

The Historical Ontology of Environment: From the Unity of Nature to the Birth of Geopolitics

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I'm tempted to say that "it takes a village" to have written something like this—to have made one's way through the thickets of life and academic protocol to the point of needing to acknowledge that which has made this passage possible. However, the better image might instead be a whole series of villages, bundled by bonds of various kinds, stretching away into the deepest groves of remembered and unremembered time, each in their own ways and byways ushering, however haphazardly, the bewildered thread of a given wanderer towards the peculiar improbability of their present moment. Such reflections upon abyssal contingencies of the personal past are wont to induce vertigo. However, I can say, simply enough, that I have been lucky to have been amongst the villages that I have.

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Orthography and Referencing

Reference information is given in the body text where appropriate to the argument. Details such as subtitles are often given in footnotes if they are relevant but not essential.

Double quotation marks are generally used. Single quotation marks are sometimes used for clarity, indicating emphasis without reference.

The section symbol (§) is used to refer to both chapters and sub-sections (e.g. Chapter 5, Section 3 becomes §5.3). An exception to this comes with the six “Excurses,” which follow each chapter, and are referred to by letter (i.e. §A–§F). This system allows a simple means of referring back and forth, parenthetically, to other sections.

All translations are my own unless otherwise indicated. Published translations have usually been used where available. Where these translations have been modified, this has been indicated. Transliterated was performed using tools available at www.lexilogos.com.

References to Figures are given on pp.316–318.

Part 1: Introduction

1: Matters of significance

Where are we? What time are we in? What is our shared reality?

Integrally, this thesis concerns matters of spatial relation, epochal differentiation, and ontological association. Substantively, it constructs a history of three concepts—milieu, climate, and environment—tracing their distinct but interrelated development up to the start of the twentieth century. Analytically, it identifies differences between specific instances of conception, emphasising their contemporaneous (i.e. at their time) rather than contemporary (at this time) significance. Diagnostically, it understands these differentiable conceptions of spatial relation to be formative, in however minor a fashion, of collectively particular and historically variable ontologies. Conceptually, it formulates a distinct understanding of what “ontology” should mean with respect to such matters. Speculatively, it begins to reformulate certain strands of this inherited, and conflicted, legacy of conception, with a view towards present problems. In short, this thesis undertakes a historical and philosophical study of these three concepts in order to pose questions regarding our prevailing modes of thought.

1.1: Starting points and parameters

By the start of the twentieth century, the concept “environment” had become both commonplace and contested. It had been popularised from the 1850s onwards as a translation of the French “milieu.” However, it also bore a crucial relation to its precursor and parallel “climate.” This thesis undertakes to explicate the complicated historical pathways by which these three concepts came to be matters of significance—that is, both commonplace and contested—within Euro-American scientific, literary, and political parlance. It begins with conceptions of physical media in seventeenth- and eighteenth-century physics, before investigating the longer development of climate since antiquity, and concluding with the proliferation of environment by the turn of the century. However, and moreover, in addition to tracing and reconstructing such relations, it also asks: What can we learn from this history? That is, how can the problems of the past be related to those of the present?

Of course, the present has many problems and there are surely many things that can be learned in this respect. However, it is important to recognise from the beginning that “environment” of 1899 was not that of 1969, nor was “climate” of 1748 that of 1988. Indeed, taken in their contemporaneous significance—in terms of both their historically particular meaning and relative importance—these concepts are found to have performed rather different roles in comparison to those with which we are now familiar. To “learn from this history” therefore requires more than searching for anticipations or filiations of present realities.

As such, in addition to the historical reconstruction to which the majority of this text is given, a conceptual argument is also articulated: The conflicted significance of environmental

concepts, as developed through the period known as modern, derives from conflicted conceptions of existence. In particular, this conflict can be diagnosed as becoming manifest in positivist, phenomenalist understandings of knowledge that hierarchically and teleologically elevate naturalistic conceptions of the world above all others, while simultaneously rendering the existential commitments of such relations obscure. This process of learning therefore requires a distinct understanding of ontology—an understanding to be both historically and philosophically developed herein.

Exemplary as regards this connection is the case of milieu. As a physical medium, “milieu” was first understood as a definite (albeit, for many, conjectural) physical substance. In 1838, Auguste Comte rearticulated the concept in terms of the philosophy of Positivism and, after his example, milieu became an abstract placeholder for all those things surrounding a thing—an undifferentiated, unified externality consisting of any surrounding entity whatsoever; a circumambient sphere of influences, defined by its centre. Thus, the concept underwent a transformation: From signifying that substance which undergirds all physical relations, to signifying that which is nothing but the relations it encapsulates. However, physical connotations remained attached to the term. Indeed, today, one also speaks of “the environment” as a thing “out there”—something with its own dynamics and requirements that imparts imperative obligations and forms the conceptual ground of political contestation.

The crucial claim of this thesis is, therefore, that the history of environmental concepts pertains to problems of ontology—problems no less relevant in 1838 or 1899 than in 1969, 1988, or 2019. That is, it pertains to conflicted understandings of what must be “received as real” (as I put it in §3) and how a world disunified with regard to the obligations of this reception must be negotiated. In order to adequately address this problem, through the course of this thesis I develop an original understanding of ontology, conceived as consisting of six dimensions: ontonomic, ontoturgic, ontodesic, ontographic, ontomesic, and ontochronic. These concepts are both developed from and analytical of the historical narrative that they intersperse.

Taken altogether, this thesis therefore constitutes a contribution to conceptual history, to practical conceptions of historiography, and to contemporary speculative philosophy as it engages with issues of science, politics, and the transformation of terrestrial existence. Disciplinarily, the conceptual-historical literature that it assembles, reconstructs, and goes beyond is constrained to no one field of knowledge. As §2 will show, a number of histories of the concepts in question have been written over the past century or so. However, these investigations have been undertaken in a wide variety of fields—from philology to environmental history, and beyond—, often being disconnected from one another.

This thesis is, therefore, interdisciplinary in that it draws together and seeks to contribute to a variety of fields at once. In particular, it draws on work in the history of science, intellectual history, and philosophy. However, this thesis is also transdisciplinary in that it seeks to create

something that would not be possible from within any single disciplinary precinct. As will be particularly returned to in the concluding sections of the thesis, it is influenced by debates concerning decolonisation, which are particularly active within such fields as international relations, anthropology, and political geography.¹ Moreover, it ultimately seeks to contribute to related debates concerning ‘worlding’ and ‘pluriversality’²—and, in particular, to questions concerning what it means to inhabit ‘multiple worlds,’ and to construct a politics between these worlds—, although, due to constraints of word count and complexity, it does not address these debates at length, instead deferring these more comprehensive discussions to post-doctoral work.

Thus, rather than being a ‘disciplined’ text, this thesis attempts to identify, and to open up, new fields of knowledge and new possibilities for collaboration, coordination, and contestation. Rather than being organised around pre-existing disciplinary boundaries, it is organised around its problematique. However, despite this domainally transversal approach, the text does nevertheless prioritise particular kinds of issues.

As its subtitle—‘From the Unity of Nature to the Birth of Geopolitics’—indicates, the thesis takes as its historical endpoint the moment just before the First World War when the concept of ‘geopolitics’ first became established and popularised.³ Although it has more recently taken on a much wider range of connotations,⁴ ‘geopolitics,’ at this time, entailed a loosely affiliated school of conservative thought that undertook to construct imperialist grand strategy on the basis of apparently comprehensive global geographical knowledge of the relatively immutable structures of terrestrial nature. It can thus be associated with broader movements concerning both ‘environmental determinism’ and eugenics. Later, it became closely linked to Nazism, via the association of the geographer Karl Haushofer with his student Rudolf Hess,⁵ leading to a widespread abandonment of the expression for a large part of the twentieth century, for instance by the field of international relations, which came to define its emergence in some measure against the leadenly geographical-materialist pretensions of the geopoliticians.⁶

It is the beginnings of this moment that this thesis takes as its point of historical conclusion—a moment at which certain highly reductive forms of naturalism (‘social Darwinism’ being foremost among them) had suffused a pervasive ontology of vicious competition into the very conception of reality itself, thus markedly departing from the

¹ E.g. Bhambra, Gebrial, and Nişancioğlu 2018; Capan 2017; Esson et al. 2017; Tuck and Yang 2012; Tucker 2018; Whyte 2018.

² E.g. de la Cadena and Blaser 2018a; Ling 2014; Blaser 2013; Lugones 2003; Agathangelou and Ling 2009; Prozorov 2013b; Blaney and Tickner 2017; Mitchell 2019.

³ See Dodds and Atkinson 2000.

⁴ E.g. Dalby 1991; Tuathail 1996; Dowler and Sharp 2001; Conway 2016a.

⁵ Murphy 1997.

⁶ Ashworth 2011; Ashworth 2013; Wittfogel 1985.

previously prevalent ontology of the ‘unity of nature,’ which emphasised the divine harmony of Creation. Although perhaps more allusive than strictly denotative, the title is thus intended to encapsulate the span and direction of the thesis with respect to its intellectual and political objectives.

With this in mind, then, the distinct and original contribution of this thesis can be more precisely specified: Besides a large number of specific contributions to various literatures across a variety of fields, its more wide-ranging contribution is that it immanently explicates the historical-conceptual relations by which concepts of milieu, climate, and environment have constituted elements of ‘world-making’ practices—in particular, making worlds of national, planetary, and imperial dimensions. As such, this precise explication makes possible—and, indeed, the philosophical portions of the thesis begin to think through—the ways in which these concepts might be remade as part of a more comprehensively reconstructed kind of ‘world politics.’ The thesis does not take this thinking-through to anything like a point of completeness. However, it provides the historical and conceptual materials for such an endeavour.

The distinction between historical, philosophical, and political practice, the conception of conceptual history, as well as that of ontology, will be further elaborated in §3. However, this being, first of all, a history, its introduction should be historical.

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On 5<sup>th</sup> June 1799 aboard the corvette *Pizarro*, immediately before departing from La Coruña for the Americas, Alexander von Humboldt (1769–1859) wrote to one of his many correspondents, the statesman and naturalist Karl von Moll (1760–1838):

“In a few hours, we sail around Cape Finisterre. I shall collect plants and fossils and make astronomic observations, but that is not the main purpose of my expedition. I shall try to find out how the forces of nature interact upon one another and how the geographic environment influences both plant and animal life. In other words, I must find out about the unity of nature.”

Humboldt would spend the next five years traversing South and Central America, exploring rainforests and climbing mountains, collecting specimens and plotting maps, excavating colonial archives and ingratiating colonial dignitaries. It was a life-defining voyage that would make him world-famous, rivalling even the newly-crowned Emperor Napoleon in notoriety.

Understandable, then, that Humboldt’s gleeful letter from La Coruña, vividly describing the grand, romantic intentions of his epic expedition, is among his most quoted.<sup>7</sup> The passage appears in French, the Prussian’s preferred language, in various recent commentaries:<sup>8</sup>

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<sup>7</sup> E.g. Egerton 2012, 121.

<sup>8</sup> E.g. Godin 1997, 527; Deléage 2010, 39; Singer 2015, 168.

“Je collecterai des plantes et des fossiles et me livrerai à des observations d’astronomie. Mais là est pas le but premier de mon expédition: je m’efforcerai de découvrir l’interaction des forces de la nature et les influences qu’exerce l’environnement géographique sur la vie végétale et animale. En d’autres termes, il faut explorer l’unité de la nature...”

However, these are not words that Humboldt ever wrote. In his posthumously published *Lettres américaines*,<sup>9</sup> we find instead (my translation):

“I shall collect plants and fossils, and I will be able to make astronomical observations with superior instruments; I will analyse the air with the help of chemistry... But all this is not the principal purpose of my voyage. My attention must never waver from viewing the harmony of the contending forces [*l’harmonie des forces concurrentes*], the influence of the inanimate universe on the animal and vegetable kingdom ...”

The version including the phrase “*l’environnement géographique*” is a translation back to French from a rather loose English rendering of 1955.<sup>10</sup> Forgivable, and even forgettable, though such anachronism may be for the average reader, for present purposes it is crucial. This minor feat of philology suffices to illustrate that although, in the numerous and voluminous works he produced over his long life, Humboldt demonstrated and developed a sophisticated spatial vocabulary, *l’environnement* could play no part in it. Nor, despite every opportunity, did he ever adopt the French *milieu* in the sense that was familiar to naturalists and literati alike by the end of his life.<sup>11</sup> His conceptual lexicon was atmospheric, climatic, and cosmic, but not, strictly speaking, “environmental.”

By the mid-twentieth century, by contrast, environmental concepts had become quotidian.<sup>12</sup> For instance, in 1962, the marine biologist, conservationist, and popular science author Rachel Carson (1907–1964) wrote in her soon-to-be bestselling *Silent Spring*:

“THE HISTORY OF LIFE on earth has been a history of interaction between living things and their surroundings. To a large extent, the physical form and the habits of the earth’s vegetation and its animal life have been molded by the environment. Considering the whole span of earthly time, the opposite effect, in which life actually modifies its surroundings, has been relatively slight. Only within the moment of time represented by the present century has one species—man—acquired significant power to alter the nature of his world.”

“During the past quarter century,” she continued, this power had been increased in both “magnitude” and “character.” Man had unleashed “assaults upon the environment,”

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<sup>9</sup> Humboldt 1906, 18.

<sup>10</sup> De Terra 1955; quoted in Botting 1973, 65. These texts also mistake the addressee of Humboldt’s letter, attributing it to Freiesleben rather than von Moll (another letter to the former is on the same page of the *Lettres américaines*).

<sup>11</sup> At least not in his major published works (see §7).

<sup>12</sup> Warde, Robin, and Sörlin 2018.

contaminating “air, earth, rivers, and sea with dangerous and even lethal materials.” A largely “irrecoverable” and “irreversible” adulteration, this “chain of evil,” with its “sinister and little-recognized” combinations of chemicals and radiation, was “changing the very nature of the world—the very nature of its life.”<sup>13</sup>

In 1970, the ornithologist, conservationist, and co-founder of the World Wide Fund for Nature, Edward Max Nicholson (1904–2003), wrote in *The Environmental Revolution: A Guide for the New Masters of the World* that a “revolution in human affairs” was taking place “for which the obvious descriptive label is the term, once so infrequent and now becoming so universal, ‘environmental.’”<sup>14</sup> It was around this time that “the environment” became a concept crucial to Anglophone publics. Moreover, it was during the same period that *l’environnement* found a cognate role in French—and many other linguistic communities, in the Euro-American world and beyond, experienced a similar alteration in their conceptual conventions. However, this was by no means the time that “environment” (*sans* definite article) first became an intellectually and politically contested concept. For that, we must look further back than the “past quarter century” to which Carson referred—back, indeed, to the decades just before both Carson and Nicholson were born.

A century after Humboldt’s 1799 letter from La Coruña, the concepts in question may not have yet taken on their mid-twentieth century significance. Nevertheless, no one in Humboldt’s position could, by then, have avoided them. By around 1899, both milieu and environment were conceptual commonplaces of Euro-American biological and sociological science; politicians invoked the concepts so as to bolster their rhetoric; theologians pronounced upon the moral environments of the faithful; hygienists scolded housewives as to the salubrity of their homely environments; literati both wrote and read their fictions in terms of all-pervasive mesological influences. Indeed, in 1899, (probably) the first monograph concerning the conceptual history of milieu was published: *Die Theorie des Milieu*, an inaugural dissertation by Eugénie Dutoit (1867–1933), written and defended at the University of Bern, Switzerland.<sup>15</sup>

The dissertation began by examining the author whose work had, by this time, become almost synonymous with milieu theory: the literary theorist Hippolyte Taine (1828–1893). Seeking to set textual interpretation on firm, naturalistic foundations, in 1863, Taine had propounded an interpretive formula consisting of three primordial forces: “*race, milieu, et moment.*” In formulating this theory, Dutoit argued, Taine had been “pioneering,” anticipating “the drive and ferment [*das Drängen und Gähren*]” of his time. However, Dutoit not only appraised Taine’s conceptions but, furthermore, turned them back on themselves. Indeed, she continued, in announcing his discovery of “the secret motivating force of development,” had not Taine,

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<sup>13</sup> Carson [1962] 2002, 5–6.

<sup>14</sup> Nicholson 1970, 5.

<sup>15</sup> Dutoit 1899. Defended 28<sup>th</sup> October 1898.

exempting himself from these very same principles, contradicted his own theory? Indeed, such a “positivistic and deterministic” conception could only be understood “in connection [*Zusammenhang*] with its own milieu, with its own time, and with the history [*Geschichte*] of philosophy in general.” Milieu theory was, thus, to be understood as “a necessary transitional phase in the continually progressive evolution of thought.”<sup>16</sup> Accordingly, Dutoit then set about tracing this longer unfolding of milieu-thinking, beginning with Hippocrates of Kos (c.460–c.370 BCE), said to be the first to have established “a direct relationship between climate and psyche.”<sup>17</sup>

The first woman in Bern to study philosophy and obtain a Ph.D., Dutoit subsequently worked as a school teacher, journalist, and activist. Founding and leading various educational and women’s rights organisations, she led an active public life in Bern and beyond—though her dissertation remained her only published work. In contrast to Humboldt, whose fame continues to be reclaimed, Dutoit has received little notice from history. However, both these figures punctuate crucial moments within the narrative to follow: Humboldt as a waypoint, Dutoit as an endpoint (or, rather, as a hiatus).

By taking 1899 as an (approximate) point of conclusion, the parameters of the study are thus configured rather differently to how they might be if 1962 or 1970 were chosen instead. Taking this earlier point permits a more intensive investigation of eighteenth- and nineteenth-century developments, while also allowing for attention to periods dating back to the time of Hippocrates. The challenge, then, is to understand the significance of these earlier conceptions for what came later, without reducing their contemporaneous significance *to* what came later, in the manner of a teleology.

In this regard, the year 1899 must be recognised as significant in itself. As we have already seen, it was around this time that environment and milieu became sufficiently significant for their historical development to become an interesting intellectual problem—and, then, for the first histories of these concepts, as concepts, to be written.

Indeed, in the same year as Dutoit’s dissertation, (at least) two other texts were published that offered shorter histories of the development of environmental concepts. In the first volume of the second, revised edition of his *Anthropogeographie*, Friedrich Ratzel (1844–1904) added a chapter on “The development of views on the influence of natural conditions [*Naturbedingungen*] on mankind.” Beginning from “Older Views,” starting with Hippocrates, Ratzel then outlined the tenets of the Baron de Montesquieu (1689–1755), Voltaire (1694–1778), the Comte de Buffon (1707–1788), Immanuel Kant (1724–1804), Reinhold Forster (1729–1798), Peter Simon Pallas (1741–1811), Eberhard August Wilhelm von Zimmermann (1743–1815), Johann

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<sup>16</sup> *Ibid.*, 5–6.

<sup>17</sup> *Ibid.*, 52.

Gottfried Herder (1744–1803), and Carl Ritter (1779–1859). Furthermore, the chapter discussed “*Die Umwelt*”—that still obscure concept that would, in a few years, become the German equivalent of environment—relating this concept to “*das Milieu*” of Lamarck and Comte.<sup>18</sup>

In the same year, the introductory chapter of *The Races of Europe: A Sociological Study* by William Zebina Ripley (1867–1941), previously published as a standalone article in 1895, reported and appraised a somewhat parallel line of intellectual descent as regards “environment,” including Ratzel’s *Anthropogeographie* (first ed. 1882), as well as Humboldt’s cosmography, and the sociology of Herbert Spencer (1820–1903)—principal populariser of the concept from 1855 onwards.<sup>19</sup> Moreover, his chapter began by quoting (marginally modified) Taine’s famous statement of “environment, race and epoch,” which Ripley criticised for being only “superficially comprehensive,” and failing to distinguish physical and social environments.<sup>20</sup>

In 1899, also, the Swedish political scientist Rudolf Kjellén (1864–1922) published an article in which he coined the term “*Geopolitik*.”<sup>21</sup> Two years later in 1901, Ratzel’s essay *Der Lebensraum: Eine biogeographische Studie*<sup>22</sup> would make no mention of *Umwelt* or *Milieu*. However, his concept of *Lebensraum* would prove consequential indeed, becoming crucially associated with the imperialist political geographies soon gathered under the term “geopolitics.” Most notoriously, *Lebensraum*—literally, living-space—became a prominent motif of Nazi expansionism. This later *Lebensraum* was not equivalent to Ratzel’s conception, nor was the latter equivalent to the “environment” of Ripley et al. Nevertheless, whether under the flag of “geopolitics,” “sociology,” or any other disciplinary designation, “environmental determinism” (a term coined in 1892<sup>23</sup>) was, by the start of the twentieth century, of no small significance.

To put it perhaps too simply, this was indeed a moment of “*race, milieu, et moment*.” And so, it should be clear that the question of what we might “learn from this history” must be posed rather differently in comparison to the manner in which we might address the time of Carson and Nicholson.

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<sup>18</sup> Ratzel 1899, 13–31.

<sup>19</sup> Ripley 1895; Ripley 1899.

<sup>20</sup> Ripley 1899, 1.

<sup>21</sup> *Studier öfver Sveriges politiska gränser* [Studies of Sweden’s political boundaries]. Kjellén 1899.

<sup>22</sup> *Lebensraum: a biogeographical study*, Ratzel 1901; Ratzel 2018.

<sup>23</sup> Patrick 1892, 428. Though it was only popularised after the 1920s and was most prevalent in the late 1970s.

## 1.2: Constraints and complications

For the reasons addressed so far, this study is circumscribed with regard to the matters that concern it both temporally and thematically. However, these are by no means the most constrictive of the constraints, nor the most confounding of the complications, that thus apply.

First, to approach the history of “environment,” or of the positivist “milieu,” is, in a sense, to approach the history of *a shadow*. That is, these concepts conceive an undifferentiated, unified externality requiring that the things they unify have only one thing in common: relation to the thing environed. Initially, the relevant internality was conventionally a living being or organism. However, it could also be a human individual, or perceiving subject more abstractly; a race; a species; a nation; a state; later, a gene, cell, chemical reaction, and so on. The internality could also be differentiated over time relative to concepts of heredity, homology, or series.

To tell the history of a shadow, then, would also be to tell the history of the things by which this shadow is thrown. However, the peculiar thing is that, upon closer inspection, this seems very much to be a shadow with substance. Since the mid-twentieth century, we have become familiar with “the environment” being reified as though it were a definite, actually existing thing, and this was by no means the first instantiation of such a reality-effect.<sup>24</sup> As such, while attention must indeed be paid to the kinds of environed internalities relative to which environmental concepts are composed, it is neither feasible nor necessary for this to be a history of those internalities as such. Rather, this is a history of environmental concepts and the reality-effects they impart.

Second, one might rejoinder: *environment* (or *milieu*, or *climate*) *is just a word*. Or, more precisely: telling a history of the ‘signifier’ fails to grasp the reality of the underlying ‘signified’ that may be represented by many other signs.<sup>25</sup> This is, indeed, an illustrious objection. For instance, in his lecture at the Collège de France for 11<sup>th</sup> January 1978, Michel Foucault noted:

“The space in which a series of uncertain [*aléatoires*] elements unfold is, I think, roughly what one can call the milieu. As you well know [*vous ne le savez que trop*], the milieu is a notion that only appears in biology with Lamarck. However, it is a notion that already existed in physics and was employed by Newton and the Newtonians. What is the milieu? It is what is needed to account for action at a distance of one body on another. It is therefore the medium [*le support*] of an action and the element in which it circulates.”<sup>26</sup>

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<sup>24</sup> Or “world-effect,” these expressions, hereafter, being taken interchangeably.

<sup>25</sup> N.B. in structural linguistics, the ‘signified’ does not mean the material thing ‘out there’ but, rather, the concept of the thing, existing apart from the utterance.

<sup>26</sup> Foucault 2009, 20–21.

This “*vous ne le savez que trop*” (more literally: you know it only too well) suggested that Foucault was paraphrasing, and then embellishing upon, the well-known essay *Le vivant et son milieu* by his predecessor and mentor Georges Canguilhem (1904–1995)—an essay itself given as a lecture at the Collège philosophique in 1946–1947 (and published in 1952).<sup>27</sup> Foucault continued:

“It is therefore the problem of circulation and causality that is at stake in this notion of milieu. So, I think the architects, the town planners, the first town planners of the eighteenth century, did not actually employ the notion of milieu, since, as far as I have been able to see, it is never employed to designate towns or planned spaces. On the other hand, if the notion does not exist, I would say that the technical schema of this notion of milieu, the kind of—how to put it?—pragmatic structure which marks it out [*qui la dessine*] in advance is present in the way in which the town planners try to reflect and modify urban space. The apparatuses [*dispositifs*] of security work, fabricate, organize, and plan a milieu even before the notion was formed and isolated. The milieu, then, will be that in which circulation is carried out.”<sup>28</sup>

Thus, Foucault accords himself the structuralist prerogative of discerning where and when an underlying schema, or “pragmatic structure,” can be said to have emerged, regardless of the conceptual conventions available to those active in that situation—the structure comes first and the significations follow.

This is certainly not a prerogative to be revoked; however, nor is it one, herein, one to be followed. As we shall see in the next chapter, Canguilhem’s essay is undoubtedly the most influential text concerning the conceptual history of milieu. However, it is a relatively short essay, and, upon a close reading, rather flawed. Moreover, in Foucault’s iteration, any possibility of conceptually differentiating, for example, the mediums and milieux of seventeenth-century physicists from nineteenth-century sociologists are expunged. One conception alone becomes relevant and all specificities of iteration are subordinated to the overriding requirement of theoretical abstraction.

While this is a powerful entitlement, it is also, from a certain perspective, rather arbitrary. As such, and as §3 shall specify further, it will be preferred, herein, to maintain attention to the specificities of situated conceptual articulation. Thus, here is a constraint that is also a reprieve: the following will not presume the structuralist prerogative, and, hence, not principally concern itself with where or when an underlying schema could have been said to have emerged, instead concentrating on the specific diversity of concepts available in an extended series of connected situations.

Third, this then raises another constraint: *these are but a few concepts among many*. Indeed, to take only the English environment, there are a multitude of terms that could either be substitutable, depending on the circumstances (which is one of them), or maintain a close

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<sup>27</sup> Canguilhem 2008a, chap. 5.

<sup>28</sup> Foucault 2009, 21.



enough proximity that environment can only be understood as part of their broader semantic context (there's another). At a minimum, aside from circumstance, context, climate, and milieu or medium, one could list: ambience, atmosphere, background, biome, biosphere, biotope, circumambience, clime, condition, cosmos, earth, Earth, ecosystem, ecotope, element, environs, field, habitat, landscape, locality, macrocosm, microcosm, nature, niche, place, society, space, station, structure, surroundings, system, world.

In more technical terms, insofar as it takes Comte's milieu of 1838 as an organising statement, this text practices onomasiology—that is, it takes a concept or thing and explores its possible significations. However, in refusing to take that statement as a telos (in the manner that Foucault's practice/notion differentiation effectively made “milieu”), it also practices semasiology—that is, it takes words and explores their possible meanings.

However, and fourth, one might add: *these are just English expressions* (with French and a little German mixed in). Taking, again for the sake of argument, the English environment: Today, selves are identified in its terms, bureaucracies busied for its administration, and political fault lines carved in its name—and this far and wide. However, environment remains, all things considered, a provincial expression. Just as French has *milieu*, *environnement*, *alentours* [surroundings], and others, translation seldom yields direct or singular equivalents. Nevertheless, in Norwegian we may find *miljø*; Estonian, *keskkond*;<sup>29</sup> German, *Umwelt*; Greek, περιβάλλοντος [*perivállontos*]; Arabic, بيئة [*biya*]; Italian and Spanish, *ambiente*; Portuguese, *meio ambiente*; Catalan, *medi ambient*; Polish, *środowisko*;<sup>30</sup> Japanese, 環境 [*kankyō*];<sup>31</sup> Mandarin Chinese, 环境 [*huánjìng*];<sup>32</sup> Welsh, *amgylchedd*, and so on. The cognates, antecedents, derivatives, and parallels of the anglo-provincial “environment” are, therefore, considerable. Likewise, even a comprehensive comparative semantics from Germany to Japan would be but a drop in the ocean of human experience. To depart from what, for the most part, have been major centres of cultural power we might consider, the Inuktitut *sila*, which, as Keavy Martin writes, most commonly “refers to the environment, such as in the phrases *silami qanuippa?* (how's the weather)

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<sup>29</sup> Sutrop 2001, 455.

<sup>30</sup> Related to “*środkowcy*” meaning middle or centre.

<sup>31</sup> A case in point regarding translation: Environment is usually translated as *kankyō* 環境 (ring or circle/border or boundary)—e.g. 環境省 signifies Ministry of Environment. 風土 (wind/soil) is translated as environment/milieu by Berque 1996. However, this is more typically translated as climate.

<sup>32</sup> Xu 2017.

or *silaup asijjipallianinga* (climate change)” but also indicates “wisdom, or cleverness, as in *silatujug* (he/she/it is intelligent, sensible, or wise).”<sup>33</sup>

Everywhere we look, if we do look, there are relations of translation profoundly irreducible to whichever conception we deem crucial and thus privilege. The further constraint, then, is that this text does not attempt to characterise environmental conceptions in any general, ‘global,’ or anthropological sense. However, by coming to better understand the formative specificities of these evidently hegemonic conceptions, further such investigations may become possible.<sup>34</sup>

As will be shown further in §2, this making-possible of conceptual rearticulations via detailed historical explication does not start from scratch. Rather, it initiates its constructions via the gathering together of a somewhat disparate inter-text, within which there has been something of a boom in recent years.<sup>35</sup> For example, being published too late to be significantly incorporated into this thesis (but nevertheless demonstrating the ‘state of the art’ with respect to such debates), Paul Warde, Libby Robin, and Sverker Sörlin’s *The Environment: A History of the Idea* provides a notable recent contribution to the literatures that this thesis concerns.<sup>36</sup> While self-evidently overlapping in thematic and substantive terms, the following chapters depart from this work in three principal ways: First, Warde et al. concentrate primarily on developments during the twentieth century.<sup>37</sup> Second, they focus, very valuably, on how environment became formally institutionalised as a concept serving to organise scientific and political work across a variety of domains, whereas this thesis reconstructs a time period where this transfer of ideas was largely informal. Third, in contrast to what follows, and despite this substantive concern with concepts that cross domains, their text does not connect literatures in a comparably wide-ranging inter- or trans-disciplinary fashion, in order to form a more comprehensive and conceptually sophisticated debate, beyond professional boundaries.

The formative constraints permissive of this study’s loci of concentration should now be clear. However, while the three concepts under investigation—milieu, climate, environment—are, in what follows, given equal attention with regard to their respective historical significance, the latter has been singled out for particular attention (not least in the title of this text itself). This decision reflects environment’s current state of contestation. The political contestability of

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<sup>33</sup> Martin 2012. See also: Wright 2014. The *Inuktitut Living Dictionary* records 217 instances of *sila* combined with other roots—for example, *Silasaagsiaq*, meaning “darken or change in outside air” and *Silarqiqpuq*, “calm without wind.” Leduc 2010, 29.

<sup>34</sup> This is a possibility particularly explored in the subsequent discussion of the “ontomesic.” See also: Conway 2017d.

<sup>35</sup> E.g. Taylan 2018a; Taylan 2018b.

<sup>36</sup> Warde, Robin, and Sörlin 2018.

<sup>37</sup> For a more precise delineation of this difference, see: Conway 2019b.

milieu has long since subsided. Moreover, while climate is, of course, one of the fundamental issues of our present epoch, even deniers of climatic change do not deny the existence of climate as such. Environment, by contrast, has been called into question rather more fundamentally.

In 1987, seventeen years after *The Environmental Revolution* had found the word environmental “becoming so universal,” Max Nicholson wrote in *The New Environmental Age* that “[t]he term environment itself, in its current sense, is still a novelty, and is steadily broadening its meaning.”<sup>38</sup> Over the previous two decades, the word had gone from being a somewhat technical term to being a commonplace of everyday conversation. However, its usage would again surge in the early 1990s and, by the turn of the century, the biologist Edward O. Wilson could declare in openly millennial terms in the pages of *Foreign Policy* that “we have entered the Age of the Environment.”<sup>39</sup>

The intervening decades altered not only the prevalence of “environment,” “environmental” and “the environment” but also their connotations. In 1970, Nicholson spoke to “the decisive importance” and “the disturbing vulnerability of man’s natural environment” but by 1987 was emphasising the necessity of conservation to the “welfare, happiness and indeed survival of mankind on this planet.”<sup>40</sup> In 2000, in terms similar to but stronger than those of Carson in 1962, Wilson affirmed that, in this Age, “humanity has become a geophysical force, the first species in the history of the planet to attain that dubious distinction.”<sup>41</sup> In the same year, the atmospheric scientist Paul Crutzen would, rather more famously, assert that this anthropic force had inaugurated a new geological epoch: “the Anthropocene.”<sup>42</sup>

In February 2015, before the *Groupe de travail sur l’avenir des institutions* in the Assemblée Nationale (the lower house of the French Parliament), the sociologist and philosopher Bruno Latour argued that:

“The notion of the environment [*d’environnement*], which dates back to the 1980s and 1990s, corresponds to an outdated impression [*une vision ancienne*] of the issues facing us. Today, the environment no longer surrounds [*environne*] us but is embedded [*se niche*] in all the decisions we make—on unemployment, business, or energy. It hardly makes sense anymore. Rather than talking about environmental democracy, it is better to talk about democracy altogether.”<sup>43</sup>

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<sup>38</sup> Nicholson 1987, xi.

<sup>39</sup> Wilson 2000, 35.

<sup>40</sup> Nicholson 1987, xii.

<sup>41</sup> Wilson 2000, 35.

<sup>42</sup> Crutzen 2002.

<sup>43</sup> Bartolone, Winock, and groupe de travail sur l’avenir des institutions 2015, 412; Groupe de travail sur l’avenir des institutions 2015.

In the same year, the ethicist-polemicist Clive Hamilton argued that “environment,” as utilised in contemporary earth science, must be understood as a concept pertaining to the ecology of organisms and their localities, and that, in terms of planetary science, it stands superseded by the “Earth system”—a complex, dynamic totality encompassing everything from tectonic plates to trade winds to the earthward drift of space dust.<sup>44</sup> The gaping chasm of a “paradigm shift” separates the two and effacing this difference, accordingly, constitutes an egregious geo-ontological category error.

As early as 2004, Simon Dalby, similarly, wrote that, due to the complexity, synergy and sheer scale of concerns in this new geological epoch, “environment as a simple category of concern” has been “transcended,” with its “preservationist and romantic premises” altogether undercut.<sup>45</sup> Likewise, Christophe Bonneuil and Jean-Baptiste Fressoz write that “environment” in the sense of “that which surrounds us, the place where humans went to extract resources, deposit waste” has become redundant.<sup>46</sup> Latour, meanwhile, in his *Facing Gaia* of 2017, adds that to talk of “the environment” is to frame an exterior nature as though “through the shelter of bay windows.”<sup>47</sup> All four authors, with Hamilton, find in favour of the Earth system conception.

Similar sentiments are easily located.<sup>48</sup> Jane Bennett, for example, writes that “compared to ‘environment,’” understood as “the substrate of human culture,” the concept of “vital materiality” is to be preferred.<sup>49</sup> Meanwhile, those who do not declaim the term as such may nevertheless note its obscurity. As Evelyn Fox Keller writes, no matter how knottily nebulous “nature,” “nurture,” and “gene” may be: “Even more troublesome is the ambiguity of the term *environment*.”<sup>50</sup>

Similar sentiments are also nothing necessarily academic.<sup>51</sup> In a speech from 1991 (published 1993),<sup>52</sup> David Harvey recalls, around the time of the first “‘Earthday’ [in] 1970,” reading a *Fortune* magazine article celebrating the coming of “the environmental” as a “non-class issue.” President Nixon’s embracing of public pressure to sign anti-pollution legislation provided the occasion. Harvey then contrasted this frenzy of consumerist self-congratulation

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<sup>44</sup> Hamilton and Grinevald 2015; Hamilton 2015; Hamilton 2016; cf. Lewis and Maslin 2015.

<sup>45</sup> Dalby 2004, 3.

<sup>46</sup> Bonneuil and Fressoz [2013] 2016, 20.

<sup>47</sup> Latour 2017, 8.

<sup>48</sup> E.g. Jankovic 2010b, 10; Nordhaus and Shellenberger 2007, 7, 17.

<sup>49</sup> Bennett 2009, 111–112.

<sup>50</sup> Keller 2010, 2.

<sup>51</sup> E.g. Monbiot 2017.

<sup>52</sup> Titled *The Nature of Environment: The Dialectics of Social and Environmental Change*, Harvey 1993; reprinted in Harvey 1997.

with his experience the following day at the Left Bank Jazz Club, a popular venue in Baltimore for African-American families.

“The musicians interspersed their music with interactive commentary over the deteriorating state of the environment. They talked about lack of jobs, poor housing, racial discrimination, crumbling cities, culminating in the claim, which sent the whole place into paroxysms of cheering, that their main environmental problem was President Richard Nixon.”<sup>53</sup>

Half a century on, and long after the demise of environmental bipartisanship, the present US Republican Administration seeks to dismantle seemingly anything associated with the expression “environment.”

Such conflagrations are far from what the concepts environment, milieu, and climate were associated with by around the year 1899. Nevertheless, nor is the moment of “*race, milieu et moment*” all that distant from ours. Indeed, the resurgence of far right ethno-nationalism, today cheek-to-cheek with fossil-fuelled capital fantasists, attests to an important truth: it is always risky to assume that anything has become ‘a thing of the past.’ As such, the gambit of this text is that by understanding the formative specificities of the concepts in question, it will become possible to better understand the issues of our present moment, by both epochal contrast and problematic commonality.

### 1.3: Chapter précises

The introductory portion of this thesis consists of two further chapters.

§2 assembles the conceptual histories of environment and its cognates to date, following Dutoit, Ripley, and Ratzel. It thereby (a) explicates the principal literatures that this text is building on, (b) identifies their particular concerns, concentrations, methodological presumptions, and empirical limitations, while also (c) constructing a brief history of how the attention given to these concepts has changed over the past century, and (d) demonstrating where this text departs from its precursors.

§3 then explicates the formative conceptual principles of this study, including what it is to write a conceptual history, the difference between historical and philosophical practice, and the meaning of historical ontology. Thus, it does not fully articulate the philosophical arguments of the thesis, which can only be made as the historical narrative proceeds, but rather facilitates and foreshadows these further developments.

The premise of §3, and of the philosophical sections that follow it, is that existing conceptual vocabularies are not adequate to achieve the objective herein delineated: that is, to establish the possibility of rethinking the concepts of milieu, climate, and environment in such a way that they could be reclaimed from the malignant complicities that have often been

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<sup>53</sup> Harvey 1993, 1. See also: Bullard 1993; Taylor 2016.

formative of them. In short, if the task is to reimagine Euro-naturalist ontologies in such a fashion that they might no longer bear a *necessarily* imperial, antagonistic relation to other modes of being—if, that is, Euro-naturalist ontologies may come to ‘diplomatically’ coexist with other kinds of world<sup>54</sup>—then it is not sufficient only to historically explicate the nuances of the relevant histories. Rather, it is also necessary to creatively reconstitute what has been explicated in a manner that (a) cannot be predetermined by the modes of thought thus reconstructed but (b) must nevertheless in some sense be *drawn from* these modes. This must be achieved in such a way that that we can say, in the end (the end, that is, not so much of this thesis but of the process that this thesis attempts to initiate), that whatever was of value in these concepts and modes of thought is retained, while, at the same time, regaining the possibility of departing from the complicities that have hitherto been the story of these histories. A distinct and hitherto unavailable conceptual apparatus is required in order to articulate and facilitate this process; an apparatus that I conceptualise primarily around the concept of ontology.

After these introductory chapters, the principal part of the thesis is then organised into six historical chapters (e.g. §4), each of which is concluded by a shorter philosophical excursus (e.g. §A). These latter sections both analytically conclude the chapters they follow and undertake speculative digressions that further develop their respective concepts beyond what was possible in the introductory chapters. They are interrelated and mutually referencing, producing a through-running process of reconceptualisation that attempts to establish what this history might mean for those who inherit it.

§4 initiates the historical investigation, establishing the significance of “medium” and “milieu” in the natural philosophies of the late seventeenth to the early nineteenth centuries. It begins with the conjectures regarding physical and immaterial media of the famously hypothesis-averse Isaac Newton, paying particular attention to how this conceptual lexicon was received in France against the prevailing tradition of Cartesian plenism.<sup>55</sup> The second part then investigates the transferral of this lexicon into early biological theories of transformism,<sup>56</sup> particularly in the case of Jean-Baptiste Lamarck. Crucially, although later readers would interpret Lamarck’s use of “milieu” in its post-Comtean sense (see §9), his meaning was resolutely Newtonian.

§A, initiating the philosophical argumentation, begins from issues raised in the foregoing chapter concerning the extension of the laboratorial model of knowledge to issues of public order, particularly in the case of the healer-mystic Franz Anton Mesmer. Understanding, then, that such processes not only issue epistemological edicts on legitimate knowledge as such but also establish ontological—or, rather, ontonomic—obligations on what is to be received as real,

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<sup>54</sup> Conway 2019a; Conway 2019c.

<sup>55</sup> I.e. the principle that all existence is replete with matter and a true vacuum is therefore impossible.

<sup>56</sup> I.e. theories maintaining the mutability of species.

these obligations are understood as collectively constituted, in terms of modes of attention that are necessarily partial. Specifically, the relation of collective modes of attention is conceptualised in terms of the *trivium*, meaning crossroads, or common-place: a designation that ensures ontologies must be understood as particular, localised, and related.

§5 continues the investigation of milieu, particularly concentrating on the conceptual adaptations of Auguste Comte. Crucially, as well as redefining milieu as an undifferentiated, unified externality, Comte also retained its aetherial and physical connotations when formulating his positivist religion. Likewise, in the novels of Honoré de Balzac, the older connotations were retained. However, a decisive shift from the Newtonian to the post-Comtean understanding can be found in the works of Balzac's subsequent admirers, such as the literary theorist Hippolyte Taine and the novelist Émile Zola, the latter of whom drew extensively on the anatomist Claude Bernard's concept of the "*milieu intérieur*." The chapter then concludes with the competing sociologies, and ontological orientations, of Gabriel Tarde and Émile Durkheim, the former of whom declaimed the explanatory-circumambient "milieu" as metaphysical and meaningless.

§B begins from Comte's derision of "ontology" as what positive knowledge must overcome. It then considers Tarde and Durkheim's equally, if oppositely, disavowed ontological commitments. Whereas the ontonomic concerns the formation of collective obligations with regard to 'reception as real,' the ontoturgic concerns how these relations are performed—made into palpable and "patent" worlds that are, as per the trivium, manifold. An attempt to systematise such reality-effects can be found in the catechisms Comte propounded for his secular religion. The "conflicted conceptions of existence" referred to above can thus be understood with regard to the desire, typified by Comte but by no means unique to him, of wishing to reduce ontology to epistemology—a reduction continually undoing itself.

§6 shifts to considering climate, beginning with the medical conception thereof prevalent in post-Revolutionary France. In particular, for Pierre Jean Georges Cabanis, climate was understood similarly to how Comte would subsequently define milieu. The chapter then investigates the long series of authors and events from Greek antiquity onwards that led to the significance of climate circa 1800, starting with the astronomic and astrologic conceptions from which the word derives, as well as the still-earlier medical works attributed to Hippocrates. Particular attention is paid to the contestation of the concept of climate in mid-eighteenth-century controversies surrounding the jurist and political philosopher Montesquieu. It is around this time that climate became a "matter of significance" in its own right.

§C begins from the recurrent association of climatic concepts with relative distributions of agency—people from the icy north being hostile, those from the tropical south being idle, and so on. This is understood not just in terms of differing characteristics of peoples but in terms of differing presumptions regarding the possibilities of action. The ontodesic, then, addresses a

serious problem raised by the ontonomic and ontoturgic: If ontology, as formulated herein, is a matter of collectively-relative ‘obligations’ that are ‘performed’ into palpability then can reality, as such, be made whatever collective perceptions would like it to be? Against this important accusation, a reformulated conception of ‘realism’ is argued for that divests this disposition of its power to disqualify forms of existence but, at the same time, insists upon the fundamental non-arbitrariness of any given distribution with regard to its relevant beings.

§7 continues the investigation of climate, particularly concentrating on the intensifying role of state and capital interests in facilitating and directing exploration and natural philosophical research. Beginning from Edmund Halley, the first section concludes with understandings of deforestation in relation to climate in the early United States. The second section then considers Johann Gottfried Herder, whose philosophical conception of climate synthesised the works of the most prominent naturalists of the preceding decades. Finally, the chapter returns to the career of Alexander von Humboldt, bringing together both the Romantic aestheticism of his desire to bring tropical landscapes to European readers, and the technical endeavours he undertook in order to bring about a unified understanding of nature—an undertaking for which the more precise measurement and delineation of climatic differences was crucial.

§D begins with some of the new beings made familiar to Euro-American collectives through the later decades of the nineteenth century: microbes, the telegraph, radiation, and so on. Between the times of, for example, David Hume and Gabriel Tarde, who both employed conceptions of social contagion, the constitution of these collectives had been transformed—and hence “contagion” itself became a rather different concept. Thus, against the philosophy of Martin Heidegger, which is premised upon a privileged relationship between being, time, and human subjectivity, presupposing the fundamental transcendence of the “ontological” from the “ontic,” the ontographic relates beings to being through the media of “paradigmatically existing things”—that is, things that are taken to typify things in general.

§8 shifts to considering environment, beginning with Thomas Carlyle, the first populariser of the concept, who understood it less as a principle of causal imposition than as one of Romantic scenography for heroic individuality. From the 1820s until the 1850s, environment was largely disseminated through networks familiar with Carlyle’s works. Crucial among early adopters was Harriet Martineau whose translation of Comte related “environment” to the positivist, Comtean conception of milieu qua undifferentiated, unified externality for the first time. This specific articulation was then taken up and popularised by Herbert Spencer. The final part of the chapter then investigates the place of environment within Spencer’s holistic socio-biological works, in particular as it involved a hierarchical, teleological, progressively individuated understanding of life based upon the organism as a bounded unit—a conception that rationalised imperialism and genocide.



§E begins from the recognition by classical sociologists such as Spencer, Durkheim, and Marcel Mauss of the relative importance of inter-collective relations—what Mauss called the “milieu of milieus.” Ontological collectives, as understood herein, do not necessarily correspond to traditional designations of nation or society. Nevertheless, if, as per the *trivium*, the existence of a collective always presupposes other collectives, then questions of coexistence become imperative. This relation of difference is explored through the concept of *mana*, common to many of the peoples of the Pacific islands, and often related to the aetherial conception of milieu—a concept also analysed by Mauss in his sociology of religion. Against the so-called “ontological turn” recently propounded in academic anthropology, the ontomesic is understood as a necessarily politicised operation, conceptualised here through the philosophy of Isabelle Stengers in terms of “diplomacy” between common-places.

§9 continues, and concludes, the investigation of environment, beginning from William James’ defence of Charles Darwin against Spencer and his acolytes. After the detailed investigations of Carlyle, Martineau, and Spencer in §8, this chapter concerns how environment became detached from attribution to any given author, becoming a marked matter of significance—both commonplace and contested—by the turn of the century. While Darwin largely eschewed the concept due to its associations with Lamarck and Spencer, his younger proponents and propagators made use of the term’s connotations of holism and comprehensiveness. Environment initially entered political discourse as an explicitly scientific expression; however, by around 1900 it had become commonplace, if still technical. In the first decade of the new century, it could even be satirised as something of a cliché.

§F returns to questions of epochal difference (first outlined in §3). One of the fundamentals of modern ontology has been the understanding of historical time as consisting of periodic revolutionary ruptures that sweep away that which does not belong to each new era. That is, the ontology most common to those describing themselves as modern has presupposed a strong commitment to anachronism: Certain things can only meaningfully be said to exist within their allotted time-frame. This principle is integral to the writing of history; however, it is never innocent. Beyond the prosaic admission that ontologies are historically changeable, the ontochronic is intended to pose the question of epochal decision—that is, the situated determination of which aspects of the past are still able to have a hold on the present (and in what way). This question then must be related to this text itself: In articulating the preceding history, and then attempting to “learn from” it in the register of speculative philosophy, a political relation of inheritance is established that must be engaged with all due responsibility. This thesis, then, attempts to formulate an empirical and conceptual apparatus for addressing such a relation of responsibility with regard to the case of environmental concepts up to around the start of the twentieth century.

§10 then concludes by returning to the issues raised in this introduction, briefly summarising the overall historical narrative, and philosophical propositions.

## 2: The meta-history of environment

The historicisation of environment and its cognates has already been specified as occurring sometime around 1899, and several of the most significant contributors thereto identified. However, it remains to specify the works from which this text takes its lead, and to identify where, relative to its objectives, they are found to be empirically and theoretically unsatisfactory.

Depending on how narrowly or broadly the parameters are defined, both temporally and typologically, this review could be almost endless. Thinking somewhat broadly, one might begin with the second volume of Humboldt's *Kosmos*, published in 1847, which examined "Incitements to the Study of Nature," and the "History of the physical contemplation of the universe," narrating the development of poetry, landscape painting, and the cultivation of exotic plants, as well as that of naturalistic knowledge.<sup>1</sup> Or, as a supplement to strictly historical accounts, one might consider, from the 1950s onwards, the technical literature that developed across a number of fields, attempting to establish a singular definition of "environment" for the purposes of engineering or scientific standards.<sup>2</sup> Furthermore, now-classic accounts of the history of environmental thought, such as Donald Worster's *Nature's Economy: A History of Ecological Ideas* (1977),<sup>3</sup> and Richard Grove's *Green Imperialism: Colonial Expansion, Tropical Island Edens and the Origins of Environmentalism, 1600–1860* (1996),<sup>4</sup> are undoubtedly invaluable as regards the construction of any such history as this one.<sup>5</sup>

However, for the purposes of both (a) establishing the originality of this thesis, and (b) demonstrating the provenance of the most important problems and questions with which the rest of this text must engage, I will constrain the review to concentrate, for the most part, only on those works that engage directly with the history of environment and its cognates as specific concepts.

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When Ratzel's student, translator, and foremost Anglophone advocate Ellen Churchill Semple (1863–1932) published her *Influences of Geographic Environment: on the Basis of Ratzel's System of Anthro-Geography* in 1911, she did not reproduce her mentor's potted history of environmental-geographical thinkers. Nevertheless, in her preface, she placed his work in the tradition of Montesquieu, Humboldt, Ritter, and Ripley, while censuring his acceptance of Spencer's

¹ Humboldt 1848, vol. 2.

² E.g. Figure 1: Weichhart 1979.

³ Worster 1977.

⁴ Grove 1996.

⁵ E.g. further, White 1967; Leiss 1994; McIntosh 1985; Nash 1989; Hagen 1992; Plumwood 2002; Pepper 1996; Foster 2002; Taylor 2016; Saito 2017; Forrester and Smith 2018; Warde 2018.

[Removed for online publication.]

Figure 1—“Partial dimensions of the concept of ecology”; Weichhart, 1979

organismic theory of the state, “now generally abandoned by sociologists,” duly excising it from her self-consciously scientific, and “Anglo-American,” rendering.⁶

In 1918, Armin Koller submitted a Ph.D. dissertation at the University of Illinois under the title *The Theory of Environment: Part I: An Outline of the History of the Idea of Milieu, and its Present Status*.⁷ This topic, he noted prefatorily, had been suggested to him in 1907 by Professor Martin Schütze (1866–1950), and an earlier paper prepared in 1912. “As guide-posts were lacking,” Koller writes, “at least I knew of none, I was bound to seek by accident and for a number of years” until he “chanced upon the Herder-Taine problem”—that is, regarding the filiation of

⁶ Semple 1911, v–vii.

⁷ Koller 1918.

Herder's climate and Taine's milieu.⁸ Though bearing "Environment" in its title, it was the subtitle's "Milieu" that Koller's *Part I* generally preferred, taking these terms interchangeably. Beginning from a short "Introductory Remark" on the word milieu itself, the text then proceeded to "sketch" the history of "the Idea of Milieu," beginning with "the ancient Jewish Prophets," before continuing through the nineteenth century, covering everything from "Anthopo-geography" to "Climatic Control of Food and Drink," citing Dutoit's work in passing.

In 1922, in the fourth part of a long essay on *The Fundamental Ideas in Herder's Thought*, Schütze himself noted Dutoit's *Die Theorie des Milieu* as an "exhaustive and well-written dissertation."⁹ He also mentioned his former student Koller, into whose hands he had placed this existing account for the purposes of preliminary orientation and instruction. However, Schütze added:

"In the Preface, in which he gives an account of the development of his study, Mr. Koller fails to mention Miss Dutoit's work, and gives a misleading description of the state of the problem confronting him. The subject, at the time that Mr. Koller was introduced to it, was not, as appears from his description, a primeval wilderness without paths and 'guide posts,' but an inviting district with its main lines of topography clearly traced and with the points of the compass plainly indicated."¹⁰

This was among both the first and the last citations that Dutoit's work would receive. Despite such professorial reproof, in 1924, Koller himself published a two-part essay on *Herder's conception of milieu*,¹¹ and, in 1937, a book on *The Abbé Du Bos: His Advocacy of the Theory of Climate*.¹²

Thus, in the early decades of the twentieth century, there was significant interest in the histories of environment and its cognates, frequently investigated in order to establish such concepts as part of a legitimately scientific lexicon.

So it was for perhaps the most extensive contribution to this budding genre through these years, *The Environmental Basis Of Society* published by Franklin Thomas in 1925.¹³ By "environment" Thomas meant "the geographical factor in social causation," and aimed not only to present and assess the major authors on the subject from antiquity, through the early and late modern periods, up to contemporary theories concerning natural resources,

⁸ Ibid., chap. Preface.

⁹ Schütze 1922, 361.

¹⁰ Ibid., 361–362. Koller cited Dutoit's text in five endnotes but not in the body text.

¹¹ Koller 1924a; Koller 1924b. Unless these texts were considered to be "Part II" of *The Theory of Environment*, it seems that the complete project was never realised. In the first (1924, 217), Koller does note that the titular "'Part I' should not precede the sub-title but follow it"; however, he does not make clear if this is supposed to be 'Part II.'

¹² Referring to Jean-Baptiste Dubos (1670–1742), whose *Réflexions critiques sur la poésie et sur la peinture* of 1719 (analysed in §6) was an influential text concerning the relation of climate and culture.

¹³ Thomas 1925, reprinted 1965. Dates of birth, etc. unknown.

psychological influence, and the geographical determination of history but, furthermore, to demonstrate the importance of such modes of causation for social science. However, in contrast to haphazard historical doctrines, from Hippocrates and Herodotus onwards, “the environment,” now scientific, was now to be understood as what “furnishes the [external] stimuli,” to which “social groups react.”¹⁴

Nevertheless, not all were so impressed with such developments. In 1929, the Marxist critic and political geographer Karl Wittfogel published an essay titled *Geopolitik, Geographischer Materialismus und Marxismus*,¹⁵ in which he systematically attacked what he described as the lineage of bourgeois materialism associated with such concepts, beginning with Montesquieu and Herder, and ending with the likes of Haushofer. The bourgeois doctrine, Wittfogel argued, had served its historical purpose but a fully scientific, that is dialectical, materialism would duly succeed it.

It was during the subsequent decade that what would become by far the two most widely read and influential essays on the conceptual history of milieu were both written.

First, in 1942, Leo Spitzer (1887–1960) published *Milieu and Ambiance: An Essay in Historical Semantics*.¹⁶ “Milieu,” he began, “is now associated in every one’s mind with the deterministic theories of Taine”;¹⁷ however, this was not the original—or, indeed, the authentic—meaning. Rather, Spitzer placed such latter-day milieus in longitudinal relation to the Greek τὸ περιέχον [*tò periekhon*]. Already ancient by Aristotle’s time,¹⁸ this concept is often translated as “the environment” but, implies, rather, “the all-embracing air, space, sky, atmosphere, climate: the cosmic ‘milieu’ of man.”¹⁹ That is, *periekhon* did not simply environ but was that which sympathetically encompassed the earth and the cosmos; cossetting, protecting, embracing, and enveloping; “a kind of loving milieu round about” human being.²⁰ The second part of Spitzer’s essay then traced in detail the development of the modern, mechanical milieu from Blaise Pascal (1623–1662), Newton, Émilie du Châtelet (1706–1749), Comte, Honoré de Balzac (1799–1850), Spencer, Claude Bernard (1813–1878), and Edmond de Goncourt (1822–1896), noting also the caustic Friedrich Nietzsche (1844–1900) who commented in 1885: “the ‘milieu-theory’ is now the most satisfying; everything exerts influence and the result is man himself.”²¹

¹⁴ Ibid., 6–7.

¹⁵ Wittfogel 1932; Wittfogel 1985.

¹⁶ Published in two parts: Spitzer 1942a; Spitzer 1942b.

¹⁷ Spitzer 1942a, 2.

¹⁸ Aristotle 1999, 111.

¹⁹ Spitzer 1942a, 2.

²⁰ Ibid., 5.

²¹ Quoted and translated by Spitzer 1942b, 184. See: Nietzsche 2003, 1; also: 94–95, 131–132, 169, 201.

In conclusion, Spitzer discerned an echo of the “spiritual περιέχον” in the Latinate “*ambiance*,” and a “more concrete, more earthy, more bounden” sort in certain varieties of “*milieu*.” The original conception “perhaps is forever lost.” Nevertheless, it was an aspect of “human nature” to desire “a projection of the feeling of the child within its shell, protected as it is in its mother’s womb,” even if, “in this chaotic and complex modern world,” this nature today contented itself with “a more modest receptacle,” being not “all-protective” but rather allowing man to feel he can “‘belong’ somewhere.”²²

Second, when Foucault remarked to his packed audience “*vous ne le savez que trop* [you know it only too well]” (§1.2), he may have been indulging in some degree of rhetorical flattery. However, it would have been clear to most to what he alluded: Canguilhem’s *Le vivant et son milieu* (first published 1952).²³ Even more than Spitzer, this essay would subsequently become an authoritative account. It began:

“The notion of milieu is becoming a universal and obligatory mode of apprehending the experience and existence of living beings; one could almost say it is now being constituted as a category of contemporary thought.”²⁴

However, if Canguilhem was aware of any of the accounts detailed above, he did not cite them. Indeed, while his body text makes numerous references to specific authors—his second paragraph alone mentions Newton, Buffon, Lamarck, Geoffroy Saint-Hilaire, Balzac, and Taine, as well as Jean le Rond d’Alembert (1717–1783) and Denis Diderot (1713–1784), Henri de Blainville (1777–1850), Alfred Giard (1846–1908), Félix de Dantec (1869–1917), Frédéric Houssay (1860–1920), Gaston Bonnier (1853–1922), and Louis Roule (1861–1942)²⁵—his notes are rather short on specific citations, and even shorter on details such as page numbers.²⁶ Nevertheless, Canguilhem continues, the purpose of his essay is not merely historical. It having proved difficult to ascertain the “synthetic unity” of the concept of milieu in terms of its “historical stages” of formation, its forms of “utilization,” and “the successive inversions” it is involved with in relation to other terms, and in various fields, the task then fell to “philosophy”—that is, to epistemology—to “take the initiative in synoptically investigating the meaning and value of this concept.”²⁷

The evaluative synopsis begins by noting that “[t]he mechanical notion (though not the term) appeared with Newton,” this meaning then being enshrined in d’Alembert and Diderot’s

²² Spitzer 1942b, 199–200.

²³ Canguilhem 1992, chap. 3; Canguilhem 2008a, chap. 5.

²⁴ 2008a, 98.

²⁵ Canguilhem also mentions “Costantin,” author of work on the “arrowhead leaf [*la feuille de sagittaire*],” identified in the English translation as “Johann Costantin,” author of *Recherches Sur La Sagittaire* (1885).

²⁶ Though in the English edition some citations have been added by the translator.

²⁷ 2008a, 99.

Encyclopédie before Buffon inspired Lamarck to bring it to biology, though the latter “used it only in the plural” (that is, as *milieux*).²⁸ This account is already, at best, simplistic. First, as Spitzer had already demonstrated, Newton wrote of “medium” regularly, and it was Émilie du Châtelet whose French translation of his *Principia* in 1749 maintained “milieu” as its equivalent, though this translation was already conventional. Moreover, while Lamarck was undoubtedly a follower of Buffon, and while he indeed only wrote of *milieux*-plural in the major works he produced after 1800 (that is, after the announcement of his evolutionary theory, and after he coined the term *biologie*), before this date he had written elsewhere of milieu in the singular in relation to living bodies, albeit living bodies considered as physical objects (§4).

Rather than attempting to historically reconstruct the concept as such, Canguilhem instead prefers to philosophically delineate its proper range of meaning and work from there. The main problem of mechanics in Newton’s day, he continued, was that of “the action of distinct physical bodies at a distance.” Thus, the milieu—the mi-lieu, the middle-place—was the principle resolving this quandary, providing the missing link between dispersed centres of force. When this “essentially relative” quality is forgotten, “milieu tends to lose its relative meaning” and to become “a reality in itself.”²⁹ Thus, not unlike Spitzer, Canguilhem historicises the concept only by maintaining the prerogative of an epistemological judgement as to its authentic meaning. This, moreover, is not only a heuristic convenience but provides the very purpose of the essay.

Nevertheless, while *Le vivant* displays various other problems of nuance and fact, while its analysis is consistently evaluative, and while it largely ignores Anglophone authors prior to the twentieth century (such as Spencer), Canguilhem also articulates a more sophisticated historical account of Francocentric conceptual developments, particularly as regards the relation of milieu to mechanical philosophy, than any of his apparently unread precursors. After considering Lamarck and Comte in some detail, Darwin, Ritter, and Humboldt are introduced—the latter of whose *Kosmos* is described as “a synthesis of knowledge concerning life on earth and the relations of life to the physical milieu.” Humboldt and Ritter, in particular, are said to have laid the foundations that gave rise to the *Anthropogeographie* of Ratzel, while not only Taine but Jules Michelet (1798–1874) mesologised the writing of history, such conceptions becoming “more and more deterministic or, rather, mechanistic” the further they departed from their “founders.”³⁰

However, around the turn of the century, milieu conceptions saw a “reversal” as French geographers such as Paul Vidal de la Blache (1845–1918), Jean Brunhes (1869–1930), Albert Demangeon (1872–1940), and Lucien Febvre (1878–1956) emphasised the status of “man” as

²⁸ Ibid.

²⁹ Ibid., 100.

³⁰ Ibid., 106–107.

“a geographical factor.” Particular attention was then given to the ethnological semiotics of Jakob von Uexküll (1864–1944), populariser of *Umwelt*, and the neurologist Kurt Goldstein (1874–1965), who criticised the mechanical theory of reflexes. Together, these authors effected a further “reversal” by making organisms not merely subject to external influences but active evaluators of what is important for themselves (most famously, with Uexküll’s example of the tick).³¹

Finally, and again not unlike Spitzer, Canguilhem relates milieu conceptions to matters of cosmology, differentiating “a centered, qualified space, where the *mi-lieu* is a center”—the cosmos of the pre-Galilean, Greco-classical, enclosed *periékhon*—from “a decentered, homogeneous space, where the *mi-lieu* is an intermediary field”—the universe typified by Pascal’s famous fright for an “infinite sphere whose center is everywhere and circumference nowhere.”³² With the philosophical initiative thus taken, and synoptic overview duly constructed, Canguilhem concludes by admonishing those who would place humanity in a milieu transcendent to all other species, and stipulating “the insufficiency of any biology” that submits so unconditionally to the physico-chemical sciences that it endeavours “to eliminate all consideration of sense from its domain.”³³ Thus, in his authority as epistemologist, he counsels a corrective: to take seriously the “reversal,” as set out by Uexküll and Goldstein in particular, and to resist the biologically inauthentic allure of mesologic mechanism.

A decade and a half before his Collège de France lectures that touched on the subject, in *Folie et déraison: histoire de la folie à l’âge classique* of 1961³⁴ Foucault had already discussed milieu.³⁵ In the seventeenth and eighteenth centuries, he noted, medical thought had accepted “an almost immediate link [*relation*] between madness and the world”—belief in lunar influence coupled with “the widespread conviction that climate had a direct influence on the nature and quality of the animal spirits.” Thus, as far as “the classical mind [*l’esprit classique*],” was concerned, “madness could easily be the effect of an external ‘milieu’, or more exactly the stigmata of a certain solidarity with the world.” It was then, in a sense, a natural theological renovation of the Renaissance connection of madness to various “dramas and cosmic cycles”—to the stars, the seasons, and so on.

“From the macrocosm, taken as the place where all mechanisms were complicitous, and as the general concept of their laws, something resembling that which the nineteenth century was later to term a ‘milieu’ starts to emerge.

³¹ Ibid., 109–113.

³² Ibid., quoted 117.

³³ Ibid., 120.

³⁴ Foucault 1961.

³⁵ This section was, however, excised from *Madness and Civilization*, the abridged English translation of 1964. A complete translation was published as *History of Madness* in 2006.

Perhaps we should [*Sans doute faut-il*] allow this notion, which had not yet found its equilibrium or its final denomination, to retain its unfinished [*inachevé*] nature, and speak instead, like Buffon, of ‘penetrating forces,’ which allowed not only for the formation of an individual, but also the appearance of the different varieties of the human species: the influences of climate, of nutrition and of the way of life.”³⁶

At this time, then, Foucault recognised the historical specificity of milieu as a concept. Nevertheless, he continued to employ it as an analytical term. Neither *Histoire de la folie* nor subsequent works added a great deal to the specifics of how milieu was formulated or promulgated. However, since the 1970s, and particularly in the English-speaking world, it is to a large extent via Foucault that Canguilhem’s work have been received, with much of the latter’s claims accordingly being attributed to the former.

Nevertheless, all such works, up to and including Spitzer and Canguilhem, were diminutive in comparison to the nearly 800-page treatise published by Clarence Glacken (1909–1989) in 1967: *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*.³⁷ Therein, Glacken traced the history of three “ideas”: that of the earth as designed for human habitation; of environment as influencing human being; and of human agency in affecting the geographical environment. In a grand narrative arc from the antiquity of Stoic cosmoses and Hippocratic climates, to early Christian teleologies of divine creation and human fallenness, to early Modern physico-theology and mechanical determinisms, to Enlightenment self-assurances regarding the perfectibility of man and the domination of nature, Glacken was not principally concerned with conceptual semantics. However, his preface noted that “‘Nature,’ ‘physical environment,’ ‘design,’ ‘final causes,’ ‘climate,’” and such terms “have a long history, accumulating different and often vague meanings in the course of time.” Moreover, in surveying the existing literature, he had found that while “natural” and “physical” environment, as corresponding to *Umwelt* and *milieu*, were often used interchangeably, these terms were generally clearly distinguished from the social scientific sense of environment—“that is, the cultural milieu.”³⁸

Original terms in translation are sometimes noted; however, this is rarely of analytical consequence.³⁹ For example, by way of introducing the medical theory of humours, Glacken quotes the compiler Aëtius of Antioch (fl. 350 BCE) commenting on Alcmaeon of Croton (5th century BCE):

“Illness comes about directly through excess of heat or cold, indirectly through surfeit or deficiency of nourishment; and its centre is either the blood or the marrow or the

³⁶ Ibid., 365; Foucault 1972, 385.

³⁷ Glacken 1967.

³⁸ Ibid., xiv.

³⁹ Cf. Glacken 2017; Conway 2018b.

brain. It sometimes arises in these centres from external causes, moisture of some sort or environment or exhaustion or hardship or similar causes.”⁴⁰

He notes that the translation by G.S. Kirk and G.E. Raven of 1957⁴¹ renders as “environment” the Greek *χώρα* [*khôra*]; however, no further remark is made upon this fact. Originally meaning the arable area surrounding a city in the sense of hinterland, environs or territory,⁴² *khôra* is the root of the geographical terms chorography (study of regions), choropleth (cartographic visualisation of data through shaded or coloured regions), and of the embryological term chorion (the membrane surrounding a foetus during gestation). It is also the term used in Plato’s *Tīmaeus* to designate the “receptacle” or “third kind” that mediates being and becoming, harbouring the eternal forms.⁴³ Such connections go beyond Glacken’s vast but necessarily circumscribed itinerary. Nevertheless, his history does not shy away from the cosmological. Indeed, such texts as the *Tetrabiblos* of Claudius Ptolemy (c. AD 100–170) were taken to constitute an antique “science of cosmic environmentalism,” as the shifting of seasons, stars, and other meteors formed circumambient referents for terrestrial existence.⁴⁴

Thus, through the middle decades of the twentieth century, environment as a term of art no longer required historical validation. However, its mechanistic orthodoxies met with increasing resistance. Moreover, by the time that *Traces* was published in 1967 (having been at least a decade in the making), the terms of discussion had changed markedly. The third of Glacken’s longitudinally traced ideas—that of human agency affecting its geographical environment—was now the unambiguously predominant concern. “Environment,” with regard to human being, was no longer so much a matter of influences *of* but, rather, influences *on*; no longer something impinging or forcing from the exterior inwards but an exterior at the mercy of an elevated inside; not a formative imposition on human being so much as a fragile protectorate subject to human sovereignty. Glacken himself later wrote: “Environmental determinism in fact has been so strong that only with the greatest difficulty have systematic studies of man’s role in changing the physical environment been made.”⁴⁵ This phrase “environmental determinism,” usually pejorative, was popularised through the 1960s and 1970s.⁴⁶ Duly, historical investigations further to the works detailed above, in the coming years,

⁴⁰ Glacken 1967, quoted 11.

⁴¹ Kirk and Raven 1957, 234.

⁴² Elden 2013, chap. 1.

⁴³ See also e.g. Derrida 1993.

⁴⁴ Glacken 1967, 15.

⁴⁵ Glacken 2017, 183. From a long-unpublished collection of manuscripts, unclear when written exactly.

⁴⁶ *Déterminisme environnemental* and *Umweltdeterminismus* following from the 1970s to the 1990s, though *déterminisme géographique* was common from the 1940s.

were few and far between, while more general works on the history of environmental ideas, such as Worster's aforementioned *Nature's Economy* (1977), became more common.

In 1980, volume 5 of the *Historisches Wörterbuch der Philosophie* (published 1971–2007), a philosophical lexicon based upon the methodology of Joachim Ritter (1903–1974), included an entry on “Milieu.”⁴⁷ However, such studies remained unusual through the years in which Max Nicholson (1987) wrote that the term environment “is still a novelty, and is steadily broadening its meaning.”⁴⁸

In 1991,⁴⁹ Niklas Luhmann (1927–1998) wrote of the historical specificity of “the concept ‘subject,’” which he noted not to have emerged in its familiar, modern form until the late eighteenth century. The effects of this subjectivation, he adds, “were enormous.”

“One consequence, for example, was that a concept of an opposite, relative to the subject, had to be invented. This was called *Umwelt*, and then later ‘environment,’ *environnement*. Before this time there had been no environment. Instead, the world was understood as the totality of things or as the support (*periéchon*, literally, ‘envelope’) of all their particulars. The schema subject/environment dissolved the compactness of this conception of the world. One began to think in terms of differences [...].”⁵⁰

In historical terms, Luhmann gets the order of *Umwelt* (coined around 1800, rare until after 1900) and environment (found before 1700, in use by Carlyle and associates from 1828, rare until the 1850s) mixed up—even more so the French *environnement*, which was not in popular usage until the 1960s. Moreover, the *periéchon* seems to cover all of history until around about the time of Kant. No citations are given for these assertions; however, in the fifth chapter of the same work, “System and Environment [*Umwelt*],” Luhmann references Canguilhem's well-known essay, adding by way of endnote that “[t]he ontology of substance and essences” is without any “concept of environment [*Begriff für Umwelt*],” an issue that the eighteenth century began to rethink via “reflections on the significance of ‘milieus’ for the specification of genuinely indeterminate forms (e.g., human beings).”

“The length of time required to learn this testifies to the difficulty of the idea [*Gedankens*]. Ever since the sixteenth century, word compounds [*Wortbildungen*] containing ‘self’ and ‘Selbst’ have proliferated in Europe. Yet a good two hundred years were needed before anyone noticed that this presupposes an environment [*Umwelt*].”⁵¹

⁴⁷ Ritter and Gründer 1980, 129–154.

⁴⁸ Nicholson 1987, xi. Though see e.g.: McGrath 1983.

⁴⁹ “Instead of a Preface to the English Edition: On the Concepts Subject and Action,” pre-pended to the English edition of *Social Systems*, Luhmann 1995. First published as Luhmann 1984.

⁵⁰ Luhmann 1995, xxxix.

⁵¹ *Ibid.*, 538; Luhmann 1984, 242–243.

While perhaps historiographically careless, Luhmann thus places his own work in the tradition of those who would insist upon environmental distinction as an ontologically fundamental development.

Over the next three decades, the history of environmental concepts would come to receive greater—indeed, ever greater—attention. Moreover, such studies did so with an expanded range of concerns, methods, and theoretical means.

In 1995, Timothy Luke’s essay *On Environmentality: Geo-Power and Eco-Knowledge in the Discourses of Contemporary Environmentalism* undertook to construct a critical genealogy of “environment” and, more particularly, “the environment,” noting “a fundamental lack of clarity” as to what this term, despite its still-ballooning popularity, actually means.⁵² Without citing any of the above-mentioned studies (aside from Worster’s *Nature’s Economy*), Luke largely engages in a theoretical analysis of the conceptions in question, channelling Foucault so as to tie environment to a managerial discourse of global governance. However, he also uses newspaper indices to chart a very brief (one paragraph) course of the historical development of “the environment,” starting with Rachel Carson’s *New Yorker* essays from 1960.⁵³

From the mid-1990s onwards, Augustin Berque has published a large number of essays on the concept of milieu,⁵⁴ especially in relation to the work of the Japanese philosopher Tetsurō Watsuji (1889–1960),⁵⁵ and the French statistician Louis-Adolphe Bertillon (1821–1883). In particular, Berque propounds the concept of *médiance* as a translation of Watsuji’s 風土性 [*fūdosei*], which he defines as “the meaning or idiosyncrasy of a certain milieu, that is, the relationship of a society to its environment [*environnement*].”⁵⁶ Moreover, he promotes *mésologie* (i.e. the logic of the milieu), a concept initially popularised by Bertillon (see §5), as the study of meso-logics that work to “break with the mental framework of modernity.”⁵⁷

However, it was after the year 2000—into “the Age of the Environment”⁵⁸—that such works proliferated most conspicuously. In 2001, Urmias Sutrop published an essay that briefly traces the history of *Umwelt*, largely concentrating on von Uexküll’s reformulation thereof.⁵⁹ Indeed, in the years since, something of a cottage industry developed around von Uexküll and

⁵² Luke 1995, 59.

⁵³ *Ibid.*, 60.

⁵⁴ Particularly innumerable, that is, if one takes into accounts the many entries on his blog *Mésologiques: études des milieux*: <http://ecoumene.blogspot.com>.

⁵⁵ Berque 1996; Berque 2004; Berque 2013.

⁵⁶ Berque 2000, 128.

⁵⁷ Berque 2011.

⁵⁸ Wilson 2000, 35.

⁵⁹ Sutrop 2001.

his proto-biosemiotics.⁶⁰ Among the more incisive of such efforts, the linguist Jui-Pi Chien's 2007 essay *Umwelt, milieu(x), and environment* submits the analyses of Spitzer and Canguilhem, among others, to cross-cultural critique by way of the structural linguistics of Ferdinand de Saussure (1857–1913).⁶¹ She argues that Spitzer's philology overvalues and essentialises the prototypical *periékhon*, while Canguilhem, similarly, elides differences between *milieu* and *Umwelt*. Both authors are, therefore, said to ignore the inextricability of signifier from cultural-linguistic context and historical specificity. The conceptual confrontation between the phenomeno-Germanic *Umwelt* and mechano-Gallic *milieu*, again typified by Taine, was further dramatised by Wolf Feuerhahn in essays of 2009 and 2015, the latter arguing Uexküll to have been making a pointed "political criticism" by his adoption of the term, with "the anti-French connotation of *Umwelt*" having been largely forgotten.⁶²

Explications of, and elucidations upon, the history of milieu have also increasingly become partial elements of longer works. For example, the third chapter of Ed Cohen's *A Body Worth Defending* of 2009⁶³ investigates the emergence of "public hygiene" in France after 1789, particularly focusing on how a revival of holistic Hippocratic medicine was brought into medical practice, legislation, and theory.⁶⁴ The final part of the chapter, after the fashion of Foucault, utilises the accounts of Spitzer and Canguilhem to retrospectively relate the conceptual history of milieu, especially as regards Comte and Bernard, to the earlier history that was analysed in terms of this same concept.⁶⁵

On a similar subject, in *Confronting the Climate* of 2010,⁶⁶ Vladimir Janković comments:

"Today, 'environment' is so ubiquitous that it rarely receives closer inspection. [...] Yet if 'environment'—as Einstein once quipped—is everything 'that is not me,' then it must refer to something that is at once anywhere and nowhere in particular. One may ask: the environment as opposed to what?"

Being mindful of the "presentism" that comes with taking such terms for granted, Janković resists the "temptation" to speak of medical practitioners in the eighteenth century "as somehow introducing an 'environmental paradigm.'" Rather, "following the French philosopher Georges Canguilhem," he prefers "to emphasize the relational character of 'milieu'"—that is, the being-between that insists on the "relational" over the "absolute" conception. However, unlike Canguilhem, Foucault, Cohen, and others, Janković does not adopt milieu as a generic,

⁶⁰ E.g. Buchanan 2008; Brentari 2015.

⁶¹ Subtitle: *A survey of cross-cultural concept mutations*, Chien 2007.

⁶² Feuerhahn 2015, 49; Feuerhahn 2009.

⁶³ Cohen 2009, 130–205.

⁶⁴ *Ibid.*, 161–169.

⁶⁵ *Ibid.*, 187–205.

⁶⁶ Subtitle: *British Airs and the Making of Environmental Medicine*.

backwardly-projectable term. Instead, he proposes “replacing ‘environment’ with ‘exposure’” for the purposes of historical reconstruction,⁶⁷ thus articulating an onomasiological (as opposed to a semasiological) approach.⁶⁸

Against commonplace judgements concerning the inherently anti-technological and proto-reactionary tendencies of the Romantic era of the first half of the nineteenth century, in *The Romantic Machine* of 2012,⁶⁹ John Tresch conducts a series of investigations into the active and productive confluence of romanticism and machinery in Paris between Napoleons I and III. Focusing on the interlinked careers of Humboldt, Balzac, and Comte, as well as Henri de Saint-Simon (1760–1825), André-Marie Ampère (1775–1836), François Arago (1786–1853), Pierre Leroux (1797–1871), and others, the text also prominently features the concept of milieu as a historical and conceptual motif. The fundamentals of milieu are drawn once again from Canguilhem;⁷⁰ however, beyond this now-orthodox and much-mined account, Tresch also draws out the significance of the concept for specific authors such as Ampère, Balzac, Geoffroy Saint-Hilaire, and Comte.⁷¹ In particular, Leroux’s declaration that “[s]ociety is a milieu, which we organize from generation to generation to live there” is discussed at length.⁷²

With a similarly revisionist bearing, in their 2013 book *L'événement anthropocène: La Terre, l'histoire et nous*,⁷³ Christophe Bonneuil and Jean-Baptiste Fressoz assert the need to “abandon the official narrative of awakening” on which environmental and Anthropocene politics has, they argue, hitherto been based.⁷⁴ This traditional story tells that, through the process of modern imperial, industrial, and capital transformation, there was a gradual coming-to-awareness as pollution and degradation became ever more acute, and scientific knowledge of such environmental changes became ever more precise, with public and political awareness as such only taking hold in the past half-century. Academically encapsulated in such taglines as “we have never been modern,” and “reflexive modernity,”⁷⁵ the problem with such grand narratives, Bonneuil and Fressoz argue, “is that they are historically wrong.”⁷⁶

⁶⁷ Jankovic 2010b, 10.

⁶⁸ As differentiated in §1.2.

⁶⁹ Subtitle: *Utopian Science and Technology After Napoleon*.

⁷⁰ Tresch 2012, 319 n.10.

⁷¹ See, respectively, pages 44, xiv, 233, 236, 270, 281.

⁷² *Ibid.*, 225; Leroux 1846, 160.

⁷³ Bonneuil and Fressoz 2013. Translated into English 2016. See also Fressoz 2007; Locher and Fressoz 2012.

⁷⁴ Bonneuil and Fressoz 2016, 291.

⁷⁵ E.g. Latour 1993; Beck 1992.

⁷⁶ Bonneuil and Fressoz 2016, 74–76.

By way of elaboration, in their eighth chapter,⁷⁷ the authors propose six “grammars of environmental reflexivity”: “*Circumfusa*, climate, metabolism, economy of nature, thermodynamics, exhaustion.”⁷⁸ Developed long before the so-called environmental revolution, deep in the era when “moderns” were supposed to be purifying and separating society and nature, of particular relevance herein is the first grammar. The word *environnement*, they note, was imported from English, and only became institutionalised in the 1970s. Deriving from Spencer’s sociology, it was thus absent in the 1855 *La Fin du monde par la science* of Eugène Huzar (1820–1890),⁷⁹ which they claim to be “the first catastrophist philosophy of technology.” However, the word *circumfusa* was, they write, “a fundamental concept of French public health studies from the late eighteenth century.” Thus, we were never unenvironmental.⁸⁰

The genealogical connection between *circumfusa*, milieu, and environment is rather more declared than demonstrated. Indeed, in *L'événement anthropocène*, the authors give not one reference to any contemporaneous text making use of *circumfusa*. In an article published on the subject in 2009,⁸¹ Fressoz references only one text before 1800 (indeed, only one before 1844): volume four of the medical section of the *Encyclopédie méthodique* published in 1792, written by Louis Charle Henri Macquart (1745–1808), which classes “*Climat*” under an overall schema of hygiene that comprises “*circumfusa*” as signifying “surroundings things [*choses environnantes*].”⁸²

In his Ph.D. thesis of 2010, and subsequent articles and chapters, Trevor Pearce has investigated the development of environment as regards its application in psychology, sociology, and biology. In particular, his article *From ‘circumstances’ to ‘environment’*⁸³ considers how, with Spencer’s repurposing of Martineau’s translation of Comte, “a singular, abstract entity—the organism—interacting with another singular, abstract entity—the environment”⁸⁴ came to be understood. This conceptual innovation he articulates in terms of recovering “the work of metaphysical abstraction” that produced this conception; recovered, that is, from the “ubiquity,” and hence quotidity, with which such an abstraction is, today, habitually regarded.⁸⁵ With similar attention to specificities, in *Coinage of the Term Environment* (2012),⁸⁶ Ralph Jessop

⁷⁷ Ibid., 170–197.

⁷⁸ Ibid., 196.

⁷⁹ Huzar 2008.

⁸⁰ Bonneuil and Fressoz 2016, 173.

⁸¹ Fressoz 2009. Not cited in *L'événement anthropocène*.

⁸² Ibid., 41, n.9.

⁸³ Subtitle: *Herbert Spencer and the origins of the idea of organism–environment interaction*, Pearce 2010b. See also Pearce 2010a; Pearce 2014.

⁸⁴ Pearce 2010b, 241.

⁸⁵ Ibid., 250.

⁸⁶ Subtitle: *A Word Without Authority and Carlyle’s Displacement of the Mechanical Metaphor*, Jessop 2012.

examines Carlyle's early usages of "environment," in particular his translation of Goethe's "*Umgebung*." Jessop emphasises its Romantic and anti-mechanistic connotations, defending Carlyle against his detractors, especially Spitzer.

However, as well as case-based studies, general resources and works of summation have also been under construction. For example, in the third volume of the *Historisches Wörterbuch der Biologie* (2011) by Georg Toepfer, a substantial entry reconstructs the development of *Umwelt*,⁸⁷ relating the concept to its English and French cognates. Toepfer has also produced *BioConcepts*, an extensive, online English-language dictionary for biological concepts.⁸⁸ Moreover, this topic continues to compel theses.

In *Re-Imagining a Politics of Life: From Governance of Order to Politics of Movement* (2014),⁸⁹ a book based upon her Ph.D. thesis, Leonie Ansems de Vries uses the conceptual development of milieu in order to construct a political theory subversive of mesologic modes of modern biopolitical governance. Although reconstructing in some detail major thinkers such as Hobbes and Kant, placing their work in relation to mesologic conceptual history, it is a principally conceptually creative, rather than narrowly historical, work. As per convention, de Vries draws on Spitzer, Canguilhem, and Foucault. However, her principal inspiration derives from the philosophy of Gilles Deleuze (1925–1995) and Félix Guattari (1930–1992), and their reconception of "milieu" in *Anti-Oedipus* and *A Thousand Plateaus*.⁹⁰

Finally, by far the most substantial work on the concept of milieu to date comes from *Rationalité Mésologique: Connaissance et gouvernement des milieux de vie (1750–1900)*, the thesis defended by Ferhat Taylan at the University of Bordeaux Montaigne in 2014.⁹¹ Taking the concepts of "milieu, surrounding circumstances, and conditions of existence" as "the guiding thread [*le fil directeur*]," the study thus sets aside "*environnement*" as such, being interested, rather, in the development of "mesologic" rationality as a mode of governance.⁹² In three parts, the first examines the development of historical epistemology as a conceptual-historical methodology, particularly relating Canguilhem's works to those of Foucault.⁹³ The second part, titled "The Emergence of a Rationality (1750–1820),"⁹⁴ then investigates: the revival and transformation of Hippocratic medicine in the mid-eighteenth century; the development of the principle of

⁸⁷ Ibid., 566–607.

⁸⁸ Toepfer 2008.

⁸⁹ Ansems de Vries 2015.

⁹⁰ Deleuze and Guattari 1983; Deleuze and Guattari 1987.

⁹¹ Taylan 2014. This thesis has recently been published as two separate monographs: Taylan 2018a; Taylan 2018b. I refer herein only to the 2014 version.

⁹² Taylan 2014, 7.

⁹³ Ibid., 29–163.

⁹⁴ Ibid., 166–307.

organic irritability by the likes of Albrecht von Haller (1708–1777); the production of new regimes of urban planning and land-use; the development of hygiene as both science and ordinance; and the conceptual demands that were produced for geographical knowledge by colonial expansion. This, the middle portion of the thesis, thus establishes the conditions of possibility for the emergence of “milieu” in its nineteenth-century sense. The third part, “The Rise [*L’Essor*] of Mesology (1820–1900)”⁹⁵ then documents: the intellectual conflicts between Cuvier and Lamarck; what Taylan calls “The grand synthesis” of “The positivist rupture” occurring with Comte; the development of mesology and ecology; the relation of such conceptions to issues of acclimation, colonisation, and criminology; and, finally, the role of Émile Durkheim (1858–1917) in isolating the social milieu from the natural, thus effectively founding the social sciences.⁹⁶ Thus, Taylan’s work locates itself unambiguously, though not uncritically, within the lineage of Canguilhem and Foucault, following through with greater breadth and rigour on what their earlier efforts had suggested and circumscribed.

It would seem, then, that while the history of these conceptual histories is long, research in this vein is fast-increasing—and not always in relation to the green-political environment per se. However, the ever deepening political bite of climatic crisis, worldwide capitalist bacchanalia, and associated “reflexivity,” undoubtedly bears a strong relation to these augmenting interests. For example, Bentley Allen has traced the emergence of the climate as an object of governance through the twentieth century.⁹⁷ At greater length, in *The Environment: A History of the Idea*, Paul Warde, Libby Robin, and Sverker Sörlin describe the emergence of “the environment” as a term of interdisciplinary collaboration and international agenda-setting from the 1940s onwards, particularly as it leads towards the development of Earth system science and “Big Ecology” in the 1980s.⁹⁸

Such works build on, when they are aware of them (which is frequently not the case), an extensive catalogue of texts that themselves demonstrate the shifting significance of the concepts they are concerned with. However, another history might also be told of surprising absences—that is, where “environment” might be expected to appear but is found missing. In the *Geschichtliche Grundbegriffe* (1972–1997), a large historical dictionary of German-language concepts, edited and instigated by Reinhart Koselleck (1923–2006), there is an entry for *Natur* but no *Umwelt*.⁹⁹ Raymond Williams’ *Keywords: A Vocabulary of Culture and Society*, first published

⁹⁵ Ibid., 308–483.

⁹⁶ Ibid., 461.

⁹⁷ Allan 2017; Allan 2018.

⁹⁸ Warde, Robin, and Sörlin 2018; Conway 2019b.

⁹⁹ Koselleck 1990.

1976,¹⁰⁰ makes passing reference to environment only within entries on “Ecology” and “Naturalism.” The *Dictionary of Untranslatables*, edited by Barbara Cassin,¹⁰¹ accords environmental concepts no independent presence, besides a short subsection on *Umwelt* within the entry for *Welt*. Similarly, Peter Burke’s 2002 article *Context in context* provides a detailed history of humanist-hermeneutic contexts, situations, circumstances, and so on, but partitions this from equivalent, and co-developed, naturalistic concepts—a disciplinary separation that, quite evidently, is of relatively recent genesis.¹⁰²

Nevertheless, it now remains to explicate where the following departs from the preceding.

