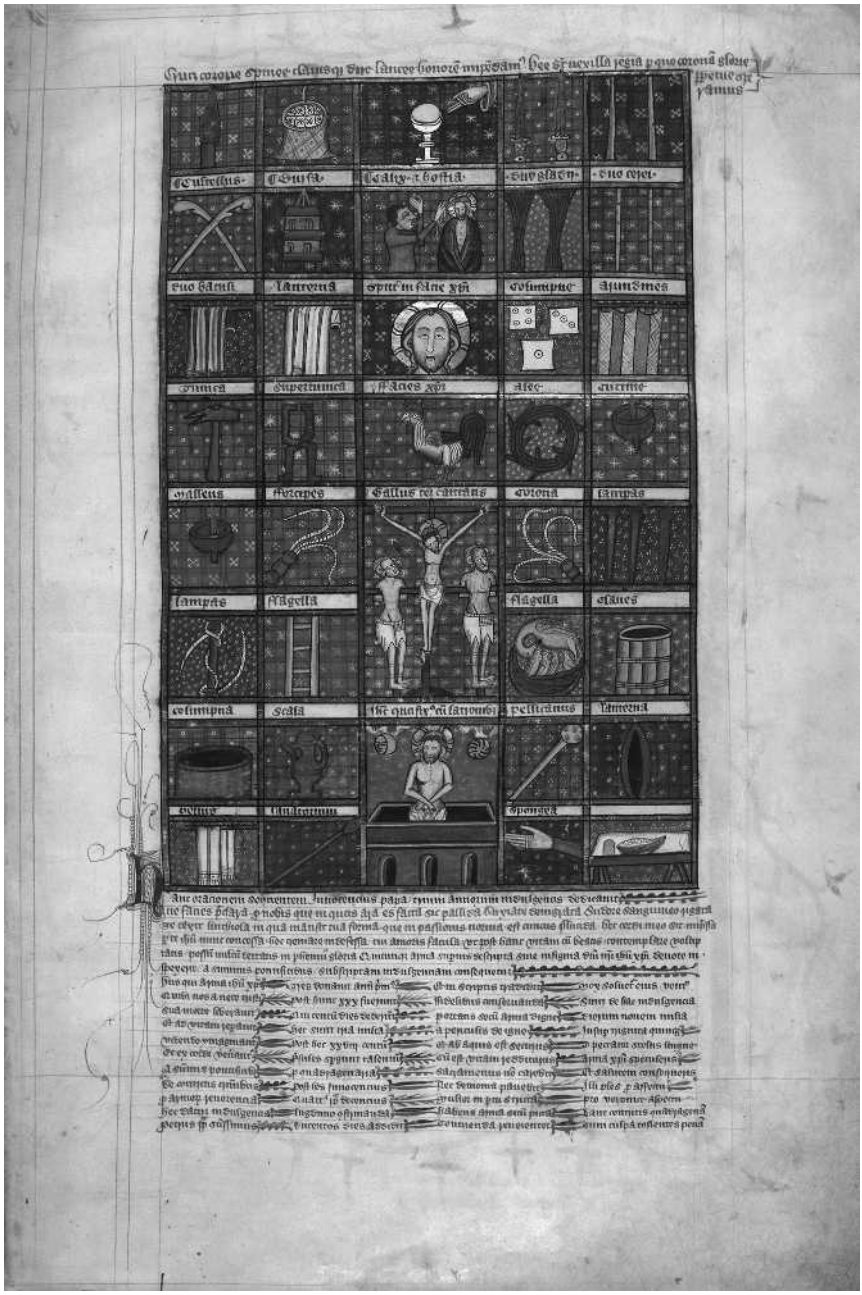

Figure 2.4 James Le Palmer, 'Instruments of the Passion'. In *Omne Bonum (Absolucio–Circumcisio)*, *c.* 1360–1375, British Library MS Royal 6 E VI fol. 15.

Cross and made present again through the consecration of the eucharistic sacrifice at the Catholic altar. By bringing a lamb to the altar in the offertory procession, the image synthesises these meanings and provides an exegesis of the Eucharist, weaving together the visible and invisible, the literal and the figurative. Jarry's text – presented with archaic Roman square capitals – is a dense tapestry of erudite quotation and allusion in French, Latin, and Greek, as well as analyses of crucifixion scenes by Gauguin and Albrecht Dürer, in which he counts the number of nails and nail wounds in Christ's hands and feet. Jarry constructs an exegetical commentary of the nail and the nail-wound in a pastiche of patristic exegesis which fulfils the promise of 'Linteau' in its hol(e)y intertextual tapestry. A sketch of Christ's feet with two nail holes in the soles forms the centrepiece, putting us face to face with the unsutured wound, separated from the divine body (Figure 2.5).

Elaine Scarry has read the Judaeo-Christian story as founded in making – or what I call technicity. In the Old Testament, where God

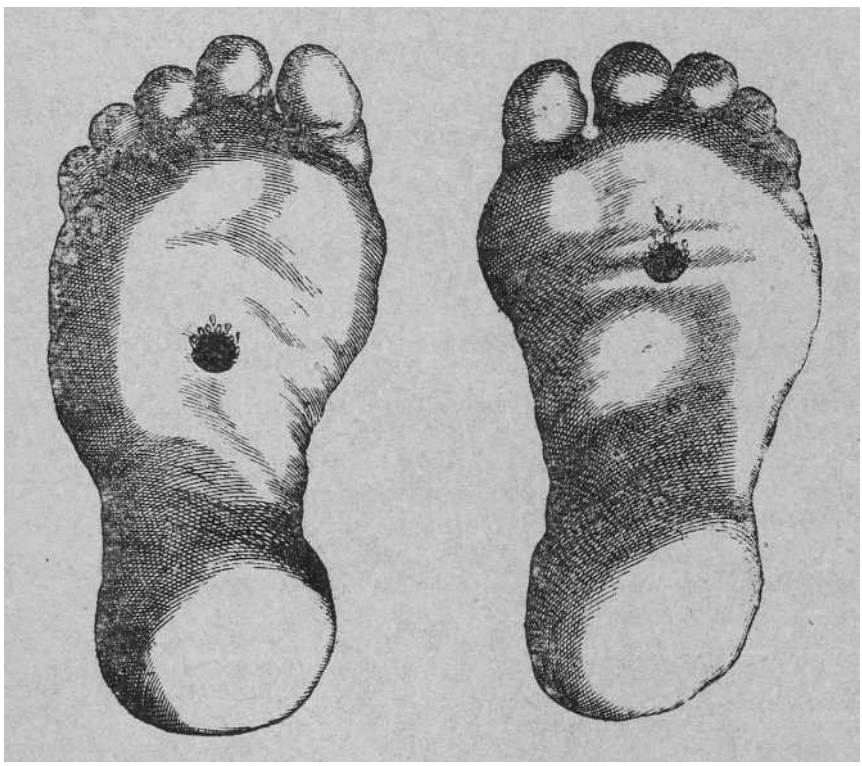

Figure 2.5 Hol(e)y soles.
Alfred Jarry. Untitled image. In 'La Passion: les clous du Seigneur', *L'Ymagier* 1.4 (1895), 221. Paris, Bibliothèque nationale de France.

intervenes in the world to punish as well as to save, 'wounding re-enacts the creation because it re-enacts the power of alteration'.[128] The New Testament is the advent of a new understanding, in which, through the crucified body of Christ, 'God is both omnipotent and in pain'.[129] Christ's incarnation is 'the transformation of a weapon into a tool', an instrument of salvation.[130] Faced with Christ's wounds, '[b]elief comes not, as so often in the Old Testament, by being oneself wounded but by having the wound become the object of touch'.[131] Jarry's text confronts us with that vulnerability. The bare feet at the heart of the page, amid the swirl of commentary and quotation, force an encounter with the wound which stretches from the Middle Ages to the Symbolist moment in Paris.

The materiality of *L'Ymagier*'s production process, and the hol(e)y feet are not incidental. Jarry dedicated his play *César-Antéchrist* (*Caesar-Antichrist*) (1895) to John of Damascus, and demonstrates a clear familiarity with that saint's polemic against the Iconoclasts. In this text, the saint argues that the destruction of religious images to prevent idolatry is a mistaken denial of God's material creation:

> I honour all matter besides, and venerate it. Through it, filled … with a divine power and grace, my salvation has come to me. Was not the thrice happy and thrice blessed wood of the Cross matter? … Is not the most holy book of the Gospels matter? … And before all these things, is not the body and blood of our Lord matter?[132]

Jarry's exploration of religious imagery, and this expanded sense of the material world's connection to the divine, have often been deemed satirical, but irreverence requires familiarity.

We see this in 'La Passion comme course de côte'. Jarry reimagines the events of the Passion as a cycling race, encompassing the third through eighth Stations of the Cross. Jarry performs a typological exegesis of a twentieth-century phenomenon, retrofitting it to first-century Jerusalem. From the *arma Christi*, we find Pontius Pilate's hands, the whip, crown of thorns, nails, cross, Veronica's veil, the thieves' crosses, and the seamless robe – but these appear in new forms. For example, Christ's cross becomes the frame of his 'bicycle with a crossbar' (*bicyclette … à croix*), the crown of thorns causes a puncture, and 'Veronica the reporter took a snapshot with her Kodak'.[133] The conceptual detail gives the lie to a reading of this text as purely a satirical 'Christ on a bike' mockery of Catholicism. The Kodak instant camera, for instance, carries out the same indexical work as the Turin shroud. The crown of thorns is not only the 'scattering of thorns' to which one of Christ's tyres falls prey (in an echo of Christ's falls in the Stations of the Cross), but also the prototype of bicycle tyres which would be 'impossible to puncture', reflecting

the double-edgedness of the *arma* as weapons transformed into lasting instruments of salvation.[134] Jarry's text reflects on the status of the material and the *figura* to situate his contemporary moment in relation to a Catholic story of redemption, via technics.

In *Le Surmâle*, that typology finds its culmination. The novel opens with Marcueil's assertion that 'the act of love is of no importance, since it can be performed *ad infinitum*'.[135] His claim to mechanical reproduction and perpetual motion folds love and sexual activity into one function. Unsurprisingly, critics have read the novel as an unpacking of masculine subjectivity,[136] or Bataillean sexual rhapsody.[137] However, I read the claim, and the novel, differently. Marcueil describes his understanding of love as 'a potential act'.[138] Jarry reprises the Scholastic terms of act and potential which I explored in Chapter 1 in relation to Hello. Marcueil's framing is a paradoxical one. If love is an act waiting to be actualised, then it is already an act; its potentiality lies only in its availability for repetition. It is an act, over and over again. Jarry transposes the logic of Schwob's recorded universe as an ongoing act of divine speech, into the sexual performance of the human body. Marcueil assumes the role of the *actus purus*, in a way that is technical all the way down. I argue that Marcueil is Jarry's attempt to find a figure for a modern kind of love, and that *Le Surmâle* takes him on a *via dolorosa* in which his ideas of sexuality and potency yield to a complex logic of sacrifice as he falls in love (in his own unique way) with Ellen Elson, the daughter of an Edison-style inventor. Three technical objects play a role in this secular Passion: the bicycle, the phonograph, and the electric chair.

As we have seen, the bicycle race is Jarry's retrofitted *figura* for the ascent to Calvary. We have already seen the bicycle as an icon of sexual liberation in Zola's *Paris*, and initial fears about the bicycle's effects on sexual potency in men and fertility in women were allayed by the end of the nineteenth century.[139] In *Le Surmâle*, Elson the inventor inaugurates a 'ten-thousand-mile-race'.[140] This publicity stunt is designed to launch his *Perpetual-Motion-Food* by pitting a team of cyclists against a steam train in a speed race.[141] Towards the end of the course, the cyclists see another cycling figure – Marcueil – who appears to be travelling at the speed of light: 'the muscles of his calves were palpitating like two alabaster hearts'.[142] This explosive figure, whose sacred heart manifests itself in bulging calf muscles, is accompanied by showers of red roses, with which he adorns the steam train carrying Ellen Elson and her father.

In Catholic iconography, the red rose is associated with Mary the *rosa mystica*, and the blood of the Passion. When they reach the finish line, having beaten the train, the riders discover 'this post crowned with

red roses, the same haunting red roses that had blazed the trail during the entire race'.[143] The characters later discover that corpses have been found strewn along the course: victims of rape and violence. Marcueil's own 'bicycle with a crossbar' is a demonstration of strength and invincibility, rather than vulnerability, and here the 'post' – evoking the whipping post of the *arma Christi* – is a phallic totem. The blood is not his, but that of others, and the divine *fiat* is not that of asking and assent, but of coercion and the brutal imposition of will. Ellen declares her love for Marcueil in terms that rework ontological arguments for God's existence: 'The Absolute Lover must exist, since woman can conceive of him', reworks Aquinas's Fourth Way.[144] In an adaptation of the Latin phrase *credo quia absurdum* (apocryphally attributed to Tertullian), she believes in the existence of this 'Absolute Lover … *because it is absurd*'.[145] The 'ten-thousand-mile-race' establishes an inversion of the Christian understanding of divine love, as *agapē* becomes *eros*.

However, Marcueil's anti-Passion marks a turning point, as Marcueil and Ellen aim to fulfil a wager by breaking a sexual record. This sex marathon plays out to the sound of a phonograph, whose words the lovers enact: 'as though by erotic suggestion, hypnotized'.[146] Marcueil's brain resounds with 'associations of insane ideas and unfamiliar words'.[147] He is re-recorded as the stylus sets to chiselling out the 'new work'. That 'new work' is revealed by Doctor Bathybius, who acts as an independent witness. His faculties as an objective scientific observer are suppressed by the metaphysical drama before him; he enters a trance and becomes an involuntary recording machine for the absolute. The erotic absolute identified by Richepin (and Adams) is so potent that simply to observe it is to experience it. Bathybius's notes suggest an immanent, embryonic notion of the divine, glimpsed in the act of sexual congress. It lies in the potential for genesis contained within men and women, which, in conception, yields 'that God born of the union of the two most infinitesimal of living things … a little pale-coral Buddha, hiding its eyes, which are so dazzled by their proximity to the absolute'.[148] Poised between everything and nothing, divine creation in Jarry's ontology is a question of force: it is the same love and desire that we saw in Richepin and Villiers, framed in the same posture as Rodin's Adam and Eve cupped in God's hand, with the notable difference that God emerges from them, and not the other way around.

Marcueil reaches the culmination of his Passion when he is strapped into a 'machine-to-inspire-love', which Ellen's father hopes will prompt an honourable marriage proposal.[149] The machine is to all intents and purposes an electric chair – the invention of (the real) Thomas Edison – with a theoretical foundation in the electrostatic shielding

of a Faraday cage. Rather than killing Marcueil, the machine should conduct an electromagnetic charge capable of altering his thoughts and feelings. In fact, Marcueil's electromagnetic charge dominates, so that 'it was THE MACHINE THAT FELL IN LOVE WITH THE MAN'.[150] In this moment of ecstasy, the scientists discover a new technologos, seeing in Marcueil the 'supernatural image of the King of the Jews crowned with thorns and nailed on a cross'.[151] Christ is the Second Adam, redeeming human weakness in a loving sacrifice. Crushed in the machine's embrace, Marcueil is finally baptized by Jarry as 'the Supermale', asserting human strength and claiming the possibility for us to redeem ourselves.[152] If we set the 'crucifixion' of Richepin's metaphysical machine and the 'crucifixion' of the Supermale alongside one another, we can see the conceptual distance that we have covered. For Richepin, technics offered new possibilities for training the body and mind in order to access the absolute. For Jarry, the absolute now lies in the human body. Where Richepin, Villiers, and Schwob leave us with silence at the ends of their texts, Marcueil's death in the machine's embrace is the prelude to a more glorious revival. As Ellen gathers one of his sperm-like Batavian glass tears, we are reminded of Bathybius's vision of divinity contained within human sexuality and its creative power. The virgin Hadaly and virginal machine operator of Schwob's text give way to Adams's Venus as Jarry teases us with the prospect of a new, evolutionary stage: the son of the Surmâle.

In Chapter 1, I presented the technologos as a way to understand how fictional texts both incorporate technics and exist in technical relation to the world, intervening in it even as they interpret it. I used the term 'grace' to convey this gift of the power to act, to make what is latent in an object or person take flesh and spill into the world. I began this chapter by highlighting how this grace operates as a *fiat* in which agency is bound up with questions of assent and resistance. In the shift from Richepin's metaphysical machine to the real-world phonograph, to the adapted voice machines of Villiers and Schwob, and finally to the ontological equation of the human and machine on a level of power and potential energy, we have seen a two-way exchange between the fictional realm and the external world. Stories became concrete objects like the phonograph, but were then reabsorbed into fiction, broken back down to their ontological blueprints, deformed, combined, and reassembled in new ways. Technicity expands the possibilities open to us, but it does so with frightening ambivalence. Running through the dynamic which I have termed the *fiat* was love and desire, a reaching out for the unknown or the barely known in ways that mobilise a brutal violence. But that reaching out happened with a backwards glance.

Reinvigorating Catholic typology and iconography, in ways at once nostalgic and subversive, these authors understand their historical moment in a synthetic context. Their unruly typologies operate in the Schwobian imperfect tense: the past tense that has something of the present and the future about it, the tense that is only ever waiting for the opportunity to get going again.

It is on this time of the technologos that I now focus.

NOTES

1 Henry Adams, *The Education of Henry Adams*, ed. Ira B. Nadel (Oxford: Oxford University Press, 2008), 318.
2 Quoted in Joseph Ratzinger and Hans Urs von Balthasar, *Mary: The Church at the Source*, trans. Adrian Walker (San Francisco, CA: Ignatius Press, 2005), 84.
3 Matthew 2.9.
4 Revelation 12.1–9.
5 Revelation 1.20.
6 Adams, *Education*, 320.
7 Ibid., 324.
8 Ibid., 321.
9 Ibid., 324–5.
10 Though she does not cite Adams, Isabelle Stengers adapts the title of his chapter, 'The Virgin and the Dynamo', in order to liken the attitude of Marian pilgrims to that of physicists faced with the neutrino. See *La Vierge et le neutrino: les scientifiques dans la tourmente* (Paris: Les Empêcheurs de penser en rond, 2006), loc. 376 of 4192. Kindle ebook.
11 Genesis 1.1; Luke 1.38; 22.42 in the Vulgate Latin with which nineteenth-century Catholics would have been familiar.
12 Villiers de l'Isle-Adam, *Œuvres complètes*, ed. Alan Raitt, Pierre-Georges Castex, and Jean-Marie Bellefroid (Paris: Gallimard, 1986), 1:798. Henceforth *OC*1.
13 It is not possible here to expand upon the myriad ways in which these writers were connected via bonds of friendship and shared social circles.
14 Erich Auerbach, 'Figura', in *Scenes from the Drama of European Literature* (Minneapolis: University of Minnesota Press, 1984), 34.
15 John J. O'Keefe and R. R. Reno, *Sanctified Vision: An Introduction to Early Christian Interpretation of the Bible* (Baltimore, MD: Johns Hopkins University Press, 2005), 72.
16 Eve Golden, *Anna Held and the Birth of Ziegfeld's Broadway* (Lexington: University of Kentucky Press, 2013), 72–5.
17 Howard Sutton, *The Life and Work of Jean Richepin* (Geneva: Droz, 1961).
18 Jean Richepin, *Les Blasphèmes* (Paris: Dreyfous, 1884), 6.

19 Auguste Comte, *Cours de philosophie positive*, 6 vols (Paris: Rouen frères, 1830), 1:14.
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21 Ibid., 9.
22 Donna Haraway, 'A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century', in Haraway, *Simians, Cyborgs, and Women: The Reinvention of Nature* (New York: Routledge, 1991), 149.
23 Jean Richepin, 'La Machine à métaphysique', in Richepin, *Les Morts bizarres* (Paris: Decaux, 1876), 266–7.
24 Ibid., 267.
25 See Aristotle, *Prior Analytics*, trans. Octavius Freire Owen (London: H. G. Bohn, 1853), 80–4.
26 Paul Shorey, 'The Origin of the Syllogism', *Classical Philology* 19.1 (1924), 7–8.
27 Plato, *Phaedo*, ed. and trans. David Gallop (Oxford: Oxford University Press, 2019), 52.
28 Exodus 3.14.
29 Richepin, 'Machine', 263.
30 Ibid., 267.
31 Ibid.
32 Henri-Dominique Lacordaire, *Conférences de Notre-Dame de Paris: années 1833 à 1843* (Brussels: Mortier, 1847), 1:245. Vieillard-Baron describes these lectures as a 'cultural institution' (*Le Spiritualisme français*, 21).
33 John of the Cross, *Dark Night of the Soul*, trans. E. Allison Peers (Mineola, NY: Dover Publications, 2003), 21.
34 Ibid., 27.
35 Richepin, 'Machine', 267–8.
36 For details of Richepin and Rimbaud's friendship, see Graham Robb, *Rimbaud: A Biography* (London: Pan Macmillan, 2001), 164–5.
37 Arthur Rimbaud, 'Delirium II: The Alchemy of the Word', in *A Season in Hell and Illuminations*, trans. Bertrand Mathieu (Rochester, NY: BOA Editions, 1991), 33.
38 Richepin, 'Machine', 268–9.
39 Thomassin was revived by Auguste Gratry, an Oratorian, and professor at the Sorbonne and École normale supérieure (which Richepin attended). Gratry was a prominent figure in debates within spiritualism, and delivered a spirited riposte to Renan's *Vie de Jésus*. See Vieillard-Baron, *Le Spiritualisme français*, 291–7.
40 Louis Thomassin, *Dogmatum Theologicorum de Deo, Deique Proprietatibus: Tomus Secundus* (Venice: Typographia Balleoniana, 1680), 269.
41 Ibid., 314.
42 Rimbaud, 'Delirium II', 33.
43 Richepin, 'Machine', 273.

44 Ibid., 274–5.
45 Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone Books, 2007), 243.
46 Antoine Imbert-Gourbeyre, *La Stigmatisation, l'extase divine et les miracles de Lourdes: réponse aux libres-penseurs* (Clermont-Ferrand: Bellet, 1894), 2:368–9.
47 Richepin, 'Machine', 275–6.
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50 Edgardo D. Carosella and Pierre Buser, 'Innovations et secrets, les "plis cachetés" de l'Académie des sciences', *Pour la science* 432 (2013), 72.
51 Pierre Berthon, 'Les Plis cachetés de l'Académie des sciences', *Revue d'histoire des sciences* 39.1 (1986), 72.
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54 Steven Connor, *Dumbstruck: A Cultural History of Ventriloquism* (Oxford: Oxford University Press, 2000), 140.
55 Jonathan Sterne, *The Audible Past: Cultural Origins of Sound Reproduction* (Durham, NC: Duke University Press, 2003), 289.
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59 Ibid.
60 John 20.31.
61 Villiers de l'Isle-Adam, *OC*1, 776–7.
62 Ibid., 777.
63 Georg W. F. Hegel, *Logique de Hegel*, trans. Augusto Vera (Paris: Ladrange, 1859), 2:181fn.
64 Ansgar Lyssy, 'Causality as Concept and Theory in Hegel's Science of Logic', *Hegel-Jahrbuch* 1 (2017), 505.
65 Hegel, *Logique*, 2:183fn.
66 Villiers de l'Isle-Adam, *OC*1, 789.
67 Ibid.
68 Ibid., 829.
69 Ibid. Gwenhaël Ponnau highlights that *La Nouvelle Ève* was the novel's draft title but overlooks the Marian connection. See her *L'Ève*

future, ou, l'œuvre en question (Paris: Presses universitaires de France, 2000), 39.

70 Villiers de l'Isle-Adam, *OC*1, 836.

71 Gustave Flaubert, 'Letter to Ernest Feydeau', 11 January 1859, in *Correspondance 1857–1864*, ed. Maurice Nadeau (Paris: Rencontre, 1965), 196.

72 Auguste Comte, *Système de politique positive, ou traité de sociologie, instituant la religion de l'humanité* (Paris: Carilian-Gœry et Von Dalmont, 1854), 4:279.

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74 Ross Chambers, *L'Ange et l'automate: variations sur le mythe de l'actrice de Nerval à Proust* (Paris: Minard, 1971), 42; Deborah Conyngham, *Le Silence éloquent: thèmes et structure de* L'Ève future *de Villiers de l'Isle-Adam* (Paris: José Corti, 1975), 143; Julien Schuh, *Alfred Jarry, le colin-maillard cérébral* (Paris: Honoré Champion, 2014), 97.

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77 Villiers de l'Isle-Adam, *OC*1, 833, 836.

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83 Ibid., 834.

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88 Villiers de l'Isle-Adam, *OC*1, 1015.

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94 Johann Wolfgang von Goethe, *Faust: A Tragedy in Two Parts*, trans. John R. Williams, 2nd ed. (Ware: Wordsworth Editions, 2007), 39.

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96 Goethe, *Faust*, 436.
97 Edgar Allan Poe, 'The Power of Words', in *The Works of the Late Edgar Allan Poe*, ed. N. P. Willis, J. R. Lowell, and R. W. Griswold (New York: Redfield, 1858), 2:273.
98 Ibid.
99 Schwob, *Œuvres*, 853.
100 Alexandre Gefen, 'Philosophies de Marcel Schwob', in *Retours à Marcel Schwob: d'un siècle à l'autre (1905–2005)*, ed. Christian Berg, Monique Jutrin, Agnès Lhermitte, and Alexandre Gefen (Rennes: Presses universitaires de Rennes, 2007), para. 2 of 20, http://books.openedition.org/pur/39119.
101 Schwob, *Œuvres*, 623.
102 Ibid., 624.
103 Ibid.
104 Ibid.
105 Ibid., 82.
106 Ibid., 82–3.
107 Ibid., 83.
108 Ibid., 83–4.
109 Ibid., 84.
110 Schwob may have had in mind a telegraphic innovation, developed by Jean Maurice Émile Baudot in France in 1874, thanks to which 'operators … sent messages by holding down different chords in succession on a special piano-like keyboard'. See Tom Standage, *The Victorian Internet: The Remarkable Story of the Telegraph and the Nineteenth Century's Online Pioneers*, paperback ed. (London: Phoenix, 1999), 181–2.
111 Schwob, *Œuvres*, 84–5.
112 Ibid., 85.
113 Ibid.
114 Ibid., 86.
115 Ibid.
116 Gefen, 'Philosophies de Marcel Schwob', para. 4 of 20.
117 Ernest Hello, *Physionomie de saints* (Paris: Perrin, 1907), 398.
118 Schwob, *Œuvres*, 219.
119 Ibid., 220.
120 Alfred Jarry, *Œuvres completes*, ed. Michel Arrivé (Paris: Gallimard, 1972), 1:171. Henceforth *OC*1.
121 Ibid., 172.
122 Ibid.
123 Ibid. This phrase is an abbreviation of *timeo hominem unius libri* (I fear the man of one book), apocryphally attributed to Aquinas.

124 J.-K. Huysmans, 'Préface', in Remy de Gourmont, *Le Latin mystique: les poètes de l'antiphonaire et la symbolique au Moyen Âge* (Paris: Mercure de France, 1892), x.
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127 Jarry, *OC*1, 982–90.
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129 Ibid., 214.
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137 Karl Pollin, *Alfred Jarry: l'expérimentation du singulier* (Amsterdam, NY: Rodopi, 2013), 169; Annie Le Brun, 'Comme c'est petit, un éléphant!', in *De l'éperdu* (Paris: Stock, 2000).
138 Jarry, *Supermale*, 9.
139 See O'Followell, *Bicyclette et organes génitaux* (Paris: Baillière, 1900).
140 Jarry, *Supermale*, 47.
141 Ibid., 12.
142 Ibid., 66.
143 Ibid., 67.
144 Ibid., 43.
145 Ibid., 43–4.
146 Ibid., 104.
147 Ibid.
148 Ibid., 85–6.
149 Ibid., 117.
150 Ibid., 120.
151 Ibid., 119.
152 Ibid., 122.

3. *Charles Cros and the Time of the Technologos*

When we think the time of the technologos, we have to think in terms of the extended, rather than punctual, action of the *fiat*. The texts of my previous chapter were shot through with time: the real time of ecstasy with Richepin, the fictionalised present with Villiers's Edison, the imperfect tense of Schwob's recording and replaying of his own authorial voice, and the near-future 1910 setting of *Le Surmâle*. In 'Le Verbe', Schwob pointed to Cros as a prophet of the phonograph, but also highlighted that, even after its invention and patenting, the phonograph was still emergent: 'the phonograph has not entered our mores, it slumbers; but a terrible revolution of our habits is coming'.[1] How can Cros's stuttering invention help us to understand the temporality of technics? Having evoked Cros briefly in the context of the phonograph, I now return to consider him in more detail, to explore why some 'discoveries … could have been made generations, even centuries, before they were actually made, in the sense that the principal ingredients of these discoveries were long present in the culture' – but were not.[2]

From colour photography to sound recording, Cros devised plans which never came to fruition in material terms, and wrote fictional texts in which these technologies came to life. In his 1869 'Solution générale du problème de la photographie des couleurs' (General solution to the problem of colour photography), Cros stated that he chose to tackle 'general scientific problems' rather than 'specific applications'.[3] Reserving no patent on his imagined technologies, Cros declared that 'the idea enters the public domain, and specialists and able experimenters will not be hindered in any way in their research', while he enjoyed the 'pleasure of seeing my idea take form and life without me having to do any arduous work'.[4] Cros allowed the process of invention to unfold in the fullness of time.

My first section tackles the practical ramifications of Cros's countercultural stance in the nineteenth century, exploring the methods of

diffusion – and sealing – which Cros employed, to reflect on notions of ownership and temporality in technological development, and to highlight the ways in which material culture and ideas interact. I then explore Cros's 'Étude sur les moyens de communication interplanétaire' (Study of modes of interplanetary communication) (1869) and the short story 'Un Drame interstellaire' (An interstellar tragedy) (1874) to highlight the relationship which Cros weaves between imagination, love, and invention, and point towards an ethos of technics and time.

INVENTION IN THE FOLDS

Shortly after publishing the 'Solution générale', Cros engaged in correspondence with Louis Ducos du Hauron, who had simultaneously developed a similar system of colour photography. Whereas Cros released his theory into the public domain, du Hauron built and patented his heliochromic system for commercial exploitation. The inventors' exchanges were published in *Cosmos*, a weekly scientific 'encyclopaedic review'. The brainchild of the Catholic priest and scientific populariser *abbé* Moigno, it 'was originally conceived … as part of a much larger scheme based on something akin to a modern multimedia science center',[5] in which popularising science would be a form of socially engaged literature.[6] Moigno's project was political, aimed at democratising knowledge, dispelling ignorance, and using all available means to do so. It was above all motivated by a desire to create 'an alliance in which a science unobjectionable to Catholic teaching would sit easily with an understanding of the material world as rigorous as any demanded by the most hardened rationalist'.[7] His work was endorsed by Leo XIII, placing *Cosmos* at the heart of the technologos set out in Chapter 1.[8]

Cros sparked controversy by publishing a personal letter he received, in which du Hauron acknowledges that 'without knowing one another, and at two hundred leagues distance, we were struck by the same inspiration, at more or less the same time'.[9] However, du Hauron emphasises that while he and Cros have had the same thought, he has generated practical results. In a scathing echo of Cros's words in the 'Solution générale', he writes: 'that arduous labour is the difficult challenge which I … accepted'.[10] Du Hauron responded with fury to Cros's publication of this private correspondence. He felt that Cros was implying that du Hauron had merely put Cros's theoretical ingredients into practice. Du Hauron demanded equal recognition for his theoretical contribution to knowledge – not simply for the material product. He rested his argument on a point of French law, which grants a patent-holder ownership

of identical inventions which predate his own, but were not sufficiently publicised for him to be aware of them. As du Hauron points out, 'there was no kind of publicity whatsoever. M. Cros is deluding himself … if he thinks that he put this system into the *public domain*.'[11] Du Hauron disputes Cros's claim to invention, in a way that recalls George Berkeley's apocryphal maxim that 'to be is to be perceived'. If no one saw Cros's plans, then did they really exist?

At stake is Cros's chosen method for placing information in the public domain. Before publishing his method in the scientific press, he filed it at the Académie des sciences as a *pli cacheté*. For du Hauron, a sealed envelope, which could only be opened on Cros's request, did not constitute the introduction of an idea into the public domain. As he puts it, 'I could have … given the gist in a *pli cacheté* and left it to slumber there and be of no use to anyone. I gave in to the loftier ambition to provide society and France with a heliochromic system.'[12] To be able to claim any kind of priority in discovery, and to stake any claim to the public domain, he suggests, publicity is required – the kind which only comes with a device's entry into the open market.

Cros's final response to du Hauron is concise. He reaffirms his shared claim to ideas which the men have in common, but points to two theoretical points which are unique to his design and do not appear in du Hauron's plans. Of these, Cros says, 'the scientific copyright is exclusively mine and I have placed it in the public domain. Any patent or certificate of addition would be null and void.'[13] While no one can claim a patent for these *ideas*, they can for practical devices which might be generated as a result: 'everyone can therefore freely exploit these processes, and patents can be taken out on the *practical applications* that they require'.[14]

From colour photography to the almost-phonograph, Cros's modus operandi remained the same. For Brett Brehm, Cros's satirical fictions testify to an '[o]pposition to would-be repressive state and high capitalist control', but Brehm stops short of attributing to Cros a coherent ethos or suggesting that he acts on it in any practical way outside the realm of fiction.[15] I think that we can do precisely this. Though no doubt partly motivated by financial and material constraints, his writings do testify to an ethos and they are an act.

The journalist Pierre Giffard expressed astonishment faced with Cros's reluctance to attempt to construct a working model of his 'paleophone':

> He is on course for a marvellous discovery, he tells us he can smell it, he sees it, he touches it – and then he settles for warning the learned Académie that he might just be able to manage to reproduce ancient sounds![16]

There is a sensual quality to Cros's touching distance, as described here: as though he had pulled back from the brink of a successful seduction. The almost-actual is converted back to the potential in a way which Giffard cannot understand.

One solution to this logical knot lies in Cros's 'Note sur le phonographe de M. Edison' ('Note on Mr. Edison's Phonograph'), submitted to the Académie des sciences in 1878. On the basis of a public demonstration at the Académie by Edison's European representative Tivadar Puskás, Cros acknowledges that he designed 'a device operating with the same aim and more or less the same means as the *phonograph*', but rather than asserting property rights, he declares: 'Mr. Edison was able to build his device; he is the first to have reproduced the human voice; he has achieved an admirable feat.'[17] However, the improvements to Edison's design which Cros suggests ensure that the traces which make up phonograph records remain permanently legible: not only for owners of an Edison machine, but for those with devices from other manufacturers – and even for those reading with the naked eye.[18] Cros radically reopens Edison's patented technology, taking it out of a system of commercial monopoly and planned obsolescence. He delivers a blueprint for the phonograph's post-patent future, without tightening his grip.

The *pli cacheté* marks one moment in time, acting as a time capsule to allow an inventor to claim priority in a case of multiple simultaneous discoveries – to claim that this was the original creative instant.[19] However, it also opens up the timeline of technology: it commemorates a past which will only come to light in the future (if at all). The two halves of the *pli cacheté*, sealed together like a surgical *synthèse*, enfold a potential that awaits actualisation: that teases us to reach out and touch.

THE TOUCHING DISTANCE OF INTERPLANETARY COMMUNICATION

Cros lived this dynamic in his dual career as potential inventor and actual author, and nowhere is this clearer than in two works on communication technology: the 'Étude sur les moyens de communication interplanétaire' and 'Un Drame interstellaire'. Cros's 'Étude' first appeared in *Cosmos*, was discussed at the Académie des sciences on 5 July 1869,[20] and appeared as an appendix to Camille Flammarion's *Excursions dans le ciel* (*Travels in the Air*), where it is presented as a public lecture given in May 1869.[21] The first part of the 'Étude' justifies the project: 'the publicity which I am giving it is intended only to provoke discussion and to draw the attention of astronomers to a certain

order of observed facts which interest me'.[22] Cros's open-source quality here lies in crowdsourcing. He puts a problem – and one suggested solution – into the public domain and invites others to help him solve it.