First of all, as has been shown above (and could have been shown rather more), there are numerous details, large and small, that can be quibbled or disputed (Luhmann’s prefatory misarticulation being only the most succinct). For one further instance, take the aphorism cited by Janković: “‘environment’—as Einstein once quipped—is everything ‘that is not me.’” This is, indeed, one of the most-quoted bon mots on the subject. This precise phrase is not evident within Albert Einstein’s lifetime (1879–1955). In 1969, Buckminster Fuller (1895–1983) made use of the witticism.¹⁰³ However, it is unlikely to owe its first expression to either author.

‘Fact-checking’ is not, of course, the principal purpose of this thesis, nor will the following engage in sustained critical discussion of other accounts. Its purpose, rather, is to produce an account of its own. Nevertheless, it is by the incremental explication of such layers of misattributed or forgotten meaning that the historical strata to be reconstructed will be addressed. Likewise, while the following is certainly concerned with the manner in which environmental or mesological conceptions may, or may not, facilitate such affections as those of cosmic enclosure and “‘belong[ing]’ somewhere,”¹⁰⁴ it is not, in contrast to Spitzer, concerned with adjudicating the authenticity or fallenness of modern modes of being in contrast to those of the geo-centred Ancients.

Moreover, while the above has demonstrated an expansive existing literature concerning the concepts in question, the major works discussed also show significant differences of focus to what is addressed herein. For example, Taylan’s *Rationalité Mésologique*, being nearly 2.5 times the length of the current text, ranges considerably more widely than the following is able to. Nevertheless, his work does not mention Spitzer, nor does it address, for example, Balzac or Émile Zola (1840–1902), prominent figures in the popularisation of milieu through

¹⁰⁰ Williams 1985.

¹⁰¹ Cassin et al. [2004] 2014.

¹⁰² Burke 2002.

¹⁰³ In the Third Annual Jawaharlal Nehru Memorial Lecture in New Delhi on November 13, 1969. Published: Fuller 1970; Fuller 1971, 286.

¹⁰⁴ Spitzer 1942b, 199–200.

the nineteenth century. Moreover, it is largely focused on the French language, while the following is particularly concerned with issues of conceptual travel and translation.

However, beyond differences of empirical priority and selection, more serious methodological and theoretical issues also arise.

It has been understood that environmental concepts have played a part in the development of humanistic modes of interpretation, and therefore in the development of historiography as such. This situation can be understood in terms of what Isabelle Stengers defines as “humour”: “the capacity to recognize oneself as a product of the history whose construction one is trying to follow.”¹⁰⁵ Speaking of humour in this technical sense does not necessarily require that something is funny. Rather, it is distinguished from “irony.” In classical literary terms, humour performs in a mode of “discovery” to an audience defined by “sympathy”; irony, by contrast, performs “exclusivity” to an “inner circle.”¹⁰⁶ Thus, history constructed in a modality of “humour” requires the ability to sympathetically recognise those aspects of the past one receives as an inheritance, rather than reducing the past, insofar as it is of any analytical significance, to being something to be overcome.

It is with a certain ironism, then, that Foucault declares:

“My problem is essentially the definition of the implicit systems in which we find ourselves prisoners; what I would like to grasp is the system of limits and exclusion which we practice without knowing it; I would like to make the cultural unconscious apparent.”¹⁰⁷

In this understanding, the past, *a priori*, is a prison. Such a prison is occasionally broken by ruptures in its “system.” As such, it is legitimate to backward-project certain concepts, beyond the time that they are accorded the definite recognition of precise signification, if these concepts are thereby applied to periods *between* points of rupture (since to share a period is to share an underlying structural identity). However, *beyond* such points, one inhabits another system, and hence, in a sense, another world.

This is not an example followed herein. Of course, a conceptual history must be more than a semantic history. However, the way that this abstraction is enacted matters a great deal. Taylan asks: Is the purpose of a conceptual history “to trace the history of a word,” following “the multiplicity of its occurrences over time”? Does not this reduce “philosophical work to the operation of computer software,” merely “searching for words in an archive?”

¹⁰⁵ Stengers 2000, 66; Stengers 1993.

¹⁰⁶ E.g. Fowler and Gowers 1991, 25.

¹⁰⁷ Foucault and Simon 1971, 198.

“If, on the contrary, the history of a concept is in excess of the history of the word, and the field of a rationality, in turn, overflows [*déborde*] the limits of a concept, how could we seize, question, formulate such a difference?”¹⁰⁸

The question is certainly fair. However, it presumes a particular relationship between philosophical and historical “work”—a relationship that is herein understood rather differently, thus leading to quite another mode of abstraction with respect to word and concept. It is this that will be explored in the next chapter.

However, having now historically summarised and combined the historiography of environmental concepts in a more complete manner than, I believe, has been attempted previously, the precise ways in which the following historical chapters both build on and depart from this existing literature can now be stated.

With regard to the history of milieu, general orientation is taken especially from Spitzer and Canguilhem, by far the two most influential authors on this topic. It is from these authors that the most significant points of focus are identified in §4 and §5. However, my text also goes well beyond this received wisdom. For example, Canguilhem, as noted above, provides a very sketchy account of the works of Newton. §4, by contrast, precisely explicates the significance of material and immaterial media in Newton’s works, as well as the process by which his “Medium” became the French milieu. Such interpretations and reconstructions are extensively informed by the specialist literature on Newton’s works.¹⁰⁹ Likewise, general contextualisation and orientation with regard to Lamarck’s works is taken from the relevant literature,¹¹⁰ while the account of Cuvier’s debate with Geoffroy is based upon Toby Appel’s telling thereof.¹¹¹ Nevertheless, here, too, primary texts have been read and are used as much as possible.

It has been well-known ever since Positivist concepts were first brought to an Anglophone audience that Comte’s definition of ‘milieu’ was an important and distinctive conception (although, as §9 will show, the distinction of Comte’s conception from Lamarck’s was not always made clear). §5 is particularly informed by Mary Pickering’s monumental three-volume intellectual biography of Comte,¹¹² while the analyses of Balzac’s novelistic uses of milieu, and the ‘Romantic’ proclivities of Parisian intellectuals during the first half of the nineteenth century more generally, follow the narrative of Tresch.¹¹³ The significance of Taine’s “*race, milieu, et moment*,” as shown above, has been well-known since the very first analyses of

¹⁰⁸ Taylan 2014, 65.

¹⁰⁹ E.g. Shank 2008; Ducheyne 2014; McGuire 1968.

¹¹⁰ E.g. Burkhardt 1995; Corsi 2011.

¹¹¹ Appel 1987.

¹¹² Pickering 1993, vol. 1; Pickering 2009, vol. 2; Pickering 1993, vol. 3.

¹¹³ Tresch 2012.

environmental concepts.¹¹⁴ However, my account connects Taine's conceptions to the likes of Balzac, Zola, and Bernard in a more significant fashion than I believe has been attempted previously.

The secondary literatures on conceptions of climate, both generally and with regard to particular issues and authors, are extensive. For example, Roger Fleming provides a broad overview of the most significant points of focus,¹¹⁵ while accounts of the life and works of Humboldt are legion.¹¹⁶ In §6 and §7, however, while relying extensively upon Glacken's magnum opus for orientation,¹¹⁷ I have gone beyond existing accounts by drawing together disparate specialist literatures on Ancient and Medieval conceptions of climate.¹¹⁸ In the Renaissance and Modern eras, I have also relied upon Glacken, among others, but have also extensively investigated primary texts.

I have frequently used the methodology of comparing English translations to original texts. I have taken this approach not only for the sake of rigour and accuracy but also because instances of translation, particularly when the same text has been translated multiple times, are highly informative with regard to the conceptual conditions of the moment. Going into particular detail in the cases of Herder, Humboldt, and Catherine II of Russia, I believe that I go further than any currently available account in explicating these relations of translation as they unfolded over the centuries.

Similarly, while the basic contours of §8 and §9 are informed by existing analyses of Carlyle and Spencer,¹¹⁹ I go into considerably greater detail than existing accounts, at least with regard to the areas in which my text concentrates. For example, Pearce scrupulously reconstructs the relations of transferral and translation between Comte, Martineau, and Spencer;¹²⁰ however, building on this, I also demonstrate the wider dissemination of Comtean and Spencerian influences, including the relation between Carlyle's conception of environment and these later versions that came to overtake it.

In general, then, the approach of this thesis with regard to the substantive history has been to assemble as much literature from as diverse a set of sources as possible; to take the map of authors and issues that these existing texts provide as preliminary guidance; then, where primary sources are materially and linguistically accessible, to thoroughly investigate both their internal specificities and their situational influences; or, where they are not thus available, to

¹¹⁴ Dutoit 1899.

¹¹⁵ Fleming 1998.

¹¹⁶ E.g. Rupke 2008.

¹¹⁷ Glacken 1967.

¹¹⁸ E.g. Shcheglov 2004; Ramelli 2009.

¹¹⁹ E.g. Jessop 2012.

¹²⁰ Pearce 2010b.

recombine as detailed an account as possible from secondary sources, always paying attention to the specificities of translation (which are often well-elicited by contemporary specialist literatures, informed by contextualist modes of historiography).

It remains now, therefore, to explicate the preliminary conceptual apparatus, before getting to the first historical chapter.

3: Rethinking historical ontology

In order to understand how environmental concepts relate to “conflicted conceptions of existence” (§1), it is necessary to formulate an understanding of ontology—and, indeed, historical ontology. Moreover, in order to make distinct contributions to conceptual history, historiography, and speculative philosophy, it is necessary to distinguish historical and philosophical practices. This has been further demonstrated in the previous chapter, showing that existing relevant works already combine historical and philosophical dispositions, though in a manner that this text seeks to depart from.

The purpose of this chapter is, therefore, to (a) produce a distinct and original understanding of historical and philosophical (as well as, in briefer terms, fictive and political) practice, (b) establish what it is to write a *conceptual* history, and (c) establish an initial formulation of the speculative-analytical ontological conceptions that will be further constructed in the subsequent pages. Its method is to reciprocate between explicating the propositions of certain relevant thinkers, and creatively stating original propositions, drawing on but also departing from these thinkers. It does not, therefore, begin to understand the history of environmental concepts in terms of ontology but it formulates the conceptual apparatus for doing so.

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In his essay “Historical Ontology,” Ian Hacking writes: “It is the philosopher’s privilege to stand on the extreme margin.”<sup>1</sup> That is, a philosopher has a greater prerogative for speculation than does a historian. By way of example, Hacking poses a somewhat droll historical transcendental: How did David Hume become possible? That is, how was Hume, at that moment, able to arrive at his conception of experience as being fragmentary, granular, and disjointed—a pattern of particulates for which the mind must draw all relations; things themselves granting no ground for causal attribution? Hacking derives his answer from Mary Poovey’s *History of the Modern Fact*.<sup>2</sup> “A striking thesis arises: the problem of induction requires for its formulation a particular conception of the world.” In particular, it requires the ascendant world of bourgeois commerce, with its ledgers, accountants, and bone-dry contractual matter-of-factness. Bookkeeping begets empiricism. Hacking is quick to point out that Poovey, as a historian, would not deign to pose such speculations—but that is the “privilege” of historical *ontology*.<sup>3</sup>

However, this differentiation entails a commonality: that philosophers and historians are fundamentally engaged in the same kind of practice, they simply go about it with different degrees of rigour and supposition. In this, Hacking stands very much within the tradition of

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<sup>1</sup> Hacking 2002, 14.

<sup>2</sup> Poovey 1998.

<sup>3</sup> Hacking 2002, 13–14.



Gaston Bachelard, Canguilhem, and Foucault—a filiation he acknowledges. As both the previous pages and the following will demonstrate, I will also relate my conceptions to aspects of this tradition. However, rather than following Hacking’s philosopher-historian out onto “the extreme margin”—that is, granting philosophical and historical practice a fundamentally common goal, differentiating the hyphenated hybrid only in terms of relative degrees of interpretive freedom—I would prefer, instead, to maintain the distinctiveness of philosophical and historical practice, and yet to combine their interactions within one text.

To be sure, a philosopher can legitimately take greater leeway in their interpretations than a historian. But, then, so can a fictionist. What, in that case, differentiates philosophy and fiction? My response: Each share common techniques and concerns but possess fundamentally distinct *obligations*—the historian to establishing evidence, the philosopher to conceptual creation, the fictionist to worldly manifestation. To be clear, it is not that such modes of action can or should be *separated*. However, they can be *concentrated*, even while they are combined. Thus, they must not be conflated.

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In 1991, Gilles Deleuze and Félix Guattari concluded both their collaborations and their careers by asking *Qu’est-ce que la philosophie?*⁴ It is, they announced, “the art of forming, inventing, and fabricating concepts.” However, this statement involved rather more than might be immediately apparent. Perturbed by the increasing reduction of philosophical practice to science, art, or even dialogue—“pleasant or aggressive dinner conversations at Mr. Rorty’s,”⁵ as they put it—the authors sought to articulate for philosophy its legitimate mode of existence. As art performs *affects*, and science constructs *functions*, to philosophy pertains the creation of *concepts*.

I do not share Deleuze and Guattari’s problem and, hence, do not follow their example. Indeed, the very possibility of conceptual history presupposes conceptual creativity to be a widely distributed capacity. However, I will adopt their identification of philosophy as conceptual creation as a formative, speculative principle.

It may, thus, be further speculated that there are at least four ways to engage in conceptual creation: *definition*, *distinction*, *description*, and *design*. Definition, surely need not itself be defined; however, it can be further specified. Definitions presume the relative stability of the terms constituting them. When such stability can be assumed, definition is merely a matter of filling in a space within an already existing frame. However, such simplicity is rare. Distinction is much like definition, except that it makes the relational structure of meaning explicit—*this* can only be understood through *that*. Description, by contrast, cannot rely on any particular

⁴ *What is philosophy?* Deleuze and Guattari [1991] 2005; Deleuze and Guattari 1994.

⁵ Deleuze and Guattari 1994, 144.

points of contrast and comparison but must circumlocute, talking around the thing, explicating not just what it is but what it does. Design, finally, enters a field where little is prepared for it. This is the mode of the conceptual prose poem, of allusion, artifice and, some would say, indulgence. One does not *argue* a design but rather paints with it—sets a trap for thought, a “lure for feeling,”⁶ a maze of subtly suggestive implications.

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“[O]nly something which has no history can be defined,” wrote Friedrich Nietzsche in 1887.<sup>7</sup> Few philosophers have been more influential in their disruption of the conceits of historiographical tradition. However, it is not conceit with which I am, here, concerned but, rather, conception. That is, having provisionally identified philosophy’s mode of existence—that is, what is fundamentally and specifically necessary for that thing to exist<sup>8</sup>—the same must be done for historiography.

In the same year as Deleuze and Guattari’s *Qu’est-ce que la philosophie?*, Isabelle Stengers wrote:

“Science is different from all other practices!”

For many scientists, this is a heartfelt cry, a cry that needs to be heard, even if we remain free not to understand it exactly in the way that those who utter it would like.<sup>9</sup>

Stengers’ philosophy of science begins from this commitment: to articulate the *singularity* of scientific practice (as all other practices possess their singularity) but without permitting it *transcendence* from all other practices (such that it would loom over them, apart).<sup>10</sup> In this attempted mediation, she anticipated the coming quarrels between self-declared “critical” and “realist” partisans that became something of an intellectual scandal in the next few years<sup>11</sup>—a confrontation matched, too, in debates regarding historical objectivity.<sup>12</sup>

Not unrelatedly, in 1998, the literary theorist Lubomír Doležel wrote:

“In order to construct stories that ‘might be true,’ the historian has to respect certain constraints which are not operative in the construction of fictional stories.”<sup>13</sup>

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<sup>6</sup> This phrase from Whitehead 1929, *passim*.

<sup>7</sup> Nietzsche 2006, 53.

<sup>8</sup> This understanding of “mode of existence” relating to but differing from, e.g.: Latour 2013a; Latour 2011; Souriau 2015; Souriau 1943.

<sup>9</sup> Stengers [1991] 1997, 133.

<sup>10</sup> That is, the sciences must not be practices ‘like any other’; however, nor must their singularity make all other practices homogenous in relation to scientific exceptionalism. See particularly: Stengers 2010a; Stengers 2011a.

<sup>11</sup> Ross 1996.

<sup>12</sup> Ermarth 1992; Jenkins 1997; Evans 1997.

<sup>13</sup> Doležel 1998b, 793; Doležel 1998a.



Figure 2—Voroshilov, Molotov, and Stalin, with Nikolai Yezhov, and without

That is, the historian is obligated to the ‘facts’ of what the fictionist may freely invent. However, in maintaining this genre distinction, Doležel (b.1922, Czechoslovakia) had in mind more than intellectual disputes. Having left Czechoslovakia for Canada after the Soviet invasion of 1968, he further makes reference to the infamous photograph of Kliment Voroshilov, Vyacheslav Molotov, Joseph Stalin, and Nikolai Yezhov at the Moscow-Volga Canal—infamous due to the latter figure having been airbrushed out after his murder.<sup>14</sup>

“Totalitarian power creates gaps in historical worlds by erasing facts of the actual past. It is like fiction making in that it gives its gaps ontological status, projects them into the actual world.”<sup>15</sup>

This, I would suggest, far more than any teeth-gnashing indignation over “post-modernism,” should be the initial “cry” in relation to which the *historical* mode of existence is understood—though, of course, “we remain free not to understand it exactly in the way that those who utter it would like.”

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When Nietzsche wrote of historicity being, as such, indefinable, he was elaborating, parenthetically, upon the morals of punishment:

“(Today it is impossible to say precisely *why* people are actually punished: all concepts in which an entire process is semiotically concentrated defy definition [...].)”¹⁶

But what is a concept?

In an essay published posthumously in 1910, William James described “The Import of Concepts” in a manner at once empirical, mythological, and evolutionary.¹⁷ In the beginning,

¹⁴ Taken 1937. his name thus becoming an effective metonym for Stalinist disappearance (Ежовщина [*Yezhovshchina*, or ‘Yezhov phenomenon’])

¹⁵ Doležel 1998b, 799.

¹⁶ Nietzsche 2006, 53.

¹⁷ James 1987, 1007–1020.

there was “feeling.”¹⁸ To feel is to go along with the flow of experience, to take each moment as it comes. To think, by contrast, is to ideate, to decide—that is, to make incisions in the flow. Whereas, therefore, a “percept” is continuous, a “concept” is discrete. Conception is, accordingly, the abstraction of experience and the formulation of things. It makes present the possible and gives rise to pluralistic “universes” of experience:¹⁹

“Had we no concepts we should live simply ‘getting’ each successive moment of experience, as the sessile sea-anemone on its rock receives whatever nourishment the wash of the waves may bring. With concepts we go in quest of the absent, meet the remote, actively turn this way or that, bend our experience, and make it tell us whither it is bound.”²⁰

However, in contrast to both the rationalist concept, which becomes “a self-sufficing revelation,” and to the empiricist scheme that grants concepts significance only insofar as they format “perceptual particulars,” James adopts a “mediating attitude”—a “radical empiricism” that places relation and conception within experience. Neither “flocking with their abstract and motionless companions” nor packed in an optician’s lens case, concepts intervene not upon experience from a higher outside but between its moments and elements, supplementing the perceptual with a proliferation of abstract possibles, forming “a topographic system, a system of the distribution of things.” This conceptual complex:

“tells us what’s what, and where’s where. In so far forth it merely prolongs that opening up of the perspective of practical consequences which we found to be the primordial utility of the conceiving faculty: it adapts us to an immense environment.”²¹

This statement can be taken as premisory as regards the conceptualisation of “concept.” However, in so doing it becomes clear why a history of environmental concepts must be attentive to its “humour” (§2): it may, in at least some respect, be telling the history of itself.

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Philosophy, Deleuze and Guattari continue, bears a rigorous relationship to its past. “Concepts,” as they put it, “are and remain signed: Aristotle’s substance, Descartes’s cogito, Leibniz’s monad, Kant’s condition, Schelling’s power, Bergson’s *durée*.”<sup>22</sup> However, such relations are formed in a philosophical mode. Taken historically, these proper names might invoke *authors*. However, this is not the role of Aristotle et al. for Deleuze and Guattari. Rather, these proper names invoke “conceptual personae”—not figures of authority in relation to which statements can be authenticated but complexes of conceptual possibility with which one may experiment. Historical authors, then, are to be interpreted in terms of their situated intentions—

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<sup>18</sup> Taking ‘concept’ interchangeably with ‘idea,’ ‘thought’ and ‘intellection.’

<sup>19</sup> James 1987, 1007–1009.

<sup>20</sup> *Ibid.*, 1015.

<sup>21</sup> *Ibid.*, 1012–1016.

<sup>22</sup> Deleuze and Guattari 1994, 7.

to be reconstructed. Philosophical personae, by contrast, are to be ‘thought with’ in terms of their conceptual possibilities—to be reconceived.

Nevertheless, philosophical practice is by no means insensitive to the specificities of history. How else could concepts be created?

“Some concepts call for archaisms, and others for neologisms, shot through with almost crazy etymological exercises: etymology is like a specifically philosophical athleticism. In each case there must be a strange necessity for these words and for their choice, like an element of style.”

Thus, philosophy as such is exquisitely sensitive to past meanings—but sensitive, again, in a philosophical mode. It is a matter of “*taste [goût]*”—of finding the “strange necessity” in nuances of conceptual design.<sup>23</sup>

The historical disposition is altogether different.

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In order to make scientific concepts historically traceable, Canguilhem defines “concept” as comprising three components: *denomination*, *phenomenon*, and *definition*.²⁴ For example, when Descartes describes the involuntary shutting of the eye in relation to an object moving towards it, this is “without any doubt a reflex.”²⁵ However, absent a *definition*—an explanatory statement binding word and phenomenon—there is no concept. Thus, it was not Descartes but the physician Thomas Willis who achieved this landmark around 1681, writing:

“the motion [...] is reflected, to wit, which depending on a previous sense more immediately, as an evident cause or occasion, is presently retorted; so gentle titillation of the Skin causes a rubbing of it [...].”²⁶

However, the appearance of such a concept, in the first blush of positivity, is significant not only for its propositional exactitude. By making reflex a concept, Willis enabled “the possibility of a judgment”—that is, an “identification and classification” of experiences.²⁷ Produced by, and productive of, formations of percepts, instruments, and techniques, a concept allows the progressive direction of attention towards distinct phenomena.

However, by contrast, in Koselleck’s *Begriffsgeschichte* [conceptual history], *Begriffe* are identified not so much by their direction of attention as by their complex polyvalence:

“In use a word can become unambiguous. By contrast, a concept [*Begriff*] must remain ambiguous in order to be a concept. The concept is connected to a word, but is at the same time more than a word: a word becomes a concept only when the entirety of

²³ Ibid., 8; Deleuze and Guattari 2005, 13.

²⁴ Schmidgen 2014, 245.

²⁵ Canguilhem 1955, 42.

²⁶ Ibid., quoted 34.

²⁷ Ibid., 69.

meaning and experience within a sociopolitical context [*politism-sozialen Bedeutungs- und Erfahrungszusammenhanges*] within which and for which a word is used can be condensed into one word.”²⁸

Or, in short (and effectively paraphrasing Nietzsche): “The meaning of words can be defined more exactly, concepts can only be interpreted.”²⁹ The compendium *Geschichtliche Grundbegriffe* (1972–1997) is thus structured upon a series of words (e.g. “state”) that condense various other meanings (“territory,” “border,” “citizenship,” etc.) within themselves. In their changing historical configuration, concepts become “indices [*Indikatoren*]”³⁰ of broader socio-political movements and transformations. If and when such concepts become “irreplaceable and inexchangeable,” they become *Grundbegriffe*—that is, literally, ground-concepts (usually translated as key- or basic-concepts). Though not always consistent, elsewhere Koselleck clarifies that a *Begriff* becomes a *Grundbegriff* once it comes to be that, within a given situation, diverse parties have no choice but to interpretatively engage with the concept in order to establish “their respective conditions, and to achieve the capacity for action,” thus registering “those minimal commonalities without which no experience is possible, and without which there could be neither conflict nor consensus.”³¹ In other words, a *Grundbegriff* provides the provisional and transitory grounds for mutual communicability.

Having thus explicated the field of intervention as regards conceptual historiography, an original idiolect, derivative of but divergent from this field, can now be proposed.

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*Conception* is that which both develops from and intervenes through experience, enabling a diversion of attention away from the immediacy of sensation simply received, towards the proliferation of possibles, and the exploration of worlds. Formed from and through habits, conception concentrates, condenses, connects, and encapsulates experience, dynamic with respect to the shifting of situation. Radically empirical, it is at once: a taking-in and holding; a marking-out and characterising; a negotiation between complexes, and a negotiation of problems. When conception—that is, conceptual creation—meets semiosis, we have *expression*. Moreover, with expressive articulation, we can have not only conception but *concepts*.

Concepts may be identified by paradigmatic (that is, exemplary) *statements*. Such statements may, in turn, be related to personae, by whom the concepts in question are “signed,” or to authors, with whose iterative authority they are ‘stamped.’ A statement is both a *trace* of a conception and a *lure* for reconception. The act of conceptual creation is always a process of statement and restatement; in expressive terms, a conceptual articulation. There can be

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<sup>28</sup> Koselleck 2005, 85; Koselleck [1979] 1995, 119.

<sup>29</sup> Koselleck 2011, 20.

<sup>30</sup> Koselleck 2005, 84; Koselleck 1995, 112.

<sup>31</sup> Koselleck 2011, 30.

philosophies of concepts and personae but histories, strictly speaking, only of statements and authors.

It is apparent, then, that conception is not an unmarked continuum. Conception is distinguished from concept by its differing relation to expression (a concept as such must be related to the capacity for expression). The concept may, then, be further distinguished from the *notion*: an articulable but highly unstable conception with uncertain frontiers; something not, therefore, inexpressible but, rather, inexact; something that may be described or designed but not (or not yet) distinguished or defined. A conception is a concept to the degree that it is distinguished, bounded, named, arranged, noted, and translated; a notion is to the contrary.

Habits of conception may well be common across collectives that do not share a closely related language—this is indeterminable in the abstract. However, being dependent upon conventions of expression, concepts are necessarily relative to their semiotic articulation. That a concept is translated means not so much that it is functionally equivalent between collective semiotic orders but rather that, since equivalence must be *achieved*, and usually at a cost, its untranslatability has been made sufficiently imposing a problem for institutional relations of translation to be established.<sup>32</sup> Translation is therefore indicative of significance. When all parties to a collective event can presume a concept to be common to them, this concept is *syndoxic*.<sup>33</sup> Concepts are often widely translated—and, hence, widely syndoxic. However, one does not translate a notion except into a concept. A *Grundbegriff*, or groundconcept, by contrast, is that which is sufficiently syndoxic to provide provisional and transitory communicability as regards an issue-situation.

The passage from notion to concept to groundconcept—from the somewhat inexpressible to the complexly articulable to the more or less lexically obligatory—is not, to be clear, a developmental one. There is no necessity that a trajectory begin from *a* and pass through *ω*. However, it is in relation to this possibility that the following historical account is oriented: The incremental reconstruction of concepts that, at certain moments, ‘ground’ particular communicative relations, whether in a situation of conflict or coordination.

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From the Proto-Indo-European **kap-*, “to grasp,” derives the Latin *capere*, “to seize or grab,” and *concupere* “to take in, hold, become pregnant.” Both the Germanic *Begriff* and the Latinate concept thus connote “grasping,” “seizing,” or “apprehending.” This is also the root of “capture.” It is in relation to this conceptual fragment that the specificity of political practice, besides the historical and philosophical, can now be articulated.

³² Cassin 2016; Cassin et al. 2014.

³³ Baldwin 1911, vii.

In taking James' parable of the sea-anemone as formative of my conceptual apparatus, I have affirmed the necessity of "humour" with respect to the fact that it was expressed in terms of the evolutionary "environment." However, this is not the last, nor the least, of the difficulties involved in adopting this conception.

What "we" have, in contrast to the sea-anemone, James continued, is "a faculty superadded to our barely perceptual consciousness for its use in practically adapting us to a larger environment than that of which brutes take account." This going "in quest of the absent" was, therefore, a freedom not afforded that of the *brutus*—the heavy, dull, insensible, stupid, or animal. Nor, moreover, was conception to be found fully formed in the human as such.

"The thought of very primitive men has hardly any tincture of philosophy. Nature can have little unity for savages. It is a Walpurgis-nacht [Witches' Night] procession, a checkered play of light and shadow, a medley of impish and elfish friendly and inimical powers. 'Close to nature' though they live, they are anything but Wordsworthians. If a bit of cosmic emotion ever thrills them, it is likely to be at midnight, when the camp smoke rises straight to the wicked full moon in the zenith, and the forest is all whispering with witchery and danger."³⁴

Thus, "the intellect awoke" only in the time of *cultural* evolution; such "passion for generalizing, simplifying, and subordinating" was a product of historical time; wonder at the unity of nature, and adaptation to the "immense environment" was, it seems, a purview of the kind of advanced civilisation that could afford itself philosophers.

We are, then, presented with a problem of critical judgement: The anthropology of teleologically ascendant developmental stages is, unambiguously, an implement of racist supremacy, very much still with us, though we may wish that it were not. Such ideas, clearly, must be renounced; indeed, actively countervailed. How far, then, does simply extricating, and moderately transforming, James' concept-myths take us from the precepts to which they were attached?

From the Greek κριτικός [*kritikós*], "capable of making judgements," and κρίνειν [*krínein*], "to separate, decide," from the PIE etymon **krei-*, "to sieve" and hence "to discriminate" or "distinguish," the act of criticism implies a position of judgement and discernment. It may also connote a situation of "crisis" or instability, such as the turning point of an illness.

In electing to engage James as a conceptual persona—that is, to 'think-with' him as a complex of conceptual possibility—I have indeed made a critical decision. This has entailed the active acceptance of a constraint and a risk. The constraint: To repose within the thought of another and think from there. The risk: To thus induce the possibility of *capture*—that is, being made a dupe, a lackie, a shill, an agent for what you *think* you are leaving behind. This risk is, moreover, a double one: In your own reconceptions, you may, through limited faculties of

³⁴ James 1987, 639.

discernment or imagination, be made the agent of that which you seek to betray. However, and moreover, since every text is, in the end, more ‘designed’ than ‘defined,’ and since every text is always received with respect to existing relations of conception, when your statements have been made—and you yourself thus made an author or persona for others—it may be that precisely what you set out to leave behind reaches back to grasp you, despite your every effort.

This is not a lament but a problem.

No doubt, James’ commonsensically chauvinistic hierarchy of civilisation could be excused on the grounds of its being a ‘product of its time.’ Or, these dimensions of the conceptual complex named ‘James’ could be argued an integral failing and altogether condemned (in the sense that one would condemn a house). However, whichever decision one makes, hermeneutic immanence has been suspended, indicating a most crucial shift. No longer either a persona (to be thought-with) or an author (to be situated-interpreted), ‘James’ is now a *perpetrator* and a *symptom*—that is, insofar as he has acted, he has erred; insofar as he has replicated a doxa, he demonstrates a deeper malady.

In judging, one is no longer ‘reposing,’ either historically or philosophically; one has adopted another position, a step apart, and another modality of action—a modality best termed *political*.

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We now have partial and provisional means of modally distinguishing not only the historical and philosophical but, moreover, the political. We have also discerned experience (or feeling) from conception (or ideation), and then distinguished the latter into notion, concept (by expression), and groundconcept (by relative syndoxy). Thus, we must now understand what is at stake in adopting the concept “ontology.”

From the Greek ὄντος [*óntos*], meaning “being, what is,” ontology in the philosophical sense of “discourse concerning being” is at least as old as philosophy. Thales of Miletus (c.624–546 BCE), for example, identified water as the ἀρχή [*arkhē*], the beginning, origin, or source of existence. The word ontology, however, was a product of seventeenth-century Europe, generally being a synonym for metaphysics. In the *Critique of Pure Reason* of 1781, Kant identified “Ontology” as being that which “presumptuously claims to supply, in systematic doctrinal form, synthetic *a priori* knowledge of things in general.”<sup>35</sup> Thus, in the Kantian tradition, ontology was identified with the very dogmatism that was to be ‘critically’ undone. However, in 1927, Martin Heidegger’s *Sein und Zeit* introduced to the critical philosophy *Fundamentalontologie*:

“The question of Being aims therefore at ascertaining the *a priori* conditions not only for the possibility of the sciences which examine beings as beings of such and such a

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<sup>35</sup> Kant 2016, 264.

type, and, in doing so, already operate with an understanding of Being, but also for the possibility of those ontologies themselves which are prior to the ontical sciences and which provide their foundations.”<sup>36</sup>

Thus, Heidegger defined philosophy as that by which being-there (*Dasein*, human being) responds to the Being (*Sein*, being qua being) of beings (*Seiende*, ontic beings)—a quite literal ‘responsibility’ to which no other practice could suffice.<sup>37</sup> This fundamental distinction of ontic and ontological, he described as the “ontological difference.”

It was also in this tradition, though generally divested of the pretention to “foundations,” that Foucault developed his methodologies of “archaeology” and, after Nietzsche, “genealogy.” However, in an interview in April 1983, he described this, what would be the final, version of his thought in terms of “historical ontology”:

“Three domains of genealogy are possible. First, a historical ontology of ourselves in relation to truth through which we constitute ourselves as subjects of knowledge; second, a historical ontology of ourselves in relation to a field of power through which we constitute ourselves as subjects acting on others; third, a historical ontology in relation to ethics through which we constitute ourselves as moral agents.”<sup>38</sup>

Following, but also extending, the trajectory traversed by Heidegger, ontology was now divested, apparently a priori, of any hint of its metaphysical or scientific sense, entailing instead the historical, socio-linguistic conditions by which various forms of subjectivation are made possible. If knowledge is the principle means by which such subjectivation occurs then any meaningful distinction between ontology and epistemology is thus effaced.

Although, by consequence of his prominence, the phrase historical ontology is generally attributed to Foucault, as Hacking writes, he did not “seem to attach much weight to the phrase.”<sup>39</sup> Indeed, it was the latter author, in his aforementioned essay, who adopted and developed this concept most fully:

“Historical ontology is about the ways in which the possibilities for choice, and for being, arise in history. [...] Historical ontology is not so much about the formation of character as about the space of possibilities for the character formation that surround a person, and create the potentials for ‘individual experience.’”<sup>40</sup>

Thus, after the fashion of Heidegger and Foucault, the epistemological and ontological are amalgamated. The “historical meta-epistemology” of the likes of Bachelard, Hacking writes, are incorporated within a “generalized concept of historical ontology.”<sup>41</sup> No longer concerned

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<sup>36</sup> Heidegger 1962, 31.

<sup>37</sup> Heidegger 2003.

<sup>38</sup> Foucault 1983, 237.

<sup>39</sup> Hacking 2002, 3; Hacking 1979.

<sup>40</sup> Hacking 2002, 23.

<sup>41</sup> *Ibid.*, 9.

with the *arkhē*, with Being or with beings per se, there seems to be ontology *only* of “ourselves.”<sup>42</sup> Ontology becomes autology.

However, in the two decades since Hacking’s essay, ‘ontology’ has taken on rather another intellectual role, with ontological ‘turns’ being declared and debated, particularly in fields such as Science and Technology Studies (STS), and anthropology.<sup>43</sup> It is neither possible nor necessary to review such discussions here.<sup>44</sup> However, aspects of such developments are relevant to the reconception herein attempted.

As Annemarie Mol puts it, the significance of the word “ontology” for scholars of STS has been that it “evokes ‘reality’”—that is, it entails not only *ourselves* but also the heterogeneous beings that scientists and engineers discover, conceive, and fabricate.<sup>45</sup> In 1996, Bruno Latour wrote, in reference to the work of Mol and John Law (as well as, implicitly, himself), that actor-network theory is “as much an ontology or a metaphysics as a sociology.”<sup>46</sup> As is well known, the conceptual lexicon “ANT” consists of concepts that incorporate the social being of nonhuman things.<sup>47</sup> In Hacking’s estimation, such authors “assign too much agency to nature.”<sup>48</sup> For his self-declared “old-fashioned humanism,” nonhumans may enter the laboratory but the social fabric, “the space of possibilities”—one might impute: the social milieu—is, as it was for Durkheim, *sui generis*.

However, it is by now quite evident that ANT has overflowed into ever more regions of the humanities and social sciences, becoming an orthodoxy in many areas. Speaking to the Association of American Anthropologists in 2013, Latour declared that “the philosophy of science” had become, over the preceding decades, “the main knot for the settlement of legitimate ontologies: that is, for what should be expected from agencies.”<sup>49</sup> In other words, it was with respect to the beings of science, cast out by Heidegger as merely ontic, that an ontological politics had been achieved, bringing into question the ways in which certain reality-effecting networks are granted ascendancy while others are condemned to destruction and resistance.

Such reappropriations of “onto-logy”—against both dogmatic metaphysics *and* narcissistic phenomenology—are, however, conceptually troubled. If attention to evocations of

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<sup>42</sup> Heideggerian ontology is further discussed in §D. Cf. Agamben 2016, 113.

<sup>43</sup> Mol 1999; Carrithers et al. 2010; Savransky 2012; Mol 2013; Whatmore 2013; Woolgar and Lezaun 2013; Hunt 2014; Alonso González and Vázquez 2015; Aspers 2015; Kohn 2015; Woolgar and Lezaun 2015; Daly et al. 2016; Pellizzoni 2016; Todd 2016; Holbraad and Pedersen 2017; Stengers 2018b; Turner 2018a; Turner 2018b.

<sup>44</sup> The anthropological shift is further discussed in §E.

<sup>45</sup> Mol 2014; see also Mol 2002; Mol 1999.

<sup>46</sup> Latour 1996, 369.

<sup>47</sup> Latour 2005.

<sup>48</sup> Hacking 2002, 17.

<sup>49</sup> Latour 2014, 302.

“reality” and to “what should be expected from agencies” satisfy the conceptual heritage of *óntos* (from εἶναι [*eînai*]: to be, to exist, to happen), they relate less obviously to that of λόγος [*lógos*].

In translations from Ancient texts, *lógos* is often rendered, quite straightforwardly, as “word.” Thus, we speak of philology (love of words), as opposed to philosophy (love of wisdom). However, in Aristotle’s rhetoric, *logos*, as distinct from *pathos* and *ethos*, was the *reason* behind the words. Moreover, for the Stoics, the λόγος σπερματικός [*lógos spermatikós*] entailed the generative, germinal principle of the cosmos. So it was with the famous opening lines of the Gospel of John: “In the beginning was the Word [*Lógos*], and the Word was with God, and the Word was God.”<sup>50</sup> Similarly metaphysical meanings are also found in Plotinus (203–270 AD) and, later, in the thinkers of Islam.<sup>51</sup>

Thus, the conceptual heritage of *lógos*, even before it is matched with *óntos*, implies the logic, the way, the workings of things. Accordingly, ontology, for Heidegger, concerned the conditions for the authentic disclosure of *Sein* to *Dasein*. Likewise for Foucault or Hacking, who dispense with authenticity and dissolve *Dasein* into sociolinguistic relations. Ontology and the ontic are, in either case, fundamentally distinguished, placed in a hierarchy, with the former being the purview of the philosopher. Such is anathema for Mol or Latour, who prioritise the concrete and distrust the transcendental. Their “ontology” is not, therefore, so much a matter of structural, systemic logics as that of ongoing, creative, contested collective achievements.<sup>52</sup>

It is from this point of disagreement that the ontological can now be reformulated.

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In its presently commonplace deployment, ontology is an amalgam—a conceptual confusion that must be disaggregated. Ontology may be understood as the point at which several dimensions of activity intersect. This intersection is irreducible to a singular, identifiable ‘logic’ (historically contingent or not). However, it is nevertheless productive of reality-effects—that is, situated determinations of “what should be expected from agencies.” Such effects shape, for any given occasion, what is encountered as possible.

As such, the ontological is best understood, first and foremost, in relation—that is to say, as an action, an occurrence. The ontological occurs *when an entity is received as real by a collective whose practices cultivate that reception*. To be ‘real,’ it should be added, is not in contradistinction to the unreal, ideal, or unactual. To receive an entity as *real* is to receive it in accordance with its characteristic *mode of existence*—that is, in accordance with what is *fundamentally* and *specifically* necessary for that thing to be what it is.

⁵⁰ John 1:1, King James Edition.

⁵¹ Williams 2016.

⁵² Latour’s “modes of existence” project (2013) complicates this diagnosis. However, he leaves unexplored the problem of the relation of the ontic and ontological.

However, the point must be made unambiguous: Ontology, as here defined and described, must not entail the existential foundation that all uncritical (that is, unthinking), practices merely presuppose. Nor, for that matter, should it entail a deductive, dogmatic theory of reality as such. Rather, one must emphasise the terms *practice* and *cultivation*—activities to be understood and described rather than explained in terms of something *more* fundamental.

The concept of ontology, herein, gathers and coordinates six pragmatic dimensions: the *ontonomic*, *ontoturgic*, *ontodesic*, *ontographic*, *ontomesic*, and *ontochronic*. Being neither essentially exclusive nor exhaustive, these concepts are a radically empirical means of formulating problems of existence as problems of action. They will be explicated further through the course of the thesis, with each of the six historical chapters being concluded by a philosophical excursus that reprises and recomposes each concept in turn. However, they can be introduced as follows.

Ontonomic: From νόμος [*nómos*], law. ‘Reception as real’ is a collective obligation. Whether or not there can be a ‘private language,’ there can be no private reality. Any collective identifiable as such can be understood in terms of the rules, norms, or laws by which that collectivity discerns what kinds of beings can be received, and in what mode. Certain collectives, in particular those styling themselves as ‘modern,’ maintain that their obligations to ‘reception as real’ are reducible to the established record of scientific knowledge. However, even if or where this is the case, ontology cannot be reduced to epistemology.

Ontoturgic: From ἔργον [*érgon*], work. This aforementioned ‘collective obligation’ is not merely formal or statutory. Rather, to say that it is ‘cultivated’ is to say that it is ‘performative.’⁵³ That is, the ontoturgic (like the dramaturgic) concerns the labour by which existential reception is immersively and aesthetically enacted, becoming manifestly formative of something like an architecture or, less magisterially, a style of experience. However, if ‘reality’ as such is therefore both collective-specific and ‘performed,’ it does not follow that worlds are the arbitrary products of assertion and caprice.

Ontodesic: From δαίω [*daíō*], divide. Such cultivations or performances do not simply ‘make manifest.’ This very manifestation *distributes*, *apportions*, and *partitions*—it puts into relation, and hence into difference, what is, what can be, and what can come to be. In other words, it designates both agency and possibility. Any such distribution is, of course, always subject to a certain partiality. That is, to speak of a ‘collective’ in no way entails that all constituents thereof necessarily bear identical ontological disposition towards, or as a result of, its practices of cultivation. However, such a division has collective consequences: it enables particular forms of action, while disinclining others. ‘Realism’ is a quality inherent to collective existence.

Ontographic: From γράφω [*gráphō*], write. An ‘ontology,’ understood in the terms explicated above, can therefore be understood, in one sense, as a collection or compendium of

⁵³ Bell 1999.

entities that have relevance to a collective—“a system of the distribution of things,” as James might have put it—as well as the correlative, practical conditions of their reception. The accomplishment of reception is, indeed, only possible from within a relevant world of beings—and not only beings of ‘thought’ or ‘conception’ as such. The means by which such entities are recorded, catalogued, registered as requisite and, rendered exemplary, can, then, be understood as ontographic. Collectives are built upon their constituents.

Ontomesic: From μέσος [*mésos*], amidst. Once again, to speak of collectively cultivated relations of reality is not to suggest that every member of any given collective will relate to such practices in the same way. Indeed, very many collectives may be constructed upon the recognition that this is not the case. Correlatively, and crucially, to speak of ‘a collective’ in this sense must not imply a ‘multiverse’ of bounded, enclosed, and mutually exterior bubbles of mandatorily monological experience, inconceivable to their others, and absorptive of their constituents. Moreover, it is by no means necessary that anyone inhabit only one ‘collective.’ Thus, it is perfectly meaningful—indeed, utterly necessary—to speak of relations between ontologically-differentiated collectives. Indeed, without the possibility of such coordination, nothing like ‘a world’ could be meaningfully invoked.

Ontochronic: From χρόνος [*khronos*], time. Finally, obligations, manifestations, distributions, exemplifications, and mediations are susceptible to change. Thus, they are historical. However, as is apropos of a *historical* ontology that must, preliminarily, explicate its methodology, this element will require investigation in more detail.

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In the preface to *Le problème de l’incroyance au XVI<sup>e</sup> siècle: La religion de Rabelais* of 1942,<sup>54</sup> Lucien Febvre wrote:

“the problem is to determine what set of precautions to take and what rules to follow in order to avoid the sin of all sins [*le péché des péchés*], the sin that cannot be forgiven—anachronism.”<sup>55</sup>

Such is a classic encapsulation of the historian’s code—to the past, as it was. Similarly, in an influential essay published in 1969, arguing against the then-dominant trans-epochal history of ideas practiced by followers of A.O. Lovejoy, Quentin Skinner articulated what would become known as a contextualist model of historical interpretation. Context is not, Skinner made clear, to be taken as “the determinant of what is said.” Rather, it is “a means of decoding the actual intention of the given writer”—something like a “court of appeal for assessing the relative plausibility of incompatible ascriptions of intentionality.”<sup>56</sup> In these terms, the ‘longitudinal’

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<sup>54</sup> *The Problem of Unbelief in the Sixteenth Century: The Religion of Rabelais*.

<sup>55</sup> Febvre 1982, 5; Febvre 1942, 8.

<sup>56</sup> Skinner 1969, 49.

historiography of self-reproducing “unit-ideas,” in Lovejoyan terms,<sup>57</sup> was, thus, preposterously anachronistic and, in the coming decades, it would decisively fall from fashion. More recently, Skinner, too, has acknowledged anachronism as a “sin.”<sup>58</sup> This, then, is the second “cry” we might hear concerning the discernment of historical modality. However, it is a cry to be heard cautiously.

From ἀνά [*aná*], ‘against’ and χρόνος [*chrónos*], ‘time,’ to be anachronistic is to be against time or in the wrong time. Such a distinction is, as we have seen, integral to the writing of history. However, this hamartiology<sup>59</sup> of the historical has a crucial corollary. As Dipesh Chakrabarty has argued, the demarcation of anachronistic disjunctures may be further understood as a “desire to be free of the past”—that is, not only an attempt to place the present in contradistinction but to erase what came before; to “reduce the past to a nullity.”<sup>60</sup> In other words, anachronism-as-sin might be interpreted as a kind of ancestral disavowal—that is, as a symptom of the desire to be free not just from the *ways* of the past but, moreover, from the *responsibility* for the present that this past has produced. This is, as Chakrabarty points out, a quintessentially “modern” orientation. Here, “humour” therefore takes on a more obviously political quality.

Thus, the pertinent question—indeed, the *ontochronic* question—then becomes: How does one decide which time one is within? This is the question of *epochal decision*.

The Parisian tradition of historical epistemology, after Bachelard and Canguilhem, takes as a fundamental principle and task the discernment of “*ruptures épistémologiques*”—that is, of ruptures or breaks in the structure of epistemic possibility.<sup>61</sup> It was much in this lineage, by way of Heidegger, that Foucault, around the same time as Skinner’s aforementioned essay, came to his concept of the *épistème*: “the epistemological field” in which knowledge manifests “its conditions of possibility.”<sup>62</sup> Crucially, this “field” pertained to specific cultural and temporal boundaries:

“In any given culture and at any given moment, there is always only one *épistème* that defines the conditions of possibility of all knowledge, whether expressed in a theory or silently invested in a practice.”<sup>63</sup>

Here, two principal differentiations can be discerned: First, “moment”—there can be only one *épistème* crosscutting each period, and successive slabs of time will each have their own iteration.

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<sup>57</sup> Lovejoy [1936] 1964, chap. 1.

<sup>58</sup> Skinner, Koikkalainen, and Syrjämäki 2001, 57.

<sup>59</sup> The study of sin.

<sup>60</sup> Chakrabarty 2008, 244.

<sup>61</sup> Taylan 2014, 148.

<sup>62</sup> Foucault [1966] 2005, xxiii–xxiv.

<sup>63</sup> *Ibid.*, 183.

Second, “culture”—there can be only one *épistème* pertaining to any one culture at a time and such strictures impose upon all those involved in that culture.<sup>64</sup> Of course, Foucault would later nuance—and abandon—such simplistic, macroscopic stipulations (though the same cannot be said of his followers). Nevertheless, the point to be made is that, being constructed upon such ‘slabs of time’ and ‘spheres of difference,’ this statement is symptomatic of everything that must be avoided.

To return again to the “strange necessity” of etymology: The Greek ἐποχή [*epoché*] meant “stoppage, station, position (of a planet), fixed point of time,” and ἐπέχειν [*épéchein*], “to arrest, stop, take up a position,” from ἔχειν [*échein*], “to hold” or to have. The concept of historical epoch thus entails a certain ambiguity: both holding and being torn away; stopping and departing; deceleration and acceleration. It implies, that is, critical decision—a crisis or turning point requiring the operation of incisive discernment. In short, epochal decision entails the situated determination of which aspects of the past it is that are still able to have a hold the present (and in what way).

There is no need, therefore, for either slabs of time or spheres of difference in making such decisions. In cartography, the meeting point of latitude and longitude is the *confluence*. The historiographical approach assembled herein is, then, confluent in this precise sense: Rather than presuming particular periods, by virtue of an underlying collective-cognitive rupture, to be discrete by definition, the question of immanence and repose—that is, of sharing a common world from which one may inherit, and for which one may be responsible—must be made an obligatorily recurrent problem.

History is made by ‘making things history.’ Anachronism, then, is not the *right* that one assumes in order to formulate a generally valid timeline but the *risk* one takes in distributing relations of heritage and renunciation. It is a situated decision, relative to the entities concerning it. Establishing an epochal differentiation entails attributing relations of responsibility. It is, therefore, a political decision. However, it may also be a historical one.

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It remains, then, to recapitulate what is distinctive about historical and philosophical statements. In 1933, Michael Oakeshott wrote:

⁶⁴ With regard to ‘culture,’ at least eleven times in this work, Foucault refers to the “Western *épistème*” or the “*épistème* of Western culture [*la culture occidentale*]” (60, 64, 83, 224, 270, 272, 365, 398, 401, 413, 419).

“‘What really happened’⁶⁵ (a fixed and finished course of events, immune from change) as the end in history must, if history is to be rescued from nonentity, be replaced by ‘what the evidence *oblige*s us to believe.’”⁶⁶

This was, for Oakeshott, a definitive principle of the historical mode of experience. Like all modes besides philosophy, history lacked the ability to think “critically” about its own preconditions. Thus, it was the role of the philosopher to provide them. Once again, I do not mean to follow Oakeshott’s example. Nevertheless, taking this statement as a historiographical principle, it is possible, finally, to make decisive distinctions as regards the “*differentia*”⁶⁷—that is, the modally distinguishing characteristics—of the practices in question.

To put it somewhat schematically: The ‘objectivity’ of a philosophical statement is relative to the creative satisfaction (which is not to say ‘solution’) of the problem of thought that it addresses. A philosopher qua philosopher is not, therefore, obligated to the authority of ‘evidence.’ However, the situation of historical objectivity is quite different. The historian is an agent bound to the authority of the archive—that is, to the inherited collection of traces of the past maintained through and for present experience. Thus, while a philosopher must always be constructive, a historian must be reconstructive. To conflate or confound the *differentia* of these regimens is, at best, a category error and, at worst, destructive of their respective modes of existence. Understood in these terms, objectivity, in a historical mode, is relative to the possible objections of a hypothetical ‘court.’ This figure of authority presides in virtual judgement over the fidelity of the historian’s translational and reconstructive articulations of the evidence with respect to a given historical problem.

It is now possible to explicate a historiological process: Trace becomes evidence becomes historiography. To become a trace, something must stand for something past; it must be a sign. To become evidence, it must mean something for a present problem in relation to this past; it must be significant. None of this is of concern to the philosopher, whose mode of inheritance relates not to an *archive* but to a *repertoire*—that is, to an inherited collection of possibilities for conceptual creativity. However, while conflations and category errors are to be avoided, it would be a mistake to imagine that philosophical and historical practices can be altogether separated.

Beyond becoming trace and becoming evidence, in order to become historiography, the expressive concatenation of signs and significances must itself become meaningful. That is, something must ‘follow from’ it. This process of incremental connection must lead from

⁶⁵ Alluding to the famous statement of Leopold von Ranke (1824), that his work “merely wants to show how it actually was [*wie es eigentlich gewesen ist*].” Or, by another translation: “how, essentially, things happened.” See Breisach 2008, 233.

⁶⁶ Oakeshott 1985, 107. Emphasis added.

⁶⁷ The classical term employed by Oakeshott with regard to modes of experience.

somewhere to somewhere else. In simpler terms, it must construct a narrative. In this way, historiography opens out onto history. More precisely, it ‘*makes history*’ by contributing (however consequentially) to the repository of collective narrative possibilities. However, and moreover, in this same moment, it opens out onto philosophy. More precisely, as evidence becomes historiography becomes history, it raises the question of what is to be made from this complex, conflicted inheritance—and this is a quintessentially philosophical question.

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This chapter began by stating that there are at least four ways to ways to philosophise: *definition*, *distinction*, *description*, and *design*. These terms are also crucially important for the writing of history; however, they operate in fundamentally different ways.

If only that which has no history can be defined then the objective of conceptual historiography, cannot be to arrive at a final, definitive definition. Nevertheless, as historical evidence, *definitions* are crucial to the identification of concepts. In any case, *description* is, undoubtedly, altogether historical. Likewise, as we have discussed, the practice of *distinction* is fundamental in several dimensions, though not without certain complications.

As descriptions and distinctions are detailed, with authors and statements being related to and thus explicating one another, rendering trace into evidence into meaning, these situated perspectives begin to stitch together a portrayal of a wider world—a past world, the critical complexities and unrealised possibilities of which can, thereby, begin to be understood. There is also, therefore, an irreducible element of *design* in the act of historiographical composition. That is, whereas a philosophical design creates a lure for thought, a historiographical design effects an evocative process of world-implication that cannot be precisely described or distinguished, much less defined, but the manifest impression of which is fundamental to any text claiming the title ‘history.’ The writing of history is itself, therefore, in the end, a process of conceptual manifestation.

However, having said all of that, is necessary to return to the subject of constraints. The following historical chapters do not get to the point of constructing a cohesive narrative; much less do they ‘make history,’ in the strong sense identified above. Instead, the following chapters are principally evidential. That is, they work primarily between trace and evidence, reconstructing the knots and sinews of the events claimed to be most significant, as comprehensively and comprehensibly as possible. Its achievement of historiography, in the strong, manifestational sense, must therefore be acknowledged as limited. Moreover, only around one-sixth of the following is written in an overtly philosophical mode. Thus, this work is by no means a complete realisation of the diagnoses and speculations ventured in the pages previous. Nevertheless, a succinct series of practical historiographical procedures can be articulated.

First (in logical rather than chronological order), each historical chapter will identify key moments, and hence crucial authors and statements, along the threads to be traced. Indeed, the narrative threads in question will, by and large, consist of situated, reconstructive interpretations of these moments. Second, it will understand the significance (i.e. both meaning and importance) of these statements in relation to both the text in which it appears and, where possible, the rest of the author's oeuvre. Third, it will understand the significance of these statements in relation to the problems, debates and standards of the situation (i.e. the time, place, and other distinguishing circumstances), with the amount of detail accorded any given statement or author proportional to their relative significance for the overall narrative. Fourth, by connecting authors and statements in this fashion, a relational complex will be incrementally constructed through which each becomes the 'context'—that is, the formative situation—of the other. Thus, situated perspectives come to (or, at least, begin to) reconstruct wider worlds, without shifting frames of reference from the particular to the general. Fifth, by accounting for the reception of specific concepts in later situations, relations of contradistinction lead to the formulation of epochal distinctions. Sixth, through the course of each episode, a variety of conceptions, variably expressed, are thereby historicised and articulated. This process of pluralisation and specification, then, provides the impetus for philosophical reconception, undertaken in chapter-concluding excurses.

## **Part 2: The Making of Milieu**

## 4: “This Ætherial Medium”: Mediation from Newton to Lamarck

To say that a history of physical media must begin *in medias res*—in the middle of things—is to say at least three things: First, like most histories, it does not lend itself to origin stories. Second, though given this limitation, it is a history that could very well be extended to Classical Latin and beyond. Third, it must begin quite literally in the middle of things—since this is precisely this conception that is at issue.

This, the first of two historical chapters concentrating on the concept of milieu, is structured upon the example of two thinkers in particular: Isaac Newton and Jean-Baptiste Lamarck.<sup>1</sup> The former, during his life, and even more so after, became the paradigmatic natural philosopher of modernity, not only, but especially, due to his mathematical physics, and the law of gravity formulated therefrom. The latter died in poverty, his career threatened with obscurity, though has been, and continues to be, reclaimed for the insights that are attributed to him concerning the inheritability of effects experienced by a living being through the course of its life. Both these figures thought their thoughts within a universe understood in terms of matter solid, fluid, and aetherial. Newton also was committed to immaterial existents—from angelic agents to the godliness of space itself. Lamarck, a century later, was rather more thoroughgoing in his materialism.

It was in the middle of these developments in physical cosmology, then, that medium and milieu, as they would be known in the nineteenth century and after, emerged, and it is in relation to such developments that, in this chapter, they will be understood.

### 4.1: From whirlpools to sensoria: Newton and his inheritors

In a prefatory poem to his *Éléments de la philosophie de Newton* of 1738, dedicated to the Marquise Émilie du Châtelet (1706–1749), François-Marie Arouet (1694–1778), better known by his *nom de plume* Voltaire, wrote:

|                                                               |                                                             |
|---------------------------------------------------------------|-------------------------------------------------------------|
| Déjà ces tourbillons, l'un par l'autre pressés,               | The massy whirlpools heaving still for place,               |
| Se mouvant sans espace, & sans règles entassés,               | Heap'd without rule, and moving without space,              |
| Ces fantômes sçavans à mes yeux disparaissent.                | Those learned phantoms vanish from my sight,                |
| Un jour plus pur me luit; les mouvemens renaissent;           | And day comes on me with her genuine light!                 |
| L'espace, qui de Dieu contient l'immensité,                   | That vast expanse, of being the abode,                      |
| Voit rouler dans son sein l'Univers limité [...] <sup>2</sup> | Space that contains th' immensity of God [...] <sup>3</sup> |

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<sup>1</sup> Drawing on e.g. McGuire 1968; Ducheyne 2014 and Appel 1987; Burkhardt 1995.

<sup>2</sup> Voltaire 1738, 4.

<sup>3</sup> Voltaire 1780, 77.

The *tourbillons*—whirlpools or vortices—to which he referred were those of the Cartesian cosmology: swirling, interlocking masses of corpuscular matter that explained the circulation of sidereal bodies, and the instantaneous action of light, linking all creation into a rigorously mechanical plenum, without vacuum or void.

In the very first paragraph of Book I of *Philosophiæ Naturalis Principia Mathematica*, first published in 1687, Isaac Newton (1643–1727) pointedly declared:

“*Medii* interea, si quod fuerit, interstitia partium libere pervadentis, hic nullam rationem habeo.”<sup>4</sup>

In the English translation of 1729 by Andrew Motte (1696–1734), this became:

“I have no regard in this place to a *medium*, if any such there is, that freely pervades the interstices between the parts of bodies.”<sup>5</sup>

Then, in the French translation by du Châtelet, completed in 1749 (published in 1756):

“Je ne fais point attention ici au *milieu* qui passe entre les parties des corps, supposé qu’un tel *milieu* existe.”<sup>6</sup>

This interstitial *medii*, *medium*, or *milieu* was not a direct reference to the doctrine of René Descartes (1596–1650). However, it implied the same problem: how to account for the ostensibly empty spaces severing the material masses of a mechanical cosmos—voids inducing sundry and serious questions of causation. Such an oft-hypothesised substance—*aetherial* or otherwise—was not, then, ‘metaphysical’ in the sense of being above or beyond physics. However, it was a question of cosmological causation rather than mathematical formalisation. As such, the *Principia* was not, at least initially, required to address such hypotheses. Thus, when it did speak of “mediums,” these were localised, fluid, and physical.

Book I (of III) set out to expound the physico-mathematical principles of dynamic motion in the absence of resisting mediums, thus in a condition of rational abstraction. However, Book II considered at length such issues as air resistance and the speed of waves in diverse fluids, culminating in a repudiation of the “corporeal vortices,”<sup>7</sup> as would continue to be propounded, in modified form, by the likes of Christiaan Huygens (1629–1695) and Gottfried Wilhelm Leibniz (1646–1716). Book III, titled “*De mundi systemate*,”<sup>8</sup> then propounded the famous law of gravity, defined by the inverse square of the distance between two masses.

It was via the popularisation of du Châtelet, Voltaire, and the likes of Pierre Louis Maupertuis (1698–1759), that the French “*milieu*,” encapsulated in the famous *Encyclopédie*

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<sup>4</sup> Newton 1687, 3. Emphasis added.

<sup>5</sup> Newton 1729, vol. 1, 2. Emphasis added.

<sup>6</sup> Newton 1759, 1. Emphasis added.

<sup>7</sup> Newton 1729, vol. 2, 197.

<sup>8</sup> *On the system of the world*, *Ibid.*, vol. 2, 200.

(1751–1772) of Denis Diderot (1713–1784) and Jean le Rond d’Alembert (1717–1783),<sup>9</sup> came to be an accepted, even celebrated, concept amongst *philosophes* and *le public*. However, matters physical and metaphysical could not, and cannot, be kept so neatly compartmentalised.

Newton’s famous dictum “*hypotheses non fingo* [I feign no hypotheses]” only appeared in the 1713 second edition of *Principia*.<sup>10</sup> However, such sentiments pervaded his works from much earlier. In a draft of a letter of 1671/1672 to the Royal Society “containing his New Theory about Light and Colors”—a passage excised from the published version—Newton declared:

“A naturalist would scarce beleive expect to see y<sup>e</sup> science of those become mathematicall, & yet I dare affirm that there is as much certainty in it as in any other part of Opticks. ffor what I shall tell concerning them is not an Hypoth{esis} but most rigid consequence, not conjectured by barely infer{ring} ’tis thus because not otherwise or because it satisfies all phænomena (the Philosophers universall Topick,) but evinced by y<sup>e</sup> mediation of experiments concluding directly & w<sup>th</sup>out any suspicion of doubt.”<sup>11</sup>

In 1713, a hypothesis was defined as “whatever is not deduced from the phenomena.” Any such conjectures “whether metaphysical or physical, or based on occult qualities, or mechanical,” Newton made clear, “have no place in experimental philosophy.”<sup>12</sup> The inverse square law of gravity described the workings of divine creation. Explanation was thus a superfluity.

It might have been enough for the orbs to sail on their way, marvellously mathematised.<sup>13</sup> However, Newton’s theories were vulnerable not only to the demands of mechanistic rigour, as Huygens, Leibniz, and others would continue to maintain, but, furthermore, to issues of religious propriety. To understand the emergence of milieu, it is therefore necessary to understand the significance of Newton’s medium—both physically and metaphysically.

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The Greek μέσος [*mésou*]—middle, midst, among, between—is found from Homer onwards (c.750–c.650 BCE).¹⁴ In Classical Latin, the substantive (i.e. noun-form) *medium*, as the midpoint of an object or between two objects, is found, usually in combination with a preposition.¹⁵ For Augustine (354–430 AD), the *medius locus* was the position occupied by Christ, the “True

⁹ D’Alembert’s co-editorship ended in 1759.

¹⁰ “I frame no hypotheses” in 1723 English, Newton 1729, vol. 2, 392.

¹¹ Newton 1671a. Newton 1671b.

¹² Newton 1729, vol. 2, 392.

¹³ “And to us it is enough, that gravity does really exist [...],” Ibid.

¹⁴ Strong’s Exhaustive Concordance, available: Strong 2011.

¹⁵ Spitzer 1942a, 36.

Mediator.”¹⁶ In the simple sense of ‘middle-place,’ *mi-lieu* can be found in Old French (as *miliu*) from at least the twelfth century. The English ‘medium’ as the middle term of a logical syllogism is found from at least 1584, as an intermediate state between two kinds from 1593, and as a medium for sight from around the same time.¹⁷ In 1664, the physician and experimenter Henry Power (1623–1668) wrote of “[t]he aetherial Medium (wherein all the Stars and Planets do swim)”¹⁸—a sense then specialised but not uncommon.

The dictionary *Thresor de la langue françoise* of 1606, compiled by the diplomat Jean Nicot (1530–1600), notes the Latin derivation of *milieu*, “*Medius et locus*,” and gives thirteen examples of usage, all variants on ‘middle,’ such as: “The milieu of the town.” The *Dictionnaire françois, contenant les mots et les choses* (1680) gives two examples: being in the middle of two extremes and reaching an accommodation.¹⁹ The *Dictionnaire universel françois et latin* (1690) lists the now-familiar range and adds a variant “said figuratively of things spiritual and moral,”²⁰ paraphrased as: “Virtue consists of the *middle* between two extremities.”²¹ The fourth volume of the Spanish *Diccionario de la lengua castellana* (1734), likewise, gives a range of logical, intermediary and philosophical definitions, some of which are equated with the Latin *Medium*.²²

When Blaise Pascal (1623–1662) wrote in his *Pensées*²³ that “man in nature” is “*un milieu entre rien et tout* [a middle between nothing and everything],”²⁴ his meaning was evidently familiar. He discourses at length on this terrifying intermediate existence, utterly unlike that *medius locus* honoured by Augustine. However, by way of poeticising such dwelling betwixt divinity and non-entity, he adds: “We sail on a vast milieu, ever uncertain and floating, driven from one end to the other,”²⁵ thus slipping from the intermediary to the elementary. Similarly, René Descartes (1596–1650) almost invariably used *milieu* as ‘middle.’²⁶ However, while discoursing on rays of light in his *Traité du monde et de la lumière* (written 1629–1633 but published 1664), he wrote of “the milieu through which they pass”—*milieu* thus standing in for the “*second*

¹⁶ Pilkington 1876, 285.

¹⁷ OED Online 2008b.

¹⁸ Power 1664, chap. Preface.

¹⁹ Richelet 1680.

²⁰ Furetière 1690, vol. 2.

²¹ This sense foreshadows the term *juste milieu* (golden mean or happy medium), found half a century later.

²² Real Academia Española 1734, 527–529.

²³ Written over many years but published posthumously in 1670.

²⁴ Pascal 1854, 120.

²⁵ “*Nous voguons sur un milieu vaste, toujours incertains et flottants, poussés d’un bout vers l’autre.*” Ibid., 124. The English translation of 1910 has it: “We sail within a vast sphere [...],” Pascal 1910, 29. cf. Canguilhem 2008b, 117.

²⁶ Descartes’ *La dioptrique* of 1637 only used *milieu* straightforwardly as ‘middle.’ Descartes 1902, vol. 6, 79–228.

Elémet,” one of three forms of matter from which the universe is constituted.²⁷ If drawn to remark on the air surrounding something, Descartes could speak, in Latin, of the “*aère ambiente*”²⁸ or “*aëris ambientis*.”²⁹ However, the French *ambient* was not part of his vocabulary.³⁰ Instead, he would speak of “*l’aer d’alentour*.”³¹

Such enigmatic entities as the “aetherial Medium” of Power and the “*matière subtile* [subtle matter]” of Descartes comprised the major point of contention between Thomas Hobbes (1588–1679) and Robert Boyle (1627–1691) in their quarrel regarding the possibility of a vacuum.³² While steadfastly refusing the relevance of any metaphysical aether to experimental philosophy, Boyle’s writings on pneumatics were replete with ambient airs and aerial mediums of varying diffuseness.³³ In his *The General History of the Air*, published posthumously on his behalf by John Locke (1632–1704) in 1692, Boyle defined the subject of his treatise:

“By the *Air* I commonly understand that thin, fluid, diaphanous, compressible and dilatable Body which we breath, and wherein we move, which envelops the Earth on all sides to a great height above the highest Mountains; but yet is so different from the *Æther* [or *Vacuum*]³⁴ in the intermundane or interplanetary Spaces, that it refracts the Rays of the Moon and other remoter Luminaries.”³⁵

However, such media were not yet enshrined by the formal authorities of European languages. Both the first (1694)³⁶ and second (1718)³⁷ editions of *Le Dictionnaire de l’Académie française* accord with their precursors in recording *milieu* in its intermediary sense. However, the third edition (1740)³⁸ added: “In the terms of Physics, *Milieus* are the Diaphanous bodies through which pass rays of light.” Then, in the fourth edition (1762):³⁹ “We also call a *Milieu*,⁴⁰ the fluid that

²⁷ Descartes 1909, vol. 11, 100.

²⁸ Descartes 1903, vol. 5, 173.

²⁹ Descartes 1904, vol. 7, 434.

³⁰ According to his *Œuvres*: Descartes 1897, vol. 1; 1898, vol. 2; 1899, vol. 3; 1901, vol. 4; 1903, vol. 5; 1902, vol. 6; 1904, vol. 7; 1905, vol. 8; 1904, vol. 9; 1908, vol. 10; 1909, vol. 11; 1910, vol. 12.

³¹ Descartes 1897, vol. 1, 319.

³² Shapin and Schaffer 1985.

³³ E.g. Boyle 1772, vol. 1.

³⁴ Original parentheses.

³⁵ Boyle 1692, 1.

³⁶ Académie française 1694, vol. 2.

³⁷ Académie française 1718, vol. 2.

³⁸ Académie française 1740, vol. 2.

³⁹ Académie française 1762, vol. 2.

⁴⁰ Original emphasis.

surrounds [*environne*] bodies. *Air is the milieu in which we live. Water is the milieu that the fish inhabits.*"⁴¹ The fifth and sixth editions (1798; 1835) endured unmodified.⁴²

The 1755 first edition of *A dictionary of the English language*, compiled by Samuel Johnson (1709–1784),⁴³ admits no dedicated entries for either ‘Medium’ or ‘Ambient.’ However, the entry for “Filament” quotes the physician Gideon Harvey (c.1640–c.1700) on the lungs of consumptives having “nothing remaining but the ambient membrane [...]”. “Abjection” is explicated, in part, by the 1699 translation of the *Fables of Æsop* by Roger L’Estrange (1616–1704): “Now the just medium of this case lies betwixt the pride and the *abjection*, the two extremes,” while “Adjacent” quotes from Newton’s *Opticks*: “Uniform pellucid mediums, such as water, [that] have no sensible reflection but in their external superficies, where they are *adjacent* to other mediums of a different density.” However, in the third edition of Johnson’s dictionary in 1768, we find a dedicated entry for “Medium”: “1. Any thing intervening. *Bacon*. 2. Any thing used in ratiocination, in order to a conclusion. *Baker*. 3. The middle place or degree; the just temperature between extremes. *L’estranger*.” Meanwhile, a short but significant entry for “Ambient” reads: “Surrounding; encompassing. *Newton*.”⁴⁴

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If not all paths led to gravity’s anointed genius then this was a road made royal in retrospect. It was the later editions of Newton’s *Opticks: Or, a Treatise of the Reflexions, Refractions, Inflexions and Colours of Light* (1<sup>st</sup> ed. 1704) that established “medium”—and thus “milieu”—as a term of art for natural philosophers in later decades. However, his use of such terms was complicated.

Newton’s work on optical issues began as a student in the mid-1660s, and his first published work, the aforementioned letter of 1671/1672 to the Royal Society, already propounded his principal thesis: “Light it self is a *Heterogeneous mixture of differently refrangible Rays*.”<sup>45</sup> Descartes’ corpuscular cosmology had understood light as consisting of a pulse or change of pressure occurring instantaneously through a medium of small spherical particles—the “*second Elémet*.” Colour was the result of these particles being moved to rotate—red when spinning faster, blue when slower—as they passed through matter of differing densities. Being of infinite velocity and essentially homogenous, refrangibility as such was quite irrelevant.

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<sup>41</sup> This same edition also modifies the physical definition: “*En termes de Physique, on appelle Milieu, Tout corps, soit solide, soit fluide, traversé par la lumière ou par un autre corps.*”

<sup>42</sup> Académie française 1798, vol. 1; Académie française 1798, vol. 2; Académie française 1835, vol. 1; Académie française 1835, vol. 2.

<sup>43</sup> Johnson 1755, vol. 1.

<sup>44</sup> Johnson 1768.

<sup>45</sup> Newton 1671a, 3079.

In his letter, with a duly rhetorically austere disposition, Newton thus entertained the Cartesian proposition. How to explain the well-observed rainbow-effect that a prism imparts? Take “a Tennis ball, struck with an oblique Racket”—it moves in a curved direction. Might, then, a ray of light, in exiting a prism, be induced into different rates of spin, thus producing a divergence of such particles relative to one another? If this were the case, then the “globular bodies” constitutive of light “ought to feel the greater resistance from the ambient Æther, on that side, where the motions conspire, and thence be continually bowed to the other.”<sup>46</sup> Newton then denied that this could explain the extent of the effect, leading to his self-proclaimed “*Experimentum crucis*,” using a second prism to verify the effects of the first.

Around the same time, Newton wrote a text later titled *De ære et æthere* in which he developed a theory of matter based upon intrinsic powers of repulsion, with æthere being that finest sort of matter than can infiltrate even glass or crystal.<sup>47</sup> He continued to discuss the aether with Boyle, among others, and published another letter on the subject in 1675,<sup>48</sup> and again in 1679 when he wrote “there is diffused through all places an æthereal substance capable of contraction & dilatation, strongly elastick, & in a word much like air in all respects, but far more subtle”<sup>49</sup>—a substance that would, therefore, necessarily be present in Boyle’s leaky vacuum pumps. However, during the 1880s, around the time of writing and publishing *Principia*, he set aside such matters as regards his research. Nevertheless, in February 1692/1693, in correspondence with the theologian Richard Bentley (1662–1742), who was to deliver the first of the Boyle Lectures intended to combat atheism, Newton wrote:

“Tis inconceivable, that inanimate brute Matter, should (without ye mediation of something else wch is not material), operate upon & affect other matter without mutual contact; as it must if gravitation in the sense of Epicurus, be essential & inherent in it. [...] Gravity must be caused by an agent acting constantly according to certain laws, but whether this agent be material or immaterial is a question I left to ye consideration of my readers.”<sup>50</sup>

Such thoughts would remain private for another decade and a half.

Although couched in all obligatory matter-of-factness, Newton’s letter of 1671/1672 failed to convince his peers and it was not until after the death of Robert Hooke (1635–1703), Curator of Experiments at the Royal Society from 1662, that he published *Opticks*.<sup>51</sup> The first

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<sup>46</sup> Ibid., 3078.

<sup>47</sup> Written c.1673. See McGuire 1968; Benítez 2006; Henry 2011; Henry 2014.

<sup>48</sup> Newton 1675.

<sup>49</sup> Newton 1678.

<sup>50</sup> Newton 1961, 253–254.

<sup>51</sup> The Society being founded in 1660. Hooke disagreed that colour arose from light affecting a medium but rather held it to be the result of a distortion of the pulse itself.

edition of thereof (1704), written in English, set out “not to explain the Properties of Light by Hypotheses” but, rather, “to propose and prove them by Reason and Experiments.”<sup>52</sup> Duly, it continued to eschew issues aetherial. However, subsequent editions of the long technical treatise were concluded by a series of short “Queries,” which Newton later described as “hints to be examined & improved by the further experiments & observations of such as are inquisitive.”<sup>53</sup>

In contrast to the main text, the Queries were openly speculative, and introduced in the interrogative: “*Qu.*9. Is not Fire a Body heated so hot as to emit Light copiously? For what else is a red hot Iron than Fire?”<sup>54</sup> Crucially, the 1706 Latin translation by Samuel Clarke (1675–1729), *Optice*, added seven Queries (or rather *Quaestiones*) on mediums of various sorts. These posited entities were wide-ranging in their physical consequence, underpinning theories of heat, gravity, and refraction:

“*Qu.*19. Doth not the Refraction of Light proceed from the different density of this Æthereal Medium in different places, the Light receding always from the denser parts of the Medium?”<sup>55</sup>

Moreover, they were ventured to explain sense perception, the passage of nervous fluids, and bodily motion:

“*Qu.*24. Is not Animal Motion perform’d by the Vibrations of this Medium, excited in the Brain by the power of the Will, and propagated from thence through the solid, pellucid and uniform Capillamenta of the Nerves into the Muscles, for contracting and dilating them?”<sup>56</sup>

These statements were often ambiguous as regards their author’s commitment to them; however, they irreversibly installed mediums of various sorts within the Newtonian conceptual lexicon.

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The aura of dogged, austere, metaphysically abstentious rationality would henceforth form a large portion of the Newtonian mythos. It also, therefore, lent legitimacy to all manner of *Opticks*-style mediums that plumed from the pens and quills of proponents and impersonators.⁵⁷ In Query 28, the sober sage had warned against “filling the Heavens with fluid Mediums, unless they be exceeding rare”—a plenum, à la Descartes, would render the movements of

⁵² Newton 1952, 1.

⁵³ From an unpublished draft for 1717 version of *Opticks*. Quoted in Ducheyne 2014, 676.

⁵⁴ Newton 1952, 341. Numbering sixteen in the first edition, the Queries were subsequently expanded to thirty-one, often lengthy, excurses. See Ducheyne 2014, 676.

⁵⁵ Newton 1952, 350.

⁵⁶ *Ibid.*, 354.

⁵⁷ Prigogine and Stengers 1984, 29.

astronomical bodies little less than a miracle due to the resistance that even a diffuse material ether would engender. However, Newton's long-standing emphasis on the necessary porousness and subtlety of matter was redolent of convictions not simply physical. Just after warning against "filling the Heavens," Newton pondered:

"does it not appear from Phænomena that there is a Being incorporeal, living, intelligent, omnipresent, who in infinite Space, as it were in his Sensory, sees the things themselves intimately, and throughly perceives them, and comprehends them wholly by their immediate presence to himself [...]."58

Was not space, in short, the Sensorium of God?

The section appended to *Principia* from the second edition of 1713 onwards—that which included "*hypotheses non fingo*"—was a concluding section, titled "*General Scholium*." Further to his famous statement of relinquishing speculation, Newton wrote that, being "always and every where" the same, God is surely unaffected by "the motion of bodies," and such bodies therefore "find no resistance" from His omnipresence. The final paragraph then performed something of an invocation:

"And now we might add something concerning a certain most subtle Spirit, which pervades and lies hid in all gross bodies; by the force and action of which Spirit, the particles of bodies mutually attract one another at near distances, and cohere, if contiguous; and electric bodies operate to greater distances, as well repelling as attracting the neighbouring corpuscles; and light is emitted, reflected, refracted, inflected, and heats bodies; and all sensation is excited, and the members of animal bodies move at the command of the will, namely, by the vibrations of this Spirit, mutually propagated along the solid filaments of the nerves, from the outward organs of sense to the brain, and from the brain into the muscles. But these are things that cannot be explain'd in few words, nor are we furnish'd with that sufficiency of experiments which is required to an accurate determination and demonstration of the laws by which this electric and elastic spirit operates."59

A half-hearted invocation, perhaps. The conspicuously deductive ideal precluded a wholly confident affirmation. Nevertheless, if this statement marked a departure from Newton's self-conscious self-presentation, it was in no way an aberration as regards his long-standing, formative intellectual, political, and religious concerns.

John Maynard Keynes famously remarked in 1946 that "Newton was not the first of the age of reason. He was the last of the magicians [...]."60 In July of 1936 at Sotheby's in New York, Keynes had acquired a number of manuscripts hitherto unpublished by Newton's estate—his manuscripts on alchemy.⁶¹ Revisionist histories establishing not only the coexistence

⁵⁸ Newton 1952, 364–365.

⁵⁹ Newton 1729, vol. 2, 393.

⁶⁰ Keynes 1947, 27.

⁶¹ E.g. Schaffer 2011.

but the necessity of alchemy, theology, and biblical chronology to Newton, and other of the scientific saints of modernity, are no longer revisionist. Nevertheless, this is not how Newton was received as he came to be the paradigmatic mind of the new age of reason.

The second edition of Newton's *Opticks* was translated into French in 1722 by the theologian Pierre Coste (1668–1747),⁶² with “Æthereal Medium” becoming “Milieu étherée”—the translational convention already established.⁶³ However, this concept would not immediately become an integral concern of French Newtonians.

In 1765, the tenth volume of the *Encyclopédie, ou dictionnaire raisonné des sciences, des arts et des métiers* (1751–1772) included entries for “Milieu (*Méchan.*)” and “Milieu étheré,” both written by d’Alembert. *Milieu* was understood as per “*la Philosophie mécanique*,” and, in accordance with the dictionary of *l’Académie*, described as “a material space through which a body passes in its motion; or in general, a material space within which a body is located, whether it moves or not.” For example, the air was milieu to bodies near the earth’s surface; water, likewise to a fish; glass, meanwhile, may be milieu to light since it “allows passage through its pores.”⁶⁴ The adjoining entry for *Milieu étheré* was related directly to Newton, being said to exist alongside “the particular aerial *milieu* in which we live and breathe.” It is a medium “more widespread [*répandu*] and universal [...] much rarer and more subtle than air.” As per the *Queries*, it pertained to issues of reflection, refraction and diffraction, the transmission of sound and nerve impulses, and the motions of celestial bodies. Moreover, it stood in contrast to the “*matière subtile*” of the Cartesians—the Heavens-filling substance supposed “to traverse and freely penetrate the pores of all bodies [...] leaving no voids or interstices between them.”⁶⁵

In 1751, the first volume of the *Encyclopédie* included a *Discours préliminaire*, also written by d’Alembert. As well as setting out the agenda and scope of the work to be undertaken, the *Discours* narrated the role of Newton relative to this intellectual and political moment.⁶⁶ The “vortices” of the Cartesians had come to seem “almost ridiculous” in light of his legacy. Some, to be sure, had found fit to accuse Newton of “reviving the ‘occult qualities’ of the scholastics” but these were mere expressions of ignorance. However, the transformation had taken time. Indeed, it was only within the last two decades that “we began to renounce Cartesianism in France.” The first openly Newtonian Frenchman, d’Alembert declared, “was the author of the *Discours sur la figure des Astres*” (1732)—that is, Maupertuis. This text was, of course, far from being the first work in French to engage with Newton’s philosophy. More or less private disputes

⁶² Newton 1722.

⁶³ *Ibid.*, 518.

⁶⁴ Diderot et al. 2017.

⁶⁵ *Ibid.*

⁶⁶ d’Alembert 1995.

over doctrine had been occurring since the 1690s.⁶⁷ Nevertheless, Maupertuis' *Astres*, carrying the subtitle “*WITH an abbreviated exposition of the systems of Descartes and Newton,*” bestowed authority and accessibility. Nevertheless, neither milieu nor the considerations that gave rise to Newton's aetherial medium were given attention.

It was in 1738 that Voltaire had mocked the over-massed “*tourbillons*” of the Cartesians. The main part of his *Éléments de la philosophie de Newton*, moreover, spoke regularly of physical *milieux*, particularly in and after Chapter VII, on the causes of refraction by prisms and other media.⁶⁸ Later the same year, in response to a critic of his *Éléments* who had impugned Newton's anti-plenism, Voltaire wrote:

“It is not true that Mr. Newton has attributed marvellous properties to the void [*le vide*]. Rather, he has demonstrated that bodies, and not the void, act at immense distances from one another in a non-resistant milieu.”

Acidly, he continued that such critics passed comment on works “they had neither read nor would be able to read.”⁶⁹

Though exiled to England from 1726–1729, it was with du Châtelet that Voltaire had studied Newton's works (the two having met and begun an openly unmarried relationship in 1733). Nevertheless, also in 1738, du Châtelet published a not wholly positive review of her lover's apparently limited tome in the *Journal des sçavans*.⁷⁰ Initially written around the same time,⁷¹ her own introductory text, *Institutions de physique*, was published in 1740.⁷² As had Voltaire, this text explicated the physics of optical *milieux*, alongside the other fundamental points of the Newtonian philosophy, more or less perfunctorily.⁷³ However, going rather further, it also adopted Leibnizian tenets—particularly, the principle sufficient reason, the difference of indiscernibles, and the best of all possible worlds—providing original metaphysical and moral foundations, whereas Voltaire had simply reproduced Newtonian orthodoxy.⁷⁴

In the commentary accompanying her posthumous translation, du Châtelet wrote that the second book of *Principia*—dealing with air resistance, the speed of waves, and so on—had been composed “to destroy the system of vortices.”⁷⁵ Though the narratives of her fellow

⁶⁷ Shank 2008, chaps 1–2.

⁶⁸ Voltaire 1738, 72–88.

⁶⁹ *Le Préservatif*, Voltaire 1877, vol. 22, 375–376.

⁷⁰ du Châtelet 2009, 111.

⁷¹ In the autumn of that year, the manuscript had been prepared for printing before its author had the process halted so as to incorporate the ideas of Christian Wolff (1679–1754), recently translated. *Ibid.*, 106.

⁷² Written as for her own son, du Châtelet advised: “You can draw much instruction” from the recently-published *Eléments*; however, “the illustrious author” in question had “confined himself within such narrow boundaries” that further exposition was necessary. *Ibid.*, 119.

⁷³ E.g. *ibid.*, 136.

⁷⁴ *Ibid.*, 147.

⁷⁵ *Ibid.*, 271.

philosophes, such as d’Alembert, to that effect may have been self-serving, they were also self-fulfilling. Thus, it was particularly with regard to this supersession of Cartesian physics by Newtonian that *milieux* came to be accepted terms of natural philosophy.

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In the *Encyclopædia Britannica* of 1878, on the subject of “Attraction,” the physicist James Clerk Maxwell (1831–1879) wrote:

“Aethers were invented for the planets to swim in, to constitute electric atmospheres and magnetic effluvia, to convey sensations from one part of our bodies to another, and so on, till all space had been filled three or four times over with aethers.”

Such heedless “hypotheses about aethers” had, in the previous century, exerted an “extensive and mischievous influence on science.” The lone survivor, “the luminiferous aether” of Huygens, had accumulated evidence “as additional phenomena of light and other radiations” had been discovered.<sup>76</sup> Indeed, by Maxwell’s own energies, the electromagnetic theory of light, presented to the Royal Society in 1864 (and published the following year),<sup>77</sup> had secured the luminiferous aether as a mathematically precise constituent of the cosmos. The 1911 edition of *Britannica* quoted Maxwell’s 1878 entry, adding that it “represents the historical position of the subject up till about 1860,” after which Maxwell, Michael Faraday (1791–1867), and Lord Kelvin<sup>78</sup> (1824–1907) had “largely transformed theoretical physics into the science of the aether.”

Six years earlier, in September 1905, Albert Einstein (1879–1955) had published his paper on what, a decade later,<sup>79</sup> became known as the theory of special relativity, reconciling Maxwell’s equations with Newtonian mechanics, making the luminiferous aether effectively redundant.<sup>80</sup> By around 1911, the theory was widely accepted among theoretical physicists but, evidently, without popular recognition of the event necessarily following suit.

For d’Alembert circa 1750, French pride as regards Descartes’ redundancy was consoled only by the epochal judgement that: “Nothing was more natural [at that time] than to postulate a fluid which carried the planets.”<sup>81</sup> For Maxwell circa 1880, however, Newton’s “disciples” had failed to exercise the master’s most vital lesson: hypothetic restraint. Nevertheless, it was not only among natural philosophers that the effects of the Newtonian cosmology had been felt.

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<sup>76</sup> Chisholm 1911, vol. 1, 292.

<sup>77</sup> Maxwell 1865.

<sup>78</sup> Aka William Thomson.

<sup>79</sup> Einstein differentiated special and general relativity in 1915.

<sup>80</sup> Einstein 1905.

<sup>81</sup> Du Châtelet (2009, 147) had consoled, similarly, that a lack of empirical sources had given Descartes no choice but to found physical science upon “hypotheses.”



By the time that Franz Anton Mesmer (1734–1815) left Vienna for Paris in 1777, having the psyches and physiologies of European elites swim in aethers and mediums of various sorts was a most plausible endeavour. Mesmer’s healing power was premised upon his ability to channel an all-pervasive cosmic fluid. It was the obstruction or circulatory hinderance of such fluid that was the cause of all ailment and, therefore, it was by the therapeutic manipulation thereof, by the hands or specialised apparatus, that all disease would be cured.

Such techniques pertaining to “animal magnetism” were, moreover, powers deriving from a profound (if secretive) philosophy, explicated as formal propositions.

“1: There is a mutual influence between the celestial bodies, the earth and the animated bodies.

2: A universally distributed fluid, which proceeds in such a way as to suffer no void, whose subtlety is without compare, and which, by its nature, is capable of receiving, propagating, and communicating all impressions of movement, is the means of this influence.”<sup>82</sup>

Such terms were carefully chosen. While Mesmer’s practices were occult in the sense of being hidden to all but his followers, they made claim to the most prestigious principles of natural philosophy. Speaking principally of the “*Fluidum*,” milieu was not a key part of the terminology developed in Mesmer’s few published writings. However, his followers would expand upon these principles rather more voluminously.

For example, in *Nouveaux principes de physique* (1781–1783), Jean-Louis Carra (1742–1793), declared that “in order to effect all possible motions & to modify matter in every way, nature has established on our planet three very distinct, though connected [*liés*], milieus; namely, *earth, water, & air*.” However, these three planetary milieus were, in turn, “immersed” in another—the “universal elemental fluid” productive of “the transparency of space.”<sup>83</sup> In his *Examen physique du magnétisme animal* (1785), Carra declared Mesmer either “the greatest Philosopher [*Physicien*] who ever existed, & who will ever exist” or, otherwise, “he is the greatest Magician of all possible worlds,” since, under his tutelage, one will “see & touch the universal fluid,” feeling its “filaments” emanating from the fingers.<sup>84</sup> In similar terms, Mesmer later wrote in his *Mémoire sur ses découvertes* (1799):

“Placed amidst [*au milieu de*] these different fluids, man is endowed with organs to which ends of the nerves terminate in greater or lesser quantity; these nerves are more or less exposed to contact with the different orders of the fluids from which they receive

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<sup>82</sup> From Mesmer’s *Mémoire sur la découverte du magnétisme animal* (1779), my translation, reproduced in Darnton 1968, 177. Quoted and translated: Franklin and Commissaires chargés par le roi de l’examen du magnétisme animal 1785, 19–20; Franklin and Commissaires chargés par le roi de l’examen du magnétisme animal 1837, 9.

<sup>83</sup> Carra 1782, vol. 3, 127–129.

<sup>84</sup> Carra 1785, 35.

impressions. Some of these organs, such as those of touch [*tact*], taste, and smell, receive these impressions by an immediate application of matter or movement to others, as sight and hearing are affected by the excitement [*commotion*] of the milieus whose cause may be at any distance.”<sup>85</sup>

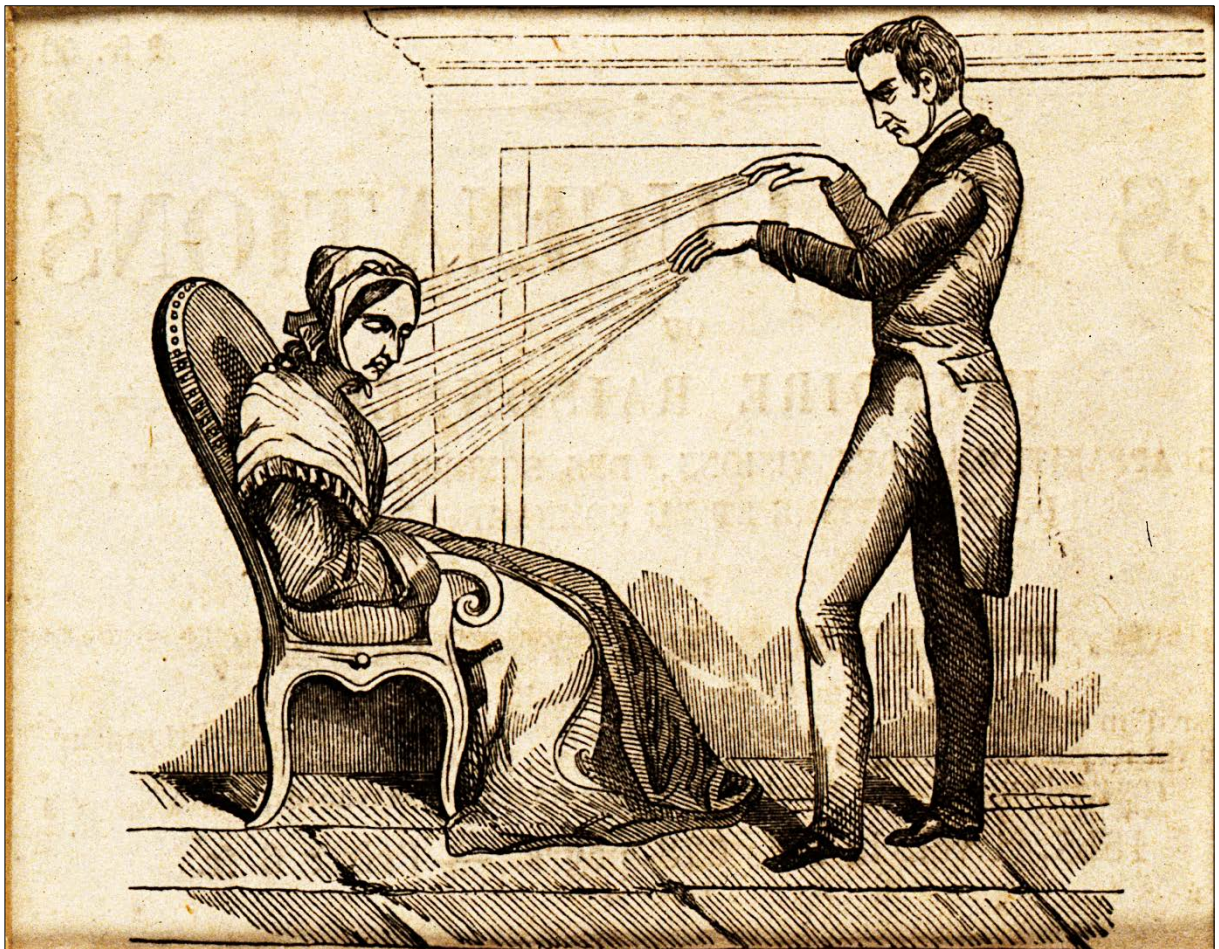


Figure 3—Animal magnetism in practice, c.1845

However, by this time Mesmer had long since departed the French capital, returning to Vienna in 1793, and then to Frauenfeld in Switzerland, where he spent the rest of his life.

Having in equal parts enraptured and outraged the grand persons of Paris, in 1784 King Louis XVI appointed a Commission, including such luminaries as Antoine Lavoisier (1743–1794) and Benjamin Franklin (1706–1790), to investigate the validity of Mesmer’s supposed magnetic fluid. In preparation for rigorously controlled experiments, the basic tenets of the doctrine in question were summarised:

“There exists in Nature a universal fluid; it is perhaps better felt than described; Newton called it the *ethereal medium*; Descartes the *universal mover*; the hermetic philosophers, the *universal principle*, etc.

Light, sound, odours communicate by this medium [*milieu*] or fluid. [...] This fluid, however it may be demonstrated, forms the action-space that there is between all

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<sup>85</sup> Mesmer 1799, 75.

bodies. One man can communicate to another the fluid which permeates him and gives him existence. Such is animal magnetism.”<sup>86</sup>

However, the Commission’s conclusions were conclusive, and around 80,000 copies of its Report were printed. No such physical cause existed; its effects were, rather, exclusively moral. Animal magnetism was, thus, exclusively an agent of the “imagination”—and therein lay not only its folly but its danger.

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The conceptual slippage from mid-point to medium-as-element, found most palpably and poetically in Pascal’s voyage “*sur un milieu vaste*,” may have occurred on various occasions, though obvious instances of this are rare. The convention already established, it was not difficult for du Châtelet and Voltaire to render medium as milieu; however, this, for them, remained a largely technical expression concerning optics and resistance. In terms of general usage, by the time of Diderot and d’Alembert, and du Châtelet’s translation, the iteratively variable but basically generic sense of milieu qua ‘middle’ was distinguished from the physical sense of a ‘medium *for*’ something, often but not always light. This latter medium may be further distinguished from the bio-elemental sense of a ‘surrounding fluid’; however, this meaning remained closely attached to *la philosophie mécanique*. At this point, milieu was therefore, for the most part, a technical term. The locus of controversy for Newton certainly concerned what came to be known as media—be they material aethers or immaterial sensoria. However, foremost as regards his relations of disputation was that of physical theories to established authority—both secular and divine. Mediums were not, therefore, centre stage in his concerns, remaining more notional propositions than confidently articulated concepts (as per §3). However, as seen in the Commission assigned to the Mesmerists, this would not always be the case.

4.2: From fluids to lizards: Lamarck and his detractors

When Jean-Baptiste Lamarck (1744–1829) spoke, in his *Discours d’Ouverture* for students of Zoology at the Muséum National d’Histoire Naturelle in 1800 (year 8 *de la République*),⁸⁷ of the “circumstances,” “climates” and “all the surrounding [*environnans*] milieus” affecting “living bodies,” he was certainly not the first to concern himself with the surroundings or localities of such beings.⁸⁸ The Latin *habitat* was already well-known to botany when William Withering (1741–1799) wrote in 1796: “*Habitatio*, the natural place of growth of a plant in its wild state.

⁸⁶ Donaldson 2014, 21.

⁸⁷ Published as a preface to Lamarck 1801, 1–48.

⁸⁸ *Ibid.*, 13.

This is now generally expressed by the word *Habitat*.⁸⁹ However, this classificatory designation⁹⁰ rarely appears outside of Latin except as a loanword until the 1830s and was absent from many dictionaries until well into the twentieth century.⁹¹ The Old French *circonstance* became the English *circumstance* by the early thirteenth century. However, *habitat* qua place of habitation was simply where a thing is to be found, bore no suggestion as to how it comes to be. Likewise, *circumstance*.

Georges-Louis Leclerc, Comte de Buffon (1707–1788), authoritative naturalist, *intendant* of the Jardin du Roi, and Lamarck’s mentor and patron, wrote often of *circonstances* of various sorts. For instance, in his influential essay *De la dégénération des animaux* (1766), he wrote that domestic dogs and wild wolves and foxes should properly belong to their same genus, their differences being attributable to “some external circumstances” or “particular circumstances.” However, such external differentiations were not fundamental to his thinking. When employing the phrase “*milieu ambiant*,” Buffon was concerned not with his anatomical collections but with deducing the age of the Earth from the rate at which it must have cooled from its original incandescence. The main cause of cooling, he argued, was not contact with the cold surrounding the object but the “expansive force” producing the heat and fire, pushing it from the centre outwards.⁹² Indeed, both this phrase—“*milieu ambiant*”—and style of argument were straight from the Latin of Newton’s *Principia*.⁹³ When drawn to generalise about the geographical distribution of species, Buffon would talk, quite conventionally, of “*climat*” (see §7.1).

By the time of his *Discours d’Overture*, Lamarck had been a notable *savant* for more than two decades, a period of his career generally glossed over if not altogether ignored. By around 1900, the name Lamarck would be almost indelibly associated with “*milieu*,” and, hence, “*environment*.” However, the world of his intellectual formation shared more with Newton and Mesmer than Darwin and Spencer.

After publishing multi-volume works on botanical classification,⁹⁴ and being admitted to the Académie des sciences (both 1779), Lamarck oversaw the botanical portion of the *Encyclopédie méthodique par ordre des matières* (1782–1832),⁹⁵ and published other works in the same area. Appointed to the Chair of Botany at the Jardin du Roi from 1788 (having the name

⁸⁹ Withering 1801, vol. 1, 62; Toepfer 2016, 306.

⁹⁰ From *habitare* “to live, inhabit, dwell,” or *habere* “to have, hold, possess.”

⁹¹ Appears as a “botanical term” in Littré 1863, vol. 1, 1967.

⁹² Buffon 1829, vol. 3, 216.

⁹³ *Ibid.*, vol. 3, 211, cf. 215.

⁹⁴ Lamarck 1778, vol. 1.

⁹⁵ A development and expansion of the *Encyclopédie* of Diderot and d’Alembert in up to 216 volumes, depending on binding.

changed to the Jardin des Plantes), he endured the revolutionary transition was appointed Professor of Zoology at the Muséum National d'Histoire Naturelle in 1793. Thus ensconced, he was at last able to indulge another side to his science, attacking the doctrines of the 'new chemistry,' and of Antoine Lavoisier (1743–1794) in particular.⁹⁶

Although Carl Wilhelm Scheele (1742–1786) had identified “*Feuerluft* [fire air]” in the early 1770s and Joseph Priestley (1733–1804) had similarly isolated “dephlogisticated air” in 1774, it was Lavoisier, in 1777, who gave this substance its now-familiar name, “*oxygène*.”⁹⁷ Lamarck regarded both phlogistic chemistry and the new system with scepticism; however, it was the poly-elementary postulates of Lavoisier, and his associates, that drew his fervent disapproval. In another lengthy publication,⁹⁸ he insisted that “*hydrogen, carbon and nitrogen*” are, contrary to recent claims, composed of “the same matter.” Thus, so-called *oxygène* was nothing other than “fixed fire,” “*carbonic fire*” or the “inflammable principle” of the chemists after Georg Ernst Stahl (1659–1734) who had named it “phlogiston.”⁹⁹

Unashamedly unexperimental, Lamarck adhered to the classical elements—earth, water, air, fire—and two foundational principles: life and Newtonian attraction.¹⁰⁰ By contrast, the existentially unruly new chemistry denied the elementarity of water but insisted upon that of mere “*charbon* [carbon or coal],”¹⁰¹ being thus bereft of fundamental, systemically satisfactory physical principles. Moreover, treating chemical compounds in abstraction from living beings was, for Lamarck, practically a category error.

“The entire surface of the globe, the bosom of the waters, and all of the atmosphere, are the vast field wherein nature ceaselessly destroys every compound substance that the principal of life [*le principe de la vie*] does not defend or that it ceases to maintain.”¹⁰²

Chemical complexity, for Lamarck, presupposed organic existence and, consequently, the spatial remit relevant to chemistry was not the laboratory but the planet.

“The atmosphere is a vast laboratory where nature carries out immense analyses, dissolutions, precipitations and combinations. It is a great receptacle [*un grand recipient*], where all the attenuated and volatilised products of terrestrial bodies are received, mixed, agitated, combined, separated. From this point of view, atmospheric air is a

⁹⁶ His *Recherches sur les causes des principaux faits* (1793, vol. 1; 1794, vol. 2) was written between 1776 and 1780 but published only in 1793/1794. According to Lamarck (1793, vol. 1, xii) it was submitted to the *Académie* for sanctioning in 1880 but never approved.

⁹⁷ Partington [1962] 2016, vol. 3, 423.

⁹⁸ *Réfutation de la théorie pneumatique* (1796), a “supplément complémentaire” (of nearly 500 pages) to the *Recherches*.

⁹⁹ *Ibid.*, 395.

¹⁰⁰ Corsi 2011, 9–13.

¹⁰¹ Lamarck 1793, vol. 1, 8.

¹⁰² Lamarck 1796, 455.

chaos, an indeterminate mixture of mineral vapours, of molecules vegetal and animal, of seeds, of eggs [*de graines, d'oeufs*], which ceaselessly travel and traverse the luminous fluid, the caloric fluid, the electrical fluid.”

Moreover, such atmospheric air was, in turn, submerged in “an immense sea” comprised of “the ethereal fire,” which “surrounds the earth, penetrating everything.”¹⁰³ Only from such an expansive world-view, from such a “*logique physico-chymique*,”¹⁰⁴ could a genuine science be founded.

In 1797, Lamarck also wrote of the reptiles and fishes whose blood releases the “*feu fixé*” more slowly than other animals, producing a lower quantity of “*feu calorique*” in the process.¹⁰⁵ The blood of such animals is, therefore, only found “at the temperature of the milieu that they inhabit.”¹⁰⁶ When animal bodies decompose and putrefy, moreover, this occurs by “a series [*une suite*] of particular attractions that are modified in many different ways by all external circumstances, such as the temperature, the milieu occupied by the animal matter,” as well as concentration of water, and so on.¹⁰⁷ In a 1799 article, Lamarck argued that sound, too, was attributable to “a fluid, which surrounds us everywhere [*nous environne partout*]”—not, that is, the air as such but, rather, the “ethereal fire.” Moreover, it was not “by hypothesis or some vague supposition” that such a conclusion had been arrived at but rather by careful examination of the “*caloric fire*” by which heat and light is communicated from the sun to the earth. Indeed, no less than Newton’s *Traité d’Optique* had proposed such a fluid.¹⁰⁸

Such cosmological dispositions were hardly uncommon. Electricity was, indeed, a “fluid,” as was heat (*calorique* being coined in 1787).¹⁰⁹ The luminous fluid, meanwhile, designated that incandescent substance of which the sun was composed. Likewise, for Lamarck the ethereal fire was only “the most ancient name”¹¹⁰ given to a fundamental physical property. Although such phrases as “*principe de la vie*” and “*pouvoir de la vie*” have had Lamarck presumed a vitalist,¹¹¹ his generous estimation of the cosmological role of life remained mechanical. Only beings that are “essentially material,” he wrote in 1794, can make an impression upon our senses and, hence, be objects of knowledge.¹¹² Moreover, the immutability of matter accorded

¹⁰³ Ibid., 106.

¹⁰⁴ Lamarck 1793, vol. 1, xii.

¹⁰⁵ Lamarck 1797, 310.

¹⁰⁶ Lamarck 1796, 147; cf. Canguilhem 2008a, 99.

¹⁰⁷ Lamarck 1796, 468.

¹⁰⁸ Lamarck 1799; referencing Lamarck 1797, 135.

¹⁰⁹ Partington 2016, vol. 3, 421; Morveau 1787.

¹¹⁰ Lamarck 1793, vol. 1, 95.

¹¹¹ I.e. holding that living beings differ from non-living by virtue of some immaterial spark or force.

¹¹² Lamarck 1793, vol. 1, 20.

with a deist theology, assuming a radically non-interventionist God and an effectively or absolutely eternal universe. Nothing could be said of beginnings, only of the workings of things seen presently.

These works were, however, received rather less favourably than his botanical efforts. Likewise, a series of yearly meteorological publications (1799–1810), which proudly announced weather “probabilities” over a year in advance, were popular but roundly ridiculed (not least, it is said, by Bonaparte).¹¹³ When his *Hydrogéologie*¹¹⁴ emerged in 1802, it found no publisher and Lamarck had the 1,025 copies printed at his own expense.¹¹⁵ This book, in some respects, picked up where his previous provocations had left off, advocating a “terrestrial physics” premised upon the triad of “Meteorology,” on the fluid dynamics of the atmosphere, “Hydrogeology,” on the fluid dynamics shaping the earth, and “Biology,” on the fluid dynamics flowing within living beings.¹¹⁶ However, Lamarck’s thought had also changed in several significant ways. First, he had relinquished his philosophical critique of chemistry, at least openly. Second, he was now willing to engage with fashionable questions of geogeny. Third, having softened his insistence upon the physical precedence of life, he was then able to contemplate spontaneous generation (i.e. the unprompted appearance of life from non-life).

In his *Recherches sur l’organisation des corps vivants* of 1802 (also featuring the *Discours d’Ouverture*), Lamarck wrote of the simplest possible kinds of vital organisation, requiring no internal differentiation of organs—bodies consisting of variable, “gelatinous” containers.

“In such a mass of matter, the subtle and expansive fluids, always in movement in the surrounding milieus [*les milieux qui l’environnent*], ceaselessly penetrating and dissipating in the same way, passing through the mass and regulating the interior disposition of its parts, cleaning it so that it can absorb and exhale the other surrounding fluids [*fluides environnans*] that may penetrate into its interior, and are susceptible of being contained.”¹¹⁷

Because such “subtle fluids” that “no known body can contain”—“caloric, electrical matter, etc.”—are in ceaseless motion, the interior fluids cannot remain stationary either.

“Thus the uncontainable fluids initially trace the first features of the most simple organisation and, then, the containable fluids, by their movements and other influences,

¹¹³ In fairness to Lamarck, whatever his overconfidence, he made very clear that he was announcing probabilities: 1800a, 4–5. His son later blamed the excessive expectations regarding prediction on his publishers: quoted in Anon 1908.

¹¹⁴ Lamarck 1802b.

¹¹⁵ Carozzi 1964, 293.

¹¹⁶ Lamarck 1802b, 7–8.

¹¹⁷ Lamarck 1802a, 107.

develop it, and with time and all favourable circumstances, complicate and perfect it.”¹¹⁸

If Newton’s celestial mechanics could physico-mathematically suspend “a medium, if any such there is,” Lamarck’s mechanical biology was unambiguously committed to a universe replete with all manner of existence-lubricating media, “rare” and otherwise.

When appointed to the Muséum in 1793, Lamarck had been put in charge of the study of invertebrates (a term that he coined for the purpose). It was on his speciality, then, that he was to address the assembled students on 21 Floréal VIII (11th May 1800). The lack of attention given to this rather unsung branch of living beings, diminutive and ubiquitous though they are, was declared unjust and unwise.¹¹⁹ Were not these “most imperfect” animals, those “most scarcely endowed with animality,” the likely origins of life itself—“those by which nature began and, with the aid of much time and favourable circumstances, she formed all the others”?¹²⁰ In other words, were these not the *corps vivans* most proximate to the proto-animalcules given first gasps of existence by the ceaseless washing of cosmic tides?

If we consider the sheer variety of living things, he continued, we might conclude that “all that can be imagined takes place.” In other words, given endless aeons, might not the marvellous complexity dissected and distributed by zoologists derive from primordial simplicity by just the simple laws that had rendered the chemists’ elemental reductions so obviously absurd?

“It appears, as I have already said, that *time* and *favourable circumstances* are the two principal means that nature employs to give existence to all its productions. We know that time has no limit for it, and, consequently, that it always has time at its disposal.”¹²¹

Such plumbless depths of time were not uncontroversial; however, nor were they uncommon. The well-known *Theory of the Earth* (1788) of James Hutton (1726–1797), for example, had promoted similarly eternalist views as regards geology.¹²² Moreover, ten years earlier, in his *Epoques de la Nature* (1778), Buffon had derived from experiments with heated metal spheres a figure of between 75,000 and 168,000 years since the earth’s initial incandescent agglomeration.¹²³

¹¹⁸ Ibid., 107–108.

¹¹⁹ Lamarck 1801, 2–11.

¹²⁰ Ibid., 11–12.

¹²¹ Ibid.

¹²² Hutton 1788.

¹²³ Buffon 1829, vol. 5; Buffon 2018.

“As for the circumstances that [nature] has required,” Lamarck continued, and that it continually employs in order “to vary its productions,” these are “in a certain measure inexhaustible.”

“The principal circumstances are born of the influence of climates, the variations in the temperature of the atmosphere, and of all the surrounding milieus [*milieux environnans*]; of the diversity of places, habits, movements, actions; lastly, that of the means of living, of conserving, moving, multiplying, etc.”¹²⁴

Thus, in contrast to his works of the 1790s and earlier, Lamarck now embraced temporal profundity as a cause for, rather than obstacle to, the consideration of origins, and articulated, as a consequence, a quasi-Newtonian understanding of spontaneous generation. Then followed the consequence of this elaborate cosmology for the development of life itself.

“Now, as a result of these diverse influences, the faculties [of the living being] extend and fortify themselves with usage, and diversify themselves through new habits preserved over great amounts of time [*par les nouvelles habitudes long-temps conservées*]; and, insensibly, the conformation, the consistency, in short the nature and the state of the parts as well as that of the organs, partake in the consequences of all these influences, conserving and propagating themselves through generation.”

A bird drawn to water in order to find its prey “spreads the fingers of its feet,” wanting to move along the surface of the water. Its skin is thereby stretched. “Thus, with time, the large membranes that unite the fingers of ducks, geese, etc.” were formed. Likewise, an animal with the habit of living in the trees must extend its fingers to grip the branches, and so, over generations, they “lengthen, sharpen, and curve themselves [*s’alongent, s’aiguisent et se courbent*].”¹²⁵

Of course, the basic fact of generational variation was known to any animal breeder. The Hippocratic tradition, likewise, understood humoral constitutions (see §6) to be generationally transmissible. Maupertuis, for one, had undertaken investigations into hereditary hexadactylism (having six fingers or toes) with a view to refuting the doctrine of embryonic preformation.¹²⁶ Moreover, he, like so many others, mobilised climatic explanations of racial difference on the presumption of the inheritability of solar exposure. In 1794 Erasmus Darwin (1731–1802), wrote: “All animals undergo perpetual transformations; which are in part produced by their own exertions [...] and many of these acquired forms or propensities are transmitted to their posterity.”¹²⁷

Thus, the inheritance of acquired characters may have been, in 1800, something closer to common sense than a novel insight. The mutability of species was, however, another matter.

¹²⁴ Lamarck 1801, 13.

¹²⁵ Ibid., 12–14.

¹²⁶ Lovejoy 1904, 246.

¹²⁷ Darwin 1794, vol. 1, 502–503.

Maupertuis had maintained this possibility;¹²⁸ however, his was a rather isolated voice. Although, in 1753, Buffon identified “a certain primitive and general design,” an “original pattern,” a “single plan of structure”—a “single main idea” of the Creator—that could be found in various species (even man), he nevertheless concluded that species were created whole and permanent.¹²⁹ Thus, when *Of the degeneration of animals* (1766) told of the “external circumstances” and “particular circumstances” accounting for the divergence of domestic dogs from wild wolves, and of the varieties of goats and antelopes that were “prodigiously varied by the influence of the climate, the difference of the food, and by the state of slavery to which man has reduced most animals,”¹³⁰ circumstances and climates were taken to induce alterations only within the boundaries of species being. For Buffon, as for the likes of Carl Linnaeus (1707–1778),¹³¹ the whereabouts—that is, the Habitat—of each species was accounted for by Providence, both in furnishing each species with an appropriate set of needs, and then in placing them on earth in a suitable location for them to interestedly relocate.¹³²

At the time of Buffon and Linnaeus, this was not a paramount matter of dispute. In the years after Lamarck; however, this would have changed.

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When Lamarck was appointed to the Muséum in 1793 at the age of fifty-five, the other chair in zoology had gone to a twenty-one year old Étienne Geoffroy Saint-Hilaire (1772–1844). Two years later, with Geoffroy’s aid, Georges Cuvier (1769–1832) arrived in Paris at the age of 26 to become the *suppléant* (substitute lecturer) of Jean-Claude Mertrud (1728–1802), chair of comparative anatomy at the Jardin des Plantes, the younger men becoming friends and collaborators. However, by 1830 things had rather changed. For two months in front of the Académie des sciences, Cuvier and Geoffroy contested their respective biological convictions.<sup>133</sup> The main issue at stake was what the latter called “unity of plan” or “unity of composition.” Lamarck had died blind and impoverished the year before—a fate not unrelated to that of his ideas. However, his ghost rather lingered about the cornices.

The controversy concerned how to interpret the lately much-expanded fossil record—and particularly the by-now inescapable evidence of periodic extinction it presented. Unity of plan (or of composition), as set out in Geoffroy’s *Philosophie anatomique* (1818),<sup>134</sup> like the

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<sup>128</sup> Lovejoy 1904, 248.

<sup>129</sup> Quoted in Lovejoy 1911, 554–555.

<sup>130</sup> Buffon 1800, 340.

<sup>131</sup> E.g. Linnaeus [1749] 1759, 56–57.

<sup>132</sup> Gregory 2008, 89.

<sup>133</sup> Appel 1987.

<sup>134</sup> Geoffroy Saint-Hilaire 1818, vol. 1.

contemporaneous work of Lorenz Oken (1779–1851), followed Buffon’s primordial “original pattern” and “single main idea” of 1753 in taking similarities in animal forms to be not only coincidental resemblances but intrinsic commonalities.<sup>135</sup> However, this formal unity did not entail the branching of something like a Darwinian ‘tree of life.’ Rather, the variety of animal forms indicated the working-out of the possibilities inherent to a given type.

Such “transformism” was anathema to Cuvier. It abased the dignity of God to suppose that living beings might be somehow incomplete or wanting of design. Moreover, such feigned “hypotheses” were injurious to the technocratic elite whose duty it was to stave off any hint of a return to mob rule.<sup>136</sup> However, while the Baron Cuvier did not hesitate to use all the powers at his disposal to secure his convictions, the terms of the debate were fundamentally intellectual. What, in 1821, he had called “revolutions”<sup>137</sup> entailed colossal, catastrophic upheavals in the planet’s past—mass extinctions of species, replaced by God with hereditarily unrelated varieties. In other words, the evident fact of extinction indicated a distinct and discontinuous sequence of living Creations.

Where Geoffrey spoke of “unity of plan,” Cuvier asserted “plans of organisation,” meaning something at once similar and completely different. For the latter, an organism’s every functional aspect is so finely attuned to every other aspect that any kind of functional change, however gradual, is impossible.

“Every organized being forms a whole, a unique and closed system, whose parts mutually correspond and concur to the same definite action by a reciprocal reaction. None of its parts can change without the others also changing; and consequently each of them taken separately, indicates and determines all the others.”

What Cuvier called “conditions of existence” were such that “if one of its functions was modified in a manner incompatible with the modifications of the others, that being could not exist.” Species change meant species death—and this entailed divine agency.

“Natural history [...] has a rational principle which is peculiar to it, and which it employs with advantage on many occasions. It is that of the conditions of existence, vulgarly named final causes. Since nothing can exist if it does not unite the conditions that render its existence possible, the different parts of each being must be coordinated in such a manner as to render the total being possible not only in itself but in its relations with those that surround it [*qui l’entourent*] [...].<sup>138</sup>

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<sup>135</sup> In 1843, Richard Owen (1804–1892) would define what he called “homology” as “the same organ in different animals under every variety of form and function” (1843, 379). In Geoffroy’s vocabulary, the word was “analogue” (Appel 1987, 70).

<sup>136</sup> Appel 1987, 9.

<sup>137</sup> First published in 1812 (vol. 1) then under the title *Discours sur les révolutions de la surface du globe et sur les changements qu’elles ont produits dans le règne animal* (1825, 3rd ed.). English translation: Cuvier 1831.

<sup>138</sup> Cuvier 1817, 6.

Thus, the “condition” was neither an internal structure alone nor an external milieu or habitat—it was the totality, inside and out. The fish was made for the water and the water for the fish—and it was the complete relation that was of relevance to each God-given epoch of the earth.

Conditions of existence were not, therefore, the formative-mechanical milieu that came later. Indeed, in Geoffroy’s published contributions to the Cuvier debate, “milieu” was mentioned only as middle.<sup>139</sup> Likewise, in his *Philosophie anatomique* of 1818, Geoffroy had written of milieu only in relation to fluid mediums, in particular the proverbial fish–water pairing.<sup>140</sup> However, by the next year, in a book on “*grands sauriens* [big lizards],”<sup>141</sup> Geoffroy had developed his terminology further, albeit without explicit definition. On the subject of the physiognomy of the (also aqueous) Teleosaurus, he wrote that the “ambient milieu” consisted of the liquids drawn into the lungs, or equivalent organs, of such ancient beasts.<sup>142</sup> The “*monde ambiant*,” or “ambient world,” then, referred to other “physical agents and milieus”<sup>143</sup> more generally, though making particular reference to atmospheric gases, and the manner in which the living body is constituted from the molecules by which it is thus immersed. A fruit farmer, for instance, knows well the “concurrence [*concoure*] of circumstances” that agitate the atmosphere and thus affect the harvest. The trees of an orchard, being of like species, may be organised, in themselves, to provide identical fruit; however, this consistency is “spoiled [*contrariée*] by the influence of the variables of the exterior world.”

“Just this example is sufficient not only to give an idea of what the ambient world is in relation to its capacity for resistance, but also to show in what multiplied sources of secondary influences it draws a principle to oppose the primitive influences of the essence of each type.”<sup>144</sup>

Thus, milieu remained fluid, and even the “*monde*” consisted principally of atmospheric envelopings.<sup>145</sup>

In an essay two years later, Geoffroy divided the history of zoology into seven eras. After the fourth era of descriptive classification, the fifth of comparative anatomy, and the sixth of unity of composition came a seventh—structural differences must now be understood primarily in terms of the “*monde ambiant*.” Again, ambient implied not simply surrounding but aerial. The

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<sup>139</sup> Geoffroy Saint-Hilaire 1830.

<sup>140</sup> Geoffroy Saint-Hilaire 1818, vol. 1, 65.

<sup>141</sup> The term *Dinosauria* was coined by Richard Owen in 1841 but was only popularised during the twentieth century (1841, 103).

<sup>142</sup> Saint-Hilaire 1831, 57, 68.

<sup>143</sup> *Ibid.*, 58.

<sup>144</sup> *Ibid.*, 68–70.

<sup>145</sup> *Ibid.*, 63–92, esp. 79.

“energy” in the atmosphere, for example, had declined over time. When respiration thus became difficult, it would affect the rest of “the animal economy,” producing modifications either beneficial or harmful. If the latter then such beings would cease to be and be replaced by others better suited to “the new circumstances.”<sup>146</sup> Unlike Lamarck, Geoffroy prioritised the direct influence on vulnerable foetal development rather than the gradual accumulation of effects on the adult organism. In other words, unlike Lamarck’s striving creatures of habit, his organisms were passive to their transformation.

While his basic cosmology remained, like Lamarck, that of Newtonian forces imposed upon matter, Geoffroy accepted the facts of the new anatomy, whereas Lamarck had not believed the hype about extinction.<sup>147</sup> Except perhaps for some large animals in dry lands, or, as Buffon had held, those unfortunate species that had crossed the paths of humans, unidentified fossils were surely out there somewhere yet to be discovered. Whatever their disagreements, Geoffroy remained respectful of his predecessor; however, he also maintained a certain distance.

#### **4.3: Destitute of the means: Denunciations and reclamations**

On 26 November 1832, an *éloge* for Lamarck was read at the Académie des Sciences.<sup>148</sup> Although composed by the Baron Cuvier, it was read in his stead by the Baron Antoine Isaac Silvestre de Sacy (1758–1838), as the former had died five months previously. As perpetual secretary of the Institut National des Sciences et des Arts, the right to formally eulogise had been an important part of Cuvier’s institutional armoury. Although gaining entrée to the Paris of museums, salons, and savants with the aid of Geoffroy, he quickly exceeded both his contemporary and his elder. Passing somewhat unperturbed from one regime to the next, as well as being made a peer (and hence a Baron) in 1819, he served as Director of the Muséum national d’Histoire naturelle four times for a total of eight years (a two year post) between 1808 and 1831. Today, one finds said museum at 57 Rue Cuvier.

The remarks relayed were far from eulogistic—indeed, they were unapologetically censorious. Recognition of Lamarck’s botanical achievements were expressed as lament. Not content with “scrutinising the evidence,” such minds as Lamarck’s came to think themselves “able to outstrip both experience and calculation” and so set about constructing “vast edifices on imaginary foundations, resembling the enchanted palaces of our old romances.” Abysses of “unlimited time” were the stuff of the “religion of the magi.”

“Thus, while Lavoisier was creating in his laboratory a new chemistry, founded on a beautiful and methodical series of experiments, M. de Lamarck, without attempting

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<sup>146</sup> Quoted in Appel 1987, 135.

<sup>147</sup> Lamarck 1809, vol. 1, 80; Lamarck [1914] 1963, 46.

<sup>148</sup> Published: Cuvier 1835. English translation: Cuvier 1836.

experiment, and destitute of the means of doing so [*aucun moyen de le faire*], imagined that he had discovered another, which he did not hesitate to set in opposition to the former, although nearly the whole of Europe had received it with the warmest approbation.”<sup>149</sup>

Such wild speculations were justly “left undisturbed.” No less preposterous was the formula of “time and circumstances” taken to “enable a monad or a polypus gradually and indifferently to transform themselves into a frog, a stork, or an elephant.” Though such systems “may amuse the imagination of a poet,” they cannot but crumble before “any one who has dissected a hand, a viscus, or even a feather.” His more workmanly labours might have deserved better. But he brought it upon himself.<sup>150</sup>

This was, of course, an eminently self-interested narrative. However, it also bore the distinct possibility of being self-confirming. Nevertheless, regardless of whether or not Lamarck or Cuvier deserve greater credit for the biological developments that came after them,<sup>151</sup> and although both were very much present in the debates that followed Darwin’s *On the Origin of Species*, it was “the illustrious Cuvier,” along with the similarly respectable Geoffroy, that were granted special mention in Darwin’s epochal text itself (Lamarck earning only two passing mentions). “It is generally acknowledged, Darwin wrote, “that all organic beings have been formed on two great laws—Unity of Type, and the Conditions of Existence,” this latter law being “fully embraced by the principle of natural selection.”<sup>152</sup>

Moreover, in the preface to the third edition of 1861, Darwin made specific reference to Geoffroy, particularly via the biography written by his son and intellectual successor, Isidore Geoffroy Saint-Hilaire (1805–1861).<sup>153</sup> The elder, Darwin wrote, “seems to have relied chiefly on the conditions of life, or the ‘*monde ambiant*,’ as the cause of change.” However, “as his son adds, ‘This is therefore a problem entirely reserved for the future, if even the future can grapple with it.’”<sup>154</sup> Thus, Darwin recognised that the father’s research had by no means claimed resolution of the problem of adaptation. Moreover, as well as assimilating Cuvier’s conditions of existence to natural selection, he conflated, or at least did not distinguish, *monde ambiant* and conditions of life.<sup>155</sup>

In contrast to the later evolutionary conception inspired in both Darwin and Alfred Russell Wallace (1823–1913) by both Thomas Robert Malthus (1766–1834) and extensive

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<sup>149</sup> Cuvier 1836, 10; Cuvier 1835, xiii.

<sup>150</sup> Cuvier 1836, 15.

<sup>151</sup> Foucault 1979.

<sup>152</sup> Darwin 1859, 206.

<sup>153</sup> Geoffroy Saint-Hilaire 1847.

<sup>154</sup> Darwin quotes the original French without translation: “*C’est donc un problème à réserver entièrement à l’avenir, supposé même que l’avenir doive avoir prise sur lui.*”

<sup>155</sup> Darwin 1861, xiv.

exploratory travel (see §9), there was no “struggle for existence”—that is, no inter-species competition or predation—entailed in Lamarck’s circumstances, climates, and milieus (or, indeed, in Geoffroy’s *monde ambiant*). Indeed, other species were not of particular relevance. For Geoffroy, it was the gradual flux and infiltration of the physico-chemical surroundings that were at issue. Such a conception certainly differed from that of Lamarck’s omni-permeating milieus, or from the “*forces pénétrantes*” of Buffon—that is, agencies such as gravity, chemical affinity, and magnetism, that, in their irresistible action, guaranteed the passage of nutrients and other essentials to the “*moules intérieures* [interior moulds],”<sup>156</sup> the basic organic molecules from which life was assumed to germinate.<sup>157</sup> However, such worlds also differed markedly from that which Darwin and his struggling species came to subsequently inhabit.

It was not until 1909 that a statue of Lamarck was raised in his hometown of Bazentin, in the *département* of the Somme. In an inaugural speech (published in the *Revue Scientifique* in 1913), Edmond Perrier (1844–1921), a specialist of invertebrates, noted, with classic rhetorical numerology, that it was both the centenary of the publication of *Philosophie Zoologique* and of Darwin’s birth. Time had, in his estimation, treated the former rather more favourably than it might have seemed in decades past. Certainly, Lamarck embarked upon his theories on that ethereal fire “continually in motion” and “the agent of all metamorphoses” at just the moment when Lavoisier “instituted a new Chemistry based on the indestructibility of matter and the immutability of atoms.”

“But what do physicists say today? Do they not also recognise a substance which fills [*empliit*] space, penetrates all bodies, has perhaps generated them, and, according to the movements which agitate it, becomes light, electricity, or gives birth to those mysterious radiations that we have revealed with the Roentgen, the Becquerel, the Curie, radiations which seem to decompose atoms that are no longer immutable, and destroy matter that is no longer eternal?”<sup>158</sup>

Likewise, Lamarck may have “lived in the house of Buffon” and his *milieu extérieur* may have seemed outdated after the Baron Cuvier’s pronouncements on the “sudden and tragic revolutions” of the globe. However, was not the latter also endowed with “the imagination of a poet, the subtlety of a metaphysician” in reconciling the earth of the chronologists, all of 6,000 years old, with the evidence of extinction that he so amply and ably uncovered?<sup>159</sup> In 1909, at least in Bazentin, then, one might have reasonably expected it to be a Lamarckian century ahead.

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<sup>156</sup> A term taken from Louis Bourguet (1678–1742). Roger 1997, 129.

<sup>157</sup> Staum 2014, 26; Roe 2003, 17.

<sup>158</sup> Perrier 1913, 226.

<sup>159</sup> *Ibid.*, 227.

The remarks constituting Lamarck's *Discours* of 1800 were reassembled and reprinted several times, with the definitive version being the noted tome of 1809. What was, then, identified as the crucial passage of chapter seven<sup>160</sup> was translated into English and published in *The American Naturalist* in 1888 as "On the Influence of Circumstances on the Actions and Habits of Animals, and that of the Actions and Habits of Living Bodies, as Causes Which Modify Their Organization."<sup>161</sup> The book as a whole was translated into English in 1914,<sup>162</sup> where chapter seven was titled: "Of the Influence of the Environment on the Activities and Habits of Animals, and the Influence of the Activities and Habits of These Living Bodies in Modifying Their Organisation and Structure." And so, by 1914, environment had overlaid circumstance, becoming a backwardly-projectable commonplace.

By the time of Lamarck's *éloge* at the Académie, there was little place for divine sensoria in mathematical physics. Pierre-Simon Laplace, who had died five years before (1749–1827), famously (if perhaps apocryphally), "had no need of that hypothesis." Nevertheless, Cuvier's (very much small-r) revolutionary pieties were well-ensconced as regards the meeting point of geology and anatomy. Medium and milieu, too, were firmly established as technical terms. Moreover, as we shall see in §6, from the 1790s onwards neo-Hippocratic understandings of medical climates were commonplace. However, despite the later attribution of "milieu" to such circulations, there was little to link them in contemporaneous terms. That connection would only follow Auguste Comte, and the positivist systems of biology and sociology.

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<sup>160</sup> Of twenty-five.

<sup>161</sup> Lamarck 1888a; Lamarck 1888b. The French title of chapter 7: "*De l'influence des circonstances sur les actions et les habitudes des animaux, et de celle des actions et des habitudes de ces corps vivans, comme causes qui modifient leur organisation et leurs parties.*" Lamarck 1809, vol. 1.

<sup>162</sup> Reprinted: Lamarck 1963.



## Excursus A: Ontonomic: The assembly of obligation

As seen in §2, for Georges Canguilhem, circa 1950, “[t]he notion of milieu” was becoming something like “a universal and obligatory mode of apprehending the experience and existence of living beings.”<sup>1</sup> For Canguilhem, this construction of obligation was to be understood through epistemology. Here, I wish to understand such obligations through ontology—or, more precisely, ontonomy.

Moreover, the following pays attention to the fact that the Newtonian milieu was a principle of universal connection. As we shall see in the next chapter, the positivist milieu divested this expression of its direct physical meaning; however, such connotations remained. One might thus detect echoes of such earlier meanings in “the environment,” familiar to us from the mid-twentieth century onwards.<sup>2</sup>

The ontonomic articulates one dimension of the amalgam known as ontology: that of the formation of collective obligations to ‘receive things as real.’ This excursus explicates this conception. However, it also recognises that, much as *lógos* in itself can already be associated with the germinal principles of the cosmos (“In the beginning...”), the ontonomic already implies a relation to the earth, with *nómos* entailing the primordial ground of collectivity.

This section is, therefore, conceptually propositional. However, it is also, in its later stages, speculative; a matter of “design” rather than “definition” (§3).

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On 4th September 1784, an *Exposé des Expériences* concerning the experiments assessing Mesmer’s “animal magnetism” was presented before the French Académie des Sciences. Read by Jean Sylvain Bailly (1736–1790), on behalf of Benjamin Franklin (1706–1790), Jean-Baptiste le Roy (1720–1800), Gabriel de Bory (1720–1801), and Antoine Lavoisier, it declared:

“One must not be indifferent to the ill-founded [*mal-fondé*] reign of false opinions. The sciences that build themselves [*s’accroissent*] from truth gain much from the suppression of error: error is always an evil yeast [*levain*] that ferments & ultimately corrupts the mass into which it is introduced. But when this error comes from the empire of the Sciences to spread to the multitude, to divide & agitate minds [*partager & agiter l’esprits*], when it presents a mendacious means [*moyen trompeur*] of curing the sick and prevents them from seeking other relief, when, above all, it influences at once the moral & the physical, a good Government has an interest in destroying it. The distribution of light is a good employment of authority!”³

¹ Canguilhem 2008a, 98.

² Warde, Robin, and Sörlin 2018.

³ Donaldson 2014, 79, 155. Translation modified.

It was not only, then, that the Mesmerists had been spreading falsehoods but, moreover, they had been cloaking themselves in scientific authority in doing so. While not every charlatan might merit such an intervention, this case was clearly exceptional. When experienced under experimental conditions, by authoritative observers not already convinced of the doctrine, the phenomena were altogether wanting in their manifestation. In several permutations, adherents were shown to experience Mesmeric “crises” when magnetism was absent, and experienced nothing when it was surreptitiously present. Thus, the co-authors added:

“Is not Magnetism announced to be a universal fluid, to be the principle of life & the great mainspring of Nature? What sort of agent is it that does not always act under like [*semblable*] circumstances?”⁴

As the official *Rapport* put it, the apparent effect, therefore, has “no physical cause, or external cause, & can have no other cause than the imagination.”⁵

However, this was far from the first public quarrel concerning aetherial media and experimental rationality. During the 1660s, Robert Boyle had turned the subtle matter of Cartesian plenism into a question of experimental research, via the construction of an air-pump. With this expensive, complicated, and (his critics were quick to point out) leaky device, Boyle was able to relate physical principles to an observable, if imperfect, void.⁶ For Thomas Hobbes in particular, such laboratorial caprices were anathema. How could truth, and therefore order, be established upon such defective and localised contrivances? No matter how cohesive its construction, some “purest aetherial substance”⁷ must, of necessity, always seep into the supposed vacuum. Thus opposed to this insinuation of the immaterial, and hence orderless, into the world,⁸ the author of *Leviathan* maintained the fundamentality of mathematical, geometrical knowledge of a mechanical, material universe. For Boyle, by contrast, the aether possessed no experimentally relevant properties.⁹ Moreover, his philosophical claims presupposed quite another model of authority than the traditional Platonic-Cartesian geometrician: an authority premised upon the permittance of dissension and debate within a semi-public forum of demonstration and witnessing.¹⁰

This, the much-cited account propounded by Steven Shapin and Simon Schaffer in 1985, concluded that Hobbes and Boyle articulated “radically different solutions to the question

⁴ Ibid., 80, 158. Translation modified.

⁵ Ibid., 56, 121. Translation modified.

⁶ Shapin and Schaffer 1985, 38.

⁷ Quoted: *ibid.*, 119.

⁸ Ibid., 19.

⁹ Ibid., 184.

¹⁰ Ibid., 80.

of what was to count as knowledge,” which were, at the same time, “solutions to the problem of social order.”¹¹

I wish, also, to understand the experimental mode of authorisation in relation to ‘what counts...’; however, I wish to achieve this not only in terms of knowledge but, also, of ontology. In order to do so, I must better understand the mode of existence of experimental knowledge—that is, what is both fundamentally and specifically necessary for its practice.

Crucial to Boyle’s mode of authority was a certain disposition: “A man whose narratives could be credited as mirrors of reality was a *modest man*; his reports ought to make that modesty visible.”¹² In 1997, Donna Haraway dubbed this Boylean man the “modest witness.” It was not only that such an observer had to pay close attention, it was (quoting Sharon Traweek) that “such a man must inhabit the space perceived by its inhabitants to be the ‘culture of no culture.’”¹³ Such a disposition was thus constitutively exclusive with regard to stratifications of gender and class. Women could not witness modestly, nor were the men composing and working the pumps of any significance. Haraway thus set out to “queer the elaborately constructed and defended confidence of this civic man of reason.”¹⁴ However, she did so not in order to condemn the practice as such but, rather, in recognition of the “practical inheritances” received from this history: “The important practice of credible witnessing is still at stake.”¹⁵

In 1993, Isabelle Stengers constructed a similar but more practically exacting account of experimental practice, not seeking so much to “queer” Boylean man as to displace the question of disinterested rationality into one of *interested risk*. The invention of experimental science was, she wrote:

*“the invention of the power to confer on things the power of conferring on the experimenter the power to speak in their name.”*¹⁶

That is, the experimental event was not brought about by the abstentious disinterest of a rational mind neutrally observing nature. Rather, it was the result of objects being creatively configured in such a way that they can, effectively, ‘object’ to what is said about them. For Stengers, the exemplary experimental situation is found in Galileo’s inclined slope: polished balls roll down, their calculated velocities then testifying to the advocated equations. To be sure, this configuration is a matter of abstraction.

¹¹ Ibid., 332.

¹² Ibid., 65.

¹³ Haraway 1997, 23; Traweek [1988] 1992, 162.

¹⁴ Haraway 1997, 24.

¹⁵ Ibid., 33.

¹⁶ Stengers [1993] 2000, 88.

“Outside the laboratory, one finds friction, wind, the irregularity of soils, and the density of milieus—everything whose elimination allowed Galileo to establish authority.”¹⁷

Nevertheless, what thus constitutes the mode of existence of experimental scientific practice is the principle that by taking the “risk” of instigating an artificial situation wherein experimental things can be *made* to ‘speak for themselves’ (the risk, thus, is that they speak otherwise than scripted)¹⁸ these same things thereby authorise the experimenter to “speak in their name.”

This, then, brings us back to asking: “What sort of agent is it that does not always act under like [*semblable*] circumstances?”

In 1989, writing with the psychiatrist and hypnotist Léon Chertok, Stengers identified the Mesmer affair as a crucial moment within the history of “rational practices.”¹⁹ This royally authorised intervention constituted an attempt to submit to “the order of science a practice that seemed threatening to political and to social order.”²⁰ Moreover, it did so not only by employing experimental methods but, furthermore, by insisting upon the fundamental opposition of the “physical” and the “imaginary.” The former entailed a multiplicity the disaggregation of which was the very objective of inquiry. The latter, by contrast, was merely an artefact—precisely that which breaks the chain of authorisation for an experimental author, revealing the things ‘speaking for themselves’ to be merely grandiloquent ventriloquies.

However, Chertok and Stengers do not cast Mesmer as a victim or martyr as such. His claims were indeed made, quite deliberately, to resonate in the register of authoritative natural philosophy. His substances, though, could not stand up to the test. As such, according to what Bruno Latour latter called “Stengers’s shibboleth,”²¹ Mesmer’s claims cannot be said to have been ‘unscientific’ or ‘irrational’ simply because they relied upon the imagination. However, nor did they accept the risk entailed by the experimental situation.

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In §3, I wrote: “The ontological occurs *when an entity is received as real by a collective whose practices cultivate that reception,*” where “as *real*” entails the reception of a thing “in accordance with its characteristic *mode of existence.*” The ontonomic, furthermore, was described as that through which a collective obligation to ‘reception as real’ is made. That is, one does not simply decide, out of nothing, to adopt a particular orientation towards reality. Such relations are collectively cultivated, and, when they are resisted, this dissension remains collectively practiced.

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<sup>17</sup> Ibid., 127.

<sup>18</sup> Latour 1988.

<sup>19</sup> Chertok and Stengers 1992, 24.

<sup>20</sup> Ibid., 1.

<sup>21</sup> Latour 1997, xix.



Figure 4—Under the influence of Mesmerism, c.1785

What can be found in the case of the Commission is, therefore, a matter of conflicting and misarticulated obligations.

It is quite straightforward to understand how the grand, theatrical performances of the mesmerisers—with their robes, incantations, apparatuses—consisted of a “cultivation” of obligations to particular bodily comportments, elemental invocations, and experiential reveries. To be a Mesmerist was, indeed, to be permitted inculcation into the lore. It is also apparent that Mesmerian media could not satisfy the obligations of the experimental situation in the manner that it was constructed—that is, so as to assess the existence of beings defined in the modality of the physical. However, the judgement of Lavoisier et al. was no less performative—and no less creative. With their methods of closed experimental conditions, precise weighing and balancing of matter, and, then, the analytic dissolution of compounded substances into simpler elements, such self-consciously modest witnesses, in France, England, and elsewhere, had established a whole new conception of chemistry. This experimental event—or, rather, series of events—had accorded such figures a particular kind of authority: that which reaches beyond its own immediacy, becoming exemplary for practices of all kinds. It was becoming, in a word, paradigmatic (from *parádeigma*,<sup>22</sup> “pattern or example”).

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<sup>22</sup> παράδειγμα.

With the “ontonomic,” I am claiming that such relations of obligation do more than adjudicate “what [is] to count as knowledge.” By making such judgements, they form obligations as to what can be received as real—a relation that the verb ‘to know’ rather fails to do justice.

This point will be taken up again in the next excursus. However, this is not yet enough to account for the full conceptual implication of the ontonomic. In particular, and thinking towards the twentieth-century significance of the environmental, *nómos* must be recognised as already implying the earth.

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To speak of *nómos* is to invoke law, rule, or custom. It is related to *nemein*, meaning to manage, regulate, or distribute. This latter sense is usually articulated in terms of the apportioning of land, such as was practiced in the Greek colonies. Further back, it can be attributed to the PIE root **nem-*—assign, allot, or take. However *nemein* could also mean to read, and *nómos*, as early as Hesiod, could signify the diffusive ‘distribution’ of music.²³

However, to speak this etymology is also to invoke a certain disgraced professor whose reflections thereupon have become authoritative in their own right.

“*Nomos* is the *measure* by which the land [*den Grund und Boden*] in a particular order is divided and situated; it is also the form of political, social, and religious order determined by this process.”²⁴

That is, the origin of all human law is set in the pioneering appropriative partition of the earth. Each “concrete order” derives from such “*radical title*.”²⁵ However, this professor was not writing as a historian, and we should not read him as one. Rousseau, a century before, and with rather different inclinations, took the original land-appropriation to have been the founding act of civil society.²⁶ However, neither are examples to be followed. Both posit as the *ur-* or *arkhé*—the beginning—a primordial *taking*. The ontonomic, by contrast, must be understood as a perpetual *receiving*.²⁷

To *inherit* may be to take into possession but it is not to *appropriate*. The terms of what distinguishes an inheritance from an appropriation can only be internal to the tradition concerned. Nevertheless, the distinction holds. No one inherits in general (there can be no universal tradition). Moreover, no one inherits individually (an inheritance must always be recognised as such). However, to speak of ‘rules’ or ‘customs’ is to imply something contrary.

²³ Svenbro 1993, 109–114; Zartaloudis 2018.

²⁴ Schmitt [1950] 2003, 70; Schmitt [1950] 1974, 40.

²⁵ Quoted in English.

²⁶ Rousseau [1754] 1992, 44.

²⁷ Cf. Clark 2011, chap. 8.

That is, the very notion of nomic obligation implies the possibility of ‘freedom’ therefrom. This is crucial—and what must now be formulated.

Since inheritance implies, in every sense, *interest*, one possible antonym of the receptive might be the uninterested. Or, since the relation in question concerns ‘rules’ that are apparently willingly cultivated, this relation might be contrasted with a ‘dictat,’ imposed. Moreover, since it is the reception of ‘what counts as real’ that concerns us, we may be lured into thinking that to inhabit a different tradition is somehow to be ushered into another universe. However, all these set up false oppositions.

Rather, I will say that the ontonomic turns upon the *trivial*. From *tri-* (three) and *via* (road), the *trivium* was, literally, a crossroads—hence, a public place, or common-place. Thus, the association “common, vulgar, trivial.”²⁸ One may well, then, discern a historic violence buried within this concept—a contempt for the common as such. However, with respect to the ontonomic, this concept can be altogether reconceived.

Since one does not inherit in general, inheritance is necessarily a matter of *attention*. This, in turn, presupposes triviality—the trivial is that which obligates little or no attention, relative to the tradition to which one belongs. However, rather than making the *trivium* qua public space emblematic of the trivial, it would be better to say that this point of crossing or confluence is the middle-place—the milieu, indeed—from which one may move in order to meet other modes of attention. What is trivial to one mode may be fundamental to another. Triviality is not, therefore, a pejorative or denigrative judgement but an admission of attentive relation.

By reclaiming the trivium from such condescension, the intermediate common-place itself may thus be found to have *always* been a hubbub of dissension, tale-telling, and thought—always a collocation of minorities, *as well as* the jealous enforcements of majorities. The common should not, therefore, be imagined as generally and intrinsically carceral. In every discord there is implicit the possibility (if not probability) of a departure.

Given this reconfiguration, it becomes possible to further thematise the distinction of the historical, philosophical, and political. The historian, *attends* (that is, leans, stretches towards, pays attention) to the commonplace. The philosopher, by contrast, contemplates *roads not taken*. The politician, then, is prepossessed with the possibilities of *alliances* and *danger*.

As such, nomos—thus placed within the common-place of the trivium, understood in contrast to those (non-pejoratively) ‘trivial’ common-places to which other roads lead—ceases to be given its narrative of origination in the pioneering division of an altogether idealised “earth” (as though it relented to the breath of human industry at the first stroke of individual labour). Moreover, it is no longer concerned with the ‘distribution’ (see §C) of “*Grund und Boden*” (as though the very possibility of agriculture did not itself imply massive cooperation). To be

²⁸ Lewis 1895, 875.

sure, from the most peripheral common-place to the humblest foot-beaten track, each and every passageway presupposes its earthly fundament. However, hearing more of the *nómos* of reading and music—that is, of the *communicative*—such impressions must be taken as traces not of a taking-and-excluding but of a going, shuttling, fleeing or, indeed, receiving; that is, of a receiving into shelter, or into harbour.

The trivium is thus emblematic of the reality of the commonplace (we are all of some common or other), and the partiality of the common-place (since there are always ‘roads not taken’). As such, while it may not be preoccupied with the metaphysical *arkhḗ* as such (see §F), the ontonomic bears a necessarily profound relationship with the inherited past: Every road is a monument to an inherited relation; a past event of communication (for better or worse). That is, the very possibility of the trivial, which is the very possibility of the receptive, presupposes the necessity of maintaining relations *between commons*, which is to say, between collectives (see §E).

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In 1952, in an essay titled *The Political Partitioning of Our World: An Attempt at Analysis*, the geographer Jean Gottman (1915–1994) remarked that:

“Crossroads seem to have been one of the earliest and perhaps one of the most permanent fears of mankind. For it is alarming for anyone who knows his own weakness to contemplate whom we might be meeting at the next crossroad—friend or foe, weaker or stronger than he.”<sup>29</sup>

This relating of the “ontonomic” to the “trivial” has attempted to reclaim the crossroads, not as a site of fear and danger but as one of collectivity and possibility. In this sense, ontology has been supplemented by a kind of mythic hodology (the study of pathways).

These speculative, even mythological, propositions, should not be taken as developmental or anthropological ones. They are acts of speculative philosophy<sup>30</sup>—attempts to make sense of what happened, without accepting that such occurrences need have occurred in the way that they did. In other words, they attempt to conceptually imagine alternative roads (even if there was little or no probability of any such ever being taken).

Thus, as well as being speculative, the preceding addresses a fundamental aspect of the mesologic, or environmental: that these are things supposed to ‘connect us,’ with ‘us’ usually meaning ‘humanity’ as such. This was the conceit of the Mesmerian aether: a single, underlying principle, suffused through everything, granting the mesomancer apparently unlimited power. One may well discern its echo in “the environment” of today.

To accept such entities as being ‘a thing of the past’ is to place a certain distance of time between then and now—the distance of anachrony (§3/§F). However, to follow the methodical

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<sup>29</sup> Gottmann 1952, 517.

<sup>30</sup> E.g. Stengers 2011b.



assessment of the Commission by no means obligates acceptance of its judgement regarding “the distribution of light.” Indeed, according to Stengers’ shibboleth, there is nothing whatsoever in the experimental mode of existence that necessitated the dismissive elimination of “imagination” as a homogeneous, “marked” category, relative to the “unmarked” and disaggregable physical. Nothing, therefore, necessitates that those seeking to inherit from the experimental tradition should be obliged to partition things in this way (§C), or that such jealousies should animate what gives sense and cohesion to their world (§B).

However, before coming to consider these issues, the history of milieu must be explicated several steps further.

## 5: “The total ensemble”: Association from Comte to Tarde

By the mid-nineteenth century, medium and milieu, as terms of natural philosophy—that is, increasingly, of science—could be, and were, taken for granted as practical concepts. However, they were also concepts invoked in physics, chemistry, and biology, as well as the nascent social sciences. With sciences of various kinds being increasingly a part of popular fiction, such concepts were also brought into literature, more or less imbued with laboratorial sobriety or séance-esque spiritualism.

This chapter concerns, first, the career of Auguste Comte, his conceptual establishment of sociology, and the role that his conceptions of milieu played in this. However, second, it also concerns the religion of humanity that he took to be an integral aspect of this intellectual endeavour, and the role that diverse milieus had in that. Third, it will then consider the popularisation of milieu concepts, particularly in the interconnected (and mutually referencing) literature and literary theories of Honoré de Balzac, Émile Zola, and Hippolyte Taine. Finally, it will examine criticisms and contestations as regards the proper conception of both sociology and milieu occurring at the end of the century, through debates between Gabriel Tarde and Émile Durkheim.<sup>1</sup> Thus, it will be shown how a ‘mechanistic’ understanding of milieu was successfully asserted over the spiritual or ætherial understanding. However, it will also be shown that diverse associations were continually reclaimed throughout the century, and after.

### 5.1: From order to animation: Comte’s positivism

Positivism, today, is known as a branch of the philosophy of science. However, in the lifetime of its founder Auguste Comte (1798–1857), it began as an intellectual plan to reconstitute social order and ended as a cult. France, in the decades after the Revolution, was awash with utopian schemes (and schemers) of various sorts. Henri de Saint-Simon (1760–1825), for instance, promoted rule by a technocratic oligarchy led by mathematicians, and worshipping Newtonian gravity (later, physiology and anatomy).<sup>2</sup> From 1817 to 1824, Comte was Saint-Simon’s secretary. They parted in acrimony, disputing the authorship of a work penned by Comte and first published in 1822. This “*opuscule fundamental*,” as he later called it,<sup>3</sup> laid the basis for a multi-volume *Système de politique positive*—a schematising of knowledge intended to help “re-establish order in Europe.”<sup>4</sup>

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<sup>1</sup> With regard to these thinkers, drawing on e.g. Pickering 1993, vol. 1; Tresch 2012; Vargas et al. 2008.

<sup>2</sup> Tresch 2012, 197–198.

<sup>3</sup> Comte 1998, 47.

<sup>4</sup> *Ibid.*, 49.

In short, Comte's project was to establish an equilibrium between revolutionary and reactionary ideas, founded upon "positive" knowledge, so as to bring to a close the still-lingering era of political and existential licentiousness. The fundamental law of this transition, Comte claimed to have realised, early one morning in 1822: the law of the three stages; that is,<sup>5</sup> "the theological or fictional state; the metaphysical or abstract state; the scientific or positive state."<sup>6</sup>

Although a four-volume work titled *Système de politique positive* was published between 1851 and 1854,<sup>7</sup> the project Comte had been pursuing in the 1820s was not realised. Instead, setting out to systematise independently, in April 1826, Comte commenced a series of lectures, titled *Cours de philosophie positive*, establishing the historical and scientific foundations for the endeavour. The early lectures were attended by a considerable cast of notables, including Joseph Fourier (1768–1830), Henri de Blainville (1777–1850), and François Arago (1786–1853).<sup>8</sup> However, before the fourth, Comte suffered a catastrophic, and series-ending, "cerebral crisis"—only the most public of a procession of such episodes.<sup>9</sup> The *Cours* was eventually published between 1830 and 1842.<sup>10</sup> In 1853, it was "freely translated and condensed" into English by Harriet Martineau (1802–1876)<sup>11</sup>—thereby, as we shall see, relating "environment" to Comte's milieu.<sup>12</sup>

In the first two volumes of the *Cours* on mathematics, astronomy, "*milieu résistant*," "*milieu ambiant*," "*milieu atmosphérique*," and so on, were utilised in senses that would have been familiar to Buffon. However, the third volume on chemistry and biology examined the concept specifically. The sciences, for Comte, were arranged in order of complexity—astronomy, physics, chemistry, biology, and sociology (the latter coined by Comte in 1830)—with each

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<sup>5</sup> He recounted this quasi-religious experience only later. Pickering 1993, vol. 1, 199.

<sup>6</sup> Comte 1998, 81.

<sup>7</sup> Comte 1851, vol. 1; Comte 1852, vol. 2; Comte 1853, vol. 3; Comte 1854, vol. 4.

<sup>8</sup> Pickering 1993, vol. 1, 370.

<sup>9</sup> *Ibid.*, vol. 1, 372.

<sup>10</sup> Comte 1830, vol. 1; Comte 1835, vol. 2; Comte 1838, vol. 3; Comte 1839, vol. 4; Comte 1841, vol. 5; Comte 1842, vol. 6.

<sup>11</sup> Comte 1853, vol. 1; Comte 1853, vol. 2.

<sup>12</sup> The later *Système* was translated rather more straightforwardly by several English positivists:

1875, vol. 1.: John Henry Bridges (1832–1906); translator.

1875, vol. 2.: Frederic Harrison (1831–1923); historian.

1876, vol. 3.: Edward Spencer Beesly (1831–1915); historian.

1877, vol. 4.: Richard Congreve (1818–1899); founded the London Positivist Society in 1867 and the Comtist Church of Humanity in 1878.

Likewise, the *Discours sur l'esprit positif* (1844) and *Catéchisme positiviste* (1852), works intended for a lay audience were translated straightforwardly.

developing its methods from its predecessor. Thus, for the purposes of developing a physics of society, the example of biology was paramount.

Having studied vitalist biology in Montpellier, after being expelled from the *École Polytechnique* in 1816, Comte knew what positive science had to overcome. In 1800, the same year as Lamarck's *Discours*, Marie-François Xavier Bichat (1771–1802) had defined life as: “the set [*l'ensemble*] of functions that resist death.”<sup>13</sup> By insinuating an inscrutable force into living matter, not only was biology divorced from physics and chemistry but, moreover, the living being was separated from—indeed, defined against—that in which it lived. On the contrary, Comte wrote, “the idea of life constantly presupposes the necessary correlation of two indispensable elements, an appropriate organism and a suitable milieu.” To this declaration was appended a footnote:

“It would be superfluous, I hope, to specifically justify the frequent use that I shall henceforth make, in biology, of the word *milieu*, to designate in a clear and simple manner not only the fluid in which the organism is immersed, but, in general, the total set [*l'ensemble total*] of external circumstances of any kind that are necessary for the existence of each particular organism. Those who have sufficiently meditated on the capital role which the corresponding idea must play in any positive biology will, without doubt, not reproach me for the introduction of this new expression.”<sup>14</sup>

This statement, published in 1838, is crucial for several reasons. First, Comte claims *milieu* as a biological neologism (a practice to be avoided, in general). Although reference to an immersive fluid reflects the long-familiar elementary sense, milieu here became something else entirely. That is, second, it was defined, unambiguously, as the *totality* of surrounding entities. It thus became a completely abstract concept, devoid of any internal differentiation. Third, against both Bichat and the anatomists, this was a bifurcation that necessitated attention to both sides of the consequent equation. Life cannot, hereupon, be understood only in terms of the organism itself. Fourth, also against Bichat, as Martineau put it in her translation:

“The harmony between the living being and the corresponding *medium* (as I shall call its environment) evidently characterizes the fundamental condition of life; whereas, on Bichat's supposition, the whole environment of living beings tends to destroy them.”<sup>15</sup>

That is, the relationship of organism to milieu was made one not of hostility but, rather, appropriateness and harmony. Indeed, producing a general theory that would connect “the double idea of organ and medium with that of function” is the highest objective of biology.<sup>16</sup>

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<sup>13</sup> Bichat [1800] 1805, 1.

<sup>14</sup> Comte 1838, vol. 3, 301; cf. Comte 1853, vol. 1, 363.

<sup>15</sup> Comte 1853, vol. 1, 360.

<sup>16</sup> *Ibid.*, vol. 1, 364.

In making this fundamental reconception, Comte adopted an appreciative but equivocal relationship to Lamarck. Although the charge of possessing an “artless imagination” appears only in Martineau’s text, Comte did write of “*la naïve imagination de Lamarck*”<sup>17</sup> and sided with Cuvier regarding the “indefinite variability of species.”<sup>18</sup> Indeed, Comte’s harmonious *milieu* had rather more to do with Cuvier’s final causes and “conditions of existence” than Lamarck’s terrestrialsed cosmic solvent. Nevertheless, when Comte came to design his positivist calendar in 1849, the Baron was nowhere to be found, while Lamarck’s name featured in the final week (celebrating biology) of the thirteenth month (celebrating science), itself named after the “incomparable” Bichat. In the *Système*, Lamarck was also honoured as the “true founder” of “an entirely new branch of biology” studying “the general theory of organic milieux.”<sup>19</sup> Then came François-Joseph-Victor Broussais (1772–1838), Pierre Jean Georges Cabanis (1757–1808), leading to the proto-phrenologist Franz Joseph Gall (1758–1828).

Sociology, developing from its forerunner in the hierarchy, thus adopted the same basic principles, and Comte’s texts from the *Cours* onwards are scattered with the “*milieu social*.”<sup>20</sup> However, in the *Système*, he was also careful to distinguish these respective domains. Indeed, not only must the sciences be strictly stratified in terms of their relative complexity and variability but so must all stages of social development. The “ascending scale” of social development is initially prompted by “the aggregate of material influences: first astronomical, then physical, lastly chemical.” This “first system of modifying forces,” the simplest and most easily understood, were also the first to be systematically studied, as with Hippocrates and his “unequalled treatise upon climate.” However, the phrase “material influences” thereafter becomes overextended and inadequate.

“The word *milieu*, already used as a general term of biology, seems to me the most convenient for the purpose. Nevertheless, we must not confuse the theory of the sociological milieux with that of the biological milieux, supposing the latter theory were completed, whilst it is as yet hardly conceived.”

The social order being only “indirectly affected” by the consequences of the “material milieu” upon “vital order,”

“we should in the first instance limit the sociological milieux to those material influences which directly affect sociality, without sensibly disturbing vitality.”

There being no “special theory” of the biological milieu, it would be premature to attempt one of the sociological, although the former will of course “serve as introduction and systematic

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<sup>17</sup> Ibid., vol. 1, 415; Comte 1838, vol. 3, 561. An accusation repeated in Comte 1851, vol. 1, 499.

<sup>18</sup> Comte 1851, vol. 1, 537–538.

<sup>19</sup> Translation modified (original: “environments”). Comte 1875, vol. 1, 537; Comte 1838, vol. 3, 308.

<sup>20</sup> Comte 1839, vol. 4; Comte 1842, vol. 6; Comte 1852; Comte 1854, vol. 4.

guide.” Such a general, abstract theory of milieux is not then to be anticipated immediately; nevertheless, it is the ultimate objective of positive social science.<sup>21</sup>

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<sup>21</sup> Comte 1875, vol. 2, 364–365. Translation modified.



Much like Lamarck vis-à-vis the organism, “many irrational conceptions, especially in modern times” had overstated the dominance of the material milieu vis-à-vis human agency. However, such conceptions are developmentally diminished as “civilisation permits man to further modify the world [*monde*].” Although seeming, at first, to “dominate [*maîtriser*] us absolutely,” the empire of the world never infringes upon “the natural independence of the laws of sociology,” which merely vary in intensity. The “influence of the milieu on man” is therefore gradually decreasing from its prehistoric height.<sup>22</sup> So it was that during the first age, “the age of fetishism,” humans were divided, as per the incorrigible triaphilia of Comte’s disavowed Catholicism, into three distinct races. The “black” race remained at the fetishistic stage, the “yellow” advanced to polytheism, and the “white” to monotheism. The non-whites of the world were, therefore, teleological stragglers. However, all were on the same path of civilisation, being gradually emancipated from merely local conditions.<sup>23</sup> In this respect, Comte not only endorsed the *mission civilisatrice* but wrote it into the very fabric of existence.<sup>24</sup>

The mission of Positivism did not stop at diagnosis. It was to actively produce the “*Ordre et Progrès*” that its dictums dictated. The “Religion of Humanity” that Comte envisaged was not in the least unprecedented. However, the *église positiviste* was perhaps uniquely successful among secular theologies. Popularised in the *Catéchisme* (1851), and detailed in the final volume of the *Système* (1854), its founding principles were order, progress, and altruism (another Comtean coinage). However, to be effective, it also had to be, as had Comte’s personal regimen, ritualistically practical. To this end, Comte expounded what he called *Le Grand-Être*—The Great Being:

“the whole constituted by the beings, past, future, and present, which co-operate willingly in perfecting the order of the world.”

Though all “gregarious” animals cooperate, “it is only the paramount race on each planet that can attain unity as a race.” Thus, the Great Being was, in the fullest sense, Humanity—fated to inherit the Earth, not by dint of any deity but by the lawful unfolding of biological and social evolution. The human race would be its own god. Thus, all lower demarcations of peoples or nations were no more than “parts,” with “no real foundation in nature.” Indeed, international interaction had lately become so intense that “no one [nation] is really separable from the others.”<sup>25</sup> Accordingly, the mission of positive religion was to realise “the ultimate regeneration of Humanity” as a self-deifying totality.

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<sup>22</sup> Comte 1876, vol. 3, 168–169; Comte 1853, vol. 3, 202–203. Translation modified.

<sup>23</sup> Pickering 1993, vol. 3, 237–8.

<sup>24</sup> Though Comte’s works were also appropriated to anti-imperialist ends: Claeys 2010; Pickering 2018.

<sup>25</sup> Comte 1877, vol. 4, 27–28.



However, for this higher unity not simply to be imposed, it had to accommodate the particular features of all stages, extending a hand to the “priestly castes” of China and India, “offering to the Orient an acceptable union with the Occident,” in the munificent name of Humanity.<sup>26</sup> Thus, although Comte espoused the crude racial conventions of Gall’s skull-science—blacks having greater propensity for emotion, yellows for activity and whites, of course, for intelligence—a true, salvific synthesis must make the hierarchy a trinity.

Fetishism, with its love and reverence of all things, was of particular benefit to art and religion, avoiding the cold abstractions of theology (now linked to the second stage rather than the first). Being limited “by its nature to the external world,” fetishism thus instituted “fatalism” as “the foundation of man’s true wisdom,” aiding positivism in “giving cohesion to submission.”<sup>27</sup> Science was, of course, the paramount fruit of the positive; however, being “more sympathetic” and “more synthetic,” art’s fictions exceeded science in satisfying “the deeper wants of our nature.”<sup>28</sup> The poetry of the second, metaphysical era had indeed empowered “the general growth of abstraction,” thus including the subjective “world of man,” as well as external beings. However, this “metaphysical tendency” was “in essential antagonism with art” in taking “events independently of beings.” It was, therefore, only in absorbing the “infancy” of fetishism that “art in its maturity re-possesses the external world,” allowing for animation, imagination, and worship.

However, the new “subjective milieus” of positive religion also required the flights of abstract fancy germane to the second stage. Indeed, from metaphysical mathematics was taken, and perfected, the very notion of space itself. In the genius of human childhood, a “universal fluid” was imagined so as to conceive of extension and motion independent of actual bodies. Without such a “milieu,” geometrical and mechanical cogitation would be left with “signs without images.” However, this “primeval institution” had become too dominant in the “occidental mind,” precluding its necessary extension to other phenomena.

“It follows that we must deliberately create for the phenomena of physics, chemistry, nay even of biology, the equivalent of the milieu which space offers us without effort in the domain of mathematics. In this way, and in this way only, can art in its maturity adequately idealise the world without, by giving life to these milieus of man’s creation, just as in his infancy he attributed life to all the objects of nature.”

In other words, the milieu of space presented an inspiration and a task: to create for science the abstract images adequate to their positively (i.e. lawful, useful, sensorially-accessible, non-speculatively) known objects. For its part, the positive philosophy of art would then take its place

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<sup>26</sup> Ibid., vol. 4, 11.

<sup>27</sup> Ibid., vol. 4, 39.

<sup>28</sup> Ibid., vol. 4, 45–46.

alongside that of science, organising a “twofold empire” encompassing “the world and man.”<sup>29</sup> Moreover, by the institution of such “subjective milieus,” in combination with principles of numerology and sundry catechisms, images will be “brought into habitual combination with signs, so as to allow a permanent influence to the emotions,”<sup>30</sup> thereby enacting the religion of humanity in its immersive experiential entirety.

As objective, scientific propositions, Comte was frequently scornful of the ethereal, electrical, and phlogistic fluids that pre-positive naturalists had insinuated into the universe.<sup>31</sup> However, there was no apparent contradiction in affirming their subjective necessity. Such ideas were vaguely and sporadically developed in the *Système*; however, in Comte’s final, unfinished, and largely forgotten work, the *Synthèse subjective* (1856),<sup>32</sup> the “*trinité positive*”<sup>33</sup> was more precisely specified.

At the apex remained the *Le Grand-Être*, signifying humanity. However, the “*monde extérieur*” of fetishism was now *Le Grand-Fétiche*, signifying the earth. Meanwhile, the fluid of metaphysical immaturity was now *Le Grand-Milieu*, signifying space. As before, each aspect of the secular divine corresponded to its particular historical stage, cognitive faculty, and characteristic race.

Each now also corresponded to a particular form of orderly subordination: analysis to synthesis, progress to order, and selfishness to altruism. These were the theoretical, practical, and moral “modes” of the problem that the subjective synthesis was to resolve by its requisite objects of worship.

|                  | <b>Stage</b>                 | <b>Faculty</b> | <b>Race</b> | <b>Problem</b> | <b>Subordination</b>                                                         |
|------------------|------------------------------|----------------|-------------|----------------|------------------------------------------------------------------------------|
| Le Grand-Être    | Positive/<br>normal          | Intelligence   | White       | Theoretical    | Analysis to synthesis/the spirit of<br>the detail to the genius of the whole |
| Le Grand-Milieu  | Metaphysical/<br>theological | Activity       | Yellow      | Practical      | Progress to order/perfection to<br>conservation                              |
| Le Grand-Fétiche | Primeval/<br>infancy         | Feeling        | Black       | Moral          | Selfishness to altruism                                                      |

Since 1844, Comte had taken to signing his works and letters “The Founder of Universal Religion, Great Priest of Humanity.” With the *Synthèse* in hand, his “universal priesthood [*sacerdoce universel*]” would guide befuddled Occidentals into a historically deducible future,

<sup>29</sup> Ibid., vol. 4, 48.

<sup>30</sup> Ibid., vol. 4, 153.

<sup>31</sup> Comte 1853, vol. 1, 301; Comte 1875, vol. 1, 446.

<sup>32</sup> Comte 1856. Subtitled: *ou Système universel des conceptions propres à l'état normal de l'humanité*. This, envisaged as the first of four volumes, covered issues of the mind, while later (never written) works would address morality, and practical activities: Schmaus, Pickering, and Bourdeau 2018, 17.

<sup>33</sup> Comte 1856, 34.

putting an end to the revolution “more intellectual than social” that had again raised its head in 1848 and, much to Comte’s satisfaction, been returned to stasis by the coup of Napoleon III three years later.<sup>34</sup> The ultimate human problem was in the end, then, that of “affective harmony,”<sup>35</sup> writ-*mondial*. However, although towards the end of his life Comte had started to write poetry,<sup>36</sup> this was not the role of the *Synthèse*.<sup>37</sup> Rather, his task was to “conceive the nature of it and to foresee the event.”<sup>38</sup>

First came the *Grand-Fétiche*. However, “primitive subjectivity” erred in imposing human characteristics upon everything, thus lacking understanding of living beings, “which cannot subsist except in a milieu more fixed than themselves.”<sup>39</sup> Nevertheless, the “affective and speculative advantages” of fetishism could be retained, endowing external bodies with “the faculty of feeling and acting” but depriving them of “thought,” ensuring that “their wills are always blind.”<sup>40</sup>

“Dispelling theological prejudices, which represented matter as essentially inert, science tended to restore to it the activity that fetishism had consecrated spontaneously. However, restitution became complete only when positivism systematically discarded the metaphysical fluids, which, under the modern anarchy, concealed the true existence of bodies.”

Positivism thus reconciles the over-animation of fetishism and the de-animation of theology by having (white) intelligence mediate (black) feeling and (yellow) activity. Thus, having placed fictional or subjective milieus in the place of metaphysical fluids, all manner of sympathy-swaddling speculations are availed. It cannot be proved, for instance, that a body “does not feel the impressions that it undergoes and does not want the actions that it exercises.” It is only “deprived of the faculty to modify its conduct according to its situation,” this being the aptitude of intelligence.<sup>41</sup>

However, while “the least molecules” were thus limited to feeling, far back in time, the earth itself could have possessed higher faculties, before it wilfully reduced them to make way for man.

“Yet it is permissible to suppose that our planet, and the other habitable stars, were endowed with intelligence before social development became possible. Thereupon, the

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<sup>34</sup> Ibid., 3.

<sup>35</sup> Ibid., 1–2.

<sup>36</sup> Pickering 1993, vol. 3, 475.

<sup>37</sup> Though poems by Clotilde de Vaux were appended to Comte 1875, vol. 1, 612–613. English translation: de Vaux 1895, 39–40. See also: Pickering 2009, vol. 2, 190.

<sup>38</sup> Comte 1856, 4.

<sup>39</sup> Ibid.

<sup>40</sup> Ibid., 8.

<sup>41</sup> Ibid., 9.

earth devoted its forces to prepare the stay of Humanity, whose growth could only be accomplished in a seat [*siège*] of exhaustion [...].”

Absent this agentic diminution, “thought would provoke, in the surrounding bodies [*corps ambiants*]” a continual “agitation” of the “milieu” that collective existence could not endure. Being obliged to obey the “laws of planetary life,” when possessed of intelligence, the Earth could have altered its “physico-chemical” activity and moderated the eccentricity of its orbit via “a long series of explosions similar to those from which comets originate.” So cast-iron is the “spiritual ascendancy” of the *Grand-Être*, such planetary preparatories are the stuff of “immutable fatality,” though humans themselves lack such a magnitude of “material power.”<sup>42</sup>

By instilling gratitude for “the immutable order on which rests his whole existence,” man is “regenerated.” However, this “adoration of the Earth [*la Terre*]” is insufficient. Under fetishism, the “dominion [*empire*]” of fatality was found in the stars, a form of worship extinguished by theology, which deanimated matter, “concealing [*dissimula*] the moral order under the caprices of the gods.” This regime had the merit of compelling its adherents to “cherish subjugation.” However, it was also necessary to reinstitute a “general milieu,” such as has been imagined by “abstract genius” from time immemorial. Reduced to its geometrical and mechanical sense, the milieu “conserves the imprints” of imagination, permitting the conception of “densities, flavours, temperatures, odours, colours, sounds and all other material attributes” independently of concrete bodies, as well as abstract physical laws. This milieu must therefore preserve the passive characteristics necessary to “secular science.” However, it must also become an object of worship.

More than any other, it was Chinese civilisation that had inaugurated adoration “of the Earth and the Sky [*Ciel*].”<sup>43</sup> Comte offers no ethnological details. However, both this artefact of Oriental fetishism and the universal Ether of the Occidental savants “spontaneously prepared” the necessary “systematisation of Space.” While an “aquatic species” capable of abstract conception would surely worship a liquid milieu, due to our “aerial existence,” the “constitution of the *Grand-Milieu* becomes necessarily gaseous.” However, while the synthesis must also include both the ocean, and “the stars [*les astres*]” that are “really related to the human planet as objective or subjective annexes,” Comte is clear that the fixed stars must be subjectively excluded.

“[T]he *Grand-Milieu* must not go beyond the presence of the *Grand-Fétiche*, as the seat and base of the *Grand-Être*. The limits of our World [*Monde*] are also those of our Space.”<sup>44</sup>

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<sup>42</sup> Ibid., 9–11.

<sup>43</sup> Ibid., 23.

<sup>44</sup> Ibid., 261–262.

Thus, the *Grand-Milieu* subjectively reverses the so-called Copernican revolution. Recentring the Earth, from the infinite universe to the closed world,<sup>45</sup> Comte affirms that the “absolute tendencies,” which the very purpose of positivism was to overcome, could only flourish in an open, unbounded cosmos.

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Evidently, therefore, in Comte’s conceptual lexicon, milieu retained its historical multivalence, connoting space, aethereality, fluidity, and transcendence, while at the same time being fashioned into more precisely specified technical tools—first with biology, then sociology, later with regard to fictive religiosity. The full historical significance of milieu, scientific and fictive, was crucial. This mode of expression offered not only the functional, positive abstraction from all specificity (“the total ensemble”) but yet it still permitted the effect of philosophic profundity.

The lines between subjective and objective were occasionally admitted to be blurry, particularly with regard to those institutions “moral and mental”⁴⁶; however, this divide was to be uncompromisingly policed. For example, the understanding of vital functions must not, by any means, have resort to “the phantoms emanating from the subjective milieu.”⁴⁷ Subjective beings were unequivocally and unambiguously not to be taken as real—or, rather, their mode of existence was exclusively “subjective.” However, they must nevertheless invoke worship since, ultimately, they were all constellations circulating the most existentially significant being of all, Humanity. Logical circularity was, therefore, stabilised by the hierarchical structure of the trinity. The Great Being, moreover, “consecrates” the very existence of the Earth and, hence, any conceivable consideration of its future.⁴⁸ Comte does not spell out the corollary to this, indeed his talk of harmony between occident and orient obfuscates it; however, it is apparent that human supremacy is also white supremacy. Indeed, on a wilfully self-deanimated earth, it seems that the white race becomes the thinking head of the universe.

5.2: From romance to experiment: Balzac, Taine, Bernard, and Zola

Eccentric as such High-Priestery may now seem, Comte’s insistence that “the domain of fiction become as systematic as that of demonstration” was not altogether unusual.⁴⁹ Indeed, it is in realist and naturalist literature in France through the nineteenth century that we can find milieu being appropriated and adopted beyond, beside, and in imitation of the scientific.

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<sup>45</sup> Cf. Koyré 1957.

<sup>46</sup> Comte 1856, 20.

<sup>47</sup> Ibid., 22.

<sup>48</sup> Ibid., 12.

<sup>49</sup> Ibid.

By the time that Honoré de Balzac (1799–1850) signed off the *Avant-propos* to his *la Comédie Humaine*—“*Paris, juillet 1842*”—this ambitious, and never-completed, literary project was already well underway. Indeed, between 1829 and this particular July, Balzac had published the majority of the texts that his life’s work would generate. Every bit the romanticist and romancier, Balzac’s works revelled in inscrutable vital forces and occult wellsprings of will. Moreover, his preferred medium was the novel—*le roman*.

The idea for *The Human Comedy*, Balzac wrote, originated in “a comparison between Humanity and Animality.”<sup>50</sup> The “great quarrel” roiling between Cuvier and Geoffroy Saint-Hilaire a decade before was not, he continued, anything unprecedented. The idea of “the *unity of composition*” was already at work in the most magisterial minds of the preceding two centuries—mystics such as Emanuel Swedenborg (1688–1772) and Louis Claude de Saint-Martin (1743–1803) no less than natural historians such as Leibniz, Buffon, and Charles Bonnet (1720–1793).

“There is only one animal. The creator has used but one and the same pattern for every organised being. The animal is a principal that takes its external form, or, to be more accurate, the differences of its form, from the milieus in which it is called to develop. Zoological Species result from these differences.”<sup>51</sup>

The triumph of this system was the “eternal honour” of Geoffroy Saint-Hilaire, and endorsed by the late writings of Goethe. Having well-understood the finer points of this system since long before such debates:

“I saw that, in this respect, Society resembled Nature. For does not Society make man, in accordance with the milieus in which his action unfolds, as many different men as there are varieties in zoology?”

Although the differences between a wolf, lion, donkey, crow, shark, seal, or sheep might be more easily defined than those between a soldier, workman, lawyer, layabout, scientist, statesman, merchant, sailor, poet, beggar, or priest, these latter sort are no less profound.<sup>52</sup> Balzac’s task was, therefore, to do for the organisms and milieus of *la Société* what Buffon had done for those of *la Nature*.

However, in contrast to those “dry and repellent nomenclatures of facts” conventionally nominated as “*histories*,” the *Comedy* was to construct what all such exercises had hitherto neglected: a “history of *morals* [*mœurs*],” inspired particularly by the historical novels of Walter Scott (1771–1832). However, although Scott conceived his characters “in the entrails of their age [*siècle*],” finding the very “human heart” moving within their “envelope,” he had never

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<sup>50</sup> See also Balzac’s short story *Guide-âne à l’usage des animaux qui veulent parvenir aux honneurs*, which satirically addressed the Cuvier-Geoffroy debate. Balzac 1842; English translation: Balzac 1877; see: Tresch 2012, 232–233.

<sup>51</sup> Balzac 1865, vol. 1, 2. My translation; however, English also available: Balzac 1901, liii–lxix.