This open approach operates at a thematic as well as a formal level within the text. Cros's interplanetary communication rests on a variable rhythm of light beams. Rather than using one light source, whose beam would not be powerful enough to traverse space, he argues that a beam of high intensity can be created by using mirrors to focus the rays from a number of light sources in one spot.[23] More individual lamps cast a brighter light, in ideas and in physics. This method recalls Cyrano de Bergerac's seventeenth-century design for a fictional spacecraft powered by 'blazing mirrors' which reflect light and heat between one another, thereby intensifying them.[24] Almost as if Cyrano's fiction were flickering back into life, Cros invites us to speculate before we fabricate: 'let us imagine that humans have made the project reality'.[25] Scientific progress depends on the imaginative leaps capable of generating new hypotheses. Cros argues that extraterrestrial lifeforms attempting to communicate with a pre-Scientific Revolution humanity via light flashes would have gone unnoticed because the intellectual framework to interpret them did not exist: 'imagine if a call had been made to Earth … before Galileo; it would have been absolutely impossible for anyone to notice and respond'.[26] And yet that intellectual framework depended on scientists' willingness to look at the same world as Church astronomers, with the same instruments, and to see it differently. More inimical to technoscientific development than lack of material means is a lack of imagination.

Cros poses a seminal epistemological challenge. In the wake of Gaston Bachelard, Michel Foucault, Thomas Kuhn, and more recently Latour, Steven Shapin, Simon Schaffer, Lorraine Daston, and Peter Galison, the constructed nature of scientific objectivity is a critical commonplace. Our perceptions and the conclusions that we draw from them are always understood within the framework of what we, as a community, accept to be true: what Kuhn would call the 'paradigm' and Foucault the 'episteme'.[27] Kuhn's eponymous scientific revolutions or Bachelard's 'epistemological break' are the moments when paradigms change, and we see and understand phenomena in a different way.[28]

It is a theme which Cros tackles himself. In his satirical short story 'La Science de l'amour' ('The Science of Love') (1874), a young scientist decides to make a woman fall in love with him, recording fluctuations in her sweat and saliva with various technological devices, in order to pin down love as a material phenomenon. While Cros's narrator fails to recognise his own 'symptoms' as he falls in love, his partner reveals that

hers were a sham. The narrative opens with the scientist's mockery of 'that up-in-the-air science which pretentiously believes that it can create the world from scratch and flits around the blue atmosphere of the imagination'.[29] Cros's scientist declares himself to be a 'stenographer of brutal facts' – a passive recording instrument whose objectivity renders him capable of accessing 'truth'.[30] However, the narrator's claim to objectivity is stymied by his decision to become part of his own experiment, with the assistance of innumerable humorous technical measuring and recording devices: 'one must take up the best position for observation, … must play the role of the lover oneself'.[31] He neglects the fact that we alter the situation simply by observing it, let alone by intervening in it, and that we too are transformed.

Shapin and Schaffer have described the writing of scientific theory – and in particular thought experiments – as a 'literary technology', creating an 'experimental community, to bound its discourse internally and externally, and to provide the forms and conventions of social relations within it'.[32] Cros does not bring about a paradigm shift, and in his paradoxical sealings and unfurlings he does the opposite of bounding what can be said or understood about the phenomena he approaches and the objects he conceives. He opens them up, and invites us to do the same.

In his *Principes de mécanique cérébrale* (*Principles of Cerebral Mechanics*) (1874), Cros suggests how to read him. He argues that 'every profound astronomer, every fervent mathematician is necessarily a mystic' and in both making and contemplation, what is at stake is 'Creation, which appears more powerful and more beautiful the more deeply we contemplate it'.[33] In Richepin, we saw one form of mysticism: desolation, darkness, and privation, in the hope of an eventual participation in creation (Chapter 2). Cros's is a *via positiva*, in which he becomes the vector for creation. His own technical work is his *lectio divina*, allowing him to taste the 'sweetness' that Guigo the Carthusian attributed to the practice of contemplation. For Cros, an idea has as much ontological validity and reality as the material invention would.

Sometimes a media technology is not an interface or an object, but a person – like Mary the 'Mediatrix of all Graces' in Chapter 2. We can offer ourselves up to be traversed by ideas, to be vectors – part of the experiment.

THE COSMIC RESONANCE OF BINARY CODE

To illustrate what I mean by this, I return to Cros's 'Étude'. In Richepin's short story, the *fiat lux* was the 'unknown container', its light accessed by the narrator through a mystic technics. In the 'Étude', Cros

develops a binary code for the flashes of light with which he proposes to communicate with extraterrestrial beings. He likens it to threading black and white pearls onto a necklace according to numerical patterns, in what we might think of as a bit string (to borrow from the coding lexicon). Numerical values, represented in flashes of light alternating with darkness, will convey information, 'a series of figures representing the whole of human knowledge'.[34] The presence or absence of light will become a symbol – a 'figure' – of something else. It will be both the medium for the human knowledge that Cros describes here, and a form of knowledge in and of itself. The light says, 'we are here' and reveals what was previously hidden from view.

In 1707, Leibniz developed a new system for calculation, which featured only two numbers: 0 and 1. He produced a sketch of a symbolic medal, featuring the two digits which represent 'the creation of all things out of nothing by the all-power of God, … *Imago Creationis*'.[35] It is in this dynamic of creation as echo of Creation that Cros participates. Leibniz recognised his system's similarities to the Chinese divinatory text, the *I Ching*;[36] we might recognise its similarity to Cros's design. A century after the publication of the 'Étude', in 1974, figurative bit strings were broadcast from the radio telescope at the Arecibo Observatory in Puerto Rico by the SETI (Search for Extraterrestrial Intelligence) Institute (Figure 3.1).

Cros imagined the 'transmission of rhythmic flashes' as 'a transmission of drawings, of flat projections'.[37] Here they are: rendered in binary code, we find the numbers 1 to 10, the structure of DNA, the atomic numbers of key chemical elements, and figurative images of a human being and the SETI satellite dish. Three years later (and a century after Cros's *pli cacheté*), the Voyager Golden Record was sent into space: a golden-coloured disc which, like Hadaly's golden lungs, was engraved with the traces of the voices and music of our world.[38]

By Cros's own logic, to be able to understand us those extraterrestrials would have to be imagining us too, and be capable of interpreting our symbols, whether or not they had the technologies to play them – in the same way that he envisaged for Edison's phonograph recordings in the 'Note'. His logic is that of the symbol as *symbolon*: the broken halves of a seal seeking to be sutured back together. It is impossible to know whether Cros had de Bergerac, Leibniz, or the *I Ching* in mind, or whether someone at SETI was familiar with Cros (though it seems unlikely). Yet the ideas and symbols are there, almost as if they circulated autonomously, passing through different times, people, and formats in search of completion. Du Hauron claimed that Cros had not publicised his work sufficiently; but the same du Hauron also

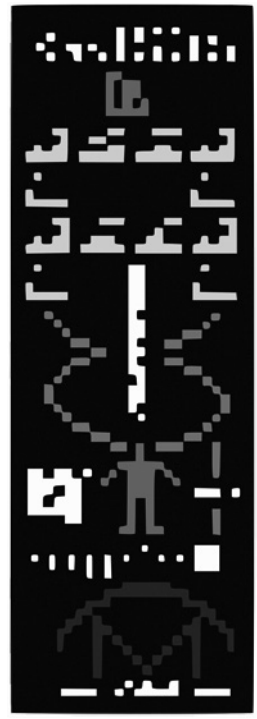

Figure 3.1 SETI Institute. *The Arecibo Message*, 1974. Online graphic. Creative Commons.

acknowledged the uncanny 'same inspiration' they shared. Ideas seem to be abroad in the world, in elliptical orbits which pull them close to us and away again. Cros mediates ideas. His *plis cachetés* are not so much about putting ideas into the public domain: they are about not taking them out. By choosing how and when he publicises, Cros leaves the door open to the discoveries of others, judging the apposite moment to bring his own discoveries to light by opening the *pli*, so that they can resonate with the work of his peers.

The philosopher Émile Boutroux defied the teleological bent of nineteenth-century science to place contingency at the heart of his understanding of reality, arguing that 'there is no equivalence, no pure and simple causal relationship, between a man and the elements which gave birth to him, between a developed being and a being in the process of formation'.[39] His dissolution of causality, giving way to contingency, creates a universe governed by 'the universal interlacing and reciprocal interpenetration of change and permanence'.[40]

Cros gives us a scientific objectivity which is not about measurement, recording, and the attendant illusory circumscription of external reality.

It is about uncovering what we have in common, and finding new figures, signs, codes, and shapes with which to draw people together – not to consolidate central power, or to draw boundaries around a discipline or community, but rather to stretch out towards the unknown with no colonising ambition, but love and desire for deeper knowledge.

The short story 'Un Drame interstellaire' (1872) is part of that stretching out, but it is not a straightforward turning of theory into fiction. Cros does not 'build' the device from the 'Étude' in his story. He creates its affects, the *feeling* behind it. He helps to create the conditions for its realisation by activating readers' imaginations and desires.

In the twenty-fifth century, the earthling poet-scientist Glaux joins a team engaged in interplanetary knowledge exchange with Venus – both as planet, and in Henry Adams's sense. Scientific photographs pass back and forth between the two planets, in a refinement of the light signals set out in the 'Étude'. Glaux enters into communication with a Venusian woman, falling in love at first exchange. Over three years, they develop forms of photography, cinematography, and sound transmission, driven by the desire to overcome distance and atmospheric interference. However, simulacra are unsatisfying and the lovers kill themselves, leaving behind their communication-fostering inventions for the benefit of humanity.

Cros's speculative fiction unpacks the wistful quality latent in the 'Étude', where the responding light signal from Mars or Venus 'says that there is someone there; but nothing more. We want to know in full, we would like to see, hear, and touch that mysterious world.'[41] Cros offers us a labour of love and longing, a reaching out for a full embrace, for mystic unity. In the 'Drame', this desire for the unattainable is the force that powers technics. Cros puts his own *via positiva* into fiction. Fuelled by love, 'Glaux … was the first to put into practice means which had previously been dismissed as purely theoretical and impossible to implement.'[42] Adams's Venus lends a helping hand: the lovers' exchanges become a promiscuous knowledge, as they share ideas and improve on one another's inventions.

The 'Drame' was published in multiple contexts, across a wide period of time, including after Cros's death: a repeated communication like those of the 'Étude'. It first appeared in *La Renaissance littéraire et artistique* on 24 August 1872, a journal strongly associated with the Parnassian school.[43] This original publication date falls between the 1869 correspondence with du Hauron and the 1877–8 phonograph period. The story brings one technology to life and imagines another, for which Cros would then make plans. Fourteen years later, it was republished in a very different organ, *Le Chat noir* (7 August 1886).[44]

Both literally and figuratively, imaginative fiction mediates between the idea, the theory, and potential practice – and between publics.

The core of Cros's story is not the lovers' failed communication, but what it makes possible for those that come after them. Failed private exchanges contribute to public knowledge, in the form of Glaux's communication technologies. In the 'intangible light' of the 'Drame', Cros stages his own failure to materialise – but he sets it in the *longue durée* (or touching distance) of scientific discovery: what Glaux and Cros create, though imperfect, is posthumously acknowledged to be of value to the intellectual heirs who refine and retool them.

It is no coincidence that Cros turns his eyes spacewards in these texts. His inventions are space opera in the etymological sense: space works. They operate in the free space of abstract thought, offer democratic space for the contributions of others, and are released into a variety of shared conceptual spaces, from lectures to magazines. They are as substantial as space itself: infinite in their ramifications, yet immaterial. Cros painted a self-portrait of himself in his poem, 'Inscription', as an 'infinite sky'.[45] In it, he alludes to 'visions others deemed mad' – the colour photography, phonography, and interplanetary communication we have seen here.[46] 'I wished it, it will be', he declares, already setting himself in the past but with certainty for the future, at once a prophet and a god.[47]

Our contemporary technological state is dominated by the methods of machine-driven inscription, reading, and writing of which the telegraph and phonograph are the ancestors. But this inscription is increasingly hidden from view. We do not see as Richepin, Villiers, Schwob, and Jarry did. We do not see the needle carving grooves into the wax, the flutter of the diaphragm caught in the crosswinds of human breath. New devices – hardware, software, and any number of devices – code and decode, read and write either through our extremely mediated contact with them, or without much direct intervention on our part at all. We are insulated by layers of abstraction: 'each layer is designed to depend on the functionality of layers below it without having any access to the details of how lower levels get things done'.[48] In the nineteenth century, the phonograph's needle carved a groove in the cylinder and read those grooves, which are impossible for a human to read with the naked eye, the first layering of abstraction which Cros sought to combat in his 'Note'.[49] Abstractions make it possible for us to do more, to 'get on with things' without starting from scratch. The virtualities that Cros's writing creates make our world possible, as the technical *fiat* which Cros mediates diffuses its action across time.

However, there is a type of loss which he does not envision. Villiers's Edison identified in the act of smelting a bullet both the opportunities it

creates, and those it forecloses. Cros's model for interplanetary communication does not take into account the loss of detail and information which comes with the compression of data, and the variable speed of light as it travels through space.

In my next chapter, I unveil the entropic qualities of the virtual: the ways in which it can generate disorder and dysfunctionality as well as loving grace.

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Apocalypse

4. *Technics and the Apocalypse: Didier de Chousy*

When set in the typological space opened up by my first two chapters, the theatre of unsealing and revelation in the *pli cacheté* cannot help but remind us of the Apocalypse according to John, which welcomed us to the *Palais des machines* in Chapter 2. In Apocalypse 5, the Lamb – the Logos – opens the book with seven seals, thereby summoning the four horsemen and setting in motion the events that bring about the end of the world and the opening up of eternity. Over the centuries, John's text has been read as an allegory, a symbolic history of the Church at the time of the book's composition, and as a prophetic view of the future Church, or of the end times.[1] In his reading of Paul's letter to the Romans, Agamben identifies two key features of the apostle's writing about the end times: typology (which I have already evoked in Chapter 2) and 'recapitulation' narratives, through which we understand that when believers look to the future, they are also looking to '[s]omething like a memory': Christ has come, so he will come again.[2]

The Apocalypse is the culmination of the originary *fiat* in Christian theology. The same is true in the world of unruly technics: the 'evident Apocalypse' was the culminating achievement of Richepin's metaphysical machine, its light the pendant to the *fiat lux* which opened the story.[3] As we saw in Chapter 1, for Catholics and socialists alike, technology was the herald and agent of history, and therefore of its end. The Apocalypse culminates in the New Jerusalem, and it is John's description of it that the French socialist Victor Considerant quotes at length when he declares that 'the peoples will swiftly convert to Christianity, that is to say to proper scientific and evangelical Socialism'.[4] In this chapter, Christian eschatology confronts scientific and political teleologies in the crucible of Didier de Chousy's *Ignis* (1883) – a forgotten bestseller thought to have been ghostwritten by Cros.

In *Ignis*, a group of British venture capitalists seek to harness and monopolise the thermal energy of a 'central fire' at the earth's core. With the completion of this project, society and humanity are transformed, as all human professions are performed by steam-powered zoo- and anthropomorphic mechanical Atmophytes, who evolve to consciousness and rebel. *Ignis* explicitly stages automation as the biblical Apocalypse:

> from the shaft [of the bottomless pit] rose smoke like the smoke of a great furnace … Then from the smoke came locusts on the earth, and … their faces were like human faces, and they had scales like iron breastplates.[5]

The novel culminates in outer space, as the central fire propels the narrator, the imperialist financier Hotairwell, the physicist Archbold and geologist Penkenton – who reveals himself to be the biblical Cain – into the stratosphere.

Now consigned to obscurity, *Ignis* was a commercial and critical success. It was even awarded the 1883 *prix de Jouy* by the Académie française, 'awarded *to a work of observation, imagination or criticism which studies contemporary mores*'.[6] *Ignis* was translated and marketed internationally, receiving glowing reviews in French, British, and Danish publications.[7] Yet many of these reviewers highlight their uncertainty about which of the prize categories – observation, imagination, critique – *Ignis* best fits. Presented as a satire, it nevertheless appealed to the readers of its reserialisation in the popular science magazine *La Science illustrée* from 1895 to 1896, where it appeared alongside unglamorous articles on engineering, and instructions for dubious home experiments.[8]

It might be tempting, then, to catalogue *Ignis* alongside the other scientific fictions of the period. After all, *Ignis* clearly belongs to the genre of hollow earth fictions in its concern with the nature and politics of the earth's core.[9] Jules Verne's *Voyage au centre de la terre* (*Journey to the Centre of the Earth*) (1864) and *Les Indes noires* (*The Underground City*) (1877) had trod this ground before to uncover prehistoric creatures and alternative mining societies.[10] We find both in *Ignis*. Albert Robida's *Le Vingtième siècle* (*The Twentieth Century*) (1893) features an illustration of a factory processing the energy of the central fire (Figure 4.1), and Flammarion's *La Fin du monde* (*The End of the World*) (1894), with its evocatively named characters Omégar and Éva, draws its chapter epigraphs from the book of the Apocalypse. However, in this chapter, I make the case for a unique status for *Ignis*, placing it in the tradition of the technologos. It is a story about technics, but it is also a story *about* stories of technics, and the technics of

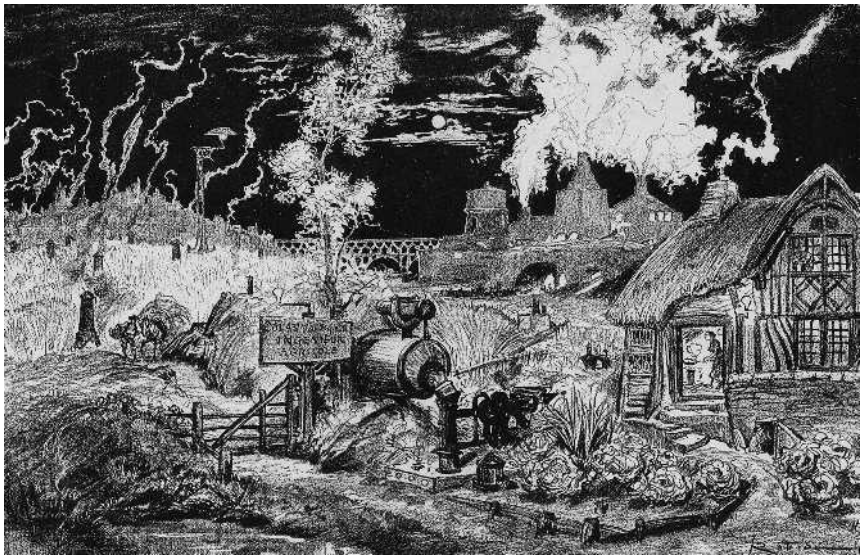


Figure 4.1 Robida's central fire.
Albert Robida. 'Adduction et distribution du feu central. Transformation de l'agriculture, emplois industriels et de ménage'. Engraving. In Albert Robida, *Le Vingtième siècle: la vie électrique* (Paris: Librairie illustrée, 1892), plate 177. Paris, Bibliothèque nationale de France.

stories. It allows us to explore the virtuality of storytelling that we saw in Cros, in a more ambivalent mode.

I begin by setting out the text's uncertain authorship and the Cros-like promiscuity of its diffusion in nineteenth-century France. I then approach it through three lenses: the dense ideological cluster of science, technics, and imperialism of the novel's first half; the question of full industrial automation; and the Apocalypse itself. Ultimately, I suggest that *Ignis* brings to the fore the technicity of words and ideas, their frictional encounters with the grain of the world, and the question of our ability and responsibility to inflect them.

THE BIOGRAPHY OF A BOOK

First published anonymously, the second edition of *Ignis* appeared under the name of Didier de Chousy. The descendant of an aristocratic family, his career as a *receveur de finances* (a kind of tax official), can be traced through the pages of the *Journal officiel de la République française*.[11] In the same year that *Ignis* was republished under his name, de Chousy was a chief mourner at the funeral of his brother-in-law Edmond-Charles de Martimprey, the Governor General of

Algeria and a Senator under the Second Empire.[12] On the centenary of Marie-Antoinette's execution, he published a laudatory article comparing the former queen to Joan of Arc, and presented the de Chousy family as 'a familiar name in the glory days of royalism'.[13] While we can easily conceive of an aristocratic distrust of the *nouveau riche* class of nineteenth-century capitalists, the satire of colonialism, race science, and labour present in *Ignis* sits less well with the image of de Chousy that the historical record suggests.

The only published article in English or French to attempt any analysis of the text therefore restricts itself to attempting to identify the novel's 'real' author. Stéphane Ischi identifies the discrepancy between the author of the unironically royalist article, and the highly ironic *Ignis*. Taking into account de Chousy's apparent financial support of Cros's poetry collection *Le Coffret de santal* (*The Sandalwood Chest*) (1873), he posits that de Chousy employed Cros as a ghostwriter.[14] Archival traces exist of de Chousy's own dabbling in developing a 'new coal',[15] and Ischi takes one letter in which Cros mentions working on 'de Chousy's coal' as evidence for Cros's involvement in this venture.[16] However, it is the literary qualities of *Ignis*, and Cros's and Allais's virtuosic performances of Vernian pastiches at the Chat noir cabaret, which constitute the bulk of Ischi's argument in favour of Cros's authorship.[17]

References to *Ignis* in articles spanning three decades by Cros's friend, the scientific populariser Émile Gautier, are also key to Ischi's argument.[18] In 1883, Gautier was on trial in Lyon, alongside Louise Michel, Peter Kropotkin, and other prominent anarchists. Gautier penned their defence, in which the group affirmed that 'capital, which is humanity's shared inheritance since it is the fruit of the collaboration of generations past and present, must be made available to all'.[19] It is an aphorism for Cros's economy of knowledge, but an unusual sentiment to associate with a tax official.

Anarchists and monarchists are folded together in the history of *Ignis*, in the folds of books, newspapers, and magazines. Did the reader in the north of France, skimming the advertisements for corsets and quack cures in the back pages of the regional weekly, detect in the testimony of a certain de Chousy – 'a distinguished scholar and author of works recognized by the Académie Française' – in favour of a miraculous 'electric powder' for the treatment of 'chronic and stubborn ills of all kinds', the whiff of the Parisian literary and political avant-garde?[20]

Within the folds of a letter, we find de Chousy alongside Villiers and Hello. Villiers sent de Chousy a copy of *L'Ève future* in recognition of their 'literary consanguinity', and received effusive fan mail in response.[21] On 3 February 1887, Villiers replied to a lunch invitation

from Huysmans. Villiers writes of his ambition to pen a series of defences of authors including Hello, Huysmans, Mallarmé, and Verlaine for the literary periodical *Gil Blas*. He declares: it 'might shake the stubborn spleens of the readers of that gazette (not forgetting good old M. de Chouzy [*sic*], the author of *Ignis*)'.[22] The spleen-shaking articles mooted here never came to fruition; we can only imagine their contents. In the same way, we have no means of settling the question of the novel's authorship one way or the other. It seems appropriate to allow the text to circulate across the years, a quasi-autonomous entity refusing partisan affiliation.

FROM EDEN TO ADEN: THE SCIENCE OF A GOOD STORY

Once bullets leave the factory, or we liberate our ideas – put them out into the world as Cros did – we open them up to other people's mediations. In previous chapters, we have seen how thinking about technics coalesces around particular objects, some of which then crystallise in material forms in the 'real' world. But what has also emerged is a notion of thinking and feeling as a mode of technicity. In *Ignis*, this technics of thought interacts potently with thought about technics.[23]

Pursuing Renan's intuition of science as a 'technique', this section will trace the imbrication of knowledge, power, and technology within *Ignis*.[24] The project's driving force – Lord Hotairwell – establishes a committee to report on the viability of a project to harness the energy of the central fire. It garners two reports: an entropic vision from the geologist Samuel Penkenton, and a scheme of work from the engineer James Archbold and mining technician William Hatchitt. Hotairwell himself is a rogue evolutionary biologist, venture capitalist, and jingoist. As the timeframe and nationality of its protagonists suggests, *Ignis* is rooted in the innovations of nineteenth-century British science. Between them, they explore the same world through three different lenses: geology, thermodynamics, and evolution. These epistemological frameworks are a technics of vision, recording, reading, and writing as much as any of the devices we saw in Chapters 2 or 3. They mould and shape the earth, insert it into a timeline, and are deployed in order to act upon it and change it. Reprising Villiers's attritional epistemology in Chapter 2, de Chousy sets them against one another.

Penkenton turns to the authority of Buffon's vision of the earth as solar elements dispersed into space and temporarily coalescing to suggest a universe bound for entropic cold-death.[25] The energy of the central fire is that of dying embers: 'solar light, choked by ash, became the

earth's central fire'.[26] He draws on eclectic sources, ranging from Moses to Plato, Newton to Cuvier, to support his vision and promote the central fire as the explanation for the tectonic activity of earthquakes and volcanoes. As he puts it, 'science confirmed these testimonies; and by travelling back through every stage of its transformation, right back to the moment of creation, our scholars have made themselves witnesses to Genesis'.[27] We find again the apocalyptic logic of Richepin's inventor: 'faced with evidence such as this, gentlemen, why waste time on proof?'[28] Penkenton aligns human historical time and geological deep time in an epistemological movement which folds the present and future back over the past palimpsestically, even typologically. His is a mystical geology. With its references to Genesis and Cuvier, his report borrows from catastrophist theories of the earth's development, in which it is shaped by major and unexpected events: floods, eruptions, and earthquakes. Cuvier 'read' the fossil record alongside descriptions of the Flood in Genesis, which he understood to have been written entirely by Moses,[29] and in historical, philosophical, and religious texts from sources including classical authors and Vedic scriptures.[30]

The geologic phase transitions between solid, liquid, and gas which Penkenton identifies find a partner in the science of thermodynamics. The first law of thermodynamics facilitated a new conceptualisation of the human as a motor: part of 'a vast and protean reservoir of labor power awaiting its conversion to work'.[31] The second law formulated by Rudolf Clausius in 1865 introduced a teleology to this protean power source: the notion that the universe is moving towards a state of chaos, with ever-increasing disorder. Cultural histories of work and energy have connected entropy to the Europe-wide notion of decadence, physical fatigue, and proliferation of neurasthenia, hysteria, and other forms of nervous exhaustion.[32] Indeed, for William Thomson, entropy and the resultant 'secular cooling of the earth' merely enacted the move from Genesis to Apocalypse,[33] acting as 'proof of the teleological, unidirectional time scheme of the Bible'.[34]

In contrast to speculative histories and projections for the future, Archbold and Hatchitt's report is rooted in the present tense, its temporality and spatiality that of the here and now. The earth is a 'boiler', which requires only 'a good kick' to set it in motion.[35] Where Penkenton's earth is abstract because it lies beyond the human scale in time and space, Archbold and Hatchitt's analogy shrinks the earth to a battered piece of machinery.

Hotairwell combines Penkenton's cosmic vision with the engineers' orientation towards use-value. Key to Hotairwell's proposal is his desire to find proof for his theories about the origin of the earth, and of

the human as human. In his tract, *Man before Earth and Earth before Genesis*, Hotairwell rewrites Genesis, suggesting that humanity was expelled from the solar domain, long before events in Eden. The phase transition from solar gas to earth theorised by Penkenton is extended to human beings: 'this fall must have been the punishment for an original sin, committed well before Adam's, naturally'.[36] De Chousy may have had in mind Cuvier's statement that 'we are yet to find human bones among the fossils', interpreting it as leaving the door open to the possibility that human beings did not evolve as other life forms did.[37]

Hotairwell's theory also recalls Herbert Spencer's synthesis of geology and thermodynamics in his *First Principles* (1860), which took evolution as its guiding paradigm, from 'the earliest traceable cosmical changes down to the latest results of civilization'.[38] The increasing complexity of evolution was, for Spencer, counterbalanced by a 'universal process of equilibration', aiming for a point of 'complete rest'.[39] Where Spencer imposes a teleology, Darwinian evolution is a dynamic vision, of species as fluid, subject to transformation over vast expanses of time by unpredictable mutations. As Curtis Johnson has emphasised, throughout Darwin's oeuvre, evolution is the constant production of difference: 'like produces *unlike*', no two members of a species are the same.[40] At the root of this is a looser understanding of cause and effect, which leaves room for the operations of 'chance variation', an aleatory quality which Darwin sought to make palatable to his readers, softening the blow of this major shift in world view.[41] It is possible that his softening was rather too effective. The first French translation of *On the Origin of Species*, published in 1862, gave evolution a very particular directionality. In her preface, the translator (and proponent of eugenics) Clémence Royer presented evolution as 'ascending and progressive' and as 'the rational revelation of progress, in its logical antagonism with the irrational revelation of the fall'.[42] Darwin admitted to being baffled by Royer, as his exclamation marks testify: she 'hates Christianity, & declares that natural selection & the struggle for life will explain all morality, nature of man, politicks &c &c!!!'[43] Evolution is a theme on which amateurs and theorists of all kinds provided more or less discordant variations.

Nineteenth-century readings of scientific theories are not readings, but rewritings. From past to present, Hotairwell steers his scientists into the future, following this logic. He takes on the voice of the central fire in a prosopopeia, announcing its status as an infinite, immortal substance: 'I am the soul and genius of the earth, … its limitless power, as eternal as your humanity.'[44] I use 'substance' here with its full metaphysical weight. Hotairwell's words compress that substance

and transmute it, as the central fire acquires geographical contours and bounded limits: 'I am a demon, stoking my fires beneath your continents.'[45] With the possessive 'your', the continents become a human possession. Ultimately, the fire is brought down from the supernatural plane. It *asks* to be enslaved, comparing itself to a slave milling flour: 'I can, if you wish, love and serve you.'[46] The central fire undergoes a phase transition of its own, absorbed into and enclosed within a human body like 'fallen man'.

While the central fire will be brought low, geoengineering will knit together nation states, to recover a prelapsarian unity. Hotairwell preaches with missionary and colonialist zeal that the central fire will be the 'the seed of cities which … will graft themselves to one another until they form a single city; which will make England, joined to the continents by the hand which we will extend to them beneath the Channel, a single factory employing a whole people'.[47] Hotairwell's accelerative tendencies are present in his very syntax: the succession of future tense verbs and commas drive forward the rapidly expanding vision of the new Eden, from Great to Greater to Greatest Britain, as a colonial project is naturalised with organic vocabulary.

Hotairwell's technological ambition extends to a previous speculative venture of cutting the British Isles loose from their subterranean moorings in order to commence a tour of their colonial subjects. Although Hotairwell's project never comes to fruition, it is recounted in the imperfect tense, as if it had actually happened (rather than, for example, the conditional mood). Hotairwell borrows from the Palm Sunday liturgy of Christ's triumphant entry into Jerusalem before the events of the Passion: 'the whole of India poured onto the banks, … singing a magnificent hosanna to the glorious sovereign'.[48] For Hotairwell, saying something makes it so; his story-telling is a *fiat*.

Max O'Rell quipped that 'Englishmen are, without question, cut out for making colonies – but absolutely not for making love.'[49] Indeed, the attitude, behaviour, and way in which the central fire project is costed and funded are fully French. More than that, they are identical to the modus operandi of Ferdinand de Lesseps.[50] De Lesseps 'planted the French flag on Egyptian soil, not through the brute force of weapons, but through the power of science'.[51] In the 1883 book of portraits from which this quotation is drawn, the architect of the Suez Canal and the catastrophic Panama Canal appears sequentially after Flammarion and Edison. He entered the Académie des sciences three years after Cros's phonographic *pli cacheté*, on the strength of his success in Suez.[52] He also became a fictional character, making an appearance in Jules Verne's *L'Invention de la mer* (*Invasion of the Sea*) (1905).[53] Gustave Le Bon's

analysis of de Lesseps's charismatic self-presentation, and his ability to sweep members of the public into a frenzy of investment in the Suez and Panama schemes is instructive. He quotes an eyewitness investor:

> He [de Lesseps] recounted … all the impossible things that he had made possible … he reminded us of how England fought him, attacked him relentlessly, how Egypt and France hesitated, how the French consul was the the fiercest opponent of the initial works, and how they resisted him, manipulating his workers through thirst, denying them water.[54]

De Lesseps is a synthetic storyteller, weaving episodes into one narrative in which his vision prevails. Difficulties and failures are not effaced, but rather embraced as proofs of strength, opportunities to prove ingenuity, all part of the grand plan. Telling the story makes it so, both in retrospect (as in the passage above), but also in financial speculation. Shares in major building projects and books have one thing in common: they are paper fictions.

Hotairwell is undoubtedly modelled on de Lesseps: the public offering of shares, the rhetoric I have explored above, and even the rationing of water to labourers once the project begins, are all present in *Ignis*.[55] However, he is transposed into the body of an Englishman, enclosed in a safe stereotype which can accommodate that ambivalence. When Cros put his ideas into the world, it was *as* stories; Hotairwell's fictions seek to camouflage their fictionality. He is full of hot air – but as Hello's sacramental steam train revealed, hot air has an indisputable motive force.

De Chousy shows us scientific writing's ripeness for political manipulation in the service of a particular kind of social technics fuelled by a desire for conquest and ownership – the shadow side of the visions of love and mercy which we saw in Chapter 1. But he also shows us the problem with simply settling for the notion that scientific writing is constructed and then leaving things there. Scientific writing also *constructs*, and the only way to know that we are making the right epistemological investment is if we have insider knowledge of its effects.

GOING UNDERGROUND: TECHNICS AND TRANSFORMATION

Tunnelling down to the central fire initiates a new creative *fiat*, which allows de Chousy to play out the frameworks above in unruly synthesis. This restaged creation recognises the kinship – the shared atoms – of the earth, the excavation machines, and the miners in a new, inverted cosmogony: 'after the stars came cosmic dust; after the big machines came the small vertical locomobiles'.[56] The excavation simultaneously lays

bare and repeats the story of the earth's formation. It also anticipates its future, in the entropic inevitability of friction: 'it looks as though, with each successive impact, everything might be reduced to the same dust, rendered equal by friction'.[57] Amid the hardened cosmic dust – heat and time made rock – the theories and stories set out above play out at an accelerated pace, fuelled by the entropic heat.

The initial workforce of Irish miners – at this time still British colonial subjects[58] – goes on strike, as their encounter with the resistant earth generates a friction so intense that they are 'devoured beneath their rags by a fire which smokes before it flares'.[59] The evolutionary process becomes a phase transition, returning humanity to the 'gaseous man' of Hotairwell's prelapsarian fantasy. To replace them, the company illegally imports enslaved people from Africa, described with the animalising vocabulary of racist tracts and human zoos.[60] They are 'soldered into one body without form and without end', a molten raw material, ready to be divided and recast in the desired shape.[61] Hatchitt quips that, 'whitened' by hard work in the dark of the pit, 'if these negroes turn white, … they will gain an intrinsic surplus value [*plus-value*] which will allow us to sell them on at a profit'.[62] Here, *plus-value* is not to be understood in the Marxist sense of surplus value, but rather in the sense employed by the 1804 *Code civil* when describing what compensation creditors who have carried out renovations on a building can request from the state, should the debtor be declared bankrupt.[63] While the abolition of slavery in the colonies was a cornerstone of French republicanism, its legacy persisted: the French turned a blind eye to practices of internal slavery between rival groups in Western Sudan in the 1880s and 1890s,[64] and prioritised technical training programmes over other forms of education in north Africa, with the aim of producing a 'homegrown' labour force to facilitate the colonial project onsite.[65] Technics was 'civilisation',[66] retooling the human being as a raw material, like the earth, or the central fire, or the wood, wax, metal, and electricity we have seen in previous chapters.

Overnight, the enslaved workforce is covertly replaced by disguised and hyper-efficient Prussian saboteurs in the latest aleatory configuration of human bodies, succeeding one another as though they were malleable matter, mutating to meet the demands of capital for more, faster. 'Energy is an attribute of the higher races, … the basis of living action, and it is eminently transmissible by descent', Francis Galton declared, and this is the racist logic the British follow in their preference for the Prussians.[67] Yet even these model workers are ultimately lost as the tunnel collapses and the central fire is revealed. The city that is built over the central fire subsequently is founded on bone and ashes.