<sup>52</sup> Balzac 1865, vol. 1, 2–3.

connected his compositions in such a way as to constitute “a complete history.” It was this “lack of connection [*défaut de liaison*]” that Balzac backed himself to overcome. “French Society would be the historian; I would be nothing but the secretary.”<sup>53</sup> Requiring the portrayal of “two or three thousand significant types [*figures saillantes*]” in each “epoch,” the task was considerable, to say the least.<sup>54</sup>

Foremost among Balzac’s philosophical fictions in terms of doctrinal deliberation is the quasi-autobiographical *Louis Lambert* (1832). The titular Louis, a preternatural boy-genius, is plucked from impoverished obscurity by the historical Madame de Staël (1766–1817) and placed with principled, if rather injudicious, charity in a grimly suffocating boarding school (the College de Vendôme, where Balzac himself studied from age 8). There, he strikes a pitifully intimate friendship with the tale’s narrator (known only as “the Poet” but apparently also channelling Balzac). The narrative largely scaffolds the philosophical exposition, which is initially unfolded as the juvenile protagonists conspire to write a secret book, subsequently unjustly confiscated: a “Treatise on the Will.”

“The word WILL [*VOLONTÉ*] served to name *the milieu* in which *thought* enacts its evolutions; or, in a less abstract expression, the mass of power [*force*] by which man can reproduce, outside of himself, the actions composing his external life. [...] The word THOUGHT, which for him was the quintessential product of the Will, also designated *the milieu* in which originate the IDEAS to which thought gives substance.”<sup>55</sup>

The milieu qua *volonté* was thus integral to this vitalistic idealism. Moreover, the significance of this term (italicised in the original) was explicitly noted:

“The expression *milieu* was suggested to him by an observation made during his childhood; of which he certainly did not suspect the importance, but the peculiarity [*la bizarrerie*] of which must have struck his delicately impressionable imagination.”<sup>56</sup>

The observation in question involved a six-year-old Louis watching electric sparks fly from his mother’s hair as she combed it. Such insights are favourably compared to Bichat, and Gall, as well as the prescient electrical intuitions of Mesmer, and the one true gospel of Swedenborg.

However, it was not just in the lavishings of propositional metaphysics that the milieu made its mark on Balzac’s prose. Another of Balzac’s philosophical studies, *La Recherche d’absolu* (published in 1834, four years before Comte’s “*l’ensemble total*”), begins: “There is in Douai, in the Rue de Paris, a house”—an old Flemish building, typical of the quaint, patriarchal manners of the Low Countries. However, before proceeding, Balzac issues a protest against “ignorant

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<sup>53</sup> Ibid., vol. 1, 5–6.

<sup>54</sup> Ibid., vol. 1, 14.

<sup>55</sup> Balzac 1865, vol. 36, 46. Original emphasis.

<sup>56</sup> Ibid., vol. 36, 47.

and impatient [*voraces*]” readers who crave feeling but desire “the flower without the seed.” Accordingly, he prefaces his story with a didactic plea on behalf of realism.

“The events of human life, whether public or private, are so intimately tied to architecture that most observers can reconstruct nations or individuals in all the truth of their habits, from the remains of their public monuments or by examining their domestic relics. Archaeology is to social nature what comparative anatomy is to organised nature. A mosaic reveals an entire society, as an ichthyosaur skeleton implies an entire creation.”

Duly, Balzac’s prose rigorously presents the building, its furnishings, art, region, climate, economy, and the national personality within which his protagonists unfold their events.<sup>57</sup>

Within these walls reside the family Claës; principal protagonist, head of the household Balthazar. A student of the late Lavoisier, and of independent wealth, he becomes obsessed—indeed, it is stated repeatedly, “possessed”—by the quest to discover the underlying principle of all things: the Absolute.<sup>58</sup> Amassing the finest laboratory, he sets about endless experiments, to the eventual ruination of his family and his mind. The perpetually horizon-brimming “unknown X” is sought for in the decomposition of elements, electrified and magnetised every which way.<sup>59</sup> The language of the laboratory suffuses the narrative. Metals must be evaporated under “immense heat in a milieu were the atmospheric pressure is zero.”<sup>60</sup> The reverie of blind ambition is all-consuming.

“My soul has no consciousness of these acts, remaining fixed, immersed in an idea, numbed by this idea, the search for the Absolute, of this principle by which seeds, absolutely similar, put in the same milieu, give one [flower] with white chalices, the other with yellow!”<sup>61</sup>

Narrating a period from around 1810–1832, events pass Balthazar by. Sunken in the milieus of physical phantasmagoria, his own will, and hence self, recedes into abeyance. An eventual respite from his mania only presages the tragic finale.

Evidently, then, Balzac’s realism involved both the will to describe everything and the concept of milieu. However, there was not yet a meeting of the two, after the fashion of Comte.

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<sup>57</sup> Balzac 1901, 1–2; Balzac 1865, 1–2.

<sup>58</sup> Tresch 2012, xii–xvii.

<sup>59</sup> Balzac 1901, 163.

<sup>60</sup> Balzac 1865, 98. My translation.

<sup>61</sup> *Ibid.*, 77–78.





Figure 5—Balthazar carries his grief-stricken wife; by Adrien Moreau (1843–1906)

In 1865, Hippolyte Adolphe Taine (1828–1893) wrote of Balzac that he “grasped the truth because he grasped the whole [*les ensembles*].”<sup>62</sup> To understand a human person, one must grasp every aspect of his existence. Such was Balzac’s genius. However, his was an inconstant realism. “When Balzac put down his microscope, he became a Swedenborgian,”<sup>63</sup> displacing the straight lines of cosmic enlightenment for fancy, phantasm, and filigree. Taine

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<sup>62</sup> Taine 1865, 89. Partial English translation: Taine [1906] 2010. On Taine and Comte: Pickering 2018, 256.

<sup>63</sup> Taine 1865, 166.

would be a rather more solid, indeed stoical, realist—and, under his pen, milieu would be disambiguated.

Though the author of numerous works, widely translated, it was in *Histoire de la Littérature Anglaise*, first published 1863, that he made his programmatic statements regarding literary interpretation. “History,” he began “within a hundred years in Germany and sixty years in France, has been transformed”:

“It has been discovered that a literary work is not a mere play of the imagination, the isolated caprice of an eager head but rather a copy of the surrounding manners [*mœurs environnantes*] and the sign of a state of mind [*état d’esprit*].”<sup>64</sup>

The tremendous multiplicity of individuals was, therefore, to be explained by the profound multiplicity of their location in space and time. And this epochal realisation demanded a more rigorous conceptual apparatus. This, Taine identified as “the three primordial forces”: “*race, milieu, and moment.*”

The forces of race—“those innate and hereditary dispositions” generally corresponding to temperament and bodily structure—are profound; however, milieu is no less so:

“For man is not alone in the world; nature envelops him [*la nature l’enveloppe*], and other men surround him [*l’entourent*]; on the primitive and permanent fold are added accidental and secondary folds, and the physical or social circumstances disturb or complete the naturalness which is delivered to them.”<sup>65</sup>

Every animal “must adapt to its milieu.” Its air, food, temperature—each climate and situation engender varying needs and hence different systems of needs, actions, habits, aptitudes, and instincts. “Man,” needing “to be in equilibrium with circumstances,” adopts a temperament and character fitted to them—tendencies imparted, in turn, by heredity. Thus, “at every moment one can consider the character of a people to be the summary [*résumé*] of all their preceding actions and sensations.” The past is thus “a burden [*un poids*]” carried from generation to generation, relievable only by the acquisition of yet other actions, habits, and sensations.<sup>66</sup>

Also in 1866, Émile Zola (1840–1902) wrote that that Taine’s theoretical triptych was scarcely needing of an introduction, since “there is no one at this time who does not know it and has not discussed it with themselves at least.” However, Zola was at once enthusiastic for Taine’s manly, muscular literary science and critical of its excesses. In particular, Taine had failed to account for the irreducibility of the individual:

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<sup>64</sup> Taine 1866, vol. 1, iii.

<sup>65</sup> *Ibid.*, vol. 1, xxvi.

<sup>66</sup> *Ibid.*, vol. 1, xxv.

“as soon as one introduces the personality, the free and unbounded human impulse [*l'élan humain libre et déréglé*], all the springs cry out [*crient*] and the mechanism breaks down.”<sup>67</sup>

As an original artist in his own right, Taine must surely understand that an artist's works are like their children—“they are the cry of a heart and a body,” a cry for love and life.<sup>68</sup> Thus, Taine was indeed a man of his own moment—“the contemporary of the electric telegraph and the railways.” In such an epoch, one can hardly feign surprise that we become “only cogs obeying impulses from the outside [*du dehors*].”<sup>69</sup> Or, as Taine's translator Lorenzo O'Rourke put it, appreciatively, in 1906: “His scenery is not nature; it is a herbarium lit by electricity.”<sup>70</sup>

Such equivocations aside, Zola was nevertheless a committed mechanic of the milieu. In *Naturalisme au théâtre* (1881),<sup>71</sup> he placed milieu at the heart of modern dramaturgy. In the era of Shakespeare, stage decoration had been, by and large, a shabby afterthought. At best, painted canvases; at worst, mere pretence. Such “carelessness [*insouciance*]” for the “unity of place [*l'unité de lieu*]” was the result of “the ambient nature, the milieus” being disregarded in their “influence

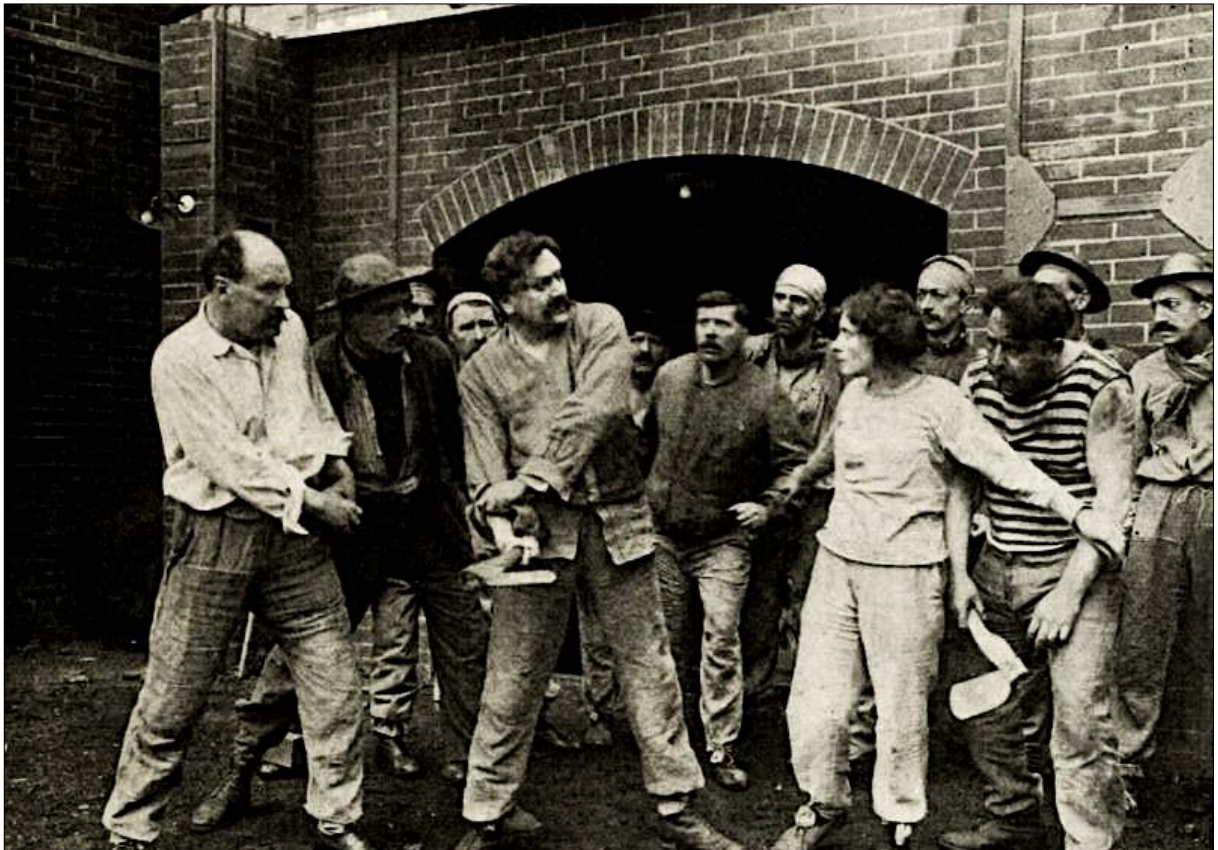


Figure 6—Still from *Germinál* (1913), adapted from eponymous novel by Zola (1885)

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<sup>67</sup> Zola 1866, 247.

<sup>68</sup> *Ibid.*, 148.

<sup>69</sup> *Ibid.*, 252.

<sup>70</sup> Taine 2010, 39.

<sup>71</sup> Zola 1881.

on the action and characters.” Thus, in that epoch, there had been only “man,” abstract and airless, about whose passions and ratiocinations playwrights would scrawl endlessly—“nature counted little.” In modern times, however, a slow but steady transformation had taken place, “giving, every day, greater importance to the influence of milieus.”<sup>72</sup> What were “abstract characters [*personnages*]” were thus superseded by “individualities,” that acted and existed “under the dominion of surrounding influences [*sous l’empire des influences environnantes*].”<sup>73</sup>

This was, indeed, the law of modern décor—a transition of “human and social evolution”<sup>74</sup> entailing nothing less than a renunciation of “metaphysical man” and the installation of “physiological man” in his place.<sup>75</sup> Thus, Taine remained the model of the critic,<sup>76</sup> and Balzac that of the novelist. Where lesser writers sketched “marionettes,” the latter rendered beings “in flesh and bone.”<sup>77</sup> In *Les romanciers naturalistes* (1893), Zola crowned him “genius of the century” —the very first to have discerned and asserted “the decisive action of the milieu over the character [*personnage*].”<sup>78</sup> However, this was Balzac thoroughly rinsed of his para-Newtonian fluidities. In his own literary saga, *Les Rougon-Macquart*, Zola continued Balzac’s project of writing the truth of society in novel-form (for the period 1852–1870). However, his primary scientific inspiration had come from elsewhere—in particular, from the pioneer of vivisection Claude Bernard (1813–1878), who had made a science of what had previously been thought an art: medicine.<sup>79</sup> Zola was to do the same for the novel.<sup>80</sup>

Contrary to received prejudice, the “spontaneity” of living things did not, in fact, preclude their being made objects of experimentation. The difference was simply, as Zola explained, that “lower [*brut*] bodies” possess merely “*le milieu extérieur*,” whereas the “higher [*supérieurs*] organisms” are bathed in “*un milieu intérieur*”—a milieu interior and “perfected,” with consistent physicochemical properties. In other words, the more complex living beings possess a sanguineous, humoral, endocrinal interior that grants them powers of equilibrium and autonomy deprived of beings without.<sup>81</sup> This, the *milieu intérieur*, was Bernard’s outstanding conceptual achievement and the basis of the experimental science of living beings. While “inert bodies [*corps inerte*]” are, Bernard wrote, “subordinated” and “shackled [*enchaîné*]” to all their

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<sup>72</sup> Ibid., 81–84.

<sup>73</sup> Ibid., 85.

<sup>74</sup> Ibid., 98.

<sup>75</sup> Ibid., 105.

<sup>76</sup> Ibid., 103.

<sup>77</sup> Ibid., 90.

<sup>78</sup> Zola 1893, 73.

<sup>79</sup> Bernard 1865. English translation: Bernard [1927] 1949.

<sup>80</sup> Zola [1880] 1902. English translation: Zola [1893] 1964.

<sup>81</sup> Zola 1902, 3.

“cosmic conditions”—i.e. their *milieu extérieur*—the living body retains an independence, “animated by an interior force” that governs its actions and resists “the variations and perturbations of the ambient physico-chemistry [*physico-chimiques ambiantes*].” It was this regulatory power that led vitalists to attribute to living bodies “a vital force” pitched in “ceaseless battle [*lutte incessante*]” with the “physico-chemical forces” that would destroy them.<sup>82</sup>

Accordingly, argued Zola, had not the likes of Balzac already practiced precisely this process of manipulation and manifestation? The novelist qua observer-experimenter first sets the “solid ground [*terrain*]” under their characters feet, and then “institutes the experiment [*l’expérience*],” moving persons about within “a particular history,” in order to demonstrate the “determinism”—in Bernard’s terms, that cause which “determines the appearance of phenomena”—of their configuration. That is, the novelist also made manifest certain phenomena under particular conditions. Thus, for example, Balzac subjects the Baron Hulot<sup>83</sup> to a “series of tests [*épreuves*],” passing through “certain milieus,” and demonstrating “the functioning of the mechanism of his passions.” Thus, the novelist is not a “photographer” but rather “intervenes” so as to place his character in conditions of which he is “master.”

“The problem is to know [*savoir*] what passion, acting in such a milieu and under such circumstances, would produce from the perspective of such an individual and society; and an experimental novel [...] is simply the report [*procès-verbal*] of the experiment, which the novelist repeats before the eyes of the public.”<sup>84</sup>

This “decisive conquest”<sup>85</sup> of the experimental over the philosophical was an “inevitable [*fatale*] consequence of the scientific evolution of the century.”<sup>86</sup>

A fuller development of these ideas, Zola conceded, would require consideration of the ideas of Darwin, such as heredity—a concept particularly crucial to *Les Rougon-Macquart*. However, whereas Bernard had emphasised the “intra-organic milieu,” Zola affirmed that “the social milieu is also of paramount importance.” While the mechanism of thought and passion would, no doubt, one day be explained by physiology, no action of organs within the “interior milieu” ever occurs “in a vacuum” but always “in a society, in a social milieu,” in reciprocal relation. This, then, is the agenda of the experimental novel: to demonstrate, under the influence of heredity and milieu, the mechanisms of manifestation so as to arrive at scientific mastery of the problem of social behaviour, thus enacting a “practical sociology” that would solve, in the long run, “all the problems of socialism.”<sup>87</sup>

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<sup>82</sup> Bernard 1865, 104–105.

<sup>83</sup> From Balzac’s *Cousine Bette* (1846).

<sup>84</sup> Zola 1902, 7–8.

<sup>85</sup> *Ibid.*, 15.

<sup>86</sup> *Ibid.*, 19.

<sup>87</sup> *Ibid.*, 18–20.

### 5.3: The phantom milieu: Science against metaphysics

There was little that Auguste Comte was most sure of than his own greatness. However, he was realistic enough to realise that the truly positive epoch would not arrive in the lifetime of his feeble, failing body. Thus, his *Synthèse* of 1856, he informed his readers, had been written as though it were the year 1927—the seventy-third year of the “normal state.”<sup>88</sup> Though Comte’s religion enjoyed certain successes, particularly in Brazil where the national flag bears the maxim “*Ordem e Progresso*,”<sup>89</sup> his epoch, it is fair to say, never arrived.

In 1864, John Stuart Mill (1806–1873), otherwise one of Comte’s principle Anglophone supporters, was vituperative about the erstwhile rationalist’s descent into bizarrerie:

“This stuff, though he calls it fiction, he soon after speaks of as belief (croyance), to be greatly recommended, as at once satisfying our natural curiosity, and ‘perfecting our unity’ (again unity!) [...]”<sup>90</sup>

Such “wretched” speculations, “palpable absurdities” and “pitiable *niaiseries* [foolishnesses]”<sup>91</sup> were scarcely to be repeated. Others were more kind about these late-life philosophies. From a sojourn in Biarritz in 1867, Mary Anne (or Marian) Evans (1819–1880), better known as George Eliot, wrote to Maria Congreve (wife of Comte’s translator, Richard) that, after reading “the ‘Politique’” with George Lewes (1817–1878), she was kept “in a state of enthusiasm through the day—a moral glow, which is a sort of *milieu subjectif* for the sublime sea and sky.”<sup>92</sup>

This was almost the last that anyone heard of Comte’s aesthetic-theologic milieu, although his chosen executor, Pierre Lafitte (1823–1903), continued to promote the full Comtean teaching, against the famed lexicographer Émile Littré (1801–1881) who, like Mill, rejected the later excrescences.

However, in the same year as Mill’s rebuttal, Sara Sophia Hennell (1812–1899)—translator, author, erstwhile associate of Evans, and the other London positivists<sup>93</sup>—published the first volume of her *Present Religion: as a Faith owning Fellowship with Thought*.<sup>94</sup> At this time, she simply noted that although the conception of Humanity advocated by “the disciples of Comte” was “indeed the necessary first stage of the view here aimed at,” it was not adequate. However, in subsequent texts,<sup>95</sup> Hennell engaged with Comte rather further.

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<sup>88</sup> Comte 1856, viii–iv.

<sup>89</sup> Pickering 2018.

<sup>90</sup> Mill 1865b, 18; reprinted in Mill 1865a, 192.

<sup>91</sup> Mill 1865a, 193, 200, 195.

<sup>92</sup> Eliot 1885, vol. 3, 3.

<sup>93</sup> Hardy 2006.

<sup>94</sup> Hennell 1865, vol. 1.

<sup>95</sup> Published separately in 1869, 1871, and 1873, and collected together as the second volume of *Present Religion* in 1873.

As per the High Priest, Hennell sought to demonstrate the necessity of religion to a healthy mental life.<sup>96</sup> However, she disagreed altogether with his disavowal of Christianity, his subordination of religion to science, his subservience of the subjective individual relative to society, and the impatiently irreligious way in which he went about crafting his secular faith. Moreover, and substantively, she criticised his style. “Positivism,” Hennell concluded near the end of her (lengthy) tome, “has *no* sense of atmosphere.” Any “truth of *ex*-pression,” she continued, as regards her “*im*-pression about Religion,” requires a style that is “as if a word-*painting* of it: expressly, as of the landscape-sort.”<sup>97</sup> That is:

“The problem, in religious exposition, is precisely *to paint air*—to paint that which in fact cannot be painted—to describe that which from the very simplicity and unvaryingness that constitute its peculiarity, is undescrivable!”<sup>98</sup>

However, neither amendments to his airless style, nor ameliorating his will to “subordinate”<sup>99</sup> religion to science, would be sufficient to satisfy Comte’s attempts at religiosity. Rather, his very attempt to “over-master religion” in “the *direct* mode” typical of science is sufficient “to nullify the whole character of religion.” Likewise, by placing *himself* at the head of his religion, he had plainly contradicted his very effort.<sup>100</sup> “I do not believe,” Hennell added “that Christ spoke of himself as the ‘light of the world.’” Rather, he had “a concrete purpose”—“world-restitution.”<sup>101</sup>

Positivism was thus, for Hennell, to be supplanted by a philosophy—and Religion—of “Developmentalism,” derived methodologically, if not substantively, from the work of Herbert Spencer.<sup>102</sup> Duly, she wrote of “environments” rather than milieus. Nevertheless, her exposition evidently derived, even as it deviated from, the Comtean religion, as received via his London-based “disciples.” By the 1870s, it was the “environment” of Spencer, closely acquainted with this circle, that was becoming the preferred technical expression. However, Eliot concluded her *Middlemarch* (first serialised 1871–1872) by remarking:

“For there is no creature whose inward being is so strong that it is not greatly determined by what lies outside it. A new Theresa will hardly have the opportunity of reforming a conventual life, any more than a new Antigone will spend her heroic piety in daring all for the sake of a brother’s burial: the medium in which their ardent deeds took shape is forever gone.”<sup>103</sup>

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<sup>96</sup> This section first published 1873.

<sup>97</sup> Hennell 1873, vol. 2, 599.

<sup>98</sup> First published 1869, *Ibid.*, vol. 2, 21.

<sup>99</sup> *Ibid.*, vol. 2, 38.

<sup>100</sup> Cf. Latour 2013b.

<sup>101</sup> Hennell 1873, vol. 2, 48–49.

<sup>102</sup> *Ibid.*, vol. 2, 42.

<sup>103</sup> Eliot 1874, 620.

Indeed, Comte's formative-sociological milieus would prove rather more enduring—but would remain contested.

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On 7th June 1848, the Société de Biologie held its inaugural meeting. As its vice chairmen served Claude Bernard, and the anatomist Charles-Philippe Robin (1821–1885).¹⁰⁴ The latter, an acknowledged Comtean, read a paper defining the society's remit and objectives in terms of the investigation of milieus.¹⁰⁵ His proposed name for this fundamental science: *mésologie*.¹⁰⁶ A decade later, the statistician and medical anthropologist Louis-Adolphe Bertillon (1821–1883) went on to popularise the concept, writing in 1860 that, a living body “must be placed in a milieu in harmony with its constitution.”

“Knowledge of the conditions of this milieu, and of the reciprocal influences that each of the two terms exert on one another, constitutes a third point of view [in addition to anatomy and physiology], a third abstraction with respect to which the various species of the series of beings: this is the science of milieus or mesology.”¹⁰⁷

In 1872, Bertillon remarked that it was Hippocrates who had perhaps produced the first mesological treatise, while Blainville, Comte, and Robin revived the tradition.¹⁰⁸ However, despite being accorded a certain amount of early institutional prestige, it was *Ökologie*, coined by Ernst Haeckel (1834–1919) in 1866, that came to designate this science, in French and other European languages, from around 1900 onwards.

Nevertheless, the presiding semantic institutions around this time recorded milieu's increased authority. The seventh edition of *Le Dictionnaire de l'Académie française* (1878) featured a change for *milieu* for the first time since 1762: “Fig. *Milieu*, The society where we live. *The individual is always greatly affected by the milieu in which he lives.*” Thus, the “social milieu” was understood as a figurative rendering of the word.¹⁰⁹ The eighth edition (1932–1935), in turn, considerably amended and expanded previous versions. The physical version was then: “said of a Substance in which a body is placed, or which is traversed by a body or radiation.” This therefore removed the outdated reference to “*les corps Diaphanes*,” and added a radiological dimension. It also modified the version added in 1762, replacing “The fluid that surrounds...” with “The element proper to the life of a being....” Moreover, and most crucially, there was now an explicitly biological milieu: “In biological terms, it is said of the Set [*l'Ensemble*] of

¹⁰⁴ The latter also served as secretary.

¹⁰⁵ Robin 1849; Rey 1998, 207–208.

¹⁰⁶ Canguilhem 1994, 252.

¹⁰⁷ Bertillon 1860, 124–125.

¹⁰⁸ Bertillon 1872; Staum 2011, 58; Jennings 2006, 27–28.

¹⁰⁹ Académie française 1878, vol. 2.

conditions in which animals and plants live.”¹¹⁰ Though perhaps not yet evidencing “a category of contemporary thought,”¹¹¹ milieu thus remained of increasing, and increasingly specified, significance.

Changes in meaning were, however, not always welcomed. In the *British Medical Journal* in 1923, a reader (given only as “C.A.”) responded to the biologist, socialist, and popular science writer J.B.S. Haldane (1892–1964),¹¹² questioning his apparently obscure use of the words “mechanism” and “mechanistic” before asking:

“Before I close, may I reflect upon the word ‘environment,’ as ugly and ineffectual? Dr. Haldane probably feels this defect as we all have felt it. In certain of his sentences, especially in such sentences as the ‘internal environment of a cell,’ the phrase hardly speaks for itself; it does not tell. Cannot some other and better word be found?”¹¹³

In reply, Haldane somewhat conceded the point:

“I must admit that the word ‘environment’ used by me is clumsy. The French ‘milieu,’ as used by Claude Bernard, is much superior; but I have had to accept what ordinary English usage has given me. The only alternative word seemed to be ‘medium.’ I feel sure that this would not satisfy ‘C.A.’ any more than it does me.”¹¹⁴

Until around the 1910s Bernard’s “*milieu intérieur*” was rendered in English as “interior milieu”; only after this time did it commonly become “interior environment.” This translational change is striking given that the concept essentially refers to the blood and other fluids that bathe the organs. Therefore the sense of milieu as ‘fluid’ is effaced—a loss that still remarkable in 1923, although apparently without the possibility of resisting the convention. In any case, this specific problem would be soon assuaged, since, in 1932, Walter Bradford Cannon (1871–1945), in his popular book *The Wisdom of the Body*, transformed the concept of “*milieu intérieur*” into that of homeostasis—this would then be the proper designant of the internal stability of organisms.¹¹⁵

Thus, having first been purged of its aetheriality, milieu also lost its fluidity. However, such conceptions did not, of course, disappear entirely. Rather, they were reconceptualised, and given novel expression.

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However, whatever the definitional authorisations and conceptual divergences to which it was commonly subject, milieu continued to be reclaimed and contested, through the *fin de siècle*.

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<sup>110</sup> Académie française 1932.

<sup>111</sup> Canguilhem 2008a, 98.

<sup>112</sup> Haldane 1923a.

<sup>113</sup> C A 1923, 442.

<sup>114</sup> Haldane 1923b.

<sup>115</sup> Cannon [1932] 1963.

In Paris in October 1894, in an address to the First International Congress of Sociology (published 1898),<sup>116</sup> the criminologist and sociologist Gabriel Tarde (1843–1904) declared:

“There is a fetish, a *deus ex machina*, that the new sociologists make use of, like an *Open Sesame*, every time they are embarrassed, and it is time to point out this abuse which is becoming truly worrying. This explanatory talisman is the *milieu*.”

This expression is “the all-purpose formula whose illusory profundity conceals the emptiness of the idea.” All social evolution, it has been said, will be found “in the properties of the ‘internal social milieu.’” But in what can the “properties” of this milieu, whether “internal or external,” consist, if not in “notions and memories, aptitudes and habitudes,” lodged in brains, and assembled in society? Indeed, it is well known that “men act en masse, and not individually,” most obviously in the case of the “impulsive mob [*foule*],” or the “regiment mounting an assault,” but also, quite ordinarily, whenever one mind is impressed by the productions of another—“in all these cases, that is, at every moment of social life, the notion of the social milieu has a real meaning [*signification*].” However, it must be understood that each who is thereby “driven and impressioned [*actionnés et impressionnés*] by the social milieu” is also part of that very milieu that “drives and impressions their kind.”

As for this phantom-milieu, this ghost we delight in evoking, to which we lend all sorts of marvellous virtues so that we may dispense with recognising the existence of the true and truly beneficial geniuses by whom we live, in whom we move, without whom we would be nothing—let us eliminate it from our science as soon as possible. The milieu is a nebula which, upon closer inspection, resolves into different stars, of very unequal sizes [*inégaie grandeur*].

It is plain to see that individuals mutually influence and model themselves after one another. However, Tarde concludes:

“nowhere do I see them swimming together [*ensemble*] in this sort of subtle and imaginary atmosphere, as we call it, and which, like the ether in physics but with much less reason, would be the *factotum* [i.e. underlabourer] in sociology.”<sup>117</sup>

It was indeed necessary, Tarde had argued, to found sociology upon the existing sciences, yet with its own “domain.” However, evidently, milieu was not the way to do it.<sup>118</sup>

In a footnote to the published version, Tarde further commented: “Needless to say, this expression, ‘the emptiness of the idea,’ does not apply to Mr. Durkheim who remains, as it happens, one of the most serious sociologists we know, despite his bias [*parti-pris*].”<sup>119</sup> Whatever

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<sup>116</sup> Tarde 1898a, 63–90. All references are therefore here made to the 1898 version, which likely differs from the original. Whether or not the references it makes to Durkheim’s text of 1895 were in the original is unclear.

<sup>117</sup> *Ibid.*, 78–80.

<sup>118</sup> *Ibid.*, 63.

<sup>119</sup> *Ibid.*, 79.

courtesy this comment may have been extending, it was something of a corrective. Indeed, Tarde's diagnosis of said "fetish" had directly followed a quotation from Durkheim's *Les Règles de la Méthode Sociologique* (only published in 1895): "*The determining cause of a social fact must be sought among antecedent social facts and not among the states of the individual consciousness.*"<sup>120</sup> That is, at issue was Durkheim's claim that society was a sui generis realm fundamentally distinct from individual psychology. His iteration of sociology was therefore to found its "domain" upon the basis of the "social fact" understood as an "*external constraint*" capable of exerting itself "*over the individual.*"<sup>121</sup> As he put it in the preface to the second edition of 1901:

"Social facts differ not only in quality from psychical facts; *they have a different substratum, they do not evolve in the same milieu, or depend on the same conditions.*"<sup>122</sup>

That is, society was a realm transcending any and every individual mind. It was, Tarde commented, as though "the determinative cause" of the railroad was not in the minds of "Papin, Watt, Stephenson," or other such "great minds" but, rather, "in the network of roads and the mail-coach services that had existed before."<sup>123</sup> That is, when Tarde spoke of "truly beneficial geniuses by whom we live, *in whom we move*, without whom we would be nothing," he meant it. It was these greatly-imitated geniuses themselves who were the true "*milieu sociale.*"

In his Latin dissertation of 1892, on the subject of Montesquieu (1689–1755) as a founder of sociology, Durkheim had criticised the *ancien* Baron, though having "paved the way for his successors," as having been unaware of "the notion of *progress.*" That is, he did not see that societies are in a state of continual, incremental, cumulative development and improvement. Thus, he could not see the "conflicting factors" that each society embodies as a result of its passage from one form to another.

"Failing to see the relations of succession and kinship between societies, Montesquieu completely overlooks causes of this kind. He does not reckon with this *vis a tergo* [force acting behind] that drives societies forward, but considers only the surrounding circumstances."<sup>124</sup>

In particular Montesquieu had overemphasised factors of topography, numbers of citizens, etc. Comte, by contrast, had understood this developmental movement, though inadequately.<sup>125</sup>

What the translator of the 1937 French edition, Franck Alengry (1865–1946), rendered as "*circonstances environnantes,*" Durkheim had called "*circumfusa*"<sup>126</sup>— a Latin term mostly used by

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<sup>120</sup> Tarde 1898, 78; quoting Durkheim [1895] 1982, 134.

<sup>121</sup> Durkheim 1982, 59.

<sup>122</sup> Preface to the second edition. *Ibid.*, 40; Durkheim 1919, 18. Translation modified.

<sup>123</sup> Durkheim 1982, 78.

<sup>124</sup> Translation modified (English edition reads: "environmental factors").

<sup>125</sup> Durkheim 1965, 57–60; Durkheim 1966, 105–109.

<sup>126</sup> Durkheim 1892, 69.

hygienists earlier in the century.<sup>127</sup> The English translation of 1960 (from the French rather than Latin) rendered “*circonstances environnantes*” as “environmental factors.”<sup>128</sup> Likewise, when Tarde’s address of 1894 was translated into English in 1969, its key missive now read: “This explanatory talisman is *environment*.”<sup>129</sup> However, while the translation of Tarde may have lost several layers of significance, it remains salient that Durkheim did not, here, employ “milieu.” His longer French dissertation on the division of labour, published in 1893, made reference to milieus of various kinds—“social,” “professional,” “natal,” and so on—but without any particular technical significance.<sup>130</sup> However, in his *Règles*, this concept became integral.

It should be apparent, Durkheim noted, how far his conception of the social fact departs from “the ingenious system of Tarde.”<sup>131</sup> This was the only explicit reference to his imitationist critic. However, it will also be clear, Durkheim later adds, “how unjust it would be to rely on the terms ‘exterior conditions’ and ‘milieu’ to serve as an indictment of our method, and seek the sources of life outside what is already alive.”<sup>132</sup> Indeed, was it not, in fact, “the theory which seeks to derive society from the individual” that could be reproached for “seeking to deduce the internal from the external”?<sup>133</sup> Though the text makes no reference to Claude Bernard, his concepts were clearly alluded to:<sup>134</sup>

“since the distinct totality [*l’ensemble déterminé*] formed by the union of elements of all kinds which enter into the composition of a society constitutes its internal milieu, in the same way as the totality [*l’ensemble*] of anatomical elements, together with the manner in which they are arranged in space, constitutes the internal milieu of organisms, we may state: *The primary origin of social processes of any importance must be sought in the constitution of the internal social milieu.*”<sup>135</sup>

Thus, it was upon both the differentiation of internal and external milieus, and the claim to base sociology on biological principles, while fundamentally transcending them, that Durkheim sought to repudiate Tarde’s accusation.

As regards Spencer’s reiteration of the Comtean definition of life as “a correspondence between the internal and the external milieus,” this was “only approximate” but, nevertheless, “in general it remains true.”<sup>136</sup> Accordingly, the social milieu incumbent upon an individual—

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<sup>127</sup> See discussion §2 discussion of: Bonneuil and Fressoz 2016.

<sup>128</sup> See Durkheim 1965, 140–141, n.16.

<sup>129</sup> Tarde 1969, 124.

<sup>130</sup> Durkheim 1994.

<sup>131</sup> Durkheim 1982, 59, n.3.

<sup>132</sup> *Ibid.*, 141; Durkheim 1919, 147. Translation modified.

<sup>133</sup> Durkheim 1982, 141–142.

<sup>134</sup> This connection is rarely noted in Durkheim scholarship.

<sup>135</sup> Durkheim 1982, 135; Durkheim 1919, 138. Translation modified.

<sup>136</sup> Durkheim 1982, 125; Durkheim 1919, 120. Translation modified.

that is, the “internal” milieu of the social organism—was conceived, in consummately mechanical terms. For instance:

“The pressure to which the child is subjected unremittingly is the same pressure of the social milieu which seeks to shape him in its own image, and in which parents and teachers are only the representatives and intermediaries.”<sup>137</sup>

However, Durkheim was also both clear and incessantly insistent that the social milieu, and the social as such, transcended the physical or biological. Indeed, immediately following his statement concerning “*The primary origin of social processes...*” (which itself followed shortly after the statement quoted by Tarde: “*The determining cause...*”).<sup>138</sup> Durkheim clarified that, while this “internal milieu” consisted of “two kinds: things and persons,” nevertheless:

“neither material nor non-material objects produce the impulsion that determines social transformations, because they both lack motivating power. [...] Thus the specifically human milieu remains as the active factor.”<sup>139</sup>

Nor could all-important internal social forces be conflated with “the external social milieu—that which is formed by neighbouring societies.” While such relations were undoubtedly “capable of exercising some influence,” this was effected “only upon the functions of attack and defence” and “can only make its influence felt through the mediation of the internal social milieu.” Thus, and reiterating positively the criticism earlier made of Montesquieu:

“The principal causes of historical development would not therefore be found among the *circumfusa*; they would be found in the past.”<sup>140</sup>

The past, that is, being the hereditary relation of inheritance from past social organisms—a relation, no matter how purified as “human” and “social,” fundamentally cut off from other social organisms.

Nothing could have been more paramount to Durkheim’s social-scientific propositions than this:

“This conception of the [internal] social milieu as the determining factor in collective evolution is of the greatest importance. For if it is discarded, sociology is powerless to establish any causal relationship.”

This foundational “power” must be precisely understood. Much like Zola’s experimental vivisectionist-novelist, the milieu concept entailed an analogy of the experimental laboratory.

“Given the same milieu, each individual, according to his temperament [*humeur*], adapts himself to it in the way he pleases and which he prefers to all others.”<sup>141</sup>

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<sup>137</sup> Durkheim 1982, 54; Durkheim 1919, 11.

<sup>138</sup> Durkheim 1982, 134.

<sup>139</sup> Ibid., 136; Durkheim 1919, 138. Translation modified.

<sup>140</sup> Durkheim 1982, 139; Durkheim 1919, 143. Translation modified.

<sup>141</sup> Durkheim 1982, 122; Durkheim 1919, 116. Translation modified.

That is, by extricating abstract subjects from their concrete relations but nevertheless insisting upon their absolutely necessary subordination to social relations taken likewise abstractly, it thus became possible to consider such relations as causes. Moreover, Durkheim was very explicit about this being a crucial rule of method. When “the conditions which explain and justify the general character of the phenomenon have been induced and not observed directly,” he noted:

“We know that the phenomenon relates to the nature of the social milieu without knowing by what, or how, it is connected [*tient*].”<sup>142</sup>

Thus, the milieu is the principle of abstraction whereby *specific* causal relations are not necessary in order to assert *general* causal relations.

Tarde, for his part, retained his more or less eccentric “milieu.” In 1893, the year prior to his address to First International Congress of Sociology, he had published a short philosophical treatise on *Monadologie et Sociologie*, adapting the philosophy of Leibniz to matters of social imitation. Therein, with echoes of the Nietzschean will-to-power and the Newtonian aether, Tarde wrote that every atom aspires to become a “*milieu universel*”—a universal medium for all others.<sup>143</sup> Then, in *Fragment d’histoire future*, his science fiction novel of 1896,<sup>144</sup> he constructed a story of a human race that has retreated underground to escape the cold of the dying sun. Such troglodytic existence eliminates “every influence of the natural milieu,” allowing “the social milieu” to “reveal and display its true virtues.”<sup>145</sup> Thus, Tarde, every bit like Zola’s *expérimentateur*, fabricated a world wherein he could manipulate his social actors in seclusion from those factors that would confound and confuse its essential dynamics. Thus, a factorially purified social complex founded openly on the imitative reflections of genius—that is, of Great Men—could be imagined.

In January 1903, Durkheim, with co-author Paul Fauconnet (1874–1938), lamented sociology’s continued languishing at the stage of Comte or Spencer—that is, in “essentially philosophical speculation.”<sup>146</sup> Though “new systems” proliferated daily, all were absorbed with the mania for discovering the law governing all social evolution—“the ‘key which opens all locks,’” as per the philosopher’s stone of the alchemists (or, we might add, the “Absolute” of the aforementioned M. Claës). This line concerning “all locks” was taken from Tarde’s *Les lois de l’imitation* of 1890, which, in turn, attributed the comment to “one of our greatest philosophers of history,”<sup>147</sup> inferred by the co-authors to be Taine.<sup>148</sup> Indeed, to the famous literary-

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<sup>142</sup> Durkheim 1982, 106; Durkheim 1919, 93. Translation modified.

<sup>143</sup> Tarde [1893] 2012, 27; Tarde [1893] 1900, 337.

<sup>144</sup> Tarde 1896. Translated into English as *Underground Man* 1905, with a preface by H.G. Wells. Tarde 1905.

<sup>145</sup> Tarde 1905, 111.

<sup>146</sup> Durkheim and Fauconnet [1903] 1982, 181.

<sup>147</sup> Tarde 1903, ix; Tarde [1890] 1895, xxi.

<sup>148</sup> Durkheim and Fauconnet 1982, 181–182, n.6.

interpretive mechanist, Tarde had accorded one his fundamental principles: “that the brain is a *repeating* organ for the senses and is itself made up of elements which repeat one another.”<sup>149</sup> This, then, was the physiological substrate of Tarde’s “*pure sociology*” or “general sociology”—that is, sociology abstracted from “vital and physical characteristics,” and understood in its “the *purely social side*.”<sup>150</sup>

In December that same year, at the *École des hautes études en sciences sociales*, Tarde and Durkheim engaged in a debate concerning their respective social scientific tenets. Only the Resumés and short summaries of their respective lectures were published.<sup>151</sup> However, Durkheim reprised his repudiation of the agenda of general laws, advocating scientific progress on the basis of greater specialisation—that is, as per his own theory of a progressively extended division of labour. Tarde, meanwhile, accepted the need for specialisation but insisted it be based upon the primacy of “[i]nter-mental psychology,” which “must be to the social sciences what the study of the cell is to the biological sciences.” As every individual “enters social life,” he continued, they “feel the influence of certain great persons,” whose “individual examples fuse with many other influences of the same type and form a collective product”—a “psychological synthesis” that indeed “acts on us” but which “can only have a false air of exteriority.”<sup>152</sup>

Durkheim, by contrast, insisted that, at present, sociologists were ignorant of “what the elementary social fact is”—whether that be the individual, or whatever else—and must therefore proceed upon the basis of reserved judgement. This showed, Tarde rejoindered, Durkheim was committed to a society existing above and beyond any and all individuals.

“‘If you believe that,’ said Mr. Tarde, ‘I understand your method, which is pure ontology. Between us is the debate between nominalism and scholastic realism. I am a nominalist. There can only be individual actions and interactions. The rest is only a metaphysical entity, mysticism.’”

Mr. Durkheim then apparently declined to comment further on what he considered to be an problem he had not raised, and which resulted from the conflation of entirely separate questions: that of method, and that of existence.<sup>153</sup>

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Having begun *in medias res*, we may now leave it in kind. By the end of the nineteenth century, milieu was an established concept across Francophone literary and scientific culture, and

¹⁴⁹ Tarde 1903, 74; Tarde 1895a, 80.

¹⁵⁰ Tarde 1903, ix–x; Tarde 1895a, xxi–xxii.

¹⁵¹ Tarde 1969, 136–140. Though see also Vargas et al. 2008.

¹⁵² Tarde 1969, 138–139.

¹⁵³ *Ibid.*, 140.

beyond. Its most prominent meaning had been progressively rendered mechanical and abstract rather than fluid or aetherial, although all relevant connotations remained available.

Having seen the alteration, and associated proliferation, of milieu as a significant concept, it is now necessary to ask what this concept tells us about our received patterns of conception. That is, we must now understand how such concepts may play a part in tying together broader understandings of the world.

Excursus B: Ontoturgic: The manifold of worlds

As seen in §2, for Leo Spitzer, denizens of the Ancient τὸ περιέχον [*tò periékhon*] experienced their cosmos as “a kind of loving milieu round about” their being.¹ After the geocentric firmament cracked and crumbled (more on this in the next chapter), moderns were left fallen, lost to a lesser enclosure, content to “‘belong’ somewhere.”² The milieu, it must be recognised, then, is also an aesthetic concept.

It has also been said (§3) that while the historian is committed to “establishing evidence,” and the philosopher to “conceptual creation,” the fictionist reckons with “worldly manifestation.” After the example of Comte, Balzac, and Zola, we might now add that it is not only fictionists that perform such acts. Rather, it is they who do so without bearing the commitments of other modalities.

Having, in §A, sketched the hodological conception of mythic collectivity—that of the trivium—it now remains to establish that this space of intersection is not to be understood as a bare network but, rather, as a world—that is, as a space of assembly threaded through and for those who belong there. If collectivities are inherently partial in their obligations, and hence their experiences, how then do their worlds become full, palpable, enclosing? This is the question of the ontoturgic.

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“Ontology,” for Comte, belonged to the second stage of development, alongside theology.<sup>3</sup> Derived, most impressively, from the great Greek metaphysicians, and perfected by the likes of Bichat, it had been preparatory of positive science.<sup>4</sup> However, being speculative, it was inherently capricious, anarchic, and subversive. Ontology was, therefore, the problem of positivism.

In the *Cours*, Comte thus declared that, as “founder of a new general philosophy, at once historical and dogmatic,” his work was to finally and definitively replace “ontological influences” with “the universal preponderance of the positive spirit.”<sup>5</sup> With regard to “the theory of hypotheses,” he held that if one hypothesis be “quasi-metaphysical” then the subsequent will be wholly so. Thus, such doctrines as that of chemical “affinities,” even more so than “the electric fluid and the luminous ether,” must be regarded as “ontological.”<sup>6</sup>

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<sup>1</sup> Spitzer 1942a, 5.

<sup>2</sup> Spitzer 1942b, 199–200.

<sup>3</sup> Comte 1844, 8–9; Comte 1853, vol. 3, 38.

<sup>4</sup> Comte 1838, vol. 3, 517.

<sup>5</sup> Comte 1842, vol. 6, xxx.

<sup>6</sup> Comte 1838, vol. 3, 33.

In the *Système*, such statements were both more frequent and uncompromising. In chemistry, for instance, “the aberration of ontological fluids” had been assuaged with the discarding of phlogiston. However, eminent chemists of late had attributed rather fantastic powers to “the so-called electric fluid.”<sup>7</sup> As the “founder of sociology,” Comte wrote that he owed a “particular homage to that of all biologists who best prepared me to build a philosophy as purified of all ontology as of any theology.”<sup>8</sup>

When coming to anticipate the historical destiny of his mission, the High Priest observed that a solution to the disunity of the German peoples would be of paramount importance. However, despite their “admirable soil,” these countries would present the greatest challenge, since:

“the ontological disease [*la maladie ontologique*], inherent in Protestantism, has gradually acquired, in the Germanic milieu, so much consistency and extension that this case must arouse [*susciter*] the principal triumph of positivism.”

The French, by contrast, had always been least affected, while the “the British milieu repels metaphysicians,” its lamentable Anglicanism notwithstanding.<sup>9</sup>

Crucially, such repudiations were unabated in the *Synthèse*, where Comte explained that Newton’s first law of motion had been “empirically confounded” with inertia, as “algebraic ontology” had attempted “to explain what can only ever be observed.” Thus:

“Mixing the objective with the subjective, to the point of taking one for the other, is the principal symptom of the metaphysical disease [*maladie*] in all its forms, since the study of laws has directly eliminated the search for causes in all true theorists.”<sup>10</sup>

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In §1, I stated that the history of the concepts in question demonstrates “conflicted conceptions of existence”—a conflict that it is necessary to better understand in order to “learn from this history.” Although the ontological concepts developed through these excurses evidently differ from what Comte understood by this term, his repudiation of “ontology” typifies this conflict in its simultaneous presumption that ontonomic obligations can be reduced to positive knowledge and that a feeling for reality must be produced through techniques of illusion that human beings qua human beings must enthusiastically bring upon themselves.

For Comteans and Kantians alike (see §3), through the nineteenth century (and beyond), “ontology” could be an effective term of denigration—even for Tarde, author of *Monadologie et sociologie* (author, that is, of the claim that every monad strives to become a “*milieu universel*” for

⁷ Comte 1851, vol. 1, 552.

⁸ Ibid., vol. 1, 670.

⁹ Comte 1854, vol. 4, 496–498.

¹⁰ Comte 1856, 630.

all others).¹¹ But was Tarde incorrect in identifying Durkheim's social organism, defined by its Bernardian internal and external milieus (and thus existing in transcendence of any individual), as ontological?

Durkheim had articulated his conception as an essential point of methodology:

“We know that the phenomenon relates to the nature of the social milieu without knowing by what, or how, it is connected.”¹²

Deprived thereof, sociology would be explanatorily “powerless.” And yet, had he not also described so vividly the unbearable “pressure” under which each individual is made in the very “image” of the milieu itself?¹³

In 1990, Ian Hacking wrote of what he called “the avalanche of numbers” inundating the nineteenth century.¹⁴ That is, the surveys, censuses, logbooks—driven by cheaper printing, war, the railways, greater precision in measurement, more expansive state regulation, and more intensive permeation of life by economy. This was one aspect of what brought about “the taming of chance”—that is, the acceptance that, while any given occasion (the roll of a dice, recovery from illness) is beset with indeterminacy, the aggregate of many such occasions will display lawfulness—that is, “normality.” The two representatives of “normalised” science, for Hacking, were Francis Galton (1822–1911) and Émile Durkheim.¹⁵

The fundamental difference between Tarde and Durkheim can, then, be understood in terms of these new paper technologies. The former, the magistrate and criminologist, was no less enthusiastic than the latter about such possibilities for social control. However, for Tarde, every entry in the logbook must be understood as a trace of an imitative connection (or “ray,”¹⁶ as he put it, in the language of physics) between individuals who, therefore, are the basis of association. By contrast, for Durkheim, the self-conscious inheritor (and surpasser) of Comte, any question of to what it is that the phenomena causally correspond must be conjecturally suspended—such self-restraint being precisely what it means to be “positive.” Thus, when Durkheim wrote of “milieus,” “organisms,” and “pressures,” he was writing, effectively, *sous rature* (under erasure). However, to continue the Tardean line, this erasure was itself erased, as Durkheim's language not only became carried away with its own embellishments but, moreover, through its very success, became formative of an ontonomic obligation to

¹¹ Tarde [1893] 2012, 27; Tarde [1893] 1900, 337.

¹² Durkheim 1982, 106; Durkheim 1919, 43. Translation modified.

¹³ Durkheim 1982, 54.

¹⁴ Hacking 1990, 5, *passim*.

¹⁵ *Ibid.*, 171–172.

¹⁶ Tarde 1898b; Tarde 1899.

experience society in accordance with these conceptions. Neither, therefore, could avoid the ontological (as I have articulated it).

And so, Michel Foucault, may have been quite correct to find the notion later known as milieu already in “the first [French] town planners of the eighteenth century”—or, at least, in the “pragmatic structure” underlying their planning.¹⁷ Indeed, as seen in §1, what he “roughly” defined as “[t]he space in which a series of uncertain [*aléatoires*] elements unfold” comports admirably with Durkheim’s “without knowing by what, or how....” That is, on Foucault’s account, such planners can be understood as having acquired the license to anticipate, on the basis of wafting miasmas, the sorts of causes that are likely to arise, given certain configurations of space. Whether such circulations, well over a century before “the taming of chance,” can be understood as aleatory (in the more specific English sense of the word) is another question. Nevertheless, the point to be made is that, being so quick to grant himself the license to abstract notion from concept, Foucault was not brought to consider that such an aleatory space of circulation was also ontologically formative of the judgements of sociology—and hence of his own practice (cf. conclusion to §2).

It may be that Foucault would have been chary of acknowledging any inheritance from the likes of Durkheim. Nevertheless, as seen in §3, Hacking identified “historical ontology” as concerning “the space of possibilities for character formation that surround a person.”¹⁸ It is hardly standing “at the extreme margin” to characterise such spaces as subject-formative milieus. Moreover, on what basis could Foucault himself affirm that “[i]n any given culture and at any given moment, there is always only one *episteme*”?¹⁹ In what else could such epistemological strictures circulate? What else is a social structure than a thoroughly de-elementalised milieu?

The claims being made, then, are threefold:

First, while the Comtean *l’ensemble total*, in contrast to the Newtonian ætherial medium, is, in its own terms, nothing but a placeholder for describing a relation between a definite being and surrounding entities of any kind, it nevertheless *has ontological effects*. That is, it affects how those ontomically involved feel, act, and think. Indeed, we can easily follow the elemental and aetherial connotations in Comte’s works right until the end, and the fluid implications of “milieu” remained contestable, even as the word was being overlaid in translation.

Second, and with a greater (though, I think, admissible) degree of ‘marginal extremity,’ the double erasure of Durkheim’s doubly-mediated social organism cannot hide the fact that the explanatory license assumed, in more recent times, through such concepts as “social

¹⁷ Foucault 2009, 21.

¹⁸ Hacking 2002, 23.

¹⁹ Foucault 2002, 183.

structure,” can be found to inherit from what was called “the interior milieu.” Thus, a history of environmental or mesologic concepts constructed on the basis of “space[s] of possibilities” is, in some measure, a history of its own ontonomic relations.

Third, such achieved commitments do not manifest in an experiential vacuum any more than the Boylean modest witness was an inelastic, unfeeling validity-processor. As such, and beside the ontonomic, if we are to understand the ontological significance of environmental concepts, we must therefore understand, in Hennell’s expression (though, as seen in §9, not in her conception), the “world-effect”²⁰ that they impart.

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It may be that no one belongs to only one common, but it can be confidently stated that no one belongs to all. Such partiality of belonging may be made palpable. In particular, for those existing simultaneously on the inside and outside of a collective, it may be written into the faces of those who say, wordlessly or otherwise, ‘you do not belong.’<sup>21</sup> However, a crossroads does not dissolve into the ways that cross it; no common world is without its sense of coherence. And such sense requires work.

In 1948, the philosopher Étienne Souriau delivered an address titled *Le Cube et La Sphere*:

“I submit the principle that in all the arts without exception, but particularly in the art of the theatre, the main business is to present a whole universe—the universe of the work [*l’œuvre*]*—en patuité*, in a state of patency. [...] A universe that exists manifestly before us ... a universe presented with all its power to stir us deeply; to overwhelm us; to impose its own reality upon us; to be, for an hour or two, all of reality.”

As regards theatre, Souriau distinguishes two modalities by which such a world-effect, or reality-effect, can be achieved.

First, there is the *cube*: The stage is set. Cut out, “as though with a saw”—a small piece of another world, dressed with furniture, ornaments; “in wood or in canvas, with real or sham articles (it does not much matter which).”

“And then this cube of concrete, visible, and audible realities is opened on the side facing the spectator; one side is removed.”<sup>22</sup>

As regards patency, the principal task of the actors, then, becomes that of inducing the audience to experience the whole whirling, outspreading world beyond stage left and stage right; to granting the boxy dramatic fragment its temporary reality as a window, or portal.

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<sup>20</sup> Hennell 1873, vol. 2, 72.

<sup>21</sup> E.g. William Edward Burghardt Du Bois 1903, chap. 1.

<sup>22</sup> Souriau 1952, 12.

Second, there is the *sphere*: The stage is removed. Rather than extracting “a predetermined fragment” from “the world that will be instituted [*le monde à instaurer*],”<sup>23</sup> one rather “seeks out its dynamic center, its beating heart”—the centre that “is permitted to irradiate its force freely and without limits.”

“The actors or the group of actors who incarnate this heart, this *punctum saliens*, dynamic center of the universe of the work, are officiating priests, magicians whose power extends outward indefinitely into open space.”

Moving freely about or amidst their audience, all limits upon the extension of the “fictitious world” converging on the actors’ act are removed: “They are the center, and the circumference is nowhere.”<sup>24</sup>

It is with respect to this modal distinction that Comte’s extraordinary statement concerning “the metaphysical disease”—and, then, the various attempts of Balzac, Zola, and Tarde to combine the sociologic and the fictive—can be understood. Each of these authors, in their own way, attempted the same thing: to construct fictive worlds productive of obligations regarding social order. By imparting such obligations with *patuité*, they engaged the ontoturgic.

To be sure, nothing could be less remarkable than an eighteenth-century philosopher attempting to reconcile the multiplicity of experiences with the equally evident irreducibility of existence to conception via the subject/object divide (these being distinct realms that may exist in mutual tolerance so long as neither impinges upon the other’s propriety). Such were, indeed, founding planks of the “Modernist Constitution.”<sup>25</sup> Nevertheless, Comte took this principle perhaps further than anyone.

Only positive—that is non-speculative, lawful, useful, precise<sup>26</sup>—knowledge has license to make claims on objective existence. Nevertheless, the very possibility of healthful human existence requires worshipful submission to the trinity of *Le Grand-Être*, *Le Grand-Milieu*, and *Le Grand-Fétiche*, and the active construction of “subjective milieus” for everything from numbers, densities, flavours, and sounds to space itself. The very place of the Earth within the universe must be alternately reversed whether one is talking subjectively (geocentric) or objectively (non-geocentric). And the Earth itself had been a thinking thing! Through its self-induced “long series of explosions,” it was given a rigorously geophysical backstory. The warm artfulness of fetishism served to revive the “matter” that metaphysics had rendered “essentially inert.”<sup>27</sup> Nevertheless,

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<sup>23</sup> Ibid., 13. Translation modified. Original reads: “is going to be set up.” French quoted: Sarrazac 1977, 55. See also: Souriau 2015; Souriau 1943.

<sup>24</sup> Souriau 1952, 13; cf. Canguilhem 2008a, 117.

<sup>25</sup> Latour 1993.

<sup>26</sup> Schmaus, Pickering, and Bourdeau 2018, 5, 13.

<sup>27</sup> Comte 1856, 9.

one must always be on guard against “the phantoms emanating from the subjective milieu,”<sup>28</sup> lest they be taken in the manner of the “*maladie*.”

The solution to this dizzying duality, it would seem, was the “universal priesthood [*sacerdoce universel*],”<sup>29</sup> which would spread the word, while maintaining the fundamentality of the opposition. With all due phrenological positivity, Comte called the regimen he established for his own mental health “cerebral hygiene.”<sup>30</sup> However, after the example of the Royal Commission, the more apposite term might be *ontological hygiene*—the insistence that existence be a category closely guarded by modest witnesses (who just so happen to be Barons and High Priests).

It would be easy to join Mill in a chorus of judgement against such “pitiable *niaiseries*,”<sup>31</sup> and to find that Comte effected a *reductio ad absurdum* against his own principles. However, I would rather say: Comte’s mania is ours too. Ours, that is, so long as we fail to address the contradictions inherent in making ontological hygiene a principle of public order (§E).<sup>32</sup>

Moreover, the patriarch of Positivism was surely right about one thing: it takes an extraordinary amount of work to maintain “all of reality” for more than “an hour or two.”

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The expressions *dramaturg* and *dramaturgy* are complex and take on quite varied significance in different European languages. In contemporary anglophone theatrical practice, a dramaturg is often described as a mediator, working between director, playwright, and company, operating as an in-house critic. However, from the Greek δραματουργός [*dramatourgós*]—*ergos* meaning, literally, work—dramaturgy as the work of drama may imply the theory or, otherwise, the capacity or aptitude for realising a dramatic creation. The expression may also resonate with *thaumaturgy*—the work of performing miracles.³³ Indeed, in Souriau’s venerative account of “magicians” and “officiating priests,” it is precisely this sort of work that is invoked.³⁴

However, such talk of performance and miracle raises a problem. As the “cry” identified in Doležel was heard to attest:

“Totalitarian power [...] gives its gaps ontological status, projects them into the actual world.”³⁵

²⁸ Ibid., 22.

²⁹ Ibid., 3.

³⁰ Pickering 1993, vol. 1, 285–286.

³¹ Mill 1865a, 195.

³² Shapin and Schaffer 1985, 332.

³³ Luckhurst 2006, 5–7.

³⁴ Souriau 1952, 13.

³⁵ Doležel 1998b, 799.

There is a world of difference between maintaining a “world-effect” for “an hour or two” and enrolling a cast of millions. And yet it happens. Such a difference cannot be taken too seriously. If the real is to be made an ‘effect’—an effect felt multiply and severally in each and every collective—what gravity remains in the word ‘reality’?

Returning to the trivium, there are always roads not taken. Thus, there are always other worlds—or, other world-effects. We inhabit, in this sense, a *manifold of worlds*. However, such a concept entertains a threefold risk:

First, to invoke *a* manifold may insinuate a prior, primordial world (e.g. nature) behind or underneath all other particularities, accessible only by a ‘modest’ sacerdotal elite.

Second, there may then result a lapse from world-effects to world-views, as all worldly differences become a matter of subjective-phenomenal perspective; a view of ‘outside’ from ‘inside.’

However, third, if no one ‘world’ stands to guarantee the unity of all others, thereupon would seem to follow a declaration, at once facile and needful of all seriousness: that to inhabit ‘different worlds,’ and hence different ontonomic obligations, and ontoturgic manifestations, entails inhabiting mutually exclusive realities, such that no comment can be meaningfully made from one to another, and things can really be made up as they go along (with the powerful being ontoturgic auteurs).

As such, while Comte’s imagistic milieus, or Zola’s mesologic-socialistic reportage, may well be valuable for thinking through the techniques and ontoturgic effects of historiographical practice,³⁶ the manner in which “historiography opens out onto history,” as I put it in §3, must not be detached from the ontonomic commitments that must be retained in order to maintain the account as historical. To this, the next excursus will turn (§C).

³⁶ E.g. in relation to: Stengers 2018a; Whyte 2018.

Part 3: Climate and Cosmos

6: “Under a single sky”: Inclination from Hippocrates to Cabanis

Before milieu, there was climate. In 1876, the naval doctor and hygienist Jean-Baptiste Fonssagrives (1823–1884), in a lengthy entry for the *Dictionnaire encyclopédique des sciences médicales*, introduced “*Climat*” as pertaining to a tradition running from Hippocrates to Bodin, through Montesquieu to Cabanis. However, he added:

“One might ask, however, whether it is permissible, in the present day, to give the word climate such a comprehensive meaning, and whether it is not more rational and fruitful for studies to restrict this term to influences that derive from the atmosphere alone; taking into account, however, the reciprocal meteorological influences of the soil and the surrounding natural atmosphere.”¹

This chapter considers how climate came to be associated with the lineage Hippocrates–Bodin–Montesquieu–Cabanis, how unusual the latter’s hyper-extended iteration of it was with respect to this history, and, moreover, how climate became a distinct and contestable concept more generally.

The concept of climate, as definitions from the mid-eighteenth century onwards have seldom failed to note, has a long history, being from the Greek κλίμα [*klíma*], meaning slope or inclination; from κλίνω [*klinō*], to bend or slant.² However, the Hippocratic teachings, with which ‘climate’ became indelibly associated, preceded this expression by at least a century. For well over a millennium afterwards, such works were preserved, translated and reinterpreted principally by Arabic, Persian, and Jewish scholars, from Afghanistan to Iberia. Through the Reconquista, texts and persons were transported, by trade, migration, and plunder to Northern Europe, whereupon climatic conceptions were reconstructed again, particularly by those concerned, in one way or another, with expanding imperial trade relations, medical practice, and governance.

Covering this entire timescale, though concentrating largely upon developments in the eighteenth century, particular attention is given to the development of, and immediate reaction to, Montesquieu’s *l’Esprit des loix* of 1748, a work which, famously, declared climate to be “the first of all empires.” It was around this time that climate came to be a concept disproportionately contestable in philosophical, theological, and political terms. Thus, it can be said to have become a ‘concept’ in the stronger sense³ that it served as a locus of contestation for wider issues. This chapter, therefore, also seeks to identify the various ways in which this concept could be conceived, and with what was at stake in its contestation, investigating, for example, the philosophy of David Hume, and the jurisprudence of Catherine II of Russia, to these ends. The

¹ Fonssagrives 1876, 14.

² Fleming 1998, 11–12.

³ As explored in §3 with respect to Koselleck and *grundbegriffe*.

final section then returns to Cabanis, and associates, demonstrating the passion for climatic holism evident amongst the *idéologues* of the early 1800s.

6.1: From Ouranós to interrelation: Climatic traditions over two millennia

The *Historíai* of Herodotus (c.484–c.425) discoursed regularly on the relations of temperature, moisture, and position as regards settlement and peoples.⁴ However, when referring, for example, to Ionia as enjoying the most beautiful of aerial and seasonal conditions, the expression used was: “*toũ mèn ouranoũ kaī tōn hōréōn.*”⁵ While *hōréōn* signified seasons, *ouranoũ* could suggest, more generally, sky, heaven, firmament, or universe, *Ouranós* being the god of the sky.⁶

Signifying the angle or inclination of the sun above the plane of the local horizon, the first known uses of *klíma* are found with Hypsicles and Hipparchus (both c.190–c.120 BCE).⁷ The practice of making lateral divisions of the earth defined by length of day had been known since at least Eratosthenes (c.276–194 BCE).⁸ However, such bands became κλίματα [*klímata*] only around the time of Geminus and Cleomedes (c.1st century BCE).⁹ Such climes were not, therefore, climates as such. Firstly, the *klímata* partitioned only the *oikouménē*,¹⁰ the inhabited earth.¹¹ By contrast, Parmenides (born c.515 BCE) had divided the entire terrestrial sphere itself into five zones: two frigid, two temperate, and one torrid.¹² Aristotle (384–322 BCE) followed the same scheme,¹³ deeming only the two temperate regions (“*khóras*”)¹⁴ to be inhabitable (“*dinatēs oikéisthai*”).¹⁵ Symmetry suggested that there must be inhabitable land in the southern hemisphere; however, this was thought inaccessible due to the infernal heat of the equator.

Nevertheless, *klímata* accrued connotations. Already in Strabo (63 BCE–c.23 AD), *klíma* could mean latitude in association with characteristic atmospheric conditions or indications of

⁴ E.g. Herodotus 1926, vol. 1, 190–191, 316–317, 364–365.

⁵ τοῦ μὲν οὐρανοῦ καὶ τῶν ὥρέων. Herodotus 1926, vol. 1, 183; Thomas 2002, 105.

⁶ Liddell et al. 1940.

⁷ Shcheglov 2016, 21, 26; Dicks 1955, 249.

⁸ Honigsmann 1929, 7; Altmann 2005; Shcheglov 2016.

⁹ Shcheglov 2016, 26.

¹⁰ οἰκουμένη.

¹¹ Glacken 1967, 98.

¹² Sanderson 1999, 669; Harley and Woodward 1987.

¹³ Aristotle 1952, 179–180.

¹⁴ χώρας.

¹⁵ δυνατῆς οἰκεῖσθαι. *Oikeísthai*—to be situated, settled, housed. *Khóra* also translated as region, land, country, district.

the direction of winds.¹⁶ The Epistles of Paul the Apostle (c.5–c.64 AD) used *klímata*,¹⁷ *klímasin*,¹⁸ and *klímasi*,¹⁹ all in the sense of ‘regions.’ The *Tetrábiblos*²⁰ of Ptolemy (c.90–168 AD) declared that *klímata* distinguish the “particularities of peoples”²¹ by their earthly “parallels and angles”²² and the relation this entails to the outer stellar spheres.²³ Below the more southern parallels resided the Ethiopians, their skin burned black by the sun; to the north, the Scythians, cold in both clime and character.²⁴ Such *klímata* were, therefore, not only astronomical and geometrical but also astrological and morphological.

Though the theory of the four bodily humours was not explicitly referenced in Ptolemy’s text, this, the doctrine of Hippocrates of Kos (c.460–c.370 BCE), was both available and evident. Galen (c.130–c.210 AD) endorsed these tenets, remarking that anyone acquainted with medicine would concur that health requires the balance or *isonomía* of humours (*khumós*).²⁵ The quadripartite scheme, echoing the elemental doctrine of Empedocles (c.490–c.430), was not necessarily reproduced consistently or exactly, even within the Hippocratic corpus. Nevertheless, it became conventional.

Humour	Element	Season	Organ	Qualities	Temperament
Αἷμα [<i>Ahīma</i>] Blood	Air	Spring	Liver	Moist/warm	Sanguine
Ξανθή χολή [<i>Xanthē kholē</i>] Yellow bile	Fire	Summer	Spleen	Dry/warm	Choleric
Μέλαινα χολή [<i>Mélaina kholē</i>] Black bile	Earth	Autumn	Gallbladder	Dry/cold	Melancholic
Φλέγμα [<i>Phléγμα</i>] Phlegm	Water	Winter	Brain/lungs	Moist/cold	Phlegmatic

¹⁶ Marcotte 1998, 275–276.

¹⁷ κλίματα. Galatians 1:21, c.53 AD. Paul the Apostle 2018b.

¹⁸ κλίμασιν. Second Corinthians 11:10; c.55 AD. Paul the Apostle 2018a.

¹⁹ κλίμασι. Romans 15:23; c.57 AD. Paul the Apostle 2018c.

²⁰ Also known as “Ἀποτελεσματικά [*Apotelesmatiká*]” or “Effects.”

²¹ ἔθνικων ἰδιωμάτων [*ethnikón idiomáton*].

²² “παραλλήλους καὶ γωνίας” [*parallélous kai gōnías*].

²³ Ptolemy 2005, 42.

²⁴ Glacken 1967, 112–113.

²⁵ Grant 2002, 25. Specifically regarding the Hippocratic text *περὶ φύσιος ἀνθρώπου* [*Peri phúsios anthrōpou*], or *On the Nature of Man*. While attributed by convention to Hippocrates, the corpus that bears his name is of uncertain authorship. Unusually, this text is also attributed to his student and son-in-law Polybus. Craik and Hippocrates 2014, chap. 36.

The fundamental Hippocratic concern was, therefore, with *krāsis*²⁶—mixing, blending, and balance. The Latin *temperamentum*, accordingly, denoted a proportionate mixture; a well-balanced *complexio*, or bodily constitution.²⁷

The Hippocratic work known as *Epidemics* is named from *epidēmion*,²⁸ meaning a visit or stay in a particular place, as per the practice of a travelling physician. Thus, this text recounts discontinuous medical observations presented as a series of “constitutions”—i.e. the factorial mixtures relating to each situation. Likewise, the famous *On Airs, Waters and Places*²⁹ informed medical practitioners of the constitution—that is, the “*katástasis*”—of health and disease in relation to a settlement’s orientation to the winds, different kinds of water, and the changing of seasons. Moreover, it compared the constitution of Mediterranean Europeans to that of Asians, with extremities of heat accounting for the latter’s supposedly war-like temperaments.³⁰

Eratosthenes had, *avant la lettre*, distinguished seven *klímata*; however, other schemes were available. Ptolemy’s *Geography*³¹ eschewed the climatic system and *Tetrábiblos* discussed the influence of the five rather than seven planets. His *Mathēmatikē Súntaxis*³² (later known as the *Almagest*)³³ distinguished systems of thirty-three, twenty-four, and eleven, as well as seven climes; however, in its reception, the system of seven became doctrinal.³⁴

The Syriac scholar Bardaisan of Edessa (154–222 AD)³⁵ influentially repudiated the doctrine attributed to the Chaldeans—that God’s subjects be governed in their health, wealth and morals by the seven stars; the earth being divided into seven portions, named climes, each overseen by one such sidereal governor.³⁶ Not the 7 planets, nor the 12 signs of the Zodiac, nor the 36 of the Decani, he argued, only the One who is the source of all and promises salvation is the giver of universal law. Thus, *proaitresis*—that is, will, volition, choice, or moral character—is secured.³⁷

²⁶ κράσις.

²⁷ Arikha 2007, 8.

²⁸ ἐπιδημιῶν.

²⁹ περὶ ἐρῶν ὑδάτων τόπων [Perì érōn hudátōn tōpōn]. *De aere, aquis, locis* in Latin. Craik and Hippocrates 2014, chap. 2.

³⁰ Hippocrates 1881, 71.

³¹ *Geōgraphikē Huphēgēsis*³¹ (*Geographical Guidance* or simply

³² Μαθηματικὴ Σύνταξις.

³³ *Almagest* deriving from its Arabic title *al-majisṭī* (the greatest).

³⁴ Shcheglov 2016, 26; Olsson 2014, 491.

³⁵ In a work later titled either *The Dialogue Concerning Fate* or *The Book of the Laws of the Countries*, published in Greek and English in James Cureton’s *Spicilegium Syriacum* in 1855. See Ramelli 2009, 57.

³⁶ Cureton 1855, 11, 27.

³⁷ προαίρεσις. See Ramelli 2009, 43.

Somewhere in Basra, Iraq, around the tenth century, the *Ikhwān Al-Ṣafā*, or Brethren of Purity, wrote their *Rasā'il* (*Encyclopedia* or *Epistles*). To the seven climates, under their seven planets, were attributed the temperaments of the humours; and, to these were attributed the characters, customs, colours, physiques, languages, and modes of governance of peoples.³⁸ By this time, Ptolemy was established as a geographical authority. The *Almagest* was translated into Arabic in the early ninth century,³⁹ as were Hippocratic works.

Terminologically, *klīma* and *klīmata* became the Arabic *iqḷīm* and *aqālīm*; a temperament or mixture was rendered as *mizāj*,⁴⁰ and *ta'adil* related *isonomía* in signifying equilibrium.⁴¹ However, although Ptolemaic climates and Hippocratic constitutions became common elements of geographical and medical knowledge in the lands from Afghanistan to Morocco, there was no singular doctrine. The *Suwar al-aqālīm* of Abu Zayd al-Balkhi (850–934) concerned regions rather than latitudes as such.⁴² Likewise, Al-Bīrūnī (973–1048) rendered the *aqālīm* through the Persian concept of *kishvar*, figuring them as six circles, issuing out from Baghdad's *iqḷīm* at the centre.⁴³ However, the older connotations were recovered, and claiming the middlemost of the *aqālīm* was a serious concern among elites and their geographers.⁴⁴ For example, the Basra-born literatist Al-Jāhīz (776–c.868) quoted a resident of that same city who boasted not only that Iraq is the centre of the world and Basra of Iraq and al-Mirbad of Basra but his home lay at the centre of them all.⁴⁵

Climatic concepts did not reach Europe until early in the new Christian millennium. In 1123, the *Sefer ha-ʿIbbur*⁴⁶ of Abraham bar Ḥiyya (1070–c.1140),⁴⁷ an Iberian Jew, distinguished seven climes, each with a width of six degrees. Several years later, his compatriot and contemporary Judah Halevi (c.1075–1141) wrote his most famous work, *Kitab al Khazari*,⁴⁸ pointedly placing the Land of Israel at the centre of the earth, thus affording the very best of air, water, soil, and astral influences, and, hence, the most perfect balance of the four qualities.⁴⁹

³⁸ Olsson 2014, 488; Altmann 2005, 227.

³⁹ Meri 2005, vol. 1, 77.

⁴⁰ Olsson 2014, 488.

⁴¹ Meri 2005, vol. 1, 158.

⁴² Selin 1997, 149.

⁴³ Meri 2005, vol. 1, 158.

⁴⁴ Olsson 2014, 489.

⁴⁵ *Ibid.*, 493.

⁴⁶ *Book of Intercalation*.

⁴⁷ Also known as Abraham Judaeus or Savasorda.

⁴⁸ Translated as *The Book of Refutation and Proof in Support of the Abased Religion*. Written in Judeo-Arabic, later translated to Hebrew.

⁴⁹ Altmann 2005.

In the ninth century, al-Mas'ūdī wrote of the north that lack of sun rendered the humours of its inhabitants, such as the Franks and Slavs, cold and moist.⁵⁰ Thus, they were large, flaccid, and pale, with lank hair; moreover, coarse, dull-witted, and irreligious. In 1154, Muhammad al-Idrisi (1100–1165) produced the *Tabula Rogeriana*,⁵¹ commissioned by Roger II, the Norman ruler of Sicily. Augmenting the Ptolemaic system, it added ten longitudinal divisions to the seven of latitude.⁵² Yāqūt al-Hamawī (1179–1229) described the people of Iraq as proportioned, rational, and well-composed. Their brown skin was an indicator of well-moderated humours, being the most balanced of all colours.⁵³

Thus, by the time that Ibn Khaldūn (1332–1406) published the *Muqaddimah* [*Prolegomena*] to his planned *Kitāb al-'ibar* in 1377,⁵⁴ he was able to summarise and expand upon traditions of knowledge, wealthy and well-established. A philosophical, universal history based upon the concept of *'aṣabiyyah*, meaning collective feeling, cohesion, or solidarity,⁵⁵ the first chapter of the *Muqaddimah* summarised the geographical, cosmological, and spiritual basis of this work.

With reference to Ptolemy, the inhabited portions are divided into seven “climes [*aqālīm*],” which relate to fundamental climatic and ethnological differences. After the example of al-Idrisi, ten longitudinal divisions are added, which are organisational only.⁵⁶ These delineations are made in relation to the movements of the zodiac; however, astrology as such is regarded as a sham.⁵⁷ As per classical *klímata*, it is the relative inclination of the sun that engenders the parameters of plant and animal life as well as science, architecture, agriculture, health, and physiology. Accordingly, all achievements of culture occur within the inner five *aqālīm*, and most around the central clime, with ever more solitary, animalistic depravity found in the outer fringes.

The *aqālīm* are described section-by-section, with the all-important fourth clime, centred on the Mediterranean, admitting coastal North Africa and Europe as far north as the Pyrenees, extending eastwards through Syria and Persia, all the way to the frontiers of China. While both mountains and coasts are understood to affect local moisture and temperature, the golden mean of elemental and humoral well-being is nevertheless predominantly defined by laterality.⁵⁸ Referencing Galen, the spirit itself is taken to consist of a fine vapour.⁵⁹ Moreover, the

⁵⁰ In *Kitāb al-Tanbīh* [The Book of Notification].

⁵¹ *Nuzhat al-mushtāq fi'khtirāq al-āfāq* [Entertainment for Him Who Longs to Cross the Horizons].

⁵² Olsson 2014, 506.

⁵³ *Ibid.*, 490.

⁵⁴ That is, *Prolegomena* to the *Book of Lessons*.

⁵⁵ Alatas 2014, 41–42.

⁵⁶ Khaldūn 1958, vol. 1, 49–50.

⁵⁷ Khaldūn 1958, vol. 1, 54.

⁵⁸ *Ibid.*, vol. 1, 65.

⁵⁹ *Ibid.*, vol. 1, 63.

movement of the spirit through the body at night, in states of illness, and during ritual, explains dreams, insanity, and prophecy.



Figure 7—World map of al-Idrisi, from 1456 copy of ‘Ali ibn Hasan al-Hûfi al-Qâsimî

It would take around four centuries for Ibn Khaldûn’s works to be recognised in Europe⁶⁰ and it was only in 1406, the year of his death, that Ptolemy’s *Geography* was translated into Latin.⁶¹ In the 1240s, referencing Avicenna and Ptolemy, the Dominican friar Albertus Magnus (c.1193–1280) wrote of the “*latitudinum septem lineis* [seven lines of latitude]”

⁶⁰ Alatas 2013.

⁶¹ By Jacopo d’Angelo (1360–1411). Italiano 2016, 33.

distinguishing “*climata*,” which he further divided in three.⁶² His student Thomas Aquinas (1225–1274)⁶³ advised that when founding a “city or kingdom” one should choose a “temperate region [*regionis enim temperie*],” with good health depending upon the right temperature of the “vital fluids [*humorum*].” However, he did not write of *clima* but rather, of “region [*regio*]” and “place [*loco*].”⁶⁴ As a word in the English language, climate first appeared, contemporaneous with Ibn Khaldūn, in the late fourteenth-century. *The Travels of Sir John Mandeville* (possibly pseudonymous),⁶⁵ first circulated between 1357 and 1371, spoke of the people of India being “in the firste clymat, þat is of Saturne,” while the text’s readers were “in the seuenthe clymat þat is of the mone.”⁶⁶

In Venice in 1511, a Latin edition of Ptolemy’s *Geography* was produced, complete with a large map—looming to the west, the coastline of an enormous land mass labelled “TERRA SANCTAE CRVCIS,” Land of the Holy Cross.⁶⁷ Sub-equatorial regions were now well-accounted for. Thus, to seven northern climates were added three to the south. The Ptolemaic earth was stretched to breaking point but there would be no sudden rupture.⁶⁸ In 1543, shortly before his death, Nicolaus Copernicus (1473–1543) published *De revolutionibus orbium coelestium*;⁶⁹ however, a century later, an aging Galileo Galilei (1564–1642) would pass his final years under house arrest for reproaching the geocentric regime.

In *Les Six livres de la République*,⁷⁰ first published in 1576, Jean Bodin (1530–1596) defended the geocentric orthodoxy, maintaining a world of Aristotelian physics, astrological influence, humoral medicine, and latitudinal ethnology. However, though he remained focused on the northern hemisphere, he made no use of the seven climates, instead differentiating polar, temperate, and tropical regions.⁷¹ Indeed, Bodin used the word “*climat*” only when remarking that, in the “same climates,” Oriental and Occidental peoples differ greatly and that, moreover, even “in the same climate, latitude, longitude, and under the same degree,” there are hills and plains, which impart their particular effects.⁷² Moreover, Bodin departed with Ptolemaic tradition still further by redistributing the influence of the planets, placing the cold region under

⁶² Glacken 1967, 267.

⁶³ In his *De regno [On Kingship]*, addressed to the King of Cyprus. Thomas Aquinas 1979.

⁶⁴ *Ibid.*, 68–71; Glacken 1967, 274–276. Parallel Latin available: Thomas Aquinas 2010.

⁶⁵ Larner 2008.

⁶⁶ OED Online 2008a; Mandeville 1900, 109.

⁶⁷ Ptolemaios and Sylvanus 1511; Schwartz 2008, 51.

⁶⁸ McGuirk 1984.

⁶⁹ *On the revolutions of the celestial spheres*. Copernicus 1543.

⁷⁰ *The Six Books of the Republic*. Bodin 1993; Bodin 1967.

⁷¹ Bodin 1993, 412–413. Three regions of 30 degrees each (Glacken 1967, 437). However, these regions didn’t necessarily adhere to the geometry when discussing political matters.

⁷² Bodin 1993, 407–408.

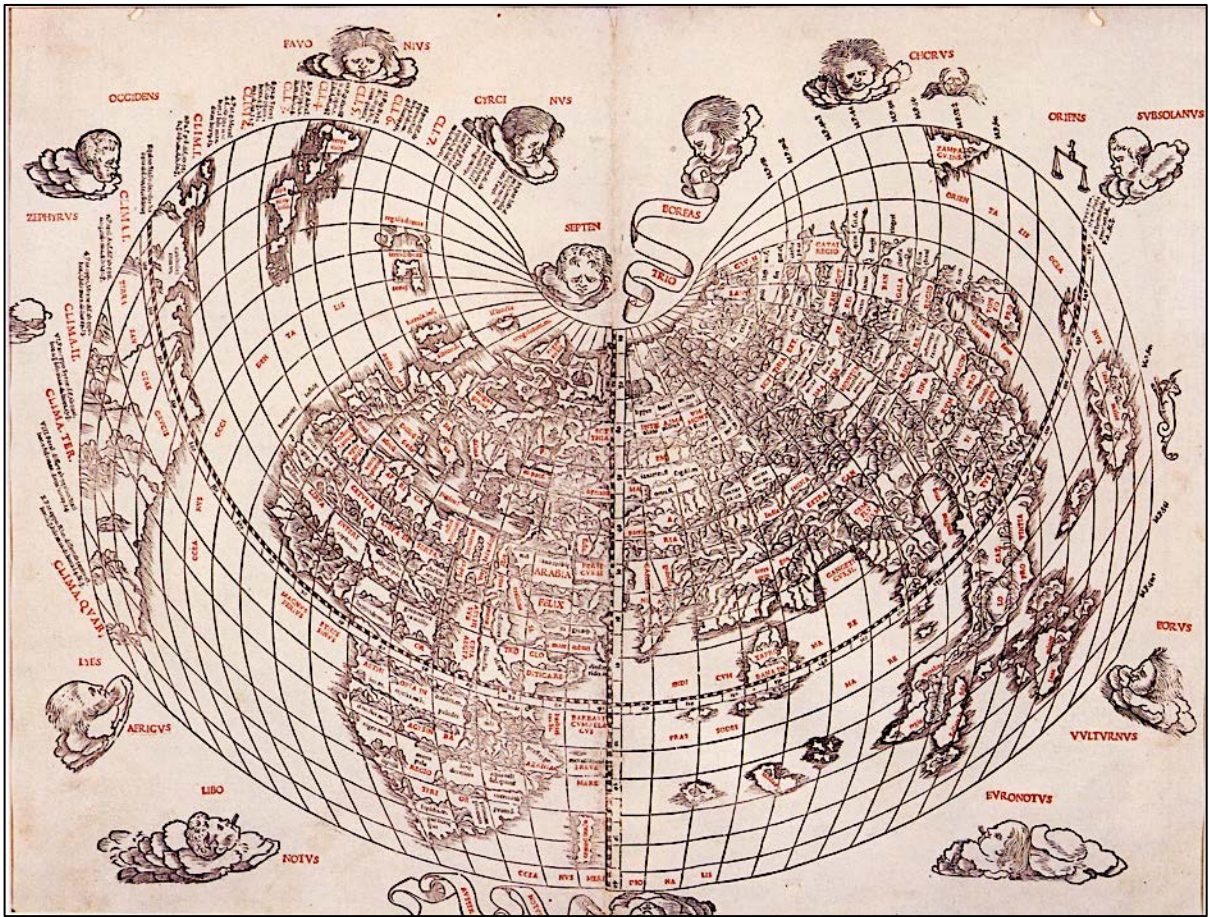


Figure 8—Bernard Sylvanus world map on the basis of Ptolemy's *Geography*, 1511

Mars and Luna, the hot under Venus and Saturn, and the middle under Jupiter and Mercury.⁷³ To the three peoples “Northern, Southern, and middle [*Septentrional, Méridional, et moyen*]” corresponded three virtues. The former were hard-headed, excelling at war and manufacture; the latter, spiritual and intelligent, with aptitude for the occult. It fell, therefore, to “the peoples of the middle [*les peuples du milieu*]” to “negotiate, traffic [*trafiquer*], judge, preach [*haranguer*], command, establish Republics, and compose laws and ordinances for the other peoples.”⁷⁴

Jupitarian and Mercurial, the task of the Republic was, thus, one of constitutive equipoise. Still within an Aristotelian cosmos, where every being is essentially purposeful; where matter collides with form only thanks to the perpetually oscillating, ascendingly perfected spheres; where bodily constitutions ebb and flow with breezes, aerial and helial. Bodin was not appraised of the corporeal mechanics and frightful infinities that would so impress (and appal) savants a generation hence. His earth, bihemispheric but still, could not, by definition, be a planet;⁷⁵ the *astères planétaires*⁷⁶—stars that wander—yet wandered. The terrestrial and astral remained fluidly co-extensive. However, Bodin was already embedded in those out-reaching

⁷³ Ibid., 424–426.

⁷⁴ Ibid., 423–424.

⁷⁵ First use of “planet” in sense including the Earth: OED Online 2006; Wilkins 1640.

⁷⁶ ἀστέρες πλανῆται.

flows of oceanic itinerants, pirates and profiteers, tale-tellers, and traders, daily bringing worlds to into collision.

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The famous frontispiece to the *Novum Organum Scientiarum*<sup>77</sup> of Francis Bacon (1561–1626), published in 1620, depicts a ship passing through the Pillars of Hercules. Below reads: “*Multi pertransibunt & augebitur Scientia,*” a Latin rendering of Daniel 12:4—“many shall run to and fro, and knowledge shall be increased.”<sup>78</sup> Though disgraced by allegations of debt and corruption the following year, in 1620, Bacon was Lord High Chancellor of England, and this, the second book of his never-completed *Instauratio Magna*,<sup>79</sup> announced a plan: “to begin the whole labor of the mind again.”<sup>80</sup>

“The sciences we possess,” Bacon wrote, “have been principally derived from the Greeks.” Roman, Arabic and other writers “are but few and of small importance.” However, those fêted Hellenics were altogether too “prone to talking,” vain for public gratification, and “unproductive of effects.”<sup>81</sup> Indeed, “a vast number of climates and zones [*climata et zonae*], in which innumerable nations [*populi*] live and breathe, were pronounced by them to be uninhabitable, while, in Bacon’s day, many parts of the New World “and every extremity of the Old” were well within grasp.<sup>82</sup>

In 1583 Richard Hakluyt (1553–1616) was sent to the English Embassy in Paris, under the guise of being the ambassador’s chaplain, to acquire information on the “Western discoveries.” At the commission of Walter Raleigh (c.1554–1618),<sup>83</sup> Hakluyt wrote an enthusiastic report on the prospects of English colonisation, presented to Elizabeth I (1533–1603) in 1585.<sup>84</sup> Three years later, he returned to England, whereupon he published a series of encyclopaedic, pan-continental collations of travel writing.<sup>85</sup> Mandeville’s remarks on “the seveneth climat” were excerpted.<sup>86</sup> However, the primary concern of Hakluyt, the authors he copied from, and his presumed readers was, unambiguously, with what each climate contained,

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<sup>77</sup> *New Instrument of Science*.

<sup>78</sup> King James Version.

<sup>79</sup> *The Great Restoration*.

<sup>80</sup> Bacon 1902, 7.

<sup>81</sup> *Ibid.*, 47–49.

<sup>82</sup> *Ibid.*, 50; Bacon 1858, 182.

<sup>83</sup> Knighted in 1485.

<sup>84</sup> Hakluyt 1993.

<sup>85</sup> Culminating in *The Principal Navigations, Voyages, Traffiques and Discoveries of the English Nation* of 1598. Hakluyt 1885–1890, vols. 1–16.

<sup>86</sup> Hakluyt 1888, vol. 8, 211.

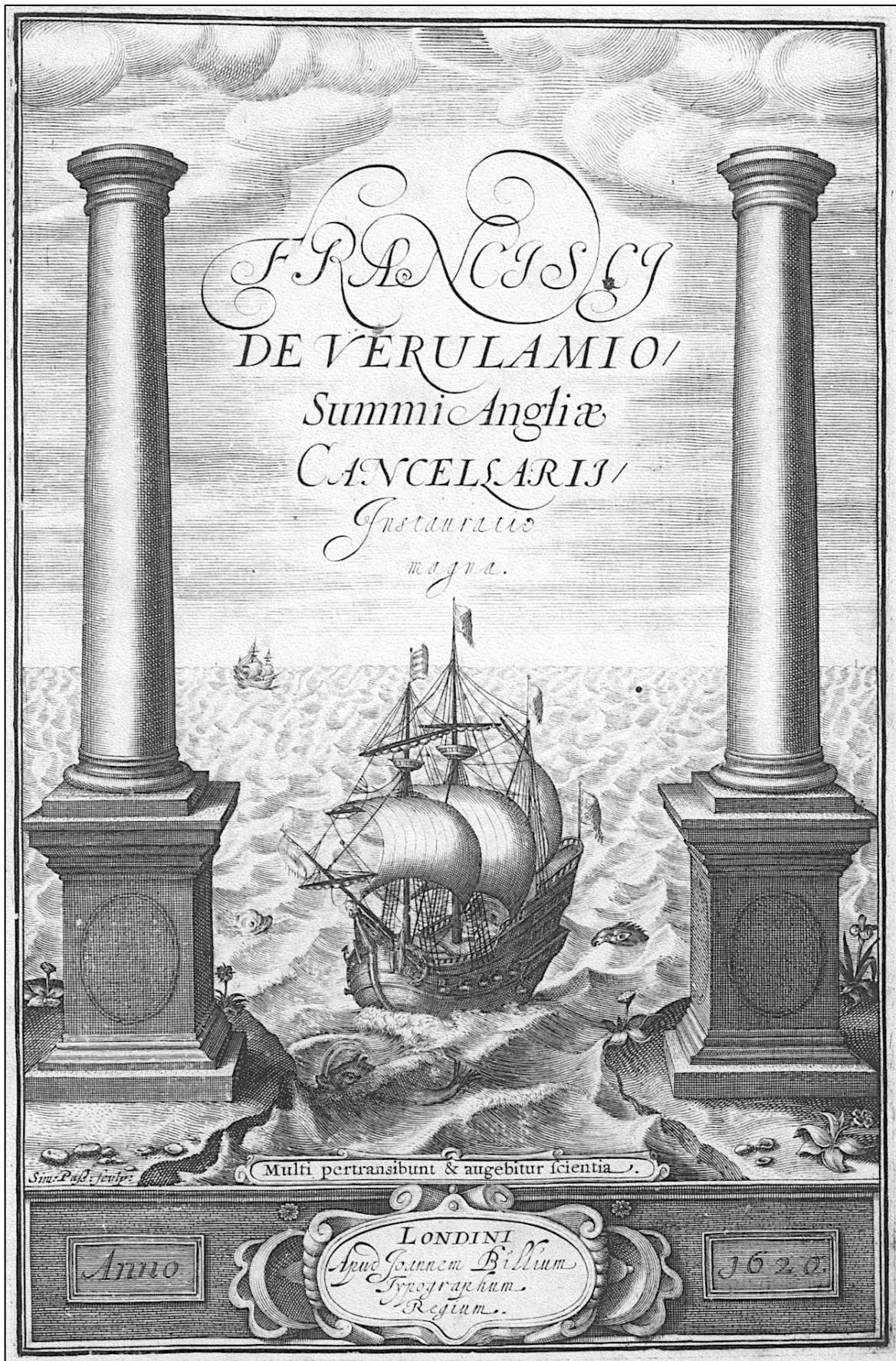


Figure 9—Frontispiece to Francis Bacon’s *Instauratio Magna*, 1620

not with relative position. The text spoke of climates, frequently “colde” and “Northren”<sup>87</sup> but also “hote,”<sup>88</sup> “temperate,”<sup>89</sup> “wholesome,”<sup>90</sup> “watery,” and “sickly.”<sup>91</sup> The climate of Persia, it

is mentioned, is the “selfe same” as that of Virginia, the provenance of “Silke works” as a “Merchantable” commodity not going unmentioned.<sup>92</sup> Thus, in both its specificity and its possibility, Hakluyt’s *Navigations* attests to a world being forcibly expanded outwards.

If climate as an expression was, with Bodin, threatened with obscurity, by the time that William Shakespeare (1564–1616), contemporary of both Bacon and Hakluyt, wrote *The Tempest* sometime around 1611, it had become rather more commonplace.<sup>93</sup> After mocking the optimistic Adrian and aspirant Gonzalo who are convinced, against the evidence, of their island’s colonial prospects, the sarcastic Sebastian and Antonio remain awake, as their fellow castaways are lulled to sleep by the sprite Ariel.

“SEBASTIAN. What a strange drowsiness possesses them!

ANTONIO. It is the quality o’ th’ climate.”

Shakespeare’s earlier works refer to “our clime”<sup>94</sup> or “native clime,”<sup>95</sup> largely preferring clime to climate. However, in *Richard II* (1595), the Bishop of Carlisle speaks of “a Christian climate” in similar terms.<sup>96</sup> Meanwhile, *King John* (c.1596) has the French monarch Philip declare that his own oathful hand “sways the earth this climate overlooks.” Later, in *The Winter’s Tale* (c.1611), the king Leontes, believing his wife unfaithful, demands that she abandon their child in some remote place, leaving it to the “favour of the climate.”<sup>97</sup> Thus, by 1611, a popular, poetic climate could be an airy and enveloping entity, productive of characters, sensations, and constitutions. It had a sense of highness, openness, and the meteoric. However, it was tied to country, land, place, or domain.

Among the most popular texts in the growing national characteristics genre in subsequent decades was the 1614 *Icon animorum* of the neo-Latin poet John Barclay (1582–1621). There is in every age, Barclay’s second chapter declared, “a particular Genius” and in every region “a proper Spirit,” that makes its inhabitants, “according to it selfe.”<sup>98</sup> However, while

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<sup>87</sup> Hakluyt 1885, vol. 1, passim.

<sup>88</sup> Hakluyt 1889, vol. 11, 273.

<sup>89</sup> Hakluyt 1887, vol. 5, 296; Hakluyt 1889, vol. 12, 58; Hakluyt 1889, vol. 13, 19.

<sup>90</sup> Hakluyt 1886, vol. 4, 10.

<sup>91</sup> Hakluyt 1890, vol. 15, 169, 308.

<sup>92</sup> Hakluyt 1889, vol. 13, 331.

<sup>93</sup> All references to: Shakespeare 1994, unpag.

<sup>94</sup> *Titus Andronicus* (c.1591); *The Merchant of Venice* (c.1596).

<sup>95</sup> *Henry VI: Part 2* (1591).

<sup>96</sup> While John of Gaunt describes Bolingbroke as “flying to a fresher clime,” and Richard himself declares himself headed northward, “Where shivering cold and sickness pines the clime.”

<sup>97</sup> Despatched to the Oracle at Delphos to confirm suspicions, Cleomenes remarks to Dion, “The Clymat’s delicate, the Ayre most sweet.”

<sup>98</sup> Barclay 1631, 36.

“under those Climates” that suffer “much cold, and moist ayre,” persons “faire and gray ey’d” tend to be produced, such effects are not uniform in any region.<sup>99</sup>

The 1664 treatise *Sylva*<sup>100</sup> by John Evelyn (1620–1706), prepared for the Royal Navy, catalogued the kinds and qualities of plants in order to promote rational forestry practices. Discussing the arboreal writings of Pliny, Evelyn remarked that the ancient author “attributes much to the *indoles* [in-born qualities] and nature of the *Climate*, and *Impressions* of the Air.”<sup>101</sup> In the third edition of 1679, Evelyn added that, with regard to the effects of harsh weather on timber, “when we speak of the climate, ’tis to be understood of vallies rather than hills, and in calm places, than exposed, because they shoot streight and upright.”<sup>102</sup> Thus, climate was understood as being a localised effect of several factors.

When Bacon’s *Novum* of 1620 was later translated into English, “*climata et zonae*,” became, quite straightforwardly, “climates and zones.”<sup>103</sup> However, the poet Barclay’s *Icon* of 1614 was worded somewhat differently compared to its iteration of 1631: not “under those Climates” but “*sub iis sideribus*”—literally, under the stars.<sup>104</sup> Climate was, then, becoming a more conventional term, able to stand in for other expressions becoming archaic.

In 1676, Henry Oldenburg (c.1616–1677)<sup>105</sup> wrote in his preface to the eleventh volume of the *Philosophical Transactions*:

And, I think, I may say, that a *Natural History of Countries* is most wanting; which, if well drawn, would afford us a copious view, and a delightful prospect of the great variety of Soyls, Fountains, Rivers, Lakes, &c. in the several places of this globe [...].”

The state of knowledge was, in many respects, parlous: “Destroying heats,” sometimes appear in “colder Climats,” with “Refrigerating seasons in the Sunny Climats.” Assuagement of the “Epidemically destructive” maladies that resulted clearly required understanding of their cause.<sup>106</sup> Following Oldenburg’s preface was a highly favourable review of the *Observationes Medicae, circa Morborum Acutorum Historiam et Curationem* of Thomas Sydenham (1624–1689).<sup>107</sup> It was translated into English in 1696 by John Pechey (1655–1716).<sup>108</sup> Further translations

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<sup>99</sup> Barclay 1631, ch. 10, 2.

<sup>100</sup> Subtitled: *or A Discourse of Forest-Trees and the Propagation of Timber in His Majesty’s Dominions*.

<sup>101</sup> Evelyn 1664, 52.

<sup>102</sup> Evelyn 1801, vol. 1, 87–88.

<sup>103</sup> Bacon 1733, vol. 2, 371.

<sup>104</sup> Barclay 1631, ch.10, 2; Barclay 1675, 118.

<sup>105</sup> 25 March, 1676.

<sup>106</sup> Oldenburg 1676, 551–556.

<sup>107</sup> Anonymous 1683. *Medical Observations, on the History and Treatment of Acute Illnesses*, Sydenham 1683.

<sup>108</sup> Sydenham 1701.

followed in 1742, 1848<sup>109</sup> and 1922,<sup>110</sup> with many more editions and impressions, becoming a standard medical textbook for the next two centuries.

As early as the mid-eighteenth century, Sydenham was dubbed the “English Hippocrates.”<sup>111</sup> However, this inheritance is complicated. The preface to *Observationes* begins by declaring:

“As the Human Body [*humani corporis fabrica*] is so framed by Nature, that by reason of a continual flux of Particles, and the force of external Things [*externarum rerum*], it cannot always continue the same; upon which account there have been great numbers of Diseases in all Ages [...].”

Then are expounded four principals of a “Practice of Physick”: first, diseases must be described, as per Lord Bacon; second, “reduced to certain and definite Species,” without “Philosophical Hypothesis”; third, permanent “Phænomena” distinguished from accidental; finally, and fundamentally, “the seasons of the year” must be carefully observed.<sup>112</sup> However, while empiricism and seasonality was straightforwardly Hippocratic, Sydenham’s understanding of humours differed dramatically. Disease was the result not so much of imbalance as from the “vitiated Particles,” impairing humoral passage, which Nature attempts to expel with “the help of a Fever.”<sup>113</sup> An epidemic persists “as long as this secret constitution of the Air [*illâ aeris constitutione*], and no longer.”<sup>114</sup>

Thus, Sydenham focused on five “Epidemical Constitution[s] [*Constitutio Epidemica*],” occurring over multi-year periods from 1661 to 1675.<sup>115</sup> While heat, cold, and moisture may constitute disease one year, others proceed, for example, “from a secret and inexplicable alteration in the Bowels of the Earth, whereby the Air is contaminated with such *Effluvia* as dispose Bodies to this or that Disease.”<sup>116</sup> A “morbifick Contagion” may, therefore, be an element of the disease phenomenon but the complete cause was more complex. Thus, while Sydenham occasionally used the term climate, for example remarking that the pox found in the Caribbean and in France appears the same despite “the diversity of Climates [*Climatum*],” this was, for his Physick, an inessential concept.<sup>117</sup>

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<sup>109</sup> Sydenham 1848.

<sup>110</sup> Sydenham 1922.

<sup>111</sup> E.g. Marten 1722, 115; see also Anstey 2011a.

<sup>112</sup> Sydenham 1701, first four pages of Preface, unpaginated; Sydenham 1683, chap. Præfatio.

<sup>113</sup> Sydenham 1701, 2.

<sup>114</sup> *Ibid.*, 3; Sydenham 1683, 4.

<sup>115</sup> 1661 to 1665; 1665 and 1666; 1667 to early 1669; 1670 to 1672; and 1673 to 1675. Sydenham 1701, sec. 2; Sydenham 1683, sec. 2.

<sup>116</sup> Sydenham 1701, 5.

<sup>117</sup> *Ibid.*, 248; Sydenham 1683, 386.

At his home in Pall Mall, London, Sydenham was a neighbour of Katherine Jones, the Viscountess Ranelagh (1615–1691), in whose house her brother Robert Boyle (1627–1691) kept his laboratory.<sup>118</sup> Indeed, Sydenham and Boyle were close collaborators. When in failing health, Boyle enlisted the help of John Locke (1632–1704) to complete his *General History of the Air* (duly published the year after Boyle’s death in 1692).<sup>119</sup> Long a reader of his treatises, since at least 1666 Locke had, at Boyle’s suggestion, begun making notes on the weather. Moreover, in April of that same year, Boyle sent Locke a barometer, hoping him to descend a mine in the Mendip Hills, near the latter’s Somerset birthplace. This was a failure, neither the instrument nor its bearer convincing the interloped miners of their purpose.<sup>120</sup> In 1667, Locke had become personal physician to Lord Anthony Ashley Cooper, First Earl of Shaftesbury (1621–1683), while studying medicine under Sydenham. The two also collaborated, with Locke likely helping to edit, and perhaps embellish, the preface to the aforementioned *Observationes Medicae*.<sup>121</sup>

Thus, by 1700, climate as a general relation of place to temperature and humidity could be unremarkable. However, climate was not the air, nor the atmosphere, nor the constitution thereof. Nor was it an essential point of reference for either medicalists or moralists—it was altogether absent from Locke’s own works. However, its significance for morals and for government had by no means dissipated.

Having spent most of the period 1664 to 1677 in Persia, the East Indies, and the Black Sea region, the Paris-born Jean Chardin (1643–1713) published his travelogues in 1686, an expanded edition appearing in 1711, with considerable success.<sup>122</sup> As well as customarily extensive descriptions of provinces, peoples, and customs, remarking regularly on the “the quality of Land & Climate [*du Terroir & du Climat*],”<sup>123</sup> Chardin would also locate certain places in terms of their latitudinal climate; however, like Hakluyt a century before, this was not his main climatic concern.

Rather, Chardin repeatedly declares: “I always come back to the air, & the climate, when it comes to the customs and manners of Peoples.”<sup>124</sup> Explaining that Persians do not stroll about (“*Promenade*”) or seek to travel (“*Voyager*”), and that the men are always on horseback, he adds that since “climate” is the main cause of each people’s “inclinations and customs,” accordingly peoples are not more diverse than the “the constitution of the air,” which varies

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<sup>118</sup> Meynell 2006, 95.

<sup>119</sup> Boyle 1692.

<sup>120</sup> Anstey 2011b, 51–59.

<sup>121</sup> Meynell 2006, 95.

<sup>122</sup> Chardin 1686a. English translation: Chardin 1686b. All extant English versions remain heavily abridged.

<sup>123</sup> Chardin 1711, vol. 3, 83.

<sup>124</sup> Chardin 1711, vol. 3, 112.



from place to place.<sup>125</sup> However, he is sure to add that, rather than accusing distant peoples of “caprice or fantasy,” experience shows that men always have enough “good sense to make use of things in the manner that is most appropriate [*convenable*].”

“The climate is undoubtedly the inventor, so to speak, & the cause of all we find singular in the manners [*manières*] of Peoples, & perhaps even in their morals [*mœurs*], as I never tire of observing.”<sup>126</sup>

Two years after Chardin’s travelogues, Bernard Le Bovier de Fontenelle (1657–1757) wrote that ideas are, “like plants or flowers,” partial to “climate.”

“the interrelation [*l’enchaînement*] and reciprocal dependence between all the parts of the material world, the differences of climates that plants feel, must extend also to brains [*cerveaux*].”

However, unlike plants, “art and culture” have far greater effect “with brains than with the earth [*terre*],” which is of more obdurate and “intractable matter.” Indeed, “the thoughts [*pensées*] of a country are more easily transported to another than its plants.” Thus, if French married only Greeks, the effect of reading Greek books would be much the same, even if faces were altered a little. Slight differences between neighbouring climates are, therefore, easily effaced due to the “exchange [*commerce*] of books that they will have together,” though this is not true of very distant peoples. “And so, here we are all perfectly equal, ancient and modern, Greeks, Latins and French.”<sup>127</sup>

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Sailing between the equator and the northern fifteenth parallel, shortly before his ship is attacked by Moorish pirates, the titular character of *Robinson Crusoe* (1719) by Daniel Defoe (1661–1731) is “thrown into a violent Calenture by the excessive Heat of the Climate.”¹²⁸ However, after his shipwreck, he learns to live with the torrid conditions. On his way to the West Indies, and shortly after being attacked by pirates (Japanese this time), the titular character of *Gulliver’s Travels* (1726)¹²⁹ by Jonathan Swift (1667–1745) finds himself on a flying island inhabited by astrologers, finding an “Abundance of Vivacity” in the women of the island, thus demonstrating that such “Caprices” are “not limited by any Climate or Nation, and that they are much more uniform, than can be easily imagined.”¹³⁰

The time of Shakespeare had seen climate becoming an increasing concern of Anglo-French authors but was yet conceptually novel enough for literary experimentation. In both its

¹²⁵ Chardin 1711, vol. 2, 39–40.

¹²⁶ *Ibid.*, vol. 2, 51.

¹²⁷ Fontenelle 1825, vol. 4, 235–237.

¹²⁸ Defoe 1719, 127.

¹²⁹ *Gulliver’s Travels into several Remote Nations of the World*

¹³⁰ Swift 1726, vol. 2, 31–34.



Figure 10—The flying island of Laputa, 1839

geo-lateral and ethno-causal senses, what was more or less notionally familiar to Shakespeare was, for Chardin, Fontenelle, Defoe, and Swift, clearly conceptually defined. However, climate was far from all-encompassing, remaining, for the most part, attached to notions of latitude and being medically secondary to the more expansive question of airs. Moreover, although issues of

causation were paramount, the distribution of agencies that this climate implied was, and remained, contested.

6.2: From art to instruction: The climate of Montesquieu

In 1719, Jean-Baptiste, l'Abbé Dubos (1670–1742) published a three-volume tome on aesthetics, *Réflexions critiques sur la poésie et sur la peinture*.¹³¹ In 107 sections,¹³² Dubos begins, rather à la mode of an Ancien Régime aristocrat, from “the necessity of being occupied in order to escape ennui [*fuir l'ennui*],” which, he counsels, can be ameliorated through art. However, at the centre of Dubos' reflections, the second volume begins with the question of “genius.” It is an inborn condition, the enabler of all invention, received from nature itself.¹³³ Nevertheless, its causes are varied. “Moral causes”—defined as those which do not affect the “mind [*esprit*]” or “physical” nature of the artist but which enable and reward their labours—are first acknowledged to have much to do with the differences between countries and centuries. However, it is “physical causes” that put “moral causes in motion.”¹³⁴

None other than the chevalier Chardin noted the enervation of the spirit imparted by torrid climates.¹³⁵ “It has always been observed,” Dubos declares, “that climate was more powerful than blood and origin.” Indeed, when such effects weigh not just upon a particular body but an entire people, their consequence must be even greater. Those Greco-Gaulish who settled in Asia “in five or six generations” lost their inborn belligerence, becoming “effeminate.” “Spanish blood,” so courageous in Europe, “degenerated” in the Americas.¹³⁶ The fall of such high and mighty empires as the Roman could, likewise, only be explained through “great changes in the air.” After suffering the pillages of Goths and Normans, various waterways and “cesspools [*cloaques*]” became clogged with “debris [*décombres*],” no longer able to flow into the Tiber, thus becoming “infected.”¹³⁷ Citing Tacitus (c.56–c.120 AD), the world is found “subject to changes and vicissitudes.”¹³⁸ However, the aerial imperium was not total. While the transportation of books and ideas, *pace* Fontenelle, could not supplant primary physical causes, aspects of distant climates could be conveyed through the trade of commodities such as wine,

¹³¹ *Critical reflections on poetry and painting*. Dubos 1733, vol. 1; Dubos 1733, vol. 2; Dubos 1733, vol. 3. English translation: Dubos 1748a; Dubos 1748b; Dubos 1748c. Quotations are my translation from the French 1733 (revised) edition.

¹³² Volume 1: 50; volume 2: 39; volume 3: 18.

¹³³ Dubos 1733, vol. 2, sec. 1.

¹³⁴ *Ibid.*, vol. 2, sec. 12.

¹³⁵ *Ibid.*, vol. 2, secs 16, 19.

¹³⁶ *Ibid.*, vol. 2, sec. 15.

¹³⁷ *Ibid.*, vol. 2, 16. Likewise, certain plagues had disappeared and returned in France, implying a periodic “revolution” of the physical circumstances that bore them. *Ibid.*, vol. 2, sec. 20.

¹³⁸ Dubos 1733, vol. 2, sec. 20.

sugar, tobacco, and chocolate. By such means, “the land [*terre*] of the Canaries” is consumed in English stomachs.¹³⁹

Though differing in conclusion, Dubos echoed Fontenelle in articulating the relational dependencies of aerial nature. Minds, blood, lungs, and air are tightly bound. Moreover, the air affects the soil, hence the efficacy of its ploughing. Moreover, as the earth’s composition varies, so the air that “encircles [*enserre*]” it differs. Being “a mixture of solids and liquids” of various species, the earth is constantly active, generating “fermentations” as the “central fire” puts such matter into motion. The colour of the skies, especially at dusk and dawn, reveal these “diverse changes” to the senses. In Italy, “a greenish blue”; in the Netherlands, “pale blue”—contrasts apparently evident in the paintings of Titian (1488–1576) and Rubens (1577–1640). Moreover, such “exhalations” as the earth conveys airborne are the very materials of thunder and lightning. Earthquakes and volcanoes, too, cannot yet be attributed to anything but continual “fermentations” in “the bosom of the earth.” No other cause can be invoked “unless we wish the stars to act out [*agir*] their influences once again.”¹⁴⁰ Thus, though the powers of climate were considerable, as with Boyle and Sydenham, it was not climate so much as the emanation of airs that were, for Dubos, conceptually primary.

In 1733, the physician and satirist John Arbuthnot (1667–1735) published his popular treatise *An essay concerning the effects of air on human bodies*. “Diet, [...] Air, Rest, and Motion” were the four “*Non-naturals*” upon which Arbuthnot planned his medical works.¹⁴¹ This text would, therefore, deal with the second. Both “the great *Hippocrates*” and “Dr. *Sydenham*” had assiduously observed Air’s effects “in the Oeconomy of Diseases,” with the former making it “the τὸ θεῖον [*to theïon*]”—that is, of the gods, divine—as regards diseases. “Air,” for the physician of Kos, was nothing less than “the Powers of the Universe,” which “Human Nature cannot overcome.” Thus, Arbuthnot quotes what he takes to be Hippocrates’ maxim: “that whoever intends to be Master of the Art of Physick, must observe the Constitution of the Year.”

In now quite conventional terms, Arbuthnot wrote that Air is formative of “the Constitutions of Mankind,” establishing their “Features, Complexion, Temper,” and “Manners,” which differ between “Countries and Climates,”¹⁴² this being “an uncontested

¹³⁹ Ibid., vol. 2, sec. 17.

¹⁴⁰ Ibid., vol. 2, 18.

¹⁴¹ Arbuthnot 1733, v.

¹⁴² Ibid., 146.



Figure 11—Titian’s *Bacchus and Ariadne*, c.1522; and Rubens’ *A View of Het Steen in the Early Morning*, c.1636

Matter of Fact.”¹⁴³ As Hippocrates had it, European courage owes “to the Variety and Coldness of their Climate, and their Laws which secure their Property to their Courage.”¹⁴⁴ Thus, bodily being is profoundly malleable to circumstance.

¹⁴³ Ibid., 154.

¹⁴⁴ Ibid., 152.

“I believe if a Race of *Laplanders* were transplanted thither, in a few Years they would be found in the Condition describ’d by the Emperor *Julian*. Governments stamp the Manners, but cannot change the Genius and Temper of the Inhabitants; and as far as they are unrestrain’d by Laws, their Passions, and consequently their National Virtues and Vices will bear some Conformity with the Temperature of the Air.”¹⁴⁵

However, further than Sydenham, and even Dubos, Arbuthnot endeavoured to rearticulate the principles of their “sagacious old Man” in terms of “mechanical Causes,”¹⁴⁶ for example as regards the effect of “the Weight of the Air” on “the Tension of the Fibres, the whole nervous System, and the animal Spirits.”¹⁴⁷

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The Bordeaux magistrate known generally as Montesquieu (1689–1755) first achieved literary success in 1721 with his *Lettres persanes*, a satirical account of French society through the eyes of two Persian noblemen. In the third of the letters, one protagonist receives a letter from one of his wives, Zachi, who laments: “Thou leav’st us, Usbek, to go rambling [*aller errer*] in barbarous Climates.”<sup>148</sup> In letter 70, Rica writes to Usbek of a Parisian who deigned to lecture him on the details of Persia “upon the authority of Tavernier and Chardin.”<sup>149</sup> However, it was Montesquieu’s *De l’esprit des loix*<sup>150</sup> of 1748 that would associate his name almost indelibly with the concept of climate.

Travelling to England on his Grand Tour in 1730, Montesquieu journeyed with Philip Dormer Stanhope, 4th Earl of Chesterfield (1694–1773), to whom John Arbuthnot was personal physician. Whether or not they met, already in 1729, Montesquieu shared one of Arbuthnot’s core concerns: bodily fibres.<sup>151</sup> In a collection of notes largely composed between 1736 and 1741 (though not published until 1892),<sup>152</sup> Montesquieu set out his fiberal physiology. Soul and body are related “like a spider in its web.” The tauter the threads, the stronger the “communication” to the soul.<sup>153</sup> Thus, in the Americas, for instance, it has been established that “savages” cannot be disciplined, corrected, or educated. One can no more teach them, Montesquieu says, than “bend the fibers of their brains.”<sup>154</sup> However, this geography of cranial

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<sup>145</sup> Ibid., 149–150.

<sup>146</sup> Ibid., 152.

<sup>147</sup> Ibid., 151.

<sup>148</sup> Montesquieu 1721, vol. 1, 17; Montesquieu 1751, 6.

<sup>149</sup> Montesquieu 1721, vol. 1, 139; Montesquieu 1751, 172. On Montesquieu and Chardin, see: Dabashi 2015.

<sup>150</sup> *The spirit of the laws*. Montesquieu 1748, vol. 1; Montesquieu 1748, vol. 2. English translation: Montesquieu 1750, vol. 1; Montesquieu 1750, vol. 2.

<sup>151</sup> Shackleton 1955, 323–324.

<sup>152</sup> Montesquieu 1892, 189; English translation: Montesquieu 1976.

<sup>153</sup> Montesquieu 1976, 144–145; *ibid.*, 123.

<sup>154</sup> Montesquieu 1976, 148; Montesquieu 1892, 130.

fibrosity did not straightforwardly privilege the European *esprit*. Canarins (native Goan Christians) are said to be so intellectually superior to the Portuguese that the colonisers forbid them any sort of work except being solicitors. This is attributed directly to “climate”; however, such differences must take an indeterminate amount of time to effect.<sup>155</sup> Thus, since their conquest, the Portuguese have remained much the same, unaffected by the benefits of their ill-gotten climes.

However, this long-unpublished assortment of thoughts also places strict limits on physical causes.

“For there is, in every nation, a general character that affects [*se charge*] every member, to a greater or lesser degree. This is produced in two ways: by physical causes, which depend on the climate, of which I shall say no more; and by moral causes, which are a combination of laws, of religion, of mœurs and manners, and of this kind of emanation of a way of thinking, of the air and nonsense [*sottises*] of the Court and of the Capital, which spreads itself far and wide.”<sup>156</sup>

Thus, moral causes have more effect on “the general character of a nation and the quality of its spirit [*esprit*]” than physical.<sup>157</sup>

“You have to go into a little detail. Our particular genius [*génie*] is formed to a large extent by the persons with whom we live. The association of intelligent people [*Le commerce des gens d’esprit*] gives us a perpetual education. [...] Human machines [i.e. bodies] are invisibly linked; the springs [*ressorts*] that make one move one also move the others.”

Being amongst the moderate imparts gentleness; amongst the impetuous, vivacity. However, “[a]ll our ideas are linked to one another, and to ourselves.” Thus, being connected to our brains by so many “sides [*côtés*],” sentiments are altered only with great difficulty.<sup>158</sup> However, these draft principles were not to form a blueprint for the opus to come.

Published in 1748, *De l’esprit des loix* (subsequently “*lois*”), consisted of thirty-one books in six parts. “Laws,” Book I begins, are, “in their most extensive signification, the necessary relations deriving from the nature of things.”<sup>159</sup> Natural law, then, antecedes all positive law, “deriving only from the constitution of our being.”<sup>160</sup> Once in society, the fear-induced weakness and equality of the state of nature ceases and “the state of war commences”—a war between both individuals and nations. On “so large a planet, it is necessary that there are different peoples [*peuples*].” Thus, there arises a variety of laws dealing between peoples.

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<sup>155</sup> Montesquieu 1976, 143; Montesquieu 1892, 116.

<sup>156</sup> Montesquieu 1976, 152; Montesquieu 1892, 137. Translation modified.

<sup>157</sup> Montesquieu 1976, 152; Montesquieu 1892, 140.

<sup>158</sup> Montesquieu 1976, 158; Montesquieu 1892, 146.

<sup>159</sup> Montesquieu 1748, vol. 1, 1.

<sup>160</sup> *Ibid.*, vol. 1, 5.

However, Montesquieu sets aside this general right, “which can be seen in all societies,” to focus on what is particular to each. No matter how a polity is configured, “the government most in conformity with nature is the one whose particular disposition best relates to the disposition of the people [*peuple*] for whom it is established.”

“They must be relative to the *physics* of the country [*au physique du Païs*], to the icy, burning or temperate climate; to the quality of the land [*terrein*], its situation, its extent [*grandeur*]; to the way of life [*genre de vie*] of the people, be they laborers, hunters, or shepherds; to the degree of liberty that the constitution must sustain [*souffrir*]; to the religion of the inhabitants, their inclinations, their riches, their number, their commerce, their morals [*mœurs*], their manners [*manieres*].”

Taken together, this will be called “*l’ESPRIT DES LOIX*.”<sup>161</sup>

Part three (Books XIV-XIX) were dedicated to matters of climate, soil, and manners. Cold air, contracting the outer fibres of the body, shortens them and “increases their strength [*force*].” Hot air has the contrary effect, loosening the fibres. As such, those in cold climates are more “vigorous,” their fibres and “liquids [*liqueurs*]” in a better equilibrium, blood being pushed closer to the heart, which has greater power.<sup>162</sup> Observing a sheep’s tongue under magnification, papillae covered in tiny hairs are noted and, between them, “pyramids,” presumed to be “the principal organs of taste.” After freezing, the papillae decrease in size and the pyramids disappear but return upon thawing. This, Montesquieu takes to confirm his claim that those in cold countries “have little sensitivity to pleasures,” while in hot countries such sensitivity will be “extreme” and, in temperate countries, moderate.<sup>163</sup> Infamously, he adds: “A Muscovite must be flayed before he is given any feeling [*sentiment*].”

Because, in hot countries, perspiration dries out the blood, alcohol will cause the blood to coagulate. Thus, the Islamic prohibition of such vices is “a law of the climate of Arabia.” By contrast, in cold countries, where one is “full of humours [*humeurs*]” (the only time Montesquieu uses this particular expression in *l’Esprit*), strong liquors that “give movement to the blood” are not only acceptable but inevitable.<sup>164</sup> However, not everything could be thus attributed.

“Many things govern men—climate, religion, laws, maxims of government, examples of past things, mœurs, manners—from which is formed a general *esprit* as a result.

To the extent that, in each nation, one of these causes acts with greater force, the others yield to it. Nature & climate almost solely dominate savages; manners govern the Chinese; laws tyrannise Japan; mœurs formerly set the tone in Lacedaemon [*Sparta*]; maxims of government & ancient mœurs set it in Rome.”<sup>165</sup>

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<sup>161</sup> *Ibid.*, vol. 1, 10.

<sup>162</sup> *Ibid.*, vol. 1, 360–361.

<sup>163</sup> *Ibid.*, vol. 1, 363–364.

<sup>164</sup> *Ibid.*, vol. 1, 372–373.

<sup>165</sup> *Ibid.*, vol. 1, 483.



Thus, while Montesquieu's *Essai* differentiated moral and physical causes in general terms, placing significant emphasis on the former, *l'Esprit* differentiates climatic and other influences in strictly hierarchical terms, as per relative proximity to the supposed state of nature.

In Book XIX, Chapter XIV, Montesquieu explains that a legislator should not attempt to change mœurs and manners by laws since this would seem “too tyrannical.” Rather, mœurs and manners should be altered by their own means. Accordingly, the law requiring Russians to shorten their beards and clothing, like the policy of Peter I requiring women called to court to dress in the German fashion, was injudicious. Though successful in transforming Russian dispositions, this was because:

“the mœurs of the time were foreign to the climate, & had been brought there by the mixture of nations & by conquests. Peter I, giving the mœurs and manners of Europe to a nation of Europe, found facilities that he did not himself expect. The empire of climate is the first of all empires.”<sup>166</sup>

Thus, Montesquieu's most quoted statement regarding climate was not a straightforward declaration of climatic determination. First, concerning the appropriateness of morals to climate, it entailed acknowledgement that other morals could, at least for a time, be adopted. Second, it concerned a people recognised to be in a high, and ascending, social state with moral causes being, accordingly, of greater significance. Finally, while “climate” was, in contrast to Arbuthnot, Dubos, et al., given unambiguous primacy over airs, soils, and other earthly aspects, climate was still one factor among others.

Nevertheless, the backlash against Montesquieu's materialistic pronouncements was more or less immediate. In April 1749, the Jesuit *Journal de Trévoux* requested clarification and, in October, in rather more vituperative terms, the Jansenist weekly *Nouvelles ecclésiastiques* accused him of being a Spinozist. In the latter, Jacques Fontaine de la Roche (1688–1761) took particular exception to the author's climatic theory, which placed “on the same line [*ligne*] all the monks, of whatever religion, be they Christians, Muslims, idolaters.”<sup>167</sup> In February 1750, Montesquieu published *Défense de L'Esprit des lois* in an attempt to clarify and secure his position. As regards “*Climat*,” he wrote:

“all effects whatsoever [*quelconques*] have causes: the climate & other physical causes produce an infinite number of effects. If the author had said otherwise, he would have been regarded as stupid.”

Proof of such differences is provided by “an infinite number of writers of all places & all times.”

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<sup>166</sup> Ibid., vol. 1, 493–494.

<sup>167</sup> Volpilhac-Augier 2003, 140–141.

“In a word, this physics of climate [*ce physique du climat*] can produce diverse dispositions in the *esprits*; these dispositions can affect human actions: does this offend [*cela choque-t-il*] the empire of the one who created, or the merits of the one who redeemed?”

He did not claim, Montesquieu continues, that “diverse local practices of religion” were “either good or bad.” Rather, it was said that “there were climates where certain practices of religion were easier to receive.”<sup>168</sup>

In the same year, 1750, Joseph de La Porte (1714–1779)—priest, poet, and playwright—argued the “noble & brilliant” author of *l’Esprit* to have failed in method,<sup>169</sup> with his conception of climate becoming “what motion [*le mouvement*] is in the Universe, the universal cause of all things.”<sup>170</sup> Scarcely anything escapes its auspices: “Everywhere, it is the climate that decides, that governs; & the first of all empires is, he says, the empire of climate.”<sup>171</sup> Against such impenitent and obdurate creeds, La Porte argues that courage, for example, arises from birth, education, prejudices, and honour; “in a word, it’s the way of thinking [*façon de penser*] & not the climate.”<sup>172</sup> Indeed, recent French successes on the battlefield were to be attributed to the present leadership of Louis XV (1710–1774):

“Behold the true climate [*Voilà le véritable climat*] that bestows bravery, & brings into even the most timid soul that strength, that martial warmth, which makes heroes. He animates, he warms, he ignites the heart of the troops by his presence.”<sup>173</sup>

It would of course, La Porte concedes, be “stupid” to deny that “climate and other physical causes produce an infinite number of effects.” Simply, one must know whether such characters “are more frequent in one climate than in another.”<sup>174</sup>

However, the besieged Baron had his advocates. In May 1750, with characteristic causticity, Voltaire (1694–1778) published a pamphlet<sup>175</sup> decrying the “tonsured clerics” of the *Nouvelles ecclésiastiques*.<sup>176</sup> In 1751, in a reply to La Porte’s own *Observations*, the Jesuit-educated lawyer Claude Francois Felix Boulenger de Rivery (1725–1758) wrote that “the Author of *l’Esprit*” had been attacked as if he were the very inventor of “the influence of climate.” On the contrary, this “is a principle as old as the world [*aussi ancien que le monde*], it is a truth of experience.”<sup>177</sup> Nevertheless, such efforts plainly failed to assuage Montesquieu’s critics and, in

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<sup>168</sup> Montesquieu 1758, 465–467.

<sup>169</sup> La Porte 1751, 3–4.

<sup>170</sup> *Ibid.*, 87–88.

<sup>171</sup> *Ibid.*, 112. Original emphasis.

<sup>172</sup> *Ibid.*, 97.

<sup>173</sup> *Ibid.*, 101–102.

<sup>174</sup> *Ibid.*, 113.

<sup>175</sup> Voltaire 1860, vol. 18, 162–165.

<sup>176</sup> *Ibid.*, vol. 18, 164.

<sup>177</sup> Rivery 1751, 121.

November 1751, *l'Esprit* was placed on the *Index Librorum Prohibitorum*, the Vatican's index of prohibited books, though this, in turn, failed to sunder the Baron's standing.<sup>178</sup>

In the 1754 edition of his *Lettres persanes*, Montesquieu added a censure of transatlantic slavery, the Americas having become “deserted” despite every year receiving new inhabitants: “These slaves, who are transported to another climate [*dans un autre climat*], perish by the thousands,” while the “malignant exhalations” of the ceaselessly laboured mines, and the continual use of “quicksilver,” destroy natives and foreigners alike.<sup>179</sup> However, critics remained.

There was more to the dispute surrounding *l'Esprit* than the concept of climate. However, no other specific concept was more pointedly in dispute. Being suggestive, if not denotative, of a whole cluster of physical causes, including both latitudes and airs, it could be made the argumentative crux of the polemics. In Arbuthnot or Dubos, climate could have a broad and significant meaning, but airs were primary. With Montesquieu, however, climate became both central and unambiguously political. Its contestability was, in this sense, the point.

In his *Dictionnaire philosophique* of 1764,<sup>180</sup> Voltaire sardonically evaluated Chardin, Bodin, Dubos, and their climatic fatalism, siding with “the ingenious Fontenelle.”

“The author of the *l'Esprit des lois*, without citing anyone, pushed this idea even further than Dubos, Chardin and Bodin. A certain part of the nation believed it to be the inventor, and made this a crime.”

Alas, it was ever thus the way with those sundry bloviators possessing more “enthusiasm” than “*esprit*.” Nevertheless, Montesquieu's ages-old nonsense could hardly be taken seriously:

“Everything changes in bodies and *esprits* over time. Perhaps one day Americans will come to teach the arts to the peoples of Europe.

The climate has some power, the government a hundred times more; religion joined to the government more still.”

Not “soil and atmosphere” but rather “opinion, this fickle queen of the world [*reine inconstante du monde*]”—“the climate cedes to opinion.”<sup>181</sup>

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In 1738, at the age of 28, David Hume (1711–1776) completed *A treatise of human nature*,¹⁸² intending to do for “the essence of the mind” what others had for “external bodies”—that is,

¹⁷⁸ Jones 2001, 1622. As would Comte's *Cours*, some years later. Pickering 2018, 251.

¹⁷⁹ Montesquieu 1754, vol. 1, 108.

¹⁸⁰ Published anonymously in Geneva.

¹⁸¹ Voltaire 1784, 35. English translation excludes Dubos: Voltaire 1824, vol. 2, 233.

¹⁸² Subtitle: *being an attempt to introduce the experimental method of reasoning into moral subjects*. For bibliographical information, see Fieser 2003, 5–8; Jones 2013.

ascertaining “its powers and qualities” through “careful and exact experiments, and the observation of those particular effects, which result from its different circumstances and situations.”¹⁸³

“Reason is, and ought only to be,” Hume wrote, “the slave of the passions.” When in anger, “I am actually possess’d with the passion.” That is, as far as “the science of human nature” was concerned, it is internal passions, not external objects, that effect the “modification of existence.”¹⁸⁴ However, and moreover, such passions are also intrinsically communicable—that is, they are in common—and depend profoundly upon “sympathy.” It was to this principle, Hume argued, that should be attributed “the great uniformity” that may be observed “in the humours and turn of thinking of those of the same nation.” This being so:

“[...] ‘tis much more probable, that this resemblance arises from sympathy, than from any influence of the soil and climate, which, tho’ they continue invariably the same, are not able to preserve the character of a nation the same for a century together.”¹⁸⁵

Thus, in contrast to the fibrous bodily spider’s web of Montesquieu’s *esprit*, Hume’s “mind” was altogether existentially *sui generis*. Moreover, in contrast to the classical schema, which was very much still alive, national “humours” had not so much a physiological as a sympathetic existence. One could not be “posses’d” by airs, only by others. The influences of soil and climate were real but secondary. Thus, for Hume, as for Voltaire nearly three decades later, “the climate yields to opinion.”

However, it was in his 1748 essay *Of National Characters*, published the same year as Montesquieu’s *l’Esprit*, that Hume elaborated upon this previously offhand comment. While “vulgar” observers had confused the issue, Hume noted that national differences had generally been accounted for by causes either moral or physical.

“By *moral* causes, I mean all circumstances, which are fitted to work on the mind as motives or reasons, and which render a peculiar set of manners habitual to us.”

The moral, therefore, includes forms of government and public administration, states of wealth and penury, relations to neighbouring nations, “and such circumstances.”

By *physical* causes I mean those qualities of the air and climate, which are supposed to work insensibly on the temper, by altering the tone and habit of the body, and giving a particular complexion, which, though reflection and reason may sometimes overcome it, will yet prevail among the generality of mankind, and have an influence on their manners.”

¹⁸³ Hume 1817, vol. 1, 15–16.

¹⁸⁴ Hume 1817, vol. 2, 106–107.

¹⁸⁵ Hume 1817, vol. 1, 412.

Thus, in contrast to Dubos and Montesquieu, Hume was quite clear that the moral must take priority, “since a nation is nothing but a collection of individuals, and the manners of individuals are frequently determined by these causes.”¹⁸⁶

As for that which distinguishes such consistent human characters as, for example, soldiers and priests, Hume declares himself “inclined to doubt altogether” the operation of “*physical causes*.” Such explanations may, indeed, “at first sight, seem probable.” After all, “such circumstances have an influence over every other animal.” However:

“The human mind is of a very imitative nature; nor is it possible for any set of men to converse often together, without acquiring a similitude of manners, and communicating to each other their vices as well as virtues. The propensity to company and society is strong in all rational creatures; and the same disposition, which gives us this propensity, makes us enter deeply into each other’s sentiments, and causes like passions and inclinations to run, as it were, by contagion, through the whole club or knot of companions.”

Thus, like La Porte’s ovationary account of Louis XV, Voltaire’s scepticism of climate, and Montesquieu’s pre-*l’Esprit* reflections on “*Le commerce des gens d’esprit*,” Hume counterpoised to the physical causes of climate not just moral causes but, more specifically, to inspiration and “communication.” Across the “globe” and throughout history, altogether absent are “the influence of air or climate,” everywhere one finds “signs of a sympathy or contagion of manners.”¹⁸⁷

In 1751, the same year as *l’Esprit des loix* received the Vatican’s official censure, Hume wrote in his *Enquiry concerning the Principles of Morals*:

“The laws have, or ought to have, a constant reference to the constitution of government, the manners, the climate, the religion, the commerce, the situation of each society.”

Such were the principles, he added, of a “late author of genius.” Though remaining nameless, an appended footnote further praised the “author of *L’Esprit des Loix*.” However, this “illustrious writer,” Hume warned, is mistaken in attempting to found his system “on certain *rappports* or relations.”¹⁸⁸ It is notable, then, that Hume’s citation and praise of Montesquieu occurs as a passing comment in a chapter concerning the origins and foundations of justice, particularly with regard to the legitimacy of private property. His momentary prostration to Montesquieu would therefore seem to be more a declaration of solidarity among *philosophes* than a conversion to the climatic doctrine.¹⁸⁹ Indeed, in the remainder of his writings, moral contagion and social

¹⁸⁶ Hume 1889, vol. 1, 244.

¹⁸⁷ Hume 1889, vol. 1, 246–249.

¹⁸⁸ Hume 1751, 54–55.

¹⁸⁹ Cf. Oake (1941, 233) who takes Hume to be “continuously haunted” by the doctrine.

communication retained their primacy, displacing the climatic. For example,¹⁹⁰ in a margin note added to the 1753 edition of his essay on national characters, Hume wrote:

“In JAMAICA indeed they talk of one negroe as a man of parts and learning; but ‘tis likely he is admired for very slender accomplishments, like a parrot, who speaks a few words plainly.”¹⁹¹

Thus, racially-inscribed existential hierarchies could just as well be inscribed by moral contagion as climatic mechanism. Nevertheless, distributions of agency were being contested along other lines.

Hume’s empiricist “contagion” did not proliferate during his life anything like as far and wide as climate had already. However, his six-volume *History of England* (1754–1761) won him long-desired popular and intellectual esteem and was replete with “the contagion of superstitious prejudices,” and the like.¹⁹² Climate, meanwhile, remained, in these works, an expression rare and inconsequential.

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Sophie Friederike Auguste, Princess of Anhalt-Zerbst (1729–1796) first became acquainted with the works of Montesquieu in 1744, aged 15.<sup>193</sup> In June of the same year, Sophie became Екатерина [Yekaterina], leaving Prussia for Russia, converting from Lutheran to Russian Orthodox. Eighteen years later, in July 1762, Catherine led a coup against her husband Peter III, being crowned Empress Catherine II two months later.

Amidst an extensive programme of reform, in January 1765, Catherine set about writing a work of jurisprudential guidance for a prospective Grand Commission. This *Instruction* or *Наказ* [*Nakaz*] borrowed extensively, often copying verbatim, from various Western European authors, including Montesquieu, Cesare Beccaria (1738–1794), François Quesnay (1694–1774), and Adam Smith (1723–1790), as well as the *Encyclopédie*.<sup>194</sup> In July 1767, 460 Commission deputies were called to the opening ceremony and given copies of Catherine’s text.<sup>195</sup> Written in her own hand, mostly in French, Catherine supervised the Russian translation and, in 1770, a lavish four-language edition was issued in St. Petersburg, featuring Russian, French, German, and Latin.<sup>196</sup> Two years previous, the first English version had been published in London, and

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<sup>190</sup> Other examples: e.g. on ancients, climate.

<sup>191</sup> Hume 1889, vol. 1, 252.

<sup>192</sup> Hume 1775, vol. 1, 355.

<sup>193</sup> At the recommendation of Count Carl Gyllenborg (1679–1746). See: Catherine II 1859, 28–29.

<sup>194</sup> Butler and Tomsinov 2010a, 12–15.

<sup>195</sup> *Ibid.*, 20, 22.

<sup>196</sup> Another German translation was published in 1768 and several variants of the French version also existed, including one translated from the German. Butler and Tomsinov 2010b, ix. Only the original French and 1770 German version are referred to here (or, indeed, readily available). *Ibid.*, x, viii.

a second, though long-unpublished, version was produced at the St. Petersburg Embassy of the Earl George Macartney (1737–1806).<sup>197</sup>

Straight from Montesquieu’s Book I, Chapter III, the fifth paragraph of the *Nakaz* declared:

“For those Laws are most conformable to Nature, the peculiar Genuise of which, is best suited to the Circumstances of the People for whom they are instituted.”

However, what both English translations rendered as “Geniuse” and “Circumstances” were, in the French, in both cases, “*disposition*.” In Russian, likewise, the word chosen in both instances was “*raspolozheniye*”<sup>198</sup> (location, disposition or arrangement). The German, like the English, differentiated “*Einrichtung*” (facility, establishment, arrangement) and “*Beschaffenheit*” (nature or composition). The Latin, meanwhile, utilised “*tenor*” and “*tenori*,” expressions suggesting holding to a course of movement, or the sense or contents of a law.<sup>199</sup> The subsequent statement then declared, crucially: “Russia is a European Power.” Indeed, as per Montesquieu,<sup>200</sup> Peter’s reforms had been successful because “the manners then existing” had “disagreed entirely with the nature of the Climate.” The transformation of Russian “*mœurs*” was thus given a climatic basis.

Further indicative of a general familiarity, “*le climat*” of the French could be straightforwardly rendered in Russian and German as “*klimatom*”<sup>201</sup> and “*Klima*,” respectively. The Latin, by contrast, opted for “*coelo*” (meaning air, climate or weather but also stars, universe, heaven). Montesquieu had written of those things that “govern men” and result in “a general *esprit*”: “climate, religion, laws, maxims of government, examples of past things, mœurs, manners.”<sup>202</sup> Catherine retained the list although altered the order:

“Mankind is influenced [*gouvernement*] by many things: Religion, Climate,<sup>203</sup> Laws, Fundamental Maxims of Government, Examples of Actions, Morals [*Mœurs*], and Customs.”<sup>204</sup>

Climate, it would seem, was now the second of all empires. Nevertheless, the hierarchy of climatic imperium was retained, with “Savage Nations”<sup>205</sup> being “influenced almost solely by

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<sup>197</sup> Butler and Tomsinov 2010b, ix; Catherine II 2010, 361–362. The Macartney version was rediscovered and eventually published in 1977.

<sup>198</sup> расположение.

<sup>199</sup> Catherine II 2010, English: 363; French: 113; Russian: 29; German: 271; Latin:189.

<sup>200</sup> Book XIX, Chapter XIV.

<sup>201</sup> климатом.

<sup>202</sup> Book XIX, Chapter IV.

<sup>203</sup> Once again, the Latin is “*coelum*,” while other versions are consistent.

<sup>204</sup> Catherine II 2010, para. 45.

<sup>205</sup> Alternatively, “*les Sawages*,” “*die Wilden*,” “*диких народах [dikikh narodakh]*” (wild peoples), or “*agrestes gentes*” (rustic, wild people), or “Savage people.”

Nature and the Climate.” Thus, while many legal and administrative terms were difficult to translate between French and Russian, climate was a communicable heritage, across the living European languages.

The Commission ended in failure; sunk, according to its enlightened despot, by the ignorance of the gentry.<sup>206</sup> Nevertheless, some 5,000 copies of the *Nakaz* were printed, in various editions; sections of it were read aloud in schools; and, moreover, Catherine was ultimately successful in legitimising her leadership and the principles of absolutism more generally.<sup>207</sup> For all her lofty elocutions, Catherine ruled, and conquered, with the same ruthlessness that dispatched her much-despised husband.

Shakespeare’s Gallic monarch possessed a hand that “sways the earth this climate overlooks.” Climates no longer looked down from the stars. And yet, they retained—and retain—the capacity to place peoples beyond reason’s latitudes. The seat of climatic Jerusalem was forever shifting; its grandeur ever ready to be reclaimed.

### 6.3: This ensemble itself: The demands of the whole

By the end of the eighteenth century, therefore, climate had become a concept both commonplace and contested, at least amongst the European intelligentsia. Over the next few decades, its significance was expanded and consolidated.

In 1795, in the final of six *Leçons d’histoire*,<sup>208</sup> Constantin François de Chassebœuf, comte de Volney explained what is required to construct an “exposition of the whole physical and moral system of a people.”

“Taking a determinate people and country, one must first describe its climate, and, by climate, I mean [*j’entends*] the state of the sky under which each lives; its latitude, its temperature, according to the seasons; the annual system of winds, the humid or dry, cold or hot qualities of each rumb [i.e. direction or bearing]; the duration and returns, periodic or irregular; the amount of water that falls per year; the meteors, thunderstorms, fogs and hurricanes; then, passing to the physical constitution of the soil, it is necessary to make known the aspect and configuration of the ground, to calculate it for areas flat or mountainous, wooded or open [*découvertes*], dry or watery, for marshes, rivers and lakes; to determine the general elevation, and particular levels above sea level, as well as the slopes of large masses of earth to the diverse regions of the sky; then examine the nature of the diverse bands and strata of the ground [*bandes et couches du terrain*], its clayey or calceous, sandy, rocky, muddy [*luteuse*]<sup>209</sup> or vegetal

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<sup>206</sup> Butler and Tomsinov 2010a, 23.

<sup>207</sup> *Ibid.*, 16–18.

<sup>208</sup> Volney 1799. Full title: *Leçons d’histoire: prononcées à l’École normale; en l’an III de la République Française*. English translation: Volney 1800. All below are my translation from the French.

<sup>209</sup> Presumably from the Latin *luteus*, meaning ‘yellow,’ ‘saffron,’ ‘of or like clay’; also pejorative meaning ‘good for nothing.’



qualities; its banks of schistose rocks, its granites, its marbles, its mines, its salts, its volcanoes, its waters, its vegetal productions of all kinds, trees, plants, grains, fruits; its wild animals [*animaux volatiles*], quadrupeds, fish and reptiles; finally, all that constitutes [*ce qui compose*] the physical state of the country.”<sup>210</sup>

“If this,” Volney announced, “is what Montesquieu had meant [*entendu*] by climate, he ought to have said it and then there would have been no more debate.” Indeed, every day, new facts accumulate, “demonstrating that it is these circumstances” that form “the physical and moral constitution of nations”—circumstances that are “without regard to zones and latitudes.”<sup>211</sup>

This breathless litany signals a patent expansion of empirical ambition, conceptual precision, and practical opportunity. It was during his voyages through Egypt and Syria, between 1782 and 1785, that Volney claims to have come to this exacting historical method. There, “under a single sky [*sous un même ciel*],” within four degrees of latitude, “the authority of Montesquieu was thwarted” by the many and various facts. Thus, Volney adds, “I resisted the empire of a great name,” who had only stated more vaguely what the ancients, Hippocrates in particular, had known long ago but with greater precision and insight.<sup>212</sup> Beyond Bacon’s belittling of trivial epidemical travelogues, the ancients might yet best the Ancien Régime.

In the same year as his *Leçons*, Volney set off on another three-year expedition, this time westward, resulting, in 1803, in the publication of *Tableau du climat et du sol des États-Unis d’Amérique* (translated into English the next year).<sup>213</sup> Here, climate was explicated less exhaustively but more exactly.

“BY climate, if we adhere to the literal signification of the word, we should understand [*entendre*] only the *degree* of latitude of a country [*pays*]: but since, generally speaking [*parce qu’en thèse générale*], countries are hot or cold according to their latitude, the secondary idea [*l’idée accessoire*] has become so intimately associated with the primitive [*l’idée principale*], that the term *climate* is now synonymous with that of the *habitual temperature* of the air. It is not true, however in fact, that the temperature is essentially determined by the latitude: on the contrary, numerous instances [*une foule de faits*] prove it to be modified, nay even it’s [*sic*] nature to be changed [*et même dénaturée*], by the different [*diverse*] circumstances of the soil such as it’s surface being dry or watery, woody or bare, high or low with respect to it’s elevation [*son élévation ou son abaissement*] above the level of the sea; it’s aspect [*son exposition à tel ou tel aspect du ciel*]; and more particularly by the kind and quality of it’s currents of air, or the *winds* that sweep [*parcourent*] it’s surface. Hence it follows, that the soil becomes an essential constituent [*un élément constituant*] of the temperature, and consequently of the *climate*, in the sense in which we understand

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<sup>210</sup> Volney 1799, 176–178.

<sup>211</sup> *Ibid.*, 174.

<sup>212</sup> *Ibid.*, 172–173. The Egypt and Syria travelogues: Volney 1787, vol. 1; Volney 1787, vol. 2.

<sup>213</sup> Volney 1803, vol. 1; Volney 1803, vol. 2; Volney 1804.

the word; and the account I have to give of the phenomena [*divers phénomènes*] of that of the United States will afford fresh proofs of this truth.”<sup>214</sup>

While Bodin had pointedly noted the local effects of hills on characters and natures, this was not, for him, ‘climate’ as such. Furthermore, while Evelyn, a century later, expressly related the concept of climate to local conditions of relative shelter, this suggested nothing programmatic. Likewise, while climate was a crux for the dispute around Montesquieu’s materialism, his climate remained non-encompassing of airs and soils. No longer preoccupied with subterranean vapours, Volney’s pointed incorporation of soil was an overt acknowledgement of the role of clearing and ‘improvement’ of the surface of the land upon the local climate. However, this climate stopped short of being ‘total’—that is, of incorporating all surrounding entities, whatsoever they may be, in the manner of Comte’s milieu.

In 1802, Cabanis, Volney’s friend, colleague, contemporary, companion salonist, fellow *idéologue*, and revolutionary moderate, published his *Rapports du physique et du moral de l’homme*. After *mémoires* on the influence of age, sex, temperament, malady, and diet [*régime*] “on the formation of ideas and moral affections”—these being some of the “links [*chaîçons*] that unite moral and physical nature”<sup>215</sup>—in the ninth chapter, he turned to matters climatic. Against those who would “overthrow [*renverser*] the whole system,” Cabanis entreats his readers to return to the meaning Hippocrates “attached to the word *climate*.” As the very title “*Des Airs, Eaux et Lieux*” demonstrates, Cabanis reasoned, the great physician addressed not only temperature and latitude but, moreover, “all the important objects proper to each soil, to each situation, all the constant and major qualities by which these objects can affect the senses and modify human nature.”

“The climate, therefore, is not restricted to [*resserré dans*] the particular circumstances of latitudes, or of cold and heat; it embraces, in a manner absolutely general, the ensemble of physical circumstances attached to each locality [*local*]; it is this ensemble itself: and all the characteristic features [*traits*] by which nature has distinguished the different countries, enter into the idea that we must form of *climate*.”<sup>216</sup>

Running to 1,108 pages over the two volumes, in the author’s note to the second edition of *Rapports* in 1805, Cabanis explained that, for greater ease of reading, three “*tables de l’ouvrage*” had been added: paginated indexes of matters and authors, plus a point-by-point condensed summary of each *mémoire*. The above definition was therefore given an abridged version:

“WE must not reduce the word *climate* to mean only the latitude of a place [*lieu*], and the degree of heat that reigns there. This term must be understood [*entendre*] to mean

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<sup>214</sup> Volney 1803, vol. 1, 133–134; Volney 1804, 122–123.

<sup>215</sup> Cabanis 1802, vol. 2, 79.

<sup>216</sup> *Ibid.*, vol. 2, 244–246.

the entire ensemble [*l'ensemble de toutes*] of the natural and physical circumstances in the midst of which we live in each place.

This is how Hippocrates understood it [*l'entendoit*].”<sup>217</sup>

Crucially, this formulation—“*l'ensemble de toutes*”—prefigures Auguste Comte’s 1838 definition of *milieu* (“*l'ensemble total des circonstances extérieures*”). Whether or not this formulation of climate had any bearing on his definition, Comte’s proposed positivist reading list of 1851 listed Cabanis’ *Rapports*.<sup>218</sup>

The abridged version would be oft-quoted in the coming decades. For example, already in 1833, the poet August Wilhelm Schlegel (1767–1845) wrote (in French and without attribution) of climate being “*l'ensemble de toutes les causes matérielles*” that affect, directly or indirectly, the inhabitants of a place.<sup>219</sup> The next year, the first edition of *A Dictionary of Practical Medicine* by the Scottish physician James Copland (1791–1870) began its entry on “CLIMATE. Syn. (From κλιμα, a region)” by noting:

“Climate, in its rigorous acceptation, means only a district placed between certain equatorial and meridional circles; but it possesses a much wider signification in medicine [...].”

The shorter definition of the *Rapports* was duly quoted to authorise the point.<sup>220</sup> In 1839, it was taken as a chapter epigraph in the *Official report on the medical topography and climate of Calcutta*<sup>221</sup> by James Ranald Martin (1796–1874), a surgeon in the employ of the British East India Company. An 1841 review of Martin’s report approvingly noted this citation, remarking that “in a professional sense, it is impossible to take too extended a view of climate.”<sup>222</sup> In 1842, the same epigraph appeared on the title page of *The climate of the United States and its endemic influences* by Samuel Forry (1811–1844), assistant Army surgeon and founding editor of the *New York Journal of Medicine*.<sup>223</sup>

However, whether or not any of those who reproduced this statement with deference to Cabanis had perused his 1,108 pages, they had not read the author’s note to the second edition or the beginning of the additional “*tables de l’ouvrage*” very carefully, both of which made clear that the summary of each *mémoire*—and thus the precise formulation “*l'ensemble de toutes*”—had, in fact, been composed by Cabanis’ friend, colleague, and successor at the Académie française,

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<sup>217</sup> Cabanis 1805, vol. 2, 608–609.

<sup>218</sup> “Bibliothèque du prolétaire au XIXe siècle,” published between the preface and main text of the *Catéchisme positiviste*. Comte 1852. English translation: Comte 1886.

<sup>219</sup> Schlegel [1833] 1834, 417.

<sup>220</sup> Copland 1834, vol. 1, 338.

<sup>221</sup> Martin 1839, 40.

<sup>222</sup> Anonymous 1841b, 98.

<sup>223</sup> Forry 1842. Quoted also on 356.

Antoine Destutt de Tracy, the aristocrat and philosopher best remembered for having coined the term “*idéologie*.”<sup>224</sup>

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It took some millennia for the hitherto astronomical, astrological, or geographical climate to become aligned with the tenets of the Hippocratic tradition. Insofar as a singular concept was required for the progressively mechanised ‘Hippocrates’ reanimated by Sydenham, Arbuthnot, and others, it was the epidemical constitution that was primary. Climates as classificatory cartographical distinctions had initially been useful in primarily latitudinal terms. In this sense, the earlier development of climatic conception was not so much globalising as sectionalising. The earth, inhabited or otherwise, explored or mysterious, was given powerful degrees of equivalence relating to its exposure to the sun, and to the other *astéres planétaires*.

Nevertheless, climates were, from very early on, rather more than organisational. Such sectional equivalence also entailed, necessarily, local difference. The climatic chauvinism of being in the middle of the middle of the middle went along with a morality of temperance—being the most balanced, the most moderated. Moreover, it could also write this temperance into a kind of physio-physico-climatic autochthony: any given people could only inhabit those lands under familiar climates. However, given other physiological and medical principles, climatic supremacy could just as well license imperial disinhibition: the building of empires upon which the sun never inclines beyond the horizon.

Moreover, the power of climatic explanation could fortify not only latitude-specific or non-specific constitutional convictions, it also provided a powerful implement of governance. When quietly reflecting in his own papers, Montesquieu could entertain the freedom of peoples and persons relative to their characteristic principles of location. Nevertheless, in expounding the very spirit of the laws, it was not any degree of freedom but, rather, proper conviction of decision making that was of consequence.

²²⁴ The paginated indexes of matters and authors were by “M. Sue.” The index of authors noted both Sue’s and Tracy’s authorship. The third edition of 1815 (posthumous) even displayed this on the title page, albeit with Tracy’s name starred out: “PAR M. D***-T***, Membre de l’Institut.” Cabanis 1815, vol. 1; Cabanis 1815, vol. 2. The only text I know of to quote the original and note the attribution to Tracy: Cheung 2014, 170.

Excursus C: Ontodesic: The partage of possibility

As seen in §1, for Rachel Carson, circa 1962, while the whole history of terrestrial life had been one of the “interaction between living things and their surroundings,” it was only within the twentieth century that “one species—man—acquired significant power to alter the nature of his world.”¹ Such diagnoses are, today, the stuff of everyday headlines.

Thus far, we have spoken of ontology in terms of collective obligation (§A) and manifest experience (§B). However, any discussion will be incomplete so long as it does not incorporate the dimension of action and anticipation. The reality-effect that the concept of ontology means to understand, it has been said, is a matter of establishing, “for any given occasion, what is encountered as possible” (§3).

The confrontation of “man” and “environment” was a central theme of Carson’s time, and only became more so in the subsequent years. It is to understand such distributions of agency, with all due “realism,” that the ontodesic is necessary.

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Long before climates became a matter of Euro-Imperial jurisprudential validation, and aside from their recurrent cartographic and organisational convenience, such divisions in the earth and sky were frequently contested as regards their relegation or elevation of those upon which they imposed.

For instance, despite their shared Stoic adherences, Strabo criticised his predecessor Posidonius for exaggerating the effect of geographical and climatic distributions compared to education, and other institutions.<sup>2</sup> Plotinus, in the second century AD, criticised astro-climatic theories for making those on which they impose into mere stones, rolling.<sup>3</sup> The Stoic problem of *proairesis*<sup>4</sup>—that is, will, volition, choice, or moral character—was also taken up by Bardaisan in his criticism of the septenary doctrine of the Chaldeans, in which he noted that various laws had been established in various countries, regardless of stars and inclinations. When, nearly a millennium later, Judah Halevi placed Jerusalem in the central climate, thus granting its inhabitants the utmost humoral moderation, he was particularly concerned with aptitude for prophecy—a capacity that, in exile, had been observed diminished.<sup>5</sup> Similarly, Khaldun

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<sup>1</sup> Carson [1962] 2002, 5–6.

<sup>2</sup> Glacken 1967, 104–105.

<sup>3</sup> *Ibid.*, 113.

<sup>4</sup> προαίρεσις. Ramelli 2009, 45.

<sup>5</sup> Altmann 2005, 240.

conceived the spirit as being a fine bodily vapour, sensitive to climate, that explained dreams, insanity, and prophetic experience.<sup>6</sup>

Only several centuries later, Arbuthnot described the Hippocratic estimation of Air to be one of “the Powers of the Universe,” which “Human Nature cannot overcome.” While Montesquieu’s *De l’esprit des loix* was perhaps more nuanced than some critics allowed, their judgements nevertheless demonstrated a clear contrast. As La Porte also wrote:

“What an idea, wanting to attribute everything to climate & government, & nothing to passions, taste, prejudices, education, fashion [*à la mode*], everything physical & nothing moral; everything to the elements & nothing to man!”<sup>7</sup>

“[I]n a word,” La Porte added, “it’s the way of thinking [*façon de penser*] & not the climate” that matters.<sup>8</sup> Likewise, for Voltaire “the climate cedes to opinion,”<sup>9</sup> while, for Hume, two decades earlier, much like for Tarde a century and a half later, it was the “sympathy or contagion of manners” that were primary.<sup>10</sup>

Such longitudinal connections should not imply a direct lineage, nor epochal equivalence. Nevertheless, they do demonstrate the possibility of tradition, hard-earned through myriad acts of requisitive reception. The ontonomic commitments, and ontoturgic efforts, relating to such have been reconstructed only barely. However, it should be plain that the Brethren of Purity, Bodin, or Catherine II inhabited rather different worlds. And how different these worlds were, too, from the much-satellited, carbonically overburdened situation of today.

However, upon this point, it becomes necessary to establish and maintain another distinction. As stated in §B (and now more precisely), there may be an objection made, “at once facile and needful of all seriousness”: in relinquishing the ontological fundamentality of earth and/or nature as given unities that underlie and hence guarantee the ultimate coexistence of all collectives as such, and in thus insisting upon a manifold of worlds, it may be assumed (a) that someone can simply declare themselves ‘in another world,’ and, moreover, (b) that being thus differently worlded, subject to different ontonomic obligations, entails a fundamental arbitrariness with regard to what, in any given situation, one may hold to.<sup>11</sup> This is indeed the risk of admitting the existence of the ontoturgic: If fictive implies frippery, and aesthetic implies ornamental, then it really may seem that “things can really be made up as they go along.”

However, this objection altogether misconstrues what is at stake, and what is being claimed. From Strabo to Montesquieu, and beyond, the issues that such authors were debating

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<sup>6</sup> Khaldûn 1958, vol. 1, 63.

<sup>7</sup> La Porte 1751, 87–88.

<sup>8</sup> *Ibid.*, 97.

<sup>9</sup> Voltaire 1784, 35.

<sup>10</sup> Hume 1889, vol. 1, 246–249.

<sup>11</sup> Cf. Lugones 2003, 20–21.

and narrating were not only the *obligations* germane to their situation, or the aptitudes for bringing them into *patency* but, furthermore, *the distribution of possibilities for action* that such obligations entailed. It is for this reason that the *nomós* of the ontonomic had to be divested of its essential association with “distribution.” Thus dissociated, this capacity can now be formulated as *ontodesic*.

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In 1992, Michel Callon and Bruno Latour rejoined to sociological critics of the “ontological experiments” each had respectively undertaken¹² that, rather than taking the “distribution of agencies between the things-in-themselves and the humans-among-themselves”¹³ as a given, the more productive endeavour would be to study the distribution itself. That is, rather than accepting “a fixed repertoire of agencies”—either social or natural, a priori—the sociologist should start from “the very act of distributing or dispatching agencies.”¹⁴

In 2013, as seen in §3, Latour argued that the philosophy of science had become “the main knot for the settlement of legitimate ontologies: that is, for what should be expected from agencies”—a task for which anthropology was also crucial.¹⁵ Thus, as per two decades previous, anthropologists were encouraged to study, rather than presume, the distribution.¹⁶ However, and crucially, it was not only the much-discussed division between nature and society that was now at issue but, furthermore, all relevant differences pertaining to the conflicts between Western naturalistic ontologies, and those of other collectives.

This is the point from which I wish to formulate the ontodesic.

In French, one may speak of *la distribution*, much the same as English. However, *le partage*, also, has a similar range of significance, entailing distribution, in the sense of allocation, or placement, but also sharing, parcelling, or apportioning. Moreover, as seen in the *Exposé* of 1784 that denounced Mesmerian attempts to “*partager & agiter les esprits*,” it may also mean distribution in the sense of dividing, or partitioning.¹⁷ This somewhat conflicted cluster of meaning, combining both apportioning and partitioning, is what I want to relate to the *ontodesic*—from *daíō*, to divide; as per geodesy, or *geōdaisía* (literally, earth-division). That is: there are varieties of agencies; these varieties bear distinct qualities or capacities; the possibility of all action depends upon which kinds of agencies are being related to which—soul to stars, humours to climate,

¹² Collins and Yearly 1992; Callon and Latour 1992, 345.

¹³ Callon and Latour 1992, 366.

¹⁴ *Ibid.*, 350.

¹⁵ Latour 2014, 302.

¹⁶ Though Latour did not use this exact expression.

¹⁷ E.g. Jacques Rancière’s *Partage du Sensible*, rendered in English as “The Distribution of the Sensible.” Rancière 2006.

and so on. Thus, the conceptual statements historicised herein can be understood as addressing and contesting ontodesic distributions of what ontonomically obligates, and ontoturgically works into patency.

Before Hume's para-laboratorial extrication of mind from nature, John Locke divided reality into primary qualities (those inhering in objects regardless of their observation) and secondary (the effects of the primary upon mind)—a demarcation that Alfred North Whitehead later took as the archetype for what he diagnosed as “the bifurcation of nature.”¹⁸ Durkheim, for his part, undertook to found sociology upon its sui generis irreducibility to the biological or physical (a model largely followed by the critics of Callon and Latour's “ontological experiments”). Tarde, by contrast, insisted that “sociology” could be a science of all kinds of associations. Nevertheless, imitative reflections were primary, and the social milieu could therefore be taken in isolation from the natural in the fictive abstraction of his speculative sociological parable (see §D).

However, such authors were not only concerned with distributive divisions relating to the social and natural, or mind and world. As already seen with Hume and Tarde, and as will be shown further in §8 and §9 with Thomas Carlyle, William James, and others, among the discussions formative of Euro-American social thought during the eighteenth, and particularly nineteenth, centuries, was that concerning the role of “Great Men” relative to the general masses. Indeed, Tarde's lyricism concerning “the true and truly beneficial geniuses by whom we live, in whom we move, without whom we would be nothing” may be understood as an attempt to reclaim the authoritative concept of “milieu” from the likes of Durkheim, who would employ it to ontologically dissolve the vaulting individual into a pressurised atmosphere of aleatority.

Thus, in addition to historically varied lines of climatic partition, both natural and social milieus were matters of distributive propriety. Indeed, in these latter distinctions can be found an enduring homology. As noted appositely (if anachronistically) by Luhmann in §2, before beings could have an “environment,” their mode of relation with all others had to be defined in terms of interiority and externality. Notionally, such a division was present in the Commissioners' *Rapport*, which equated “physical” causes with “external,” and may be evident in experimental practice in general.

However, while such distinctions are undoubtedly crucial for understanding the history recounted herein, they are not sufficient. A fuller understanding can be had by a consideration of the issue of racism.

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<sup>18</sup> Whitehead 1920, chap. 2.



In 1995, the historian and anthropologist Michel-Rolph Trouillot argued that the Haitian Revolution (ending with the declaration of independence on 1<sup>st</sup> January 1804, beginning in August 1791) was, from the contemporaneous White Euro-American perspective, “unthinkable.”

“Indeed, the contention that enslaved Africans and their descendants could not envision freedom—let alone formulate strategies for gaining and securing such freedom—was based not so much on empirical evidence as on an ontology, an implicit organization of the world and its inhabitants.”<sup>19</sup>

This event was “unthinkable,” that is, not only before but also after it occurred. Black slaves—by the very nature of black slaves—could not act with rigorous organisation, strategic planning, and ruthless efficacy. Much less could they possess an ideal of freedom. This was axiomatic. Such ‘unthinkability’ did not, of course, preclude a brutal attempted (and failed) reconquest. Nevertheless, whether or not Trouillot is correct that European minds were, at that time, constitutively incapable of holding to “the fundamental unity of humankind in the same way some of us do today” (a strong structural anachrony),<sup>20</sup> the point is that this event upset the existing distribution of agencies so radically that it could scarcely be understood as an event at all—an historical ignorance that endures to this day.

Of course, there is no question that people act (and do not act) on the basis of things they do not intend, and of which they are not especially cognisant. However, there is a danger inherent in assuming this as a general principle: How and when can anyone, if anyone, be excepted?<sup>21</sup> Understood in the terms developed herein, it might be said, rather, that White Euro-Americans—as they saw it, not only consciously but conscientiously—considered the existence of the black slave to be reducible to the manner in which said slaves were manifested in the White common-place: that is, effectively, in the slave-yard. Thus, more or less by definition, a slave cannot maintain a common-place of its own.<sup>22</sup>

To be sure, it was well understood by, for example, plantation slaveholders in the American colonies that many black Africans were highly skilled in metallurgy, hydrology, medicine, and other practices necessary to the furtherment of their enterprise.<sup>23</sup> Likewise, they can hardly have been unaware of the regular rebellions, runaways, and maroon communities that were generated as a result of the trade. Nevertheless, it should be clear that, in terms of common significance, there could not be “roads not taken” to black collectives, except as a trail of “degeneration,” perhaps under the deleterious effects of climate. Indeed, polygenism—the

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<sup>19</sup> Trouillot 1995, 73; Sepinwall 2013.

<sup>20</sup> Trouillot 1995, 82.

<sup>21</sup> Cf. Dutoit’s criticism of Taine (§1).

<sup>22</sup> Cf. Roberts 2015.

<sup>23</sup> Schiebinger 2017.

doctrine, espoused by Voltaire, Hume, and others, that different races were, in fact, different species—inscribed this impossibility into the existentially, and even providentially, immutable lines of speciation itself (to be sure, “not so much on empirical evidence...”).

Thus understood, the racialised distribution of agencies entailed in Trouillot’s analysis informs the ontodesic in several respects: First, a “distribution” requires not merely the relative positioning of concepts. Rather, it also involves the configuration of all sorts of bodies, related in many kinds of modalities. Second, it shows that a distribution may be disconfirmable by agencies themselves. However, equally, nothing guarantees that an event will be recognised as such by a collective established upon the basis of the effective nonexistence of other collectives qua collectives. Third, it should be readily apparent that the racialisation of persons made black and slave through the epoch known as “modern”<sup>24</sup> occurred in close-knit relation not only with changing conceptions of physiological immutability but, correlatively, with changing forms of climatic explanation.

Today, climate has itself become an agency applying extreme torsion to those distributions that consider *its* form of event to be impossible. However, long before this development, climates were agencies invoked in the construction of the very order that brought about this torsioning.<sup>25</sup>

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This analysis is, of course, far from complete—both with respect to racialisation, and in terms of the other traditional categories of sociological analysis that could be related to the process of distribution and partition in this way.²⁶ Nevertheless, with this admittedly cursory analysis, it should now be possible to confront again the objection that would denounce the very notion of manifold worlds.

As a successful popular science writer put it in 1995:

“Show me a cultural relativist at thirty thousand feet and I’ll show you a hypocrite. Airplanes built according to scientific principles work. [...] Airplanes built to tribal or mythological specifications, such as the dummy planes of the cargo cults in jungle clearings or the beeswaxed wings of Icarus, don’t. [...] Tribal science, believing that the moon is just above the treetops, will never touch it outside of dreams.”²⁷

Such self-declared-rationalist harangues are certainly not uncommon. However, it should be made clear: While several statements quoted herein have been identified as a resounding “cry”

²⁴ Anievas, Manchanda, and Shilliam 2014; Anievas and Nişancioğlu 2015.

²⁵ Haraway 2015.

²⁶ An analysis incorporating the concept of “intersectionality” is thus possible; however, this would require more space than is available here. Crenshaw 1989; Mollett and Faria 2018.

²⁷ Dawkins 1995, 32–32.

that must be respected, this statement must, taken in a political modality, be understood as a “symptom”; indeed, a poison.

Of course, no one has ever claimed that “tribal” knowledges (whatever “tribal” is supposed to mean) would be practicable as regards the construction and operation an aeroplane. However, let us take this statement charitably and assume that those making such remarks are comprehending of this fact. Taken thus, the real, and insidious, point must be found as implied, and thus imputed: That there is no problem or situation for which Western, natural-scientific knowledge would not be, unequivocally, the best of all available knowledges as regards this reality. Or, put another way: That were non-Western, non-natural-scientific manners of reception to disappear, *nothing would be lost*. Besides the curious ‘richness’ of human diversity, of course.

This fundamentally malicious supposition is here invoked, then, not for the sake of condemnation—though hereby condemned it is. Rather, its purpose is to underscore the seriousness of what is at stake: The ontodesic involves a real division; a cutting, or incision, if you will; a ‘real material effect,’ if you prefer. It concerns not only what kinds of things exist, and in what relation, but, as a direct consequence of this, what kinds of things do not exist, and have no claim on doing so.

However, and moreover, it also concerns the very possibility of performing any action. Thus, the popular writer is correct about one thing: One must be extremely careful in understanding the mode of existence in accordance with which any given thing must be engaged. What the mode of existence of any given thing requires cannot be reduced to the ontonomic obligations collectively arrived at with respect to it. Or, stated another way: the common-place is where it is established how any given thing—be it familiar or (so to speak) outlandish—is to be received. Thus, to be sure, Aristotelian, or Icarian, or “tribal” physics are unlikely to be much use to the professional practice of an engineer working for BAE Systems. But only in a chauvinist’s sarcasm is such confusion likely to occur.

Not unlike the situation of the slave-yard, the disposition that assumes “nothing would be lost” precludes the possibility of “roads not taken”—that is, of ever thinking or relating otherwise. It seeks to extend its own common-place to the boundaries of the universe, in perpetuity. It thinks itself a universal tradition.

In conclusion, then, I will make a further claim: Those who adhere to the principle that “nothing would be lost” should have no license to the appellation “realist.” Rather, the more appropriate term would be “finalist”—or, in more Greco-philosophical fashion, “telist”: A *telist* is one who *pursues the thought that would allow us to stop thinking*. That is, not just to “stop thinking” with regard to any given problem but to stop thinking in general. By contrast, a *realist* is one who *situates thought in practical relation with the requirements of things*; that is, *with their relevant modes of existence*.

Thus, a realist qua realist possesses no powers of disqualification whatsoever. Their practice bears no necessary relation to matters of ontological hygiene. As such, any claim they make on nonexistence must involve a shift of register to an unambiguously political mode of ontology: that of making things ‘a thing of the past’ (§F).

And so, it is now possible to answer the “cry” previously found in Doležel’s condemnation of totalitarian fiction-ontology:²⁸ Any historical work worthy of that appellation must be articulated in accordance with the realism that bears relevance to it—that is, with regard to the assembled evidence; to the assembled traces of past events. However, this is an operation that necessarily involves other issues and modalities of action. The historian’s problem is, therefore, to relate these differences in a text (if not, precisely, to ‘reconcile’ them).

Of course, no appeal to “evidence” is ever innocent or straightforward, in particular when evidentiary records have been subject to not only decay, or incomprehension, but, moreover, systematic erasure (as is emphatically the case in colonial history).²⁹ This will be taken up further in §F. Nevertheless, before that, having understood the significance of *obligation*, *patency*, and now *realism*, as regards the deamalgamation of ontology, another crucial issue is now raised:

If the trivium—understood as the common-place and locus of attention where the reception of certain beings is cultivated in their particular reality—cannot be grounded in nature or earth as a pre-given global unity made partial by a founding act of division, how is each common-place not to hang as if in mid-air; that is, as if in the aether?

This will be taken up in §D.

²⁸ Doležel 1998b, 799.

²⁹ Mir 2015; Shepard 2015; Stein 2015; Elkins 2015; Neptune 2015; El Shakry 2015; Bailkin 2015; Cobain, Bowcott, and Norton-Taylor 2012; Sato 2017.

7: “Veins of the Macrocosm”: Circulation from Halley to Humboldt

In the *British Medical Journal* for Saturday, 25th August 1860, the Cornish physician Charles Foster Barham (1804–1884), on the topic of “*Climate, and the Cosmical Agencies affecting it*,” quoted the definition of climate attributed to Cabanis that was, by now, rather familiar for medical climatologists: “the entire ensemble of the natural and physical circumstances [...]”¹ Barham noted this definition to be “perhaps rather wide,” and suggested adopting that offered by Alexander von Humboldt’s recently published *Cosmos*:

“The expression *climate*, taken in its most general sense, signifies all those states and changes of the atmosphere which sensibly affect our organs [...]”

Such phenomena would include, at a minimum: temperature, humidity, air pressure, winds, electrical tension, aerial exhalations, and transparency.² However, Barham adds, if “we trace these conditions further back to their source, we must, I think, attribute them, for the most part, ultimately to the sun.”³ In 1867, John Patterson, a physician in the Egyptian Medical Service, criticised Humboldt’s definition, which, “though exceedingly comprehensive, fails in embracing many other conditions necessary to the study of medical climatology from its most scientific point of view.”⁴ The next year, a review of Patterson’s book noted: “He would probably be better pleased with that short but all-embracing phrase of Cabanis.”⁵

Thus, Humboldt’s moderately comprehensive climate presented a not-incontestable alternative to that of Cabanis, as neo-Hippocratic holism was gradually divested of its ancient affiliations. However, there was more to Humboldt’s climatology than the medical, or aesthetic.

In 1800, the same year that Jean-Baptiste Lamarck made his noted statement concerning *les milieux environnans*—“[t]he principal circumstances are born of the influence of climates, the variations in the temperature of the atmosphere and of all the surrounding milieus”—the same author published an essay on the method of recording meteorological observations, writing:

“It seems [for meteorologists] that the sole purpose of meteorological observations is to obtain the determination of the *extreme terms* and *average terms* of the variations that the atmosphere undergoes in each climate. It very much appears, however, that one can do more [...]”⁶

¹ Barham quotes the French.

² Humboldt 1846b, vol. 1, 312.

³ Barham 1860, 660.

⁴ Patterson 1867, 1–2.

⁵ Anonymous 1868, 166.

⁶ Lamarck 1800b, 419.

As seen in §4, Lamarck's far-in-advance meteorological reports, published in eleven volumes as *Annuaire Météorologique* between 1800 and 1810, were less than warmly received amongst his peers,⁷ with his "*probabilités*" being cast as "*prédiction*," and earning the denunciation of Laplace, among others. Around the same time, Volney, and Cabanis (with de Tracy) were formulating conceptions of climate that closely resembled the "milieu" that Comte would later formulate, and with which Lamarck would later be closely associated.

While, in 1832, Cuvier posthumously disparaged Lamarck's anti-experimental predilections as having been "destitute of the means of doing so [*aucun moyen de le faire*]," there was nothing lacking in the means of Humboldt, circa 1800. Indeed, in this very year, his meteorological despatches from Caracas had featured in Lamarck's *Annuaire*, and he was very much convinced "that one can do more"—though the "method of means [*moyennes*]," as he would later call it, remained essential.⁸

This chapter will therefore come to investigate the place of climate within Humboldt's career, understood through his major publications. However, first, it will consider the relation of naturalistic knowledge, exploration, and the increasingly close relationship between these with projects of state power—the authors and actors involved in this process being some of Humboldt's principal predecessors, inspirations, and associates. Then, second, it will explicate in detail the portion of Johann Gottfried Herder's philosophy of history concerned with climate. Not only did Herder, in this work, undertake a wide-ranging philosophical synthesis of the climatic works of preceding years but, moreover, was among the first to explicitly formulate climate as a distinct concept—and as a concept more expansive than had been the case for Montesquieu. Humboldt, then, is understood to follow these developments.

7.1: From Helena to Pennsylvania: The enrolments of naturalism

In June 1676, the British East India Company received correspondence from the King recommending that Edmund Halley (1656–1742) and a companion be admitted to "the first ship bound for St Helen's," receiving every aid and convenience so that they might undertake "rectifying and finishing the celestial globe."⁹ The pair set off soon afterwards, spending a year on the island, returning to England in May 1678.

In 1686, Halley published an account of the trade winds. Assembled from his own experiences and those of conversant seafarers, he appealed for the kindness of "any Master of a Ship, or other person, well informed of the Nature of the Winds" who might "communicate

⁷ Burkhardt [1977] 1995, 10.

⁸ Humboldt 1820, 5; Humboldt 1817, 13.

⁹ Quoted in Cook 1998, 61–63.