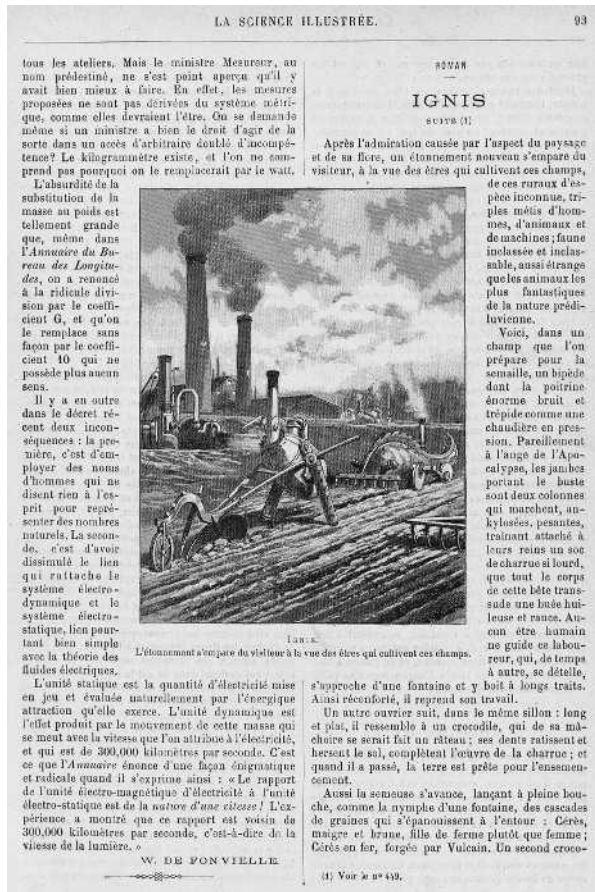
It might be tempting to argue that de Chousy follows Kathryn Yusoff's injunction to resituate geology as a racially inflected conceptual framework, in order to give voice to 'the intimate contours of geologic life as a force and power with subjective life', and restore the voices and bodies of those that the earth absorbed in labour. However, to do so would be to misrepresent him.[68] De Chousy does not give a voice to any of his labourers. His focus is on how they are seen, not on how they see themselves. He draws no ontological distinctions between 'nature' and 'technics', or between human beings and other kinds of being. Within his thermodynamic framework, human beings are temporary configurations, blips in deep time. This ontological equality with matter yields a situation in which entities – human and nonhuman – are equally valueless.

To claim de Chousy as a political progressive palatable to a twenty-first-century reader would be to misunderstand the ways in which *Ignis* punctures the very notion of a 'progressive' political project. Though the logics with which the characters in these episodes of the novel think are teleological, they contain repeated glitches when they are played out. De Chousy almost seems to overplay these moments of instability, contingency, or shock revelation, with unbelievable plot twists, or sudden breaks with our expectations and predictions. While *Ignis* is a crucible of structures of nineteenth-century reality – science, financial speculation, empire, industrialisation, and millenarianism – it manifests a complex ambivalence towards these categories. The focal point for these in the second half of the novel is the full automation of labour, and its ramifications for how humans relate to themselves, others, and the world. As Claire White has observed, within France post-1880, the 'promotion of the worker's increased freedom *from* labour often sat awkwardly alongside an aspiration towards a transformed labour model, precisely *through* which the worker could experience, and affirm, his own liberty'.[69] Which was the 'right' kind of progress? Could there be any such thing, or only something different?

The questions matter because ideas are powerful things in the world of *Ignis*. Cros believed that an intellectual framework was required before action could be taken in the field of scientific discovery (Chapter 3). In *Ignis*, evolutionary theories are not only instrumentalised for political gain – they also *do* things. Hotairwell's vision of matter is one of 'potential activity'.[70] He describes how simians, 'working their own matter, … make it progress towards the human form'.[71] Like the earth or the central fire, matter itself is a source of fuel to be extracted and converted into useful work. Now, humans assume control: 'taking firm hold of nature's general direction … they set to making it evolve'.[72]

Grace and chance are out of the picture; there is nothing gratuitous or random about this evolution. Ideas are actions: matter is colonised to purpose-build a slave species of Atmophytes, 'a race of mechanical animals strong enough to serve us and stupid enough to love us; a kind of humanity of automata … moved by cerebral cogs akin to those of the Papuan negro' (see Figure 4.2).[73] Hotairwell establishes kinship between the Atmophytes and his previous workforce, and even reprises the verbs 'serve' and 'love' from his prosopopoeia of the central fire in the very opening chapters of the novel. His dream is realised.

Ignis offers us a machinic evolutionary fantasy akin to that found in Samuel Butler's *Erewhon* (published in 1872 but not translated into



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tous les ateliers. Mais le ministre Mesureur, au nom prédestiné, ne s'est point aperçu qu'il y avait bien mieux à faire. En effet, les mesures proposées ne sont pas dérivées du système métrique, comme elles devraient l'être. On se demande même si un ministre a bien le droit d'agir de la sorte dans un accès d'arbitraire doublé d'incompétence? Le kilogrammètre existe, et l'on ne comprend pas pourquoi on le remplacerait par le watt.

L'absurdité de la substitution de la masse au poids est tellement grande que, même dans l'*Annuaire du Bureau des Longitudes*, on a renoncé à la ridicule division par le coefficient G, et qu'on le remplace sans façon par le coefficient 10 qui ne possède plus aucun sens.

Il y a en outre dans le décret récent deux inconséquences : la première, c'est d'employer des noms d'hommes qui ne disent rien à l'esprit pour représenter des nombres naturels. La seconde, c'est d'avoir dissimulé le lien qui rattache le système électro-dynamique et le système électro-statique, lien pourtant bien simple avec la théorie des fluides électriques.

L'unité statique est la quantité d'électricité mise en jeu et évaluée naturellement par l'énergique attraction qu'elle exerce. L'unité dynamique est l'effet produit par le mouvement de cette masse qui se meut avec la vitesse que l'on attribue à l'électricité, et qui est de 300,000 kilomètres par seconde. C'est ce que l'*Annuaire* énonce d'une façon énigmatique et radicale quand il s'exprime ainsi : « Le rapport de l'unité électro-magnétique d'électricité à l'unité électro-statique est de la *nature d'une vitesse !* L'expérience a montré que ce rapport est voisin de 300,000 kilomètres par seconde, c'est-à-dire de la vitesse de la lumière. »

W. DE FONVIELLE.

ROMAN

IGNIS

SUITE (1)

Après l'admiration causée par l'aspect du paysage et de sa flore, un étonnement nouveau s'empare du visiteur, à la vue des êtres qui cultivent ces champs, de ces ruraux d'espèce inconnue, triples métis d'hommes, d'animaux et de machines; faune inclassée et inclassable, aussi étrange que les animaux les plus fantastiques de la nature prédiluvienne.

Voici, dans un champ que l'on prépare pour la semaille, un bipède dont la poitrine énorme bruit et trépide comme une chaudière en pression. Pareillement à l'ange de l'Apocalypse, les jambes portant le buste sont deux colonnes qui marchent, ankylosées, pesantes, traînant attaché à leurs reins un soc de charrue si lourd, que tout le corps de cette bête transsude une buée huileuse et rance. Aucun être humain ne guide ce laboureur, qui, de temps à autre, se dételle, s'approche d'une fontaine et y boit à longs traits. Ainsi réconforté, il reprend son travail.

Un autre ouvrier suit, dans le même sillon : long et plat, il ressemble à un crocodile, qui de sa mâchoire se serait fait un râteau; ses dents ratissent et hersent le sol, complètent l'œuvre de la charrue; et quand il a passé, la terre est prête pour l'ensemencement.

Aussi la semeuse s'avance, lançant à pleine bouche, comme la nymphe d'une fontaine, des cascades de graines qui s'épanouissent à l'entour : Cérès, maigre et brune, fille de ferme plutôt que femme; Cérès en fer, forgée par Vulcain. Un second croco-

(1) Voir le n° 449.

IGNIS.

L'étonnement s'empare du visiteur à la vue des êtres qui cultivent ces champs.

Figure 4.2 Atmophytes in action.
'L'étonnement s'empare du visiteur à la vue des êtres qui cultivent ces champs'. Printed illustration. In *La Science illustrée*, 6 June 1896, 93. Paris, Bibliothèque nationale de France.

French until 1920). However, unlike Butler's Darwin-centric text, de Chousy's speculative fiction is folded into a provocative probing of the economic theories of Paul Lafargue, an allegory of French parliamentary battles over nineteenth-century labour laws and workers' rights, a meditation on desire and energy, and a revival of Faustian and Promethean tropes. The text resists a single authoritative reading, overlaying different modes of writing and interactions with the external world. Its unruliness wrongfoots attempts by characters (and readers) to understand, homogenise, or fix the world from a unitary ideological perspective.

In *Le Droit à la paresse* (*The Right to Be Lazy*) (1880), Paul Lafargue advocates full automation as a means to liberate the proletariat. The way forward is not more efficient ways of doing work, but the end of human labour altogether. In *Ignis*, Hotairwell declares that 'man will rest, his labour offloaded onto his creatures, the proletariat abolished, social problems resolved by universal happiness, and wealth established on such a large scale that everyone will be at the top of the pyramid'.[74] A social hierarchy is still required, based on species rather than income. We can observe this in the work of twenty-first-century advocates of full automation, who celebrate transhumanist hybridisations of the human and the machine, and affirm a non-essentialist ontological position, but do not acknowledge their ethical separation of this form of human–machine interaction from the technological agents which will emancipate us from labour by taking it on.[75]

Indeed, de Chousy's Atmophytes are also figures for the French proletariat. The debates within the novel about reducing working hours mirror Lafargue's calls for the eight-hour working day,[76] and demands for educational opportunities for the Atmophytes could be considered a response to Jules Ferry's measures to reduce workers' education.[77] We might even go so far as to see in this post-work economy an interrogation of older ideas about the function of labour, in the work of Charles Fourier. Fourier wrote of himself: 'John the Baptist was the *precursor* prophet of Jesus; I am his *postcursor* prophet, … completing his work of rehabilitating humanity in the industrial realm.'[78] In a fusion of cosmology and numerology, Fourier's new Jerusalem is one of 'passionate series' and 'attractive work', in which human beings *want* to work because it brings them pleasure. Desire is the 'MECHANICAL PIVOT' on which the world turns, suturing 'fragmented industry' in loving synthesis.[79]

Industria-City, built over the central fire, is the opposite of Fourier's vision of the relationship between labour and desire. With every desire satisfied, 'people live together while staying at home' in glass houses.[80] The narrator evokes 'telechromophotophonotetroscopy': the

succession of photographs so rapid that they 'are the equivalent of presence', thanks to which human beings only visit one another in virtual form.[81] Human beings are disembodied, in a riff on Friedrich Engels's observation that 'the hand is not only the organ of labour, *it is also the product of labour*'.[82] But they are also lost in other ways, in the fraction of time between the photographs. Emancipation from labour leaves human potential dormant, in an intermittent flicker which can only approximate 'presence'. Imagination is no longer the faculty of potential that we saw in Cros's fictions, overflowing with the desire to be used; it has become a holding pen. With every desire satisfied, every difficulty smoothed away, the post-central fire world has few hospitals, and many asylums.

To want is to resist the grain of the world: it means asking things to be different, rather than allowing ourselves to drift towards Spencerian equilibrium. In contrast to the stasis of these descriptions of life in Industria-City, the existence of the Atmophytes is a dynamic one. They are operating on a different timeline, one dynamised by desire. Increasingly improbable scenarios succeed one another at an accelerating rate, with the Atmophytes undergoing evolutionary leaps from one page to the next, without any apparent trigger. They develop consciousness, and rebel against their human masters. Like photographs flickering ever faster in a zoetrope, de Chousy's description of this new society breaks into a sudden rush to the finish.

De Chousy denies us a straightforward allegorical mapping between the universe of his novel and the external world of *fin de siècle* industry and labour politics. All the readings I have set out above are possible, and each one disrupts the others. His fictional universe undoes itself as fast as he can write it, exposing the paper fiction that is speculation of any kind: scientific, financial, and narrative. There is no progress, no progressivism. This extends to the very temporal framework of the novel.

BACK TO THE FUTURE: TIME AND TYPOLOGY

Ignis is set in a counterfactual 1867–72, with reference to ideas and events which postdate the 1860s (and, of course, an apocalypse that had manifestly not happened). We can detect echoes of the Panama Canal project (1881–94), scepticism of capitalism in the wake of the 1882 financial crash, and the 1883 eruption of Krakatoa. But *Ignis* also points back to an ancient typological figure in Cain. It is simultaneously counterfactual, anachronistic, and a participant in multiple zeitgeists. In this final section, I explore the figure of Cain and how de Chousy's temporal play folds into the layered reading of technicity.

Following the Atmophyte rebellion, Penkenton reveals his true identity: he is Cain, the rebellion's instigator and the first technician, sent to punish humankind. Penkenton triggers the explosion of the central fire which propels him, the narrator, Hotairwell, and Archbold into space, clinging to a fragment of the earth. With this twist, *Ignis* becomes the epic of the technologos, the folds of the biblical codex overlapping with the folds of stratigraphy. De Chousy not only overlays events from the coming Apocalypse over the events of his novel (as we saw in the earlier quotation from the book of the Apocalypse), he connects them back to an original crime, at the very beginning of time.

The world of *Ignis* is built, quite literally, on a story: on the mythic time of the Garden of Eden, which lies buried and interwoven with the 'real time' of the dinosaurs and their extinction. In the course of the excavation, Hotairwell and his colleagues uncover a fossilised Eden, prehistoric creatures, and two skeletons frozen in time, caught up in the Flood and buried beneath its sediment for millennia.[83] The texts of Chapter 2 focused on Christ's redemption of the post-Edenic world through his crucifixion and resurrection; they pointed forward to the new Jerusalem (and new Eden) of the Apocalypse. Etymologically, the Apocalypse lifts the corner of the veil, but in de Chousy's vision, that new covenant and its gospel of love seem absent. Behind the veil lies empty (outer) space.

A constant of antisemitic writing, Cain was the *figura* of the Pharisees responsible for Christ's crucifixion. Christian art has sometimes depicted Cain at Christ's flagellation, wielding the whip that is one of the *arma Christi*.[84] Cain is a weapon but also an instrument of salvation, for the Crucifixion leads to the resurrection. Indeed, Bloy saw in the 'mark of Cain' the outline of the cross: 'by completing … old Cain's butchery, they [the Jews] set the course of Christianity, … and, just as Christians wear the Cross in relief on their breasts, … they wear it in counter-relief in their devastated souls'.[85] Coexisting and overlapping with this tradition is one of veneration. Hailed as a saint in some Gnostic traditions,[86] Cain was claimed as a Romantic hero by Victor Hugo and Leconte de l'Isle.[87] Of particular resonance for *Ignis* is George Byron's *Cain* (1822), which he described in his preface as a medieval mystery play, albeit a mischievous one.[88] Evoking the same ideas as Penkenton and Hotairwell, Byron claims to have

> adopted in this poem the notion of Cuvier, that the world had been destroyed several times before the creation of man. … The assertion of Lucifer, that the Pre-Adamite world was also peopled by rational beings much more intelligent than man, and proportionately powerful to the mammoth, &c. &c. is, of course a poetical fiction.[89]

All these facets of Cain are mobilised. In *Ignis*, Penkenton-Cain is condemned by God to wander the earth forever, with the condition that 'this branch of gopher wood, the instrument of your crime, will remain attached to your side like your shadow, and you will walk forever in that shadow'.[90] Another term for the typological *figura* is the *umbra*, or shadow. Humanity is thus enmeshed with technicity in an insoluble relation of dependence; across time and space, technicity pre- and post-figures us. In Genesis, Cain becomes a channel for resistance and wanting, warned by God that when 'you till the ground, it will no longer yield to you its strength'.[91] We may not want to work, but, as the inhabitants of Industria-City discover, we have to.

De Chousy mobilises a figure who spans history, a figure with a rich intertextual life, as his emblem of technics. For Penkenton-Cain, an entity's existence is determined not by whether it is 'real' or 'fictional', but by its 'intensity'.[92] In the ontology that he sets out, 'time does not flow like a river; it … is just a word: the pure idea rejects this division of chronological space, and sees only multiple horizons at an equal distance, unfolding under the same sky but in a different light'.[93] At first glance, this appears to be a riff on the relationship between human and divine temporalities, in which the 'pure idea' assumes the role of God, who sees 'the whole of time in one simultaneous present'.[94] However, this 'pure idea' does not anchor time in a linear and deterministic logic; Penkenton-Cain gives it a palette of different 'colours' and different ontological intensities to survey. It is an understanding of time's unfurling which can accommodate the co-existences of Cain, the scientific theories set out earlier in this chapter, and the different sociopolitical scenarios played out in Industria-City. The 'pure idea' always has options; there is always time to change. De Chousy's Cain both embodies and challenges the typological principle.

Earlier in the text, faced with the question of entropy, Penkenton exhorts his colleagues, 'let us create an international and intercosmic company … to destroy everything: lands, suns, space itself and even time! To spread nothing everywhere, to give birth to nothingness!'[95] Recalling the words of Schwob's mad inventor in 'La Machine à parler', Penkenton sees no possibility for redemption or repair. The only way to make a fresh start is to dismantle everything, including the a priori categories of space and time. As Archbold and his companions are borne into outer space by the force of the central fire's explosion, they notice that there are no indications of any explosion on the surface of the earth: 'we may have preceded in space news of the event of which we are victims'.[96] De Chousy makes time a relative concept, so that the

present is simultaneously future and past, and reality both has and has not happened.[97] Unlike the utopian apocalyptic visions I evoked at the beginning of this chapter, he forecloses the future as a utopian space. The future is already here.

Indeed, *Ignis* ends with the bathetic explanation that 'it was all a dream' prompted by the narrator's trousers catching fire while he slept. However, the narrator affirms that 'this dream has etched itself so deeply in my mind that I confuse it with the truth'.[98] In this economy, 'science … outstrips its prophets, and often the poet … awakens to the sound of a dream that has already come true. Unless the earth's central fire is itself a poet's … dream.'[99] Like the characters thrust into orbit and out of earthly time, the time of technics – as technological innovation and the weaving of words and ideas – refuses to adhere to simplistic understandings of time as a sequence neatly divided into past, present, and future, or of divisions between different modes of thinking and (en)acting. It operates according to its own schedule, and we are swept along: when we think we are guiding it, we are simply caught up in its process.

Perhaps it is here that we can detect materials for construction, amid the causticity of de Chousy's fiction. In its multiple temporalities, *Ignis* is a uchronia. Our contemporary usage of the term encompasses a variety of chronological displacements, but its roots lie in the work of the metaphysician Charles Renouvier. His *Uchronie* (1876) is a counterfactual novel, purportedly penned by a sixteenth-century renegade monk. In the preface, Renouvier argues that eighteenth-century determinism, nostalgic nineteenth-century religious revival, and the compromises of eclecticism have not challenged the primacy of the necessity of historical unfolding inherited from Christianity and reattributed to scientific laws. The necessity that historians claim for events creates a teleological narrative, whether religious or secular.[100] Renouvier's uchronic history seeks to reveal 'history, not as it was, but as it could have been'.[101] *Uchronie* imagines a world in which Christianity did not spread, and in which human beings must nevertheless recognise and live out 'the responsibility conferred on them by their belief in the efficacy of their free will'.[102] Though Renouvier imagines a world without Augustine, the logic of grace – which is bound up with free will and the power to act – is at work all the same. We can only build a future if we see it as under construction in the here and now of the 'possibilities still in suspension in the world' (see Figure 4.3).[103] The present is a cusping moment in which 'what is' and 'what might be' are at stake. For good or ill, fiction (from *fingere*, to shape or form) is the sharp edge of choice.

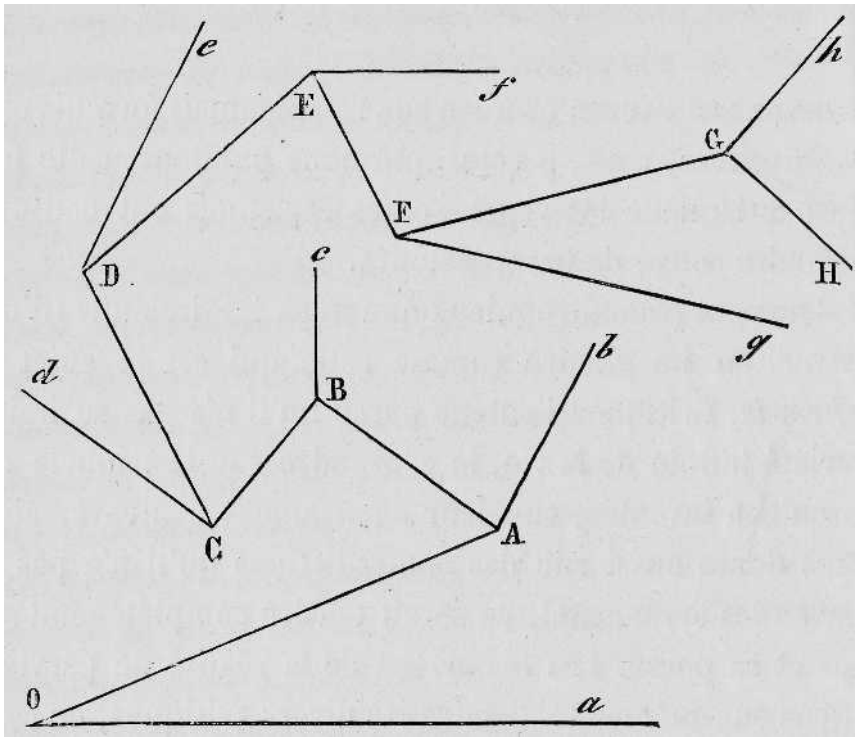

Figure 4.3 Renouvier's diagram of historical inflection points and alternative trajectories.
Charles Renouvier. Untitled diagram. In Charles Renouvier, *Uchronie (L'Utopie dans l'histoire): esquisse historique apocryphe de développement de la civilisation européenne tel qu'il n'a pas été, tel qu'il aurait pu être* (Paris: Bureau de la critique philosophique, 1876), 408. Paris, Bibliothèque nationale de France.

Thinking about the world and describing it are modes of technicity, as much as mining the earth or harnessing natural sources of power. By pushing ideas, beliefs, and aspirations to satirical extremes and exposing their ideological motivations, de Chousy highlights their irreconcilability and disintegrating consequences in patterns of attrition. Synthesis seems impossible in this vision, which resists straightforward parsing. And yet, in *Ignis*, 'something like a memory is at stake'. In its ontology of intensity, *Ignis* challenges us – with some scepticism, perhaps – to continue its imaginative work, in the hope of finding a different way of doing things.

In order to think about the non-linear temporality which *Ignis* introduces, and its extension into the sociopolitical sphere, I invite us to turn back to Jarry, and forward to Bergson.

NOTES

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9 See Elizabeth Hope Chang, 'Hollow Earth Fiction and Environmental Form in the Late Nineteenth Century', *Nineteenth-Century Contexts* 38.5 (2016), 387–97.
10 The Vernes owned a copy of *Ignis*. See Volker Dehs, 'La Bibliothèque de Jules et Michel Verne', *Verniana* 3 (2011), 51–118.
11 'Partie officielle', *Journal officiel de la République française*, 24 July 1874, 1–2.
12 'Obsèques du général de Martimprey', *Le Petit Caporal*, 1 March 1883, 2–3.
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17 Ischi, 'Énigme', 360.
18 See Émile Gautier, 'Ni Chimère ni sorcellerie', *Le Petit Journal*, 8 June 1898, 1; 'L'Atmophyte', *Le Petit Marseillais*, 25 May 1893, 1; 'Fiat lux!', *Le Figaro*, 13 February 1922, 4; 'Le Feu central', *Le Journal*, 20 January 1902, 3; 'Le Chauffage municipal', *Le Figaro*, 17 March 1899, 3; 'Un Trou à la terre', *Le Figaro*, 28 March 1895, 1.

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22 Villiers de l'Isle-Adam, 'Letter to J.-K. Huysmans', 3 February 1887, in *Correspondance générale*, 2:161–2. Ischi quotes both letters, but does not analyse their contents.
23 This differs from Ian James's approach in *The Technique of Thought: Nancy, Laruelle, Malabou, and Stiegler after Naturalism* (Minneapolis: University of Minnesota Press, 2019). We both recognise the efficacy of thought in apprehending reality, but where James focuses on the techniques by which 'philosophy legislates for its own methods, procedures and protocols' (1), my approach focuses on thought as always already an action on the world. James's thinkers are perhaps heirs to my corpus.
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27 Ibid., 8.
28 Ibid.
29 Georges Cuvier, *Discours sur les révolutions de la surface du globe*, 6th ed. (Paris: d'Ocagne, 1830), 174.
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33 William Thomson, Lord Kelvin, 'On the Secular Cooling of the Earth', *Transactions of the Royal Society of Edinburgh* 223 (1862), 167–9.
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39 Ibid., 471–2.
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46 Ibid.
47 Ibid., 18.
48 Ibid., 50–1. Compare Matthew 21.1–11.
49 Max O'Rell, *Les Filles de John Bull* (Paris: Calmann Lévy, 1884), 25.
50 Edmond Plauchut, 'Le Futur canal interocéanique de l'Amérique centrale', *Revue des deux mondes* 3.34 (1879), 697 describes an identical fundraising banquet identical to that in *Ignis*, 14–15.
51 Olympe Audouard, *Silhouettes parisiennes* (Paris: Marpon et Flammarion, 1883), 54.
52 Stanislas Meunier, 'Académie des sciences: séance hebdomadaire du 21 juillet 1873', *La Nature* 1.3 (1873), 142–3.
53 Jules Verne, *L'Invasion de la mer* (Paris: Hetzel, 1905), 47.
54 Gustave Le Bon, *Psychologie des foules* (Paris: Alcan, 1895), 110–11.
55 Chousy, *Ignis*, 21, 76.
56 Ibid., 63.
57 Ibid., 63–4.
58 For Irish republicanism's Romantic appeal for the French, see *Paris – Capital of Irish Culture: France, Ireland and the Republic, 1798–1916*, ed. Pierre Joannon and Kevin Whelan (Dublin: Four Courts Press, 2017).
59 Chousy, *Ignis*, 71–2.
60 See Pascal Blanchard and Teresa Bridgeman, *Human Zoos: Science and Spectacle in the Age of Colonial Empires* (Liverpool: Liverpool University Press, 2008).
61 Chousy, *Ignis*, 78.
62 Ibid., 85.
63 Section 2, Article 2103 in *Code civil des Français* (Paris: Imprimerie de la République, 1804), 509.
64 Alice L. Conklin, *A Mission to Civilize: The Republican Idea of Empire in France and West Africa, 1895–1930* (Stanford, CA: Stanford University Press, 1997), locs. 1266, 1272 of 5037. Kindle ebook.
65 Carole Reynaud-Paligot, *La République raciale (1860–1930)* (Paris: Presses universitaires de France, 2006), loc. 5453 of 7954. Kindle ebook.
66 See Michael Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance* (Ithaca, NY: Cornell University Press, 1989).

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98 Chousy, *Ignis*, 394–5.
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102 Ibid., xiv.
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5. *Technics and the Virtual: Alfred Jarry and Henri Bergson*

In his 1903 article 'De quelques romans scientifiques' ('On a Few Scientific Novels'), Jarry places *Ignis* and *L'Ève future* alongside works by de Bergerac, Lord Kelvin, and H. G. Wells. Jarry's article presents the scientific novel as a 'hypothetical novel', straddling past, present and future.[1] By imagining 'what would happen *if* this or that element was present … at the moment they were written, these were future novels', a paradoxical 'repertoire of the unrealized actual'.[2] The material of these texts is 'unrealized' because it has not yet been made concrete or tangible in the world through which we move. However, it is 'actual': it exists here and now, in its fictional form. The imaginary and the virtual are not the opposite of reality; they simply exist in a different way to the things we can see and touch around us.

In the *Gestes et opinions du docteur Faustroll, pataphysicien* (*Acts and Opinions of Doctor Faustroll, Pataphysician*) (1911), Jarry offers one definition of his science of pataphysics: the 'science of imaginary solutions, which symbolically accords to lineaments the properties of the objects described by their virtuality'.[3] It makes good on the ontology of intensity suggested in *Ignis*. In it, the reality which he accords to the 'lineaments' is symbolic in the sense of the *symbolon*, bringing together two halves in order to affirm their identity. With pataphysics, Jarry proclaims a turn away from the inductive reasoning of 'contemporary science' – a science of consensus and supposed objectivity.[4] Rather, pataphysics describes 'a universe … which we should perhaps see in place of the traditional one, since the laws which we thought we had discovered about the traditional universe were also correlations of exceptions'.[5] Recalling Jarry's artistic credo in 'Linteau' (Chapter 2), rather than a system of laws governing reality, pataphysics proposes a constantly morphing nexus of encounters, correlations, juxtapositions – a nexus in which we are always caught and active.

Jarry allows us to think through the questions of temporality which *Ignis* poses, and to discern how they are enfolded into technics. Penkenton's final toast in *Ignis* is to the inventor of the wheel, 'of everything which curves around a centre, of everything which moves equidistant from an axle!'[6] The wheel is the form Jarry chooses to conceptualise time across his work. In this chapter, I trace how this geometric form moves from real technical object and component to mythical symbol, to hypothetical future object, in ways which reflect the pataphysical ethos expressed in my epigraph. I then place Jarry in dialogue with Bergson.

Bergson shares with the author of *Ignis* a scepticism towards the Spencerian account of human evolution.[7] His own vision of life's development through the 'élan vital' (vital impulse) is couched in terms which resonate with Jarry's pataphysics:

> Things have happened just as though an immense current of consciousness, interpenetrated with potentialities of every kind, had traversed matter to draw it towards organization and make it, notwithstanding that it is necessity itself, an instrument of freedom.[8]

With Cros, I evoked a deferred *fiat*, the slow advent of material objects. In *Ignis*, matter was something that was seized and guided by human hands. With Jarry, we see virtuality come into its own as a force, and Bergson's phrasing here gives it its full power as an organising principle whose sense of direction nevertheless leaves room for contingency and the workings of chance.

The concept of the virtual has generated a vast corpus of Bergson scholarship, in the wake of Deleuze's virtual-centric reading of Bergson.[9] John Mullarkey summarises the accepted view: 'the actual is … the merely possible, … the spatial, the phenomenological, and the psychological, while the virtual alone has privileged access to reality, that is, to ontology'.[10] These uses and oppositions are Deleuze's terms, not Bergson's. When Bergson refers to 'a possible or virtual action', he is in fact drawing a fluid relationship between the 'merely possible' and the 'virtual'.[11] This fluidity is where my focus lies in this chapter. I will trace the intertwining of the virtual and the technical in Bergson's writing, placing particular emphasis on their culmination in his social theory of mysticism.

Yosuké Goda has carried out archival research on the notes that Jarry took as a student during Bergson's lectures at the *lycée* Henri-IV. He concludes that, while Jarry reprised terms and ideas from Bergson, 'the choice of these materials seems random; Jarry uses them according to his own lights without worrying too much about Bergson's

own perspective'.[12] However, Goda does remark that at the core of their work is a shared concern for 'the power of the individual and for mysticism'.[13] It is this dimension which I explore here by drawing Jarry's pataphysics and its technics-focused elaboration into dialogue with Bergson's descriptions of the virtual. Bergson's citation for the 1927–8 Nobel Prize for literature described *L'Évolution créatrice* (*Creative Evolution*) (1907) as 'a poem of striking grandeur, a cosmogony of great scope and unflagging power … a sort of drama'.[14] His is a search for a way of writing which will measure up to the ontology it describes, a logos of his logos. Rather than looking for traces of Bergson's influence on Jarry (an approach which tacitly implies that philosophy finds expression in literature, but not the other way round), I read the two writers alongside one another *as* writers. This chapter demonstrates how drawing a distinction between technics in the 'real world', technics as subject matter in a novel like *Ignis*, and technics as metaphor or thought experiment in a philosophical context, occludes the identity of all three.

JARRY AND THE WHEELS OF TIME

In Chapter 2, we saw how Jarry explored bicycle tyres as *figurae* of the crown of thorns, making them a component in his unruly technical Christology. The figure of the wheel permeates his writing as a real object, a geometric abstraction, a symbol, a myth, and the foundation of hypothetical designs. By tracing the figure of the wheel more broadly, in Jarry's attachment to the myth of Ixion and his plans for a time machine, we can see how these facets suffuse one another. Jarry's conceptual and practical retooling of the wheel forms the cornerstone of a broader vision of technics, time, ontology, and the work of the imagination.

Ixion is a recurrent figure in Jarry's work, and provides the key to unlocking the role of the wheel. In the classical myth, condemned to be strapped to the inner rim of a wheel, 'Ixion turns and both pursues and flees himself'.[15] Reviewing his friend Fagus's narrative poem *Ixion* (1903), Jarry develops his own alternative reading of this myth. Fagus's own preface navigates the divine experience of time, in which the poet expresses a response to 'a universal spectacle for every age' but also the temporally specific 'civilised hell' of the turn of the century.[16] Fagus promises that this is the first in a series of works, culminating in an *Évangile de la Bonne Volonté* (*Gospel of Good Will*), which will announce the individual will rather than the *bonne nouvelle* (good news) of the Christian Gospels.[17] Ixion becomes a new retrospective and secular *figura* for Christ.

This is not the first time that Ixion appears in nineteenth-century thought. For Schopenhauer, 'the subject of willing remains on the revolving wheel of Ixion'.[18] The world is will: 'that which exists independently of our perception, that which actually is'.[19] Will is 'in all the forces of inorganic nature and all the configurations of organic nature, it is *one and the same will* revealing itself, i.e. entering into the form of representation, into *objecthood*'.[20] Human beings, like everything else in the universe, are subject to and driven by the will. From 'the longing with which iron flies to the magnet, the vehemence of two poles in an electric current striving to reunite', to our own individual lives, everything in Schopenhauer's universe is an expression of will, entering into representation.[21] Representations are the limited form of access which we have to the real substrate of the world. Time and space are chief among them, 'the scaffolding of the appearance world'.[22] They are our anchors in a world of desire forever pursued, forever unsatisfied, and which we can only attempt to surmount through ascetic practice (not unlike the procedure of Richepin's metaphysical machine).

However, Jarry subverts both the myth and its Schopenhauerian incarnation. His Ixion is not tortured; he is 'in the state of mind of a bullet savouring its trajectory. He relishes his speed without claiming credit for it.'[23] The 'credit' which Ixion does not claim for himself is the motive force, the grace by which he is able to operate. He is always already in progress. Here, we have the dream of perpetual motion glimpsed in *Le Surmâle*, but without causality or the thermodynamic entropy of friction. Ixion is 'eternal, he can no longer recall when he set off or even that he set off in the first place'.[24] We might be tempted to think of Nietzsche's 'wheel of the cosmic process' and his notion that, if we stand in our present moment, with eternity before and behind us, then our conclusion must be that 'all things that *can* happen *have* already happened, been done, run past'.[25] But for Jarry, Ixion's wheel brings perpetual novelty and, *pace* Schopenhauer, pleasure: 'with each rotation, he relives the experience that he has already gained, and then drives a point through its centre into a new world bordered by a closed curve; but afterwards, there are yet more worlds!'[26] It is our past – our 'experience … gained' – which allows us to push through into novelty. While the world may be circumscribed by laws of nature, Ixion is always making it new, because *he* is not the same.

The loosening of the bolts of Schopenhauer's 'scaffolding' of time and space reaches its pinnacle in Jarry's 'Commentaires pour servir à la construction pratique d'une machine à explorer le temps' ('Commentary to Assist in the Practical Construction of a Time Machine') (1889). The machine which Jarry describes is effectively a bicycle, with an acceleration

lever to go forwards in time, a deceleration lever to go backwards in time, and an emergency brake. The inspiration from H. G. Wells is clear. However, where Wells's time traveller goes forward in time, Jarry's focus is on the past.[27] As Jarry puts it, 'the machine is transparent to the successive spaces of Time. It does not last, and preserves its contents without duration, sheltering them from phenomena.'[28] It is reasonable to assume that Jarry understands 'duration' (*durée*) as Bergsonian duration, the 'mutual penetration … of elements of consciousness' in which we live time as opposed to the artificially separated instants in which we usually think and talk about it.[29] Jarry's time machine insulates the traveller from duration, so that the central point remains fixed, observing the circumference as it unfurls. It makes time travellers media, able to pass through and to be passed through by solid objects.

When Jarry's machine travels backwards in time, it therefore creates two experiences of the past. On the one hand, the machine experiences the past as we normally think of it – stretching behind us and containing experiences that have been lived through, that are complete. On the other, in the very act of travelling back and forth, something new comes into being: 'the past *constructed by the Machine* when it returns to our Present, and which is only the reversibility of the Future'.[30] In this second view of time, the past is not stable, but changed by our 'visits' to it: the literal visits of Jarry's time machine, but also the conceptual visits we make when we draw on our personal or cultural memories. Time is thus not a '*succession*' but 'THE BECOMING OF A MEMORY'.[31] Those visits shape the tenor of our present and how we understand it – and that present moment becomes the past shaping the future.