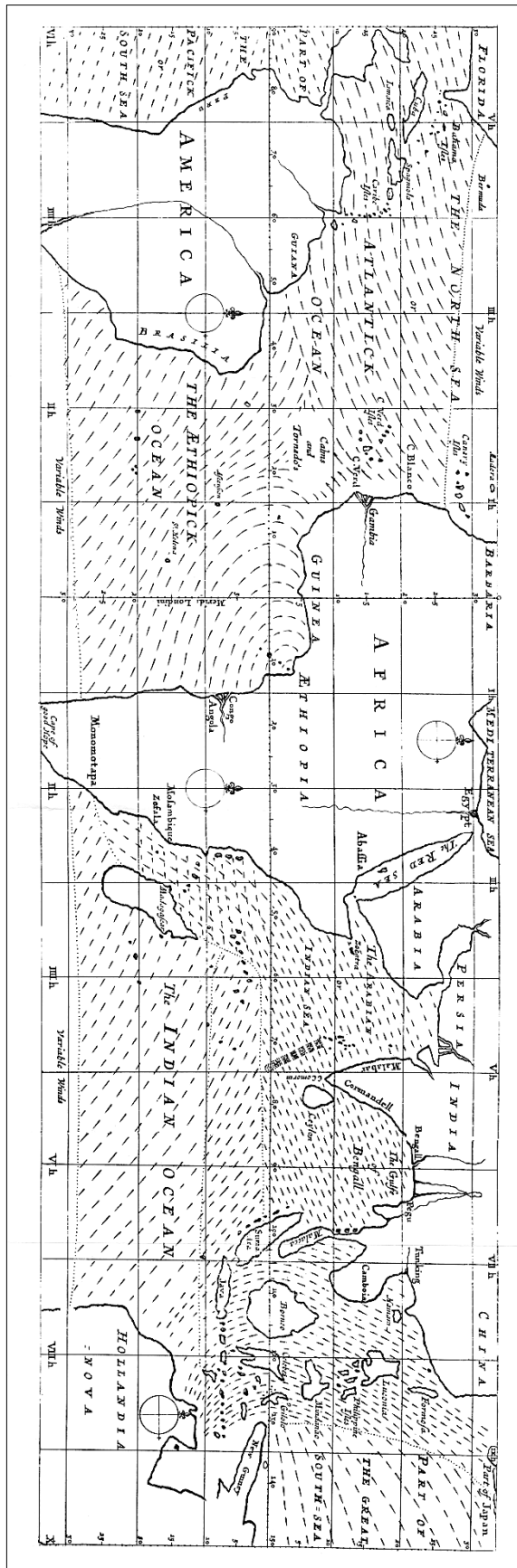


Figure 12—Map of the trade winds; Edmond Halley, 1686

their Observations” so that the history “may be either confirmed or amended, or by the addition of some material Circumstances enlarged.”¹⁰ In 1691, Halley added an essay on water

circulation, postulating “the Method used by Nature” in returning marine “Vapours” back again to the sea. In being heated and thus expanded, water particles are caused to rise in proportion to the warmth to which they are subject, as can be observed in “a boyling Cauldron.”¹¹ Meeting land, vapours cool and hence contract—a phenomenon that had produced “a great Impediment to [his] Celestial Observations” on Saint Helena. In such manner “is the Circulation performed,” and such “Streams” gently descend, “like so many Veins of the *Macrocosm* to be the more beneficial to the Creation.”¹²

By this time, Halley was one of the best-connected savants in England. It was through his encouragement—even insistence—that Newton had been coaxed into publishing his *Principia* in 1687. It was he who brought it to press, corrected the proofs, paid for its publication from his own funds, and prepared the King’s personal précis.¹³ From 1698 to 1701, Halley was made master and commander of the HMS *Paramour*, for the purpose of making magnetic observations. The results were published in 1701 as a map of the Atlantic, showing lines of equal magnetic inclination¹⁴—what became known as “Halleyan lines”¹⁵ or “isolines.” It was in 1705 that Halley claimed the comets observed in 1456, 1531, 1607, and 1682 to be one and the same, predicting its return in 1758.

The eponymous comet remains Halley’s most famed legacy; however, it was these other works (along with allegations, made by various enemies, of boorish and adulterous behaviours), that earned him his contemporaneous notoriety. Nevertheless, in Halley’s example we should notice three things in particular: first, the increasingly sophisticated conceptual and technological infrastructures by which diverse sciences were being assembled; second, the close, contractual alliances that were thereby being made with commercial and military agencies; third, the fact that, despite his interest in all manner of matters and mediums elementary, circulatory, colonial, and geophysical, singularly absent from Halley’s concerns was the concept of climate.¹⁶

By contrast, when Charles Marie de La Condamine (1701–1774) published his *Journal du voyage fait par ordre du roi à l’équateur* in 1751, he was writing within a genre for which the description of various *climats* was a long-established practice.¹⁷ However, such descriptions were not the principal occasion of the mission despatched by Louis XV to Ecuador from 1735 to

¹⁰ Halley 1686b, 162.

¹¹ Halley 1686a, 469.

¹² Ibid., 470–473.

¹³ Shapin 1998.

¹⁴ Laloë 2016, 115.

¹⁵ E.g. Cavallo 1787, 340.

¹⁶ Bibliography: Rudolph 1905.

¹⁷ La Condamine 1751.



Figure 18—"New and Correct Chart Shewing the Variations of the Compass"; Edmond Halley, 1701

1739. Rather, in collaboration with a corresponding mission to Lapland lead by Pierre Louis Maupertuis (1698–1759), the assembled savants were to determine Newton’s geogonic deduction as to the Earth being an oblate spheroid (i.e. rounder at the equator)—a conjecture that was confirmed.

By mid-century, naturalistic expeditions by European savants were becoming ever more frequent and extensive. Carl Linnaeus (1707–1778), for example, had travelled to Lapland in 1735. However, his students and followers, given free passage by the Swedish East India

Company,¹⁸ forayed rather more widely. Pehr Kalm (1716–1779), in particular, travelled to Pennsylvania, and as far north as Montreal between 1748 and 1751. His travelogues, passed comment on, for example, the town of Whitefield’s “temperate climate [*behagligt Climat*],” as well as the state’s fine water, and the convenience of Delaware for trade.¹⁹ However, if climate was a wholly familiar concept, it was not a technically imperative one. Nor were issues of “circulation.” The abiding problem binding natural philosophy to state patronage at this time was, and for some time would remain, that of efficiently and accurately establishing longitude at sea. In July 1714, the British Parliament had passed the Longitude Act, offering financial rewards for a solution to the problem. Transatlantic commerce was booming, the trade in human beings at the centre of it.

In 1766, the Admiral Louis-Antoine, Comte de Bougainville (1729–1811) received permission from Louis XV to circumnavigate the globe.²⁰ Duly furnished with relevant savants, the expedition’s two vessels landed at Tahiti in April 1768, a year after the expedition led by Samuel Wallis (1728–1795) had condescended to lay claim to the island in the name of the English Crown in June 1767. Bougainville’s *Le voyage autour du monde* of 1771 provided the natural history of the voyage, though, once more, the concept of climate was largely inessential.²¹

As seen in §4, the Comte de Buffon (1707–1788) was well-acquainted with such geogenic incandescences as were the subject of La Condamine and Maupertuis’ Newton-corroborating expeditions, calculating, as he did, the age of the earth upon the basis of its immemorial solidification within the “*milieu ambiant*.” Issues of the milieu were not those of climate. However, in 1766, his influential essay *De la dégénération des animaux* began by commenting on the “alterations” endured by the nature of “man” once he “has begun to swap one sky for another [*commencé à changer de ciel*], and has spread from climate to climate,” away from his place of origin. At first, the changes were but slight but, over the centuries, the species “degenerated [*dégénérées*] under the influence of different lands [*terres*],” venturing eventually to the “extreme climates” of the “south [*Midi*]” and “north [*Nord*].”²²

Such unparalleled climatic versatility, beyond that of any other plant or animal, Buffon attributed to the “soul [*âme*]” rather than to the body.²³ In *Des époques de la nature* of 1778, he inscribed this supremacy into a geogenic teleology. There had been seven epochs of terrestrial time and this, the seventh, was the epoch of man, announced as: “When the power [*puissance*]

¹⁸ Pratt, 25

¹⁹ Kalm 1772, vol. 1, 36; Kalm 1756, vol. 2, 183–184.

²⁰ This was to be the first French circumnavigation, although the Victoria of Magellan and Elcano had become the first Europeans to do so between 1519 and 1522.

²¹ Bougainville 1771.

²² Buffon 1829, vol. 18, 255.

²³ *Ibid.*, vol. 18, 256.

of man has come to assist [*secondé*] that of nature.” In “the hands of man,” Buffon wrote, forests, usually bringers of cold, become “food [*aliment*] for the element of fire.” Thus, “man can modify the influences of the climate that he inhabits, and fix, so to speak, the temperature at the point most appropriate [*convient*] to him.”²⁴ However, not all were so optimistic. For example, Pierre Poivre (1719–1786), Intendant of the Isle de France (i.e. Mauritius) from 1767, prominently raised the deleterious issues of deforestation, installing a series of conservation programmes in order to protect the island’s resources—a model much discussed and imitated.²⁵

In 1772, both Johann Reinhold Forster and his son Johann Georg Adam Forster (1754–1794) were taken aboard the second voyage of Captain James Cook (1728–1779) to the Pacific, returning to Europe in 1775. The first expedition of 1768 to 1771 had set forth ostensibly as part of a multi-national enterprise to observe the transit of Venus, thereby more accurately measuring the distance from the earth to the sun, leading to more accurate calculations of longitude. However, Cook’s vessel was secretly instructed to diverge from their announced course and search, instead, for *Terra Australis*, the long-conjectured southern land mass.

Forster the elder’s subsequent *Observations Made During a Voyage Round the World* (1778) discoursed widely.²⁶ Climates were, variously, “wretched,” “rigid,” “fine,”²⁷ and so on, and were well-understood as the result of more than latitude alone.²⁸ Forster the younger’s *A Journey around the world*, likewise, wrote of climates “hot,” “cold,” “tropical,” also telling of the troubles, ailments, and aliments found variously throughout.²⁹ His father cited “[t]he Great Mr. de Montesquieu” on the subject of the effects of a fish diet on the prolificacy of a people.³⁰ Likewise, both regularly cited the collative and interpretive tomes of Buffon. However, their conceptions often differed from the past masters. Whereas Buffon had identified the Caspian Sea region as the most probable locus of human origins—that place of original balance from which migration, and “degeneration,” subsequently ensued—Johann Reinhold considered that “the human species was originally settled, in or near the tropics and from thence spread towards the extremities.”³¹ That is, the further a people drifts and adapts to climates far from the tropics, the greater that people will “degenerate.”

However, while departing from their predecessors in granting the peoples of the tropics ancestral and climatic priority, Forster was not providing ethnographic proofs to a Rousseauian

²⁴ Buffon 1829, vol. 5, 336–337; Buffon 2018, 128.

²⁵ Grove 1996, 199–216.

²⁶ Forster 1778.

²⁷ *Ibid.*, 134, 231, *passim*.

²⁸ *Ibid.*, 97.

²⁹ Forster [1777] 2000, 38, 51, *passim*.

³⁰ Forster 1778, 314–315.

³¹ *Ibid.*, 292–293.

state of nature.³² On the contrary, the densely populated and technologically sophisticated islanders of Tahiti, or “O-TAHEITEE” as Forster writes, were characterised not by a naïf bucolicity but, rather, a high state of development. The fertile soil was well-cultivated, with lands divided into “private property, well and neatly fenced in”; domestic animals were well cared for, with the islanders’ houses and boats displaying many impressive “conveniences” and “contrivances”; their clothing, “well adapted to the climate” and embellished with “texture and dyes”; their poetry and songs a wonder, and so on.³³

The tropical climate, J.R. Forster argued, “certainly contributes a great deal” to the “felicity” of the Tahitians; however, “farther to the West, new isles in the same happy climate, and in the same latitude” harboured inhabitants “infinitely inferior in point of civilization.”³⁴ Georg Forster was likewise cautious about climatic fatality, being “far from convinced of this general and powerful influence of climates.” Thus, although “the influence of climate,” as had been “so strongly defended by count Buffon,” could not be discounted, nor did its generalisers’ abstract pronouncements stand up to the complications of experience.³⁵

Buffon’s observation that forests and deforestation could affect the local temperature were nothing new. Evelyn, Dubos, Hume, and many others, had observed similarly.³⁶ However, it was in the Americas that such debates became of particular significance, with colonists apt to be disappointed by the continent’s climates, even when sharing latitudes with European homelands. Thus, climatic amelioration was to become a matter of self-conscious patriotism. For example, in 1763, Benjamin Franklin (1706–1790) wrote to Ezra Stiles (1727–1795) that “cleared land absorbs more heat and melts snow quicker.” The physician and politician Hugh Williamson (1735–1819), likewise, claimed in 1771 that “a very great observable change of climate,” widely observed among long-time residents of Pennsylvania, had notably moderated the seasons. This Williamson attributed to the cultivation of the interior of the country—a practice that, if continued, would mean “we shall seldom be visited by frosts or snows.”³⁷ Clearing forest, draining marshes, and removing excessive moisture through cultivation would not only ameliorate climate but also dispel noxious and pestilential vapours.

Thomas Jefferson (1743–1826) also shared such concerns, noting how land clearance allowed beneficial sea breezes to extend inland. With the American Philosophical Society in 1800 (shortly before becoming President the next year), Jefferson petitioned the US Congress

³² *Du contrat social* having been published in 1762.

³³ Forster 1778, 294.

³⁴ *Ibid.*, 295.

³⁵ Forster 2000, 491.

³⁶ Fleming 1998, 32.

³⁷ *Ibid.*, 24–25.

to include soil and climatic information in its upcoming census.³⁸ The comte de Volney (1757–1820), in his travelogue of 1803, also noted such climatic changes to have been “quick and sudden, in proportion to the extent of cultivation.”³⁹ There was not, at this time, any consensus regarding the ameliorability of climate—many would doubt, or indeed reverse, the tenet that clearance imparted a warming effect. Nevertheless, the desire and intention to effect local and regional climate change was assuredly commonplace among colonial improvers, archipelagic and continental.

7.2: From critique to chaos: Herder’s ideas of history

In the twenty books of his (never completed) *Ideen zur Philosophie der Geschichte der Menschheit* (1784–1791),⁴⁰ Johann Gottfried Herder⁴¹ (1744–1803) sought to construct a universal history of mankind. No less an aesthetic, poetic, and natural philosophy than a theodicy, this work would demonstrate both the providential bestowment of the Earth and the privileged place of “man” as a species dwelling thereupon.⁴²

In 1762, Herder had enrolled at the University of Königsberg, attending, among others, the lectures of Immanuel Kant (1724–1804). However, despite studently enthusiasm, Herder soon after departed from Kant’s earlier tenets, and did not share the concern with the fallibility of the senses or the propriety of reason (or, indeed, the limits thereto) that prompted his later ‘critical’ writings. Basing his philosophical reflections upon the organisational and expeditionary labours of Linnaeus, Kalm, Buffon, the Forsters, and others, Herder sought to synthesise rather than criticise, reconciling plurality and unity, human and terrestrial, philosophical and religious, with an active, creative, generative, genetic, and purposeful Nature—a task requiring poetry as much as reason, feeling more than foundation.

Within this scheme, Book VII was to extensively examine the role of climate. It began from the principle that, physiologically, “every man is ultimately a world,”⁴³ resembling many but identical to none. Not only the human frame but “not one point on our complicated [vielfarartigen⁴⁴] Globe, not one wave in the current of time, resembles another [einer andern gleich

³⁸ Ibid., 29–31.

³⁹ Ibid., 26.

⁴⁰ Translated into English in two volumes as *Outlines of a Philosophy of the History of Man* in 1800 (the translator’s preface dated 1799). References below are to the second edition of 1803.

⁴¹ Von Herder after 1802.

⁴² Notably, Herder thus deployed the collective singular *der Geschichte* rather than the previously more prevalent feminine plural *die Geschichte*, or the alternative *Historie* (an ensemble of distinctions lost in English). His was, therefore, a philosophical history in the fullest sense—a sense, at this time, still in formation. Koselleck 2005, 33–34.

⁴³ Herder 1803, vol. 1, 293; Herder 1786, vol. 2, 86.

⁴⁴ Lit. many-sided.

ist⁴⁵].” Man is thus “a multitudinous harmony, a living self, on whom the harmony of all the powers that surround him operates.”⁴⁶ Moreover, each new creature is “the realization of an idea of creative [*schaffenden*] Nature.”⁴⁷ Such unfolding demonstrates a “genetic Power,” a “vital power [*Lebenskraft*]” existing within all, rendering assistance in both sickness and health.⁴⁸ Both “human intellect [*Verstand*]” and that of the divine seeks “unity in every kind of variety,” bringing together the Earth’s “innumerable multiplicity.”

As it is with earthly nature, so it is with mankind, which is, categorically, “one and the same species [*Gattung*]⁴⁹.”⁵⁰ While some had deemed to differentiate humanity into four or five “divisions [*Abteilungen*],” even terming them “races [*Rassen*],” Herder rejected both the divisions and the denomination, suitable only for beings of distinct origins.

“For every nation is one people [*jedes Volk ist Volk*], having it’s [sic] own national form [*Nationalbildung*], as well as it’s own language: the climate [*Himmelsstrich*], it is true, stamps on each it’s mark [*über alle bald ein Gepräge*], or spreads over it a slight veil [*linden Schleier*], but not sufficient to destroy the original national character [*das ursprüngliche Stammgebilde der Nation*].”⁵¹

From *Himmel* (sky, heaven) and *strich* (line, stroke), *Himmelsstrich* is suggestive of both the astronomic or astrologic *klíma* and the skyey *cælo* of Latin or *ouranoú* of Greek.⁵² However, it came, like *klíma*, to be a general designation for a geographical area.⁵³

After stating, or restating, the basic principles of his philosophy, Herder then undertook to “investigate the term climate more narrowly” in a chapter titled “What is Climate [*Klima*]? and what Effect has it in forming [*Bildung*] the Body and Mind [*Seele*] of Man?” Among the first to pose this question explicitly, at least in philosophical terms, Herder did not give an exact definition. Rather, he began by noting the lack of knowledge as to the structure of the earth, particularly at the poles, and the phenomena of magnetism that affect them.

Presently ignorant of the “climates [*Klimate*]” in such “regions [*Weltgegend*],” the magnet has not, yet, provided such an overview. Herder finds calculations of heat and cold deriving from the “angle of the solar beams,” as per the method of Halley, to be a worthy mathematical

⁴⁵ Is equal to one another.

⁴⁶ Herder 1803, vol. 1, 293–294; Herder 1786, vol. 2, 88.

⁴⁷ Herder 1803, vol. 1, 319; Herder 1786, vol. 2, 124.

⁴⁸ Herder 1803, vol. 1, 321; Herder 1786, vol. 2, 126.

⁴⁹ Genus.

⁵⁰ Herder 1803, vol. 1, 295; Herder 1786, vol. 2, 92.

⁵¹ Herder 1803, vol. 1, 298; Herder 1786, vol. 2, 94.

⁵² See §6.1.

⁵³ It was in relatively popular usage in the 1770s but became less common by the turn of the century. It was defined in the dictionary of Jacob and Wilhelm Grimm in 1877 as a “strip of land [*erdstrich*] under a certain part of the sky [*des himmels*], especially with regard to the climates [*des klímas*].” Grimm 1877, vol. 10, 1364.

undertaking; however, a philosopher may be reproached for drawing firm conclusions therefrom. The relative proximity of the sea; the direction of the wind, or elevation of the land; the presence of mountains, the prevalence of rain or mist—many a “local qualification” must be added to the “general law.” Accordingly, it is common to find “the most opposite climates in places bordering upon each other.”⁵⁴

What was fundamentally at stake, physiologically, Herder recognised, was bodily heat. However, in contrast to the old doctrines of Montesquieu:

“Whatever climate may effect, every man, every animal, every plant, has his own climate; for every one receives all external impressions [*äußern Einwirkungen*] in his own manner, and modifies them according to his organs.”⁵⁵

“It is true,” Herder admits, that “we are ductile clay [*bildsamer Ton*] in the hand of Climate”; however, “her fingers mould so variously [*mannigfalt*], and the laws, that counteract them, are so numerous [*vielfach*],” that it might take the entire “genius of mankind” to meaningfully relate all such “powers in one whole [*Gleichung*]⁵⁶.” Accordingly, Herder declares Hippocrates to be “my principal author on the subject of climate.”⁵⁷

Any kind of “climatology of the human frame [*Baues*]⁵⁸ was, therefore, a distant objective. Indeed, heat and cold are far from the only forces in the “atmosphere [*Luft*]” active upon us that must be taken into consideration. For one thing, there is the “stream of electric fire,” the powerful influences of which go as yet little known. The air itself remains a mystery in its “almost innumerable local modifications [*Lokalbeschaffheiten*]⁵⁹,” and sundry “effluvia [*Ausdünstungen*],” not to mention those obscure and awful causes of disease, “arisen from an invisible malignant seed,” named by the physician “miasma” (literally, bad airs).

“Lastly, the elevation or depression of a region [*Erdstrichs*], it’s nature [*Beschaffenheit*] and products, the food and drink men enjoy in it, the mode of life [*Lebensweise*] they pursue, the labours in which they are employed, their clothing, even their ordinary attitudes, their arts and pleasures, with a multitude of other circumstances [*Heer anderer Umstände*], which considerably influence their lives, all belong to the picture of changeable climate [*Gemälde des vielverändernden Klima*].”⁶⁰

Again, like Volney, though with less didactically ostentatious completism, Herder asserted the multi-factorial complexity implicit in the concept, encompassing not only physical but also

⁵⁴ Herder 1803, vol. 1, 308–309; Herder 1786, vol. 2, 108–109.

⁵⁵ Herder 1803, vol. 1, 322; Herder 1786, vol. 2, 128.

⁵⁶ Equation.

⁵⁷ Herder 1803, vol. 1, 311–313; Herder 1786, vol. 2, 113–116.

⁵⁸ Herder 1803, vol. 1, 310; Herder 1786, vol. 2, 111.

⁵⁹ Local textures.

⁶⁰ Herder 1803, vol. 1, 311–312; Herder 1786, vol. 2, 113–115.

moral aspects, thus tempering the will to climatic explanation—without, however, in any way disavowing such an aspiration.

“Climate,” for Herder, was thus “a chaos of causes.” Its actions being gradual, it does, nevertheless, “penetrate to the internal part [*das Innere*]” of the being, changing it “by habit [*Gewohnheit*]”—an incremental effect that “the genetic power” duly resists but, as it is “not independent of external affections [*Leidenschaften*],” must “accommodate [*bequemen*]⁶¹ itself to them in length of time.”⁶²

“The action [*Wirkung*] of climate extends itself indeed to bodies of all kinds, but chiefly to the more delicate, to fluids [*Feuchtigkeiten*], the air, and the ether. It operates rather on the mass [*die Massen der Dinge*], than on the individual: yet on this, through that.”

Thus, while finding the extension of inferences concerning fibril contraction, and so on, to whole peoples was to be treated with scepticism, if not scorn, Herder followed Dubos, Montesquieu, and others, in reconciling climatic influence with constitutional individuality through its aggregate effect on the collective whole. Accordingly, “climate does not force [*zwingt*], but incline [*neigt*].”⁶³

However, climates were not to be considered only in terms of their influences upon any given creature but also in terms of their part in a providential whole.

“We are surrounded by an atmosphere; we live in an electric ocean: but both, and probably the magnetic fluid with them, are in continual motion [*Bewegung*]⁶⁴. The sea emits vapours [*dunstet aus*]; the mountains attract them, and send them down in rain and streams on every side. Thus, winds relieve each other: thus years, or periods of years, fulfil their climatic days. Thus, different regions and ages follow one another; and every thing on our Globe combines in one general connexion [*gemeinsamer Verbindung*].”

If the Earth had been “flat, or angular, as the chinese have dreamed, it’s corners might have produced [*nähren*]⁶⁵ climatic monsters [*klimatischen Ungestalten*].” Thus, felicitous form presupposed a beneficent climate, which, in turn, required an appropriately constructed Earth, formed in just such a manner that “the degeneration [*Ausartung*] of the human species” was, to the greatest extent possible, prevented.⁶⁶

In the final chapter of Book VII, Herder insists that “Nature has drawn determinate lines [*genaue Grenzen*] round her species [*Gattungen*],” preferring that a “creature” would

⁶¹ Become comfortable with.

⁶² Herder 1803, vol. 1, 329–330; Herder 1786, vol. 2, 141.

⁶³ Herder 1803, vol. 1, 317; Herder 1786, vol. 2, 121.

⁶⁴ Motion or agitation.

⁶⁵ Nurtured or nourished.

⁶⁶ Herder 1803, vol. 1, 314–315; Herder 1786, vol. 2, 117–119.

“disappear [*untergehen*⁶⁷]” rather than “deface or falsify [*verricke oder verderbe*] it’s figure [*Gebilde*].” Thus, while Cuvier’s *Discours sur les révolutions du globe* of 1812 would suppose that any significant change to a species relative to its “conditions of existence” would necessarily lead to its extinction, Herder, after Buffon, granted living kinds a degree of malleability within definite and permanent limits of form.⁶⁸

As regards the singular human species, “the figures of all nations [*den Bildungen aller Völker*]” may be modified with time, as their displacement through different “regions [*Weltgegend*]” alters them; however, the process is extremely slow.

“See the negro [*Mohren*⁶⁹] in Europe: he remains as he was. Let him marry a white woman [*Weißer*], and a single generation will effect a change, which the fair-complexioned climate [*das bleichende Klima*⁷⁰] could not produce in ages [*Jahrhunderte*].”⁷¹

Climate as an “external power” cannot, therefore, be articulated in law-like terms, and it is always counterpoised to the vital genetic power. Nevertheless, it can by no means be discounted.

“We should never overlook [*vergäße*] the climate from which a people [*Volk*] came, the mode of life [*Lebensart*] it brought with it, the country [*Land*] that lay before it, the nations [*Völkern*] with which it intermingled [*vermischte*], and the revolutions it has undergone in it’s new seat.”⁷²

As far and wide as they have ranged, the human form nevertheless became profoundly related to its habitual region, forming an intrinsic attachment.

“The arab of the desert belongs to it, as much as his noble horse, and his patient, indefatigable camel. As the mungal wanders [*umherzog*] over his heights [*Erdhöhe*], and among his hills [*Steppe*⁷³], so wanders the better-formed [*wohlgebildete*] bedouin over his extensive asiatic-african deserts; also a nomade, but a nomade of his own region [*Gegend*].”⁷⁴

Degeneration à la Buffon—*Ausartung* or *Verartung* in Herder’s vocabulary—was not, therefore, a necessarily deleterious process; however, any such transformation is apparently traumatic.

While the marauding hoards of yore may have presumed to venture far beyond their ancestral seat, “all sensual people [*sinnliche Völker*]” bear an intense attachment to their “country [*Land*]” such that to “deprive [*Raubt*]” them of this is to “deprive them of every thing.”

⁶⁷ Sink, perish, go under.

⁶⁸ Herder 1803, vol. 1, 330; Herder 1786, vol. 2, 140.

⁶⁹ Curiously, the translator thus excises *Mohren* (Moors).

⁷⁰ Lit. the bleaching climate.

⁷¹ Herder 1803, vol. 1, 325; Herder 1786, vol. 2, 132.

⁷² Herder 1803, vol. 1, 331; Herder 1786, vol. 2, 142.

⁷³ Churchill, rather confusingly, translates *Steppe* as “hill,” where Herder presumably meant to contrast *Erdhöhe* (heights; literally high earth) with the great flat grassland plains on which the Mongols, infamously, roamed.

⁷⁴ Herder 1803, vol. 1, 300; Herder 1786, vol. 2, 96–97.

“The constitution [*Beschaffenheit*] of their body, their way of life, the pleasures and occupations to which they have been accustomed [*gewöhnt wurden*] from their infancy, and the whole circle of their ideas [*Gesichtskreis ihrer Seele*]⁷⁵, are climatic.”⁷⁶

That is, without their relevant climate, none of these things are capable of constituting a liveable mode of life. Citing the German theologian and missionary David Cranz (1723–1777) and his *Historie von Grönland* of 1765,⁷⁷ Herder recounts the distress of those native “greenlanders” brought to Denmark. Despite being met with apparent generosity, “their eyes were often turned toward the north and their native country [*Vaterlande*], with melancholy looks and piteous sighs; and at length they attempted to make their escape [*die Flucht ergriffen*]⁷⁸ in their canoe.” Likewise, the “negro slave” who will never again see “his native shore [*die Küste seines Vaterlandes*].” Moreover, the native American “savages [*Wilden*], as they are called [*sogenannten*],” whose ancestral “territory [*Land*]” was, for millennia, “to it’s inhabitants the universe.” Subject to the “violence and extortion” of European “despots,” thus was awakened in the natives “hereditary national feelings [*angeerbten Nationalgefühl*].”⁷⁹

The story of such proprietorial attachment goes back to the beginnings of history: having acquired the art of clothing, and suchlike, man then became capable of “taking possession [*Besitz*] of every part [*Klima*] of the Earth.”⁸⁰ Thus:

“climate is a compound [*Inbegriff*] of powers and influences, to which both plants and animals contribute, and which every thing that has breath [*allen Lebendigen*] promotes in it’s reciprocating mutations [*wechselseitigen Zusammenhänge*]⁸¹, so man is placed in it as a sovereign [*Herr*] of the Earth, to alter it by art.”

The “dank” forests of Europe were “exposed to the rays of the Sun”; Egypt, but for such “art and policy [*Polizei und Kunst*],” would have been no more than the “*Schlamm*”—mud or sludge⁸²—of the Nile. Here, and further into Asia, “the living creation has” thereby “adapted itself to the artificial climate [*künstlichen Klima bequemt*].”

“We may consider mankind [*Menschengeschlecht*], therefore, as a band of bold though diminutive giants, gradually descending from the mountains, to subjugate the earth, and change climates with their feeble arms [*schwachen Faust*]. How far they are capable of going in this respect futurity [*Zukunft*] will show.”⁸³

⁷⁵ Lit. horizon of their soul.

⁷⁶ Herder 1803, vol. 1, 303; Herder 1786, vol. 2, 101.

⁷⁷ *History of Greenland*. Cranz 1765; Cranz 1767, vol. 1; Cranz 1767, vol. 2.

⁷⁸ Lit. took flight; “escape” suggests incarceration, which is not the point of the story.

⁷⁹ Herder 1803, vol. 1, 304–306; Herder 1786, vol. 2, 102–105.

⁸⁰ Herder 1803, vol. 1; Herder 1785, vol. 1, 254.

⁸¹ Lit. mutual connections.

⁸² Churchill translates as “slime.”

⁸³ Herder 1803, vol. 1, 316–317; Herder 1786, vol. 2, 120–121.

However, to every climatic point, Herder poses a counterpoint.

Kalm's travelogues inform us that rapid "destruction [*Ausrottung*]" of the forests, and extension of land cultivation, reduced the number of hitherto abundant birds and fish. The "lakes, streams, rivulets, springs, rains, thick long grass of the woods, &c.," likewise, were detrimentally diminished. Moreover, such destruction "seemed to affect the health and longevity of the inhabitants, and influence the seasons."

"Let it not be imagined, that human art can with despotic power [*stürmender Willkür*⁸⁴] convert at once a foreign region [*Erdteil*] into another Europe, by cutting down it's forests, and cultivating it's soil: for it's whole living creation is conformable to it [*ist im Zusammenhange*]."

Herder acknowledges Williamson's arguments regarding the artificial amelioration of climate by clearance. However, while such "subjugation [*Überstreuung*] of Nature" may be beneficial in places, its general applicability is found doubtful. For one thing, the supposed insalubrity of these lands pertains only to the "foreigners [*Fremdlinge*]." Moreover, since "Nature is every where a living whole [*ein lebendiges Ganze*]," it will therefore "be gently followed and improved [*befolgt und gebessert*], not mastered by force [*gewaltsam beherrscht*]."⁸⁵

"And does not Nature revenge every insult [*Frevel*] offered her? Where are the conquests [*Eroberungen*], the factories [*Handlungsplätze*⁸⁶], the invasions, of former times, when distant foreign lands were visited by a different race [*ungleichartige Volk*], for the sake of devastation or plunder! The still breath [*stille Hauch*] of climate has dissipated or consumed [*Verweht oder weggezehrt*] them, and it was not difficult for the natives [*Eingebornen*] to give the finishing stroke to the rootless tree [*wurzellosen Baum*].

Thus, Herder providentially reprises the old argument—criticised, for example, by Joseph de La Porte via the example of Louis XV, "*le véritable climat*,"⁸⁷ in 1750—regarding the failures of armies in foreign climes. However, granting such conceptions a rather grander poetic and philosophical vista, he concludes:

The quiet plant [*stille Gewächs*] [...] that has accommodated [*bequemte*] itself to the laws of Nature, has not only preserved it's own existence [*selbst fortduert*], but has beneficially diffused [*fortbreitet*] the seeds of cultivation [*Samenkörner der Kultur*] through a new land [*Erde*]. Future ages [*Das folgende Jahrtausend*] may decide, what benefit, or injury, our genius has conferred on other climates, and other climates on our genius."⁸⁸

⁸⁴ Lit. storming arbitrariness or capriciousness.

⁸⁵ Herder 1803, vol. 1, 334–336; Herder 1786, vol. 2, 145–148.

⁸⁶ An archaic and somewhat obscure term. Literally action-places. In use seemingly only around the time Herder uses it. Presumably the translator means "factories" in the (now) archaic sense of an establishment of merchants and traders in a foreign place.

⁸⁷ La Porte 1751, 101–102.

⁸⁸ Herder 1803, vol. 1, 337; Herder 1786, vol. 2, 149–150.

An ancestral *Klima* was not, therefore, an eternal *Klima*. Nevertheless, from the Mongols to the Euro-Americans, only destruction and diminution followed the attempt to ride roughshod over the *Lande* of others.

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It may have been an idiosyncratic synthesis; however, in his *Ideen*, Herder systematically assembled the major Euro-American accounts of climate and travel of the preceding decades. Thus, as the Montesquieu affair had achieved rather more publically, he made climate a distinct and expansive concept; an expressive conceptual locus that assembled and connected an assortment of entities, interests, processes, and problems. Moreover, he went considerably further in reconciling the contradictions of climatic theories than had his predecessors.

The forcefulness of climate with respect to his fundamental tenets of individuality was tempered in Herder's account in at least six ways: first, there is a vital power inherent to individual living beings that neither transcends nor acquiesces to external forces; second, climate acts gradually; third, it acts rather more on the whole than on the individual; fourth, it is so inordinately multifaceted that description and specification must be preferred over generalisation; fifth, the earth is structured so as to yield generally beneficent, and hence degeneration-minimising, climates; finally, were a living kind to be truly overpowered by its climate, Nature would sooner have it perish than surrender. Thus, whereas Montesquieu had, for the most part, arranged forces, categorised as moral or natural, in mechanical opposition, sometimes siding with one and sometimes the other, Herder attempted to place the heterogeneous forces in circumstantial and historical counterpoise—without, however, engendering an ascensional progression of spiritual or earthly states. His universe was teleological but the *telos* was relative to each *Geschöpf*, every *Volk*, and all *Klimate*.

When Herder wrote of “the picture of changeable climate,” to this image pertained not only the elevation and typical productions of the land but also the modes of life, labour, pleasure, and dress enjoyed by the inhabitants, along with various other circumstances affecting their existence. There is a certain ambiguity as to whether, in this instance, “climate” was to be understood as constitutively inclusive of moral or cultural entities or whether these were entities integrally associated with the effects of climate. Moreover, when writing of climate generally, he undoubtedly prioritised physical rather than moral elements. However, there is no doubt that Herder's climate, though less loquaciously litanous than that of Volney, was significantly extended.

One authority altogether unconvinced by Herder's proto-Romantic poetics was Herr Kant. Reviewing his erstwhile student's opus, the sage of Königsberg, in a tone both ironical and teacherly, took issue with the rather “epic” style, particularly considering that its grand and general conclusions were drawn from mere travellers' remarks. From a system placed upon such “unstable foundations [*wankende Grundlage*],” only “ramshackle hypotheses” may result.

However, more to the point was Herder's dismissal of "the division of mankind into *races*, especially on the basis of inherited colour."<sup>89</sup> Further still, in Book IX, Herder had attacked an "evil" principle: specifically, that "man is an animal, that needs a master [*Herren*], and must derive the happiness of his destination from this master, or from a connexion with him."<sup>90</sup> Quoting this passage, Kant dismisses such reproaches, noting this principle to be "confirmed by the experience of all ages and peoples." To be sure, it may be, as Herder argued, that providence granted the most easy attainment of happiness to individuals, sparing many generations "these costly machines of state as much as possible."<sup>91</sup> However, Kant retorts, "first comes the happiness of the animal, then that of the child, then that of the youth, and finally that of the man." Thus, such transhistorical comparisons ignore the ascensional, stadial structure of time, and of worth. With a fencer's flourish, Kant then adds:

"Does the author really mean that, if the happy inhabitants of Tahiti, never visited by more civilised nations, were destined to live in their peaceful indolence for thousands of centuries, it would be possible to give a satisfactory answer to the question of why they should exist at all, and of whether it would not have been just as good if this island had been occupied by happy sheep and cattle as by happy human beings who merely enjoy themselves?"

This so-called "evil" principle was, he concluded, nothing of the sort, though "it may well have been stated by an evil man."<sup>92</sup> This "man" was, of course, Kant himself.<sup>93</sup> It was, then, in defence of racial, civilisational, developmental and, hence, existential hierarchy that Kant undertook to set historical thought on secure, transcendental foundations, based not on the fickle, vicarious storytellings of those who might erringly valorise the falsely free, but upon judgements universalisable. The chaos of climate, then, meant nothing to the critical intellect.

### 7.3: Making cosmically comparable: Humboldt's terrestrial physics

In 1806, recently returned from his half-decade expedition to the Americas, Alexander von Humboldt (1769–1859) published a short essay titled *Ideen zu einer Physiognomik der Gewächse*.<sup>94</sup> It was included in his *Ansichten der Natur* of 1808, a series of short essays (with much longer scientific

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<sup>89</sup> Kant 1991, 217; Kant 1965, 32.

<sup>90</sup> Churchill translates as a "bad fundamental principle [*böser Grundsatz*]" but *böser* is rather stronger. Herder 1803, vol. 1, 447; Herder 1786, vol. 2, 313–314.

<sup>91</sup> Herder 1803, vol. 1, 402.

<sup>92</sup> Kant 1991, 216–220; Kant 1965, 43–47.

<sup>93</sup> Eigen and Larrimore 2012, 57.

<sup>94</sup> *Ideas for a Physiology of Plants*.

notes) intended for a popular audience, and translated into English twice.<sup>95</sup> Seeking to articulate the basis of his terrestrial geophysics, Humboldt also paid tribute to his foremost forebears:

“George Forster, in the narrative of his voyages, and in his other publications—Goethe, in the descriptions of nature [*Naturschilderungen*] which so many of his immortal works contain—Buffon, Bernardin de St. Pierre, and Chateaubriand, have traced [*geschildert*] with inimitable truth of description the character of some of the zones [*Himmelsstriche*] into which the earth is divided.”<sup>96</sup>

Such portrayals provided not only “mental enjoyment” but, moreover, “knowledge of the character which nature assumes in different regions [*Weltgegenden*],” and, moreover, the “national character [*Volkscharacter*]” that depends “in a very high degree on climatic influences [*Verhältnissen*].”

“The influence of the physical on the moral world—that reciprocal and mysterious action and reaction [*Ineinander-Wirken*] of the material and the immaterial [*Sinnlichen und Ausersinnlichen*]<sup>97</sup>—gives to the study of nature, when regarded from higher points of view, a peculiar charm, still too little recognized.”

Thus, Humboldt articulated themes and convictions that would be recurrent throughout his career.

However, besides various nuances of translation—*Himmelsstriche* as “zones into which the earth is divided,” *Sinnlichen und Ausersinnlichen* as “the material and the immaterial”—there was something more significant missing from this version. Both English translations were made from the 1849 third German edition of *Ansichten*. In previous versions, alongside the dues paid to Forster et al., was an acknowledgement of Herder.<sup>98</sup> The reasons for such a belated excision of the author of *Ideen* are unclear. Nevertheless, Humboldt had read Herder’s work, and was well acquainted, often personally, with its sources.

In 1805, the year before his essay on plant physiology appeared (and the year after returning from the Americas), Humboldt published the *Essai sur la géographie des plantes*, co-authored with his companion and collaborator Aimé Bonpland (1773–1858).<sup>99</sup> Centring on one enormous plate, the famous altitudinal diagram of Chimborazo, the accompanying text was written first in French. In 1807, Humboldt made his own translation into German (the only

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<sup>95</sup> Translated into English twice, contemporaneously: in 1849 as *Aspects of Nature: in different lands and different climates* by Elizabeth Leeves Sabine (1807–1879), wife of the astronomer and geophysicist Edward Sabine (1788–1883), and in 1850 as *Views of Nature: Or, Contemplations on the Sublime Phenomena of Creation* by the linguist and historian Elise C. Otté (1818–1903), and the publisher Henry George Bohn (1796–1884).

<sup>96</sup> Humboldt 1849, 235; Humboldt 1808, vol. 1, 175–176.

<sup>97</sup> Lit. the sensual and nonsensual (or extrasensory).

<sup>98</sup> Cf. Humboldt 1849a, vol. 2, 18.

<sup>99</sup> Humboldt and Bonpland 1805. Quotations are from recent English translation: Humboldt and Bonpland 2010.

major self-translation he undertook),<sup>100</sup> dedicating this version to Goethe. As well as being a poet, novelist, and state administrator, Goethe had also established himself as a philosopher of botany with his 1790 *Versuch die Metamorphose der Pflanzen zu erklären*.<sup>101</sup> Principally, this text

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<sup>100</sup> Humboldt and Bonpland 1807b.

<sup>101</sup> *Attempt to explain the Metamorphosis of Plants*. Goethe 1790; Goethe 2009.

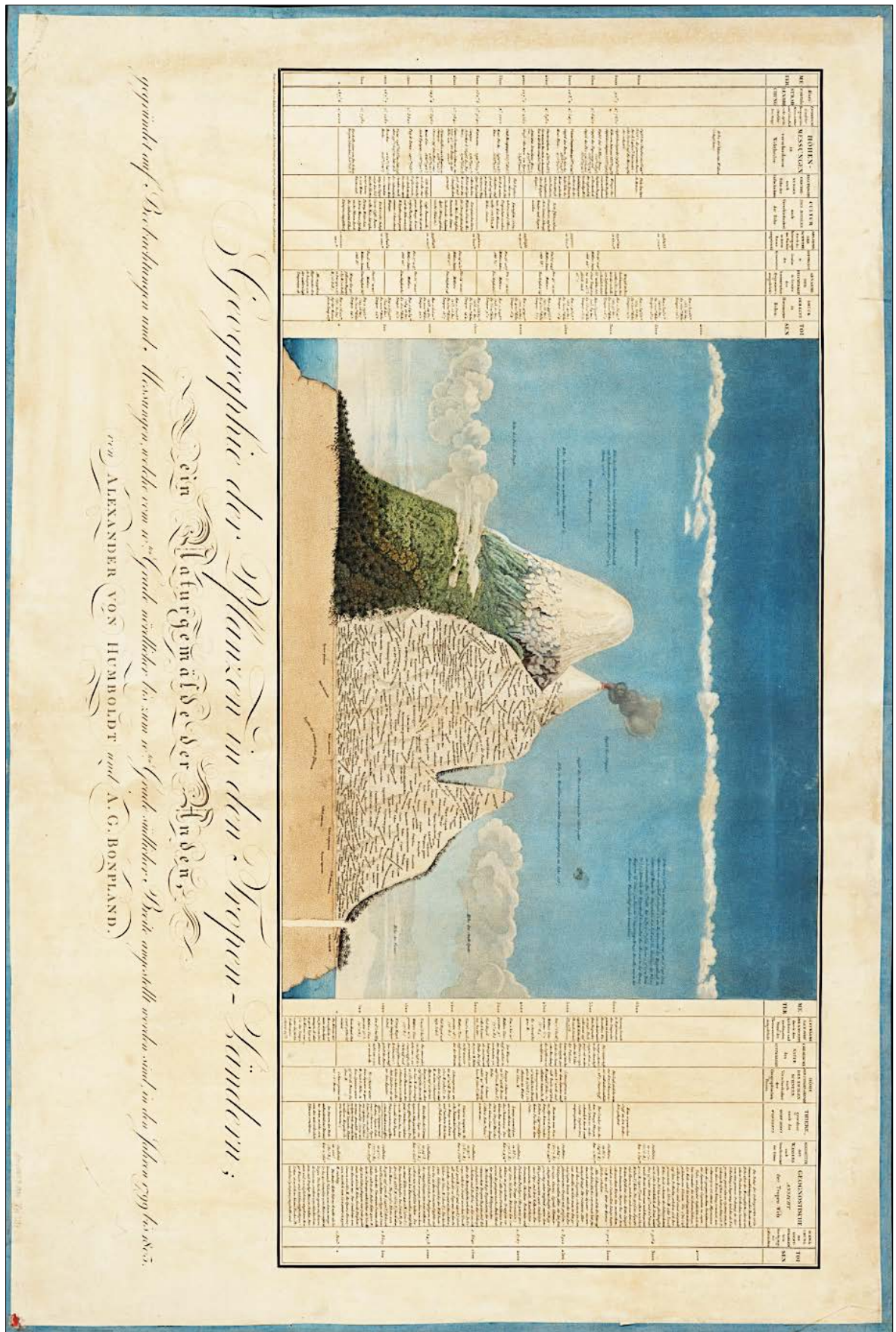


Figure 14—Physical tableau of Chimborazo; from German edition, 1807

described the leaves of plants in terms of their derivation from a common, primordial form, the “*Ur-phänomen.*” However, Goethe did not describe this underlying unity in terms of its variation



under conditions of climate—indeed, neither climate nor its cognates featured in his text. His concern, therein, was with the unity of the form, not the distribution of its metamorphic variations.

Humboldt's *Essai* presented, in a single view, the essential elements of his and Bonpland's investigations into the altitudinal distribution of vegetation. However, it was also a manifesto of sorts: the geography of plants, then existing "in name only," was "an essential part of general physics."<sup>102</sup> In short: "This is the science that concerns itself with plants in their local association<sup>103</sup> in the various climates."<sup>104</sup> Simultaneously comprehensive and abstract, it would "bring together all the physical phenomena that one can observe on the surface of the earth and in the surrounding atmosphere<sup>105</sup>."<sup>106</sup>

The centrepiece of the *Essai* is a table-sized foldout image, presented as a triptych. The panels display sixteen columns, which add quantitative and other descriptive information:

- 1: Light refraction.
- 2: Distance from which visible at sea level.
- 3: Global altitudinal reference points.
- 4: Electrical atmospheric phenomena.
- 5: Soil cultivation.
- 6: Gravitational force.
- 7: Blueness of the sky.
- 8: Humidity.
- 9: Barometric pressure.
- 10: Air temperature (centigrade).
- 11: Chemical composition of the air.
- 12: Comparison of perpetual snow limit with other mountains.
- 13: Typical animal types.
- 14: Boiling point of water (centigrade).
- 15: Geological information.
- 16: Light intensity.

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<sup>102</sup> [*physique générale/Geschichte unsers Planeten*].

<sup>103</sup> [*les rapports de leur association locale/dem Verhältnisse ihrer Vertheilung*].

<sup>104</sup> Humboldt and Bonpland 2010, 64; Humboldt and Bonpland 1805, 13–14; Humboldt and Bonpland 1807b, 1–2.

<sup>105</sup> [*l'atmosphère qui entoure/der Luftkreis darbietet, der jenen einhüllt*].

<sup>106</sup> Humboldt and Bonpland 2010, 61; Humboldt and Bonpland 1805, vi; Humboldt and Bonpland 1807b, ii.

To each section corresponds a portion of the main explanatory text (altogether comprising nearly 80% of the total *Essai*).<sup>107</sup> Without giving an explicit definition, Humboldt's conception of climate encompassed not only temperature and humidity but also electrical tension and atmospheric pressure. Its usage principally concerned the distributions of various beings. However, such distributions do not necessarily conform to climatic dictates. Lichens, for instance, are found to exist everywhere, with a shape seemingly independent of climate.<sup>108</sup> As regards humans, the capacities of cultivation were crucial. Those "savage" peoples not taken to agriculture have a "character"<sup>109</sup> that is "modified everywhere by the nature of the climate and the soil where he lives" (in the German version only, Humboldt adds: "*mehr noch als Abstammung* [even more than ancestry]").<sup>110</sup>

Aesthetically and scientifically, the tableau was the product of Humboldt's singular *Bildung*. In 1787, he had studied with Carl Ludwig Willdenow (1765–1812), author of the 1792 *Grundriss der Kräuterkunde*.<sup>111</sup> Recognising that temperate zonation extends further north in Europe compared to North America, Willdenow attributed such divergences from climatic latitudinality to "mountains, valleys, rivers, marshes, woods, seas, and varying soil." For this reason, he advocated distinguishing between "a physical and geographical climate," where the latter incorporated the relevant complications.<sup>112</sup> After Willdenow, both of the Forsters had impressed upon Humboldt the importance of climatic zonation, as had the Creole intellectuals Francisco José Caldas (1768–1816) and José Celestino Mutis (1732–1808). In 1805, Humboldt returned to a Paris where Lamarck was already formulating his own ruminations over species formation. Elsewhere, the works of William Playfair (1759–1823), with whom Humboldt maintained a correspondence, were already reworking the limits of informational representation.<sup>113</sup>

Despite enormous public interest, the first volume (of thirteen) of Humboldt's account of his and Bonpland's journey was not published until 1814.<sup>114</sup> However, while finally giving the public their stories of wonder, danger, and derring-do, it was much more than a travelogue. That the work ran to several thousand pages despite covering barely one third of the journey reflects not so much the abundance of anecdotes (although there are many) but rather the

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<sup>107</sup> Jackson 2010, 26.

<sup>108</sup> Humboldt and Bonpland 2010, 68.

<sup>109</sup> [*l'état / die Lage und die Sitten*].

<sup>110</sup> Humboldt and Bonpland 2010, 70; Humboldt and Bonpland 1805, 25; Humboldt and Bonpland 1807b, 17; Glacken 1967, 545.

<sup>111</sup> Willdenow 1792; English translation: Willdenow 1805.

<sup>112</sup> Willdenow 1805, 371–372; Willdenow 1792, 345–346.

<sup>113</sup> Romanowski 2010, 188; Playfair 1801; Playfair 2005.

<sup>114</sup> Humboldt and Bonpland 1814, vol. 1. On the complicated printing and distribution, see: Troelstra 2017, 215.

incessant, lengthy, and seemingly compulsive digressions into everything from astronomic observations to temperature measurements. Humboldt was unambiguous about what set his and Bonpland's endeavours apart from their predecessors.

“It is not by sailing along the coast, that we can discover the direction of the chains of mountains, and their geological constitution, the climate of each zone, and its influence on the forms and the habits of organized beings.”<sup>115</sup>

By procuring passports to travel into the interior of the Spanish imperial properties, making use of existing colonial and missionary infrastructures, not to mention gaining extensive access to colonial archives in Havana and other cities in the region, they had enabled the accumulation of specimens, measurements, descriptions, and statistics on a scale practically unprecedented.

Considerations of climate related principally to temperature. However, such aspects of “the physical history of our planet” was, admittedly, an inchoate science. Did “the quantity of free caloric” vary over millennia? Have mean temperatures relative to parallels changed “since the last revolution” of the globe?

“[W]e are ignorant of every thing that relates to a general change of the climates, as we know not whether the barometric pressure of the atmosphere, the quantity of oxygen, the intensity of the magnetic powers, and a great number of other phenomena have undergone any change since the time of Noah, of Xisuthris, or Menou.”<sup>116</sup>

Nevertheless, it was, Humboldt understood, “a fact, which seems indubitable” that earthquakes, so regularly experienced in equinoctial America, exerted a “mysterious influence [...] on the climate, and on the order of the dry and rainy seasons,” perhaps due to the vapours they released.<sup>117</sup> Thus, climate was in a close-knit relationship with all manner of other forces that were not climatic as such.

However, these prolific popular texts did not constitute Humboldt's principal contribution to climatology during these years. While others had, in the preceding decades, employed Halley's cartographic technique of isolines to such problems as the destructiveness of earthquakes,<sup>118</sup> in his essay *Des lignes isothermes et de la distribution de la chaleur sur le globe* of 1817,<sup>119</sup> Humboldt was the first to apply them to relations of equal average temperature. Showing no landmasses but bearing a series of place names, his “*Cartes des lignes Isothermes*” thus demonstrated abstractly and graphically what had long been known descriptively: that climate did not

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<sup>115</sup> Humboldt and Bonpland 1818, vol. 1–2, vii–viii; Humboldt and Bonpland 1814, vol. 1, 6.

<sup>116</sup> Humboldt and Bonpland 1818, vol. 1–2, volume 2, 82; *ibid.*, vol. 1–2, 240–241.

<sup>117</sup> Humboldt and Bonpland 1818, vol. 1–2, volume 2, 219.

<sup>118</sup> Robinson and Wallis 1967; Robinson 1971; Stegena and Szeidovitz 1991; Varga 2008; Gercsák 2009; Kozák and Prachař 2010; Varga, Timár, and Kiszely 2015.

<sup>119</sup> *Isothermal lines and the distribution of heat on the globe*. Humboldt 1817. Abridged English version published in two parts: Humboldt 1820; Humboldt 1821.

straightforwardly correlate to latitude. The accompanying text, moreover, further explicated his conception of climate.

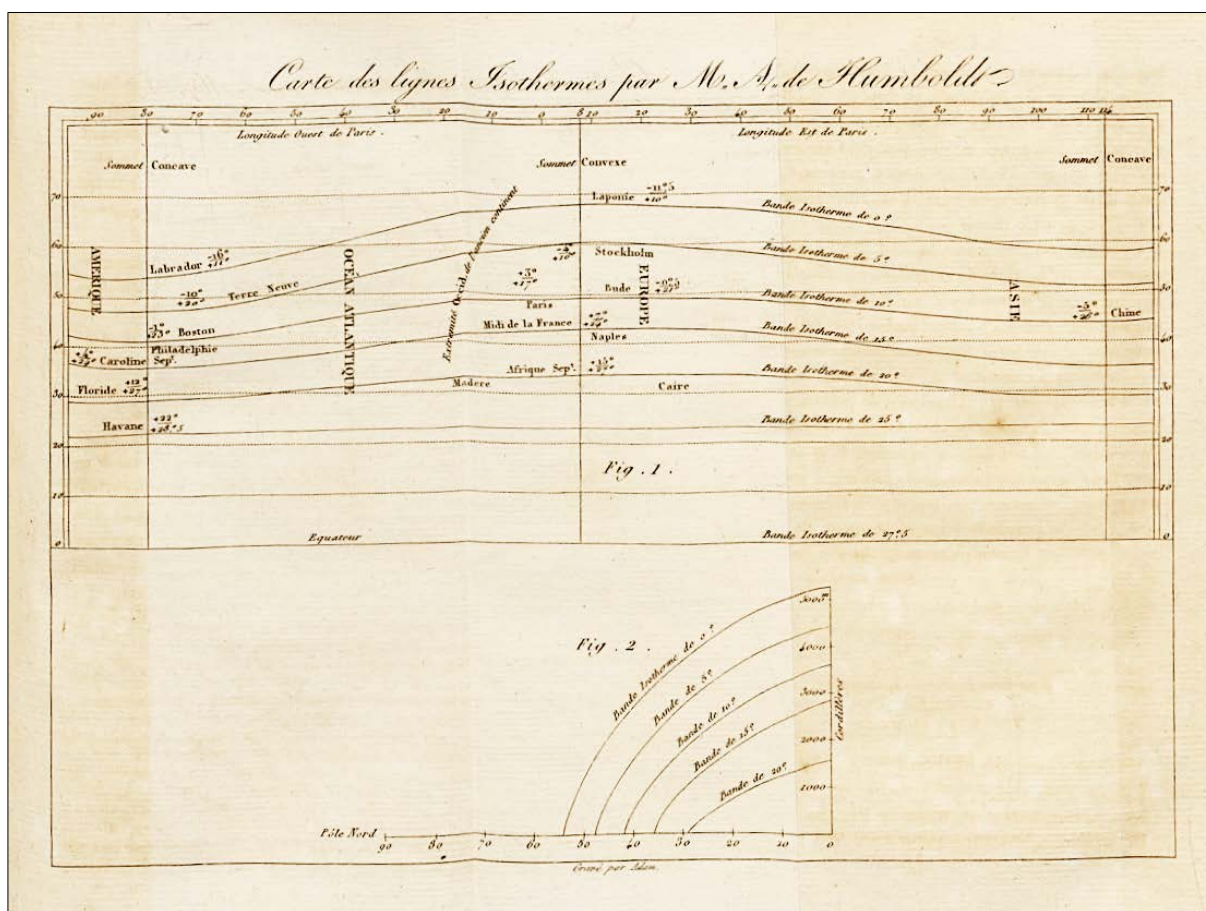


Figure 15—“Carte des lignes Isothermes”; Humboldt, 1817

After Willdenow’s “physical and geographical climate,” Humboldt distinguished, “as has long been done, between the *solar* and the *real climate*.”<sup>120</sup> With regard to this distinction, the particular configuration of Europe productive of its climate had been misleading:

“as the physical sciences almost always bear the impress of the places where they began to be cultivated, we are accustomed to consider the distribution of heat observed in such a region, as the type of the laws which govern the whole globe.”<sup>121</sup>

The “method of means [*moyennes*]”—i.e. identifying climates in terms of mean temperatures—is, therefore, inadequate for relating the influence of the sun to particular climates.<sup>122</sup> Thus, in conclusion, Humboldt explains that, in proposing “the theory of isothermal lines and their inflexions, which determine the different systems of climates” (i.e. the configuration of various isolineally-defined climates taken together), he had “endeavoured to reduce the phenomena of

<sup>120</sup> Humboldt 1820, 6; Humboldt 1817, 14.

<sup>121</sup> Humboldt 1820, 4; Humboldt 1817, 11.

<sup>122</sup> Humboldt 1820, 5; Humboldt 1817, 13.

temperature to empirical laws.” The simplification of such laws, he expected, would be achieved by taking more frequent and accurate measurements.<sup>123</sup>

Two excerpts from Humboldt’s long essay were published in English in *The Edinburgh Philosophical Journal* in 1820 and 1821. All the above extracts were included; however, one particularly crucial passage was not.

“As regards the organic life of plants and animals, we must examine all stimuli or external agents that modify their vital actions. The relations [*rappports*] between the average temperatures of the months are not enough to characterise the climate. Its influence is composed of the simultaneous action of all physical forces, and it depends on heat, moisture, light, electrical tension, and the variable pressure of the atmosphere.”<sup>124</sup>

Thus, Humboldt’s climate was increasingly expansive, though perhaps less so than Volney, Cabanis, or Herder.

In 1827, Humboldt returned to Prussia from Paris, as demanded by his benefactor Friedrich Wilhelm III. However, in 1829, at the behest of the Russian government, he undertook his second (and final) major expedition, through the Urals, Siberia and Central Asia (introducing the latter term to the geographical lexicon). Forbidden from commenting on social issues, his resulting publications, appearing a decade later, were strictly naturalistic.

Methodologically, his *Asie Centrale* (1834–1838) was continuous with previous works.<sup>125</sup> However, climatology as such was, by now, a more confidently established concept, if not yet with the infrastructure to support it. Indeed, within a chapter on isotherms, an explicit definition of climate was now offered:

“The word *climate*, in its most general acceptation, embraces all modifications of the atmosphere that sensibly affect our organs, such as temperature, humidity, variations of barometric pressure, the calmness [*tranquillité*] of the air, or the effects of heteronymous winds, the charge or quantity of electrical tension, the purity of the atmosphere or its mixtures with more or less unsanitary gaseous emanations; finally, the habitual degree of transparency [*diaphanéité*] and serenity of the sky, this being important not only with regard to increased [solar] radiation on the soil [*le rayonnement du sol*] but also for the influence it exerts on the development of organic tissues in vegetation, and the ripening of fruits, and with regard to the impressions which, in diverse zones, are excited in the soul by the senses.”<sup>126</sup>

However, this, Humboldt adds, only considers the atmosphere as regards the transmission of light. Other modifications, of causes as yet unknown, “are revealed in the admirable photographic procedures of the Daguerreians”—i.e. followers of Louis Daguerre (1787–

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<sup>123</sup> Humboldt 1821, 31; Humboldt 1817, 145.

<sup>124</sup> Humboldt 1817, 88.

<sup>125</sup> Humboldt 1843, vol. 1; Humboldt 1843, vol. 2; Humboldt 1843, vol. 3.

<sup>126</sup> Humboldt 1843, vol. 3, 107–108.



Figure 16—*View of the Moon*; daguerreotype by John Adams Whipple (1822–1891), 1852

1851). The flows of magnetic forces, particularly during the aurora borealis, were a case in point. Nevertheless, among the many, varied, and only partly known causes “that tend to diversify climates,” the most powerful is temperature.<sup>127</sup> Thus, for sake of “the progress of the

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<sup>127</sup> Ibid., vol. 3, 109–110.

sciences,” Humboldt concludes, it is imperative to “discover the reciprocal relations [*liaisons*]” between all such phenomena and, then, to deduce “empirical laws,” leading to a “mathematical theory of the climates,” which, one day, might be “subject to calculation,” with a sufficient number of the most distant parts of the globe rendered “comparable to each other,” producing a “theoretical Climatology.”<sup>128</sup>

It was for this reason, then, that Humboldt was advancing material from what he referred to as his hitherto unpublished “*Essai de Physique du Monde*.”<sup>129</sup> However, when the final version eventually arrived, it bore the title *Kōsmos*. Published in five volumes between 1845 and 1861 (the last posthumously), Humboldt’s magnum opus was wildly successful, selling 20,000 copies of the first volume alone.<sup>130</sup> The French translation was supervised by Humboldt himself. Three English translations were produced.<sup>131</sup>

Starting from the outer reaches of the known universe, it would then gradually descend to the minutiae of terrestrial life—“from the nebulae to the hyssop,” as he described it to Charles Darwin (1809–1882) in a letter of 1839.<sup>132</sup> Accordingly, when *Kōsmos* appeared in 1845, it bore the subtitle *Entwurf einer physischen Weltbeschreibung*.<sup>133</sup> It was to be a descriptive physical cosmography. However, rather than a mere encyclopaedic enumeration of facts, Humboldt wished to know *den Zusammenhang der Erscheinungen*—literally ‘the connection of phenomena,’ rendered by Otté as “the chain of connection, by which all natural forces are linked together, and made mutually dependent upon each other.”<sup>134</sup>

While evidently affected by the *Naturphilosophie* of Herder, Schelling, and others, *Kōsmos* made no claims to “a purely rational science of nature,” being, rather, a “rational empiricism<sup>135</sup>.”<sup>136</sup> As such, it would work empirically rather than speculatively “to delineate

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<sup>128</sup> *Ibid.*, vol. 3, 358–359.

<sup>129</sup> *Ibid.*, vol. 3, 110.

<sup>130</sup> Rupke 1997, vii.

<sup>131</sup> References below are to Elise C. Otté (1849–1865, in five volumes). Otté’s version was reissued as a two-volume version in 1997. In the below, we will investigate Otté’s translation, alongside the original German and authorised French.

<sup>132</sup> Letter dated 18th of September 1839. Humboldt and Darwin 1972, 171.

<sup>133</sup> Literally, *Outline of a Physical World-Description*. Both Otté and Sabine translate as: *A sketch of a physical description of the universe*.

<sup>134</sup> Humboldt 1849, vol. 1, 1; Humboldt 1845, vol. 1, 4; Humboldt 1846a, vol. 1, 2.

<sup>135</sup> [*denkende Betrachtung der durch Empirie/empirisme raisonné*].

<sup>136</sup> Humboldt 1849, vol. 1, 30; Humboldt 1845, vol. 1, 32; Humboldt 1846a, vol. 1, 36.

nature in all its vivid animation and exalted grandeur,”<sup>137</sup> tracing “the *stable*<sup>138</sup> amid the vacillating, ever-recurring alternation of physical metamorphoses<sup>139</sup>”—reasoning from experience to general laws via the medium of the aesthetically acute intellect.<sup>140</sup> It would pursue, in short, “unity in diversity [*Einheit in der Vielheit*],” that “harmony, blending together all created things<sup>141</sup>.”<sup>142</sup>

Such a complete picture would include both nature itself and the history of human impressions thereof. However, “the sphere of objects” would be treated separately from “that of sensations,”<sup>143</sup> with the first and second volumes taking up the former and latter, respectively. The second volume of 1847 itself consisted of two parts. The first examined “Incitements [*Anregungsmittel*] to the Study of Nature—The image reflected by the external world [*monde extérieur*] on the imagination.”<sup>144</sup> In particular, the histories of poetry, landscape painting, and the cultivation of exotic plants. The second part then constructed a “History of the physical contemplation of the universe [*der physischen Weltanschauung*]<sup>145</sup>—Principal momenta of the gradual development and extension of the idea of the Cosmos as one natural whole [*de l'idée de l'univers*].”<sup>146</sup>

Running through both the cosmological and intellectual aspects of Humboldt’s history was a vivid overall vision:

“In interrogating the history of the past, we trace the mysterious course of ideas yielding the first glimmering perception of the same image of a Cosmos, or harmoniously ordered whole, which, dimly shadowed forth to the human mind in the primitive ages of the world [*l'univers*], is now fully revealed to the maturer intellect of mankind as the result of long and laborious observation.”<sup>147</sup>

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<sup>137</sup> Humboldt 1849, vol. 1, xiv. The English here follows the German “*die Natur lebendig und in ihrer erhabenen Größe zu schildern* [lit. to portray Nature alive and in her sublime greatness] [...]” Humboldt 1845, vol. 1, xv–xvi. The French excises any mention of nature: “*retracer avec vivacité une partie au moins de ce que l'esprit de l'homme aperçoit* [lit. to retrace with vivacity a part of what the mind of man perceives [...]]” Humboldt 1846a, vol. 1, vii–viii.

<sup>138</sup> [*Beharrliche/constant, d'éternel*]

<sup>139</sup> [*wellenartig wiederkehrenden Wechsel physischer Veränderlichkeit/les apparentes fluctuations des phénomènes de l'univers*]

<sup>140</sup> Humboldt 1849, vol. 1, xiv.

<sup>141</sup> [*Verbindung des Mannigfaltigen in Form und Mischung*]. Lit. connection of the manifold in form and mixture. While both the French and English articulate this in terms of “created [*créés*]” things, the German goes on to employ a more vitalistic vocabulary of “*Inbegriff der Naturdinge und Naturkräfte, als ein lebendiges Ganze* [the essence of natural things and natural forces as a living whole].” Humboldt 1845, vol. 1, 5–6.

<sup>142</sup> Humboldt 1849, vol. 1, 2; Humboldt 1845, vol. 1, 5; Humboldt 1846a, vol. 1, 3.

<sup>143</sup> Humboldt 1849c, vol. 2, 370; Humboldt 1847, vol. 2, 3.

<sup>144</sup> Here, only the subtitle exists in the German version (1847, vol. 2, 532) and only the subtitle in the French Humboldt 1849b, vol. 2, vi. English: Humboldt 1849c, vol. 2, ix.

<sup>145</sup> Lit. the physical worldview.

<sup>146</sup> Humboldt 1849c, vol. 2, ix; Humboldt 1847, vol. 2, 536; Humboldt 1849b, vol. 2, vii.

<sup>147</sup> Humboldt 1849, vol. 1, 2; Humboldt 1846a, vol. 1, 2.



*Kōsmos* was itself, then, to be a moment within a teleological trajectory soaring tremulously but exponentially upwards from the slumbering depths of the primordial twilight. Its ‘maturity’ was not, however, ‘the end of history.’ Though he had lectured on these topics in Berlin contemporaneously with Georg Wilhelm Friedrich Hegel in the 1820s, Humboldt’s thoughtful empiricism could not entertain the possibility of idealistic closure. Rather, for the octogenarian author of *Kōsmos*, this was a “noble mission”<sup>148</sup>—a mission requiring far more than intellectual labour, and one that was only just beginning.

The place of climate within this sweeping vista was crucial but not central. Towards the end of the first volume, Humboldt utilised precisely the same definition as he had in his *Asie Centrale* (albeit in German).<sup>149</sup> However, the discussion of the concept was further elaborated. The reciprocal motion of air, sea, and land cannot be understood “independently of geognostic [i.e. geological] relations.”

“The word climate has certainly special reference to the character [*Beschaffenheit*] of the atmosphere, but this character is itself dependent on the perpetually concurrent influences [*Zusammenwirken*] of the ocean, which is universally and deeply agitated by currents having a totally opposite temperature, and of radiation [*wärmestrahenden*] from the dry land, which varies greatly in form, elevation, colour, and fertility, whether we consider its bare rocky portions or those that are covered with arborescent or herbaceous vegetation.”<sup>150</sup>

However, once again, Humboldt affirmed that while the composition of climate should not be prematurely foreclosed, the “mean temperature of the air” was the fundamental element, although the mean temperature of the surface “is very different from that of the globe itself.”<sup>151</sup>

In the same discussion, Humboldt referenced the “admirable investigations” of Joseph Fourier (1768–1830) on the geophysics of heat,<sup>152</sup> though not specifically his 1824 paper<sup>153</sup> subsequently recognised to have articulated the physics of atmospheric retention of solar heat—i.e. the ‘greenhouse effect.’<sup>154</sup> Rather, as regards the possibility of climatic alteration, Humboldt remained an interlocutor of Buffon and Jefferson. The “often agitated” question of “whether the mean temperature has experienced any considerable differences in the course of centuries” is only answerable, he maintained, “by means of the thermometer,” an instrument whose

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<sup>148</sup> Humboldt 1849, vol. 1, 17.

<sup>149</sup> Humboldt 1845, vol. 1, 340.

<sup>150</sup> Humboldt 1849, vol. 1, 292; Humboldt 1845, vol. 1, 304.

<sup>151</sup> Humboldt 1849, vol. 1, 168.

<sup>152</sup> *Ibid.*, vol. 1, 164–169.

<sup>153</sup> Fourier 1824; Fourier 1837.

<sup>154</sup> Fleming 1998, chap. 5.

history dates back barely 120 years (and a history that he would subsequently trace).<sup>155</sup> More and more precise measurements were, therefore, what was called for.

Few savants of the nineteenth century are more emblematic of the budding infrastructural and intellectual project to construct a worldwide system of climatic surveillance than Humboldt. Moreover, in whatever language he was writing, Humboldt could employ a sophisticated spatial vocabulary. In German, there was not only *Klima*, *Miasma*, *Zonen*, *Himmelsstrich*, *Umständen* [circumstances], *Luftkreises* [atmosphere], various permutations of *Weltgegend* [region], and so on; he also referred to fluid envelope surrounding the planet as the *Luftmeer*—the “aerial ocean.”<sup>156</sup>

However, recalling previous chapters—and, indeed, the narrative introduction of this thesis—one thing about Humboldt’s conceptual vocabulary is particularly striking: Although he was present at the debates between Cuvier and Saint-Hilaire, and at Comte’s first public lectures, and knew Balzac well (and although he outlived all of them), he never adopted (at least in his major published works) the term “milieu” in the sense of abstract, totalised surroundings. That is, just as he had been in 1799, through to his final works, Humboldt employed no exact cognate of the concept that became environment.<sup>157</sup> His conception of climate may have come close; however, relations of temperature were always the priority.

In his electrophysical experiments from before 1799, Humboldt remarked that: “In order to fully develop the conditions [*Bedingungen*] and circumstances [*Verhältnisse*] under which the phenomena of galvanism occur, we must also consider the medium [*das Medium*] in which the chain of metals and vital [*belebten*] organs are situated”<sup>158</sup>—media such as water, alcohol, chemical ether, and so on. Moreover, in the same work, Humboldt identified what he called an “atmosphere [*Atmosphäre*]” or “action sphere [*Wirkungskreise*]” surrounding the animal tissue, especially the nerve fibres, this being “the medium between the soul-organ [*Seelenorgan*] and the acting, irritating objects of the world of external sense [*äussern Sinnenwelt*].”<sup>159</sup> This surrounding field, unique to biological substances, was argued to allow galvanic force to be transmitted at a distance and could account for the “sympathies” between different organs, which classic physiology had postulated to account for sympathetic actions and diseases.<sup>160</sup> When these experiments were edited and adapted for the French language, published as *Expériences sur le*

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<sup>155</sup> Humboldt 1849, vol. 1, 168.

<sup>156</sup> *Ibid.*, vol. 1, 6; Humboldt 1845, vol. 1, 10, *passim*.

<sup>157</sup> This being true of his major published works. Unpublished manuscripts and correspondence may differ.

<sup>158</sup> Humboldt 1797, vol. 1, 242–243.

<sup>159</sup> Humboldt 1797, vol. 1, 223.

<sup>160</sup> *Ibid.*, vol. 1, 253–254.

*galvanisme* in the year Humboldt departed for the Americas, galvanism was likewise discussed in terms of “the effects of *milieux*.”<sup>161</sup>

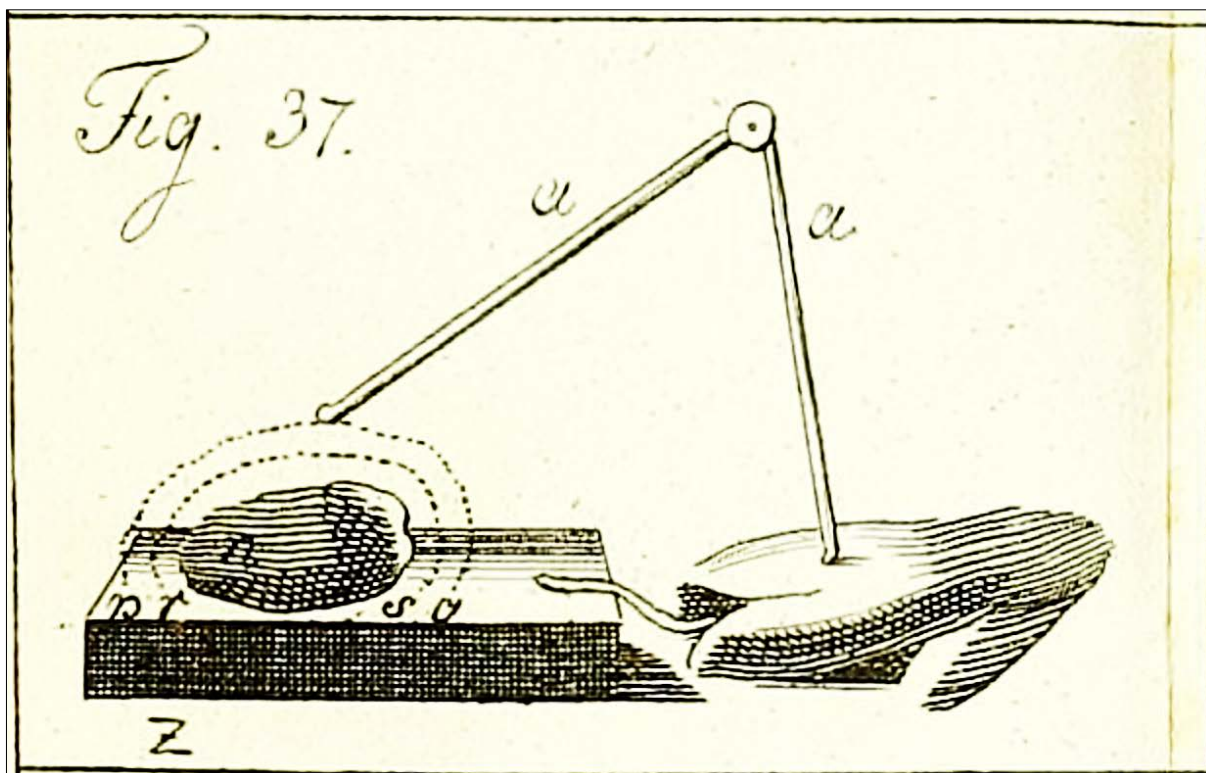


Figure 17—Galvanic “atmosphere” permitting action at a distance, 1797

Humboldt repeatedly cited Volney’s treatise on American climate and soil, which included a litanous expansion of climate;<sup>162</sup> he also cited Forry’s treatise of 1842,<sup>163</sup> which took de Tracy’s popular rendering of Cabanis’ “*l’ensemble de toutes*” as its epigraph. However, while Humboldt’s omnivorous geophysical philosophy was keen to expand the remits of climatic science, he did not adopt climate as a totalised, exteriorised surrounding ensemble.

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The translation of Herodotus’ *Histories* by Alfred Denis Godley (1856–1925) in 1920 recorded that the Ionians “found their cities in places with the loveliest of climate and seasons.”¹⁶⁴ This expression, as we have seen, related the Greek, *ouranoú*, as per *Ouranós*. A 1914 rendering of the *De architectura* of Vitruvius (c.80–c.15 BCE) by Morris Hicky Morgan (1859–1910) explains that fortified towns should be situated “in a climate neither hot nor cold”—the relevant term here,

¹⁶¹ Humboldt 1799, chap. 8. To the above quotation (op. cit. n.159) concerning *Bedingungen* and *Verhältnisse* corresponds: “Pour développer toutes les circonstances dans lesquelles les phénomènes galvaniques réussissent, il faut aussi considérer le milieu dans lequel se trouve placée la chaîne formée par les métaux et les organes vivants” (240).

¹⁶² E.g. Humboldt and Bonpland 2010, 143.

¹⁶³ Humboldt 1843, vol. 1, lvi; Forry 1842.

¹⁶⁴ Herodotus 1926, vol. 1, 183.

similarly, being “*regionesque caeli*” (the latter also sky, vault, heavens; *Caelus* being the Roman equivalent of *Ouranós*).¹⁶⁵ Following Vitruvius, some centuries later, the *De re aedificatoria* of Leon Battista Alberti (1404–1472), written between 1443 and 1452, utilised not *climata* but, rather, “*Cælo*,” becoming “*Cielo*” in the Italian translation of 1546, and, in the English version of 1755, “Climate.”¹⁶⁶ In 1882, Christian Edward Detmold (1810–1887) translated the 1531 *Discorsi* of

¹⁶⁵ Pollio 1914, 17; Pollio 1807, vol. 1, 16.

¹⁶⁶ Title of Book I, Chapter III:

Latin [1452] 1512: “*De regione, Cælo seu aere, sole & ventis aerem ipsum euraiantibus.*”

Italian 1546: “*De la regione del Cielo, over aria, del Sole & venti, che l'aria etiandio variano.*”

English 1755: “*Of the Region, of the Climate or Air, of the Sun and Winds, which affect the Air.*”

Contemporary translation (1988, 9) does not include title.

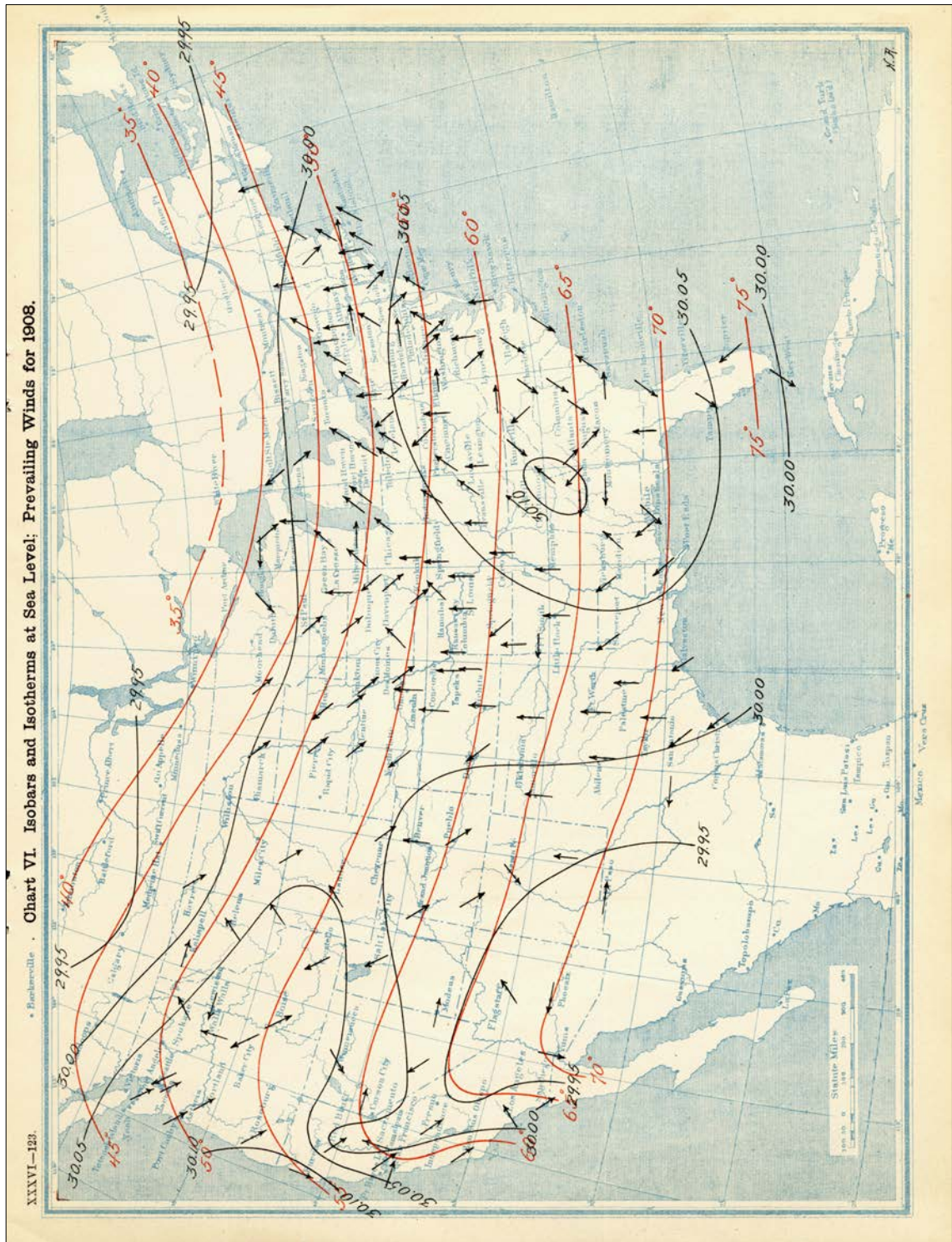


Figure 18—Isobars and isotherms for mainland United States, *The Monthly Weather Review*, 1908

Niccolò Machiavelli (1469–1527) into English, “climate” substituting for the Italian “*paese*”—country.¹⁶⁷ And so on.

Climate has long possessed a general significance that allows it to stand in for other concepts. However, by the late nineteenth century, the new science of meteorology had laid claim to its most authoritative meaning.

¹⁶⁷ Machiavelli 1882, vol. 2, 97; Machiavelli 1848, 89.

In 1883, the Austrian meteorologist Julius von Hann (1839–1921) opened his *Handbuch der Klimatologie*, published in the “Geographischer Handbücher” series edited by Friedrich Ratzel, by declaring the “Concept and Task [*Begriff und Aufgabe*] of Climatology”:

“By *climate* we mean the sum total of the meteorological phenomena that characterize the average condition of the atmosphere at any one place on the earth’s surface.”¹⁶⁸

Hann thus identified the science of meteorology as the paradigmatic climatic institution, thereby unambiguously relating its constitution to the atmosphere. Well into the new century, this would be an authoritative definition, with medical works defining their terms in relation to it.¹⁶⁹ Nevertheless, the emergence of a science definitively authoritative with regards to formal understandings of climate in no way restricted informal or figurative uses of the concept. Quite the contrary.

In 1661, the philosopher and clergyman Joseph Glanvill (1636–1680), wrote that “those that never travail’d without the *Horizon*, that first terminated their Infant aspects”—i.e. that never had experienced the world beyond their immediate surroundings—were stuck in the ways of “their native soil,” while “the larger Souls, that have travail’d the divers *Climates* of *Opinions*, are more cautious in their *resolves*, and more sparing to determine.”¹⁷⁰ However, while evident thereafter, figurative iterations of climate were uncommon until the twentieth century, where they proliferated dramatically.

For example (and harking back to §2/§3), in 1941, Arthur Oncken Lovejoy (1873–1962) wrote that, in the 1780s and 1790s, particularly in Germany, there had emerged:

“to resort to the hackneyed but apt metaphor—not one, but a whole set of ‘climates of opinion,’ in which species of plants either unknown to the earlier eighteenth century or only germinant then, came to flourish mightily.”¹⁷¹

This “massive historical fact” to which he referred was the emergence of Romanticism, understood, as per Lovejoy’s historiology of “unit-ideas,” as consisting of three constituent elements: “*das Ganze*, *Streben*, and *Eigentümlichkeit*”—that is, “holism or organicism, voluntarism or ‘dynamism,’ and diversitarianism.”¹⁷² The historian of ideas was, then, tasked with following these “basic or germinal ideas,” wherever and whenever they appear, identifying their “most prevalent formulas or phrases or sacred words.”¹⁷³ Such a task was of particular consequence since, Lovejoy noted, “a particular group of these ideas, continuously at work on the minds of

¹⁶⁸ Hann 1883, 1. English translated by Robert DeCourcy Ward (1867–1931): Hann 1903, 1. For contemporary appraisal: F 1903.

¹⁶⁹ E.g. Forchheimer 1913, 245.

¹⁷⁰ Glanvill 1661, 225–226.

¹⁷¹ Lovejoy 1941, 260; See also: Lovejoy 1924.

¹⁷² Lovejoy 1941, 272.

¹⁷³ *Ibid.*, 262.

the educated and reading public for fifteen decades” had recently resurfaced—its “pathos of struggle” playing “an essential and conspicuous part of the monstrous scene presented by Germany and by Europe today.”¹⁷⁴

Three years later, Leo Spitzer (1887–1960) published a scathing response. Against the “History of Ideas,” he advocated “*Geistesgeschichte*,” a term claimed untranslatable. The procedural-analytical reduction of thought to units, Spitzer argued, “destroys the organic entity and makes the understanding of the whole no longer possible.” That is, such “terminological punctiliousness” precludes the historian from understanding that which has “been integrated into a unit, held together by a certain *Geist*.”¹⁷⁵ It was thus essential to understand that “important ideas are from the start a *passionate* response to problems which agitate their period.”¹⁷⁶ As such, there were “no connecting threads” between Romanticism circa 1800 and “the moral climate of Hitlerism”¹⁷⁷—the two were “disparate and incommensurable.”¹⁷⁸

Lovejoy, as it happens, had been born in Berlin but grew up in the United States. Spitzer, by contrast, was a Jewish Austrian émigré who had fled Germany in 1933. As such, the latter had a rather different perspective on Lovejoy’s claim that, however distorted Nazi appropriations had been, Romantic ideas had nevertheless been working continuously upon the people, behind their backs, “making it easier for them to accept Hitlerism.”¹⁷⁹ As Spitzer put it, quoting Eric Voegelin (1901–1985), from the point of view of most intellectuals, this rise had appeared as “an invasion by a foreign nation.”¹⁸⁰ Thus, Romantic proclivities for the organic and vital were, for Spitzer, “healthy” instances of what the Nazis had corrupted.¹⁸¹ It was the corruptions of this particular historical “‘climate’ (Voltaire would say ‘*mœurs*’)” that was to blame, not the Romantics of more than a century before. A *Geistesgeschichte*, therefore, aimed at the sensible discernment of “the whole conceptual field (*Begriffsfeld*),” establishing “a world history of spiritual climates.”¹⁸²

By this time, then, “climate” could be employed much like the then-familiar “internal milieu” of the Durkheimians—to differentiate the internality of an organic collective.

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<sup>174</sup> Ibid., 270–271, 274.

<sup>175</sup> Spitzer 1944, 192.

<sup>176</sup> Ibid., 194.

<sup>177</sup> Ibid., 199.

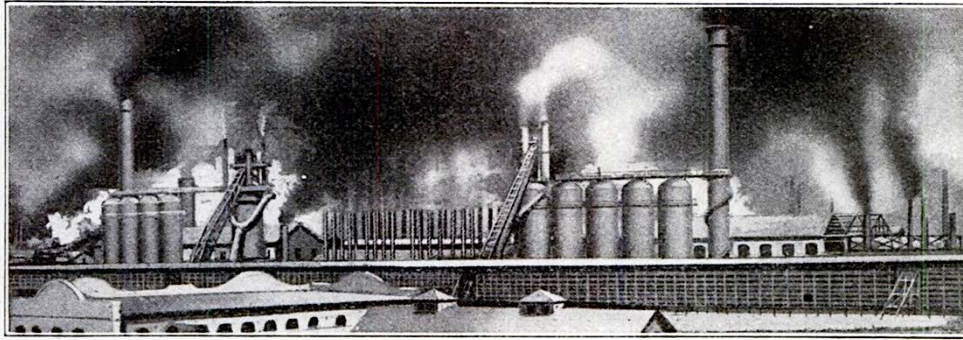
<sup>178</sup> Ibid., 197. A rejoinder by Lovejoy was published in the same issue: Lovejoy 1944.