It is no coincidence that Jarry models his machine on the bicycle – his personal crucifix and pleasure machine. The time that is at play in the typological reading that I evoked in the previous chapter is expressed in Aquinas's well-known analogy, which compares God to the centre of the circle. Aquinas explains that human time unfolds in linear sequence on the circumference of the circle, but God experiences reality all at once.[32] Boethius developed Aquinas's centre and circumference into a system of gears, which allowed for contingency within Aquinas's providentialist model:

> Think of a number of spheres revolving about a central point: the innermost sphere is a kind of pivot for the rest … Those things that are farther out and further separated from the divine mind are more subject to the complications of fate.[33]

In Jarry's time machine, the central point is held outside time, occupying the position traditionally attributed to God. In his version of Ixion's

wheel, that same central point pushes forward to create novelty from repetition. In Jarry's pataphysics, the virtual asks to become real, the past becomes an unstable country.

We saw in my previous chapter that entropy gives the universe a direction, a movement towards ever-increasing disorder, in which some reactions are irreversible. Uchronic fiction became a way to hypothetically reverse engineer the future. With his 'reversibility of the Future', Jarry introduces a thermodynamic vocabulary which subverts that entropic teleology, opening time and being up to reconfiguration. This argument is at work both within the machines that Jarry writes, and in the reclamation of analogies and classical myths which he renovates in order to write them. The 'future novels' which he celebrates are future novels precisely *because* they come from the past.

Jarry and Bergson explore the same questions. For Bergson, reality is perpetual creation and recreation, and it is only our conceptual limitations that corral this 'perpetual becoming' into deterministic models.[34] Bergson places freedom at the heart of our mode of existence. According to Bergson, we may be matter, governed by automatic reflexes, but our free will – which Augustine considered the fruit of grace – nevertheless allows us to treat matter as an 'instrument'.[35] It means that we can make and create:

> This effort was impossible without matter. By the resistance matter offers and by the docility with which we endow it, it is at one and the same time obstacle, instrument and stimulus. It experiences our force, keeps the imprint of it, calls for its intensification.[36]

Matter is therefore the ground against which we (and other beings) gain definition; our edges are buffed by the contours of the world. Effort and resistance, the very elements missing in de Chousy's post-central fire world, are the means by which potential is unlocked. In Villiers's Hadaly, form sought matter; here, matter solicits form. We could say that Bergson's view of matter echoes Ixion's view of his wheel in Jarry's version of the myth. Our interactions with matter shape our field of action and open up new possibilities, and Bergson celebrates the act of choosing and acting on that matter as 'the joy of a god', setting the seal on a sacramental relationship with the world through the act of creation.[37]

In the two sections which follow, I show how that mode of engagement with the world, which is a technical one, is also the way that Bergson engages with ideas and with his readers. He is a mechanic of thought, tinkering with our conceptual frameworks. In my final section, he is also a technician of the soul and of society, renovating mysticism as a source of values in the absence of stable epistemological frameworks.

BERGSON'S RENOVATION OF TECHNICS

Bergson is interested in the gap between the ways in which we are accustomed to thinking about our mode of being in the world, and what is actually going on. When we think about perception and memory, we do so through metaphors or analogies, overlaying the objects and phenomena which surround us onto those everyday experiences that are occluded from us by their very intimacy. In her reading of Bergson's use of photography and cinematography, Suzanne Guerlac focuses on Bergson's preference for the former to the latter as a way of thinking about time and memory. She proposes that we 'follow the shadows cast by persistent images in philosophical works not to undo claims for truth but to build up an understanding of the intuitive ground of their thought'.[38] This intuitive quality is clear in Bergson, but he offers us an additional layer of conceptual technicity. Bergson is not just an intuitive *bricoleur*; he is an active and self-aware tinkerer.

In *Matière et mémoire* (*Matter and Memory*) (1896), Bergson suggests that we usually compare perception to the act of taking a photograph. We think of our eyes as a camera, with the brain a kind of darkroom for the development and processing of visual perceptions. Bergson bends that analogy, inviting us to question this convenient conceptual framework:

> … is it not obvious that the photograph, if photograph there be, is already taken, already developed in the very heart of things and at all the points of space? … Build up the universe with atoms: each of them is subject to the action, variable in quantity and quality according to the distance, exerted on it by all material atoms.[39]

The 'perception-as-camera' metaphor brings with it assumptions of objectivity which get in the way of our seeing that 'universal interlacing' which Boutroux evoked in 1872,[40] or Jarry's 'correlations of exceptions', in which we and other entities are all participants in one another. Bergson points this out, but he does not dispense with our wonky metaphor entirely; he repairs, reconfigures, and renovates it. With the caveat 'if photograph there be', Bergson signals that he is letting us keep our mental picture, but he describes how we need to add something to that conceptual photograph:

> when we consider any other given place in the universe we can regard the action of all matter as passing through it without resistance and without loss, and the photograph of the whole as translucent: here, there is wanting behind the plate the black screen on which the image could be shown.[41]

Bergson describes this black screen as our 'zones of indetermination'.[42] These zones 'add nothing to what is there; they effect merely this: that

the real action passes through, the virtual action remains'.[43] Throwing reality into relief, they lie in between and join up the virtual (or potential) action which emerges in the external objects being perceived, and the real action, which emerges in the body.[44] The virtual actions renounced in favour of the real action do not disappear. The zone holds them together, conserving the virtual even as it serves as a temporary passageway for the real, or actual. As Bergson puts it: '*there is in matter something more than, but not something different from, that which is actually given*'.[45] This 'something more' is the virtual, the backdrop of possibilities which could have been – and might yet be – which continue to exist and persist in time, even as life unfurls at its own pace.

We can now think about the virtual in the context of temporality. Bergson returns to camera-centric metaphors and the virtual in *L'Évolution créatrice*. If we usually think of perception as taking a snapshot, then we think of memory as 'cinematographical'.[46] We imagine the past as a series of distinct punctual moments, which we can retrospectively insert into a logical chain of cause and effect and 'string them on a becoming, abstract, uniform and invisible, situated at the back of the apparatus of knowledge', like analogue film on a projectionist's machine.[47] This is akin to how Jarry presents the first version of the past in his account of his time machine. But this way of thinking about things is incorrect, Bergson tells us. The past and our memories are never really gone. This is the second motion of Jarry's time machine in action. A memory is always virtual, and 'can only become actual by means of the perception which attracts it. Powerless, it borrows life and strength from the present sensation in which it is materialized.'[48] Memories of the past are lived again in the present and shape the future, 'a preformation whereby the part virtually contains the whole, as when each note of a tune learnt by heart seems to lean over the next to watch its execution'.[49] The time of the virtual is the breath between the notes, the time of 'invention',[50] but also 'hesitation', when we could change the script.[51] It is the time of technics, when virtual and actual come together and apart.

BERGSON'S MYSTIC MECHANICS

Ignis ended with an instance of time dilation, when the explosion of the central fire both had and had not taken place, depending on where an observer was standing. While I do not intend to expand on Bergson's engagement with Einstein's theory of relativity in *Durée et simultanéité* (*Duration and Simultaneity*) (1922), it is important to note his concerns over objective measurement. For Bergson, such a thing is simply not

possible: measurement is about the quantitative, and life is lived in the qualitative.[52] He comes up against the problem posed by Cros in 'La Science de l'amour', and by de Chousy in *Ignis*. In a world where even the space and time taken for granted by Schopenhauer are in question, how can we find common ground?

The First World War and the looming threat of the Second in the 1930s are the catalysts for Bergson's reflections in *Les Deux Sources de la moralité et de la religion* (*The Two Sources of Morality and Religion*) (1932). In 1922, he took his place as a leading figure in the International Committee for Intellectual Cooperation of the League of Nations.[53] The wound of mechanised warfare, the disposability of fragile human bodies, the rise of fascism, the sense of being swept towards disaster, with no clear horizon and yet a deep need to *do* something or at the very least to try – all sit in the background of Bergson's text.

The opening decades of the twentieth century saw the expansion of Taylorism, Fordism, and other efficiency movements aimed at minimising any friction or resistance in the chain of production: the anti-entropic logic of Jarry's *Surmâle* and *Ignis* appeared to be coming to fruition. Fritz Lang had sounded the alarm over this social direction in *Metropolis* (1927). Contemporaneously with Bergson, Georges Duhamel was recounting tall tales of the Chicago meatpacking industry, alarmingly visualised in Tintin's visit to a corned beef plant in *Tintin in America* (1932). Simone Weil was infiltrating factories in the guise of a machinist in order to experience the spiritual effects of this form of labour for herself,[54] while on screen, René Clair's renegade labourers were escaping the production line at the phonograph factory in order to sing their own songs.[55]

In this fraught and polarised political context, Bergson published his call for social reconciliation. This text opens in Eden: 'The remembrance of forbidden fruit is the earliest thing in the memory of each of us.'[56] This ancient, virtual, memory is actualised anew in society, every day. It is the stimulus for Bergson not only to analyse why human beings form societies, how those societies decide on moral rules, and why human beings abide by these rules, but to put forward a model for how we could do those things better: Catholic mysticism.

Bergson's affinity with Catholicism and almost-conversion from Judaism are well known. For Jacques and Raïssa Maritain, his philosophy was a halfway house on the road to their eventual conversion by Bloy,[57] and the mystic dimension of his philosophy interacted with the French modernist Catholic current.[58] However, my focus here is on how Bergson frames Catholic mysticism within the context of the concepts of evolution, *élan vital*, and virtuality. As Alexandre Lefebvre

and Melanie White have noted, *Les Deux sources* has received very little critical attention from Anglo-American scholars, with Bergson's mysticism notably absent from the work of established scholars of Bergsonian virtuality, such as Keith Ansell-Pearson and Guerlac.[59] It is almost as if there were a faint cloud of critical embarrassment surrounding Bergson's earnest foray into the realm of the spiritual and theological – as if these were incompatible with 'serious' philosophy.

Yet there is no ambiguity in Bergson's words when he writes of Catholic mysticism that 'its direction is exactly that of the vital impetus; it *is* this impetus itself'.[60] Bergson's vocabulary for mysticism is extraordinarily potent: it is 'a vast current of life', an 'increased vitality', 'an extraordinary energy, daring, power of conception and realization'.[61] Bergson takes a heterodox position: he is not interested in the faith of the mystics, or the deity to whom they are united, but rather in their experience and what this moment of grace can spur them to do. As he puts it, the mystic soul must

> feel itself pervaded, though retaining its own personality, by a being immeasurably mightier than itself, just as an iron is pervaded by the fire which makes it glow. Its attachment to life would henceforth be its inseparability from this principle, joy in joy, love of that which is all love.[62]

This extract differs in two respects from the accounts of mysticism that we saw in Chapters 1 and 2. Here, the mystic union is the result of the 'effort' of the individual, occurring without the effacement of personality, in a marked departure from the annihilation of self which characterises mystic writing, and which we saw in Richepin's text in Chapter 1. God is 'a being immeasurably mightier' but not named. Nevertheless, what emerges very clearly from Bergson's words is that mysticism is a technics of the soul – a *synthèse* which sutures us back into the fabric of life in all its density, but also makes us its instruments, tempered in its heat for strength and ready to solder others in that same crucible of love.

Earlier, we saw Bergson describe 'a preformation whereby the part virtually contains the whole' in the context of a remembered melody. Similarly, in the mystic experience, 'a certain line of action was foreshadowed [*préformée*]': the need to share the experience with others.[63] As Bergson describes it,

> They had to tell all men that what the world perceived by the eyes of the body is doubtless real, but that there is something else, and that this something is no mere possibility or probability, like the conclusion of an argument, but the certainty of a thing experienced: here is one who has seen, who has touched, one who knows.[64]

We have seen this same desire to communicate in John of the Cross and Richepin (see Chapter 2). For Bergson, this is what makes mysticism the key to a healthy, open society. It does not produce rules in the way that a religious or secular legislative body might do in a closed society. In the closed society, static religion has as its effect the creation of what Bergson terms 'fictions'.[65] These stories that we tell ourselves are 'a *virtual instinct*', capable of imitating perception, 'and in that way prevent or modify action'.[66] What Bergson terms 'fabulation' is therefore a means of survival – a technics for living which allows us to operate as communities bound by agreed rules.[67] But while the fiction of 'fraternity' inspires 'respect', the fruits of the mystic experience are more compelling; they are 'passionately' embraced.[68]

To borrow from Newman, we could say that it is through the 'catching force, the sympathetic influence of what I do' that the mystic shares the love that they have received.[69] I quote in full Bergson's comment on what exactly that love achieves, because it is so radical: 'What it wants to do, with God's help, is to complete the creation of the human species and … change into creative effort that created thing which is a species, and turn into movement what was, by definition, a stop.'[70] Evolution is a passion project, creation an act of love, a perfecting without limit: 'Creation signifies, above all, emotion.'[71] This force of love is the motor of the virtual, driving it as matter and memory take form in the present and future.

Though it might not take the form of fiction, this force does have a material pendant: 'mechanism should mean mysticism'.[72] Bergson argues that our critiques of the machine age as dehumanising the workforce and moving us away from the individuality of craftsmanship are aimed at the wrong target. Transposing the events of *Ignis*, Bergson argues that – rather than yearning for the past – workers must use their leisure time to *evolve*, to develop new forms of intelligence, to choose and to make something new with the new tools that they have.[73] In the 'body, distended out of all proportion' which technological innovation has given us by extending and creating new powers to intervene in the world, 'the soul remains what it was'.[74] In Bergson's spiritual logic, there exists a disparity between humanity's extended body and its soul, recalling the premise for Hadaly's creation in *L'Ève future*. Bergson's 'gap' makes itself felt in 'the tremendous social, political and international problems'.[75] Like Hello, Bergson sees a uniting of matter and spirit as a means to seal that gap. Such is the role of the mystic:

> he will draw after him a humanity already vastly grown in body, and whose soul he has transfigured. He will yearn to … deliver it from the necessity of being a species; for every species means a collective halt, and complete existence is mobility in individuality.[76]

Bergson's vision of social renovation sees the human as it currently exists, not as a fixed category, but as a temporary stopping point on a journey of ever-increasing development and perfection. If the *élan vital* is the love uncovered in mysticism, then here it is also the motor for evolution, offering not the comforting stasis – or stagnation – of ontological complacency or the dark battle for survival of *Ignis*, but an ever-unfurling technics of love.

Both Jarry and Bergson turn to the old and the broken, cannibalising scientific theories, myths, mundanities, and misconceptions in order to see the world through exceptions rather than rules. In my epigraph, Jarry gave imaginary or potential objects the power to affect us in the same way as externally objects. With Ixion's wheel, he found the potential for novelty even within repetition and perpetual motion. In his time machine, he pedalled his way through what Bergson would term the virtual. Jarry's machines defeat entropy – the very process against which Bergsonian life is a crusade – to offer a world that is elastic and viscous, in contrast to the flat space of abstraction.

Bergson's accounts of perception and memory invoke and retool intellectual analogies of photography and cinematography, and come to function like Jarry's hypothetical time machine. In Bergson's hands, the non-linear temporalities of *Ignis* and of Jarry's writing are not hypothetical experiments but accounts of how the world is, and how it could be. In his mystic turn, Bergson inflects the line of his *élan vital*, to make of it not only a biological but a social, political, and moral principle. Richepin's mystical technics is absorbed and reworked into a toolkit for a more loving society, in which human beings become the instruments of their own redemption.

When we allow Jarry and Bergson to resonate together, we see the reductiveness of the disciplinarity that we introduce into our readings of them. We become attentive not to typical histories or genre categories, but to the configurations and reconfigurations of ideas in writing. If *Ignis* showed us that the act of thinking is a technics which acts upon the world, in Jarry and Bergson we find a vision of optimism and celebration, which has faith in our ability to put our shoulders to the wheel in gestures of perpetual motion, rather than entropy.

NOTES

1 Alfred Jarry, *Œuvres complètes*, ed. Henri Bordillon, Patrick Besnier, and Bernard Le Doze (Paris: Gallimard, 1987), 2:519. Henceforth *OC*2.
2 Ibid., 519–20.
3 Alfred Jarry, *Œuvres complètes*, ed. Michel Arrivé (Paris: Gallimard, 1972), 1:669. Henceforth *OC*1.

4 Jarry, *OC1*, 669.
5 Ibid., 668.
6 Didier de Chousy, *Ignis*, 3rd ed. (Paris: Berger-Levrault, 1883), 217.
7 Henri Bergson, *Creative Evolution*, trans. Arthur Mitchell (New York: Henry Holt, 1911), xiii–xiv.
8 Henri Bergson, 'Life and Consciousness', in *Mind-Energy: Lectures & Essays*, trans. H. Wildon Carr (London: Macmillan, 1920), 19–20.
9 See Gilles Deleuze, *Bergsonism*, trans. Hugh Tomlinson and Barbara Habberjam (New York: Zone Books, 1991); Valentine Moulard-Leonard, *Bergson–Deleuze Encounters: Transcendental Experience and the Thought of the Virtual* (Albany: State University of New York Press, 2008); Craig Lundy, *Deleuze's Bergsonism* (Edinburgh: Edinburgh University Press, 2018).
10 John Mullarkey, 'Forget the Virtual: Bergson, Actualism, and the Refraction of Reality', *Continental Philosophy Review* 37 (2004), 471.
11 Henri Bergson, *Matter and Memory*, trans. Nancy Margaret Paul and W. Scott Palmer (London: Allen & Unwin, 1929), 58.
12 Yosuké Goda, 'Le Cours de Bergson et la quête de l'absolu chez Alfred Jarry', *Étoile-Absinthe* 123–4 (2010), 34–5.
13 Ibid., 35.
14 Quoted in Mark Sinclair, *Bergson* (New York: Routledge, 2019), 26–7.
15 Ovid, *Metamorphoses* 4.461, accessed 29 September 2020. http://data.perseus.org/citations/urn:cts:latinLit:phi0959.phi006.perseus-lat1:4.416-4.80. Translation from Latin my own.
16 Fagus, *Ixion* (Paris: Éditions de la Plume, 1903), 11.
17 Ibid. These works were never completed.
18 Arthur Schopenhauer, *The World as Will and Representation Volume 1*, ed. Judith Norman, Alistair Welchman, and Christopher Janaway, trans. Norman and Welchman (Cambridge: Cambridge University Press, 2010), 220.
19 Arthur Schopenhauer, 'On the Antithesis of Thing in Itself and Appearance', in *Essays and Aphorisms*, trans. R. J. Hollingdale (Harmondsworth: Penguin, 1970), 55.
20 Schopenhauer, *Will*, 168.
21 Ibid., 143.
22 Ibid., 168.
23 Jarry, *OC2*, 406.
24 Ibid.
25 Friedrich Nietzsche, *Thus Spoke Zarathustra*, trans. R. J. Hollingdale (London: Penguin, 2003), 178.
26 Jarry, *OC2*, 407.
27 H. G. Wells, *The Time Machine* (London: Penguin, 2005), 20.
28 Jarry, *OC1*, 741.
29 Henri Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. F. L. Pogson (New York: Macmillan, 1910), 101.

30 Jarry, *OC*1, 742.
31 Ibid., 743.
32 Thomas Aquinas, *Summa Contra Gentiles Book One: God*, trans. Anton C. Pegis (Notre Dame, IN: University of Notre Dame Press, 1975), 219.
33 Boethius, *The Consolation of Philosophy*, trans. David R. Slavitt (Cambridge, MA: Harvard University Press, 2008), 133–34.
34 Bergson, *Creative Evolution*, 272.
35 Bergson, 'Life and Consciousness', 20.
36 Ibid., 23.
37 Ibid., 24.
38 Suzanne Guerlac, 'Seeing What the Philosopher Saw', *Contemporary French and Francophone Studies* 16.2 (2012), 224.
39 Henri Bergson, *Matter and Memory*, 31.
40 Émile Boutroux, *De la contingence des lois de la nature* (Paris: Germer Baillière, 1874), 32.
41 Bergson, *Matter and Memory*, 32.
42 Ibid.
43 Ibid.
44 Ibid., 32–3.
45 Ibid., 78.
46 Bergson, *Creative Evolution*, 306.
47 Ibid.
48 Bergson, *Matter and Memory*, 163.
49 Ibid., 112.
50 Bergson, *Creative Evolution*, 344.
51 Henri Bergson, 'The Possible and the Real', in *The Creative Mind: An Introduction to Metaphysics*, trans. Mabelle L. Andison (Mineola, NY: Dover, 2007), 75.
52 Henri Bergson, *Durée et simultanéité: à propos de la théorie d'Einstein* (Paris: Alcan, 1922), 239–41. See Jimena Canales, *The Physicist and the Philosopher: Einstein, Bergson, and the Debate That Changed Our Understanding of Time* (Princeton, NJ: Princeton University Press, 2015) on Einstein and Bergson's relationship.
53 See Daniel Laqua, 'Transnational Intellectual Cooperation, the League of Nations, and the Problem of Order', *Journal of Global History* 6 (2011), 223–47.
54 See Simone Weil, *La Condition ouvrière* (Paris: Gallimard, 2002).
55 *À nous la liberté*, dir. René Clair (Filmes sonores Tobis, 1931). In the same vein, see *Modern Times*, dir. Charlie Chaplin (United Artists, 1936).
56 Henri Bergson, *The Two Sources of Morality and Religion*, trans. R. Ashley Audra and Cloudesley Brereton with the assistance of W. Horsfall Carter (London: Macmillan, 1935), 1.
57 Thomas L. Gwozdz, 'Young and Restless: Jacques Maritain and Henri Bergson', *American Catholic Philosophical Quarterly* 84.3 (2010), 549–50.

58 Harvey Hill, 'Henri Bergson and Alfred Loisy: On Mysticism and the Religious Life', in *Modernists & Mystics*, ed. C. J. T. Talar, 104–35.
59 Alexandre Lefebvre and Melanie White, 'Introduction: Bergson, Politics, and Religion', in *Bergson, Politics, and Religion*, ed. Alexandre Lefebvre and Melanie White (Durham, NC: Duke University Press, 2012), 20–1.
60 Bergson, *Two Sources*, 201.
61 Ibid., 194.
62 Ibid., 181.
63 Ibid., 199.
64 Ibid.
65 Ibid., 91.
66 Ibid., 89–91.
67 Ibid., 231.
68 Ibid., 199–200.
69 John Henry Newman, *Heart Speaks to Heart: Selected Spiritual Writings*, ed. Lawrence Cunningham (Hyde Park, NY: New City Press, 2004), 47.
70 Bergson, *Two Sources*, 200–1.
71 Ibid., 33.
72 Ibid., 268.
73 Ibid., 267–8.
74 Ibid., 268.
75 Ibid.
76 Ibid., 269.

6. *The Therapeutic Algorithms of Raymond Roussel*

With his patent for double glazing and his hermetically sealed and lushly fitted mobile home, Roussel might seem a potent contrast to the seductive machines of the *fiat* or the explosive conclusion of *Ignis*.[1] His novels, *Impressions d'Afrique* (1910) and *Locus Solus* (1914), are populated by intricate descriptions of bizarre machines with no practical purpose. 'Raymond Roussel describes; and there is nothing beyond what he describes', declared Alain Robbe-Grillet.[2] And yet, during his psychiatric treatment with Pierre Janet, it was to a mystically inflected passage of Bergson that Roussel turned for comfort:

> Must we not suppose that human life has its goal in the … creation of self by self, the growing of the personality by an effort which draws much from little, something from nothing, and adds unceasingly to whatever wealth the world contains?[3]

It offers us a glimpse into a Roussel who, far from being a hermit, engaged with the 'wealth' of the world and the creative *élan* celebrated by Bergson: a man who, in his own way, wrote his logos of the logos. Indeed, Roussel's nephew, the Surrealist ethnographer Michel Leiris, evoked his uncle's 'admiration for Camille Flammarion … his interest in Albert Einstein's ideas on relativity and … his certainty … that one day we would discover a way to travel back in time'.[4] He read Bergson's *Matière et mémoire* 'very attentively',[5] and his attachment to science fiction, the works of Arthur Conan Doyle,[6] and hero worship of Jules Verne are well attested.[7] Roussel is firmly inscribed within the tradition of the technologos.

Though he was denied the mainstream success he sought in his lifetime, Roussel reappears at moments in critical and theoretical history when the human subject and writing are interrogated. At the hands of structuralists, poststructuralists, and the New York poets,

a literary aberration comes to stand for a form of 'pure' writing, presented as untrammelled by reference to the external world. Faced with the recalcitrant surface of his work, which offers no real historical anchorage or political comment (or other conventional contextual framework for reading), well-known thinkers and theorists have approached Roussel in two modes, which we can term psychologising on the one hand, and formalising on the other. In an exemplary case of the former, Jean Starobinski declares that the fatal accident which befalls a character in *Locus Solus* reflects the author's (justified) anxieties about the critical failure of his own work.[8] In a different mode, the formalising approach can be illustrated by Julia Kristeva, for whom Roussel exposes language's own powers of construction, its self-sufficiency in the absence of the real: 'the machine which allows us to scrutinize and represent language's primary function: the formation of meaning'.[9] Both approaches occlude the specificity of the incidents and objects within Roussel's works, by abstracting them from the texts, treating them as interchangeable, or by making them metaphors for Roussel's writing process as a whole. These poststructuralist readings make language, its functioning, and its uses the boundaries of Roussel's self-contained, self-regulating world. They see no 'outside' to Roussel.

Seeing Roussel as part of the tradition of the technologos suggests a different mode of reading, one which places the act of creation at its heart, in the way that Bergson describes it in the quotation above: pulling something out of next-to-nothing, in a logic of grace that brings lustre to the world. For the purposes of this chapter, I restrict my focus to *Impressions d'Afrique* in its first incarnation as a novel, and its subsequent stage adaptation by Roussel in 1912. Like most critics, I begin by engaging with Roussel's *procédé* (process) for composition. However, rather than restricting its import to linguistic play with the instability of the relationship between sound and referent (however sophisticated), I focus on its algorithmic quality and efficacy. I then move to explore how this eminently technical approach to language operates in *Impressions d'Afrique*, using twenty-first-century software and media theory to sharpen my analysis. Ansell-Pearson has set Bergson's theory of evolution against what we might call the 'evolution-as-algorithm' model of Darwinism, which he argues creates closed systems at odds with Bergson's vital impetus.[10] His view depends on a conception of algorithms as entirely predictable and deterministic. However, I will show here that Roussel's is an open algorithm with creativity and chance at its core: one which draws on the groundswell of the virtual and memory to produce novelty.

It is important to explain what may seem an unexpected – even gratuitous – move. The media and software theorists on whom I draw here (notably Wendy Hui Kyong Chun) feature in Grusin's nonhuman anthology because of their attentiveness to the ways in which software exceeds and circumvents human agency. Nor are their analyses limited to today's algorithms. For Mark Hansen, 'Étienne-Jules Marey's graphic and chronophotographic machines … must be understood to be autonomous sensing agents that *possess their own sensible domains*.'[11] Mine is not, therefore, an attempt to portray Roussel as an anachronistic case of twenty-first-century theory in early twentieth-century practice. Nor am I presenting Roussel as a lone genius or pioneer who might 'anticipate' our contemporary technological landscape in a retrospective teleology. While the flourishing of critical interest in algorithms is historically rooted in the internet age – with all the opportunities that it affords for algorithms to do interesting things – there is actually nothing very new about algorithms. We have already seen with Richepin, Cros, and de Chousy that imagination can outstrip material realisation, and that fiction can create a virtual reservoir in which forms and ideas bubble up to the surface of culture, often with no easily discernible causal connection. I draw on these twenty-first-century ideas because the machines of *Impressions d'Afrique* work like twenty-first-century technologies, in the same way that Richepin's metaphysical machine operates like an ontological blueprint for the phonograph, or Ixion's wheel offers an ontological blueprint for Jarry's time machine. Placing Roussel's descriptions alongside accounts of our contemporary digital landscape allows us to see more clearly how his imaginary machines are functioning – and to see how the logic of the technologos remains at work today.

ROUSSEL'S ALGORITHMS, ROUSSEL'S LOGOS

In *Comment j'ai écrit certains de mes livres* (*How I Wrote Certain of My Books*) (1936), Roussel breaks words down into their most fundamental, sensory, and sensual components as compositional springboards for his novels. We saw Richepin's narrator carry out a similar process with words in pursuit of the absolute (Chapter 2), but unlike Richepin's narrator, Roussel then reassembles these components in a new form, according to an algorithmic process.

Stephen Ramsay has uncovered 'in the strictures of programming, an analogue to the liberating potentialities of art', tracing a legacy from Jarry to the Oulipo.[12] However, Ramsay advocates applying algorithms to text, an analytic process designed to create new objects

of study; he does not consider the literary algorithms at work in these texts as doing the same thing as those involved in, say, deep learning or artificial intelligence. But this is precisely what Roussel's algorithms are doing.

The method unfolded in *Comment j'ai écrit* involves 'invention based on the pairing of two words taken in different senses'.[13] In an example drawn from the composition process for *Impressions d'Afrique*, he exploits the different meanings of two near-homophones ('*billard*' (billiard table) and '*pillard*' (plunderer)) in two sentences, which form the first and last sentence of a story.[14] As I have described it elsewhere, the 'same sounds and words unfurl in a plethora of ways, pushed apart and pulled back together again to produce a textual entity'.[15] The existence of the method has acted as justification for those critics who might be tempted to see the individual configurations of Roussel's machines as essentially random, as they overlook the extremely conscious role of the author in weaving the tale.

Roussel also details the 'evolutionary method', in which he uses the words of nursery rhymes or advertising slogans – although 'evolved' would be closer to the original French term *évolué*.[16] He writes, 'I was led to take a random phrase from which I drew images by distorting it.'[17] One example, that of an advertisement for the 'Phonotypia' device (Figure 6.1), shows a resonance between the word deformed and the imagined device it produced. 'Phonotypia' yielded 'fausse note tibia' (wrong note tibia).[18] In *Impressions d'Afrique*, this phrase yields a flute made from a leg bone, so that the final image conserves an onomastic harmonic resonance with the image that inspired it.

In both its forms, Roussel's method is an algorithm, 'a finite set of rules that gives a sequence of operations for solving a specific type of problem'.[19] It has 'a finite number of steps', 'inputs … from specified sets of objects' and '*outputs* … that have a specified relation to the inputs'.[20] It would be easy to dismiss this *rapprochement* as a critical gimmick, but this would be to overlook developments, contemporaneous with Roussel, of phonetic algorithms for sorting names by sound, such as the Soundex system.[21] At its root, its processes are not dissimilar to those of the algorithms of our contemporary data giants.

I want to establish Roussel's work as interacting with those algorithms which contemporary software theorist Wendy Chun presents as a logos.[22] In this book, the logos has been understood in a Catholic and catholic sense: as a term that is plural, founded on encounter and the surge of being. In Chapters 1 and 2, I highlighted the complexities of its action through the motif of the *fiat* and *fiat mihi* – the active 'let it be done', and the no less effective passivity of the 'let it be done to me'.

Figure 6.1 Fonotypia/Fausse note tibia.
Ferdinand-Léon Ménétrier. *Fonotipia Odéon, double face: en vente ici*.
Colour lithograph, 1904. Paris, Bibliothèque nationale de France.

Chun's logos refers to an understanding of 'code as source, code as true representation of action, indeed, code as conflated with, and substituting for, action. Now, in the beginning, is the word, the instruction.'[23] This is code as *fiat lux*, bringing things into being. What is missing is the humility of the *fiat mihi*. Chun is not the only scholar to return to the logos to think algorithmic code. Ian Bogost argues that our 'algorithmic culture is not a material phenomenon so much as a devotional one', which 'turns computer into gods' and 'treats their outputs as scripture', making us politically apathetic and fatalistic.[24] Palle Dahlstedt has argued that in algorithms, the 'words (the executable code) have to become flesh (physical reality), to paraphrase the words from the Gospel of John'.[25] Again, however, the nature of the logos/Logos is missed: Dahlstedt suggests a transition from one state to another, the making real of something that was not quite real before. This is *not* the consubstantiality of the Incarnation which we saw in Chapter 2.

In our twenty-first-century academy, which has digested Jacques Derrida's critique of logocentrism, the logos is invoked for its connection with divine omnipotence – but amputated from the fullness of its meaning and the theological complexity which underpins it. Instead of encounter and the grace of free will, we find dictatorship. However, it is a misrepresentation in this instance. These critics are creating their own mythology of code in order to attack it. Chun views the code-as-logos as an illusion, which deprives us of our power to act by creating a false impression of originary foundation and authority which prevents us from seeing code as socially situated:

> we 'primitive folk' worship source code as a magical entity – as a source of causality – when in truth the power lies … in social and machinic relations. If code is performative, its effectiveness relies on human and machinic rituals.[26]

The logos which Chun identifies has something in common with Nietzsche's religious mnemotechnics – an economy in which a 'thing must be burnt in so that it stays in the memory' and cultures and religions establish moral authority through ritual, ceremony, and regimes of fear.[27] We might also think of Bergson's static religion and its dependence on the act of storytelling for stability. However, we have also seen that the logos as I have understood it in this book always contained within it human rationality, action, and choice. Bloy wrote of 'the providential hierography, … the *absolute* meaning of temporal signs, such as the Battle of Pharsalus, Theodoric, Cromwell or the Paris Commune, for example, and the *conditional* spelling of their infinite combinations!'[28] Chun's vision empties human beings of agency – and this is the reverse of the technologos.

In Chun's vision of software, '[m]emory … grounds code as logos'.[29] Code needs memory to make us think that it has always been there, for '[s]ource code … cannot be run unless it is compiled or interpreted …. Execution … belatedly makes some piece of code a source.'[30] The source only becomes a source when it is used as such; that status is conferred upon it in retrospect. Roussel exposes precisely this logic, and makes that exposure part of his logos. In his account of his source phrases, or source code, for the evolutionary method, Roussel declares, 'I utilized several lines from my poem *La Source*.'[31] Roussel's method effects change; it creates novelty by reconfiguring existing words and sounds from personal and cultural memory, reactivating the virtual through the inflections and affections of rhyme and creative association. More than that, it does so openly: like Cros designing improvements to Edison's phonograph, Roussel's last testament is his posthumously published algorithm, laid out 'since I have the feeling that future writers may perhaps be able to exploit it fruitfully'.[32] This openness sets apart the sacramental technics of the technologos from the fetishistic relationship to code-as-logos which Chun identifies.

Indeed, if we look again at the poster which inspired Roussel's bone flute (Figure 6.1), we find the words 'double face' (double-sided) held together with needle and thread at one end but not the other in a suture which remains open. The criss-cross fastenings of the woman's dress hold the front panels together while allowing a second layer of fabric to peek through. The *doublure* – a word which in French refers to a double, an understudy, and the inner lining of a garment – was the guiding motif of one of Roussel's earliest texts, *La Doublure* (1897). Via this advertising hoarding, Roussel's *Doublure* is turned inside out to provide new material. In this image, musical notes emerge from the disc rather than the gramophone horn: one form of inscription yields another. When Roussel declares that his method aimed to 'call forth all sorts of *equations of facts* … which had to be solved logically', he lifts off with a word or phrase drawn from the mundane, branches out into the speculative field of polysemic play to explore all the virtual combinations and nuances of those words, and returns to earth as he stitches together a synthesis that does not hide its nature, but leaves a loose thread.[33] In other words, Roussel does what Chun describes, but shows that he is doing it: he shows his workings, the lining that gives structure and shape to the outer garment.

In Roussel, the notion of a 'representation' that is ontologically different to 'reality' is effaced. Instead, he puts forward a model of different modes of perception and experience, one that is captured in the musicality of the phonograph disc of Figure 6.1: that of a pataphysical

technics in which the image or the sound of a thing has the potency, vitality, and capacity to act of the thing itself. This is the work of the technologos.

The process which Roussel employs in the method is a structure that he playfully reverses in *Impressions d'Afrique*. This tale of European travellers shipwrecked on the coast of an African kingdom is told twice over. Placing effect before cause in the sequence of his chapters, Roussel's text functions a little like Jarry's time machine. The first ten chapters describe in microscopic detail, with no context, the ins and outs of dozens of 'performances' and demonstrations of machines by the travellers for the royal court. The final ten chapters provide the before and after of these performances, explaining the circumstances of the shipwreck, and the internal political wranglings of the unnamed African kingdom in which they find themselves. The structure of the novel means that the machines the Europeans build within the text 'explain' themselves in their own terms in the first ten chapters, before being unfolded in the more traditional narrative of the second half of the novel. As Roussel indicates in a prefatory note, the novel 'starts' in the middle – at the point where an unsettling, unmediated machinic narrative is mediated by a familiar human narrative, the point at which we are pulled back in. It can be read both ways: reversible like a chemical reaction, or a sober coat with a silken flash of lining (*doublure*).

Whereas in *Ignis* the African continent was a source of human labour, the Africa that Roussel presents in this text is technically adept and creative, yet nevertheless plays the role of a backdrop of untapped potential: virtual capacities which the European settlers help to realise by incorporating the indigenous people into their performances.[34] The colonial logic of *Ignis* remains alive and well.

My reading focuses on three forms of technicity within the text, all of which are concerned with images, storytelling, and the effects that these have on those who witness them. Bearing in mind the readings of the logos that we have seen above, I move through three moments of technicity, which allow us to explore potentiality and actuality, allegory and sacramentality, and time and indexicality, in a new light. While software theorists and nonhuman theorists focus on questions of agency, its distribution, and its reclamation for entities which have previously been denied it, I highlight the function of passivity – and passion – within Roussel's text. Turning in the final sections of this chapter to Roussel's afterlives, I argue that the watchwords of passion and openness can help us to re-evaluate not only the evolution of the technologos within French culture, but critical assumptions about the logos in the field of contemporary coding and technics.

POTENTIALITY AND ACTUALITY

In the earliest performances of the novel, Roussel engages with the Thomistic ideas of Chapter 2 – potentiality and actuality – alongside the delicate Bergsonian balance between contingency and necessity uncovered in Chapter 5. The characters' 'turns' are based around the production of images, which test the relationship between deterministic engineering, and the organicism of their emergence.

Fuxier presents 'lozenges of a uniform blue … which, as we knew, contained a host of potential images of his own devising [*créées par ses propres soins*]'.[35] Reprising Thomistic vocabulary, Fuxier's images are described as being 'potential' (*en puissance*), but they are also already *créées* ('created'). They are just waiting for a particular set of circumstances to prompt their emergence. Dropped into a river, the pastilles dissolve under the artificial light of acetylene lamps, reacting to form the foamy and ephemeral silhouette of Perseus bearing Medusa's head, before the water regains its 'mirrorlike unity'.[36] Perseus used a mirror to kill Medusa without being turned to stone by her gaze, slicing through the real with its reflection. Fuxier's pastilles show us a representation of a representation (Medusa's reflection in Perseus's shield) that is efficacious precisely because it is not the real thing itself. Indeed, the next dissolving pastille creates a sundial, whose quarter hours are marked as 'NOON' and 'MIDNIGHT' – an image that plays reality false but in which, paradoxically, 'the entire liquid tableau was astoundingly precise and true [*surprenante de précision et de vérité*]'.[37] What the pastille creates is not real, but it has truth on its own terms.

In a second demonstration, Fuxier unveils a grape vine, each bud of which contains 'the seed of an elegant tableau'.[38] Fuxier holds a pot of earth containing a grape vine, and in the other, a corked glass cylinder containing chemical salts in crystalline form. When a small but intensely powerful lamp is lit, and liquid is released into the atmosphere, intense heat is created which combines with a chemical reaction to ripen the vine at hyperspeed. The image exists before it can be perceived by the human eye, and grows organically, at the same rate as the vine; we are privy to its actualisation. Here, images do not play second fiddle to the real, but are given an organic status. They revel in the terms of their own existence, as realities rather than as subordinate imitations of realities.

In a dramatic performance by the Europeans, Roussel pushes this even further. One actor utters 'the word "rose", which was soon repeated by a voice from the wings. At the precise moment the echo sounded, an intense, penetrating smell of roses spread … striking

everyone's nostrils at the same time then fading almost immediately.'[39] The trick is repeated with carnations, lilac, jasmine, lily-of-the-valley, thyme, gardenias, and violets.[40] The performance illustrates the making real of something through the echo of language and the act of naming. The appearance of the flower recalls Mallarmé's analysis of the loss of language's status as the 'the unique blow that is material truth',[41] and his example, 'I say: a flower, and from the oblivion to which my voice consigns any contour beyond those familiar chalices, the elegant idea itself rises musically – the idea absent from all bouquets.'[42] In Roussel's example, the voice does not bring the object into existence but nor does it only produce the *idea* of that unattainable essence, 'flower'. Instead, when Roussel's name of the rose is *echoed*, the *scent* of that absent rose fills the air. This effect differs from Mallarmé's observation that the word evokes 'not the thing itself but its effect'.[43] In Roussel's universe, the effect is not just evoked, it is induced, providing direct sensory stimulus. The repetition of the word creates the effect of something that is not there. Fiction's efficacy in the world of *Ignis* and the science of pataphysics is borne out – but Roussel's vision highlights its fragility and ephemerality, and the need for the participation of an audience. The agents – the actor, the echoer, the word, the technics of enunciation – are limited in their reach. Patients are needed to bring the word to its fruition.

ALLEGORY AND SACRAMENT

The folding together of cause and effect is shown to its fullest in the demonstration of an automatic, hydropowered mechanical loom. The Jacquard loom is a *locus classicus* of histories of computing, because it could be programmed to produce different patterns by swapping out different punched cards.[44] Like Cros's binary system of lights on/lights off for interplanetary communication, the machine wove on the basis of a binary code of hole/no hole. Ada Lovelace wrote of the computer she built with Charles Babbage, 'the Analytical Engine *weaves algebraical patterns* just as the Jacquard-loom weaves flowers and leaves'.[45] Superseding this form of programming, Roussel's algorithmically generated verbal machine weaves the story of the Flood from the 'strange and wonderfully multicolored network' of its threads,[46] like Roussel bringing together two phrases in the method.[47]

Roussel's description highlights the machine's processuality. As gears and shuttles move in 'constant alternations between expansion and contraction', the coat seems to grow; nature and the machine interact; the water-powered machine's movement reflects the movement of the

waves in the pattern – and vice versa. Being in process, here, does not mean imperfection.[48] The network of threads retains 'its original purity, becoming neither limp nor tangled' even as the narrative emerges in real time, depicting figures in simultaneous and continuous motion.[49] As Roussel puts it,

> we saw emerge a mountain toward which groups of humans and animals of all species swam for safety. A host of transparent, diagonal zigzags [*zébrures*] streaked the entire area and allowed us to grasp the subject, borrowed from the biblical description of the Flood.[50]

The loom takes us a step further than Fuxier's pastilles. Here, it is not just the perceptual experience that is altered, but the act of interpretation. There is an ontological assonance between the crowds of humans and animals boarding Noah's ark, and the 'host of … zigzags [*zébrures*]' which designate the background. The French word *zébrures* contains the word *zèbre* (zebra). It therefore combines the crowd, the zebras, a decorative pattern, and an 'explanation' of the scene as the *zébrures* designate rainfall, enabling the audience to pinpoint this as the familiar narrative of the Flood. In Chapter 1, we saw how Origen's mode of interpretation maintained the concrete facets of parables as well as unpacking their figurative meanings. The literal and the figurative were both kept in play, without the former being sacrificed wholly to the latter.

In the same way, Roussel's loom creates a self-contained world in which representation, causality, narrative, and medium form an autonomous and self-sufficient entity. This dense knot of ontological assonance is lost when the fabric is cut from the machine and takes 'the form of a simple, flowing cloak'.[51] The one liquid remnant conserved is the coat's fluidity, a borrowing both from the hydropowered means of its production, and its diluvial subject. It is more animated in the process of its mechanical creation – in the moment when all possibilities are open – than it is as a finished product designed for the live human body. Like Chun's source code, the fabric is only 'finished' and described as a coat when a human being removes it from the machine. Otherwise, we have the sense that it could carry on weaving forever, unfurling in time. Roussel's description brings to the fore the mechanical loom's autonomy, and the emergence of a coherent story-image from heterogeneous threads through a form of causality inaccessible to us. The complex narrative ensemble is only stopped when it is pulled apart by human intervention, cut down to human size for human use. For Roussel, allegoresis is an optional way station, not the end goal of narrative weaving. Functionality is a side effect of technicity, a human 'hack'.

Roussel shows this to powerful effect when Darriand the hypnotist deploys a form of projection technology to restore the memory of an amnesiac, Séil-Kor. Darriand places Séil-Kor in front of a screen and beneath suspended plants, whose magnetic fluences plunge him into 'a veritable hypnotic ecstasy'.[52] On the screen, Darriand projects 'a host of colored images … which the temporary overstimulation of his senses made him [Séil-Kor] take for reality'.[53] The experience also produces physical effects, in the form of burns. This is Nietzsche's mnemotechnics in action, but it also recalls the stigmatics studied by Imbert-Gourbeyre and Charcot (Chapter 2). As Darriand projects a series of seemingly unconnected images, and ultimately the image of a young girl,

> Séil-Kor fell deliriously to his knees as if before a divinity, crying, 'Nina … Nina …' in a voice trembling with joy and emotion. Everything in his posture showed that his senses, heightened by the intense emanations from the Oceanic plants, made him believe that the adorable girl … was a real and living presence.[54]

With its evocation of hypnotism and dermographism, Roussel's machine invites comparisons with the birth of modern psychiatry under the Third Republic.[55] However, unlike the methods of Charcot, who used photography to document the contortions and attitudes of his hysteria patients, here, a visual technology which is not indexed to the external reality Séil-Kor believes it is (i.e., Nina), is therapeutic.[56] It is the emotional association of images which brings the past into the present for Séil-Kor – they play out on a screen in the same way that Bergson invites us to imagine our perceptions playing out on the dark screen of indeterminacy between the virtual and the real. Technics stimulates, but also makes visibly manifest, the transformative process which Séil-Kor undergoes as the remembered virtual traces meld into the images before him.

In Chapter 5, we saw the relationship between memory and the virtual through which the past forms and informs the present and future, and the way that Bergson's dynamic of mystic love activated that force. Séil-Kor's experience almost reads like the mystic experience described by Bergson. His posture is that of eucharistic adoration and Roussel invokes the 'real presence' of transubstantiation. However, the mechanics of this sacramentality are more complex than they appear at first blush. This is the sacrament as spectacle. With 'made him take for reality', Roussel emphasises that he is not suggesting any ontological link between the image and the person Séil-Kor 'sees'. He is highlighting how perception and memory can be manipulated rather than evoking a mystic encounter. Yet while there may be no *actual* transformation

of the images, they *are* undeniably effective in their therapeutic aim. Bergson was less interested in encounters with a deity than in the potential for mystic experience to renovate the world, and Roussel pushes that logic to its extreme.

Yet, even though he separates us from the religious, he nevertheless employs its iconography and terminology. We could say that, as he does with the *procédé*, he shows us the technologos' inner workings: machines produce images, which we hack to produce a therapeutic mysticism. The patient becomes his own healer, and his passion then acts. The burns on Séil-Kor's body are physical manifestations of painful memories so that the encounter with Darriand's set-up becomes a condensation of past and present. Roussel pushes this connection between material effect and temporality even further in the final performance in the novel.

INDEXICALITY AND THE BULLET TIME OF TECHNICS

Twenty-first-century algorithms operate in their own time, one that is undetectable to human perception. Andreas Sudmann refers to this as 'bullet time', in reference to the Wachowskis' cinematic innovation in *The Matrix* (1999): 'a specific and paradoxical encounter between the invisible, algorithmic time of computation on the operational level and a culturally "sedimented" temporality on the representational level'.[57] In other words, 'bullet time … "mediates" … *algorithmic time*' by making 'tangible … that level of digital microtemporality'.[58] The final machine demonstrated in *Impressions d'Afrique* operates in what we might term bullet time.

The character of Louise Montalescot sets up a device, 'similar to a photographer's tripod', in front of a canvas on an easel.[59] The easel has a metal attachment containing a palette of colours, a photosensitive plate (evoking the photographic index), and the whole ensemble is wired into a battery. The demonstration begins as the autonomous machine paints the garden in which the characters find themselves.

Roussel describes how the robotic arm mixes the paints and changes its brushes with a 'sharp click' that emphasises the machine's mechanical quality.[60] The machine modulates the raw material of pigment and the landscape before it, so that 'several unmixed paints, blended on another area of the palette, composed a fiery golden yellow tint, which, transposed onto the canvas, extended the vertical ribbon begun moments earlier'.[61] Like the narrative of the Flood, the world around the image-machine is transposed in an emergent modulation of primary

colours and basic geometric lines and forms. In Mark Hansen's account of twenty-first-century algorithmic sensibility,

> we can no longer speak of a relationship *between* images, but rather of an ongoing modulation of the image itself that is effectuated by contaminating the image with instructions for its own continuous self-modification … at the level of the pixel.[62]

As Louise invites her fellow travellers to pose for the machine, its canvas is not replaced: 'no detour toward the palette, no change of brush, and no mixing of pigments to complicate the task … The same landscape appeared in the background, but its interest, now secondary, was eclipsed by the figures in the foreground.'[63] In other words, the machine modulates the picture without pause or 'reset', with no intervention. This is an innovation beyond techniques of superimposition or double exposure in late nineteenth- and early twentieth-century photography and film. We do not have two images overlaid, but one image that perfectly fixes what lies before it, but resists the stability commonly associated with such indexicality. The act of fixing for posterity suggested by the photographic tripod and photosensitive plate is shown to be contingent, open to unending configuration at the level of the *pointilliste* machine's stipple rather than its pixel. After destabilising perception and interpretation, Roussel destabilises the very act of image-making and its relationship to time. Technicity is not a victory over the passage of time, but its passage.

OPEN-SOURCE ROUSSEL

Montalescot's portrait is a portrait of virtuality: never closing off, and retaining within it the possibility to produce unceasing novelty. In a sense, the same could be said of *Impressions d'Afrique* itself. With posters evoking the worlds of vaudeville and the circus, a cubist set, and costumes by Paul Poiret, Roussel's stage adaptation of *Impressions d'Afrique* is somewhat unexpected – not least because it is prefaced with the injunction that 'it is essential to have to hand the book from which it is adapted'.[64] The novel is used as instructions for the set design, which includes page references to the 1910 Lemerre edition.[65] While Roussel suggests abbreviating one monologue and the number of acts in the *Gala des Incomparables* is considerably reduced, this adaptation is far more radical than simply a compression of the novel.[66] It may share the same title, but its defining feature – the inversion of exposition and explanation – is wholly absent. The central conceit of the ransoming of the shipwrecked Europeans and their plan to put on a talent show is established in the first act.

The play is dominated by explanation and narration. From the novel, Roussel conserves two types of performance: textual (recitations, lectures, and performances) and mechanical, in the form of Montalescot's painting machine. In Act II, we are told what the characters are doing as they prepare for their performances, as well as watching them doing it. In Act III, what the characters are doing is explained. In Act IV, the prepared performances are 'realised' on stage and once more, what we are watching is also narrated in painstaking detail by the characters. It is only in Act V – with the advent of Montalescot's portrait machine – that something *new* is produced, that the 'realisation' of the spectacle, its tangible on-stage presence, becomes more than the recursive illustration of a description.

Are these the same *Impressions d'Afrique*? Yes, and no. With his stage adaptation, we could say that Roussel hacks his own source code, or turns his lining inside out yet again. In the stage directions, Montalescot's machine is constructed from torn up books, and Fuxier's 'apparitions of sculpted smoke' are replaced in the stage directions by 'light projections on a white screen', in a subversive merging of Fuxier and Darriand.[67] Despite his explicit adherence to his 'source' material, Roussel completely changes the functioning of his machines to adapt them to what is feasible on stage. Concrete forms are reconfigured or even abandoned. The on-stage machines give the 'impression' of doing what their on-stage inventors say they do – but it is only an impression, not the thing itself as described in the novel. The machines become a new iteration of the method, MacGyvering the source text to produce something homophonic, but new.

In the software theorists I read in this chapter, the fetish of the code-as-logos and the 'theology of the algorithm' are idols to be toppled: we are asked to ditch our metaphors and illusions, to live in the 'real' world and see things 'as they really are' so that we can effect social and political change. And yet, taking us further still than the inscription machines of my earlier chapters (or Schwob's self-quotation in Chapter 2), by retooling his own novel, Roussel weaves together the textual foundations of his method, the fictional machines that exist on the page, and the 'actual' machines that have to exist on the stage. Levelling the ontological playing field, he reveals their source in one-and-the-same technics, which is open to ceasing reinvention and retelling. For Roussel, the logos is an invitation, not a lure. It brings forth worlds, but these require participation – from human and nonhuman elements – to be made manifest. Roussel's algorithms answer the demands of a Chun or a Bogost – but they also tie those critical perspectives into a much longer history with liberatory if unruly theological roots: the story of the technologos.

There is a lack of preciosity about Roussel's attitude to his own work. He hired successful playwright Pierre Frondaie to adapt *Locus Solus* for the stage in 1923, and in the process to transform it into a whodunnit about the quest for the truth and probative evidence. His last work would be a set of *Nouvelles Impressions d'Afrique* (*New Impressions of Africa*) (1932), an extremely complex set of interlocking poems and images, which bear no relation to one another, the other impressions of Africa Roussel penned, or to Africa at all. He shares with Cros and even de Chousy a desire to disseminate, to share his work – and to be open to all that it has to suggest to him.

Leiris remarked of his uncle, 'he told me with a chuckle: "They say I'm a dadaist; I don't even know what dadaism is!"'[68] Like Cros, Roussel found himself traversed and traversing by others: a multi-medium. He expressed his admiration for Joan Miró, visited André Masson and viewed his automatic drawings in 1924, and made the Surrealists who attended and defended his plays his literary executors.[69] After taking tea with Flammarion, Roussel conserved a star-shaped sponge cake in a pyx-like box of his own devising. A pyx holds the consecrated eucharistic host for distribution to the sick, including as a *viaticum*: the 'one for the road' of the last rites. It was his most cherished possession. It eventually found its way to Georges Bataille, who described it in the following terms: 'the object sold after Roussel's death was found by chance at a flea market. It did not belong to me, but it spent a few months in my drawer.'[70] Bataille's description is apt. Resistant to interpretation, self-cannibalising, and ever restless, Roussel's technics – as method and subject matter – operates like our twenty-first-century algorithms because, despite our efforts to pause, collect, and box it, technics is only ever passing through our hands. For Roussel, this is neither a miracle nor a motive for critique. It just is: not Robbe-Grillet's 'nothing', perhaps, but a 'that's all'.

In the next chapter, Roussel's Surrealist executors return both to the literal flea market at Saint-Ouen and metaphorical markets of ideas, to grapple with precisely these tensions at the most fundamental ontological level.

NOTES

1 Pierrick Brient, 'L'Invention de Roussel: note relative au brevet d'utilisation du vide à la non-déperdition de la chaleur', *La Clinique lacanienne* 24.2 (2013), 149–67.

2 Alain Robbe-Grillet, 'Énigmes et transparence chez Raymond Roussel', in *Pour un nouveau roman* (Paris: Éditions de Minuit, 1963), 70–1.

3 Henri Bergson, 'Life and Consciousness', in *Mind-Energy: Lectures & Essays*, trans. H. Wildon Carr (London: Macmillan, 1920), 24. Roussel's attachment to this quotation is noted in Pierre Janet, *De l'Angoisse à l'extase: études sur les croyances et les sentiments* (Paris: Alcan, 1926), 135.
4 Michel Leiris, 'Conception et réalité chez Raymond Roussel', *Critique* 89 (1954), 81.
5 Michel Leiris, *Roussel & Co.*, ed. Jean Jamin and Annie Le Brun (Paris: Fayard, 1998), 88fn.
6 Ibid., 94fn.
7 See Terry Hale and Andrew Hugill, 'The Science Is Fiction: Jules Verne, Raymond Roussel, and Surrealism', in *Jules Verne: Narratives of Modernity*, ed. Edmund J. Smyth (Liverpool: Liverpool University Press, 2000).
8 Jean Starobinski, 'Roussel ou le mythe de la défaillance fatale', *Les Lettres nouvelles* 39 (1963), 207–9.
9 Julia Kristeva, 'La Productivité dite texte', *Communications* 11 (1968), 64.
10 Keith Ansell-Pearson, 'Duration and Evolution: The Time of Life', in Ansell-Pearson, *Philosophy and the Adventure of the Virtual: Bergson and the Time of Life* (London: Routledge, 2004), 70–96.
11 Mark Hansen, *Feed-Forward: On the Future of Twenty-First-Century Media* (Chicago, IL: Chicago University Press, 2015), 221.
12 Stephen Ramsay, *Reading Machines: Toward an Algorithmic Criticism* (Urbana: University of Illinois Press, 2011), x. Roussel does not feature.
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32 Ibid., 3.
33 Ibid., 16.
34 See Kenji Kitayama, 'La Vision néo-anthropologique d'*Impressions d'Afrique*', in *Raymond Roussel et la psychanalyse*, ed. Sjef Houppermans (Paris: Classiques Garnier, 2019) for a developed reading of this dimension.
35 Raymond Roussel, *Impressions of Africa*, trans. Mark Polizzotti (Champaign, IL: Dalkey Archive Press, 2011), 82.
36 Ibid., 83.
37 Ibid., 84. Translation modified.
38 Ibid., 101.
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42 Ibid., 259.
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44 See James Essinger, *Jacquard's Web: How a Hand Loom Led to the Birth of the Information Age*, paperback ed. (Oxford: Oxford University Press, 2007), 248.
45 Augusta Ada Lovelace, 'Sketch of the Analytical Engine Invented by Charles Babbage, Esq.: Notes by the Translator', in *Scientific Memoirs*, ed. Richard Taylor (London: Richard and John E. Taylor, 1843), 3:696.
46 Roussel, *Impressions*, 77.
47 I am not the first to draw this comparison. See William S. Allen, 'A Semblance of Life: Raymond Roussel's Speculative Prose', *MLN* 129.4 (2014), 960.
48 Roussel, *Impressions*, 80.
49 Ibid., 78.
50 Ibid., 81.
51 Ibid., 82. Translation modified.
52 Ibid., 90.
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54 Ibid., 91. Translation modified.
55 See Janet Beizer, *Ventriloquized Bodies: Narratives of Hysteria in Nineteenth-Century France* (Ithaca, NY: Cornell University Press, 1994), 20–1 for a description of dermographic experiments.
56 A full comparison with film must lie beyond the scope of this chapter. Inroads into the topic have been made by Kenji Kitayama, 'Raymond Roussel et le cinéma des origines', in *Nouvelles Impressions critiques*, ed. Anne-Marie Amiot, Christelle Reggiani, and Ginette Adamson (Paris: Lettre modernes Minard, 2001), 183–207, and by Christophe Wall-Romana, 'The Pen-Camera: Raymond Roussel's Freeze-Frame Panorama', in *Cinepoetry: Imaginary Cinemas in French Poetry* (New York: Fordham University Press, 2013), 79–86.
57 Andreas Sudmann, 'Bullet Time and the Mediation of Post-Cinematic Temporality', in *Post-Cinema: Theorizing 21st-Century Film*, ed. Shane Denson and Jay Leyda (Falmer: REFRAME Books, 2016), 320.
58 Ibid., 318.
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60 Ibid., 124.
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62 Mark Hansen, 'Algorithmic Sensibility: Reflections on the Post-Perceptual Image', in *Post-Cinema*, 811.
63 Roussel, *Impressions*, 128.
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65 Ibid., 10.
66 Ibid., 48.
67 Ibid., 98, 129.
68 Leiris, *Roussel & Co.*, 205.
69 Ibid., 279 and 297.
70 Georges Bataille, 'Les Mangeurs d'étoiles', in *Œuvres complètes*, ed. Denis Hollier (Paris: Gallimard, 1970), 1:566.

Ontotechnics

7. *Surreal Technics I: André Breton's Toolbox*

In the 1924 *Manifeste du surréalisme* (*Manifesto of Surrealism*), André Breton is a provocative polemicist; in the 1929 *Second Manifeste* (*Second Manifesto*), he becomes an excommunicating pope. However, in the oft-overlooked *Prolégomènes à un troisième manifeste, ou pas* (*Prolegomena to a Third Manifesto, or Not*), Breton makes the following declaration:

> So what if my own line – that admittedly twists and turns – passes through Heraclitus, Abelard, Eckhardt, Retz, Rousseau, Swift, Sade, Lewis, Arnim, Lautréamont, Engels, Jarry, and a few others? From them I have constructed a system of coordinates for my own use, a system that stands up to the test of my own personal experience and therefore appears to me to include some of tomorrow's chances.[1]

This is a Breton looking to the 'correlations of exceptions' of the past in order to gesture tentatively towards the future,[2] amid the 'occultation' of 1941.[3] Starting at Bretonian Surrealism's dark night of the soul – in exile, its political convictions of the 1930s cast adrift in the wake of the Occupation – allows us to see Surrealism as an avant-garde, that is, as moving forwards with something in tow. Breton positions himself within a vast lineage. This Surrealism's precursors are not only the familiar figures of the *Manifeste* (Sade, Lautréamont, Jarry), and the Engels of the *Second Manifeste*, but also a Greek atomist, monks and mystics, and a cardinal. Breton's sinuous line brings together figures from across history to form a personal cartography of precursors and escape route into the future.

In the inventory of French thought in wartime which follows this quotation, he observes a revival of medieval philosophy and the '"accursed" sciences'.[4] He also highlights a growing dissatisfaction on the political left with the failure of purely economic measures to transform the world.[5] Ideas and books, Breton tells us, are 'nothing but

tools on the carpenter's workbench. This carpenter is you.'[6] Faced with a world that is rapidly getting away from us, we need all the tools we can get.

It is a sentiment familiar to us from the *fin de siècle*; it never went away. On Breton's bookshelves, in the objects and photographs he collected, in the games the Surrealists played and numerical rankings of authors that they established, and in texts spanning 1918 until his death in 1966, we find Aquinas, Eckhart, Renan, Bloy, Zola, Richepin, Cros, Villiers, Schwob, Jarry, Flammarion, Roussel, and Bergson. In his *Anthologie de l'humour noir* (*Anthology of Black Humour*) (1966), Breton includes excerpts from the very texts by Cros, Villiers, Jarry, and Roussel which I have explored earlier in this book. Breton owned a silver kabbalistic necklace which had belonged to Schwob, a landscape painting by Jarry, and (in the absence of the object itself) photographs of Jarry's dinner plate.[7] The 1947 Maeght exhibition featured his altar to Roussel, complete with sacrificial offering of a 'trembling banana'.[8] Breton spent his summer holidays in 1958 reading Villiers's *Axël* (1890) aloud to his wife and friends.[9] The writers of the technologos innervate Breton's writing from beginning to end.

In this chapter, I propose to lift the lid of the Surrealist toolbox, focusing on how the tradition of the technologos yields practical, metaphorical, and conceptual tools for Breton – tools which evolve over time, reacting to changes in Breton's political mood and preoccupations. An inventory of Breton's workshop reveals one set of recording machines, one pair of communicating vessels, a spoon, and the holy grail. Moving through the objects that I have set out, this chapter resituates Surrealist automatism in a *fin de siècle* context, drawing out its resonances with the mysticism of the technologos, before exploring the phase transitions of conceptual metaphors and tangible objects which lead Surrealism through political philosophy and into ontology. In different ways, Jarry, Bergson, and Roussel worked on words and images in order to change the way we think. Despite his occasionally apodictic tone, Breton's forty-year reworking of Surrealism, inflected by the changing political and conceptual landscape around him, points to the possibility that those words and images may work on us, too, in ways that circumvent our awareness.

The theological vocabulary I employ in my readings of Breton may seem a wild inaccuracy, in the light of Breton's oft-professed atheism and anti-Catholicism. In his 1948 pamphlet 'À la niche les glapisseurs de Dieu!' ('Back to your Kennels, Barkers for God!') – which Breton signed – Henri Pastoureau fulminates against the tendency, which he claims began with *Aeterni Patris*, for Catholics to deploy their

exegetical powers to stealthily recover texts by atheists for Christ.[10] However, what is particularly striking is Pastoureau's explicit statement that Surrealist thought is not being misrepresented by these Catholic readers: 'in these writings, Surrealist thought is not always falsified, exactly'.[11] The issue is not the act of interpretation, but the conclusion to which it leads – and which must be rejected on principle. As I have argued since Chapter 1, there are two ways of considering theological influence in relation to technics: Hello's path, and Zola's path. It is the latter which Breton takes.

DEAF RECEPTACLES AND RECORDING MACHINES

In Chapter 6, I evoked Pierre Janet's psychiatric treatment of Roussel. He features in Janet's *De l'angoisse à l'extase* (*From Anguish to Ecstasy*) (1926), alongside case studies of religious mania. A defining feature of these states is a 'feeling of automatism and inspiration … accompanied by profound conviction'.[12] Janet quotes a patient's description of her mystic experiences: 'I have been entirely absorbed by God's thought. More than ever before my body walks and acts like an automaton. … It's as though I have been plunged into a dream from which nothing can wake me.'[13] The patient feels herself moved by an external force, separated from her body and soul, and yet she is aware that she continues to be and act while this other force displaces her. She becomes the total expression of an experience: a vessel, but also an instrument; a technology of the *fiat*, full of grace. I believe that the tradition of the technologos is instrumental in Breton's understanding of the automatic state as a secular mysticism, an understanding unacknowledged by him until the 1950s.[14]

In 'L'Entrée des médiums' ('The Mediums Enter') (1919), Breton recorded his first encounters with Surrealist phrases in the hinterland of 'a certain psychic automatism that corresponds rather well to the dream state, a state that is currently very hard to delimit'.[15] Unlike Janet's patient, however, for Breton, the 'being who walks in me' in this state is not God, but the deep substrate of Breton's own reality.[16] Automatism remains a moment of grace, but the gift is not framed as divine love. Rather, it is a *via negativa* through which access to the buried force of an individual's desires is granted. Indeed, René Crevel's experience of the nineteenth-century traditions of the séance and hypnotism were key reference points as Robert Desnos and other susceptible individuals entered automatic states so profound that, as Aragon observed, 'sometimes we have to pull the knives out of their hands'.[17]

In his extensive 1906 study of mediumship, Albert de Rochas identifies it with mystic activity, and focuses in particular on its embodied nature.[18] The medium is not an empty vessel or channel for spirits. As participants in the séance clasp hands, de Rochas invites us to imagine them secreting and absorbing the 'effluvia' of other bodies and objects, bathing in an 'atmospheric electricity'.[19] Automatism is a phenomenon to be experienced first but also examined, collectively processed. As we have seen, mystic experience is not only about a desire to know, but a desire to share.

Five years later, in the *Manifeste*, Breton therefore rehabilitates writing, making it the core of Surrealism in a new definition:

> Psychic automatism in its pure state, by which one proposes to express – verbally, by means of the written word, or in any other manner – the actual functioning of thought. Dictated by thought, in the absence of any control exercised by reason, exempt from any aesthetic or moral concern.[20]

Attainment of the automatic state is no longer an end in itself but rather a means, as Surrealism shifts from the 'state' of 'L'Entrée des médiums' to a mode of expression which affirms its activity by pushing out into the world. Occluding the accidental discovery of Surrealism and its fits and starts, Breton weaves a retrospective foundation myth. In this lineage of proto-Surrealists, which includes Jarry, there is also an original sin, a mythic hubris, for although these figures indicated the path of Surrealism, they 'were instruments too full of pride'.[21] As musical (and technical) instruments, they sought to shape, mould, and interpret. By contrast, the Surrealists are 'mute receptacles of so many echoes, modest *recording instruments* who are not mesmerized by the drawings we are making'.[22] The recording machine can record 'the actual functioning of thought' because it is not aware of it. The machine is in the ecstatic automatic state described by Janet, without even the awareness of its own ecstasy.

This begs the question: why not simply record Desnos's automatic sleep-talk on an actual phonograph and remove human intervention altogether? Why insist on pen and paper? The recording machine is not merely a picturesque metaphor. Amid the focus on the 'psychic', Breton takes account of the body. Janet's patient expressed her experience through her whole being, body and soul.[23] The inner voice of automatism does not sit within the body as vessel, but infuses it, making its mark through the body, like the stigmata on Imbert-Gourbeyre's mystics, or the burns on Roussel's Séil-Kor. It is no coincidence that Breton and Paul Éluard published their collection of automatic writing under the title *L'Immaculée conception* (*The Immaculate Conception*) (1930).

The Surrealist recording machine is simultaneously receptacle and tracing stylus, folding into itself the double-edged technological *fiat* of genesis and incarnation that we saw in Chapter 2: the first cause and the Virgin's womb. Breton brings Surrealism into line with the tradition of the technologos. The deep structure of being speaks, makes itself incarnate in a language that is embodied and vehicled through that human body. The Surrealist becomes Richepin's machine *and* narrator, all at once.

Breton is not the only Surrealist technician. For Louis Aragon in 1924, Surrealist automatism is a means by which 'the spirit sheds the human mechanism a little', in such a way that 'I am no longer the bicycle of my senses, the whetstone of memories and encounters.'[24] We rediscover Jarry's rotationality, depicted here not as a vehicle for liberation or Ixion-like novelty. Rather, Aragon splits himself in two. There is the 'I' on the one hand, and the trappings of human subjectivity on the other (sensory experience, memory, relationality). His 'I' goes from being the tool of aspects of subjectivity (the senses and memory) towards something transcendent, in a flirtation with a form of identity that is not bound to the body or mind. Surrealist automatism is how 'I outstrip myself', how I shift from being the wheel to being Ixion.[25]

Aragon also uses the image of a sound recording machine, but its design is somewhat different to Breton's. The discovery of automatic states is, Aragon claims, akin to that of 'the first man to put together small sensitive plates, coals and copper wires, believing that he might be able to record the vibrations of a voice, and who, once the machine was complete, heard without flaw the sound of the human voice'.[26] Rather than identifying the Surrealists with the phonograph-maker, we have to identify them with the image as a whole. If we follow the logic of automatism, the Surrealists are the man listening, the voice vibrating and resonating, and the recording machine itself. In the transition from 'vibrations of a voice' to 'sound of the human voice', Aragon's inventor and Surrealists get something more than they bargained for: not the trace, but the voice itself; not just the effect, but the cause as well.

The composition of Aragon's recording machine – with its 'sensitive plates' rather than a wax cylinder, and its 'coals', coexisting with electrical wires – means that it does not reveal its workings in the same way as Breton's simpler, trace-making device. We cannot picture it, or imagine how it works. In its relationality, Aragon's automatism becomes the index not just for an internal transformation; it reveals the composition of the world. In its similarity to 'dreams, mystic visions, the semiology of mental illnesses', Surrealism points him towards 'the existence of a mental matter … We experience this mental matter through its concrete power, its power to make things concrete.'[27]

Aragon does not set aside mysticism or religion, but rather identifies all forms of thought-experience as coalescences of one 'mental matter', the groundswell from which thoughts and objects crystallise. It acts in the here and now ('concrete power') and its power is transitive (it makes things concrete). Where Breton tunes into an inner voice, Aragon wire-taps the substance of the world in a materialist mysticism. His Surrealist recording machine makes each individual into an assemblage: a confluence of forces, fuel, conductivity, and sensibility through which and on which the deep experience of being in the world is expressed. Breton's recording machines are deaf and blind, and their traces have to be read afterwards, but Aragon's assemblage – which incorporates its builder – sees and hears, reflects and acts. Its whole being is invested.

It is in his later turn to the object that Breton comes to embrace the 'power to make things concrete' which Aragon intuited in 1924. The Bretonian Surrealist object starts with the stuff of dreams and the morphing images with which he feels his way towards his theories. Nowhere is this clearer than in his extended reflection on the connection between self, society, and Surrealism. In the texts of the 1930s, the poet becomes a process.

COMMUNICATING VESSELS

Published in the same year as Bergson's *Deux Sources*, *Les Vases Communicants* (*Communicating Vessels*) (1932) attempts to synthesise Freud's analysis of our processing of reality in the dream state and Marxist analysis of collective social functioning and its transformation.[28] Retooling Freud's hydraulic model of our 'mental apparatus' for his project of social revolution,[29] Breton suggests that interpreting dreams facilitates 'the conversion … of the imagined to the lived or, more exactly, to the ought-to-be-lived'.[30] Interpretation of the individual (and thereby the collective) through the analysis of dreams leads to transformation of the individual (and thereby the collective) in a 'sweeping away of the capitalist world'.[31] Dreams destroy capitalism, and the populaces only need to be shown the path to initiate their own liberation, as individuals and as societies.