<sup>179</sup> Spitzer 1944, 200.

<sup>180</sup> Ibid., 201; Voegelin 1941, 164; Voegelin 2000, 72.

<sup>181</sup> Spitzer 1944, 194.

<sup>182</sup> Ibid., 201–202.



The furnaces of the world are now burning about 2,000,000,000 tons of coal a year. When this is burned, uniting with oxygen, it adds about 7,000,000,000 tons of carbon dioxide to the atmosphere yearly. This tends to make the air a more effective blanket for the earth and to raise its temperature. The effect may be considerable in a few centuries.

dreds of thousands of years; for there is no more reason now to suppose that

uct of the combustion of coal or vegetable material, the temperature would

Figure 19—From "Remarkable Weather of 1911," March 1912

To be inside a circumambient sphere of influences—a milieu, a climate, an environment—however defined its principles of constituency may be, and however extensive or precisely-bounded may be its frontiers, is, it would seem, a mode of situation of rather recent genesis. The realisation of such an ontoturgic effect required a long and sustained effort.

Of course, as should now be evident, physicians, medical philosophers, cosmographers, and social reformers of whatever sort were in no way somehow waiting for the singularity and comprehensiveness of a properly "environmental" concept to articulate the necessity of a holistic understanding of health, society (or anything else). Holism, organicism, an emphasis on the interconnectedness of all things, the correspondence of microcosmic and macrocosmic, the monism of physical laws—in Humboldt's favourite phrase, the unity of nature—these are considerably more ancient, and rather more complicated, conceptions than can be brought down to any concept, never mind any statement. As such, the fact of Comte's *l'ensemble total* having been stated, and imitated, perhaps means less than the fact that other attempts, less successful, were being made to do something similar—that is, to provide an abstract, generally agreeable technical vocabulary through which the projects of state, empire, society, and mind could be undertaken.

Nevertheless, were the comprehensive singularity of environmental concepts (qua groundconcepts) incidental, the propriety of such should not have come into such regular and recurrent contestation.



## Excursus D: Ontographic: The constitution of the cosmos

As seen in §3, for Michel Foucault, an “historical ontology” was necessarily “of ourselves,” as subjects of knowledge, action, or ethics.<sup>1</sup> By contrast, for Bruno Latour, the question of “ontologies” is that of “what should be expected from agencies” (human or otherwise).<sup>2</sup>

The very conception of “reception as real” (§A) entails that ontologies cannot be formed amongst “ourselves.” For there to be an ontological relation, many things must become involved. However, *pace* Latour, the problem posed by *lógos*—that of the logics or *ways* of existing—will not, herein, be addressed through a series of “modes of existence” that can be articulated in a state of formal abstraction.<sup>3</sup> Rather, the question of the ontic and the ontological will be addressed through a conception of exemplarity.

While the concept of the ontoturgic (§B) has expanded the image of the crossroads (§A) to encompass the manifestation of worlds, the question of from what those worlds could be composed has yet to be investigated. The ontographic must, then, address the question of the relation between existents and existence—of how a renovation of particular agencies may reconstitute the very mode of existence of the cosmos, as it is received.

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Between Hume’s “sympathy or contagion of manners” of 1748,⁴ and Tarde’s “truly beneficial geniuses” of 1894,⁵ a great deal had changed. The former had been conceptually countermanding the high, indiscriminate hand of climate; the latter, the fashionably circumambient pressures of milieu. Both made the imitative human mind primary, and both employed the vocabulary of contagion and infection. However, the significance of such conceptions is marked by epochal difference in several respects.

Since long before Sydenham, and for some time after, contagion and insalubrity were understood as complementary or interdependent, rather than distinct, causes of disease.⁶ Indeed, nineteenth-century sanitarians such as the lawyer Edwin Chadwick (1800–1890) were rather more given to Hume’s scepticism as regards causal speculation than to contagion *per se*.⁷ When the physician John Snow traced the origin of an 1854 outbreak of cholera in London to

¹ Foucault 1983, 237.

² Latour 2014, 302.

³ Thus, N.B. what Latour means by “mode of existence” differs significantly from what this expression means herein (i.e. “what is fundamentally and specifically necessary for that thing to be what it is”). Latour 2013a; Conway 2016a.

⁴ Hume 1889, vol. 1, 246–249.

⁵ Tarde 1898a, 78–80.

⁶ Pelling 2001, 19; Bashford and Hooker 2001; Stearns 2011.

⁷ Pelling 2001, 25.

a particular well in Soho, this may have identified a definite causal vector. However, when Snow (1813–1858) wrote of “contagious molecular action,” this understood the pathological process as involving the elective affinities of organic molecules rather than germs as such.⁸ When, thereafter, both Louis Pasteur (1822–1895) and Robert Koch (1843–1910), competitively, formulated the microbe as a scientific object, within the laboratory and without, their new agents were by no means immediately accepted. Nevertheless, they had provided an agential, and biological, explanation to the phenomenon of vectoral epidemic contagion. To all this, Tarde’s “contagions” of genius (§5.3) could be related. Likewise, his “imitative rays” could be imbued with the electrical signals of the telegraph; or, indeed, the recent, and exciting, discovery of radiation for which Antoine Henri Becquerel (1852–1908), Marie Skłodowska Curie (1867–1934), and Pierre Curie (1859–1906) were awarded the Nobel Prize for Physics in the same year as his debate with Durkheim.

Such were, then, not only existing things but *paradigmatically existing things*: that is, things granted the capacity to provide an exemplary pattern for existents, and even existence, more generally.⁹

Of course, Tarde was by no means alone in obtaining resonances with contemporaneously emergent beings of contagion and connection. For example, in 1895, his colleague Gustave Le Bon (1841–1931) published an influential study on crowd psychology, drawing, in part, on the experimental hypnotism performed by Jean-Martin Charcot (1825–1893), and others, writing: “In a crowd every sentiment and act is contagious.”¹⁰ While the figure of the mob or multitude had long been pathologised in such fashion, Tarde affirmed the finer qualities of cognitive contagion. However, he also distinguished between this “slow contagion from mind to mind,” and “these rapid contagions, these noisy and captivating imitations that characterise popular movements.”¹¹

Nevertheless, in another respect, Hume and Tarde shared an epoch. For the ancient Stoics, *sympátheia*¹²—literally, together-feeling—was that principle of resonance and affinity suffusing both minds and cosmos.¹³ For Hume, by contrast, “sympathy” was exclusively a relation between minds.¹⁴ In his *Fragment d’histoire future*, Tarde, likewise, described “a ‘Geniocratic’ Republic” (i.e. rule by geniuses) to be based “on admiration, not on envy, on

⁸ Ibid., 28.

⁹ On the etymology and conceptual significance of “paradigm,” see: Kuhn 1996, sec. Postscript; Agamben 2009, chap. 1.

¹⁰ Le Bon 1896, 10; Le Bon 1895, 18.

¹¹ Quoted in Forth 2001, 67; Tarde 1892, 355; Tarde 1900a, 63.

¹² συμπάθεια.

¹³ Schliesser 2015.

¹⁴ Cf. Montes 2003, 47.

sympathy, and not on dislike—on enlightenment, not on illusion.”¹⁵ Sympathy was not a cosmic feeling so much as a geniomesic one.

Despite his avowals on being a “nominalist,” and repudiating “ontology,” Tarde did not follow the Humean-Kantian proscription of speculation—indeed, his social-scientific remit was universal in the largest sense. However, such extravagances involved little or nothing of cosmic sympathy. Fundamentally, his *Monadologie et sociologie* proposed that “being [être]” must be displaced as a philosophical first principle by “having.” Then, since “being is having [avoir], it follows that everything must be avid [avide]”—that is, eager, greedy, hungry, grasping.¹⁶

Thus it is that every being strives to become a “*milieu universel*” for all others.¹⁷ This absolute drive to self-repetition will explain why light, heat, and electricity propagate, as “the least atomic vibration aspires by itself to fill the infinite ether,” jealously combatting every other ripple along the way. No less, this is also “why every species, every living race” undertakes to multiply—as per the well-known (but unattributed) maxim of Malthus—“in a geometric progression.” Likewise, “any social product”—industrial invention, poetic verse, political notion—also “dreams like Alexander of the conquest of the world.”

As he had in previous works,¹⁸ Tarde then distinguished three forms of “universal repetition”: “wave-like, generative, [and] imitative.” These varied “procedures of government and instruments of conquest” produce “the three kinds of physical, vital, and social invasion: vibratory radiation, generative expansion, and the contagion of the example.”¹⁹ It was the latter imitative, social, exemplative modality, then, that permitted the genocratic reverence of superiority that is permissive of sympathy.

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To receive a thing as real—that is, in accordance with what is fundamentally and specifically necessary for that thing to be what it is—only becomes possible from within a relevant world of beings. Not all beings familiar to a collective figure equally in this world-effect. Thus, it is in relation to “paradigmatically existing things,” and against this rapacious conception of “the example,” that I wish to formulate the ontographic. However, at this mid-way point, it must now be made further apparent not only what this text is proposing but, moreover, what it is resisting.

It will be evident to anyone familiar with another disgraced professor of the twentieth century that what is herein proposed bears little meaningful relation to what he—for many

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<sup>15</sup> Tarde 1905, 132; Tarde 1896, 33.

<sup>16</sup> Tarde 2012, 59–60; Tarde 1900b, 381.

<sup>17</sup> Tarde [1893] 2012, 27; Tarde [1893] 1900, 337.

<sup>18</sup> E.g. Tarde 1903.

<sup>19</sup> Tarde 2012, 60; Tarde 1900b, 381.

paradigmatically—designated as “ontology.”<sup>20</sup> That is, for Martin Heidegger, ontology was the science not of “ontic” beings but of Being as such—of what the existence of every existent presupposes. The foundation of this science was found in the essence of “man” himself—the paradigmatic being, above all.<sup>21</sup> As a young Emmanuel Levinas explained: “*The understanding of being is the determining characteristic and the fundamental fact of human existence.*”<sup>22</sup> That is, being is an issue for no other being but “man.” Thus, it is only through analysis of the human mode of existence (“*Dasein*,” being-there) that Being (“*Sein*”) itself can be understood. Thus, the empirical and transcendental sciences of man, though all imperfect, are already ontological, by definition. It is through the careful elaboration of this structure, Levinas adds, that “all the richness of human existence will be elaborated.”<sup>23</sup>

Unambiguously, the critical-transcendental method of Heidegger, in the tradition of Kant, is telist (§C) in the most profound sense. Not only is the objective of thought to arrive at a final conception of Being—and hence to stop thinking—but, moreover, history itself is fitted to this ascensional trajectory. “Man” is never really different, only more or less “authentic” to himself. Needless to say, the Germano-supremacist, and particularly anti-Semitic, aspects of this historiology—long-known but oft-downplayed—have recently met with much-needed recognition.<sup>24</sup> However, the objective of the following is not to criticise so much as to bypass such conceptions.

Neither ontonomic obligation, nor ontoturgic patency, nor ontodesic realism require the transcendence of the ontic. Moreover, the ontomesic is staked upon the absence of such finalities, and the ontochronic renders ontology historical, without teleology. However, to *resist* the transcendence of the ontic, the ontographic is required. In particular, it must be distinguished from the ontoturgic, which is understood as the means of establishing ontological exemplarity. Ontographic practice, then, accounts for the diverse specificity of those ontic beings, which the very notion of exemplification presupposes.

Furthermore, it is through the ontographic that the trivium may be ‘grounded’ without reference to either a unified earth, a totalised nature, or an all-suffusing aether. This possibility can be understood in relation to the dangers of the exemplary.

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When the brothers Wilhelm and Alexander were still young, the Humboldt residence was one day graced by the regal presence of King Frederick II (that is “The Great”). Of Wilhelm, the

²⁰ Heidegger 1962, 31.

²¹ Heidegger 1996, 5.

²² Levinas 1996, 15; Levinas 1932, 403.

²³ Levinas 1996, 17; Levinas 1932, 406.

²⁴ Mitchell and Trawny 2017.

King enquired as to whether he aspired to a soldier's life, like his father. "No, Sire," replied the elder brother. His sights were set on a career in literature. Of Alexander, two years the junior, Frederick jested as to whether he intended to conquer the earth, like his ancient namesake. "Yes, Sire," replied the fair-haired boy, "but with my head."

This anecdotal tableau carries an air of the apocryphal—and may well be so. However, no image so apt concerning 'the great and the good' can fail to be repeated in perpetuity.²⁵ Nevertheless, to repeat such an image poses a problem: What is one to do with a history that takes the glorification of conquest as its cornerstone? Can the exemplary be situated?

Questions of personal specificity relative to amassed conditions, as we have seen, have been formative of mesologic and environmental conception. In the first chapter of *Le Naturalisme au théâtre*, Zola ridiculed those "idealists" who generalise, abstract, retreat into the past, portray clichés, and can deal only in petrified statues, never in "the complete analysis of an organism." Confronted with "the contemporary milieu," the idealist flounders and flounders.

"Now, it is at this moment that naturalists arrive and say very frankly [*carrément*] that the poetic is everywhere [*la poésie est partout*], in everything, even more in the present and the real than in the past and in abstraction. Each fact, every hour, has its poetic and magnificent aspect."

Thus, there was not a "dramatist [*dramaturge*] in this century" that had founded characters as great as those of Balzac—"so individual and so alive."²⁶ The latter had indeed figured that his fictive encapsulation of French Society would amount to around three thousand "*figures saillantes*" for each "epoch." Thus, in the naturalists' estimation, the exemplary could be commonplace; the para-laboratorial fictive milieu was, then, applied to all.

However, this dramaturgic advocacy raises a crucial point: with even two or three thousand exemplars per society per epoch, a principle of conceptional condensation is evidently necessary. A dramaturg, in a production situation, may often be employed to *cut down* a script; they will seldom be asked to expand it. Likewise, the exemplar is something like what Souriau called the "*punctum saliens*," the "dynamic center" from which a dramatic composition is made to "irradiate its force freely," out into the open air.²⁷ That is, the exemplary obtains from the principle that 'less is more.' Thus, this pertains to the ontoturgic.

To make a common-place a *world*—that is, to bring it into patency—does not require a comprehensive assembly of all those beings that may be received by the collective in question. On the contrary, patency implies partiality. Thus, universes mechanistic, organismic, mentalistic, contagionistic, can be understood as patterning existents and existence upon "paradigmatically existing things." For the ontographic, however, 'more is more.' Thus, the

²⁵ E.g. Walls 2009, 15; Brann 1954, 5; Gendron 1961, 29.

²⁶ Zola 1881, 19–21.

²⁷ Souriau 1952, 13.

question of ‘what exists?’ in this mode, resists exemplification. It is no longer a question of enacting patency but, rather, of establishing particularity. The ontographic, then, far from being ‘merely’ ontic, is concerned with modes of existence: with the specific and fundamental. However, it can never settle with *a* mode of existence but must always collocate many in their specificity. While the ontoturgic makes manifest, the ontographic makes manifold. Nevertheless, it does so for and with its common-place. That is, while it may trouble the designation ‘trivial,’ it can in no way transcend the necessity of attention.

This distinction of ontoturgic and ontographic can itself be further dramatised through the example of the Alexanders.

No matter how much *Kosmos* had practiced “rational empiricism,”²⁸ and no matter how frequently lucid its digressionary adventures, the text enfolded orders of magnitude more information than could ever be meaningfully absorbed into a cohesive manifestation. Nevertheless, Humboldt had long since, and strenuously, resisted encyclopaedism. Most spectacularly, this resulted in the “*Tableau physique*” of Chimborazo. However, such forms of informative compression were not simply in the service of science. Rather, after the example of Friedrich Schiller (1759–1805), they aspired to a naturalistic aesthetic education of the populace.²⁹ As Humboldt wrote at the climactic moment of the text accompanying his image of 1805:

“It is the imitative arts that relate [*retracent*] to our eyes the varied portrait [*tableau*] of the equinoctial regions. In Europe, a man isolated on an arid coast can enjoy in thought the view [*l’aspect*] of faraway regions: if his soul is sensitive to works of art, if he is educated enough in spirit to embrace the broad conceptions of general physics, he can, in his utter solitude and without leaving his home [*foyers*], appropriate everything that the intrepid naturalist has discovered in the heavens and the oceans, in the subterranean grottos, or on the highest icy peaks. This is no doubt how enlightenment and civilization have the greatest impact on our individual happiness, by allowing us to live in the past as well as the present, by gathering around us [*rassemblent autour de nous*] everything produced by nature in its various climates, and put us in communication with all the peoples of the earth. Sustained by previous discoveries, we can throw [*élancer*] ourselves into the future, and by foreseeing the consequences of phenomena, we can fix once and for all the laws to which nature subjected itself. In the midst [*au milieu*] of this research, we can achieve an intellectual enjoyment, a moral liberty that fortifies us against the blows of destiny and which no external power can ever reach [*atteinte*].”³⁰

²⁸ Humboldt 1849, vol. 1, 30; Humboldt 1845, vol. 1, 32; Humboldt 1846a, vol. 1, 36.

²⁹ Schiller 2004; Tresch 2012, 63–65, 71–76.

³⁰ Humboldt and Bonpland 2010, 75; Humboldt and Bonpland 1805, 34–35. Translation modified.

In the second volume of *Kosmos*, such means were further elucidated—landscape painting, botanical gardens, panoramas—such that all regions of the earth could be brought to the European common-place; not only as “centres of calculation”³¹ but as centres of manifestation.

Thus, Humboldt endeavoured to make present vast assemblages of *the* physical world in the common-places of sedentary cosmopolites. As such, this cosmography was in no way contradictory with ontoturgy—indeed, it worked very well with the fashion for cabinets of curiosity, and for naturalistic collecting generally. However, this cosmos was not without its exemplar, for that was circulation itself. In this sense, Humboldt’s labours only made the cosmos more cosmic. To put all things into circulation within a vastly and forcefully expanded Pariso-Prussian common-place, was, in his estimation, an act in service of destiny.



Figure 20—*The Heart of the Andes*, Frederic Edwin Church (1826–1900), 1859

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In short: The ontographic presents the common-place with constituents—entities that must not only be existed with but, moreover, entities that may, if they are received as such, become elements of the collective themselves—and henceforth play their part in the act of reception. Such entities must, indeed, have been constitutive of what grants the collective its mode of existence since long before any meaningfully designable ‘human’ came to prescribe outlines. Each collective identifiable as such will have its own way of recognising this fact—or several. Thus, the trivium is laid not upon an appropriated portion of totality but, principally, upon its own inheritances. Were a common-place to be laid solely upon its appropriations, that would surely be a boneyard.

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<sup>31</sup> Latour 1987, chap. 6.

It is often noted that Humboldt passed away in the year that Darwin's epochal treatise on species was published, 1859.<sup>32</sup> There, it might be supposed, ebbed a naturalism still in touch with *Naturphilosophie* and, however distantly, with the antiquarian cosmic harmony that could still be reinterpreted in terms of natural laws.<sup>33</sup> In any case, it was very much *à la mode* of "the birth of geopolitics" that Tarde expounded his ontological speculations, writing an all-consuming imperial fervour into the very fabric of existence.

It is not out of an indulgence of dolorousness that both Humboldt's and Tarde's ontoturgic panoramas must be recognised as, each in their own ways, glorifying endorsements of Euro-capitalist expansion. Rather, it is from this boneyard—a common-place that neither these nor any men of iconographic privilege can claim to own—that something must be made.

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To revive the old Hippocratic terminology (as in §6.1), ontography concerns the *katástasis*—that is, the particular, relevant composition—of the cosmos relevant to each collective. It is in tension, but not contradiction, with the ontoturgic, which *manifests*. Between the ontographic and the ontoturgic is thereby effected a cosmic *constitution*—an account of things—that the ontonomic relates to reception, and the ontodesic to action.

Thus, the ontographic does not merely record the "ontic" constituents that philosopher-magistri may then, through a decomposition of human nature, arrive at the answer by which all other answers would be redundant. Rather, it populates the collective with problems. How to live in a world with radiation? There is no Nobel Prize for constitutional peace.

However, if the ontographic makes manifold, and thus intrinsically troubles the statement 'a common-place,' any given instance of its practice can experience only one world—or a few.

The aesthetic-moralistic celebration of the "richness of human existence" is grossly cosmopolitically insufficient.³⁴ It is a consolation prize for having lost not only *the* world but manifold thereof. However, our inheritances are undoubtedly epochally-constrained (cf. §F). If Herder's suggestion that "Nature [will] revenge every insult offered her" may seem rather contemporary, it is plentifully evident that the "still breath of climate" does not sunder the hastily acclimated migrant. Our microbially-inclusive constitution cannot receive this proposition in anything like its initial sense. Nor, moreover, do any of these principles address the simple and irremovable fact that no trivium can ever exist without other common-places elsewhere. That is, next it will be necessary to address the ontomesic (§E).

³² E.g. Gould 2011, 105.

³³ A "fate of superannuation," as Stephen Jay Gould (2011, 105) called it.

³⁴ Stengers 2010a; Stengers 2011a; Stengers 2005b.

Part 4: Environment's Empire

8: “The circum-ambient Life-element”: Visualisation from Carlyle to Spencer

In contrast to milieu and climate, whose origin stories are long, complex, and relatively irretrievable, the semantic emergence of “environment” is recent, relatively well-documented, and can be described quite precisely: Before the nineteenth century, it was a relatively obscure term, meaning “to surround.” The first author to use it in something resembling its contemporary sense was Thomas Carlyle (1785–1881), who made it a recurrent, if idiosyncratic, feature of his writings from 1828 onwards. From the 1830s to the 1850s, it was in infrequent usage by other authors, apparently deriving from Carlyle. In the 1850s, Herbert Spencer (1820–1903) learned the term from Harriet Martineau (1802–1876), who had utilised it as a translation of Auguste Comte’s “milieu” (see §5.1).¹ Through to the 1870s, as Spencer’s philosophy gained greater prominence, this iteration of environment was gradually popularised, being frequently discussed in intellectual and scientific terms, generally in explicit relation to Spencerian or positivist doctrines. Charles Darwin (1809–1882) largely avoided the term, due to its associations with Spencer; however, his followers came to appropriate the expression. From the 1880s, Spencer’s popularity gradually waned (and after 1900 plummeted), while environment took on a life of its own, becoming a widely adopted term of art, particularly in biology and sociology, but also in natural theology. It was also increasingly adopted in political rhetoric, at first as an expressly scientific term, though, by the late 1890s, usually as an expression needing no explanation. Around the turn of the century, the first histories of the term were written, and “environment” could even be satirised as something of a buzzword or cliché. Through the early decades of the twentieth century, usage proliferated exponentially, though it was not until the 1960s, or even 1970s, that it ceased to be received as a primarily technical term.

This chapter concentrates on developments found through Carlyle, Martineau, and Spencer. With regard to Carlyle in particular, but Spencer also, a crucial corollary of their environmental conceptions was the projection of a grand visual sensibility indefinitely into the world, or even the universe.

8.1: From obscurity to heroarchy: Carlyle’s drama of visibility

From *viron*, meaning a circle or circuit, the English noun *envyroun*, meaning to be within limits, is found from the fourteenth century, as is the verb meaning to surround, encircle, or encompass. For example, *Mandeville’s Travels* (c.1400) wrote of the Nile that it “envyrouneth all Ethiope.”² However, in the sixteenth and seventeenth centuries, the most common sense of

¹ Jessop 2012; Pearce 2010b.

² OED Online 2011.

“enviored” was that of being surrounded by something threatening. Indeed, in the works of Shakespeare (1564–1616), this was the exclusive use of the word. For example, in *Titus Andronicus* (circa 1590), the titular character intones:

“For now I stand as one upon a rock,
Environ’d with a wilderness of sea,
Who marks the waxing tide grow wave by wave,
Expecting ever when some envious surge
Will in his brinish bowels swallow him.”³

Environs in the sense of the area or hinterland immediately surrounding a place (usually urban) is found from the mid-seventeenth century. Both these principal meanings—being surrounded by something threatening, and the surroundings of an urban area—remain in usage but declined through the nineteenth century, becoming somewhat archaic.

In 1600, the dramatist Cyril Tourneur (c.1575–1626) wrote in the Prologue to his poem *The transformed metamorphosis*:

Who tells me that the azure-colour’d skie,
Is now transformd to hel’s enuironrie.

However, “enviorny” would remain extremely obscure.⁴ “Environment” itself can be found as far back as 1603, in a translation of the *Moralia* of Plutarch (45–127 AD) by the schoolmaster Philemon Holland (1552–1637). Writing of a polyp’s ability to disguise itself, Plutarch comments that it has the capability to receive into its body “circumplexions and environments”—that is, particles, emanations, “parcels and small fragments,” and so on—so as to take on “semblable colour.”⁵ In 1725, the apothecary James Sedgwick wrote of that “perfect Environment of Glands and Emunctories all around the Neck.”⁶ In 1731, *An Universal Etymological English Dictionary* of Nathan Bailey (d.1742) recorded: “An ENVIRONMENT, an encompassing Round.”⁷ However, the term remained unusual. It was not until 1828 that the essayist Thomas Carlyle (1795–1881), perhaps independently, re-coined “environment,” using the term in three separate essays published that year in a newly established periodical, *The Foreign Review*.⁸

³ Shakespeare 1994.

⁴ Tourneur 1600.

⁵ Plutarch 1603, 1009. In another translation, first published between 1684 and 1694 “by Several Hands,” the Greek “περιελάσεις [*perieláseis*]” (for Holland “circumplexions and environments”) was rendered, as “circuitions.” Plutarch 1704, vol. 3, 467.

⁶ Sedgwick 1725, 345.

⁷ Bailey 1731, vol. 2; see also: Bailey 1730.

⁸ Essays collected in Carlyle 1897, vol. 14 titled *Goethe* (194–255), *Goethe’s Helena* (142–193), and *Burns* (256–314).

After abandoning a career in the clergy, Carlyle had made a name for himself as a writer on, and translator of, German literature. In an essay published in July 1828, capitalising on this reputation, he set out to appraise (and praise), for an Anglophone audience, the “spiritual structure” and mental “outward form” of that distant literary giant of whom “[v]ague rumors” had “for more than half a century, been humming through our ears”⁹—that is, Johann Wolfgang von Goethe (1749–1832). In particular, Carlyle discussed Goethe’s early career, in the period after his hugely successful novel *Die Leiden des jungen Werthers* of 1774.¹⁰ In so doing, he drew on, and translated excerpts from, Goethe’s autobiography,¹¹ which narrated the author’s *Bildung* (i.e. formation), from childhood until his departure for Weimar in 1775.

The notoriety of Goethe’s *Werther*, written at the age of 24, derived from its indulgence of emotionality, its themes of melancholy and gloom and, in particular, its titular character’s eventual suicide—an act interpreted by many as being somehow valorised. In his *Leben*, Goethe disavowed this depiction. It was not, he insisted, a promotion of such feeling but, rather, a reflection of his time. In Carlyle’s excerpted translation:

“In such an element, with such an environment of circumstances [*bei solcher Umgebung*], with studies and tastes [*Liebhabeereien*] of this sort; harassed by unsatisfied desires [*Leidenschaften*], externally nowhere called forth [*angeregt*] to important action; with the sole prospect of dragging on a languid, spiritless [*geistlosen*], mere civic life [*bürgerlichen Leben*] [...].”¹²

It was from this situation, argued Goethe, that *Werther*’s dark thoughts, and their popular success, derived.

However, it was not only the listlessness and ennui of a bourgeois upbringing that engendered such a space of sentiment. Mentioned, though not excerpted, by Carlyle, the immediately preceding paragraphs attributed this feeling to the reception of English-language literature. In particular, as the 1846 translation of Goethe’s autobiography by John Oxenford (1812–1877) puts it, “Hamlet and his soliloquies were spectres which haunted all the young minds,” and “every body fancied he had a right to be just as melancholy as the Prince of Denmark, though he had seen no ghost, and had no royal father to avenge.” To this disposition, *Ossian*, the pseudo-Gaelic cycle of epic poems by James Macpherson (1736–1796) published in 1760, had charmed the young romantics to “a perfectly suitable locality” in “*Thule*,” the mythic northernmost island:

⁹ Carlyle 1897, vol. 14, 195.

¹⁰ *The Sorrows of Young Werther*, published in English (as *The Sorrows of Werter: A German Story*) in 1779.

¹¹ *Aus meinem Leben: Dichtung und Wahrheit* [From my Life: Poetry and Truth]. In four parts, three published between 1811 and 1814, the fourth written between 1830 and 1831 and published in 1833 (therefore after Carlyle’s review).

¹² Carlyle 1897, vol. 14, 217; Goethe 1874, vol. 9, 463.

“where on a gray, boundless heath, wandering among prominent moss-covered grave-stones, we saw the grass around us moved by an awful wind, and a heavily clouded sky above us. It was not till moonlight that the Caledonian night became day; departed heroes, faded maidens, floated around us, until at last we really thought we saw the spirit of Loda in his fearful form.”¹³

It was immediately following this tableau of frigid gloom, swirling greyness, and spiritual lurking that Goethe’s “*Umgebung*” appeared—a completely commonplace term meaning, literally, surroundings—and was rendered by Carlyle as “an environment of circumstances.” This phrase was not, therefore, a simple, literal translation. It was, rather, an attempt to convey the airy, spiritualistic, scenically evocative qualities of Goethe’s emotive prose.

Though this biography covered only its author’s “*Wanderjahre*,”¹⁴ Carlyle wrote, it was as though “a *completed fragment*”:

“it coheres so beautifully within itself; and yet we see not whence the wondrous landscape came, or whither it is stretching; but it hangs before us as a fairy region, hiding its borders on this side in light sunny clouds, fading away on that into the infinite azure.”

Thus, though restricted to the youth of a long life, it could hardly be considered unfinished.

“But apart from its environment, and considered merely in itself, this *Wanderjahre* seems to us a most estimable work.”¹⁵

Here, environment would seemingly pertain to those regions of the author’s life not yet incorporated into the account; however, once again, Carlyle’s language is evidently suggestive of more than merely an extensive surrounding.

Early in his essay, Carlyle counterpoised Goethe to the likes of John Locke, who had no less than “paved the way for banishing religion from the world” by giving “Mind [...] a Shape, a Visibility,” and reasoning “as if it had been some composite, divisible and reunifiable substance, some finer chemical salt, or curious piece of logical joinery.” Thus Lockean philosophical soul-carpentry, and its literary imitators, had begun to wear away the “immaterial, mysterious, divine though invisible character” of mind.¹⁶ Against such profane coarsity, the poet of *Werther*, with his “soft, melodious imaginations” promised a “religious Wisdom” that might, in “these hard, unbelieving utilitarian days,” reveal “glimpses” of that “Unseen but not unreal World” of “the Ideal” (as opposed to “the Actual”). Goethe’s writing,

¹³ Goethe 1872, 506–507.

¹⁴ The stage of a German artisan’s training after their *Lehrjahre* or apprenticeship and before their “Mastership.” Carlyle 1897, vol. 14, 228, n.1.

¹⁵ *Ibid.*, vol. 14, 229.

¹⁶ *Ibid.*, vol. 14, 210.

as such, speaks “to the whole soul,” uniting both “Religion” and the “business of men.”¹⁷ Environment, for Carlyle, then, was an expression ventured to actively resist the bookkeeperly, utilitarian materialism of Locke and his mental warehouse attendants. It insinuated around the person of the Individual a quotient of occult, inscrutable energy.

Later the same year, 1828, Carlyle published another essay on Goethe, commenting on the digression within *Faust II*¹⁸ that dramatised the persona of Helen of Troy. In particular, he commented on the “strange, piquant, quite peculiar charm” found in the imitation of “the old Grecian style”; a depiction so “graphic” that:

“we could almost feel as if a vista were opened through the long gloomy distance of ages, and we, with our modern eyes and modern levity, beheld afar off, in clear light, the very figures of that old grave time; saw them again living in their old antiquarian costume and environment, and heard them audibly discourse in a dialect which had long been dead.”¹⁹

Here, then, environment is given a scenic and still evocative sense, akin to ‘background’ or ‘*mise en scène*’ but with a more flamboyant aestheticism. In December 1828, in an essay on the Scottish poet Robert Burns (1759–1796), Carlyle further used the term twice. First, he wrote of Burns’ mournful verse that it expressed “the saddest feeling the saddest environment and local habitation.”²⁰ Second, regarding the poet’s influence on both Scottish and English literature, Carlyle remarked upon a “remarkable increase of nationality” evident in the intervening decades. In Burns’ day:

“A certain attenuated cosmopolitanism had, in good measure, taken place of the old insular home-feeling; literature was, as it were, without any local environment; was not nourished by the affections which spring from a native soil.”²¹

Thus, environment also implied a certain autochthony of sentiment and idea; a befogged embeddedness in the deepening soils of nationality.

And so, in these three essays of 1828, Carlyle’s environment entailed: an affected ambience of morbid discontent; the formative circumstances of romanticised, masculine individuality; a scenic sense of dramatic surroundings; and a nationalistic, characteristic rootedness in place. In the subsequent years, Carlyle used environment frequently, although,

¹⁷ Ibid., vol. 14, 204.

¹⁸ First performed 19 January 1829.

¹⁹ Carlyle 1897, vol. 14, 168.

²⁰ Ibid., vol. 14, 273. The stanza in question:

“*The pale Moon is setting beyond the white wave,
And Time is setting wi’ me, O;
Farewell, false friends! false lover, farewell!
I’ll nae mair trouble them nor thee, O.*”

²¹ Ibid., vol. 14, 284.

relative to his abundant output, not continually. The term was often preceded by qualifiers such as “base,” “picturesque,”²² “intellectual,”²³ “unmanageable,” “heavy,”²⁴ “accidental,” “personal,” “dim,”²⁵ “fittest,”²⁶ “hard social,” “stern,”²⁷ “kind,” “social, domestic, physical,”²⁸ “loud-buzzing,”²⁹ “meaner,”³⁰ “friendly,”³¹ “strange,”³² “new,”³³ “distracted,”³⁴ “beautiful,”³⁵ and so on. He also wrote of Diderot’s “character and his environment of circumstances”;³⁶ however, this specific phrase was not often repeated.

The uses of environment were various; however, the term continued to be principally suggestive of formative conditions or aesthetic purview. For an uninitiated reader, it was likely to be understood as either a Latinate neologism or a creative resignification, being perhaps poetically suggestive of lineament, temperament, or firmament—these all being terms that Carlyle regularly employed. For example, in his satirical novel *Sartor Resartus*,³⁷ the protagonist, Professor Diogenes Teufelsdröckh,³⁸ is described as being “quite shut out from Hope; looking not into the golden orient, but vaguely all round into a dim copper firmament, pregnant with earthquake and tornado.”³⁹ Whether or not environment and firmament had any connection for the neologist himself, the former term was evidently taken to imply something more like ethereal environs than any prosaic catalogue of circumstantiating entities.

However, environment was just one amongst a vast stable of Carlylean coinages. The OED cites 547 as finding their first usage in his works (around 18% of which remain in usage), including: forgettable, philistine (1827), open-minded (1828), genetic, self-help (1831), decadent (1837), visuality (1841),⁴⁰ and many more or less familiar. In 1835, the writer John Sterling

²² *Jean Paul Friedrich Richter* (1830), *Ibid.*, vol. 14, 580, 600.

²³ *The Nibelungen Lied* (1831), Carlyle 1897, vol. 15, 75.

²⁴ *Biography* (1832), *Ibid.*, vol. 15, 259.

²⁵ *Boswell's Life of Johnson* (1832), *Ibid.*, vol. 15, 274, 281, 290.

²⁶ *Goethe's works* (1832), *Ibid.*, vol. 15, 369.

²⁷ *Corn-law rhymes* (1832), Carlyle 1897, vol. 16, 297, 299.

²⁸ *Sartor Resartus* (1831), Carlyle 1897, vol. 12, 109, 21.

²⁹ *Sir Walter Scott* (1838), Carlyle 1897, vol. 16, 150.

³⁰ *On Heroes, Hero-Worship, and the Heroic in History* (1840), Carlyle 1897, vol. 12, 353.

³¹ *Past and Present* (1843), Carlyle 1897, vol. 6, 407.

³² *Squire Papers* (1847), Carlyle 1897, vol. 7, 570.

³³ *John Sterling* (1851), Carlyle 1897, vol. 13, 200.

³⁴ *History of Friedrich the Second* (1858), Carlyle 1897, vol. 5, 470.

³⁵ *Early Kings of Norway* (1871), Carlyle 1897, vol. 9, 256.

³⁶ *Diderot* (1833), Carlyle 1897, vol. 15, 419.

³⁷ Published in serial 1833–34 and collected 1836. Carlyle 1897, vol. 12, 3–231.

³⁸ Literally, god-born devil-dung.

³⁹ Carlyle 1897, vol. 12, 123.

⁴⁰ Mirzoeff 2006.



Figure 21—Illustration to 1898 edition of *Sartor Resartus* by Edmund J. Sullivan (1869–1933)

(1806–1844) wrote to his friend Carlyle with praise and complaint. This “wondrous account of Teufelsdröckh and his Opinions” had, he wrote, given him “much to think of.” However:

“A good deal of this is positively barbarous. ‘Environment,’ ‘vestural,’ ‘stertorous,’ ‘visualised,’ ‘complected,’ and others to be found I think in the first twenty pages, — are words, so far as I know, without any authority [...]”⁴¹

The word “Carlylese” dates from 1858,⁴² the year that the author’s 21-volume history of Friedrich II of Prussia was published.⁴³ However, by the time this tome met its public, “environment” was no longer an idiosyncrasy.

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<sup>41</sup> Siegel 2013, 26–28; Carlyle 1897, vol. 13, 107.

<sup>42</sup> OED Online 1888; Anonymous 1859, 503.

<sup>43</sup> A work that reduced his output in the preceding decade to relatively little.



In 1836, a writer in the *Christian Examiner* (signed only as “J.B.”) reviewed a work by the antiquarian Thomas Wright (1810–1877), writing of the falseness of opposing “earth and heaven, things seen and things unseen,” with God having “placed us here, in the precise spot and sphere in which we find ourselves, with that peculiar environment of circumstances, which solicit or claim our attention.”<sup>44</sup> Though unattributed, this statement apparently alludes to both Carlyle’s phraseology and his convictions regarding Religion and the “business of men.”<sup>45</sup> In 1837, *A New and copious lexicon of the Latin language* by the late Frederick Percival Leverett (1803–1836) recorded “Obsidio” as meaning “*blockade, environment, or encompassment,*” thus reiterating the older meaning found in Holland’s Plutarch.<sup>46</sup> However, in the same year, at least two other authors used the term in Carlyle’s sense—though, again, without attribution.

Capel Lofft the younger (1806–1873), son of the lawyer, poet, and astronomer Capel Lofft (1751–1824) wrote in his *Self-formation*,<sup>47</sup> also of 1837, reflecting upon the formative virtues of a schooling at Eton:

“If outward imagery impress itself upon the mind, as it surely does, where have you, where, at least, in England, a nobler environment, an outline more magnificently filled, a scene where the young mind can better hope to feed itself to greatness on the contemplation of surrounding objects?”<sup>48</sup>

In the same year, and most crucially, Harriet Martineau (1802–1876), one year before the third volume of Comte’s *Cours de Philosophie Positive* was published, wrote of her disgust at the New England phenomenon of young women being married off “to men old enough to be their fathers,” expressing no sympathy “for those who, under any pressure of circumstances, sacrifice their heart’s-love for legal prostitution; and no environment of beauty or sentiment can deprive the fact of its coarseness.” The “mercenary marriages” of this “Auld Robin Gray story”—alluding to the 1772 Scots ballad by Lady Anne Lindsay (1750–1825)—of course happen in Europe also. Thus, the “ultimate and very strong impression” was that “human nature is much the same everywhere, whatever may be its environment of riches or poverty.”<sup>49</sup> Thus, Martineau had already related environment to a recognisably sociological purpose.

The expression appeared once in the first volume of Martineau’s *Retrospect of western travel* of 1838;<sup>50</sup> once in her essay *The martyr age of the United States* of the same year;<sup>51</sup> and once again

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<sup>44</sup> JB 1836, 301.

<sup>45</sup> Carlyle 1897, vol. 14, 204.

<sup>46</sup> Leverett 1842, 587.

<sup>47</sup> Subtitled: *Or, The History of an Individual Mind; Intended as a Guide for the Intellect Through Difficulties to Success.*

<sup>48</sup> Lofft 1837, vol. 2, 97.

<sup>49</sup> Martineau 1837, vol. 2, 168.

<sup>50</sup> Martineau 1838, vol. 1, 89.

<sup>51</sup> Reprinted: Martineau 1839, 22. 24

in her novel *Deerbrook* of 1839,<sup>52</sup> though not in her other novels published around this time. Given the voluminousness of her writing, it was an extremely occasional term, though an apparently readily comprehensible one.

In her autobiography of 1877, in the pages covering 1832–1834 (aged 30–32), Martineau told of her many and various friends and acquaintances in those years. Among these were denizens of the London address “number five, Cheyne Row,” Mr and Mrs Carlyle, of whom Martineau wondered how “considering the delicate health of both, they could ever flourish on that Chelsea clay, close to the river.”<sup>53</sup> With the latter, she discussed literature and other matters, and helped the former to secure work lecturing, also aiding his publications. A few pages later, Martineau told of another and “[o]ne of the most striking” of her visitors in these years, “Capel Lofft the younger, the author of that wonderful book, the merits of which were discovered by [the publisher] Charles Knight;<sup>54</sup>—‘Self-formation,’ which should be read by every parent of boys.”<sup>55</sup>

Thus, in the late 1830s, “environment” was in sufficient usage to go unattributed but was seemingly restricted to acquaintances of Carlyle, and associated literary elites. Moreover, it retained its principally aesthetic connotations, with, in Martineau’s case, circumstances being that which impose “pressure.”

In 1831, Carlyle published an essay on Friedrich Schiller with the ultra-Tory *Fraser’s Magazine for Town and Country*, and regularly praised its politics.<sup>56</sup> In 1841, *Fraser’s* included a serialised article on the subject of criminal incarceration (unsigned, as per industry convention). Few writers on the subject of “crime by individuals,” it declared, had taken into consideration “any thing but the crime or criminal,” altogether disregarding “proximate or remote causes” for such acts:

“Neither has there been at any time a disposition manifested to scan the criminal’s character fairly; that is, by comparison, connected with the environment of circumstances, and in reference to the conduct of prosecutors.”<sup>57</sup>

Thus, once again, the terminology was reproduced by authors likely familiar with Carlyle’s works; however, in this case, the phrase was given a more explicitly general causal connotation.

Also in 1841, in the fifth of the letters constituting her *Theory of Teaching, with a Few Practical Illustrations*, the Massachusettsan educator and polyglot Elizabeth Palmer Peabody

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<sup>52</sup> Martineau 1839, vol. 2, 106.

<sup>53</sup> Martineau 1877, vol. 1, 377.

<sup>54</sup> The publisher (1791–1873).

<sup>55</sup> Martineau 1877, vol. 1, 416.

<sup>56</sup> Carlyle 1897, vol. 15, 7–57.

<sup>57</sup> Anonymous 1841a, 224.

(1804–1894) advised those who complain as to “the burden of civilized life” to improve their spiritual and physical lives, both, by following two “physical laws” in particular:

“These are organization and circumstances. By circumstances I do not mean that superior facility of one course over another, which presents itself to weak and sluggish minds as an insuperable fate; but I mean the environment in which each man is born, which inevitably colors his existence, but which never interferes with his free will or moral worth. [...] It is useless to deny the influence of these environments.”<sup>58</sup>

Along with her younger sisters, Mary (1806–1887) and Sophia (1809–1871), Elizabeth was a prominent promoter of Romanticism and Transcendentalism in New England and, as such, could not fail to have been familiar with Carlyle’s Teutophilic output.<sup>59</sup> In her eighth letter, Elizabeth then wrote of pedagogical method:

“I might yield, as most do, to the stream of circumstances, and teach what those around me teach, were I not convinced, that as each spot has its peculiar difficulty to be cleared up, just there falls the beam of light, if we will only receive it; if we will only keep in view great distant lights, and at the same moment use the little rays from surrounding circumstances. Some fail from gazing too fixedly on the great and distant orbs, others from feeling no influences but those of the nearest environment.”<sup>60</sup>

Thus, in her iteration, environment and circumstances remain closely associated, with the latter being, for such authors, the primary concept.

While the sense of formative circumstances were implicated in Carlyle’s environment from the beginning, this became more pronounced in his later works. In his book *On Heroes, Hero-Worship, and The Heroic in History*, published in 1841,<sup>61</sup> Carlyle undertook to demonstrate that all “Universal History” is, “at bottom,” the history of “Great Men” and “Heroes.”<sup>62</sup> This fundamental principle started in the “young generations of the world,” with those “who did not think that they had finished off all things in Heaven and Earth by merely giving them scientific names,” and so felt better the divine in Nature and man—who, then, “could *worship* Nature, and man more than anything else in Nature.” From this the “perplexed jungle of Paganism sprang” the worshipping of stars, but Heroes above all. A “*Heroarchy*,” a true “*Hierarchy*.”<sup>63</sup> “The History of the World” is, quite simply, Carlyle added, “the Biography of Great Men.”<sup>64</sup>

Following a stadial structure, its six parts expounded upon The Hero as: Divinity (Odin), Prophet (Muhammad), Poet (Dante, Shakespeare), Priest (Luther), Man of Letters (Johnson,

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<sup>58</sup> Peabody 1841, 29.

<sup>59</sup> The family were acquainted with the Carlyles. Marshall 2006, 408; See also: Wilson 1967.

<sup>60</sup> Peabody 1841, 49.

<sup>61</sup> Based on six lectures given in May 1840. Carlyle 1897, vol. 12, 235–461.

<sup>62</sup> *Ibid.*, vol. 12, 235.

<sup>63</sup> *Ibid.*, vol. 12, 244–245.

<sup>64</sup> *Ibid.*, vol. 12, 247.

Rousseau, Burns), and King (Cromwell, Napoleon). Regarding the Norse system, which Carlyle finds to be “very genuine, very great and manlike,”<sup>65</sup> Odin was surely that first “man of genius” and “Thinker” whose own “view of the Universe” grew and “promulgated” into all other minds, writing as if “in sympathetic ink.” Repudiating the accounts of those who would place his time within recent millennia, Carlyle argues that:

“Odin’s date, adventures, whole terrestrial history, figure and environment are sunk from us forever into unknown thousands of years.”<sup>66</sup>

Pushed thus back into the mists of yore, the upward curve of human achievement is preserved.

In a more proximate and heightened eon, there appeared Martin Luther (1483–1546)—though no epoch could explain his coming. All those who would “what they call ‘account’ for him,” Carlyle scorned, do so:

“not to worship him, but take the dimensions of him,—and bring him out to be a little kind of man! He was the ‘creature of the Time,’ they say; the Time called him forth, the Time did everything, he nothing—but what we the little critic could have done too!”<sup>67</sup>

Not only the “existence” but also the “desirableness of great men” they would deny. On the contrary, Carlyle goes on to argue, born on “the 10th of November, 1483,” it was altogether “an accident” that honoured Eisleben, a town of miners and obscurity, with a boy born to the name “MARTIN LUTHER.”

“the whole world and its history was waiting for this man. It is strange, it is great. It leads us back to another Birth-hour, in a still meaner environment, Eighteen Hundred years ago—of which it is fit that we *say* nothing, that we think only in silence; for what words are there! The Age of Miracles past? The Age of Miracles is forever here!—”

Being “intrinsically of the same material,” only the “outward shape” of a Hero “will depend on the time and the environment he finds himself in.”<sup>68</sup> Bearing the spirit of the ideal ever upward, environment, to a suitably possessed Man, was but a firmamental impulsion to Greatness.

However, Carlylean Idealism was not indiscriminate. In 1848, a review in *The Athenæum* wrote of the dubiety of the desire expressed by John Herschel (1792–1871) for a universal language: “the varieties of form and terminology in language as the natural result and expression of organic differences of race and climatic environment”—differences irremediable.<sup>69</sup> From the previous two chapters, it shall not be surprising that climate and

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<sup>65</sup> Ibid., vol. 12, 252.

<sup>66</sup> Ibid., vol. 12, 255–256.

<sup>67</sup> Ibid., vol. 12, 246.

<sup>68</sup> Ibid., vol. 12, 353.

<sup>69</sup> Anonymous 1848, 82.

environment could, at this time, be combined in this way. However, for Carlyle, climate and environment did not, and seemingly could not, cross paths.

In 1849, Carlyle published an anonymous essay in *Fraser's* titled *Occasional Discourse on the Negro Question*.<sup>70</sup> Most remembered for having introduced the phrase “the *dismal science*” to characterise economics,<sup>71</sup> the piece was attributed to an “Absconded Reporter,” Dr. Phelin M’Quirk.” Written as a faux-speech addressed to “My Philanthropic Friends,” the text expounded a luridly racist account of the state of freed black slaves in the West Indies, thus mocking the perceived hypocrisy of abolitionists.<sup>72</sup>

“The Twenty Millions, a mere trifle, despatched with a single dash of the pen, are paid; and, far over the sea, we have a few black persons rendered extremely ‘free’ indeed. Sitting yonder, with their beautiful muzzles up to the ears in pumpkins, imbibing sweet pulps and juices; the grinder and incisor teeth ready for every new work, and the pumpkins cheap as grass in those rich climates; while the sugar crops rot round them, uncut, because labor cannot be hired, so cheap are the pumpkins.”<sup>73</sup>

As well as “pineapples, and sweet fruits, and spices”—and, he repeats no fewer than 38 times, pumpkins—M’Quirk/Carlyle went on to hope for the day that the West Indies would “grow beautiful, heroic human lives too,” thus “making the earth nobler round them”—“heroic white men, worthy to be called old Saxons, browned with a mahogany tint in those new climates and conditions.”<sup>74</sup> Thus, not environment but climate was the term germane to the formative impositions of the tropics, the inspirational exultations of the former being a world apart.

As M’Quirk speaks, various audience members walk out in disgust, with Carlyle thus gleefully anticipating the article’s reception amongst those he hoped to provoke. However, Carlyle was serious in his irony. Unrepentant, the essay was republished four years later with the titular “Negro” replaced with the only word that could lend his polemic even more spite, the “M’Quirk” ruse dispensed with, and full ownership taken. A debate with London’s leading liberal, John Stuart Mill (1806–1873), followed.<sup>75</sup> Carlyle’s reputation in polite society was blemished though hardly shattered.<sup>76</sup>

By now sufficiently financially independent to desist in workaday polemic and punditry, Carlyle spent the majority of the next decade working on his epic history of Friedrich II. Here,

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<sup>70</sup> Carlyle 1897, vol. 16, 461–494.

<sup>71</sup> *Ibid.*, vol. 16, 466.

<sup>72</sup> *Ibid.*, vol. 16, 461.

<sup>73</sup> *Ibid.*, vol. 16, 463.

<sup>74</sup> *Ibid.*, vol. 16, 487.

<sup>75</sup> Ledgister 2010, 125.

<sup>76</sup> For instance, although her 1838 essay *The martyr age of the United States* had valorised the plight of abolitionists, and she had been known as an advocate of abolition for many years, Carlyle’s ostentatious screeds did not diminish Martineau’s regard of him in her later autobiographical reflections.

environment was duly present again. “What the young Crown-Prince did, said, thought, in such environment, of backstairs diplomacies, female sighs and aspirations, Grumkow duels, drillings in the Giant Regiment” could not, Carlyle admitted, be specified “in the smallest particular,” as the many “extensive rubbish-books” on the matter had supposed. Nevertheless:

“Ours is, to indicate that such environment was: how a lively soul, acted on by it, did not fail to react, chameleon-like taking color from it, and contrariwise taking color against it, must be left to the reader’s imagination.”<sup>77</sup>

The expression also appeared capitalised: “King Friedrich, in contrast with his Environment at that time, will most likely never be portrayed to modern men in his real proportions” (but this, too, was to be “left to the ingenuous imagination of readers”).<sup>78</sup> Finally, Carlyle now ventured a definition of the term. Deep in the details of 1742, setting aside the intrigues surrounding Voltaire’s appearance at Court, there were, Carlyle explained to his reader, “an immense arrear of War-matters to bring up.” To these, even more than Voltaire:

“the afflicted reader must address himself, if he would understand at all what Friedrich’s Environment, or circumambient Life-element now was, and how Friedrich, well or ill, comported himself in the same.”<sup>79</sup>

For now, by the late 1850s, Carlyle may well have been aware that his term had taken on a new vocation in the vocabulary of who would become one of his most prominent critics: Herbert Spencer.

## 8.2: From economy to ethics: Spencer’s philosophy of correspondence

As seen in §5, Comte’s *Cours de philosophie positive* (1830–1842) was “freely translated and condensed” as Martineau’s *The Positive Philosophy of Auguste Comte* (1853). Therein, she wrote:

“The harmony between the living being and the corresponding *medium* (as I shall call its environment) evidently characterizes the fundamental condition of life [...].”<sup>80</sup>

Thus, Comte’s *milieu*, from Newton’s medium, became the English environment, which had been (in part) Goethe’s *Umgebung*. While environment remained an unusual term, the translational decision did not, when considered relative to the network of proliferation partially reconstructed above, require a large interpretive leap.

Martineau’s atheistic *Letters on the Laws of Man’s Nature and Development* of 1851, co-written with the phrenologist and mesmerist Henry George Atkinson (1812–c.1890), did not use “environment.” However, it wrote of “medium” in terms of: electricity passing through the

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<sup>77</sup> Carlyle 1897, vol. 1, 481.

<sup>78</sup> Carlyle 1897, vol. 4, 274.

<sup>79</sup> Carlyle 1897, vol. 3, 327. This phrase “circumambient Life-element,” to the best of my knowledge, has never been directly quoted in commentary on Carlyle’s works. Circumambient is another word that Carlyle used often.

<sup>80</sup> Comte 1853, vol. 2, 6.

nerves of the brain; the transmission of heat, rays of light, and sound; a “spiritual substance,” an “ether [...] pervading space,” or a “universal medium.” Indeed, there are said to be “as many media as there are characters of action, each pervading each, and all existing together in a way too subtle for our sense and understanding.”<sup>81</sup> By contrast, Comte’s statement was directed against Bichat’s conflictual definition of life. While Carlyle’s environment had nothing to do with either biology or competition per se, it connoted a multiplicity of formative circumstances and a certain aestheticised vitality, while the usages of his associates had already suggested broader and more mundane meanings. Environment remained a new and seemingly exciting term. Given the ambiguities of the physical-mesmeric “*medium*,” it therefore stood eminently appropriable.

Though his personage played no part in her autobiographical litany of notables, Herbert Spencer and Martineau were well-acquainted. In mid-1835, at school in Bath, Spencer he read Martineau’s *Illustrations of Political Economy: Selected Tales* (9 vol. 1834).<sup>82</sup> At sixteen he returned home to Derby. In December 1848 (around the time of his twenty-eighth birthday), he moved to London, becoming sub-editor of *The Economist*, the offices of which stood across the road from 142 Strand. This well-known address was the home of the publisher John Chapman (1821–1894), host to the most notable radical liberals of London, such as James Anthony Froude (1818–1894), editor of *Fraser’s* from 1861, the positivist George Henry Lewes (1817–1878), and his partner Mary Ann Evans, aka George Eliot (1819–1880).<sup>83</sup>

In 1851, Chapman published Spencer’s first major work, *Social Statics: or, The Conditions Essential to Happiness Specified, and the First of them Developed*. In its second chapter, titled “THE EVANESCENCE OF EVIL,” Spencer overtured:

“ALL evil results from the non-adaptation of constitution to conditions. This is true of everything that lives. Does a shrub dwindle in poor soil, or become sickly when deprived of light, or die outright if removed to a cold climate? it is because the harmony between its organization and its circumstances has been destroyed. [...] All imperfection is unfitness to the conditions of existence.”<sup>84</sup>

Condition, circumstance, and climate were the vocabulary with which Spencer articulated his social convictions at this time. However, the basic tenets of his philosophy were present.

The term “statics,” in contrast to “dynamics,” Spencer took from Comte, without attribution. With his French poor, he had not read Comte’s works but had ample opportunity

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<sup>81</sup> Atkinson and Martineau 1851, 74, 104, 109, 138, 150, 268, 271.

<sup>82</sup> Spencer 1904a, 125. Spencer writes in his biography “Tales of Political Economy”; however, though a work by this name was published by Dame Millicent Garrett Fawcett in 1874, presumably he had Martineau’s *Illustrations* in mind.

<sup>83</sup> Ashton 2011.

<sup>84</sup> Spencer 1851, 59, 64.

to learn of them via London's sundry positivists.<sup>85</sup> Social philosophy, like political economy, Spencer explained, could be divided in these two parts: statics dealing with "the equilibrium of a perfect society," and dynamics those "forces by which society is advanced towards perfection."<sup>86</sup> His criticism was chiefly directed against the utilitarianism, or "expediency-philosophy," of William Paley (1743–1805), Jeremy Bentham (1748–1832), and their followers, which Spencer considered merely empirical, and hence lacking foundation.

Among all his points of vexation, Spencer particularly lambasted the expediency-philosophers' presumption of "the eternity of government"<sup>87</sup>—that is, the founding of moral philosophy upon endless governmental intervention. The history of any coercive governmental scheme, Spencer insisted, followed always one and the same story:

"First comes enactment, then probation, then failure; next an amendment and another failure; and, after many alternate tinkering and abortive trials, arrives at length repeal, followed by the substitution of some fresh plan, doomed to run the same course, and share a like fate."<sup>88</sup>

Little did English abolitionists averring armed suppression of the slave trade off the coast of Africa consider "that it would generate fast-sailing slavers with decks one foot six inches apart, suffocation from close packing, miserable diseases, and a mortality of thirty-five per cent"—slavers that, when "hard pressed," would turn their "whole cargo of 500 negroes into the sea."<sup>89</sup> Nor did those who won the Spitalfields Act of 1773, which mandated prices for journeyman weavers, consider that, "before 1793, some 4000 looms would be brought to a stand in consequence of the trade going elsewhere."<sup>90</sup> Government was, for Spencer, an "external force," its application necessarily indicating "a morbid state." Accordingly, "we call government 'a necessary evil.'" It had not always existed, nor would it always; its present necessity merely testified to the persistence of "still-existing barbarism," not yet overcome by the march of progress.<sup>91</sup>

Whatever the naïf expediency-philosophers may say, neither the "tangled web of social existence" nor "the multiplied phenomena of this ever-agitated, ever-changing sea of life" availed themselves in their endless complexity to human comprehension—or, therefore, to

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<sup>85</sup> Martineau featured in his text twice further. Apropos of "THE RIGHTS OF WOMEN," Spencer pays his respects to several notable women, including "Mrs. Somerville, Miss Herschel, [...] Miss Martineau," and "Madame de Staël." *Ibid.*, 157. On the subject of national education, he approvingly cites Miss Martineau's comments regarding wasteful taxation. *Ibid.*, 347.

<sup>86</sup> Spencer 1851, 409.

<sup>87</sup> *Ibid.*, 13.

<sup>88</sup> *Ibid.*, 11.

<sup>89</sup> *Ibid.*, 9.

<sup>90</sup> *Ibid.*, 10.

<sup>91</sup> *Ibid.*, 14.



“law-making.” Had Newton, undertaken to investigate every aspect of “the dynamics of the universe” in such a manner, “he might have cogitated to all eternity” without resolution. Thus, statics, for Spencer, as for Comte, pertained to the ascertainment of the basic ordering principles of society—those aspects only that could be understood as lawful and, hence, made a basis for morals. In this respect, the “social organism” was not *sui generis* in its static/dynamic duality; such an opposition was necessary to rational science as such.<sup>92</sup>

This led Spencer to two Lemmata (sub-propositions). The first: neither “the character of mankind” nor that of physical nature were “constant.”

“It is a trite enough remark that change is the law of all things: true equally of a single object, and of the universe. Nature in its infinite complexity is ever growing to a new development. Each successive result becomes the parent of an additional influence, destined in some degree to modify all future results. No fresh thread enters into the texture of that endless web, woven in ‘the roaring loom of Time’ but what more or less alters the pattern.”<sup>93</sup>

This quoted phrase was from Carlyle’s *Sartor Resartus*, a translation of what the “Earth-Spirit” in Goethe’s *Faust* names “*the living visible Garment of God*”:<sup>94</sup>

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| <p>“In Being’s floods, in Action’s storm,<br/>I walk and work, above, beneath,<br/>Work and weave in endless motion!<br/>    Birth and Death,<br/>    An infinite ocean;<br/>    A seizing and giving<br/>    The fire of Living;<br/>‘Tis thus at the roaring Loom of Time I ply,<br/>And weave for God the Garment thou seest Him by.”<sup>95</sup></p> | <p>“In Lebensfluten, im Tatensturm<br/>Woll ich auf und ab,<br/>Wehe hin und her!<br/>Geburt und Grab,<br/>Ein ewiges Meer,<br/>Ein wechselndes Wehen,<br/>Ein glühend Leben,<br/>So schaff ich am laufenden Webstuhl der Zeit<br/>Und wirke der Gottheit lebendiges Kleid.”<sup>96</sup></p> |
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However, Spencer’s immediate rhetorical objective was far from that of either poet or populariser—closer, rather, to the lyrical naturalism of Humboldt. Reading the book of nature’s past, interpreting the “hieroglyphics” of its unknown events, “we find this same ever-beginning,

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<sup>92</sup> Ibid., 11–12.

<sup>93</sup> Ibid., 32.

<sup>94</sup> Carlyle 1897, vol. 12, 42.

<sup>95</sup> This phrase Carlyle reused numerous times as “loud-roaring Loom of Time.” For example:

“[...] in this ‘loud-roaring Loom of Time!’,” Carlyle 1897, vol. 1, 96.

“[...] the mad huge whirl of that loud-roaring Loom of Time!” Carlyle 1897, vol. 4, 25.

“[...] the loud-roaring Loom of Time,” Carlyle 1897, vol. 6, 604.

“[...] loud-roaring Life-current,” Carlyle 1897, vol. 15, 283.

“[...] that ‘wild-roaring Loom of Time,’” Ibid., vol. 15, 562.

<sup>96</sup> Goethe 1959, vol. 5, 81.

never-ceasing change,” in the organic and inorganic alike. Formations of rock are worn away and deposited; matter ebbs and flows:

“Forests and bogs become coal basins; and the now igneous rock was once sedimentary. With an altering atmosphere, and a decreasing temperature, land and sea perpetually bring forth fresh races of insects, plants, and animals. All things are metamorphosed; infusorial shells into chalk and flint, sand into stone, stone into gravel. Strata get contorted; seas fill up; lands are alternately upheaved and sunk.”

As it is with “systems,” so with “worlds”—i.e. celestial bodies. Orbits vary, as do “axes in their inclinations, suns in their brightness”; stars are “fixed” in name only, and so on.<sup>97</sup>

The height of peculiarity it would be, then, if, amidst “this universal mutation,” man alone stood “constant, unchangeable.” Of course, it is not so: “His circumstances are ever altering; and he is ever adapting himself to them.”<sup>98</sup> Nevertheless, Spencer’s second “Lemma” announced, however imperfect any given human may be before the natural law of circumstance, there is no other.

“One right course only is open; and he must either follow that or take the consequences. The conditions of existence will not bend before his perversity; nor relax in consideration of his weakness. [...] There is no alternative.”<sup>99</sup>

Thus the provenance of “all evil”: it is altogether and entirely a matter of “fitness for surrounding circumstances”;<sup>100</sup> “the conditions of existence, constitution, and conduct.” The duty of state was, then, solely to impart what “external agencies” were sadly necessary to correct “deficient internal faculties.”<sup>101</sup>

Slavery in the West Indies, with “rich soils, a splendid climate, and a large market” may have seemed, at one time, propitious; however, from Jamaica to the southern states of America, the history has been one “of distress and complainings, in spite of continual assistance and artificial advantages.” The monopolies of the East India Company, likewise, befell the fate of all who go against nature.<sup>102</sup> Moreover, “state-colonization” was to be understood as “indefensible” on account of its of bureaucratic overreach: “six functionaries and their twenty-three clerks, sitting at desks in Downing Street! being at the rate of 0.13 of a functionary and half a clerk to each settlement!”<sup>103</sup>

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<sup>97</sup> Spencer 1851, 33.

<sup>98</sup> Ibid.

<sup>99</sup> Ibid., 38, 42.

<sup>100</sup> Ibid., 60.

<sup>101</sup> Ibid., 250–251.

<sup>102</sup> Ibid., 45–47.

<sup>103</sup> Ibid., 366.

Likewise, the barbarous degeneration of those colonists living “under aboriginal conditions,” had been “universally remarked.”<sup>104</sup> Nevertheless, while atavistic resurgence of “the old predatory instinct” may have “retarded civilization” in its production of conditions uncondusive to “social life,” it nevertheless “subverted civilization by clearing the earth of inferior races of men.” As far as social progress is concerned, “the hindrance must be got rid of,” that space on the earth given up to races of a higher order of development—to “the social man over the anti-social man; or, strictly speaking, of the more adapted over the less adapted.”<sup>105</sup> There is no alternative.

Indeed, this is not, to be clear, merely a matter of might-makes-right or, as Spencer would later put it, “the survival of the fittest.” This was, we must recall, a treatise concerning “The Conditions Essential to Happiness.” As per social philosophy per se, this doctrine was ascendental—that is, relating to the “animal series” that organised living beings in an increasing order of perfection, it entailed a stadial structure of progressively more elevated stages of social development. Or, in Spencer’s terms, the higher the development of an organism, the greater its powers of “self-preservation,” an observation that “may also be generalized under this same term—a ‘tendency to individuation.’”

“The lower the organism, the more is it at the mercy of external circumstances. It is continually liable to be destroyed by the elements, by want of food, by enemies; and eventually is so destroyed in nearly all cases.”

Lacking the “power to preserve its individuality,” the unfit organism is returned either to “inorganic matter” or “by absorption into some other individuality.”<sup>106</sup> Happiness, then, is the state of being powerfully individuated, able to exercise the fullest “liberty” of one’s faculties. Society is the condition of realisation of this for human individuals. The state is the utility imposed upon those lacking individuality and, hence, independence from circumstance. Having the state not harm the society, and hence the individual, is the great moral quandary of the age.<sup>107</sup>

Spencer concludes that, in the end, “the moral law” is, quite simply, “a statement of the *conditions* of beneficial action.”<sup>108</sup> That is, the moral is what pertains to the formative conditions for social beings and, in particular, what elevates them towards more perfect correspondence, thus forming a natural foundation for morals. This moral conditionality was therefore, in a

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<sup>104</sup> Ibid., 412.

<sup>105</sup> Ibid., 416–417.

<sup>106</sup> Ibid., 440.

<sup>107</sup> Ibid., 461.

<sup>108</sup> Ibid., 465. Original emphasis.

word, transcendental. Indeed, Spencer titled an essay of 1857 *Transcendental Physiology*<sup>109</sup> and, in his *Social Statics*, he had affirmed that “moral truth” had proven “to be a development of physiological truth.”<sup>110</sup> However, in contrast to Germanic transcendentalism, the philosophy was not ideal as such but, rather, depended upon the more or less lawful substructure of Nature. It was this that was determinate of moral permissibility.

Such commerce-friendly cogitations would prove, in the subsequent decades, very popular. However, at this time, Spencer remained reliant on Chapman for his access to market.

In 1851, Chapman acquired the *Westminster Review*. In that periodical the next year, Spencer published an article titled *A Theory of Population, deduced from the General Law of Animal Fertility*.<sup>111</sup> Nominally a review, Spencer took it as an opportunity to advance his own thoughts regarding life, law, and valid forms of human existence. The text begins with a quotation from Richard Whatley (1787–1863), the Archbishop of Dublin, defending the doctrine of Thomas Robert Malthus (1766–1834) against the criticisms of Thomas Doubleday (1790–1870), one of the authors under review.<sup>112</sup> Though accepting Doubleday’s argument that “an essential beneficence” is at work in nature, like the solar system described by Newton and Laplace, tending towards balance and the “self-sufficingness of things,” Spencer argues that a more satisfactory account must begin from a definition of “Life itself.” Such a definition would include not only “the peculiar property of a living organism” but also both organic and inorganic beings. As the likes of Coleridge or Schelling had attested, “the characteristic which, manifested in a high degree, we call Life, is a characteristic manifested, only in a lower degree, by so-called inanimate objects.” In brief:

“Life may be defined as—the *co-ordination of actions*.”

The difference between living and non-living was, therefore, one of degree, not kind.<sup>113</sup>

So long as “any race continues to exist,” destructive and preservative forces “must perpetually tend towards equilibrium.” However, the means by which this occurs depends on the type’s level of organisation. Those given “high endowments” for self-preservation have low fertility, while those lacking the means to preserve themselves, whether by speed, guile, or

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<sup>109</sup> This title was rejected by the editor of the *The National Review*, with which it was initially published in favour of *The Ultimate Laws of Physiology* but Spencer’s preferred denomination was returned as it was republished later the same year. Spencer 1891, vol. 1, 63–107.

<sup>110</sup> Spencer 1851, 461.

<sup>111</sup> Spencer 1852.

<sup>112</sup> Under review: works by William Benjamin Carpenter (1813–1885), Louis Agassiz (1807–1873) and Augustus Addison Gould (1805–1866), Richard Owen (1804–1892), Japetus Steenstrup (1813–1897) translated from Danish by George Busk (1807–1886), Thomas Doubleday (1790–1870), and a volume edited by Robert Bentley Todd (1809–1860).

<sup>113</sup> Spencer 1852, 472.

whatever other faculty, accordingly, have high fertility.<sup>114</sup> In human beings, the crucial faculty of preservation is that of intelligence. This, Spencer discusses phrenologically in terms of mean cranial capacity, with those in “our present phase of civilization” exceeding those in “the savage state” by “nearly 30 per cent.”<sup>115</sup>

As regards why this “greater development of the nervous system *must* take place,” Spencer points to what he takes to be a commonplace: “*the excess of fertility itself,*” and the “constant pressure of population upon the means of subsistence” that is consequent. While migration may ease this “pressure” for some time, such release is limited. In time, there is necessarily an “increasing demand for skill, intelligence, and self-control,” and this, Spencer argues, institutes the “social state.” For example, a farmer who studies chemistry and adopts machinery yields more from his acre.

“To meet the requirements of the market, the manufacturer is perpetually improving his old machines, and inventing new ones; and by the premium of high wages incites artizans to acquire greater skill.”<sup>116</sup>

Thus, population as such is not the only “pressure” in this thermodynamic model of evolution. Of course, there is earth, the finitude of which inherently precludes indefinite population expansion. However, most crucially, as per the “hard pressed” slavers of *Social Statics*, there is also the market. The pressure towards specialisation and free trade itself serves as a natural externality on action and, therefore, upon cranio-social evolution.

Thus differs the “Pacific Islander” whose wants are answered immediately by Nature, and the “Englishman” who ekes out a living from his wits. This “enlargement of the nervous centres,” and matching “decline of fertility,” Spencer affirms, is an average, not absolute, effect. Nevertheless, its law is iron.

“For, necessarily, families and races whom this increasing difficulty of getting a living which excess of fertility entails, does not stimulate to improvements in production—that is, to greater mental activity—are on the high road to extinction; and must ultimately be supplanted by those whom the pressure does so stimulate. This truth we have recently seen exemplified in Ireland.”

This Irish example was, of course, *an Gorta Mór*—the Great Famine—occurring from 1845 to around the time of Spencer’s writing, caused in most part by British trade policies, knowingly enforced, and leading to around a million deaths and an equal number emigrating, reducing the population of the island by as much as a quarter.<sup>117</sup> Such was, for Spencer, “the *à priori* law of maintenance of race, from the monad up to man”—the agency of equilibrium in nature at

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<sup>114</sup> Ibid., 476.

<sup>115</sup> Ibid., 498.

<sup>116</sup> Ibid., 499.

<sup>117</sup> Ó’Gráda 1995; Kinealy 2001.

work. It was the “proximate cause” of all social progress, from man’s animalistic origins to “the clearing of the earth’s surface” to the advent of “social organisation” to the ever more “mutually dependent relationships” of the then-present. And yet it continued to work, “the pressure of population” only ceasing when having produced its final act: human perfection—a being perfectly adapted to its conditions.<sup>118</sup>

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In his later autobiography, Spencer recalls, in the period 1853–1854, reading “Miss Martineau’s abridged translation of Comte,” his curiosity piqued by “two of my friends, Mr. Lewes and Miss Evans.” In 1853, Lewes published *Comte’s Philosophy of the Sciences*, which Spencer also read, being thus appraised of “The Leader.” However, Spencer strenuously protested, as he did whenever characterised as a “positivist,” that, despite borrowing “statics” and “dynamics,” as well as, later, “altruism” and “sociology,” he bore the “Great Priest of Humanity” (as Comte termed himself) no debt whatsoever, besides “the indebtedness of antagonism.”¹¹⁹ In October 1856, Spencer travelled to Paris with Chapman, meeting Comte and exchanging pleasantries but seemingly little more.¹²⁰

The year before, Spencer had published his next major text, *The Principles of Psychology*.¹²¹ This was his first work to deploy “environment” and was, indeed, of all his publications, the one to do so most enthusiastically, appearing over 200 times. As per the empiricist tradition, ideas were taken to be derived from experience. However, while Hume had made mind sui generis, Spencer’s psychology was determinedly re-embodied, with the universal “substratum” underlying the “complex structure” of experience being “the impression of resistance.” Every creature, or at least “every terrestrial creature,” was necessarily and continually subject to “external stimuli,” with the higher orders being ever more so.¹²² Thus, as regards human beings, “Matter, Space, Motion, Force—all our fundamental ideas” arise from “the relation between the organism and its environment.”

“Here is a subject placed in the midst of objects. It can learn nothing of them without being affected by them. Being affected by them implies some action produced by them upon its surface.”

It was this “direct contact,” guaranteed by “the law of gravitation” that was productive of all experience and ideation.¹²³

¹¹⁸ Spencer 1852, 500–501.

¹¹⁹ Spencer 1904a, 517.

¹²⁰ Pickering 1993, vol. 3, 484–485.

¹²¹ Spencer 1855.

¹²² *Ibid.*, 265.

¹²³ *Ibid.*, 269.

At this point, around half way through the book,¹²⁴ Spencer used “environment” for only the third time—and at no point was this term explained or justified.¹²⁵ However, in and after the chapter “The Correspondence Between Life and its Circumstances,”¹²⁶ the term was used almost continually. It began with a significant modification of his essay on population.

“Life is defined as—The definite combination of heterogeneous changes, both simultaneous and successive, *in correspondence with external coexistences and sequences.*”¹²⁷

Thus the organic-inorganic “co-ordination of actions,” which Spencer now decides “includes too much,”¹²⁸ was relinquished in favour of an internal/external “correspondence.” This term Spencer did seek to justify, acknowledging that “we have no word sufficiently general to comprehend all forms of this relation between the organism and its medium, and yet sufficiently specific to convey an adequate idea of the relation” but nevertheless that this term “seems the least objectionable.”¹²⁹ Though beginning, developmentally and logically, in terms of “resistance,” it was this “correspondence” that was the most crucial term of Spencer’s psychology (and, implicitly, his biology), with “all modes of consciousness” being “nothing else than incidents of the correspondence between the organism and its environment.”¹³⁰

Spencer continued to use “conditions” and “circumstances” in the same manner as before. Moreover, “medium” retained its common usage with regard to surrounding fluids, whether liquid or gaseous.¹³¹ However, environment was distinct on two counts: first, it bore no elemental connotation and was therefore more completely abstracted; second, though things could be bathed in media, they *corresponded* to environments.¹³² A medium is one kind of environment; an environment one kind of condition. A medium may support an organism but it does not individuate it.

Environments were not necessarily proximate (in spatial or causal terms). Nor was the extensity of an environment purely biologically determined. In particular, the “range of environment” germane to “man”—that realm to which his ever-increasing capacities bring him into correspondence—were augmented “by compass, and stars, and chronometer.” Thus, purchases on one side of the Atlantic “adapted to the prices” on the other. Likewise,

¹²⁴ “The Perception of Resistance,” *Ibid.*, 265–276.

¹²⁵ The first time was the banal observation that: “those properties of things which we know as tastes, scents, colours, temperatures, sounds, are effects produced in us by forces in the environment.” *Ibid.*, 194.

¹²⁶ *Ibid.*, 366–375.

¹²⁷ *Ibid.*, 368.

¹²⁸ *Ibid.*, 355.

¹²⁹ *Ibid.*, 373.

¹³⁰ *Ibid.*, 584.

¹³¹ For example, “the surrounding medium is air, water, or earth.” *Ibid.*, 363.

¹³² *Ibid.*, 497.

stratigraphic investigations “bring his actions into correspondence with the coexistences a thousand feet underneath.” Turning the other way, “his correspondences” extend beyond the earth altogether.

“It stretches into the surrounding sphere of infinity. It was extended to the moon when the Chaldeans discovered how to predict eclipses; to the sun and nearer planets when the Copernican system was established; to the remoter planets when an improved telescope disclosed one, and calculation fixed the position of the other; to the stars when their parallax and proper motion were measured; and, in a vague way, even to the nebulae, when their composition and forms of structure were ascertained.”¹³³

As such, “[t]he environment in general is infinite,” with limits being relative to the degree of development of any given creature.¹³⁴

In the fifth chapter of his *Principles of Biology* (first volume, 1864),¹³⁵ Spencer reprised his arguments of a decade previous. Living beings were defined by their active “*correspondence with external co-existences and sequences.*” The name Comte went unmentioned in *Psychology* (although Spencer took issue with Blainville’s definition of life); however, here, in a footnote, Spencer made pointed his direct disagreement. It was “strange,” he remarked, that Comte had come “so near this truth and yet missed it”—specifically, that “the necessity of a harmony between an organism and its environment, as a condition essential to life” entailed, further, “that the continuous maintenance of such inner actions as will counterbalance outer actions” itself therefore “constitutes life.” Comte took harmony for granted, whereas Spencer saw it as produced by pressures, destructions, and adaptations. Thus, despite the positivist’s “often remarkable” intuitions, Spencer was again at pains to emphasise that, besides some excerpts of the *Course*, he knew of his opinions “only by hearsay.”¹³⁶

His insistent disavowals aside, Spencer plainly took “environment” from Martineau’s rendering of Comte.¹³⁷ Nevertheless, there is every chance that he encountered the Carlylean version previously. As such, for Spencer, far from being “without any authority,” as Sterling had put it, environment was, even in Martineau’s iteration, plainly available as an English word. Accordingly, while Spencer, grudgingly, acknowledged his borrowing of terms such as “altruism,” he could consider himself having no dues to pay as regards this concept. Nevertheless, his “environment” was evidently cognate with what Comte in 1838 had designated “not only the fluid in which the organism is immersed, but, in general, the total set

¹³³ Ibid., 409–410.

¹³⁴ Ibid., 530.

¹³⁵ Identically titled to the aforementioned chapter of Spencer’s *Psychology* (“The Correspondence Between Life and its Circumstances”).

¹³⁶ Spencer 1864, vol. 1, 74.

¹³⁷ Pearce 2010b.

[*l'ensemble total*] of external circumstances of any kind that are necessary for the existence of each particular organism.”¹³⁸ That is, it was an internally undifferentiated externality individuating an internality, most commonly an organism. However, beyond the strictly biological or psychological usage, there were rather more cosmological implications to the concept. Quite unlike Comte’s anthropo-theistic “*Grand-Milieu*”—imagined as a kind of aether cloaking the earth, assuaging pretensions to having ideas above one’s station—Spencer’s environments opened infinitely outwards, projecting *laissez faire* into the universe. However, by far the most significant difference between Comte and Spencer concerned the elimination of “harmony” from the definition of life, and its redefinition in terms of the correspondential “survival of the fittest.”

Later in his *Biology*, Spencer gave a more specific definition of environment. As per tenets developed from his *Social Statics* onwards, life “becomes more complex” as it accedes to “higher” states of development.

“Though, literally, the environment means all surrounding space with the coexistences and sequences contained in it; yet, practically, it often means but a small part of this.”

Thus, the parasitic “entozoon” has an environment extending only so far as the body it inhabits, and so on.¹³⁹ This same principle applied, of course, to “the history of mankind,” whose progressively advancing “civilization” developed through its movement from the “less varied” Torrid zone to the greater and more demanding variation of the temperate. As more “complicated physical geography” was adaptively encountered, to “their physical environment” was added “a social environment,” which brought yet greater complexity and, hence, advancement.¹⁴⁰

However, as per Spencer’s essay on population, it was not only the geographical or climatic differences of the earth that formed the differentiations of the human environment.¹⁴¹ Indeed, an organism’s environment “comprehends all those other organisms existing within its sphere of life,” this constituting “the most important and most numerous surrounding changes with which each animal has to deal.” This, indeed, was acknowledged to be the principal pressure to which internal adaptations have to respond.¹⁴² Since “individuals of a species” are necessarily “unlike,” the changes in their environment that overthrow “the moving equilibrium,” so long as these are not catastrophic, will necessarily, by the “continual

¹³⁸ Comte 1838, vol. 3, 235.

¹³⁹ Spencer 1864, vol. 1, 85.

¹⁴⁰ *Ibid.*, vol. 1, 87.

¹⁴¹ *Ibid.*, vol. 1, 428.

¹⁴² *Ibid.*, vol. 1, 88.

destruction” of individuals, favour the “fittest” among them, adjusting the survivors to a new “equilibrium with the altered conditions.”

“This survival of the fittest, which I have here sought to express in mechanical terms, is that which Mr Darwin has called ‘natural selection, or the preservation of favoured races in the struggle for life.’ [...] To him we owe the discovery that natural selection is capable of *producing* fitness between organisms and their circumstances.”¹⁴³

Thus, Spencer’s reading of Darwin, however apparently deferential it may have been presented, did not differentiate between distinct phases within the evolutionary process but saw environmental influence as continual. His fluiddo-thermodynamic or “mechanical” conception of environment, as per the principle of “resistance” in his *Psychology*, had to be *direct*. Even if other species were environmentally primary, the germane form of differentiation for Spencer remained the membrane of the organism.

Having previously dealt with vegetal, animal, and psychical evolution, in his *Principles of Sociology* of 1876, Spencer finally approached “the remaining division—Super-organic Evolution.”¹⁴⁴ It is, Spencer begins, with “aggregates of men” as it is with beings organic or inorganic: the behaviour of an individual object “depends on the co-operation between its own forces and the forces to which it is exposed.”¹⁴⁵ However, with higher phenomena, these forces are, of course, more complex.

Among “The Factors of Social Phenomena,” one can, therefore, distinguish the “intrinsic” from the “extrinsic.” As regards the latter, there is “climate” (hot or cold, moist or dry), “surface” (clear or covered, uniform or multiform), “vegetal productions” or “Flora” (abundant or not, useful or otherwise), and, furthermore, “Fauna” (injurious or aidful, influential by species and individually). Such factors are not, of course, immutable. Climate is altered “by clearing and by drainage.” Nevertheless:

“On these sets of conditions, inorganic and organic, characterizing the environment, primarily depends the possibility of social evolution.”¹⁴⁶

However, such conditions are not the only externalities of importance to the evolution of a society. Further to these, of “extreme importance” are “the influence of the super-organic environment—the action and reaction between a society and neighbouring societies.” Indeed, while a society’s “industrial” organisation, Spencer argues, is principally determined by its “inorganic and organic environments,” the organisation of its government is principally

¹⁴³ Ibid., vol. 1, 444–446.

¹⁴⁴ Spencer 1898, vol. 1, 3.

¹⁴⁵ Spencer 1898, vol. 1, 8.

¹⁴⁶ Ibid., vol. 1, 9–10.

determined by its inter-societal environment “by the actions of those adjacent societies with which it carries on the struggle for existence.”

However, there were yet more environments to consider. In particular, there were those “super-organic products” usually named “artificial” but which, in philosophical terms, “are no less natural than all other products of evolution”—that is, technological objects or “material appliances”; everything from “roughly-chipped flints” to steam-driven factories, “eighty-ton guns,” and cathedrals. Such beings, too, amount to “new genera and species.”¹⁴⁷

“They gradually form what we may consider either as a non-vital part of the society itself, or else as a secondary environment, which eventually becomes more important than the primary environments.”¹⁴⁸

However, social evolution did more than simply economically mobilise ever more technical elements. It altered what could be perceived. Spencer asks us to, “so far as we can, picture the imaginary environment the primitive man makes for himself”—a-swarm with “supernatural agents” and other phantasmagoria of the imagination.¹⁴⁹ Moreover, the very wind itself—what could the “original conception” of this have been? How hard it was to think of this “surrounding medium as a material substance”; how incapable the “primitive man” was in apprehending it as “something which acts as do the things he sees and handles.”¹⁵⁰

Thus, Spencer’s initial enthusiasm for “environment,” and his regular reuse of this term to establish his philosophy, by no means supplanted his other terminology. Indeed, in the second volume of his *Sociology*, the word appears only three times. “Medium” in its circumambient sense (as opposed to, for example, the medium of currency), also only appeared three times in the first volume and not at all in the second.

However, finally, in *Principles of Ethics*, first published in 1879, between pronouncements on “The Rights to Free Motion and Locomotion,” and “The Right of Property,” Spencer wrote of “The Rights to the Use of Natural Media.” It was not only, he noted, “by the actions of fellow-men,” or by restrictions of his movement, that a man may come to injury. Rather, the activities necessary for his “maintenance of life” could come “by traversing his relations to the physical environment on which his life depends.” For this reason, it had been claimed, for example by the Scottish jurist John Erskine (1695–1768), that such “natural agencies” as access to light or air must be kept in “common possession.”¹⁵¹

¹⁴⁷ Ibid., vol. 1, 12–13.

¹⁴⁸ Ibid., vol. 1, 14.

¹⁴⁹ Ibid., vol. 1, 218.

¹⁵⁰ Ibid., vol. 1, 109.

¹⁵¹ Spencer 1897, vol. 2, 80.

It would then follow, Spencer continues, that under the heading of “natural media” must be included, “by an unusual extension of meaning,” that which “admits of appropriation—the surface of the Earth,”¹⁵² since every being presupposes at the very least a place to stand. Moreover, the higher state of civilisation, he observes, has come to recognise the necessity of free access to light, and unpolluted air—such as regards smoking on railway carriages (no mention is made of industrial pollution).¹⁵³ Thus, just as “cannibalism” or “slavery and serfdom” had ceased to be acceptable, “the uses of the atmosphere,” and due freedoms “with respect to the environment,” had already been admitted into the structures of urban organisation.¹⁵⁴

However, while “equal claims to uses of the media in which all are immersed” are, then, readily agreed upon:

“the proposition that men have equal claims to the use of that remaining portion of the environment—hardly to be called a medium—on which all stand and by the products of which all live, is antagonized by ideas and arrangements descending to us from the past.”¹⁵⁵

Were such earthly commonality to pertain to “men stood in possession of a territory not yet individually portioned out,” what is said of air and light may well go for land, also. However, given “long-standing appropriation, continued culture, as well as sales and purchases,” matters were more complicated. From the dawn of agriculture, Spencer argues, land tenure cannot be extricated from cultivation or hence from progress. Thus, the surface of the Earth, ethically speaking, could be an environment but not a medium.

8.3: The imaginary environment: Victorian commonplaces

Were we to take Spencer’s *Psychology* as the *ur*-text of the socio-biological “environment,” for his own oeuvre or in general, we might well conclude that the Spencerian environment was merely the shadow of the organism—that it is simply the product of taking the organismic membrane to be the fundamental line of differentiation for understanding life. However, by paying close attention to the development of Spencer’s thought before and after his text of 1855, we can see a wider range of implications.

While “conditions” and “circumstances” could continue to be used interchangeably with environment, paying attention to Spencer’s earlier texts shows that it was not only the pressures of population, alongside those of climate, and so on, that were formative of the circumambient impulsions subsequently generalised as environment. Additionally, and most

¹⁵² Ibid., vol. 2, 81.

¹⁵³ Ibid., vol. 2, 82–83.

¹⁵⁴ Ibid., vol. 2, 84–85.

¹⁵⁵ Ibid., vol. 2, 85.

consequentially, there were market forces. That is, the geographically decentred effects of labour division and specialisation of production were made a force continuous with the other forces captured under the quasi-thermodynamic conception of environmental pressure.

Moreover, while Spencer made little attempt to claim “environment” as his own, and while it was not among his most argumentatively essential concepts, it cannot thereby be assumed that it did not perform distinct conceptual work. While environment was initially differentiated from “medium” simply by the latter’s connotations of fluidity, this distinction later took on more significant moral weight as media were presumed to be held in common, whereas environments were more general and could be appropriated. Finally, while environment remained to some extent interchangeable with other expressions, no other concept could clearly demarcate inner from outer—nor, then, could it carry the same connotations as regards selfhood or subjectivity. This would continue to be crucial.