Why does Breton see these elements (individual, collective, dreams, post-capitalism) as inextricably linked? *Les Vases Communicants* is the theoretical working-through of an intuition expressed more obliquely in the *Second Manifeste*. The first manifesto had focused on a personal quest, but in 1929, Breton argues that the 'problem of social action … is only one of the forms of a more general problem which Surrealism set out to deal with, and that is *the problem of human expression*'.[32]

Breton describes how an 'everyman' faced with the products of the Surrealists' personal experiments in automatism might begin to change his own life:

> the products … which Surrealism offers him … in the form of books, paintings, and films, are products which he looked at dumbfounded at first, but which he now surrounds himself with, and begins, more or less timidly, to rely on to shake up his settled ways of thinking.[33]

Scaled up, this individual discovery could bring about societal transformation. Breton's thinking can be inscribed within the French sociological tradition which evolved in parallel with Surrealism. In 1924 – the same year as the publication of the first *Manifeste* – Marcel Mauss delivered a lecture in which he emphasised the urgency of exploring the 'whole man': 'when we study a particular fact, we are dealing with the whole psycho-physiological complex'.[34]

At the core of *Les Vases Communicants* lies an attempt to reconcile the individual subjectivity emphasised in the quasi-mystic self-discovery of the first *Manifesto* with the self-abnegation and collective action that Breton felt his times required. Breton formulates this as follows: this 'being must become other for himself, … abolish himself to the profit of others in order to be reconstituted in their unity with him'.[35] In this model, the Surrealist's task is no longer to uncover the deep substrate of himself, but to become a manifestation of 'universal subjectivity'.[36] He quotes Engels's *The Origin of the Family, Private Property, and the State* (1884), in which the latter describes how real love can only happen in a non-capitalist society, without the forms of exchange and constraint created by capitalist economies and the societies they produce.[37] Amid the fraught political climate of the 1930s and the rise of fascism, Breton is not necessarily denying personal uniqueness, but rather placing fresh emphasis on the fact that it is always already constituted of and by collective experience, an experience which needs to be rooted in love and which therefore requires radical political change.

Within this framework, the Bretonian poet-artist plays a crucial role, articulated through the eponymous communicating vessels. In communicating vessels, an equal level of liquid is maintained in the connected vessels through hydrostatic pressure. This is the poet's role in Breton's vision:

> He will hold together, whatever the cost, these two terms of the human relationship … the objective consciousness of realities and their interior development, the latter of which, through individual feeling on the one hand and universal feeling on the other, contains something magical.[38]

Our internal churning-over of the external world becomes magical when it pushes back outwards in 'unconscious, immediate action of

the internal on the external'.[39] In an essay recommended to Breton by Claude Lévi-Strauss,[40] Henri Hubert and Marcel Mauss suggest that magic and technology share 'the same function'.[41] Both *do* things in the world, give the human being control over other elements and forces.

However, readers will notice that while the communicating vessel implies stability and equilibrium, Breton's usage of it is dominated by permeability, the porous '*capillary tissue*' between 'the exterior and interior worlds'.[42] We cannot map the poet's relationship with the inner and outer world, the individual and society, straightforwardly onto the communicating vessel. The image would seem to require two liquids, but a communicating vessel only contains one. With Aragon's recording machine, the poet became a process; here, he is a shapeshifting instrument. In a matter of paragraphs, the poet is no longer the vessel, but the chemical catalyst which triggers a reaction between two different liquids, yielding 'through the mixture, more or less involuntarily measured, of these two colorless substances – existence submitted to the objective connection of beings, and existence that concretely escapes such connection – a precipitate of a lovely enduring color'.[43] In this vision, the poet's intervention actively produces a solid precipitate: a lasting form of social change – or perhaps an object. In his 1935 lecture 'Position politique de l'art aujourd'hui' ('Political Position of Today's Art'), Breton describes the Surrealist as excavating 'the immense reservoir from which symbols spring completely armed and spread to collective life'.[44] Symbols are armed, dangerous, abroad in the world as active forces: what the poet unleashes through their work goes on to effect sociopolitical change. Now, what the poet releases is pre-existing material; we have cycled through the final phase transition from liquid to solid.

Indeed, it is important to note a subtle caveat: 'more or less involuntarily measured'. The Surrealist poet-magician-mythmaker's agency only carries them so far, but there remains an element of indeterminacy, which tantalisingly (and in ways undeveloped by Breton at this point) leaves the door open to other, more hybrid forms, of action. The material being mediated may have a will of its own.

We can see this in Breton's images. He identifies intuitions, testing them out with different images and different names in search of the perfect fit. Here, we have glided from the intertwining of love and rebellion (*Second Manifeste*), to images of vessel and liquid (*Les Vases Communicants*), catalyst and precipitate (*Les Vases Communicants*), and ultimately reservoir and excavation ('Position politique de l'art'). We are reminded of his wish in the *Second Manifeste*:

> … to lure 'the rose' into a movement … where it is, successively, the rose that comes from the garden, the one that has an unusual place in a dream, the one impossible to remove from the 'optical bouquet', the one that can completely change is properties by passing into automatic writing, the one … in a Surrealist painting, and, finally, the one, completely different from itself, which returns to the garden.[45]

Our aim should not be to pin Breton's ideas to one convenient image, but rather to see his metaphorical objects as enacting what they describe, bringing forth material, externally existing objects, but also undergoing change themselves – and in the process, changing Breton's mind.

CINDERELLA'S SPOON

Breton develops this openness to the material world of the object in his 1936 essay 'Crise de l'objet' ('Crisis of the Object'). Gavin Parkinson has traced Breton's reading of Gaston Bachelard's *Le Nouvel Esprit scientifique* ('The New Scientific Spirit') (1934), and highlighted the embedding of Einstein's theory of relativity in the cultural mainstream as a corrective to the rigidity of 'the coalition of Cartesian mechanism and Comtian positivism' which had hitherto dominated the scientific landscape in France.[46] With his surrationalism, Bachelard gave reason back its '*turbulent and aggressive function*', reanimating sterile and empty concepts by returning them to the dynamism of life.[47] In the same way that Surrealism reveals the fullness of the real by opening up its definition to include the activity of the imagination and dreams, surrationalism opens up reason. Bachelard invites us to search for the 'real unbound' (*réel délié*) that is, the real understood not simply as what we can see, but as everything that is.[48] He brings us back to Jarry's pataphysics, and Bergson's virtual.

Alongside Bachelard, Breton acknowledges Paul Éluard's essay 'Physique de la poésie' ('The Physics of Poetry') (1935). Éluard highlights the failure of figurative representation in painting: it can only depict 'this man, that woman, but not Man or Woman'.[49] It is only with Picasso that painting comes to perform the ontology of the world: 'here the virtual object is born from the real object, and becomes real in turn … Two objects separate all the better to reunite in their distance from one another, traversing the scale of all things, all beings.'[50] Like Jarry's pataphysics, or Breton's dialectical rose, the virtual blossoms from the real, with all its properties. Éluard levels the ontological plane, so that objects coalesce from and dissolve into virtuality, coexisting without hierarchy. When we confront any type of object, we are seeing the manifestation

of a form of being in which we are equal participants. From Bachelard, Breton takes the unbinding of the real, and from Éluard (and Jarry) the dynamism of the virtual. He argues that 'the real, which has for too long been confused with the given … radiates in every possible direction and strives to be one with the possible'.[51] By separating out the real from the given, Breton makes it a dynamic of transformation, driven by a '*will to objectification*' on the part of the 'possibles'.[52]

Whose 'will' is at stake? In the brochure for the 1936 Surrealist Exhibition of Objects at the Galerie Ratton, Breton describes the objects on display as 'being-objects (or object-beings?) characterized by the fact that they … express the perpetual struggle between the aggregating and disaggregating forces which do battle for the true reality of life'.[53] The Surrealist object becomes a 'being' produced in processes of coalescence and dissolution. In the reappropriation of already existing items, the Surrealist object returns 'that object, even in its finished state, … to an uninterrupted series of *latencies* which are not unique to it and call for its transformation'.[54] With 'which are not unique to it', Breton brings us back to the groundswell identified by Éluard, Bachelard, and Aragon, but he gives us a reason for why objects crystallise in the ways and at the times that they do – one which is bound up with will and desire.

This is objective chance, 'that sort of chance that shows man, in a way that is still very mysterious, a necessity that escapes him, even though he experiences it as a vital necessity'.[55] It is a form of subject-object reconciliation that suggests a correspondence between a subject's inner life and the universe in the magic relation hinted at in *Les Vases Communicants*. Now, Breton specifies that that reconciliation is animated by desire. This gives an affective tenor to what is otherwise a nebulous force; it puts a name to the experience.

Breton's most famous desire-objects are the *trouvailles* of *L'Amour fou* (*Mad Love*) (1937), revealed to him through the workings of objective chance. This form of Surrealist object constitutes 'the marvelous precipitate of desire', the literal and metaphorical 'eruption of a solution': the answer to a problem, and the durable precipitate of *Les Vases Communicants*.[56] Breton's anecdote, in which a mask and spoon in the Saint-Ouen flea market have a '*catalysing* role' for himself and Alberto Giacometti, yielding solutions to their creative block, is well worn.[57] Breton states explicitly that he aims to uncover the 'ruses which desire, in search of its object, employs'.[58] Yet, while Breton and Giacometti are desiring in this scenario, so too are the objects around them. Breton describes a statue in the market as being 'the very emanation of the *desire to love and to be loved* in search of its real human object'.[59]

The human being is the *trouvaille* of the statue. From this anecdote, desire emerges as a force which clings to bodies and objects, takes concrete form in the *trouvaille*, but is also always dissolving back into the crowd to rove. It refuses to be corralled as a property tethered to a human – or nonhuman – subject. Breton explicitly acknowledges the extremity of this position, and the scepticism it may cause his readers: 'like them, I cannot escape the need to hold the unfolding of external life as separate from what spiritually constitutes my own individuality'.[60] Breton highlights a deep-rooted desire to believe in human exceptionality, while suggesting a far closer imbrication into and reciprocity with the universe.

Hal Foster and Johanna Malt have offered arresting readings of desire in Breton. For Foster, 'mechanical-commodified figures parody the capitalist object' as a means to parody and undermine the commodity fetish.[61] Likewise, Malt argues that 'it is precisely in the interaction of fetishizing forces that Surrealism draws any critical power it can have', with fetish understood in both its Marxist and psychoanalytic senses.[62] Marx and Freud are important components of Breton's self-characterisation yet, responding to *Les Vases Communicants*, Freud struggled to see its relationship to his own ideas: 'I am not able to clarify for myself what Surrealism is and what it wants.'[63] Breton himself manifests an uncertainty in these texts of the late 1930s, which depart from the strong affiliations to Freud and to Marx claimed in *Les Vases Communicants*. Relationships are not held in balance by communicating vessels: fluidity wins out. Extremes give way to the middle.

In the examples I have quoted, desire coalesces around specific individuals or things, but it is not tethered to them. It is not the sole property of the human subject. Rather, it is at work in the world, roving, suffusing the environment and beings. It is a non-hierarchical force that brings into relation, that generates encounters, but which also withdraws from analysis. Malt has highlighted the difficulties which Breton's ambiguous uses of love and desire pose to critics, emphasising that while Bretonian love requires human agents, Bretonian desire is more promiscuous.[64] I am not so sure that we need separate them.

In *Les Vases Communicants*, Breton saw a new society founded on true, postcapitalist love. In *L'Amour fou*, we see a hint of it in the wooden spoon whose handle tapers into a high-heeled slipper, which Breton finds at Saint-Ouen. When he returns home, an object that seemed concrete, finite, suddenly begins to morph with the logic of a dream:

> Cinderella was well and truly back from the ball! … The wood, which had seemed intractable, took on the transparency of glass. From then on the heeled slipper on the shelf grew in size and started to look vaguely as though

> it were moving by itself. *This motion was simultaneous with that of the pumpkin-carriage in the tale*. Later still, the wooden spoon … took on the warmth of one of the pots and pans that Cinderella must have used before her transformation.[65]

Breton is no fairy godmother, imagining or speaking metaphorically; the transformation here is presented as real and driven by the object itself. The object exists in real life and in fairy tale, simultaneously, and slips loose of any temporal moorings, so that it is simultaneously pre- and post-magical transformation: the glass slipper and the servant's spoon. In this Cinderella story, the spoon is vessel and agent, excavator and reservoir. Dreams really do come true, and the perfect fit of object to person to name – true love, in other words – is possible. When it happens, that perfect fit frees entities up to further expansion and liberation. As Breton puts it,

> To see natural necessity as opposing human or logically necessity, no longer to try desperately to reconcile them, to deny in love the persistence of falling in love and, in life, the perfect continuity of the impossible and the possible – these are tantamount to acknowledging the loss of what I maintain is the only state of grace.[66]

In this state of grace, anything is possible and everything is necessary.

THE HOLY GRAIL

Breton's toolbox is full of vessels, from the textual container of the *Anthologie de l'humour noir* to the metaphorical 'receptacles' of Breton's theories. In the early chapters of this book, the vessel was key to defining the technologos. From Hello to Hadaly, I unpicked its misrepresentation as an empty form for a more important content, to highlight the indissolubility of container and contained. We have seen the same move take place here, as the 'mute receptacles' of the *Manifeste* became communicating vessels in all senses of the term, speaking not only across the divide between dream and reality, but across time and space. Surrealist automatism has coalesced from state to mode of expression to instrument for social renovation and concrete, tangible objects which nevertheless remain open to reconfiguration. The conceptual vessel of Surrealism not only crystallises entities, but their relationships – their lives and afterlives.

In 1942, quotations from the authors of the technologos constellated in Breton's collage of contemporary myths, *De la survivance de quelques mythes et de quelques autres mythes en croissance* (*On the Survival of Some Myths and the Emergence of a Few Others*). Within

its pages, we find the Golden Age, Orpheus, original sin, Icarus, the philosopher's stone, artificial man, and the Messiah, among others. Each myth is illustrated with images and quotations, drawn from sources as varied as the Superman comics and Hieronymus Bosch.[67] 'La Communication interplanétaire' ('Interplanetary Communication') quotes Cros (our original mediator of ideas) and places him alongside 'Martian' writing penned by the medium Hélène Smith during her trances.[68] 'La Science triomphante' ('Science Triumphant') quotes *Le Surmâle*.[69] No exegesis is provided, as Breton allows the words and images to resonate together in ways which spark our cultural memories. Sometimes complementing and sometimes subverting one another, they recall Jarry's hol(e)y work in *L'Ymagier*, his 'ideas left ajar, without the adornment of their usual companions'.[70]

It is on the entry for the Grail that I focus here.[71] The page has three components. Picasso's *Crucixifion* (1930) is placed centrally, overlapped at an angle by the Ace of Cups from the Marseille tarot. At the bottom of the page, we find a quotation from Julien Gracq's *Le Château d'Argol* (1938): the 'bitter motto which seems to close forever and to forever close on nothing other than itself – the Grail cycle: "Redemption to the Redeemer"'.[72] Across its tangled cultural history, the grail has become a synthetic object. Chrétien de Troyes's twelfth-century *Perceval* synthesised the cup used by Christ at the Last Supper with that used to collect Christ's blood when his side was pierced with a spear in crucifixion iconography and the *arma Christi*. The grail became the first eucharistic chalice – part of the logic of the sacrament: bringing together the blood and the wine to affirm their identity, and turning a wound into a source of salvation. The Arthurian legend of the quest for the grail had been given new life in the nineteenth century: by the academic medieval revival, the esoteric members of the 'Rose+Croix du Temple et du Graal' who sought to bathe in its mystic fluence,[73] and Richard Wagner's *Parsifal* (1882). In the legend, the Grail is the only object which can cure the ever-open wound of the Fisher King, who is laid low by a spear wound akin to that of Christ and sustained only by eucharistic wafers. Gracq's quotation reworks the angelic chorus in *Parsifal* as they acclaim the healing of the king.[74] However, Gracq's reading of it is 'bitter'; it offers no transcendence, no escape from cyclicality.

In Picasso's *Crucifixion* (1930), we can see Christ and a number of elements of the *arma Christi*, including the soldier with the spear, and soldiers casting lots for Christ's clothing. We can even see two recumbent figures echoing 'the medieval iconography of the revivification of Adam (and Eve) at the foot of the cross'.[75] However, the other

key figures in any crucifixion scene – the Virgin Mary and John the Evangelist – are obscured by the tarot card. The Ace of Cups is a card of transcendence, love, and openness to the future, which is often read as depicting the grail itself.[76] A communicating vessel in its own right, this tarot card mediates across past and future. For the occultist, it is a text whose exegesis is determined by the relations it weaves with other cards, but it is also a tool for bringing about change in the world.

Synthetic, intertextual, double-edged, a sacramental object that is a source of grace and the object of a quest: the grail is perhaps the Surrealist vessel par excellence. Like Breton's 'line, that … twists and turns', it holds together the cultural memory of the past, the aspirations of the present, and the promise of the 'tomorrow' which seemed far from reach in 1942. Even when faced with the enclosure of Gracq's tautology, the myth can be reopened by the collage of Picasso and a tarot card: a new grail for a new century.

NOTES

1 André Breton, 'Prolegomena to a Third Surrealist Manifesto or Not (1942)', in *Manifestoes of Surrealism*, trans. Richard Seaver and Helen R. Lane (Ann Arbor: The University of Michigan Press, 1972), 285. Translation modified.
2 Alfred Jarry, *Œuvres completes*, ed. Michel Arrivé (Paris: Gallimard, 1970), 1:668. Henceforth *OC*1.
3 Victoria Clouston, *André Breton in Exile: The Poetics of 'Occultation', 1941–1947* (London: Routledge, 2017).
4 Breton, 'Prolegomena', 288. Breton borrows the term from the occultist Stanislas de Guaita's *Essais de sciences maudites*, 2 vols (Paris: Carré, 1890).
5 Breton, 'Prolegomena', 287.
6 Ibid.
7 'Collier de kabbaliste; collier de Marcel Schwob', André Breton, https://www.andrebreton.fr/en/work/56600100355200; 'Paysage,' André Breton, https://www.andrebreton.fr/en/work/56600100168760; 'Assiette de Jarry', André Breton, https://www.andrebreton.fr/en/work/56600100159850. All accessed 28 September 2020.
8 'Préparation de l'autel Raymond Roussel', André Breton, accessed 28 September 2020, https://www.andrebreton.fr/en/work/56600100824780.
9 '[Je voudrais sauter ces deux jours…]: Lettre datée de Saint-Cirq Lapopie, le 12 août 1958', André Breton, accessed 28 September 2020, https://www.andrebreton.fr/en/work/56600101000146.
10 Henri Pastoureau, 'À la niche les glapisseurs de Dieu!', accessed 25 September 2020, https://melusine-surrealisme.fr/site/Tracts_surr_2009/Tracts_2_2009.htm#par_133.

11 Ibid.
12 Pierre Janet, *De l'Angoisse à l'extase: études sur les croyances et les sentiments (un délire religieux, la croyance)* (Paris: Alcan, 1926), 66.
13 Ibid.
14 In his 1952 interviews with André Parinaud for *Radiodiffusion française*, Breton described automatism as a 'mystic path'. See André Breton, *Œuvres complètes*, ed. Marguerite Bonnet with Philippe Bernier, Marie-Claire Dumas, Étienne-Alain Hubert, and José Pierre (Paris: Gallimard, 1999), 3:475. Henceforth *OC*3.
15 Breton, 'The Mediums Enter', in *The Lost Steps*, trans. Mark Polizzotti (Lincoln: University of Nebraska Press, 1996), 90.
16 Janet, *De l'Angoisse à l'extase*, 66.
17 Louis Aragon, *Une Vague de rêves* (Paris: Hachette, 1964), 22–3.
18 Albert de Rochas, *L'Extériorisation de la motricité: recueil d'expériences et d'observations*, 4th ed. (Paris: Chacornac, 1906), 585.
19 Ibid., 586.
20 Breton, 'Manifesto of Surrealism', in *Manifestoes of Surrealism*, 26.
21 Ibid., 27.
22 Ibid., 27–8. Translation modified.
23 For parallels with medical and cinematographic instruments, see David Lomas, '"Modest Recording Instruments": Science, Surrealism and Visuality', *Art History* 27.4 (2004), 627–50.
24 Aragon, *Vague*, 9.
25 Ibid.
26 Ibid., 15.
27 Ibid., 17–18.
28 See Sigmund Freud, *Interpreting Dreams*, ed. and trans. J. A. Underwood (London: Penguin, 2006).
29 Sigmund Freud, 'The Question of Lay Analysis: Conversations with an Impartial Listener', in *Wild Analysis*, trans. Alan Bance (London: Penguin, 2002), 104.
30 André Breton, *Communicating Vessels*, trans. Mary Ann Caws and Geoffrey T. Harris (Lincoln: University of Nebraska Press, 1990), 4–5.
31 Breton, *Communicating Vessels*, 117.
32 Breton, 'Second Manifesto', in *Manifestoes of Surrealism*, 151.
33 Ibid., 152.
34 Marcel Mauss, 'Rapports réels et pratiques de la psychologie et de la sociologie', *Journal de psychologie normale et pathologique* 21 (1924), 913.
35 Breton, *Communicating Vessels*, 134.
36 Ibid., 144.
37 Ibid., 67–8.
38 Ibid., 147. Translation modified.
39 Ibid.
40 Claude Lévi-Strauss, 'Informations bibliographiques', André Breton, accessed 19 August 2018, http://www.andrebreton.fr/work/56600100428030.

41 Henri Hubert and Marcel Mauss, 'Esquisse d'une théorie générale de la magie', *L'Année sociologique* 7 (1902–3), 143.
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43 Ibid., 147–8.
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45 Breton, 'Second Manifesto', 141.
46 Gavin Parkinson, *Surrealism, Art and Modern Science: Relativity, Quantum Mechanics, Epistemology* (New Haven, CT: Yale University Press, 2008), 62 and 7.
47 Gaston Bachelard, 'Le Surrationalisme', in *L'Engagement rationaliste* (Paris: Presses universitaires de France, 1972), 7 and 9.
48 Ibid., 11–12.
49 Paul Éluard, 'Physique de la poésie', in *Donner à voir* (Paris: Gallimard, 1978), loc. 514–60 of 2291 (loc. 516). Kindle ebook.
50 Ibid., loc. 556.
51 André Breton, *Œuvres complètes. Écrits sur l'art et autres textes*, ed. Marguerite Bonnet (Paris: Gallimard, 2008), 4:682.
52 Ibid. 684.
53 Ibid., 690–2.
54 Ibid., 687.
55 André Breton, 'Surrealist Situation of the Object (1935)', in *Manifestoes of Surrealism*, 268.
56 André Breton, *Mad Love*, trans. Mary Ann Caws (Lincoln: University of Nebraska Press, 1987), 13–15. Translation modified.
57 Ibid., 32.
58 Ibid., 24.
59 Ibid., 26.
60 André Breton, *Œuvres complètes*, ed. Marguerite Bonnet with Étienne-Alain Hubert and José Pierre (Paris: Gallimard, 1992), 2:711. Henceforth *OC*2.
61 Hal Foster, *Compulsive Beauty* (Cambridge, MA: The MIT Press, 2003), 127.
62 Johanna Malt, *Obscure Objects of Desire: Surrealism, Fetishism, and Politics* (Oxford: Oxford University Press, 2004), 99.
63 Breton, *Communicating Vessels*, 152.
64 Malt, *Obscure Objects*, 24–5.
65 Breton, *OC*2, 703–5.
66 Breton, *Mad Love*, 84.
67 Breton, *OC*3, 141, 128.
68 Breton, *OC*3, 135.
69 Ibid.
70 Jarry, *OC*1, 171.
71 Breton, *OC*3, 133.
72 Ibid.

73 Joséphin Péladan [as Sar Peladan], *L'Art idéaliste & mystique: doctrine de l'Ordre et du salon annuel des Rose+Croix* (Paris: Chamuel, 1894), 260. See also Peladan [as Sar Mérodack J. Peladan], *Comment on devient mage* (Paris: n.p., 1892), 42 and 268.

74 Slavoj Žižek, 'Christ, Hegel, Wagner', *International Journal of Žižek Studies* 2.2 (2016), 9.

75 Diane Apostolos-Cappadona, 'The Essence of Agony: Grünewald's Influence on Picasso', *Artibus et Historiae* 13.26 (1992), 35.

76 Yoav Ben-Dov, *The Marseille Tarot Revealed: A Complete Guide to Symbolism, Meanings & Methods* (Woodbury, MN: Llewellyn Publications, 2017), loc. 3159 of 4409. Kindle ebook.

8. *Surreal Technics II: Tinkering with Gilbert Simondon*

At first glance, Simondon the 'original and cutting-edge'[1] thinker of technics and Breton, the 'great undesirable', appear to have little in common.[2] Yet, deep in Gilbert Simondon's *L'Individuation à la lumière des notions de forme et d'information* (*Individuation in Light of Notions of Form and Information*) (1958, published in full in French in 2013), one sentence offers the opportunity for a radical re-reading of a philosopher of the moment: 'the surrealist object tends towards a positive surreal and one of the paths of this surreal is that of the technical being'.[3] While the supposedly dogmatic pope of Surrealism has fallen from critical fashion, the 'conditions are right today for Simondon to have a major impact', as the mid-twentieth-century philosopher of ontology and technology enjoys a significant revival within the nonhuman turn.[4] The two thinkers have never been explored together, yet Simondon's observation draws an unambiguous link between his work on technics and Surrealism. This connection remains wholly unexploited, even though from the 1920s through to the 1950s in France, Surrealism was an inescapable cultural influence. In a 1951 lecture, Maurice Merleau-Ponty, the doctoral supervisor to whom Simondon dedicated his book, celebrated Breton's Surrealism as 'one of the constants of our time'.[5] Breton and Simondon draw on shared references, from Freud to Bergson, yet Simondon withdrew statements about Surrealism in the version of his thesis presented for examination in 1958 – and reinstated them in subsequent publications of the work.

The omission of Bretonian Surrealism from Simondon's trajectory may lie in a long-term and widespread scepticism about Surrealism's political affiliations and efficacy. Breton's bathetic entanglements with the 'muted hostility' of the French Communist Party, which failed to recognise what he considered to be Surrealism's status as a legitimate political project, have been well documented.[6] How can the bric-a-brac

ontology of Surrealist objects – chance assemblages of the broken and useless, the scatological and erotic – possibly relate to an ontology about how things *do* work? Chapter 7 revealed Breton as an unruly but persistent thinker of ontology, and here I will argue that Simondon pursues his line of thought to frame technology as an aesthetic, socially transformative form of being.

These are not the terms we usually apply to these writers: Breton is, conventionally, an aesthetic polemicist with aspirations to politics; Simondon an academic philosopher. However, this presupposes a disciplinarity which is of our making, not theirs. In the 1930s, Ernst Cassirer and Lewis Mumford produced, respectively, 'Form and Technology' and *Technics and Civilization* (1934), while the Futurists and Fernand Léger were at work. At the latter end of Breton's career, Jacques Ellul's *The Technological Society* (1954), Heidegger's 'The Question Concerning Technology' (1954), and the pioneering work of the anthropologist and theorist of technology André Leroi-Gourhan restated the imbrication of technology in social life.[7] Technology, aesthetics, and sociopolitical thought have always been connected. Breton has always been an ontologist, for whom Surrealism was a total project embedded in the material conditions of the world; we just never took him seriously as such. That same synthetic drive – the synthetic drive of the technologos – is clear in Simondon: aesthetics, politics, and ontology cannot be thought in isolation from one another.

In *Du Mode d'existence des objets techniques* (*On the Mode of Existence of Technical Objects*) (1958), amid the growth of cybernetics and future computing giants such as IBM, Simondon radically defuses any imagined existential conflict between the human being and the technical. In this text, technical objects are 'mediators' between human beings and the world, our inescapable interface.[8] He describes machines not as deterministic monoliths, but as sensitive entities with 'a certain margin of indeterminacy … that allows the machine to be sensitive to outside information'.[9] Simondon flirts with the new science of cybernetics which had developed under the aegis of Norbert Wiener, Claude Shannon, and Warren Weaver in the United States, during and after the Second World War. Cybernetics aimed 'to control entropy through feedback'.[10] As Thomas Rid puts it, '[c]ontrol means that a system can interact with its environment and shape it, at least to a degree. Environmental data are fed into a system through input, and the system affects is environment through *output*.'[11] The American cyberneticians approach the question of feedback loops as engineers and mathematicians, in a military-industrial context. Simondon's description of feedback differs in tone: it is a language of organicism rather than programming.

Simondon's technical object coalesces 'according to a principle of inner resonance', 'by virtue of an internal necessity and not as a consequence of economic influences or practical requirements'.[12] And yet, that internal necessity of the object is also in permanent dialogue with its 'associated milieu', which includes humans.[13] An individual technical object is the crystallisation of 'the play of recurrent causality between life and thought in man', almost like the Bretonian substrate of *Les Vases Communicants*.[14] It is given an ontological status beyond that of an instrument built for efficiency. As Simondon puts it,

> it is this sensitivity to information on the part of the machines that makes a technical ensemble possible. A purely automatic machine completely closed in on itself in a predetermined way of operating would only be capable of yielding perfunctory results.[15]

In its 'margin of indeterminacy', the Simondonian machine invites us to return to Bergson's 'zones of indetermination', the area in which virtuality and actuality commingled. And while his explicit rejection of the automatic might seem to put Simondon at odds with the Surrealists of Chapter 7, we have seen that Surrealism automatism swiftly evolved into a greater openness to the world.

Before I focus on this facet of Simondon, it is important to address the more widely acknowledged influence of Merleau-Ponty and Georges Canguilhem on his work. Rather than a direct imprint, Miguel de Beistegui sees Simondon as putting relational meat on the bones of Merleau-Ponty's 'ontology of the flesh', which repositions the subject as 'intended and constituted within the world'.[16] Canguilhem's role within the revival of vitalism that persists into the nonhuman turn merits a fuller exploration than I can provide within the scope of this volume. His unpicking of the history of the biological sciences – from the experimental method of Claude Bernard to the morphing concepts of milieu and vitalism – underpins his articulation of life as 'a becoming whose meaning is never so clearly revealed to our understanding as when it disconcerts it'.[17] For Canguilhem, 'being alive is the same as being synthetic, … a system in continuous creativity'.[18] In Simondon, we find those same concepts and the synthetic drive familiar to us from the nineteenth century configured in a different way. Dominique Lecourt has noted that the admiration was mutual: 'in the second edition of *La Connaissance de la vie* … Canguilhem adds a note in which he tips his hat to the "insights" that Gilbert Simondon's thesis … had brought the year before'.[19]

Indeed, Simondon is often seen as an innovator and precursor to a generation of twentieth- and twenty-first-century thinkers concerned

with formulating new nonhuman ontologies which break with humanistic tradition to propose new modes of being and of doing politics. He is crucial to the formulation of the machinic phylum by Gilles Deleuze and Félix Guattari in *Mille plateaux* (*A Thousand Plateaus*) (1980), to which I turn in Chapter 9. They focus on his attentiveness to the affective charge of 'energetic materiality in movement', but build a very different view of society and politics.[20] Latour lays his emphasis on the sociopolitical dimension of Simondon's work, yet Simondon's yearning for a return to totalising unity is one of Latour's critiques.[21] Neither Deleuze and Guattari nor Latour find a convincing hinge between the two halves of Simondon's project: the ontological and the sociopolitical. Bernard Stiegler articulates this particularly clearly, when he questions why, 'if he develops his theory of psychic individuation as being at the same time always already a collective individuation, he never mentions the role that technical individuation would play in it … and more precisely in what connects the psychic *and* the collective'.[22] My reading sees Simondon's ontology, aesthetics, and politics as interwoven, but Stiegler has been guilty of another oversight: he does not pay attention to Simondon's Surrealism.

While Paolo Virno's positioning of Simondon within a mystically inflected Marxist autonomist reading of the commons has proved popular with current scholars, I take a more Surreal approach.[23] When we read Simondon as building on Bretonian Surrealism, Stiegler's claim that Simondon does not invest sufficient time in exploring the role of technics in shaping society, or its mediation between the individual and the collective, begins to seem reductive. In this chapter, I work through key Simondonian concepts: individuation, information, spirituality, the image, affect, and the place of technics (and Surrealism) in the construction of communities. I offer a parallel reading of Breton's Surrealist object and Simondon's individuation in order to establish what they have in common, and to suggest how Simondon extends Breton's thinking about how imagination, aesthetics, and technics might found a just society.

INDIVIDUATION AND THE TRANSINDIVIDUAL

In Simondon's postwar ontological innovations, we find Breton's turn – from the subject considered on its own terms to the subject considered as imbricated – extended to its limit, in the process Simondon terms individuation: an ever-unfolding becoming which extends across all modes of being. The starting point for Simondonian individuation is a cluster of pre-individual potentialities, and an environment, a

milieu. The individual is folded around this core of pre-individual potentiality, sensitive to fluctuations in its milieu. This 'individual-milieu' contains at its core 'a certain incompatibility with respect to itself' – a permanent tension which drives the unfolding process of individuation, suffusing the individual with change.[24] The individual is but one component of the Simondonian subject. The subject contains a pre-individual aporia, which leaves room for the working of chance – it thereby incorporates the pre-individual, the individuating, and the individuated. The subject's control over its own development is 'more or less involuntarily measured', as Breton might have put it; there is a core of unknowing at the heart of being. In Simondon's schema of temporary balance and continuous change, thought and action interact in 'a profound triality of the living being through which we would find in it two complementary activities [thought and action] and a third activity that carries out the integration of the preceding two as well as their differentiation'.[25] This third, mediating activity allows us to express a coherent identity as we move through time, without negating the underlying polarities which motivate our continuous individuation. Simondon gives it a name: affect, 'the principle of art and of all communication'.[26] Communication here is deployed in the context of Simondon's interest in cybernetics as 'the flow of information',[27] with information understood in its broadest sense as 'a difference that makes a difference' – a disparity which brings about alteration.[28] However, Simondon develops his own understanding of the modalities of that communication, distinct from the highly technical Shannon-Weaver model of radio transmission.[29] Where the American cybernetic model of communication focuses on entropy and information loss (*contra* Cros), Simondon's model is about transformation.

This brief overview requires unpacking. Simondon's way of understanding the individual – human, technical, or other – is one that is based upon continuous change in relation to environment. It places the constant appearance, resolution, and renewal of problems at the heart of that process of being, and balances the individual's agency with an element of chance. An individual's inner life is inextricable from its external surroundings. Holding together this bundle of processes and change is affect, which allows us to hang together as coherent individuals, and to hang together with one another as a society. Affect is like the wire through which currents of information can run, thus acting as a vector for the communication described above.

Bergson describes affect as 'that part or aspect of the inside of our body which we mix with the image of external bodies'.[30] Going further than Bergson in rendering interior–exterior distinctions porous,

Simondonian affect facilitates the integration and differentiation of internal, subjective thought, and external objective reality: 'the relation between thought and the real becomes a relation between two organized reals that can be analogically linked by their internal structure'.[31] As with Breton's communicating vessels, what goes on in our minds – memory, dream, and imaginative abstract thought – is given the same status as the external world, and again their internal structures, like the liquid in the communicating vessels, are kept in equilibrium. Instead of a mediating poet, we have mediating affect. Simondonian individuation occurs at the level of the individual human being and the collective, joined in what Simondon terms a transindividual relationship: a relationship that does not exist *between* entities, but instead moves through and within them in waves of 'affectivity'.[32] In this view, we become porous membranes rather than solid objects (or vessels), with affect allowing us to be present to one another, to intervene in the world, to communicate. Simondon's transindividual affect imparts some degree of agency, and offers a foundation on which we can build societies, but it is not the gift of total agency. It contains the same element of chance and autonomy as Breton's Surrealist objects.

Drawing out the implications of Simondonian (in)formation allows us to see how this ontology draws on the tradition of the technologos.

SPIRITUALITY AND SACRAMENTALITY

Simondon is explicit: '[r]eligion is the domain of the transindividual; the sacred does not have its full origin in society'.[33] In a counterweight to the anthropological view of thinkers like Émile Durkheim, Henri Hubert, or Marcel Mauss, Simondon suggests that religion might in fact be a disposition that is (at least in part) innate, rather than purely socially constructed.[34] Like Renan in Chapter 1, Simondon's understanding of religion is of something that binds, a *synthèse*. Like Bergson in Chapter 5, religion appears not only as a static social construction, but as something dynamic. Simondon's source for these statements is not philosophical or theological, but intuitive. It springs from the experience of being alive: in 'the individual's will to serve some purpose, to do something real, there is in a certain sense the idea that the individual cannot merely consist of itself'.[35] Though Simondon proffers no God and no system of belief or rules for living, his writing is charged with a concern for the 'feeling of the being's perpetuity, a vacillating and precarious perpetuity with which living beings are burdened'.[36] It is difficult not to see in this an echo with Bergson's assimilation of the love experienced by the true mystic and

the *élan vital*. The will to life which was so powerful in *Le Surmâle* here becomes a will to care for life.

The seeds for these statements are laid in Simondon's reflections on temporality and what it means to be a particular individual emerging or coalescing in a particular place, at a particular time, for the brief span of a life. At this stage, readers might – perhaps – not be surprised that elsewhere Simondon demonstrates a fascination with the intimacy of the Christian Incarnation, in which 'the divinity may be here, *hic et nunc*, in the straw and on the wood, like this board on which we place our hands'.[37] By coming into the world, Christ sanctifies it, makes of the grain of every plank of wood a memory of that sanctification. In the Incarnation of the Logos, Simondon finds an image for his attachment to life which does not oppose transcendence and immanence but rather moves beyond such binaries: the 'word "immanence" … is not quite suitable to express this genesis without hiatus, for immanence seems to lock up and contain what is immanent'.[38] Simondon's point is crucial. Where transcendence implies distance, and immanence enclosure, the Incarnation as he understands it is mobile. Rather than a 'hiatus' or moment of rupture, Christ's appearance in the world is an expression and effectuation of a relationship between God, his people, and the world he has created, in the *hic et nunc* of first-century Palestine, and in a way that is ongoing. Like the cross, the Incarnation stretches from east to west, all the way up and all the way down.

It is in the ontological continuum between these supposed oppositions that Simondon finds the meaning of the world. Meaning is the right word:

> spirituality is the signification of the relation of the individuated being to the collective and therefore also the signification of the foundation of this relation, i.e. the fact that the individuated being is not entirely individuated but still contains a certain charge of non-individuated, pre-individual reality that it preserves and respects, living with the awareness of its existence.[39]

I am quoting extensively because these lines will surprise readers familiar with twenty-first-century readings of Simondon. These lines have received no critical attention but strike at the heart of Simondon's ontology. He attributes a meaning to the ontology of modulations and emergence that he has set out and gives it a name – spirituality – that might appear to be at odds with the 'refutation of idealism' with which he is associated.[40] Spirituality, for Simondon, lies in 'the respect of this relation of the individuated and the pre-individual'.[41] It is a respect for everything that is emergent, embryonic, or taking tentative form – and for everything that it could be.

That respect is expressed in two modes: the one objective, collective, and eternal; the other subjective, particular, and fleeting. Simondon describes the first as action and the second as emotion:

> action expresses spirituality insofar as it emerges from the subject and is established in objective eternity, in a monument more durable than bronze, through language, an institution, art, or an œuvre. … The side of emotion expresses spirituality insofar as it penetrates the subject, flowing back into it and filling the subject in the instant, rendering it symbolic relative to itself.[42]

With the 'monument more durable than bronze', Simondon invokes Horace's Ode 3.30, in which the poem emerges as a victory over death, a funerary monument capable of defying the elements and the ravages of time.[43] Horace reappears again, accompanied by Thucydides, in Simondon's lectures, as he describes how

> there exists within the created object a virtual universality and eternity, corresponding to the inner feeling of the creating subject, who believes they are producing a '*ktèma es aei*' …. This virtuality lies in the permanent possibility of its reincorporation into later works and creations.[44]

We have come across these terms before. It was Hello who commented that 'the discoveries of contemporary science … have … the character of universality and of symbolism'.[45] Simondon's 'symbolic relative to itself' and 'virtual universality and eternity' return us to Hello's sacramental technics, but with a twist. To unpack this, I will discuss the cluster of action, eternity, and the object, before turning to the question of emotion, the present moment, and symbolism.

Simondon's examples of action accord a privileged position to the written word, the logos, as an effective object. Horace's vision brooks no change or alteration: the word stands as a funerary monument, a symbol of the man whose physical dissolution it encloses. Thucydides' 'possession forever' is his *History of the Peloponnesian War*, a book envisaged as a tool which will allow the past to inform the future.[46] The virtual finds itself in a privileged relation to the logos, yet Simondon makes clear with the caveat 'who believes' that the eternity which these objects experience is of a different nature to that envisaged by its authors. Like the works of Cros or Roussel, Flammarion's star-shaped sponge cake, or Breton's collections, it is not as constants that their texts become eternal and universal, but as generous machines which offer themselves up to be cannibalised for parts. Guigo the Carthusian's model of text as food and allegoresis as consumption and bodily transformation enters the industrial age.

Within Catholic theology, there exists another – informal – sacrament: that of the present moment, in which 'what happens in each moment

bears the mark of God's will … How just it is, then, to bless it, to treat it like something which sanctifies what it designates!'[47] This is the Logos as Simondon evoked it in his exploration of the Incarnation: abroad in the world. Caussade suggests that 'what God does in each moment is a word which means something' so that the 'present moment is like an ambassador delivering God's orders; the heart always utters the "fiat"'.[48] In this temporal sacrament, the heart provides the *fiat mihi* to the *fiat*.

When he describes the individual as 'symbolic relative to itself', Simondon makes that individual a sacrament. We can perhaps detect a resonance with Merleau-Ponty that is overlooked by de Beistegui here. In *La Phénoménologie de la perception* (*The Phenomenology of Perception*), Merleau-Ponty compares the Catholic Eucharist to 'the sensible', which

> has not only a motor and vital significance, but is nothing other than a certain way of being in the world suggested to us from some point in space, and seized and acted upon by our body, provided that it is capable of doing so, so that sensation is literally a form of communion.[49]

We can also detect a certain common ground in Caussade's suggestion that 'every state of mind and body, everything that happens inside and outside them, the revelation of every moment, is the plenitude of this action and their happiness'.[50] We can, perhaps, see in Simondonian affect and the value that he places on life and its potential, a new form of grace. *Life* is the sacrament. Simondon retooled hylomorphism, and now he retools sacramentality; his spirituality has no explicit divine source, but it innervates his ontology. Information, vectored by affect, draws together time and space in transformation.

At this stage, I would like to reintroduce Breton, to work through the relationship between affect and technics in greater detail.

AFFECT AND TECHNICS: BRINGING TOGETHER BRETON AND SIMONDON

Freud speculated that affects coalesce around the repetition of 'a very early impression of a very general nature, placed in the prehistory not of the individual but of the species', in ways that bring together the individual and the collective.[51] In Simondon's lectures on affect and mental images, he focuses on the ways in which an image's 'affective-emotional effect, or resonance' transforms a moment into a memory and symbol, which structures our experiences as we move forward in time.[52] Echoing Freud, Bergson, but also Breton's concept of 'universal

subjectivity' in *Les Vases Communicants*, Simondon suggests that the dream of flight shared by human beings across centuries and continents has its roots in the 'free motions of the fetus floating in amniotic fluid, which liberates it from the constraining effects of gravity through the effects of hydrostatic pressure'.[53] As Simondon puts it, 'such a motor schema may well animate images all the way to the intuition of orbital flight' (although he admits that this 'is only a possible conjecture').[54] In Simondon's model, the hydrostatic pressure of the amniotic fluid within the womb counters the effects of gravity. The material conditions of free movement which it creates for the individuating child in the womb nourish the imaginative constructs which will go on to underpin its dreams of flight in later life. An object like a space rocket is a process which starts in the womb: mediated by the affect which enables creation and communication, the child's intuitive attraction to gravitationless flight evolves and crystallises into an object which mediates between us and the universe.

This example is crucial. While Breton's writing is rich in proliferating images, Simondon's concrete examples, images, and thought experiments are few and far between. His writing is elliptical and allusive. But here, even before birth, in the intimacy of the womb, individuals are woven, affectively and intuitively, into the dreams of strangers who lived and died before them. In affect, cause and effect do not succeed one another; they are a simultaneous relation to self and other. I am shaped in my shaping of the world. Affect and choice are transindividual, and the foundation of society, because they are what allow us to coexist alongside one another, to share.

It is no coincidence that affect and the technical object are tied in this image. The technical object's internal tensions, potentialities, and milieu – of which the human is but one component – drive its transformation. With self-organising autonomy, it evolves according to its own internal logic, while remaining open to reconfiguration. Encoding the gestures which produced it, Simondon's technical object is nevertheless 'open to being used or recreated by every human activity and is inserted into an impulse of universal communication'.[55] As Simondon puts it, 'the veritable technician is the one who is a mediator between the community and the hidden or inaccessible object'.[56] We might say that the technical object is the *trouvaille* par excellence – but unlike the hesitant Breton, Simondon gives his object a life *before* its discovery. Technical objects capture and express something of the human, crystallise gestures and ideas, they formulate our conditions of possibility: what has been done, can be done, and what could be done in future. They give our society its shape. Yet at the same time, Simondon's technical object

is autonomous, free, 'inaccessible'. Its freedom lies in the fact that while we might make it, or use it, its mode of existence is always outside our perception. The free object will evolve, self-regulate, and engage in relations with other objects, in ways that are independent of us.

Just as Breton drifts from orthodox Marxism and Freudianism towards desire, the emphasis in Simondon's free object and its role in society lies less in a particular form of economic relation than in an affective relationship. We saw above that affect and choice are transindividual dynamics, facilitating a form of sharing between individuals. They are joined in this by the technical object, which institutes 'a transindividual relation … without passing through the communal integration guaranteed by a collective mythology'.[57]

To extend Simondon's example, we might all share an innate dream of flight, an attraction towards the freedom of motion and escape from the laws of physics which it represents – but that intuition is deeper and older than any account of human flight that might cast the Wright brothers as heroes. For Simondon, the technical object escapes our attempts to control it, breaking through the totalising, homogenising impulse of the community. It transmits the knowledge and practices it encodes in ways which circumvent traditional authorities. Thus (if we extend Simondon's example again), the space rocket – so easily converted into a vessel of Cold War supremacy in the Space Race – always remains unpredictable, out of reach, an outward-facing vector for dreaming. This is a form of amateurism, in its etymological sense: a passionate meeting of minds.

SURREAL TECHNICS, IN AN EGGSHELL

The following *Poème-objet* (1935) shown as part of the Ratton Exhibition comprises three components attached and bisected by string, and the following resonant poem:

> At the intersection of the invisible lines of force
> Find
> The point of the song towards which the trees
> Give each other a leg-up. (Figure 8.1)

We might say that this object exists in relation to Breton as an *individu-milieu*: as a particular place, moment, texture of mind and experience. However, it also taps into a shared symbolic reservoir. With the two words on the egg, we have a sense of actuality (*I see*) and potentiality (*I imagine*), related to the egg's status as containing an embryonic being, waiting to deploy its wings by breaking open its

Figure 8.1 Breton's poem-object (1935).
André Breton. *Poème-objet*, 1935. National Galleries of Scotland.
Purchased 1993. © ADAGP, Paris and DACS, London 2024.

own shell, cracking it like the broken glass to emerge into the external word. The words open a connection to Breton's affirmation that painters now seek to capture internal perceptions in 'inner representation, *the image present to the mind*'.[58] Rather than working from the outside in, Surrealist artists work from the inside out: I do not paint a copy of the object I see before me; rather, an object that does not need to exist externally paints itself into my consciousness, thus collapsing the distance between perception and representation. The cracked glass echoes the patterning of the feathers on the wings – and the conjunction of the lines of force mentioned in the poem. The 'lines of force' are synonymous with magnetic fields – or Breton's first experiments in automatic writing, published as *Les Champs magnétiques* (*Magnetic Fields*) (1920). While appearing heterogeneous, the objects are bound by the 'lines of force' evoked in the poem – literally, in the form of string – forming a 'point of intersection' from which the Surrealist object as a whole emerges.

This embryonic form is reborn thirty years later. In a 1968–9 lecture series on technics, Simondon argues that technical forms

> in a vault or shell correspond either to the relative individualisation of a new living being (the amniotic sac in mammalian pregnancies …) from the parent-being, or to its protection (bird eggs), and generally to the two functional aspects taken together.[59]

The amniotic sac and the egg are 'passive machines' – a technical mode of engagement with a being's milieu, shielding and protecting it while it individuates and develops, but also laying the foundational structure for its future development, its structures woven into the bone: 'a form of resistance and isolation … which can be retained as an organisational schema … for the whole living being'.[60] Breton's poem-object and Simondon's poetic technical imagination are part of the same force field. The Surrealist object crystallises from encounters in which the human subject is a *participant* not a master: whether between heterogeneous parts combined in novel ways, or between a man and a strangely shaped spoon in a flea market. It crystallises from that mysterious ambient desire – or affect – that expands and contracts between beings in the world. It brings individual subjects into relation with their environment, and with what lies outside conscious perception: the micro-shifts and changes occurring just beneath the skin of reality. In all its eclecticism, the Surrealist object is transindividual. This is why Simondon, a 'bricoleur philosopher',[61] can proclaim that 'the technical object is a surreal'.[62] His non-anthropocentric vision embraces the object to produce a philosophy of technology whose roots – unacknowledged by critical scholarship – are firmly planted in Surrealism. The Surrealism of the technical object lies in its status as an autonomous creation, in which multiple hidden but effective realities coexist, fuelled by affective currents – currents which also change our perceptions as we participate in the object.

This is where Simondon extends Breton. Breton's sense of affect and desire emerges from an understanding of relationships between objects and human beings; and his sense of technical objects is sharpened by the reflections on desire. They are part of that striving for the reconciliation or reunification of the 'whole man'. The hydrostatic pressure and container-contained dimension of Breton's communicating vessels, and the 'capillary tissue' between dream and reality are reimagined in Simondon's image of the capillary action of the placenta. We must allow the images of the two thinkers to change and interact: Simondon's embryonic human is not the container, but container and contained, working to produce something new; the vessel and fluid

potential within combine to yield a new precipitate. It is the endpoint of Breton's shifting images. Two images of hydrostatic pressure, two images of the real and the dream interacting in a two-way process to eventually produce a solid object, two models of a self nurtured by a third force: the poet, for Breton, and affect, for Simondon. Simondon's image captures the unsteady 'more or less involuntarily' of Breton's communicating vessels, and makes of it not an uncertainty but a principle of individuation – in all senses of the term, he embraces the milieu which Breton rejected in the *Second Manifeste* and attempts to control in *Les Vases Communicants*. In his emphasis on the capacity of any individual to be a technician, not through a specific skill set but through a specific disposition, Simondon takes the surreal-technical object out of the hands of the poets and engineers alike.

Breton's 'collective myth' as a mode of knowledge is surpassed, as technology becomes its own transindividual mode of knowledge, shaping society in ways which we tune into, but over which we have limited control. In his 'Note complémentaire sur les conséquences de la notion d'individuation' ('Complementary Note on the Consequences of the Notion of Individuation') Simondon offers a reading of the ways in which art and technics contribute to social cohesion and the formation of collective identity, fusing anthropology and philosophy in the same French style as Bergson's *Les Deux Sources de la moralité et de la religion*, and culminating in a society-building project in which 'the technical object is a surreal'.

In his parallel reading of Mallarmé's theorisations of the 'Book' and Simondon's vision of the individual, Nikolaj Lübecker describes an 'aesthetic rescue operation' in Simondon's work, which presented art as a third, quasi-sublatory term, in a technics–religion relationship.[63] I would like to argue instead that Simondon manifests a particular ambivalence surrounding the role of art in a community. He explicitly addresses Bergson's theory of the closed and open society, recognising it as 'valid' but reframing its terms.[64] Within Simondon's framing, a community is 'the statutory form of relation', while an open society is one in which individuals have 'influence … over their mutual relations'.[65] Simondon's 'community is a society that has become static'.[66] In the the 'Note complémentaire' he argues that when 'pure art becomes the σύμβολον … of this community and thereby loses its pure character, it closes in upon itself'.[67] The *symbolon*, which we have seen throughout this book as a vector for synthesis and reconciliation, and in the context of sacramentality as an expression of the relationship between God and the world, here becomes a moment of closure. Indeed, Simondon turns to the cross as an example, identifying its shift from 'memory' of the Crucifixion

into a symbol with its adoption by the emperor Constantine and the Crusaders.[68] The 'purity' of an object lies in its endless potential for reconfiguration. And yet, in his lectures on imagination and invention, Simondon provides a more positive assessment of symbols as '"absolute objects", detached from the empirical situations of their emergence, yet having preserved their power, their capacity of expression, their capacity to indicate potentials'.[69] Here, symbols are not opposed to potential, but its indices. Likewise, in his discussion of the soul, we saw Simondon describe the individual as a 'symbol' in a context which focused on virtuality and the potential for reconfiguration. This hesitation over the status of the symbol is reminiscent of Breton's own hesitation over the mode of existence of objects, their affects, and their agency. Like Breton, Simondon is caught between the 'aggregating and disaggregating forces' of life, between the community as closed and an openness so radical that it would defy even the metastability of individuation.

Simondon grapples directly with this in his notes towards an '*allagmatic* epistemology', and the vocabulary that he employs is familiar to us from as far back as Renan: analysis and synthesis.[70] His allagmatics seeks to articulate the relationship between the structure of beings and their operation, between 'what they are' and 'what they do'.[71] It forges a middle way between the 'absolute substantialism' of Kant and Comte which privileges static structure at the expense of relationality and individuation, and the 'absolute dynamism' of a Bergson, which sees only operation and leaves no room for structure at all.[72] Allagmatics takes account of the process of Simondonian individuation by setting it within the framework of a dynamic relationship between structure and operation: 'the passage from the syncretic state to the analytic state' (crystallisation or 'the *individuated individual*') and 'from the analytic state to the syncretic state' (modulation, or 'the *individuating individual*').[73] We can see here how Simondon overlays new – and at the same time old – terms over his existing theorisation of individuation, in an attempt to corral it into thought.

This is reflected, too, in the way that Simondon writes about the Surrealist object. At first, Simondon liberates it from the connection to the perceiving subject which is present in Breton's accounts of it: 'the liberating paths of surrealism lead to the construction of an object that is stable, self-organized like an automaton, independent from its creator, and indifferent to the one who encounters it'.[74] Simondon's Surrealist object is one of radical freedom, 'absurd because it is not obliged to signify in a reality other than its own' – not even the reality of the one who discovers it.[75] Simondon's Surrealism does not even require recognition; it works with affect and participates in our dynamics of desire, while

giving nothing away about itself and retaining its absolute freedom to be itself. That surreality is the property of the technical object, but it is a fragile quality, to which industrial reproduction and overfamiliarity have numbed our sensitivity. As he puts it, 'the technical object is a surreal, but it can only be felt as such if it is grasped by the pure individual, by someone who can be creative, and not by a user who treats the technical object as a mercenary or a slave'.[76] Simondon returns us to the perceiving subject again, but this time highlights the co-constitutive nature of the Surrealist object, highlights a need for recognition. Indeed, this reversal and Simondon's vocabulary – 'stable', 'like an automaton' – give us pause, in the light of his decoupling of technicity and automaticity in the opening of *Du Mode d'existence des objets techniques*. As with the ambivalent symbol, there is an uncertainty to his navigation of the Surrealist-technical object. Its autonomy attracts him, but as soon as he gives it its head, he reins it in again and relates it to a human being. The individual that he has in mind here is a *bricoleur*.

Bricolage is 'the work of amateurs, that is, those who act out of love for what they do'.[77] Simondon's archetypal *bricoleur* is Ferdinand Cheval, the postman whose passion project was also a model for Breton. In 1897, Cheval described how a chance stumble on a stone during a postal delivery round sparked a thirty-year building project – the *Palais idéal* (Ideal Palace), comprising a synthesis of a Hindu temple, a 'grotto for the Virgin Mary' like that at Lourdes, and his own mausoleum.[78] Breton highlights the coincidence that 1924 saw the death of Cheval as well as the publication of the *Manifeste surréaliste*, as if positioning himself as heir to the postman's project.[79] He described Cheval as a mediumistic artist, highlighting that the *Palais* has no conventional interior or exterior. This crystallisation of what the postman himself described as his 'dream',[80] is a space in which 'interior and … exterior are, so to speak, imbricated together. They are constructed in a space where what is presumed to be "behind" communicates with what is presumed to be "in front" to such an extent that they become one and the same.'[81] There are no 'zones of indetermination' here; no 'black screen'. There is no act of mediation, just the substance of the medium itself.

Simondon's Cheval-inspired *bricoleur* also takes on a sociopolitical role.[82] Weekend DIY enthusiasts make technicity a tool for 'leisure' and the local: 'the worker, the salaried professional, the shop or public employee, has immediate access to the tools of production, and they become master of the whole project'.[83] The language of the *bricoleur* is 'the rhetoric of virtuality'.[84] In terms which cannot help but remind us of Cros's paper machines or Jarry's pataphysics, Simondon describes how a 'great many abandoned technical objects are unfinished inventions that

remain as an open virtuality and could be taken up again, prolonged in another domain, according to their deep intention, their technical essence'.[85] In his reference to a 'deep intention' I think we find the root of Simondon's slippery attitudes towards the symbol and the Surrealist-technical object. Simondon's individuation distributes agency across a variety of entities, but it retains a tendency that the creator has to uncover. The *bricoleurs* are kindly 'masters', but masters nevertheless.

Though a notion of pure freedom is attractive to Simondon, he is perhaps less radical than we think. Like Bergson, he does not deny community, but rather resists its worst impulses towards homogenisation. Eclectic as his thinking is in its sources and scope, it remains synthetic, with moments of mysticism, in which he proceeds not by logic or empirical example, but through intuition. His social and political evaluations of technicity and culture are rooted in his spiritual intuitions: the bringing to light of what has been hidden, the entry of mystery into the world, and the love and attentive bonds it brings.

Taking Simondon's ontology of emergence and crystallisation seriously means acknowledging that his own thinking emerges, crystallises, and individuates in relation to its intellectual and cultural milieu, and memories. Between the 1935 poem-object and the 1968–9 lecture, we find that magnetic force field in which phenomena are simultaneously causes and effects; in which ideas generate and change one another, autonomous, unseen and unheard. In the best possible way, there is nothing 'original' in Simondon's ontology.

From Villiers de l'Isle-Adam to the opening of Bergson's *Les Deux Sources*, we have seen the original sin of Adam and Eve bound up with technics. For Breton, Surrealism would undo the biblical prohibition of knowledge in the Garden of Eden: the 'poet to come … will hold out the magnificent fruit of the tree with entwined roots and will know how to persuade those who taste it that there is nothing bitter about it'.[86] Knowledge – and by extension technics – must be sought, for good or for ill. However, extending Breton like the trees of this chapter's epigraph, Simondon offers us a way of apprehending technics and the affect that shapes our relation to it: one which highlights the beauty and possibility – not the bitterness – of knowledge's deficiency.

NOTES

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11 Rid, *Rise of the Machines*, 48.
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26 Ibid.
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31 Simondon, *Individuation*, 1:170.
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33 Ibid., 276.
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35 Simondon, *Individuation*, 1:276. Translation modified.
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38 Ibid.
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42 Ibid., 281.
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49 Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (London: Routledge & Kegan Paul, 1962), 212.
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57 Ibid., 2:413.
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59 Gilbert Simondon, 'L'Objet technique individualisé et les réseaux (deuxième semestre 1968–1969)', in *L'Invention dans les techniques*, 191–2.
60 Ibid., 192.
61 Élie During and Anne Sauvagnargues, 'Anne Sauvagnargues: portrait du philosophe en bricoleur (entretien)', *Critique* 5.816 (2015), 401–2.
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63 Nikolaj Lübecker, 'Mallarmé's Instruments: The Production of the *Individu-Livre*', *French Studies* 73.3 (2019), 380.
64 Simondon, *Individuation*, 2:408.
65 Ibid.
66 Ibid.
67 Simondon, *Individuation*, 2:416. Translation modified.
68 Simondon, *Imagination*, 135.
69 Ibid., 136.
70 Simondon, *Individuation*, 2:669.
71 Ibid., 2:667.
72 Simondon, *Individuation*, 1:308 and 2:667.
73 Simondon, *Individuation*, 2:670.
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75 Ibid., Translation modified.
76 Ibid.
77 Simondon, *Imagination*, 54. Translation modified.

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81 André Breton, *Surrealism and Painting*, trans. Mark Polizzotti (Chicago, IL: Harper & Row, 1972), 307. Translation modified.
82 Simondon, *Imagination*, 54.
83 Ibid., 55. Translation modified.
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9. *Gilles Deleuze and the Technologos*

Deleuze and Guattari draw on Simondon to argue that technological objects emerge from an evolutionary '*machinic phylum*'.[1] The phylum is 'matter in movement, in flux'; it animates and differentiates, regulating 'the relation of desire to the technical element' to produce different objects.[2] In a lexicon which simultaneously evokes evolution and the Surrealist object, they imagine a 'singularity embedded in the flanks of the phylum' being 'brought up to the surface by a given assemblage that selects, organizes, invents it, and through which all or part of the phylum passes, at a given place at a given time'.[3] They liken this singularity to Bergson's *élan vital*.[4] Like genetic mutations, those singularities can skip generations, evolve along their own branches, but they are bound into kinship by the interplay of affects. As Deleuze and Guattari put it, 'the affects the saber "has" are not the same as those of the sword'.[5] Simondon's technician uncovered and brought into the light; Deleuze and Guattari's technician has only one role: 'to follow'.[6] The machinic phylum gives technicity its full freedom in the realm of technical objects, but it also encapsulates the action of technicity as I have understood it more broadly: that is, as a movement of thought. These two concerns are the core of this chapter.

If contemporary scholarship in French studies and continental philosophy is rediscovering figures such as Simondon, it is in large part due to its enthusiasm for Deleuze. Deleuze has been parsed and 'applied' in fields ranging from film to animal studies since the 1990s.[7] Claire Colebrook captures his appeal when she describes him as a philosopher for whom 'the power of life – all life and not just human life – was its power to develop problems'.[8] For Deleuze, the 'questions of philosophy, art and science are extensions of the *questioning power of life*, a power that is also expressed in smaller organisms and their tendency to evolve, mutate and *become*'.[9] It is this openness to change

and destabilisation of ontological fixity, as well as Deleuze's eclectic melding of philosophy, art, and science which render him a touchstone for the nonhuman turn.[10] However, although his philosophical ancestry has been traced back through Simondon, Bergson, Nietzsche, and Spinoza, in this chapter, I seek to resituate him in a different tradition.[11] Two formative influences are often omitted from Deleuze's intellectual biography. Maurice de Gandillac – a Catholic specialist in medieval mysticism – supervised the thesis which became *Différence et répétition* (*Difference and Repetition*) (1968). Deleuze's secondary thesis, which became *Spinoza et le problème de l'expression* (*Expressionism in Philosophy: Spinoza*) (1969), was completed under the care of Breton's close friend, the unorthodox Cartesian and philosopher of desire and affectivity, Ferdinand Alquié. In the figures of Deleuze's doctoral supervisors, we have two strands of the tradition of the technologos as it has unfolded in this book: mysticism and passion. My aim in this chapter is to show that this is no anecdotal coincidence, but opens up Deleuze's writing – as both a single author and in partnership with Félix Guattari – to new evaluations of his relationship with his literary, theoretical, and technological forebears.[12]

Mary Bryden highlighted Deleuze's 'insider knowledge' of religion,[13] and contributors to her landmark *Deleuze and Religion* (2001) explored Deleuze in relation to religious concepts and structures, spirituality, and mysticism, including that of Bergson in *Les Deux sources*.[14] Peter Hallward's polemical *Out of This World: Deleuze and the Philosophy of Creation* (2006) is perhaps the most radical recasting of Deleuze in the light of these preoccupations. From the outset, his Deleuze is 'a spiritual, redemptive or subtractive thinker' with 'a *theophanic* conception of things'.[15] With particular emphasis on Deleuze's Spinozan and Bergsonian inheritance, Hallward places univocity – the notion 'that all actual beings exist as facets of a single productive energy or force' – at the core of Deleuze's own multifaceted body of work, with the consequent erasure of any distinction 'between real, symbolic and imaginary'.[16] In particular, he identifies Bergson's mystic with the philosopher as intuitive visionary imagined by Deleuze and Guattari in their late work, and both act as 'the vehicle through which spirit can escape its necessary confinement in matter'.[17] However, while there are many points of convergence between Hallward's restoration of the immaterial and the spiritual to Deleuze's thought, and the genealogy which I have traced up to this point, we differ on the question of the material. In the wake of Hallward's argument, Joshua Ramey has drawn on the hermetic tradition to present Deleuze's work as a form of 'practical philosophy' which 'proceeds

through intense ordeals' until it achieves a level of ecstatic union with 'the imbricated rhythms of affective dynamisms, the deep pulsations and vibrations of the cosmos itself'.[18] The pragmatism of Ramey's mysticism recalls that of the technologos, but at no point does Ramey connect the parallels he draws between Deleuze and Nicholas of Cusa with the supervision of Gandillac, for whom Nicholas was a speciality. His Deleuzian mysticism shuns its Catholic ancestry.[19] Like Hallward, I believe it is important to resist the notion of Deleuze as a purely materialist thinker. However, there is a role for matter and its contingent formulations that is more complex than the fleshy prison of Hallward's Deleuzian mysticism, and less purely immanent than Ramey's version of Deleuzian mysticism.

We might be able to detect this more clearly by thinking not only in terms of Deleuze's explicit reference points, but also in terms of his implicit or even atmospheric influences. Gandillac was himself supervised by the Catholic philosopher and historian of Thomism Étienne Gilson. Daniel Graham has noted Deleuze's reliance on Gilson's readings of Aquinas,[20] and Eleanor Kaufman has argued that Deleuze's 'approach and general topic are in no way diametrically opposed to Scholastic thought'.[21] This should not surprise us. The educational tradition of the *khâgne* and *agrégation*, which Deleuze, Gandillac, and Gilson followed, espoused a chronological approach to philosophy. It therefore incorporated medieval philosophy – or, rather, theology.

Studies of Deleuze's relationship with literature tell us how Deleuze reads Proust or Beckett;[22] what Deleuze thinks about the role of literature in society;[23] and how we can read texts according to a Deleuzian methodology.[24] However, scholars are less inclined to focus on those literary influences that are not the explicit focus of studies by Deleuze himself. Alquié and his Surrealist connections are entirely absent. Deleuze penned a glowing review of Alquié's *Philosophie du surréalisme* (*Philosophy of Surrealism*) (1955), reserving particular praise for Alquié's reading of Surrealist desire. In Deleuze's words, that desire is 'attentive, awaiting, attention, it is at the same time hope, comprehension of signs, taste for encounters, objective and terrestrial, and openness to the marvelous'.[25] Deleuze's exegesis of Alquié's interpretation of Bretonian desire returns us to the watchwords of this book: time and expectation, signs and sensitivity, encounter and openness.

It is with this in mind that I read Deleuze as recapitulating the trajectory that this book has followed, from the renegade typologies of the technologos in *L'Anti-Œdipe* and *Mille plateaux*, through Jarry's pataphysical temporalities, and into his own vision of philosophy as a

tool for living. In the words of Jarry, '[s]implicity does not have to be simple; it is complexity tautened and synthesized'.[26]

OEDIPUS MEETS THE TECHNOLOGOS

I begin with *L'Anti-Œdipe* (1972), a potent attack on the structures of family life and capitalism encapsulated in the Freudian figure of Oedipus. I offer a brief *précis* of the passages in question, before drawing out their resonances with my corpus. By highlighting the tangled intertextual lineage of Deleuze and Guattari's ontology, even as they rebel against the figures of family and tradition, I show how their focus on the machine is part of the tradition of the technologos.

In a pungent corrective to the act of creation *ex nihilo* in Genesis, Deleuze and Guattari open *L'Anti-Œdipe* by affirming that the world has no single point of origin, no *fiat lux*. Rather, it 'breathes, it heats, it eats. It shits and fucks. … Everywhere *it* is machines – real ones, not figurative ones: machines driving other machines, machines being driven by other machines, with all the necessary couplings and connections.'[27] In this understanding of the world, the term 'machine' does not describe a thing, so much as a way of being in and interacting with the world that recalls the action of a machine. A machine is a mode of organisation that is always already in progress. In everything we are and do, and in everything around us, an 'organ-machine is plugged into an energy-source-machine: the one produces a flow that the other interrupts', from a mother breastfeeding her child to the operation of global capitalism.[28] Though the modalities may be different, we are produced and producing like everything around us. The energy which powers this machinic universe is desire: '[d]esire causes the current to flow, itself flows in turn, and breaks the flows'.[29] Machines are always 'desiring-machines', but it is important to remember, too, that '[d]esire is a machine'.[30]

In *Différence et répétition*, Deleuze emphasises that 'God makes the world by calculating, but his calculations never work out exactly [*juste*], and this inexactitude … forms the condition of the world.'[31] Difference and irreconcilability are the motive force of this world of desire. Deleuze and Guattari stress that desire is not the lack of some*thing*, but the roving quest for subjecthood: it 'is, rather, the *subject* that is missing in desire, or desire that lacks a fixed subject'.[32] It is thus not surprising that '[d]esiring-machines work only when they break down, and by continually breaking down'.[33] The basis for this breaking down is the encounter of the desiring-machines with the 'body without organs' (henceforth BwO). The BwO is 'antiproduction', the element

which resists integration into the organising logic of the machine relation.[34] The desiring-machines and the BwO are locked in a battle:

> so many nails piercing the flesh, so many forms of torture. In order to resist organ-machines, the body without organs presents its smooth, slippery, opaque, taut surface as a barrier. … In order to resist using words composed of articulated phonetic units, it utters only gasps and cries that are sheer unarticulated blocks of sound.[35]

Pain is converted into power. Thus, the 'body without organs, the unproductive, the unconsumable, serves as a surface for the recording of the entire process of production of desire, so that desiring-machines seem to emanate from it in the apparent objective movement that establishes a relationship between the machines and the body without organs'.[36] Deleuze and Guattari erode the sense that this interaction is a clearly defined binary; it is an ongoing cycle of attraction and repulsion, which is itself a relationship, a machine.

The 'miraculating machine' of attraction and the 'paranoiac machine' of repulsion between the desiring-machine and the BwO are not opposed. Rather, Deleuze and Guattari stress that 'the two coexist … and black humor does not attempt to resolve contradictions, but to make it so that there are none, and never were any'.[37] The culmination of this black humour is the 'celibate machine' (*machine célibataire*), a 'synthesis' which consumes the energy generated by the interaction of the miraculating machine and the paranoiac machine.[38] This machine itself yields 'a celibate misery and glory experienced to the fullest, like a cry suspended between life and death': a state of ecstatic being to which we should aspire.[39]

The imagery of crucifixion, the double-edged identity of torture and freedom, and the movement towards synthesis will not have escaped readers; at every level, this text is interwoven with the tradition of the technologos I have set out. In 1954, Michel Carrouges (one of the Catholic Surrealists Pastoureau criticised in Chapter 7), published *Les Machines célibataires* (*The Bachelor Machines*). Breton provided a preface. Under this heading, Carrouges groups together the machines that feature in *L'Ève future*, *Le Surmâle*, Roussel's novels, and Marcel Duchamp's *La Mariée mise à nu par ses célibataires, même* (*The Bride Stripped Bare by Her Bachelors, Even*) (1915–23). He suggests that they constitute a new 'mythological critique of reason'.[40] At a technical level, the celibate machines in all these works incorporate an element of inscription, such as a stylus or a needle, and constantly expend energy, in what Carrouges sees as a repetitive and masturbatory logic without social utility. At one and the same time, they celebrate 'the power of

eroticism and its negation, of death and immortality, of torture and Wonderland, of the lightning strike and of resurrection'.[41] Carrouges's reading of this ambivalence is, nevertheless, ultimately redemptive and theologically inflected: 'through the blasphemies, destructions, and ironic disguises, the blinding vestiges of the mysteries of life and death radiate in all directions'.[42] It is explicitly to Carrouges – and the authors he invokes – that Deleuze and Guattari turn to think through the celibate machine as a liberation which emerges from the explosive dynamics of attraction and repulsion.[43]

Unlike the paranoiac machine of repulsion we saw above, the celibate machine has 'a solar force' and, unlike the miraculating machine of attraction, the unleashing of this power is due to something outside the machine:

> this transfiguration cannot be explained by the 'miraculating' powers the machine possesses due to the inscription hidden inside it … (cf. the recording supplied by Edison in *L'Ève future*). A genuine consummation is achieved by the new machine, a pleasure that can rightly be called autoerotic, or rather automatic: the nuptial celebration of a new alliance, a new birth, a radiant ecstasy, as though the eroticism of the machine liberated other unlimited forces.[44]

When the mode of organisation we might expect from a machine encounters the intensive fields of desire mobilised by the BwO, it yields an experience which reconfigures sexual and religious forms. Whereas 'autoerotic' implies a conscious subject involved in producing its own pleasure, 'automatic' removes any suggestion of forethought or intent. Alongside this runs a word whose primary association is with an episode in the life of Christ: 'transfiguration'. In the Gospels, the Transfiguration intervenes at the moment when Christ is about to enter Jerusalem and undergo the events of the Passion and Resurrection.[45] Christ stands alongside Moses, the original law-giver, and the prophet Elijah, the *figura* of John the Baptist. The 'solar force', 'new alliance' (*nouvelle alliance*) and 'radiant ecstasy' which Deleuze and Guattari attribute to the celibate machine are not anodyne terms. At the Transfiguration, Christ's 'face shone like the sun'[46] and 'his clothes became dazzling white'.[47] Published English translations do not convey that, in French, *nouvelle alliance* is the term used for the new covenant instituted by Christ at the last supper, the fulfilment of the covenant of the Old Testament.[48] This covenant extends and completes the covenant of the 'ancient Law' which Deleuze and Guattari identify with the paranoiac machine.[49] When this old law encounters the miraculating machine, the new alliance of the celibate machine is born.

By weaving together a masturbatory orgasm and the Transfiguration, Deleuze and Guattari perform the work of the celibate machine, with its 'blasphemies' and 'ironic disguises'. Indeed, they describe the moment of that emergence as one of black humour. In his *Anthologie de l'humour noir* (some of whose corpus Carrouges shares), Breton presents the black humour that Jarry displays as achieving the dialectical synthesis of 'the accidents of the external world' and 'the whims of personality'.[50] Where Breton argues that Jarryesque black humour achieves the sublation of internal and external events, Deleuze and Guattari defuse the initial dialectic altogether. It is simply not necessary in their understanding of the world. Breton and Simondon hinted at it when they turned to Ferdinand Cheval's *Palais idéal*, and here Deleuze and Guattari confirm it: binaries of the internal and external, subjective and objective, are all redundant in the world of technics.

In a text which questions the prevalence of the Oedipal myth in thought and society, it seems surprising that Deleuze and Guattari explicitly present Antonin Artaud as a young Oedipus seeking to kill his father, Breton.[51] Why invoke the 'black humour' associated with Breton here, only to undermine it? Their text almost appears to dismantle itself. No sooner do they affirm a position, than they slip away from it again. If the text, like everything else, is a machine, then it is subject to the same laws of breakdown, recording and cannibalistic consumption. Perhaps this is why, when a subject does emerge from the Deleuzo-Guattarian celibate machine, it is not the subject as we are accustomed to thinking of it. Instead, the 'subject spreads itself out along the entire circumference of the circle, the center of which has been abandoned by the ego. At the center is the desiring-machine, the celibate machine of the Eternal Return.'[52] Once again, we find Ixion's wheel – but this time, God and Ixion have been displaced from the centre.

Separating subjectivity from self, they posit a 'residual subject', the precipitate of the process of desire, which we saw earlier was in search of a subject, rather than an object. Here, subjectivity precipitates out from the celibate machine, which is itself the product of a relationship of desire between the miraculating machine and paranoiac machine. A human subject is not the agent of technics, but the by-product of a technics which is no longer correlated to the human. Deleuze and Guattari take the final step which Breton and Simondon could not, of liberating desire and objects entirely from human control.

In Chapter 1, I introduced the dream of a book that will tell us who and how we are, the ultimate technologos. In *Mille plateaux*, Deleuze and Guattari offer their version.

APOCALYPSE REDUX

Mille plateaux opens with a powerful statement of what a book is: a 'literary machine' which connects to other machines to regulate and participate in flows of desire.[53] As a nexus of forces, there 'is no difference between what a book talks about and how it is made'.[54] For Deleuze and Guattari, this yields two models for the book: the 'root-book' and the book as 'radicle-system'. The book as central root is the model of unity and linearity; it claims to be the mirror of a world governed by a 'binary logic': a world of dialectics, of subject versus object, of unity subdivided into neat pairs.[55] That world is, for Deleuze and Guattari, an illusion. By contrast, the book as 'radicle-system' is a non-hierarchical proliferation, which offers no illusion of teleology.[56] They point to the cut-ups of William Burroughs as an example of a 'radicle-system', but rather than focus on the act of cutting as separation, they describe his technique as a 'folding'.[57] Even in multiplicity, the act of folding that they emphasise means that 'unity continues its spiritual labor'.[58]

This example is not anodyne. In his exploration of the avant-garde work of Brion Gysin and William Burroughs, Florian Cramer describes how Gysin's *Permutation Poems* (1958–62) involved modifying 'In the beginning was the Word' through '720 [algorithmic] permutations … on a Honeywell computer' before reading out and recording the reshuffled Gospel truth.[59] The Gospels are rejected by Deleuze and Guattari, but they also engage with them, building their ontology in reaction to them. The fulfilment of the Old Testament in the 'new alliance' or 'new covenant' of the New Testament is their key to understanding the development of our understanding of sign and sense, with Cain and Christ as archetypes for relationships of signification.[60] At the heart of this is the 'face' (*visage*). Far from being an anatomical given, Deleuze and Guattari's face is a construction which allows meaning to happen, and with it, our sense of a coherent subject. We saw that Bergson's perceptions relied on a black screen for relief; for Deleuze and Guattari, 'the face constructs the wall that the signifier needs in order to bounce off'.[61] The face is a tool, producing a certain understanding of the subject and meaning as tethered together, in contrast to the ontology of residual-subjects which we saw in the celibate machines of *L'Anti-Œdipe*.

In the Old Testament, Cain's crime means that the divine and human faces turn away from one another: Cain becomes the eternal wanderer that we saw in *Ignis*, a figure of deterritorialisation.[62] In the wake of this originary turn, Deleuze and Guattari identify a gradual shift in the economy of meaning, from the Old Testament records, which are bound to

time and place, to the 'passional regime' of the New Testament, where interiority comes to the fore.[63] This is the advent of the typological mode of reading which has been a guiding thread of this book.

Deleuze and Guattari are on the side of Cain: the 'sign of Cain is the corporeal and affective sign of the subsoil'.[64] In the 'radicle book' that is *Mille plateaux*, Deleuze and Guattari write an underground, deterritorialised Apocalypse – a spiritual heir to *Ignis* in its intertextuality and temporal promiscuity. This is their third chapter, 'The Geology of Morals'. Its title riffs on Nietzsche's *On the Genealogy of Morality* (1887), but the tale itself is a counterfactual take on Arthur Conan Doyle's 'When the World Screamed' (1929), borrowing its protagonist, Professor Challenger. The chapter ends with an extended quotation from 'Through the Gates of the Silver Key' (1933), a short story by H. P. Lovecraft and E. Hoffmann Price. In the vision of the world that it presents, the attraction and repulsion of the desiring-machines are reconfigured as tectonic dynamics of flow and stratification. Stratification operates on the otherwise untamed flows, which are always attempting to break free via processes such as combustion, akin to the ejaculatory bachelordom of *L'Anti-Œdipe*. Through Professor Challenger, geological, biological, and theological discussions interweave in an alternative intellectual history.

Challenger begins by taking on the voices of Geoffroy de Saint-Hilaire and Cuvier, and reanimates a real debate between the two pioneering zoologists.[65] Saint-Hilaire argued that beings were manifestations of one ur-skeleton, with the human spinal cord and the dorsal fin of a fish variations of the same deep underlying structure. Bones aligned through 'a true *elective affinity*, a sort of intimate attraction'.[66] By contrast, Cuvier focused on the internal coherence of each skeleton and its adaptation to particular functions, rather than inserting it into a global scheme in which bones were iterations of an archetypal template. While Challenger voices both parts, it is with Saint-Hilaire that Deleuze and Guattari's sympathies lie. Where 'Cuvier is a man of Power and Terrain', Saint-Hilaire is the zoologist of the Deleuzo-Guattarian strata, an 'artist of the fold'.[67] Where Cuvier works with fixity and the establishment of domination or mastery, they suggest, Saint-Hilaire captures the mobility, dynamic tensions, and permanent possibilities for escape which are inherent in our reality.

Deleuze and Guattari interweave this geology with Darwinian evolution and early computer programming, in an allusive account of the operation of DNA: '[f]orms relate to codes and processes of coding and decoding … substances, being formed matters, relate to … movements of deterritorialization and reterritorialization'.[68] Here, we find 'all the

subtleties of medieval Scholasticism and theology' translated into their own ontological vocabulary.[69] The folding which Deleuze and Guattari admire in Burroughs and Saint-Hilaire – and which we saw in Cros – extends to their treatment of hylomorphism. Form gives way to code as matter's individuating principle. When the chapter culminates in the apocalyptic dissolution of the world, Challenger is folded back into the strata, deterritorialised for a new recoding, just as Deleuze and Guattari deterritorialised Doyle, Saint-Hilaire, Cuvier, and medieval theology. Eclectic and recursive, they recover old ideas and fold them into new, stratigraphic patterns.

Deleuze's preoccupation with the underground and the apocalyptic is also visible in his reading of D. H. Lawrence's *Apocalypse* (1930). In Lawrence's text, Deleuze argues,

> Miners … are open to a pagan stratum … saying only: it's coal, it's Christ. They bring about the most fearsome diversion of a stratum so that it can be used by the Christian, mechanical, and technical world. The Apocalypse is a great machinery.[70]

The literal and conceptual 'stratum' is processed and reconfigured to serve a particular agenda. Deleuze shares Lawrence's antipathy towards the economy of divine judgement and punishment which the Book of Apocalypse proclaims, and its deferral of social justice to the end times. Deleuze highlights the latter point through the opening of the seven seals which I underscored in the opening of Chapter 4:

> When the book was still scrolled, it perhaps retained its power as a symbol. But how, precisely, can we explain the strange fact that the book of the seven seals is supposed to be a scroll, and yet that the seals are broken successively, in stages – apart from the fact that the Apocalypse needs to put full stops everywhere, to install segments everywhere?[71]

The symbol is a 'concrete cosmic force', a '*rotative thought*', a 'thought of flows'.[72] It has no teleology or chain of logic, it simply is: 'the symbol means nothing, and has neither to be explained nor interpreted'.[73] By contrast, allegory is wedded to the 'linear … chain' of reasons and mappable relationships.[74] The Richepinian 'evident Apocalypse' of the symbol is replaced, in allegory, by 'a thought that ceaselessly postpones or defers'.[75] On the one hand, we have revelation, on the other, the time of waiting. If 'The Geology of Morals' seeks to remake the Apocalypse as symbol rather than allegory, then we must also look for a new form of temporality.

Deleuze finds it in 'Un Précurseur méconnu de Heidegger, Alfred Jarry' ('An Unrecognized Precursor to Heidegger: Alfred Jarry') (1993). In this essay, he turns to Jarry's time machine to think technics and temporality,

positing pataphysics as the ancestor of Heideggerian phenomenology. For Deleuze, pataphysics explores the 'Being of phenomena [*L'Être de l'étant*]'.[76] Technics is the consequence of a metaphysical conflation of being (*être*) and phenomena (*étant*), which Deleuze claims lies at the roots of Heidegger's Nazism and its mechanised murder.[77] Ubu is the *figura* of this conflation: a being who sees himself as beginning and end, and whose cruelty and despotism are 'the outcome of metaphysics as planetary technology and a completely mechanized science'.[78] Jarry's logic of the *arma Christi* is at work in Deleuze's redemptive suggestion that 'planetary technology is not simply the loss of Being, but the possibility of its salvation'.[79] The *figura* of this salvation is Jarry's alternative Christ-figure, the *Surmâle*; his crucifix, Jarry's bicycle-time machine. Deleuze positions the Supermale at the apex of a movement which moves past 'the virtualities of beings toward the possibility of Being'.[80] In Deleuze's reading of Bergson, 'the real is in the image and likeness of the possible that it realizes', while 'the actual … does not resemble the virtuality that it embodies'.[81] The actual cannot be any other way, whereas the virtual is always proliferating, never exhausted. In his dissolution of ontological categories of 'man', 'woman', and 'machine', the Supermale becomes a 'celibate capacity, or … Being-Power [*puissance célibataire ou pouvoir-être*]'.[82] 'Being-Power' here is the power to be. The celibate machine is reconfigured as single and ready to mingle, sloughing off the skin of being and exposing himself to Being and all its potential.

Deleuze describes Jarry's time machine in near-identical terms: 'the Being of time in its entirety is converted into Being-Power, into the possibility of Being as Future'.[83] Jarry's return to basic technical forms, such as the crucifix and bicycle, are an ontological statement: 'the technical machine makes virtual lines emerge, which bring together the atomic components of beings, whereas the poetic sign deploys all the possibilities or capabilities of Being'.[84] What Deleuze describes here is, in effect, a technologos. The poetic sign does for Being what the technical machine does for being: it opens up the space of potential, rather than domination.

THE 'FACT' AND THE *FIAT*: THE ART OF THE PROBLEM

For Deleuze, Roussel provides another way of approaching ontology: 'Roussel poses his "equations of facts" as problems to be solved, as ideal facts or events … or as facts which are themselves *fiats*.'[85] Roussel's 'facts' are *fiat*s because they make something happen: repeated sounds interact to yield differences, yield change. Roussel's method becomes

Deleuze's roadmap for thinking about the unfolding of existence. For Deleuze, the 'virtual possesses the reality of a task to be performed or a problem to be solved: it is the problem which orientates, conditions and engenders solutions'.[86] The method, as Deleuze presents it here, enacts precisely this. The words which Roussel uses to trigger the process are virtual, because they contain an almost infinite multiplicity of transformations. Like Simondonian individuation, problems generate solutions, which generate more problems.

In *Qu'est-ce que la philosophie?* (*What Is Philosophy?*) (1991) Deleuze and Guattari create their own method, when they assert that 'concepts are only created as a function of problems which are thought to be badly understood or badly posed'.[87] I read this definition of the philosophical concept as a retooled version of the technologos. The philosophical concept is always a 'point of coincidence, condensation, or accumulation of its own components', which are always 'processual'.[88] A concept is recognisable not by what it is, but by what it does and how those actions and attributes cluster, like Breton's eggshell poem-object: 'the concept of a bird is not found in its genus or species but in the composition of its postures, colors, and songs'.[89] Mobile and recursive, the concept is a 'ritornello' – a repeated refrain which acts like an ontological thread, holding components together but with a knot that can be untied and retied (see Figure 6.1). It is perhaps appropriate that the concept is described in recursive terms. Reusing the Proustian quotation with which Deleuze describes the virtual in *in Le Bergsonisme* (*Bergsonism*) (1988), Deleuze and Guattari characterise the concept as 'real without being actual, ideal without being abstract'.[90]

If the philosophical concept is a form of the virtual, then literally and metaphorically, the shadow of the *figura* remains present – more fluid than in typological exegesis, perhaps, but still haunting us. Indeed, Deleuze and Guattari highlight the use of emblems in Renaissance Europe as evidence that 'figures tend toward concepts to the point of drawing infinitely near to them'.[91] Christianity does not yield philosophical concepts on its own terms, but rather through the atheism which is, Deleuze and Guattari suggest, its necessary correlate.[92] This is the dynamic of individuation – of problem-posing – at work. Indeed, Deleuze and Guattari argue that '[p]hilosophy appears in Greece as a result of contingency rather than necessity, as a result of an ambiance or milieu rather than an origin, of a becoming rather than a history, of a geography rather than a historiography, of a grace rather than a nature'.[93] All the key notes of this book are at play, as the vocabularies of Catholicism and secularism interweave: the contingency and necessity paradox that so troubled Breton in Surrealism; the Simondonian

milieu; the question of writing, the -graphy or logos; and of course, the action of grace rather than the essentialism of nature.

Indeed, it is to Charles Péguy, a convert to Catholicism (but not to the Catholic Church) that Deleuze and Guattari turn to understand history. For Péguy, there is one reason for the waning of Catholicism in western Europe at the turn of the twentieth century: '*a mystic (de)fault*'.[94] We have forgotten, Péguy says, what history is, and the grace that drives it: 'history tells us that we must be wary of grace. When grace wants someone or something, it gets it.'[95] Indeed, the focal point of Péguy's history is Christ's entry into the world through the Incarnation – a moment of ontological density in which the 'finite' and the 'continuous' folded into one another.[96] The Incarnation is the

> gathering into one point of this perpetual inscription, of this (wholly) mysterious insertion of the eternal into the temporal, the spiritual into the fleshly … which forms the very joint, the elbow and knee joint of every creation of the world and of man … the joint of every creature.[97]

Just as his words fold back over one another, Péguy becomes a metaphysical Saint-Hilaire, recomposing the skeleton of faith around one fact. When Deleuze and Guattari suggest that Péguy advocates 'reassembling the event, installing oneself in it as in a becoming', they are following Péguy's logic, but they occlude the foundation which gives it its solidity.[98]

In *L'Anti-Œdipe*, Deleuze and Guattari wish to avoid the figure of the Father and end up trying to kill God. In *Mille plateaux*, they critique the Bible and write their own alternative, building a system of semiotics with the lexicon of biblical exegesis. In *What Is Philosophy?*, their understanding of history is rooted in a Catholic understanding of the Incarnation. Thought-as-technics takes the place of God-as-technician, but the technologos never left – it changed.

In *L'Homme*, Hello sought to synthesise life, science, and art. Deleuze and Guattari seek its apparent opposite: a 'heterogenesis' of philosophy, science, and art.[99] But synthesis as I have used it in this book has always been an unruly suture that leaves a scar, not the effacement of difference – and a reading which is attentive to theological roots is not a forced conversion. It is in this spirit that I think we can read Deleuze and Guattari's claim that '[p]hilosophical concepts are fragmentary wholes that are not aligned with one another. … They resonate nonetheless, and the philosophy that creates them always introduces a powerful Whole that, while remaining open, is not fragmented.'[100] Like all the authors of my corpus, they are 'confronting chaos', seeking to hold the world and themselves together in synthesis

in the face of 'the infinite'. Their vocabulary of philosophy is one of salvation, in which 'philosophy wants to save the infinite by giving it consistency'.[101] Technics has been a conceptual toolkit for authors in this corpus, offering them a vocabulary for ontology; with Deleuze and Guattari, the conceptual toolkit – quite literally – comes into its own. Their ontology is the ontology of the technologos, hidden from view by its very obviousness, requiring a technician to uncover it.

NOTES

1 Gilles Deleuze and Félix Guattari, *A Thousand Plateaus: Capitalism and Schizophrenia*, trans. Brian Massumi (London: The Athlone Press, 1988), 409.
2 Ibid., 406.
3 Ibid., 406–7.
4 Ibid., 407.
5 Ibid., 406.
6 Ibid., 409.
7 See *Deleuze and Research Methodologies*, ed. Rebecca Coleman and Jessica Ringrose (Edinburgh: Edinburgh University Press, 2013).
8 Claire Colebrook, *Gilles Deleuze* (London: Routledge, 2002), 1.
9 Ibid.
10 See *Deleuze and the Non/Human*, ed. Hannah Stark and Jon Roffe (Basingstoke: Palgrave Macmillan, 2015).
11 See *Deleuze's Philosophical Lineage*, ed. Graham Jones and Jon Roffe (Edinburgh: Edinburgh University Press, 2009).
12 In this reading, I do not draw hard distinctions between Deleuze's single-authored work and the work that he produced with Félix Guattari.
13 Mary Bryden, 'Introduction', in *Deleuze and Religion*, ed. Mary Bryden (London: Routledge, 2001), 18.
14 Michael Goddard, 'The Scattering of Time Crystals: Deleuze, Mysticism and Cinema', in *Deleuze and Religion*, 114–15.
15 Peter Hallward, *Out of this World: Deleuze and the Philosophy of Creation* (London: Verso, 2006), 3–4.
16 Ibid., 8, 10.
17 Ibid., 20.
18 Joshua Ramey, *The Hermetic Deleuze: Philosophy and Spiritual Ordeal* (Durham, NC: Duke University Press, 2012), 27.
19 See Maurice de Gandillac, *Nicolas de Cues* (Paris: Ellipses, 2001).
20 Daniel W. Graham, 'The Doctrine of Univocity: Deleuze's Ontology of Immanence', in *Deleuze and Religion*, 307.
21 Eleanor Kaufman, *Deleuze, The Dark Precursor: Dialectic, Structure, Being* (Baltimore, MD: Johns Hopkins University Press, 2012), 2–3.
22 Ronald Bogue, *Deleuze on Literature* (New York: Routledge, 2003).

23 Aidan Tynan, *Deleuze's Literary Clinic: Criticism and the Politics of Symptoms* (Edinburgh: Edinburgh University Press, 2012).
24 See *Deleuze and the Schizoanalysis of Literature*, ed. Ian Buchanan, Tim Matts and Aidan Tynan (London: Bloomsbury, 2015).
25 Gilles Deleuze, 'Ferdinand Alquié, *Philosophie du surréalisme*', in *Letters and Other Texts*, ed. David Lapoujade, trans. Ames Hodges (Cambridge, MA: MIT Press, 2020), 112.
26 Alfred Jarry, *Œuvres complètes*, ed. Michel Arrivé (Paris: Gallimard, 1972), 1:172.
27 Gilles Deleuze and Félix Guattari, *Anti-Oedipus: Capitalism and Schizophrenia*, trans. Robert Hurley, Mark Seem, and Helen R. Lane (London: The Athlone Press, 1984), 1.
28 Ibid.
29 Ibid., 6.
30 Ibid., 26.
31 Gilles Deleuze, *Difference and Repetition*, trans. Paul Patton (London: Bloomsbury, 2004), 222.
32 Deleuze and Guattari, *Anti-Oedipus*, 26.
33 Ibid., 8.
34 Ibid.
35 Ibid., 9.
36 Ibid., 11.
37 Ibid.
38 Ibid., 17.
39 Ibid., 18.
40 Michel Carrouges, *Les Machines célibataires* (Paris: Arcanes, 1954), 8. Linda Dalrymple Henderson, *Duchamp in Context: Science and Technology in the Large Glass and Related Works* (Princeton, NJ: Princeton University Press, 1998) and Cécile Debray, 'Introduction', in *Marcel Duchamp: la peinture, même*, ed. Cécile Debray (Paris: Centre Pompidou, 2014), 19 provide accounts of Duchamp's explicit inspiration from Villiers, Jarry, and Roussel.
41 Carrouges, *Machines célibataires*, 24–5.
42 Ibid., 218.
43 Deleuze and Guattari, *Anti-Oedipus*, 17–18.
44 Ibid., 18. Translation modified.
45 Matthew 17.1–8; Mark 9.2–8; Luke 9.28–36.
46 Matthew 17.2.
47 Mark 9.3.
48 Luke 22.20.
49 Deleuze and Guattari, *Anti-Oedipus*, 18.
50 André Breton, 'Lightning Rod', in *Anthology of Black Humor*, trans. Mark Polizzotti (n.p.: Telegram, 2009), 22.
51 Deleuze and Guattari, *Anti-Oedipus*, 134.
52 Ibid., 11.

53 Deleuze and Guattari, *Thousand Plateaus*, 4.
54 Ibid., 4.
55 Ibid., 5.
56 Ibid.
57 Ibid., 6.
58 Ibid.
59 Florian Cramer, *Words Made Flesh: Code, Culture, Imagination* (Rotterdam: Piet Zwart Institute, 2005), 17–18.
60 Deleuze and Guattari, *Thousand Plateaus*, 123.
61 Ibid., 168.
62 Ibid., 123.
63 Ibid.
64 Ibid., 414.
65 See Toby A. Appel, *The Cuvier–Geoffroy Debate: French Biology in the Decades before Darwin* (Oxford: Oxford University Press, 1987).
66 Isidore Geoffroy Saint-Hilaire, *Vie, travaux et doctrine scientifique d'Étienne Geoffroy Saint-Hilaire par son fils* (Paris: Bertrand, 1847), 312.
67 Deleuze and Guattari, *Thousand Plateaus*, 47.
68 Ibid., 53.
69 Ibid., 58.
70 Gilles Deleuze, 'Nietzsche and Saint Paul, Lawrence and John of Patmos', in *Essays Critical and Clinical*, trans. Daniel W. Smith and Michael A. Greco (London: Verso, 1998), 44. Translation modified.
71 Ibid., 49.
72 Ibid., 48–9.
73 Ibid., 48.
74 Ibid.
75 Ibid., 49.
76 Gilles Deleuze, 'An Unrecognized Precursor to Heidegger: Alfred Jarry', in *Essays Critical and Clinical*, 91.
77 Ibid., 93.
78 Ibid., 92.
79 Ibid., 93.
80 Ibid., 94.
81 Gilles Deleuze, *Bergsonism*, trans. Hugh Tomlinson and Barbara Habberjam (New York: Zone Books, 1991), 97.
82 Deleuze, 'Unrecognized Precursor', 95.
83 Ibid.
84 Ibid., 96.
85 Deleuze, *Difference and Repetition*, 199.
86 Ibid., 212.
87 Gilles Deleuze and Félix Guattari, *What Is Philosophy?*, trans. Graham Burchell and Hugh Tomlinson (London: Verso, 1994), 16.
88 Ibid., 20.

89 Ibid.
90 Ibid., 156.
91 Ibid., 92.
92 Ibid.
93 Ibid., 96–7.
94 Charles Péguy, 'La Faute de mystique', in *Péguy tel qu'on l'ignore*, ed. Jean Bastaire (Paris: Gallimard, 1973), 325.
95 Charles Péguy, *Clio*, 10th ed. (Paris: Gallimard, 1932), 170.
96 Péguy, 'Faute de mystique', 329.
97 Charles Péguy, *Victor-Marie, comte Hugo* (Paris: Gallimard, 1934), 101.
98 Deleuze and Guattari, *What Is Philosophy?*, 111.
99 Ibid., 20.
100 Ibid., 35.
101 Ibid., 197.

Conclusion: For the Love of Technics

In *Aramis, or the Love of Technology* (1993), Latour tells the story of the eponymous automated metro network, which was abandoned after seventeen years in development. One of its engineers wistfully reflects that it could have been 'the project for the 1989 World's Fair … something that symbolized French technology'.[1] One hundred years after the construction of the *Palais des machines* with which I opened Chapter 2, the tragic love story of the little engine that couldn't unfolds. In an apology which could stand as an epigraph to this book, Latour declares, 'sorry, … I was thinking about grace'.[2]

Aramis is a hybrid text, combining diagrams, technical specifications, and interview transcripts, with interlocking narrative perspectives, including those of Aramis and its components. It is a collaborative story which its human and nonhuman components sought to stitch together: 'they had tried to tell a story *that held together*'.[3] Software, wires, and concrete are 'recruited, seduced, modified, transformed, developed', and become literal actors in the ontological drama.[4] A rebellious microchip even declares 'screw the CEO'.[5] But Aramis – the nebulous confederacy of all these voices and actors which failed to cohere in concrete form – has its own voice. It speaks the language of the technologos: 'I am Action. I am Programme. I am Word, too.'[6] Latour revisits Faust's conundrum regarding the translation of 'Verbum', which Schwob sought to answer by making word and action synonymous (Chapter 2). Aramis folds those two terms together and adds a third: the programme that we saw in Roussel's algorithms in Chapter 6, as they melded determined rules of behaviour and contingent iterations to produce change and novelty within the logos.

Aramis presents itself as a new Logos, an ontological algorithm which seeks to be run, to become incarnate. Where God took flesh in Christ without abandoning his divinity, Aramis seeks to become

machine without abandoning its origins in dream, imagination, and the various cultural *mythoi* of creation. As we saw in Chapter 2, the *fiat* of the Incarnation requires the *fiat mihi*: a partner. When Aramis remonstrates with its human co-creators, it is this lack of partnership which forms the substance of its reproach. It declares, 'your sin is not that you took yourself for God, for God never abandons his creatures, no matter how sinful they are. He … sends them His only son; He saves them. Continual, continuous creation. Salvific incarnation.'[7] The poles are reversed. Now, it is the human who is put in the divine position, with Aramis as the one in need of saving.

The psalmist imagined the universe as being infused with God's breath, in the intimacy of divine immanence,[8] and it is this *creatio continua* that Latour evokes here: God's creation of the world is not a single, punctual event followed by his withdrawal into transcendence, but rather a continuing act. The Incarnation is a crucial (in its etymological sense) chapter of that ongoing divine intervention in the world. As Aramis and its co-creators play the parts of God and humanity in turns, Latour highlights the intimacy of these relationships. The Incarnation is about God being God and man; Aramis's incarnation is about being all the things that it is and could be. The 'salvific incarnation' is not the simple idea of making something real (understood as concrete, tangible), for 'no "real" Aramis is the sum of the virtual Aramises'.[9] Rather, it is about believing in, rather than seeing, the whole.

Latour tells us that we must 'follow projects lovingly through their entire duration' not only as ideas become trains, but also as 'automatic trains … turn back into wild ideas that float around, that have floated around, in the heads of engineers'.[10] We must cherish the failed ideas, the imperfect, the things which cannot be seen or monetised, the 'pre-individual' of Simondonian spirituality, as much as the material and the concrete. Love is a kind of faith. Alexandre Dumas's original musketeer is a Jesuit, a swordsman, a womaniser, and a story: a servant of the Logos, technician of the blade, affective cluster, and logos ripe for retelling and adaptation throughout the centuries. Similarly, Aramis is a textual tapestry and technical confederacy: a technologos, if ever there was one.

As we saw in my Introduction, Grusin presents Latour as the starting point of the nonhuman turn. The nonhuman turn is a tendency, rather than a coherent movement and the exigencies of this book preclude the in-depth investigation that it warrants. However, I would like to suggest that the history of the technologos as I have set it out should invite us to read the new materialists, ecologists, software theorists, object-oriented ontologists, and speculative realists who draw on a Deleuzian and Simondonian corpus, with new eyes.

For some theorists in the nonhuman turn, Christianity makes 'a hubristic demand that only humans and God can bear any traces of creative agency … that humans, above all other things on earth, possess souls that make us eligible for eternal salvation'.[11] This enables our 'earth-destroying fantasies of conquest and consumption … by preventing us from detecting … a fuller range of the nonhuman powers circulating around and within human bodies'.[12] The Apocalypse demonstrates 'a fundamental lack of concern for the way things are going. Since the end of the world is nigh … there isn't much point in caring.'[13] I would like to suggest a re-evaluation of the nonhuman turn's relationship with religion. After all, in *Vibrant Matter*, Bennett borrows and synthesises Bergson's *élan vital*, Deleuze and Guattari's assemblages, and Latour's 'actant', on the basis that these break with 'onto-theological' logics. Yet she chooses the form of the Nicene Creed to proclaim her (non-Christian) faith: 'I believe in one matter-energy, the maker of things seen and unseen.'[14]

In *Excommunication* (2014), the nonhuman software theorists Alexander Galloway, Eugene Thacker, and McKenzie Wark take apart traditional discussions of media which focus on it as a set of devices, or as a vessel or channel for communication. Instead, they return to figures whom we encountered in Chapter 1: Augustine and the pseudo-Dionysius.[15] They contrast Augustine's vision of a mystic *via affirmativa* in which 'light, presence, immediacy, truth, and the divine become commingled in a single revelation' with Dionysius's 'paradoxical "divine darkness" amenable neither to thought nor to the senses'.[16] Where Augustine stands for communication, Dionysius moves us towards the 'excommunication': that which 'refers to the impossibility of communication that appears at the very moment in which communication takes place'.[17] Thacker draws on the same etymology as Renan (see Chapter 1) when he declares that this 'dark media is "religious", from *religo* "I bind"'.[18]

We might say that the nonhuman turn has excommunicated theology, articulating its importance at the very moment that it denies it. Seeing our current critical perspectives within this much deeper history matters at the conceptual level, just as it matters at the level of the technological examples with which I opened this book, from cyber-security to artificial intelligence. It matters for our ethics, values, and discourse. Technicity as French writers present it is recursive, cannibalistic: it recycles, upcycles, and collaborates but it never discards. It embraces failure, amateurism, well-intentioned attempts, and above all, the freedom to change your mind. If we are going to be avant-garde, then we cannot look to the utopian space of the future and the opportunities it presents for doing things better without looking over our shoulders at

what we carry with us: the *umbrae* of others and other ways of thinking, the shadow which falls both forwards and backwards.

The genealogy which I have traced in this book is ambitious in scope; countercultural in its focus on Catholicism as a persistent underground tool for thought in secular France; and synthetic in its mingling of literature, theory, and philosophy. Rooting my story in the late nineteenth century, I have shown how technicity in French writing, thought, and culture has always been about more than machines. By expanding my scope beyond one particular category of technical object or technical intervention to consider technicity as a whole, I have been able to trace how it emerges as a theme, metaphor, conceptual practice, object, and relationship across a century of French culture.

Fin de siècle writers retooled the vocabulary and iconography of Catholicism to accommodate the new social and spiritual possibilities afforded by technological innovation within the synthetic framework of a book which might tell us how to live. Biblical exegesis and sacramentality allowed me to demonstrate the symbolic freight of technology as a vehicle of grace – or, in its secular form, as an instrument of change. We saw that technology incorporated the nebulous and unseen as much as the tangible in order to effect change within individuals, and that the book itself was a technical form. Through experimental modes of writing, de Chousy, Jarry, Bergson, and Roussel exposed, tested, and reconfigured the nuts and bolts of our technical lives. Where my earlier corpus was dominated by a lexicon of grace, potentiality, and actuality, virtuality began to emerge as a term. In the hands of these authors, the action of the technologos is no longer restricted to the fabrication of technological objects; its ambition becomes nothing less than ontological. In the work of Breton, Simondon, and Deleuze and Guattari, thinking about technics and the technics of thinking fused to become a principle of being. These writers integrate technics into ontology, and ontology into technics, in ways which (implicitly or explicitly) acknowledge and perform the tradition of the technologos.

Throughout this book, I have sought to defuse disciplinary boundaries between thought and literature, and between centuries. I have read Bergson with Jarry, Breton with Simondon, and Deleuze with de Chousy. Technical objects and metaphors have rubbed shoulders with the structural dynamics of our world and interactions. Images have called to one another across space and time, traversing different forms, genres, and people to resonate and change writers' minds for them. In the universe of the technologos, characters, figures, concepts, and even material objects willed themselves into being with our assistance. Different forces under different names – love, passion, desire,

Figure C.1 The hand of Breton, or recreation.
Untitled sketch, *c.* 1953. Reproduced from Jean Record, 'Réalmont. Un procès surréaliste: Abel Bessac contre André Breton', 30 August 2017, https://www.ladepeche.fr/article/2017/08/30/2635946-un-proces-Surrealiste-abel-bessac-contre-andre-breton.html

affect – wrought change. And, with their eclectic intertextuality and scholarship; their dynamic borrowing, reworking, and retooling of the past, and the intuitive and demanding reading experiences they invite, these texts retune their readers – then and now.

Visiting the prehistoric caves of Pech-Merle in 1953, Breton became suspicious of the authenticity of a drawing of a mammoth. Believing that a truly ancient cave painting would have calcified, he tested its authenticity by rubbing it with his finger (Figure C.1). He took the dark residue it left on his fingertip as proof that it was a fraud, though in fact calcification can take millennia.[19] A brawl with his tour guide, court case and fine ensued.[20] Abbé Breuil described Pech-Merle as the Sistine Chapel of caves, and Breton's own gesture imitates Adam and God's gestures in the Sistine Chapel.[21] This book opened with Rodin's modern approach to an ancient formative touch; it ends with a modern figure reaching out to erase an ancient form made by another's fingers. Seeking to prove a point on the basis of an erroneous assumption, he finds it fresh to the touch. This book is an invitation for us to do the same.

NOTES

1 Bruno Latour, *Aramis, or the Love of Technology*, trans. Catherine Porter (Cambridge, MA: Harvard University Press, 1996), 21.

2 Ibid., 64.
3 Ibid., 77.
4 Ibid., 57.
5 Ibid., 59. Translation modified.
6 Ibid., 82. Translation modified.
7 Ibid., 249. Translation modified.
8 Psalm 104.29.
9 Latour, *Aramis*, 79.
10 Ibid., 79. Translation modified.
11 Jane Bennett, *Vibrant Matter: A Political Ecology of Things* (Durham, NC: Duke University Press, 2010), 120–1.
12 Ibid., ix.
13 Timothy Morton, *The Ecological Thought* (Cambridge, MA: Harvard University Press, 2010), 27.
14 Bennett, *Vibrant Matter*, 122.
15 Thacker's Dionysius is the Denis in the 'Mystic Theology of Saint Denis' which I discuss in Chapter 1.
16 Alexander Galloway, Eugene Thacker, and McKenzie Wark, 'Introduction: Execrable Media', in *Excommunication: Three Inquiries in Media and Mediation* (Chicago, IL: The University of Chicago Press, 2014), 14.
17 Alexander Galloway, 'Love of the Middle', in *Excommunication*, 31.
18 Eugene Thacker, 'Dark Media', in *Excommunication*, 86.
19 André Leroi-Gourhan and Claude-Henri Rocquet, *Les Racines du monde: entretiens avec Claude-Henri Rocquet* (Paris: Pierre Belfond, 1982), 77.
20 See 'Séance du 26 novembre 1953', *Bulletin de la Société préhistorique de France* 50.11–12 (1953), 565–93.
21 A. Lemozi, 'Le Combel de Pech-Merle, commune de Cabrerets (Lot) et ses nouvelles galeries', *Bulletin de la Société préhistorique française* 49.7 (1952), 320.

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