While the distinction of appropriable environments from common media may have been idiosyncratic to Spencer, his concern with the sensual and perceptive—“picture the imaginary environment [...]”—was not merely an echo of Carlylean egography (the scenic accoutrements to an individual’s grandeur) but remained crucial to the concept. From the beginning, environment was articulated in psychological, and hence egocentric, terms. As individuals became ever more individuated, so did the purview of their “correspondence” expand outwards, as the artificial contrivances of the state withered away. This process of environmental expansion was, for Spencer, the march of civilisation—we might say, empire. While Carlyle dramatised individual freedom in the manner of a pathologically cantankerous clergyman, Spencer did so as the chief choral orchestrator of *laissez faire* capitalism. While the former disdained the spiritlessly utilitarian, the latter gloried in it. However, the fact that both found their audience in Victorian England, and beyond, should surprise no one.

Excursus E: Ontomesic: The situation of contradiction

As seen in §3, in William James' estimation, there was, for "savages," little "unity" in Nature. Rather, "[i]t is a Walpurgis-nacht procession, a checkered play of light and shadow, a medley of impish and elfish friendly and inimical powers." Thus, in contrast to a Carlyle, a Schopenhauer, a Spencer, or any thinking man, there could be, for those stuck at this stage of uncivilisation, "no tincture of philosophy."¹

These words, from the opening pages of James' lectures on *A Pluralistic Universe* (4th May, 1908),² no doubt sat well with an audience appraised of the policy of then-President Theodore Roosevelt: to assimilate Indigenous peoples, dismembering their communities, forbidding their language and culture, and, fundamentally, appropriating their lands (in part, under the guise of "conservation").³

The postulation that "world" should not be taken as a synonym for "globe," "planet," or "cosmos"—that "worlds" are actively produced, relative to collective modes of existence, and are, therefore, multiple—is certainly not original.⁴ However, it can now be said, more precisely, that a world is: that which is made patent (§B) for the constituents of a collective (§D), relative to the obligations formative of that collective (§A), and by which possibilities of action and occurrence are made manifest to them (§C).

But how, then, if worlds are thus manifold, is passage, commonality, cooperation, or co-belonging between collectives possible? Such aptitudes are here conceived as ontomesic.

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For Bodin, it was "*les peuples du milieu*"—peoples of the temperate zones—that were uniquely suited to negotiate and organise the affairs of other peoples.<sup>5</sup> For Comte, any demarcation lower than "humanity" had "no real foundation in nature," and "no one [nation] is really separable from the others."<sup>6</sup> Thus, with perichoretic munificence,<sup>7</sup> it was necessary to offer "the Orient an acceptable union with the Occident," in the name of Humanity.<sup>8</sup> Humboldt, likewise,

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<sup>1</sup> James 1987, 639.

<sup>2</sup> The Hibbert Lectures at Manchester College on the Present Situation in Philosophy. Published the next year.

<sup>3</sup> Though the concept of the "pluriverse" is sometimes credited to James (e.g. Ferguson 2007), such claims are rather anachronistic with respect to the decolonial significance with which this concept is often invested. Cf. de la Cadena and Blaser 2018b. On Roosevelt and conservation: Taylor 2016; Dorsey 2016.

<sup>4</sup> Lugones 2003; Agathangelou and Ling 2009; Ortega 2016; Blaney and Tickner 2017; de la Cadena and Blaser 2018a.

<sup>5</sup> Bodin 1993, 423–424.

<sup>6</sup> Comte 1877, vol. 4, 27–28.

<sup>7</sup> περιχώρησις [*perikhōrēsis*]—rotation; referring to the relationship of the triune God (Father, Son, Holy Spirit).

<sup>8</sup> Comte 1877, vol. 4, 11.

celebrated the work of connection that would “put us in communication with all the peoples of the earth,” thus effecting the cosmos that was due to all. However, for Spencer, without hint of such harmony, the matter of “extreme importance” was to recognise “the super-organic environment” and its “struggle for existence.”<sup>9</sup>

In a short essay co-authored with his nephew Marcel Mauss in 1913,<sup>10</sup> Durkheim admitted that “social phenomena [...] not strictly attached to a determinate social organism do exist”—extending beyond any single “national territory,” and over great lengths of time. Indo-European languages, for example, share “a common fund of ideas and institutions.” Such supranational “systems of facts” were to be named “civilization.”<sup>11</sup> Nevertheless, “the human milieu” as an integral totality—that for which Comte had hoped to found a science—was “only a construction of the mind [*l’esprit*].”<sup>12</sup> The geographer Friedrich Ratzel, for instance, had shown that “symbolic frontiers [*frontieres ideales*]”<sup>13</sup> could be spatially delineated no less than political ones. Civilisation was, therefore, “collective life of a special genre,” finding its “substratum” in “a plurality of interrelated political bodies acting upon one another”—a “higher kind” of social life that sociology must come to know.<sup>14</sup>

In *La Nation*, a manuscript written around 1920 (although not published until 1953), Mauss expanded upon this re-estimation of the “higher kind” of sociality, writing that it is “an abstraction to believe that the internal politics of a nation is not conditioned largely by the outside, and vice versa.”

“A society that is already a milieu for the individuals that compose it lives among other societies that are also milieus. So we would express ourselves correctly if we said that the total set [*l’ensemble*] of international—or, better, intersocial—conditions of the living relation [*la vie de relation*] between societies, is a milieu of milieus.”

This ensemble of milieus, “which is humanity,” is unlike “the physical milieu” in that it is, ultimately, susceptible to “human action.” However, this fact had all too often given rise to the “absurd notion” that societies could thus be changed “arbitrarily,” and at will. This fallacy Mauss takes to be “one of the great idea-forces of history,” having inspired “the great tyrants” from Alexander, Caesar, Robespierre, and Napoleon to Lenin.<sup>15</sup>

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⁹ Spencer 1898, vol. 1, 12.

¹⁰ Durkheim and Mauss 1913; Durkheim and Mauss 1971.

¹¹ Durkheim and Mauss 1971, 810–811.

¹² *Ibid.*, 812; Durkheim and Mauss 1913, 48. Translation modified.

¹³ Durkheim and Mauss 1971, 812; Durkheim and Mauss 1913, 49.

¹⁴ Durkheim and Mauss 1971, 813.

¹⁵ Mauss 1968, vol. 3, 608.

There are doubtless indefinitely many ontological collectives “identifiable as such” (§3). However, these collectives do not necessarily correspond to conventional delineations of nations or societies. If the ontomesic is intersocial then it is not in the same sense as the international—this being only one, albeit disproportionately significant, way in which collectivity is distributed. A scientific discipline, a religion, or a generation may also be understood in these terms. The concept of “collective,” then, can also be understood “in relation”—that is, as a kind of event occurring between multiple beings. An action is collective to the extent that those entering into it can presume a syndoxic, ontonomic rapport with regard to the matter of concern productive of the situation. Absent such commonality, a different order of mutual relation is called into being.

Since the existence of a collective always presupposes other collectives, and since these are distinguished by their respective modes of attention, the question arises as to how collectives are capable of coexisting. Of course, it has been said that no one need belong to only one collective. Moreover, to speak of different collectives is not to assume that they need be radically, incommunicably alien to one another. They may, indeed, greatly overlap. Perhaps all collectives whatsoever may be said to share some facet of ontonomy—this is an empirical, and indeed political, question. However, the solution preferred by Comte, and very many others—making human nature the given, universal ground in relation to which all are priorly unified—must be avoided. Such ostensive humanistic beneficence is yet another means by which one collective “seeks to extend its own common-place to the boundaries of the universe” (§C).

And yet, to return to the concept of the trivium, it is surely not the case that no ‘grounds’ are given. Indeed, the very notion of the cross-roads qua commonplace presupposes ancestral relations to places elsewhere. Each *via* is an inheritance of a possibility for attending otherwise—though not every route will be well-maintained, and not every traveller taken in.

The ontomesic, then, is what occurs in the middle, through the *via*, or in the interstices between one common-place and the next. It pertains to the aptitudes that permit passage, without adjoinment or agglomeration. It is, therefore, what permits the existence of a manifold qua manifold—neither connected nor disconnected but communicable.¹⁶ Nothing guarantees that such relations will be convivial or egalitarian. Nevertheless, if recognised in its relevant mode of existence, the ontomesic holds the possibility of alliance without unity.

However, given such a degree of abstraction, such statements are likely to remain meaningless. By way of exemplification, I will therefore turn to the tradition of anthropology, and the case of *mana*. In particular, I will show how traditional anthropological accounts thereof have been without ontomesic aptitudes but, more recently, demands for such have been made.

¹⁶ Cf. Blaser 2013; de la Cadena 2010.

Around 1902,¹⁷ Mauss undertook to found a “science of religion” with its appropriate “scientific terminology.”¹⁸ To explain religion, magic, and the sacred sociologically (taking all these to be of a kind), it was therefore necessary to establish whether such phenomena “take place in a social milieu” or may be attributed to the individual.¹⁹ Here, the Comtean, positive milieu was deployed. However, the resonances of the aetherial milieu remained crucial.

Towards the conclusion of the study, Mauss analysed the notion of “magical force”—a “composite idea of force and milieu” supposed formative of all magical and religious practice. Typifying this phenomenon was *mana*. Found in all of Melanesia, and much of Polynesia, *mana* signifies “not simply a force, a being, it is also an action, a quality, a state.”²⁰ Further, “it is transmissible, contagious,” and “can produce its effects from a distance.” Further extended, “*mana* is power” itself, taking the form of an “ether, imponderable, communicable, which spreads of its own accord,” as well as being “a milieu [...] which in itself is *mana*.”²¹ Thus, any performer of magical rites will habitually reside within an altered, exceptional milieu—a “specialized atmosphere which follows him everywhere.”²²

However, although such examples derive from the Pacific islands, Mauss finds the “idea of ‘power-milieu’” to be a universal institution, existing “without having [always] been expressed.” It was through the transformation of a *mana*-like conception that, in ancient Greece, magic became “quasi-scientific.”²³ Thus, within the obligatorily ascensional developmental schema, *mana* per se occupies the “primitive” rung, meekly making way for the dictates of reason. Indeed, such notions are so “absurd” that they can only be explained as deriving “purely and simply from the functioning of collective life.”²⁴ In explicitly neo-Kantian terms, Mauss duly deems *mana* “a category of collective thinking.”²⁵ Through this category, “magical dreams” are made “rational,” and thus “become confused with reality.”²⁶ In producing this “sympathetic milieu,” this “mental atmosphere,” social beings become as “spokes of a wheel,” or “cells” within “an individual organism.”²⁷

¹⁷ First published in *l'Année Sociologique* between 1902 and 1903, English translation: Mauss [1972] 2001.

¹⁸ *Ibid.*, 9.

¹⁹ *Ibid.*, 12.

²⁰ *Ibid.*, 133.

²¹ *Ibid.*, 135–138.

²² *Ibid.*, 170.

²³ *Ibid.*, 142–143.

²⁴ *Ibid.*, 149.

²⁵ *Ibid.*, 146, 155.

²⁶ *Ibid.*, 156.

²⁷ *Ibid.*, 161–164.

The anthropological fascination with *mana* had been initiated by the Anglican missionary Robert Henry Codrington (1830–1922) in 1891.²⁸ It was put into abeyance by Claude Lévi-Strauss (1908–2009) in 1950, who dismissed *mana* as a floating signifier, “in itself devoid of meaning and thus susceptible of receiving any meaning at all.”²⁹ Nevertheless, this fascination was not contained within academia. Most prominently, from 1917 to 1931, Max Freedom Long (1890–1971) worked as a teacher on the islands of Hawai‘i, while attempting to learn traditional indigenous lore. His efforts were, it would seem, were consistently rebuffed. Nevertheless, from the early 1950s, Long formulated what he claimed to have learned as the New Age philosophy “Huna” (the Hawai‘ian word for secret)—claims and formulations widely regarded as spurious. Rather than recounting Hawai‘ian traditions, Long rearticulated the long-established spiritualist philosophies of Franz Anton Mesmer, and the founder of the Theosophical Society, Helena Blavatsky (1831–1897), duly describing the “vital force” of *mana* in relation to magnetism and electricity, and making it the basis of cosmic connection, psychic exploration, and healing.³⁰ Long’s teachings continue to be practiced, both on Hawai‘i and elsewhere.

With the waning of structuralism, after the style of Levi-Strauss, has come renewed academic attention to *mana*. For instance, in 2007, Martin Holbraad’s concluding chapter in *Thinking through things*, the influential *ur*-text of the self-declared “ontological turn” within anthropology, reconsidered the place of *mana* within that disciplinary tradition, particularly relating it to *aché*—an element of Ifá, the religion of divination, which the author takes to be “the Afro-Cuban cousin of *mana*.” Rather than relating it to an underlying explanatory structure (as per Mauss and Levi-Strauss), Holbraad argues for giving “the transgressive potential of *mana* full rein so as to reach new analytical departures—thinking neither about it, nor just with it, but through it.”³¹ That is, the agenda of anthropology, as per this “turn,” is not to explain the ways and worlds of others in terms of given social or cultural categories but, rather, to use the ways and worlds of others to creatively challenge the very categories of the anthropological tradition, and hence those of societies from which that tradition derives.

As such, the ontological turn of Holbraad, and others,³² is unambiguously methodological in its articulation, being oriented towards disciplinary norms as regards what anthropologists qua anthropologists should be doing. In this model, the anthropologist utilises the “alterity” of the researched-other to rethink the researcher-self. This is, of course, nothing

²⁸ Codrington 1891.

²⁹ Lévi-Strauss [1950] 1987, 55.

³⁰ Morgain 2016, 286–295.

³¹ Holbraad 2007, 200–201.

³² Henare, Holbraad, and Wastell 2007; Carrithers et al. 2010; Holbraad and Pedersen 2017.

new.³³ However, where the “turn” claims to differentiate itself is in demanding that no aspect of the researcher-self should be exempted from the challenge of “alterity.” In this regard, “ontology” is itself an empty signifier, legitimate only to the extent that it dissuades the researcher from holding on too preciously to their own presuppositions.

Thus, the ontological turn has no particular political orientation, and requires little apparent consideration of the consequences of the research for the researched. As such, it is, at least after Holbraad’s example, profoundly depoliticised. However, while this is by far the most institutionally privileged exposition of ontology within contemporary Euro-American anthropology, it is by no means the only one. For instance, in greatly more politically sophisticated terms, Wende Elizabeth Marshall writes:

“Reclaiming mana as ontology is crucial for decolonization and is an exigency for the survival of indigenous Hawaiians.”³⁴

Thus, like Annemarie Mol (§3), for whom the significance of “the word ‘ontology’” is that it “evokes ‘reality,’”³⁵ Marshall recognises that, within the hegemonic conceptual lexicon in terms of which colonised peoples are required to articulate their claims to existence, ontology itself has a certain power. Accordingly, far from being a disciplinary, depoliticising empty signifier, “ontology,” here, is legitimate to the extent that it lends force to an agenda of restitution—acting for a world historically subjugated, within the interstices of an imperial other.

Anthropologists have been, by training and tradition, those who venture out from metropolitan centres of relative power to diverse parts of the human world, typically (though not always) far from such centres. Historically speaking, this was to be the science of ‘primitive’ peoples, the peculiarities of which it was needful for colonial administrators to know. This disciplinary association has a long history, and a deep present.³⁶ However, from the early decades of the twentieth century, the likes of Franz Boas (1858–1942), Ruth Benedict (1887–1948), and Margaret Mead (1901–1978), undertook to divest anthropology of racial essentialism and developmental hierarchy, reconstructing it, instead, upon the concept of “culture.”³⁷ It is both with and against that received orthodoxy that, in the past two decades, “ontology” has come to be discussed as a superseding or radicalising alternative.

For instance, in 2003, Eduardo Viveiros de Castro spoke of the “growing dissatisfaction with the uncompromisingly Kantian inspiration of our discipline” that relies upon concepts of culture and epistemology. For this reason:

³³ E.g. Wagner 1981.

³⁴ Marshall 2012a, 6.

³⁵ Mol 2014; see also Mol 2002.

³⁶ Todd 2016; Stocking 1991; Deloria Jr 1997.

³⁷ Stocking 1966; cf. Speth 1978.

“the language of ontology is important for one specific and, let’s say, tactical reason. It acts as a counter-measure to a derealizing trick frequently played against the native’s thinking, which turns this thought into a kind of sustained phantasy, by reducing it to the dimensions of a form of knowledge or representation, that is, to an ‘epistemology’ or a ‘worldview.’”

The anthropological problem, then, is “to create the conditions for the conceptual, I mean ontological, self-determination of people” or, rather, “peoples.”³⁸ It is after such formulations that the so-called “ontological turn” came to be declared. However, with regard to the ontomesic, there is a world of difference between its methodological and political variants.

It should be apparent, then, that the methodological principle seeking “new analytical departures” for the benefit of the profession itself is markedly ontographic. That is, it seeks to record what exists beyond the established records of its common-place (in particular, the ways and worlds of others), and then uses those recordings of “alterity” to reassess the ontological constitution of its own world.

By contrast, when Marshall writes of “[r]eclaiming mana as ontology” as an act “crucial for decolonization,”³⁹ her statement addresses not a cluster of colleagues invited to rethink their researcher-selves but, rather, a situated and contradictory meeting of worlds—a meeting in which relations of learning, or appropriation, may occur in any direction. Indeed, her statement recognises that, while an anthropologist may make a career from learning the ways and worlds of other peoples, many of those same peoples will have already learned rather a lot about the anthropologist’s world—this being a necessity of survival.⁴⁰ Marshall’s statement thus engages the conflicted complications of the ontomesic.⁴¹

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If worlds are manifold then something must happen where they meet. To talk of ‘worlds’ and ‘multiple ontologies’ must not be to imply purity and exclusivity. To reiterate: No one inhabits every common-place, though few, if any, will inhabit just one.

The ontomesic, then, simply designates those skills and aptitudes for existing at the intersection, in the interstice, in-between. It is distinct from the ontographic in that its objective is not to populate the common-place with existents (thus troubling its specificity) but, rather, to deal with manifold worldly multiplicity itself (this being its initiatory condition). The ontomesic is possible anywhere there are diverging ontonomic obligations. However, this possibility will be foreclosed by any mode of attention that refuses to admit its own partiality.

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<sup>38</sup> Viveiros de Castro 2003.

<sup>39</sup> Marshall 2012a, 6.

<sup>40</sup> Lugones 2003; Ortega 2016.

<sup>41</sup> Cf. de la Cadena 2015, 278–279; Conway 2017d.

There is nothing necessarily pacific or kind in such skills and aptitudes. As Achille Mbembe puts it:

“the captured subject [...] must develop an extraordinary capacity to become imperceptible and unassignable, to continually shift from one self to its alternate, to inhabit the tiniest of cracks and fissures.”<sup>42</sup>

As well as a matter of coexistence, the ontomesic may be, simply, one of survival. Nevertheless, however it is configured, the mode of existence of the ontomesic requires the realisation that no single common-place can inflate its borders such that its distinctive ontonomic, ontoturgic, and ontodesic commitments can be assumed as sufficient for any existent anywhere. There is no universal tradition. However, nor is the ontomesic a matter of relinquishing or absconding from the commitments inherited from the traditions of one’s own common-places. Nor is it a matter of ‘tolerating’ the ‘beliefs’ of others. Rather, the ontomesic requires an orientation relative to the requirements of a situation—thus, it entails a kind of *political* realism. Its existence entails the possibility that what is ‘trivial’ with regard to any given mode of attention may become relevant to it through the formation of alliance without unity, and hence learning.

To address an entity such as *mana* in accordance with the principles of the “ontological turn,” is to undertake to think “neither about it, nor just with it, but through it.”<sup>43</sup> By contrast, I will say that to address such an entity in ontomesic terms requires the capacity to think—in the words of Gilles Deleuze, as interpreted by Isabelle Stengers—“*par le milieu*.” To think *par le milieu*, Stengers explains, means to think from the middle of a situation “without going to the root or to the final aim of a question,” while at the same time “taking into account the environment that this question requires and creates.”<sup>44</sup> That is, it begins from a situation consisting of divergent parties (the middle) with distinct objectives and requirements (the milieu), and attempts to think through this divide in a manner that could, conceivably, satisfy all those concerned but—and this point is crucial—without resolving their differences into a unity.

“The articulation is always a local one. There is no general opening of the border; instead a contradiction (either/or) has been turned into a contrast (and, and).”<sup>45</sup>

Such an event, Stengers names “diplomatic.”<sup>46</sup>

To not simply recognise but also embrace the ontomesic, in its identified mode of existence, is to accept a commitment to the manifold of worlds, or to “the pluriverse—the partially connected unfolding of worlds,”<sup>47</sup> as it has also been called. Thus, to reiterate, it is not

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<sup>42</sup> Goldberg and Mbembe 2018, 212.

<sup>43</sup> Holbraad 2007, 200.

<sup>44</sup> Stengers 2010b, 160.

<sup>45</sup> Stengers 2005a, 193.

<sup>46</sup> Stengers 2011a, chaps 25–26; Kohn 2015, 321.

<sup>47</sup> Blaser 2013, 552.

so much a descriptive proposition as a speculative and political one—speculating upon the conditions for improbable alliances, both with and against the history that we have received.

Nevertheless, if existing through the ontomesic does not require “relinquishing or absconding from” the ontonomic obligations of the collectives to which one belongs and adheres, it remains to be understood how such obligations can be contested or disclaimed without a rejection of the tradition in general. In bringing this text towards a conclusion, therefore, it will be necessary to return to the question of the ontochronic (§F)—and, in particular, the idea that history is made by making things history.

## 9: “A deep biological joy”: Determination from Darwin to Du Bois

In 1880, the psychologist William James (1842–1910) addressed the Harvard Natural History Society on the subject of *Great Men, Great Thoughts, and the Environment*. He began:

“It is a common platitude that a complete acquaintance with any one thing, however small, would require a knowledge of the entire universe. Not a sparrow falls to the ground<sup>1</sup> but some of the remote conditions of his fall are to be found in the milky way, in our federal constitution, or in the early history of Europe.”

In other words, everything presupposes everything; everything is connected. He adds: “It will soon be seen whose arguments I am, in form, reproducing here.”<sup>2</sup> The pullback-and-reveal, as our cinematic epoch permits us to say, is that James is paraphrasing, or perhaps parodying, Herbert Spencer—the most popular Anglophone philosopher of the age. The rhetorical suspense works because James can assume that everyone in the room will be in on it. That is, in 1880, at Harvard, the Spencerian doctrine is a given.

How “environment” came to its initial popularisation—bearing, with Carlyle, an aura of aesthetic sophistication, and, with Spencer, a sense of holistic scientificity—was shown in the previous chapter. In this, the concluding historical chapter, it will be shown how the concept went from being a quintessentially Carlylean, Comtean, and Spencerian term to being a crucial element of not only evolutionary theory but also the wider biological and sociology sciences, while, moreover, becoming a matter of some public cliché. That is, by around 1900, environment could be an exciting or profound expression, a serviceably functional one, or something rather overused. While environment was not yet “the environment” of the late 1960s, it could already be, in many regions of conceptual communication, a commonplace. As such, although it was always contested, it was no longer necessarily constrained to any particular side of any intellectual or political argument. Nevertheless, older connotations also endured.

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The problem concerning James in his lecture was that of changing social characteristics—of manners, or mœurs, as it would have been said in decades previous. In the philosophy of Spencer, any and all such changes:

“are due to the environment, to the circumstances, the physical geography, the ancestral conditions, the increasing experience of outer relations; to everything, in fact, except the Grants and the Bismarcks, the Joneses and the Smiths.”

¹ Referencing Matthew 10:29, “Are not two sparrows sold for a farthing? and one of them shall not fall on the ground without your Father.”

² James 1992, 618–619.

For James, contrariwise, it was “the accumulated influences of individuals, of their examples, their initiatives, and their decisions” that were truly consequential.³ As such, Spencer’s doctrine was declared “an obsolete anachronism”—indeed, it was “pre-darwinian,”⁴ supposing, as did certain older writers (who remain nameless), that “environment” works “to mould the animal by a kind of direct pressure, very much as a seal presses the wax into harmony with itself.”⁵ Moreover, such a philosophy was even “pre-galilean” in its imposition of “Force” as a homogenous entity.⁶

Against such monistic, monolithic cosmic monotony, James affirmed the reality of “different cycles of operation in nature; different departments, so to speak, relatively independent of one another.” This insight, indeed, constituted the “triumphant originality” of Mr. Charles Darwin:

“Separating the causes of production under the title of ‘tendencies to spontaneous variation,’ and relegating them to a physiological cycle which he forthwith agreed to ignore altogether, he confined his attention to the causes of preservation, and under the names of natural selection and sexual selection studied them exclusively as functions of the cycle of the environment.”

The pre-Darwinian environment was, thus, a conflation of two “cycles” that occur at distinct moments of genesis: that of production (i.e. variation or mutation), and that of selection. Thus arose the fallacy of “direct pressure”:

“The exercise of the forge makes the right arm strong, the palm grows callous to the oar, the mountain air distends the chest, the chased fox grows cunning and the chased bird shy, the arctic cold stimulates the animal combustion, and so forth.”

Further referring to the example of the giraffe, the unnamed Lamarck is clearly implicated.⁷

Just like “the invisible factors of fermentation,” the causes of the “production of great men” reside “in a sphere wholly inaccessible to the social philosopher.” Moreover, such insurgent agencies act upon complex entanglements of other forces. Darwin had famously observed cats to influence the growth of clover in their neighbourhood. Rabbits released in New Zealand soon bred out of control. In just this manner, the great man “acts as a ferment,” and changes the “constitution” of society itself. The environment, then, “chiefly adopts or rejects, preserves or destroys, in short *selects*” the great man. The effects are not unilinear but reciprocal. Without the individual “impulse,” the community stagnates; without community’s “sympathy,”

³ Ibid., 619.

⁴ Ibid., 646.

⁵ Ibid., 622.

⁶ Ibid., 646.

⁷ Ibid., 621–623; cf. Semple 1911.

the impulse perishes. “The mutations of societies” are, then, cognate to those of species.⁸ James imparts this “remarkable parallel” under the authority of Darwin.

However, it was not only Spencer who James thus anachronised. Aligning himself with the tenets of *Physics and Politics* (1872), “that golden little work” by Walter Bagehot (1826–1877),⁹ James cast lament upon a whole swathe of notables on matters socio-natural. Quoting the poem *Locksley Hall* by Alfred Lord Tennyson (1809–1892), he wrote:

“The individual withers, and the world is more and more,¹⁰ to these writers; and in a Buckle, a Draper, and a Taine we all know how much the ‘world’ has come to be almost synonymous with the *climate*.”¹¹

Henry Thomas Buckle (1821–1862), John William Draper (1811–1882), and Hippolyte Taine (1828–1893) were all a generation or so James’ senior. However, he took particular issue with his close contemporary, and associate of Spencer: the popular science writer and novelist Grant Allen (1848–1899). Indeed, much of James’ lecture amounted to a response to Allen’s 1878 essay *Nation-Making: A Theory of National Characters*. Taking this title from Bagehot’s book, though pointedly repudiating his arguments, Allen was adamant:

“To me it seems rather that the differentiating agency must be sought in the great permanent geographical features of land and sea, and that these have necessarily and inevitably moulded the characters and the histories of every nation upon earth.”¹²

Bagehot, by contrast, had relegated “surrounding circumstances” to being “mere fugitive collocations of petty causes,” insignificant compared to the originary act of will that differentiated races at their root.

To be sure, in contrast to “our fussy, conceited, inconsequential old friend Buckle,” who had exempted Europe from geographical determination by “the intervention of certain abstruse metaphysical entities, denominated Moral Laws,” Bagehot had the benefit of writing after Darwin, whose theory of natural selection had, for Allen, provided the “master-key.”¹³ Under such authority, to regard any nation “as an active agent in differentiating itself,” thus disregarding “the surrounding circumstances,” is to exempt man’s mental life from universal causal laws.

“There is no caprice, no spontaneous impulse in human endeavors. Even taste and inclinations must themselves be the result of surrounding causes. [...] In the whole of human history we may see nothing but the perpetual action and reaction of these two

⁸ James 1992, 624–626.

⁹ Editor-in-chief of *The Economist* from 1860.

¹⁰ Written 1835, published 1842.

¹¹ James 1992, 630. Original emphasis.

¹² Allen 1878, 123. This excerpt is quoted and discussed by James.

¹³ *Ibid.*, 124.

primary factors, *the Organism* (including, of course, the nervous system, and therefore the character and intellect), handed down by heredity from previous generations as a relatively-fixed existence, and *the Environment* (including, of course, the surrounding organisms), whose various portions play forever upon the organism, producing minor variations, which in turn are handed down to posterity as part of the hereditary possessions of the race.”¹⁴

For James, such pronouncements forsake “modern scientific determinism” and lapse into “the most ancient oriental fatalism.”¹⁵ The disagreements were, thus, unambiguous. Nevertheless, in another respect, all would appear to be in agreement: Darwin had established the principle by which evolution—human and nonhuman, social and natural alike—was to be explained, and this principle, though it could also be appellated “circumstances,” “conditions,” or “climate,” bore, in particular, the name “environment.”

Darwin, as we shall see, avoided the latter term, and for much the same reasons as James laid claim to it: this expression was closely associated with Lamarckian-Spencerian “direct action.” Such distinctions were wantonly flouted by Allen et al. Moreover, well into the twentieth century, the likes of Pyotr Kropotkin (1842–1921) would continue to insistently associate environment with the “direct” conception.¹⁶ Nevertheless, as with Lamarck and milieu, Darwin and environment became closely associated through the claims of their later followers and appropriators. Such associations secured the success of the concept.

In 1884, Allen’s novel *Philistia* included a chapter titled “The Environment Finally Triumphs.”¹⁷ The next year, his book *Charles Darwin* noted:

“Such expressions as ‘natural selection,’ ‘survival of the fittest,’ ‘struggle for existence,’ ‘adaptation to the environment,’ and all the rest of it, are becoming as household words upon the lips of thousands who only know the name of Darwin as a butt for the petty empty jibes of infinitesimal cheap witlings.”¹⁸

Then, in 1887, he wrote:

“There is a deep biological joy in the term ‘environment’; it almost rivals the well-known consolatory properties of that sweet word ‘Mesopotamia.’ ‘Surroundings,’ perhaps, would equally well express the meaning, but then, as Mr. Wordsworth justly observes, ‘the difference to me.’”¹⁹

¹⁴ Ibid., 126.

¹⁵ James 1992, 639.

¹⁶ Kropotkin 1910; Kropotkin 1912; Kropotkin 1919.

¹⁷ Writing under the pseudonym Cecil Power: “Herbert was right, after all: quite right. Yes, yes, all hope was gone: the environment had finally triumphed.” Allen 1884, 325.

¹⁸ Allen 1885, 200.

¹⁹ Allen 1887, 479. Reprinted in: Allen 1889, 56. Alluding to Wordsworth’s poem *She Dwelt among the Untrodden Ways*, written 1798, first published 1800.

Thus, whatever their contradictions, the combined scientific celebrity of Spencer and Darwin had, by the end of the century, ensured that adopting, defining, and historicising the concept of environment became common practice. However, such propagation was not reducible to these emblems of authority. Rather, environmental conceptions permitted a comprehensiveness of expression that allowed appropriation for diverse purposes.

9.1: From selection to cosmism: Darwinian defenders and appropriators

In December 1831, Darwin joined an expedition that was to sail around South America and through the South Pacific aboard the now-famous *Beagle*, returning in 1836, having amassed vast collections of specimens and descriptions. While aboard, he acquired and read the *Principles of Geology* (1830) of Charles Lyell (1797–1875), among other works.²⁰ Upon his return, he made Lyell’s acquaintance and, in 1842, shared with him his initial ideas as regards species evolution, discussing the matter privately thereafter.²¹ However, being concerned as to how the theological and moral implications would be received, Darwin refrained from publication for a decade and a half.

He was not alone in his caution. The best-selling *Vestiges of the Natural History of Creation*, which combined speculations on stellar evolution with species mutation, and other popular ideas, was published anonymously in 1844. Martineau, among others, had been suspected of writing the accessible atheistic treatise.²² However, the twelfth edition of 1884 eventually revealed the geologist Robert Chambers (1802–1871) to be its author.²³ Its initial publication coming more than a decade before Spencer’s *Psychology*, Chambers’ text spoke of the “adaptation” of living beings “to their respective spheres of existence,”²⁴ “to the physical circumstances amidst which they are destined to live,”²⁵ and “to the external world.”²⁶

In 1856, Lyell read a paper by Alfred Russel Wallace (1823–1913), which articulated similar ideas to those that Darwin had been quietly developing.²⁷ To avoid a priority dispute, in 1858, Lyell and Joseph Dalton Hooker (1817–1911) arranged a co-publication between the two naturalists, read before the Linnaean Society of London.²⁸

²⁰ Lyell 1830, vol. 1.

²¹ A “first pencil sketch” later published as: Darwin 1909.

²² Secord 1994, xli.

²³ Chambers 1844; Secord 1994, xviii; Secord 2003.

²⁴ Chambers 1844, 147.

²⁵ *Ibid.*, 324.

²⁶ *Ibid.*, 325.

²⁷ Wallace 1855.

²⁸ Darwin and Wallace 1858.

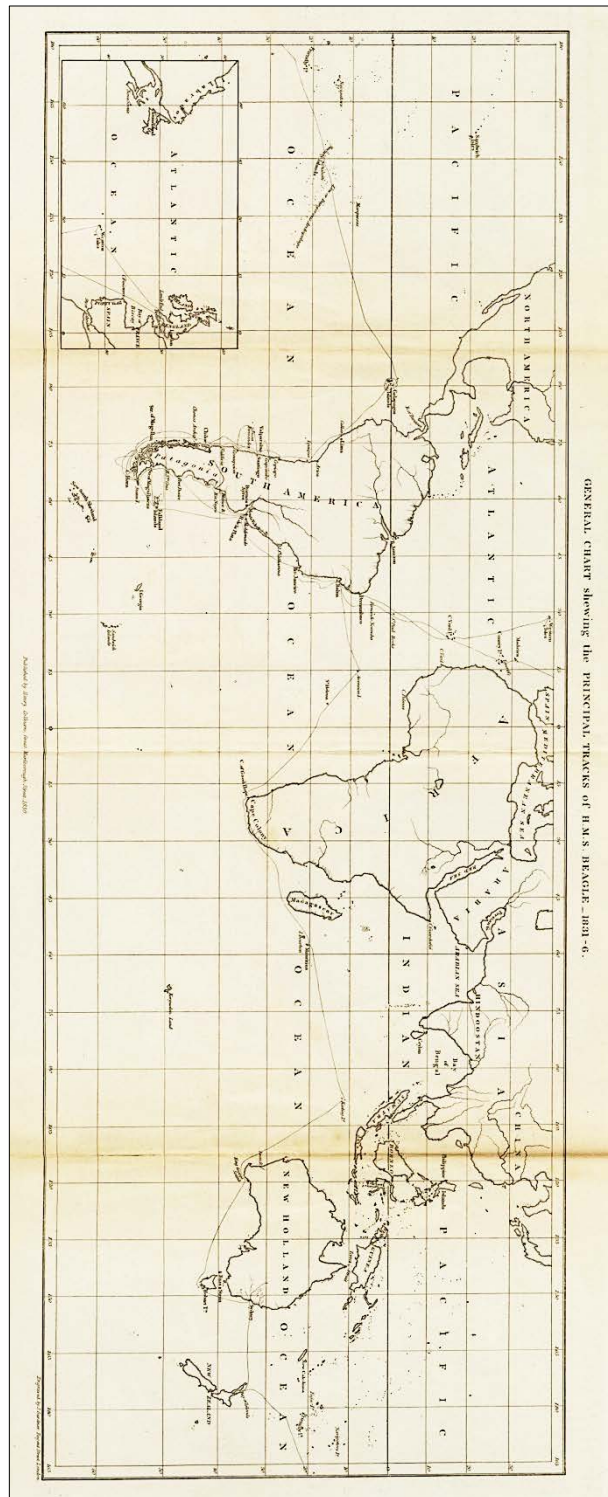


Figure 22—Route taken by HMS *Beagle*, 1831-1836

Drawing from a manuscript first written in 1839, Darwin began by referencing the Swiss botanist Augustin Pyramus de Candolle (1778–1841), to the effect that “all nature is at war, one organism with another, or with external nature.”²⁹ This war, Darwin added, though not “constant” but rather “recurrent in a slight degree at short periods,” is nevertheless exhibitiv

²⁹ Ibid., 46; Candolle 1820, 26.

of “the doctrine of Malthus applied in most cases with tenfold force.”³⁰ Moreover, besides “this natural means of selection”—a means principally concerning relations of predation and alimentation—by which beings become “best adapted to the place they fill in nature,” Darwin noted a “second agency” performing a similar role, particularly that of “the struggle of the males for the females”—that is, what he would subsequently name “Sexual Selection.”³¹

Then, reproducing a letter he had written the year before, Darwin elaborated further upon the “intentional and occasional selection” undertaken by man, which had produced domesticated species. “Selection” (in general), he continued, “acts only by the accumulation of slight or greater variations, caused by external conditions,” or due to generational differentiation. Were there a being who “who could study the whole internal organisation” of things, selecting repeatedly over “millions of generations”—“who will say what he might not effect?” It was, Darwin asserted, “changed conditions of existence” that were the main cause of inter-generational differentiation. Geology had revealed the “almost unlimited time” available to such a process. Such would be explained in his book titled “*Natural Selection.*” This “struggle for life,” he now believed “to be far more important to the life of each being than mere climate.”³²

Wallace’s essay against “the original and permanent distinctness of species” also began by noting: “The life of wild animals is a struggle for existence.” The procurement of food and evasion of “the attacks of their most dangerous enemies” are, he added, “the primary conditions” determinative of both individual and species existence.³³ While the difficulty of the task was considerable, were it possible to establish the capacity of each being for preserving its existence “under all the varying circumstances by which it is surrounded,” then, Wallace argued, it might be possible to calculate the outcome.³⁴

Notably, in conclusion, Wallace also sought to repudiate “[t]he hypothesis of Lamarck” that changes in species were the result of “attempts of animals to increase the development of their own organs”—a principle “repeatedly and easily refuted” by all writers on the subject.³⁵ Moreover, this “acting cause,” productive of the observed “balance” in nature, Wallace remarked to be “exactly like that of the centrifugal governor of the steam engine,” which “corrects” irregularities in its functioning. In like terms, the struggle productive of selection effects a balance, ensuring that changes are gradual rather than catastrophic—a thesis befitting Lyell’s uniformitarian geology.

³⁰ Darwin and Wallace 1858, 46–47.

³¹ *Ibid.*, 50; Darwin 1859, 88.

³² Darwin and Wallace 1858, 50–52.

³³ *Ibid.*, 54.

³⁴ *Ibid.*, 57.

³⁵ *Ibid.*, 61.

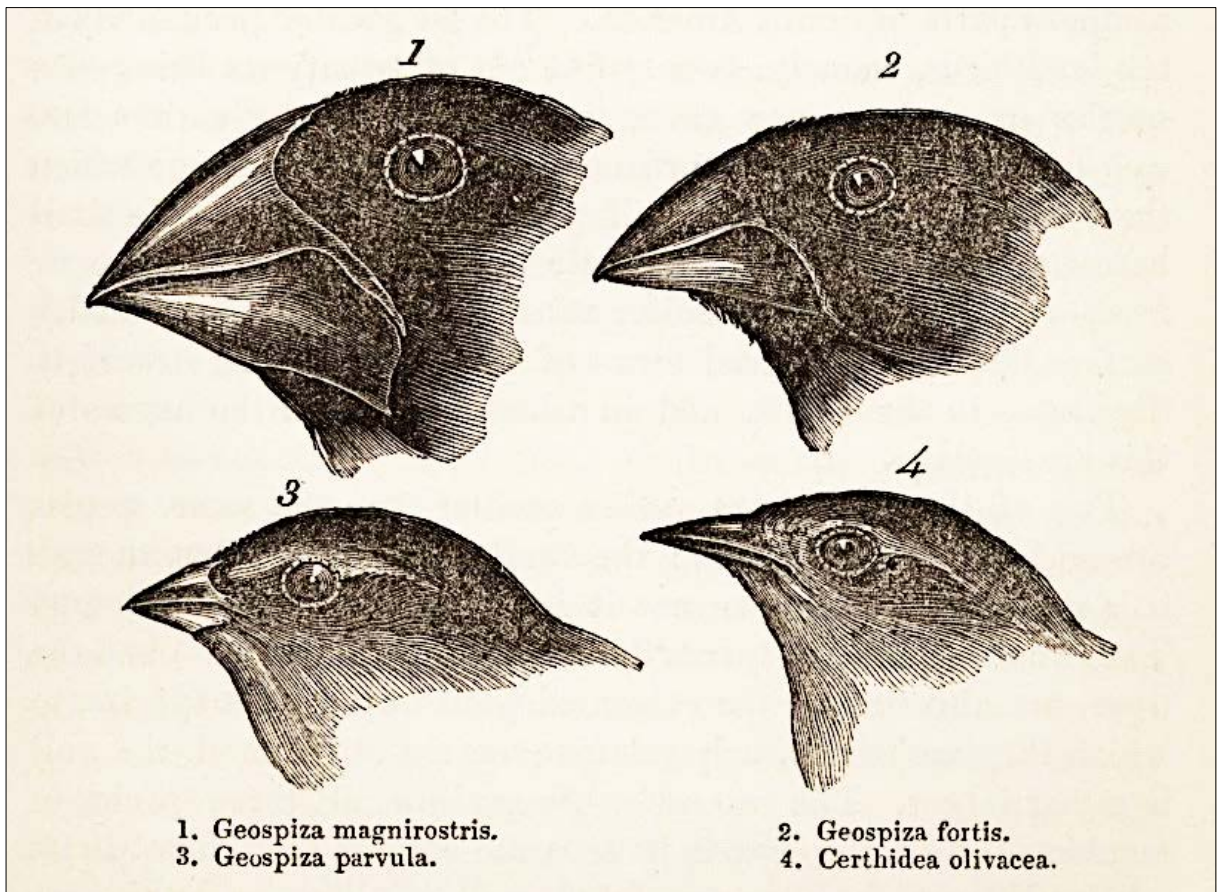


Figure 23—Galapagos finches; sketched by John Gould (1804–1881), 1845

This joint presentation of 1858 went largely unremarked. However, in 1859, to considerably greater fanfare, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life* was published, rapidly selling its initial print runs. In the book’s introduction, between telling of his days on the *Beagle*, and begging to differ with the “author of the ‘Vestiges of Creation,’” Darwin wrote:

“Naturalists continually refer to external conditions, such as climate, food, &c., as the only possible cause of variation. In one very limited sense, as we shall hereafter see, this may be true; but it is preposterous to attribute to mere external conditions, the structure, for instance, of the woodpecker, with its feet, tail, beak, and tongue, so admirably adapted to catch insects under the bark of trees. In the case of the misseltoe, which draws its nourishment from certain trees, which has seeds that must be transported by certain birds, and which has flowers with separate sexes absolutely requiring the agency of certain insects to bring pollen from one flower to the other, it is equally preposterous to account for the structure of this parasite, with its relations to several distinct organic beings, by the effects of external conditions, or of habit, or of the volition of the plant itself.”

Thus, from the very beginning, it was the tangled relations of various species, not merely a generic externality, that was at issue in realising natural selection. Accordingly, being only four years after Spencer’s *Psychology*, one year after Carlyle’s *Friedrich II*, and given that Darwin, like Wallace, sought to differentiate his arguments from the Lamarckian mode of evolution, it is

surely not surprising that environment did not enter into his vocabulary, which remained similar to that of *Vestiges*—“circumstances,” “conditions of life,” and “external world.”

However, as mentioned in §4, Darwin referenced Lamarck only in passing, with Geoffroy Saint-Hilaire, senior and junior, given rather more credit. Meanwhile, at the end of Chapter VI, “Difficulties on Theory,” Darwin wrote:

“It is generally acknowledged that all organic beings have been formed on two great laws—Unity of Type, and the Conditions of Existence. By unity of type is meant that fundamental agreement in structure, which we see in organic beings of the same class, and which is quite independent of their habits of life. On my theory, unity of type is explained by unity of descent. The expression of conditions of existence, so often insisted on by the illustrious Cuvier, is fully embraced by the principle of natural selection.”

Thus, when requiring a specific theoretical expression to counterpoise the structural internality of descent, it was Cuvier’s concept that was preferred, with “the law of the Conditions of Existence” being, in fact, “the higher law” given that “it includes, through the inheritance of former adaptations, that of Unity of Type.”³⁶ The dermic distinctiveness of the organism—and hence the Spencerian environment—was quite beside the point. Darwin’s existential reference points were configured altogether differently.

Famously, both Darwin and Wallace had formulated their crucial convictions concerning natural selection after reading the works of Malthus on the pressures of population—Darwin in 1838, Wallace in 1844.³⁷ As per Spencer, theories of evolution under conditions of existential competition were hardly unheard of. Extinction, still a point of dispute for Cuvier and Lamarck, had become a fact of life. However, though Wallace invoked the paradigmatic steam engine to account for the regulatory effect of struggle upon population, this in no way entailed what, in *Biology* (1864), Spencer “sought to express in mechanical terms.”³⁸ While Spencer conceived such forces as externalities imposing upon an organismic internality that made the organism’s own boundaries the most meaningful line of differentiation for the entire evolutionary process, the distinguishing feature of Darwin and Wallace’s theory was the identification of a distinct mechanism that differentiated selection from direct causal “pressure.” That is, neither the heritability of effects upon a living being during its lifetime nor a unified environment were necessary to the theory—nor, evidently, to its popularisation (at least not initially).

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<sup>36</sup> Darwin 1859, 206.

<sup>37</sup> Young 1969; Bowler 1976; Moore 1997.

<sup>38</sup> Spencer 1864, vol. 1, 444–446.

On the occasion of Alexander von Humboldt's death, also in 1859, Martineau wrote a biographical essay in which she commented that while his elder brother "William" (i.e. Wilhelm) had been a philosopher of Literature and Art, Alexander "devoted himself, not to the study of the human mind or its productions, but to the medium or environment in which it lives."<sup>39</sup> Thus, the equivalence of these terms remained notable. In a Commons debate in 1861, Henry John Temple (1784–1865), 3rd Viscount Palmerston, lamented the "treachery" of Chinese forces who had "contemplated the environment of the advanced guard of the army and the taking our Ambassadors prisoners."<sup>40</sup> This, the first recorded mention of "environment" in Parliamentary discourse, thus implied the Shakespearean "environ" rather than anything following Carlyle. When, in 1864, the diplomat, philologist, and conservationist George Perkins Marsh (1801–1882) published *Man and Nature*, he made no mention of environment, nor would conservationists until well into the twentieth century.

In 1866, in a review of Spencer's *First Principles* (1860) titled *Positivism in Theology*, the theologian Francis Ellingwood Abbot (1836–1903) wrote, in a state of palpable discontent:

"To be consistent, Empiricism must utterly sink the soul in its material surroundings. The profoundest question of philosophy turns on the relation of Thought to Being, Mind to Matter, Subject to Object, or (in empiricistic phrase) Organism to Environment."<sup>41</sup>

If the "Organism" is made "purely the product of the Environment" then the result is "Empiricism, Sensationalism, Materialism" in the style of Destutt-Tracy's "motto": "*Penser c'est sentir* [to think is to feel]." Reverse the terms and the result is "Transcendentalism, Egoism, Idealism" after the style of Berkeley. Presume an "underlying and active Unity," then results "Identity or Pantheism" à la Spinoza. If the pair are placed in "ordination and correlation" then we have "Dualism, Natural Realism, Positivism," typified by William Hamilton. Spencer, Abbot judges, though choosing Empiricism, "shrinks from" following through "its necessary implications," failing to face the fact that the mind must be entirely dissolved into the organism, the notion of a "soul" as "completely exploded as the theory of 'phlogiston."<sup>42</sup> Thus, much like Carlyle's disdain for Locke's cognitive carpentry, environment was, for Abbot, associated with empiricism, and hence materialism, although its terms could be used to restate other modes of thought.

It was not until 1867, in an essay on *Mimicry, and Other Protective Resemblances Among Animals*, published in the *Westminster Review*, that Wallace wrote of "the adaptation of animals to

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<sup>39</sup> Martineau 1869, 278.

<sup>40</sup> Hansard 1861.

<sup>41</sup> Abbot 1866, 249.

<sup>42</sup> *Ibid.*, 249–250.



their environment,”<sup>43</sup> with particular regard to insects, adopting this expression for the first time in his published works. In the same year, in a review of *The Reign of Law* by the George Campbell (1823–1900), 8th Duke of Argyll, Wallace argued against the Duke’s advocacy of a perpetually interventive Deity, identifying six “laws or facts” that prove the truth of “Mr. Darwin’s work,” the sixth of which being:

“*The Equilibrium of Nature*.—When a species is well adapted to the conditions which environ it,—it flourishes; when imperfectly adapted it decays; when ill-adapted it becomes extinct. If *all* the conditions which determine an organism’s well-being are taken into consideration, this statement can hardly be disputed.”

Such principles were, in all probability, “mere statements of what is the condition of nature,” common to “organized and unorganized matter” alike. “Mr. Herbert Spencer,” Wallace added, in his *First Principles* and *Biology*, “made us able to understand how this may be.” However, the important question was whether these laws alone could account for “the variety, the harmony, the contrivance, and the beauty we perceive in organic beings” without “the incessant interference and direct action” of the Creator.<sup>44</sup> Later in the essay, Wallace added that “no organism can continue to exist that is not adjusted to its environment,” though given the vastly varied “surface” and “climate” of the world, “the greatest possible variety of organisms have been produced adapted to the varied conditions of every part of the earth.”<sup>45</sup> Thus, although he did not connect the term environment to Spencer’s philosophy, or to the stipulation concerning “*all* the conditions,” these statements appeared in the course of defending the general principles of natural selection in more broadly philosophical terms—a task for which Spencer was evidently creditable.

In 1872, an anonymous reviewer of Hippolyte Taine’s *Art in Greece* (1871) remarked that the English translator<sup>46</sup> had wisely left unaltered “[t]he author’s favorite phrase ‘le milieu,’” which has “no precise English equivalent,” though it does, “in this sense, very nearly correspond with the Cosmist’s term ‘environment.’”<sup>47</sup> In his *Secularism the practical philosophy of the people* of 1854, George Jacob Holyoake (1817–1906), the British co-operator and newspaper editor who had coined term “secularism” in 1851,<sup>48</sup> explained:

“*Cosmism* is the Positive Side of *Atheism*. Bio-Cosmism (the doctrine of Life in the Universe) takes its stand by the side of Pantheism.”<sup>49</sup>

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<sup>43</sup> Reprinted in: Wallace 1871, 56.

<sup>44</sup> Reprinted in: *Ibid.*, 266–267.

<sup>45</sup> *Ibid.*, 279.

<sup>46</sup> John Durand, translator and promoter of many of Taine’s works.

<sup>47</sup> Anonymous 1872, 133; Taine 1871.

<sup>48</sup> And would do the same for “jingoism” in 1878.

<sup>49</sup> Holyoake 1854, 8.

Thus, a Cosmist was someone committed, after the style of *Vestiges*, to pantheistic-atheistic cosmic evolution as a political, scientific, and quasi-spiritual principle. Environment made no appearance in Holyoake's texts. However, in his essay *The Progress from Brute to Man* of 1873, John Fiske (1842–1901) examined, in part, the “growing correspondence between the human mind and its environment,” also describing “the development of the noblest human attributes” as being the “last term” in the vast “cosmic evolution.”<sup>50</sup> This text did not mention “Cosmism”; however, it was incorporated into Fiske's 1874 *Outlines of Cosmic Philosophy*, which included a chapter on “Cosmism and Positivism,”<sup>51</sup> decrying the trend for associating the latter with every philosophy that rejects “all ontological speculation,” and articulating only the former as offering a true development onwards from “Anthropomorphism.”<sup>52</sup> Drawn particularly from Spencer, *Outlines* also utilised environment, particularly as that which faces the mind.

As seen in §5, in the second volume of her *Present Religion*, collected together in 1873,<sup>53</sup> Sara Sophia Hennell (1812–1899), sometime associate of the London Positivists, attempted to textually portray—“to paint air,” as she put it—the beginnings of a Religion of evolutionary “Developmentalism”<sup>54</sup>; a Religion inspired, methodologically if not substantively, by Spencer, and *Vestiges*.<sup>55</sup> It was a radically individualistic Christianity based upon (a) the recognition of the necessity of religion to mental life, and (b) the conviction that Christianity was, in this regard, the highest and most developed of all world religions. As such, Hennell criticised Positivism for having “no sense of atmosphere”—for failing to be constructed in a properly religious mode. Moreover, she took particular exception to Comte's “invented word of *Altruism*,” taken to be “that which destroys Egoism”<sup>56</sup>—this latter term being, for Hennell, the utmost virtue.<sup>57</sup> Indeed, “the ‘Love of Otherhood,’” as the Comtists had promoted it, was “no whit less dangerous an intrusion amongst our moral ideals, as dispersive of all genuine images, than was the very injunction to ‘Other worldliness’ itself.”<sup>58</sup> Like Spencer, Hennell thus promoted an ascendental narrative of “a progressive Individuality, and a deepening Personality, ever coming to the proper beings who are the constitutors of Society.”<sup>59</sup>

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<sup>50</sup> Fiske 1873, 261, 285.

<sup>51</sup> Fiske 1874, vol. 1, chap. 10.

<sup>52</sup> Fiske 1874, vol. 1, 255, 182.

<sup>53</sup> Hennell 1873, vol. 2. N.B. collected in this second volume in 1873 but consisted of texts published in four parts from 1869.

<sup>54</sup> *Ibid.*, vol. 2, 29, 42, 51.

<sup>55</sup> *Ibid.*, vol. 2, 349–350. Preferring Spencer but also looking to Comte, see *Ibid.*, vol. 2, 71–73.

<sup>56</sup> Hennell 1873, vol. 2, 62.

<sup>57</sup> She acknowledged that this term “Egoism” could also had a bad side, but she even defended the stronger term “Selfism” against its rejection as being an “original sin” *Ibid.*, vol. 2, 13.

<sup>58</sup> *Ibid.*, vol. 2, 65.

<sup>59</sup> *Ibid.*, vol. 2, 599.

In another work of 1860, Hennell had approvingly quoted Spencer's definition of life of 1855, adding:

“Wherever an internal correspondence with surrounding conditions is established for continuance,—that is, organized,—there is Life.”<sup>60</sup>

In *Present Religion*, she wrote that while Spencer “gave me nothing of a religion in itself,” he did provide “the means of working out one.” Specifically, he afforded the working principle of examining “the nature of ‘externally-received impression,’” which Hennell believed essential to “religious sustenance.”<sup>61</sup> Thus oriented and equipped, one could discern, throughout human history, a single, continuous “striving” to gain “Thought-reconciliation” with mortality, all the way “from the crudest kinds of fetishism of barbarians, up to dogmas of St. Paul, and thence onwards.”<sup>62</sup> This progressive religious experience was itself explained through sufficient numbers of persons “receiving kindred impressions,” imparting “a world-effect” with “a correspondent character.”<sup>63</sup> The task consequent from these premises was, thus, to trace this ascensional sequence of subjective experiences—cautiously setting aside, for the duration, what Hennell was sure to attest were the objective and true facts of both science and divinity<sup>64</sup>—from the “glimmering indications of Religion’s dawn” to the upper realms of the Christian present.<sup>65</sup>

Among the most recurrent and crucial of such subjective impressions or “thought-images”<sup>66</sup> from early times was, Hennell identified, “star-imagery,” “the star-symbol,” and “star-like intuitions.”<sup>67</sup> Such impressions took various forms in “the barbaric struggle of thought” among early peoples. For the Greeks, for example, it was articulated in personalised, mythological terms. Of particular importance was “Ouranos”: that “one phantom-sun” that can be taken as the “true ancestor in-line of our at-present named Ideal of Space.” That is, it was the Greek god of the sky—as seen in §6, the root of many later translations of “climate”—that had, in that time, constituted the necessary “Death antagonist”; a counterpart to Hades, embodying and expressing Nature’s power to maintain Life: “thence naturally the broad firmament, holding man as well as earth in its all-embracing bosom.” As such, from “the thought of Ouranos as the Life-domain,” through “every degree” of the awakening of “scientific intelligence” for such people, there:

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<sup>60</sup> Hennell 1860, 143.

<sup>61</sup> Hennell 1873, vol. 2, 71–72. In 1874, Hennell took rather stronger issue with Spencer’s views on women, after the publication of his *Principles of Sociology*. Hennell 1874.

<sup>62</sup> Hennell 1873, vol. 2, 284.

<sup>63</sup> *Ibid.*, vol. 2, 72.

<sup>64</sup> This being “exclusively a subjective view.” *Ibid.*, vol. 2, 277, 279.

<sup>65</sup> *Ibid.*, vol. 2, 600.

<sup>66</sup> *Ibid.*, vol. 2, 286.

<sup>67</sup> *Ibid.*, vol. 2, 267, 281.

“must at once have been a diffusing of the idea of Environment represented by Ouranos; and a tending of this straightway towards the modern-felt conception of the Cosmos,—which again is the metaphysically-turned expression of what in full Metaphysics comes out perfectly as the abstraction of Space.”<sup>68</sup>

Thus, against but in symmetry with Comte, and against but alongside the atheistic, Spencerian Cosmists, Hennell identified skyey Ouranos as the mythologic precursor of the then-modern cosmos being availed to both scientific and religious understanding.

However, the firmamental “Environment” was not the only environment in Hennell’s text. The effect “of crude physical ‘Nature,’ or material environment,” she wrote, was what “all national constitutions of early times had to go through the ordeal of making terms with.” However, not every nation fared equally. While “due mastery over Nature” was indeed “the human birthright to possess,” there was a “special class of human beings” that had proved “the teleologically-‘elect’ of such”—that is, “our own stock.” By contrast, the “Hindoo people,” who could be taken as representative of “all others than our own combined race-stock,” had been shown “by the vague testimony of general History” to have lost out to “Nature herself,” who had “gained the balance” over them.<sup>69</sup> Thus, while Carlyle’s Environment had been a glittering adornment of great men, with climate the facile destitution of freed slaves, Hennell’s environment could perform both roles.

In 1875, in the second, revised edition of *The Variation of Animals and Plants Under Domestication*, Darwin used the term “environment” for the first time in his published writings:

“If it profited a plant to inhabit a humid instead of an arid station, a fitting change in its constitution might possibly result from the direct action of the environment, though we have no grounds for believing that variations of the right kind would occur more frequently with plants inhabiting a station a little more humid than usual, than with other plants.”<sup>70</sup>

By “direct action,” Darwin implied the Lamarckian-Spencerian doctrine. Thus, he now admitted the theoretical possibility of acquired characters being inherited, though the empirical question was regarded sceptically. However, the next year, in a letter to the geographer Moritz Wagner (1813–1887), whose work particularly concerned species distribution, and speciation by isolation, Darwin conceded:

“In my opinion the greatest error which I have committed, has been not allowing sufficient weight to the direct action of the environment, i.e. food, climate, &c., independently of natural selection.”

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<sup>68</sup> Ibid., vol. 2, 287–289.

<sup>69</sup> Ibid., vol. 2, 593–594.

<sup>70</sup> Darwin 1875, 281.

At the time of writing *Origin*, he added, he “could find little good evidence of the direct action of the environment” but, these years later, there was “a large body of evidence,” with Wagner’s own study of the *Saturnia* moth counting among “the most remarkable.”<sup>71</sup>

Thus, in matters naturalistic, philosophical, theological, and anthropological, by the mid-1870s, environment had been accorded a significant conceptual role due to its invocation of both an aesthetic and a causal unity of exterior physical forces. It remained a specialised expression, though in wide, conventional, and increasing usage within relevant areas of speciality. Matters of conceptual definition and disputation were generally related to Spencerian philosophy, which provided the association with which the legitimacy of the concept was established. However, over the next two decades, this would come to change.

## 9.2: From specialism to commonplace: A ground of spatial relation

In 1879, the evolutionary biologist George John Romanes (1848–1894), on the subject of the many influences upon species evolution, declared:

“But, lastly, and most important of all, it is a huge blunder to imagine that an ‘environment’ consists merely in the physical conditions as to medium, climate, etc., to which an organism is exposed.”

“Of far more importance,” he added, was “the innumerable complex relations of the organism to its neighboring organisms,” of its own species or otherwise, as well as hereditary endowments from “a long line of ancestors occupying other and changing environments,” to which all such ancestors necessarily became “structurally adapted.”

The word ‘environment’ is a term of the most comprehensive kind, embodying, in every case that it is used, an assemblage of conditions presenting an amount of complexity that is not only inconceivable but wholly unnamable.”

Romanes was responding to a triple review of works by A.R. Wallace, Ernst Haeckel (1834–1819), and Armand de Quatrefages (1810–1892), published in a recent edition of *The Edinburgh Review*. The anonymous—and, for Romanes, inept—reviewer was quoted as claiming that “[i]f the environment be taken to be the cause of the specific characters of the animals, similar environments ought to be productive of similar species”—a circumstance noted to not be the case. This “idea of what constitutes an ‘environment,’” Romanes exclaimed, “is about as adequate as the idea of space that a baby shows when it tries to grasp the moon.”<sup>72</sup>

While, famously, it was Thomas Henry Huxley (1825–1895) who had declared himself “Darwin’s bulldog,” Romanes was another of Darwin’s younger associates who pursued detractors about the public sphere, here utilising the comprehensiveness of environment to assuage a stock objection to natural selection deriving from a simplified understanding of the

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<sup>71</sup> Darwin 1893, vol. 2, 338.

<sup>72</sup> Romanes 1879, 501–502.

“direct” Spencerian environment that made the inner a mere impression of the outer, regardless of the intransigences of morphological structure, and inheritance.

In 1880, James gave his aforementioned address on *Great Men, Great Thoughts, and the Environment*. From the early 1880s, attempts to define, specify, and contest this concept become far more common—and not only in biological or sociological terms. In 1883 alone, for example:

The Scottish biologist and evangelist Henry Drummond (1851–1897) wrote that in “the more accurate terminology of Science” (as opposed to lay language), “the action of external circumstances and surroundings”—the second principal factor in the generation of life (the other being Heredity)—was collected by the naturalist “under the single term Environment.”<sup>73</sup>

The Plymouth dental surgeon F.H. Balkwill (1837–1921), in a lecture titled “*Habitation*” or *Environment: A Chapter in the Theory of Evolution*, criticised “*environment*” for its “haziness and inflexibility,” which “reduces us to the region of abstract ideas at once,” preferring instead “the word *habitation*,” with its implication of the “*habits*” that form the organs and characters of animals. Spencer himself, Balkwill claimed, had expressed some reservations with this term in his *Biology*.<sup>74</sup>

The clergyman Theodore Thornton Munger (1830–1910), in a chapter of his book *The Freedom of Faith* on “Moral Environment,” complained that, while in matters of education, health, social habits, and so on, “there is a disposition to make much of environment,” matters of “[f]aith and spiritual condition” are considered “so wholly interior” as to be excluded from the conversation altogether.

“Strange inconsistency of an age that imagines itself logical! It has taught us the great word and truth of environment; we ask it to be consistent in its application of it.

This word environment has become a sort of keyword in modern thought. It would not have so fastened itself on common speech were there not a fresh and intense sense of some truth for which it stands.”

“It is,” Munger added, “an old word, as old as the language”; however, “the fact or force that it represents” had become “far more plainly recognized” in the current age. However, there is, he insisted, a “double environment”—moral as well as physical—that is necessary to life.<sup>75</sup> A healthful spiritual life, no less than a bodily one, presupposes such rigours and maintenances.

Still in 1883, Lester Frank Ward (1841–1913)—the botanist, palaeontologist, first president of the American Sociological Association, and foremost promoter of this still-novel

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<sup>73</sup> Drummond 1883, 255.

<sup>74</sup> Balkwill 1883, 210–211. Referring to where Spencer had said: “Though, literally, the environment means all surrounding space with the coexistences and sequences contained in it; yet, practically, it often means but a small part of this.” Spencer 1864, vol. 1, 85.

<sup>75</sup> Munger [1883] 1884, 201, 205.

science in the United States—wrote in the second chapter of the first volume of his *Dynamic Sociology*,<sup>76</sup> regarding “the mutual influence of the organism and its medium (*milieu*)”:

“There is no distinction whatever between the notion conveyed by this term *milieu* and that of ‘environment’ employed by Herbert Spencer. The latter may be regarded as a simple translation of the former.”

The “doctrine of the reciprocal influence of organism and environment” had, therefore, not originated with this author but, rather, with Comte. Indeed, this “word *milieu*, so constantly employed by Comte,” could be traced back to Lamarck. However, Ward notes, Comte can have been “only imperfectly acquainted” with Lamarck’s works “since he imagines the term to be new in this sense,” and even offers “an apology for the neologism.”

“Upon a careful comparison I am unable to perceive any distinction between the application he makes of the term and that made by Lamarck, while, as already stated, Herbert Spencer’s ‘environment’ can only be regarded as a simple translation of this word into expressive English.”<sup>77</sup>

From Lamarck to Comte; Comte, and Carlyle, to Martineau; Martineau to Spencer, and so on—by this time, still some years before Eugénie Dutoit would construct the first monograph on the subject,<sup>78</sup> the aetherial-elemental milieu could apparently be forgotten, overlaid by the positive milieu.

Whether attributed to Comte or Spencer, by 1883, “environment” frequently remained ‘stamped’ by some proper name or another. However, this was decreasingly the case, as the concept became ever more quotidian.

In 1886, the jurist, historian, and liberal MP James Bryce (1838–1922), in an address to the Royal Geographical Society on *Geography and its Relations to History*, divided “environment-influences” into three classes:

“1. The configuration of the earth’s surface; i.e. the distribution of land and sea, the arrangement of mountain chains, tablelands, and valleys, the existence of rivers and the basins which they drain. 2. Meteorological influences, i.e. climate, including heat and drought and winds. 3. The products which a country offers to human industry—mineral, vegetable, and animal.”<sup>79</sup>

The next year, before the same institution, the twenty-six-year-old Halford Mackinder (1861–1947)—subsequently known as a founder of English “geopolitics,” and Unionist MP from 1910–1922—in an address titled *On the Scope and Methods of Geography*, declared that “[t]he

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<sup>76</sup> Full title: *Dynamic Sociology, Or Applied Social Science: As Based Upon Statical Sociology and the Less Complex Sciences*.

<sup>77</sup> Ward 1883, vol. 1, 118.

<sup>78</sup> Dutoit 1899.

<sup>79</sup> Bryce 1886, 195.

function of political geography is to trace the interaction between man and his environment.”<sup>80</sup> This latter “technical” term was adopted, Mackinder acknowledged, “because Mr. Bryce has made that term a received one in geography.”<sup>81</sup>

Also in 1887, the Liberal MP, and then-former Liberal Prime Minister, William Gladstone (1809–1898) remarked, on the subject of criminal reform in Ireland, that:

“trial by jury means trial by our Peers—trial by those who are as nearly as possible in the same circumstances—according to the favourite language of modern science, in the same environment [...]”<sup>82</sup>

By this time, the use of the word in such fora was still infrequent; however, it was becoming more common year-on-year, and self-evidently carried a weight of scientific sagacity. However, it was not only at the epicentres of colonial power that this concept, and others like it, were adopted.

The next year, the Liberian intellectual, journalist, and politician Edward Wilmot Blyden (1832–1912) wrote in his *Christianity, Islam and the Negro Race*:

“No one will undertake to dispute at this day that the moral and intellectual character of a people is very largely dependent upon their physical environments. No great man, physically or mentally, has ever been developed in the inhospitable regions of Greenland or Tierra del Fuego.”

Indeed, the authority of “Mr. Buckle” informs us of the developmentally intransigent regions of Brazil, where “impassable forests” and “innumerable insects” preclude “the progress of agriculture”—never mind the mountains, “too high to scale”; the rivers, “too wide to bridge.” Buckle (1821–1862), incidentally, did not use the word “environment,” though he wrote widely of “climate,” the “unhealthiness” of which Blyden, too, designates as “[t]he first and most generally admitted cause” as regards restrictions on development.<sup>83</sup>

Born in the West Indies to Free Black parents, Blyden emigrated to Liberia in 1850. His professed Pan-Africanist doctrine of Ethiopianism, modelled on Zionism, was that Black Americans could return to Africa imbued with an ethos of redemption. Initially understood in Christian terms, Blyden later considered Islam a more fitting African religion.<sup>84</sup> However, in either case, as missionaries, they would face the same problems White colonists faced: the difficulty of surviving the notoriously deleterious climates of the interior. Thus, Blyden’s adoption of such scientific concepts entailed an attempt to reconcile this mission with

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<sup>80</sup> Mackinder 1887, 142.

<sup>81</sup> *Ibid.*, 162.

<sup>82</sup> Hansard 1887.

<sup>83</sup> Blyden [1888] 1994, 62.

<sup>84</sup> Lynch 1970; Tibebu 2012.



sociological and biological practicalities, using the concepts of European colonialism against European colonialism.

In 1889, the aforementioned Grant Allen wrote of the “deep biological joy in the term ‘environment,’” so nearly rivalling “that sweet word ‘Mesopotamia.’”<sup>85</sup> In 1891, in an address issued as President of the Biological Society of Washington titled *Neo-Darwinism and Neo-Lamarckism*, Ward had come to recognise differences between Lamarck, Comte, and Spencer’s conceptual vocabularies. The latter had indeed introduced “clear and precise terminology,” which Lamarck had “floundered about in straining after”:

“As I have shown he [Lamarck] generally used the word *circumstances* for Spencer’s *environment*, but in many cases he employed the word *medium* (*milieu*) and he occasionally approached the Spencerian expression so nearly as to speak of the *environing medium* (*milieu environnant*).”

However, Lamarck’s “idea,” Ward continued, “was undoubtedly the same,” its author only lacking “the literary training and the philosophic power” to properly articulate it.<sup>86</sup>

In 1892, the biologist August Weismann (1834–1914) published *Das Keimplasma: eine Theorie der Vererbung*.<sup>87</sup> Weismann’s titular “Germ-Plasm” gave a microbiological basis to the rejection of what was now known as Neo-Lamarckism, writing in the chapter “Supposed Transmission of Acquired Characters”:

“At the present day I can therefore state my conviction still more decidedly than formerly, that *all permanent—i.e., hereditary* [vererbaren]—*variations of the body proceed from primary modifications of the primary constituents of the germ* [Keimesanlagen]; and that neither injuries, functional hypertrophy and atrophy, structural variations due to the effect of temperature or nutrition, nor any other influence of environment [*Mediums-Einflüsse*] on the body, can be communicated to the germ-cells, and so become transmissible.”<sup>88</sup>

Thus, where Spencer had made the membrane of the organism the relevant point of contradistinction as regards its environment, the *Keimplasma* provided a point compatible with, indeed profoundly reinforcing, the Darwinian conception. It was not until 1900 that the experiments performed by Gregor Mendel (1822–1884) in the 1860s were ‘rediscovered’ (in three separate papers published in the same year), leading to the science of genetics. However, neither the germ-plasm nor gene provided a decisive refutation of Neo-Lamarckism, which prospered well into the new century.<sup>89</sup>

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<sup>85</sup> Allen 1887, 479. Reprinted in: Allen 1889, 56. Alluding to Wordsworth’s poem *She Dwelt among the Untrodden Ways*, written 1798, first published 1800.

<sup>86</sup> Ward 1891, 54.

<sup>87</sup> *The Germ-Plasm: a Theory of Heredity*. Weismann 1892; English translation: Weismann 1893.

<sup>88</sup> Weismann 1893, 395; Weismann 1892, 518.

<sup>89</sup> Kropotkin 1919.

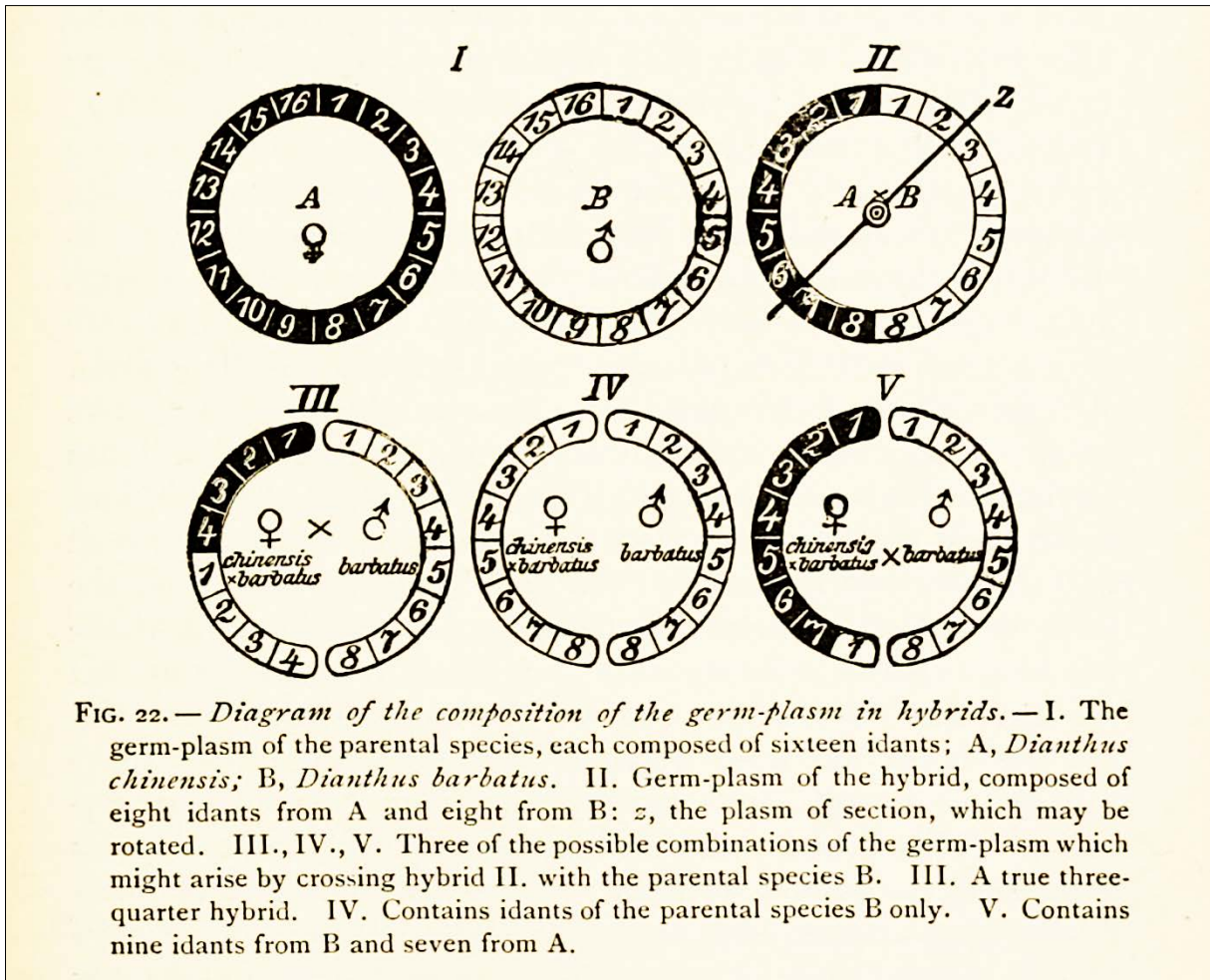


FIG. 22. — Diagram of the composition of the germ-plasm in hybrids. — I. The germ-plasm of the parental species, each composed of sixteen idants; A, *Dianthus chinensis*; B, *Dianthus barbatus*. II. Germ-plasm of the hybrid, composed of eight idants from A and eight from B: z, the plasm of section, which may be rotated. III., IV., V. Three of the possible combinations of the germ-plasm which might arise by crossing hybrid II. with the parental species B. III. A true three-quarter hybrid. IV. Contains idants of the parental species B only. V. Contains nine idants from B and seven from A.

Figure 24—Composition of the germ-plasm in hybrids, Weismann, 1893

Through the 1890s, definitions and disputations of environment proliferated rapidly, though political usage lagged considerably behind the scientific. In the Parliamentary records of 1893, the expression is found three times: Joseph Edward Kenny (1845–1900), Irish National League MP for Dublin College Green, is paraphrased as declaring certain colleagues “creatures of their environment.”<sup>90</sup> Gladstone, now again Prime Minister, once more remarked upon “the essential equality of the Members of this House” as forming “a part—a fundamental part—of the environment in which we live,” and being what “enters into and makes us what we are.” Then, George Wyndham (1863–1913), Conservative MP for Dover, on the subject of Home Rule for Ireland, was paraphrased as saying that the proposed Bill “would create an environment in which these opinions [for full independence] would develop and propagate.”<sup>91</sup>

In 1894, the Haverford College law professor William Draper Lewis (1867–1949), in the *Annals of the American Academy of Political and Social Science* wrote:

<sup>90</sup> Hansard 1893a.

<sup>91</sup> Hansard 1893b.

“The term ‘environment’ is in these days popular, and there is, therefore, all the greater need that we should be definite and exact in its use. *It is the sum of the conditions which effect a society.*”

These conditions were of two kinds: the “physical environment” consisting of soil, climate, machinery; and the “mental environment” consisting of persons and their preferences, capacities, and so on.<sup>92</sup> Such declarations were made not exclusively within sociological, geographical, or political-scientific expositions. To take one (literal) textbook example,<sup>93</sup> in 1897, Emmett Stull Goff (1852–1902) defined the term as expressing “all the outside influences, taken as a whole, that affect a given object in any way.”<sup>94</sup>

However, it was not only that the concept became more commonly used but, in certain usages, its apparent significance was also augmented, becoming not only a useful or functional concept but one endowed with profundity. In 1896, the ethnologist and Smithsonian curator Otis Tufton Mason (1838–1908) declared, in a lecture titled *Influence of environment upon human industries or arts*:<sup>95</sup>

“In closing, I desire to call your special attention to the ever increasing size and variety and comprehensiveness of the term environment as culture has advanced.”

In the early days, “the centrifugal condition of human evolution” had pushed human beings into various “limited environments,” producing races and languages, with the “overstepping” of such boundaries leading to the greatest of changes. Then, in the final stage, feeding upon these lower achievements, “these irresistible tendencies seized the whole earth, and henceforth it was one oikoumenē, one enclave, one environment.”<sup>96</sup>

Featuring in records of Parliamentary discourse five times in 1897, six in 1898, and eleven in 1899, two decades later, the instances would be beyond reviewing. However, at this time, the term was particularly used in association with imperial affairs, naval hygiene, and industrial working conditions. In particular, the trade unionist and Liberal MP John Burns (1858–1943) regularly used the expression. As he put it in 1899:

“The hon. Member will find that it is the industrial environment, the low wages, and the bad sanitary conditions that are responsible for the state of affairs disclosed in this Report. We find that 1,085 persons were suffering from lead poisoning out of a population of 4,703 working in lead, or just over 30 per cent. If that were the condition

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<sup>92</sup> Lewis 1894, 534.

<sup>93</sup> *Principles of plant culture; an elementary treatise designed as a text-book for beginners in agriculture and horticulture*. Goff 1897.

<sup>94</sup> *Ibid.*, 10.

<sup>95</sup> Delivered as a Saturday lecture in the Assembly Hall of the United States National Museum, 2<sup>nd</sup> May 1896. Mason 1896, 639.

<sup>96</sup> *Ibid.*, 662.

of our soldiers in India, in regard to another disease; if it were the condition of our garrisons at home, Parliament would be alarmed, and would pretty soon take action.”<sup>97</sup>

Thus, Burns leveraged, at this time, not only the language of rational science, the provenance of which was no longer worth commenting upon, but also the language of governance, imperial and otherwise, in order to make his political claims.

### 9.3: Satire and possibility: Environment circa 1900

In 1905, Gulielma Zollinger (1856–1917) of Newton, Iowa, author of such novels as *The Widow O’Callaghan’s Boys* (1898), and *Maggie McLanehan* (1901) wrote in *New England Magazine*:

“BABETTA had been Mrs. Zindel for four years and had reached the age of twenty-two when she discovered that she had an environment.”

Sandwiched between a short story titled *Aunt Foster’s Cranberries*, and a report regarding Boston public schools from the World’s Fair in St. Louis, *Babetta’s Environment* told of a naïf but well-meaning young housewife who heads off to a mother’s meeting, encountering “a moon-eyed lady, with a plaintive tone” who undertakes to inform the assembled “about environments.”

“Take the richest woman in the world to-day and put her in your environment, and what would she be?” demanded the moon-eyed lady solemnly. “That is the question I invariably propound in defending the extremely poor. [.]”

With consistently unsubtle satirical strokes, Zollinger’s “lady” professes the solace to be found in blaming one’s sorrows always on “somebody else.”

“[.]So you, my sisters, may put all the blame of your wretchedness on your environment. The word environment will cover it all.’ ‘And no wonder,’ thought Babetta. ‘It is a big word. Big enough to cover much.’”

And yet, having never heard the like before, Babetta rose at once to ask, respectfully, as to the meaning of this word.

“The moon-eyed lady appeared embarrassed. Definition was not her strong point. Then she smiled and spread her hands in a sweeping gesture that took in all the four walls of the little room. ‘Ah!’ exclaimed Babetta. ‘I think I see. It is all the outside of you round about.’”<sup>98</sup>

Taking this “big word” altogether too much to heart, Babetta soon sees “environments” everywhere. A woman’s shame—her bread sour, her steak overdone; what else could be to blame but the environments? She sets about fixing the “environments” of her yard; but there are always more environments, and never does her bread-making improve.

But Babetta is not merely to be a figure of fun. In the five-page parable’s conclusion, she meets her moment:

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<sup>97</sup> Hansard 1899.

<sup>98</sup> Zollinger 1905, 211–212.

“And now all the women were staring.

‘It is a true thing,’ continued Babetta, ‘what the mothers’ meeting lady say about the environments, only she did not say all. She should say when the environments are very bad, and you cannot go away from them, then you must make the environments different. And it is the women must do it because the men work all day long already. I ask you here to see a place where two months ago there was only two good environments already, and that was the ground outside the fence, and the environments of the top of the house, which is the blue sky. And I say now there is nobody with two hands and two feet that need to—what you call it? waste your breath, a-talking about environments. The environments are outside of you but the inside of you can make them different. And so you can see for yourselves. I do not like to make a speech, and I ask you that you excuse me that I have done so. Only this I will say, when you see the very good environments you do not see how the peoples work to make them good environments. And now, my dear friends, I will pass again the cake and the coffee.’”<sup>99</sup>

This gentle mockery of a white, middle class New England housewife, apparently for white, middle class New England housewives, could hardly have been conceived in its effect were “environment” not already something of a cliché, or commonplace—a feigned profundity levelled at such women so as to coax them into self-improvement, and stop their dillydallying about blaming others for what, in the end, was a matter of elbow grease and self-respect.

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In the third volume of the first edition of the *Oxford English Dictionary*, published in 1897, “environment” was given two principal definitions, the second with two variants. First: “The action of environing; the state of being environed”—this being attributed to Holland in 1603. Second, 2a, noted as a concrete noun: “That which environs; the objects or the region surrounding anything.” Several examples given included quotations from Carlyle in 1830 and 1831. Finally, 2b: “The conditions under which any person or thing lives or is developed; the sum-total of influences which modify and determine the development of life or character.” Among the examples here included Carlyle’s “environment of circumstances” (stated 1827 rather than 1828, an error that remains to the present edition), as well as Spencer’s *Psychology* of 1855, and Romanes’ review of 1881. Moreover, two rather more obscure equivalents were given: First, Environage (noted “rare”): “The assemblage of surrounding objects or circumstances; surroundings,” the first example given being from 1836. Second: Enviroiny “(Obs[olete].)”: defined, cursorily, as “= ENVIRONMENT,” and dated (as per §8) from 1600.¹⁰⁰

Environmental—“of or pertaining to environments”—was first found in 1887. Indeed, the adjectival form was still rare when William James, in his *Varieties of Religious Experience* of 1902, wrote of “[u]topian dreams of social justice” being, “in spite of their impracticability and

⁹⁹ Ibid., 215.

¹⁰⁰ Murray 1897, vol. 3, 230–231.

non-adaptation to present environmental conditions, analogous to the saint's belief in an existent kingdom of heaven."¹⁰¹ Indeed, it only appeared in recorded Parliamentary proceedings as of 1920, pertaining to "the environmental and other Public Health services."¹⁰²

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The speech delivered by James in 1882 regarding "great men" prompted two replies, published in the same periodical a few months later—the first by John Fiske, and the second by Grant Allen. In turn, James wrote a follow-up titled *The Importance of Individuals* (though this was rejected by the editors and published only in 1890).

Speaking in defence of hero-worship, and particularly against Allen's "contempt" for the concept, James refers to an "unlearned carpenter of my acquaintance" who is quoted as commenting: "There is very little difference between one man and another; but what little there is, *is very important*."<sup>103</sup> Indeed, this "zone of insecurity in human affairs" was surely the locus of all "dramatic interest," the rest belonging to "the dead machinery of the stage." All interest in evolution, and all interest in conversation. This was "the formative zone, the part not yet ingrained into the race's average"—"the soft layer beneath the bark of the tree" within which all new growth occurs. As such, James writes: "Layer after layer of human perfection separates me from the central Africans who pursued Stanley<sup>104</sup> with cries of 'meat, meat!'" Moreover, to the eyes of a "Veddah" (an indigenous people of Sri Lanka), would not the differences between these "two white literary men"—James and Allen themselves—seem imperceptible? This, James argued, was the fundamental fallacy of the Spencer-Allen philosophy: the reduction of the individual, the ferment, to "the race's average"—the ignorance, then, of "race-differences *in the making*."

And so, Allen and Fiske, both, were counselled, rather than the "general laws and averages" of "sociologists," it was to "individual variations" with their "ups and downs and hair-breadth escapes and twists and turns" that one should look:

"picking out from history our heroes, and communing with their kindred spirits—in imagining as strongly as possible what differences their individualities brought about in this world, whilst its surface was still plastic in their hands, and what whilom [erstwhile] feasibilities they made impossible—each one of us may best fortify and inspire what creative energy may lie in his own soul."

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<sup>101</sup> James [1902] 2003, 280.

<sup>102</sup> Hansard 1920.

<sup>103</sup> James 1992, 648.

<sup>104</sup> I.e. the explorer Henry Morton Stanley (1841–1904), of "Dr. Livingstone, I presume" fame.

To this rhetorical crescendo, James later added<sup>105</sup> a footnote acclaiming Gabriel Tarde's *Les Lois de l'imitation*<sup>106</sup> "(itself a work of genius)" as offering "the best possible commentary" on the difference between "invention" and "imitation"—these being "the two sole factors of social change."<sup>107</sup>

Between 1888 and 1890, William Edward Burghardt Du Bois (1868–1963) enrolled at Harvard, studying with James. Sometime around his graduation in 1890, he wrote a speech titled "Carlyle," which exhorted his young, educated, black peers: "We are the architects and builders of a new nation—the hesitating blacksmiths of a unique and burning Idea." Thomas Carlyle, he continued, was not a soul belonging to any "petty day or year" but, rather, to a spirit "whose life is not measured by years."<sup>108</sup> In 1895, Du Bois became the first Black American to earn a Ph.D. In 1899, he published *The Philadelphia Negro: A Social Study*, investigating "The Negro Problems of Philadelphia"—a complete account of which, Du Bois cautioned:

"must not confine itself to the group, but must specially notice the environment; the physical environment of city, sections and houses, the far mightier social environment the surrounding world of custom, wish, whim, and thought which envelops this group and powerfully influences its social development."<sup>109</sup>

In 1903, he published an essay titled *The Talented Tenth*, which argued: "The Negro race, like all races, is going to be saved by its exceptional men."<sup>110</sup> Thus, although his views would change considerably during the subsequent years of his long life, in the early years of Du Bois' career, individual-romantic and social-environmental distributions of agency coexisted and were utilised relative to the problem at hand.

Having become the first female student at MIT in 1870, in 1904 Ellen Henrietta Swallow Richards (1842–1911) concluded her short book *The Art of Right Living* by writing:

"Adaptation to the environment is the great need of the American today; and shall we, who boast that we outdo the world with our mechanical devices, stop short of at least a long step towards the production of a better race?"

In this work, Richards identified herself as a follower of the likes of Edwin Chadwick (1800–1890), "father of sanitation."<sup>111</sup> Moreover, she took her text's epigraph from "that prophet of

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<sup>105</sup> When republished in *The Will to Believe: And Other Essays in Popular Philosophy* of 1896.

<sup>106</sup> First published 1890; James cites: Tarde 1895b.

<sup>107</sup> James 1992, 649–651.

<sup>108</sup> Du Bois 1890, 1–2.

<sup>109</sup> Du Bois 1899, 5.

<sup>110</sup> Du Bois [1903] 1996, 841.

<sup>111</sup> Richards 1904, 47–48.

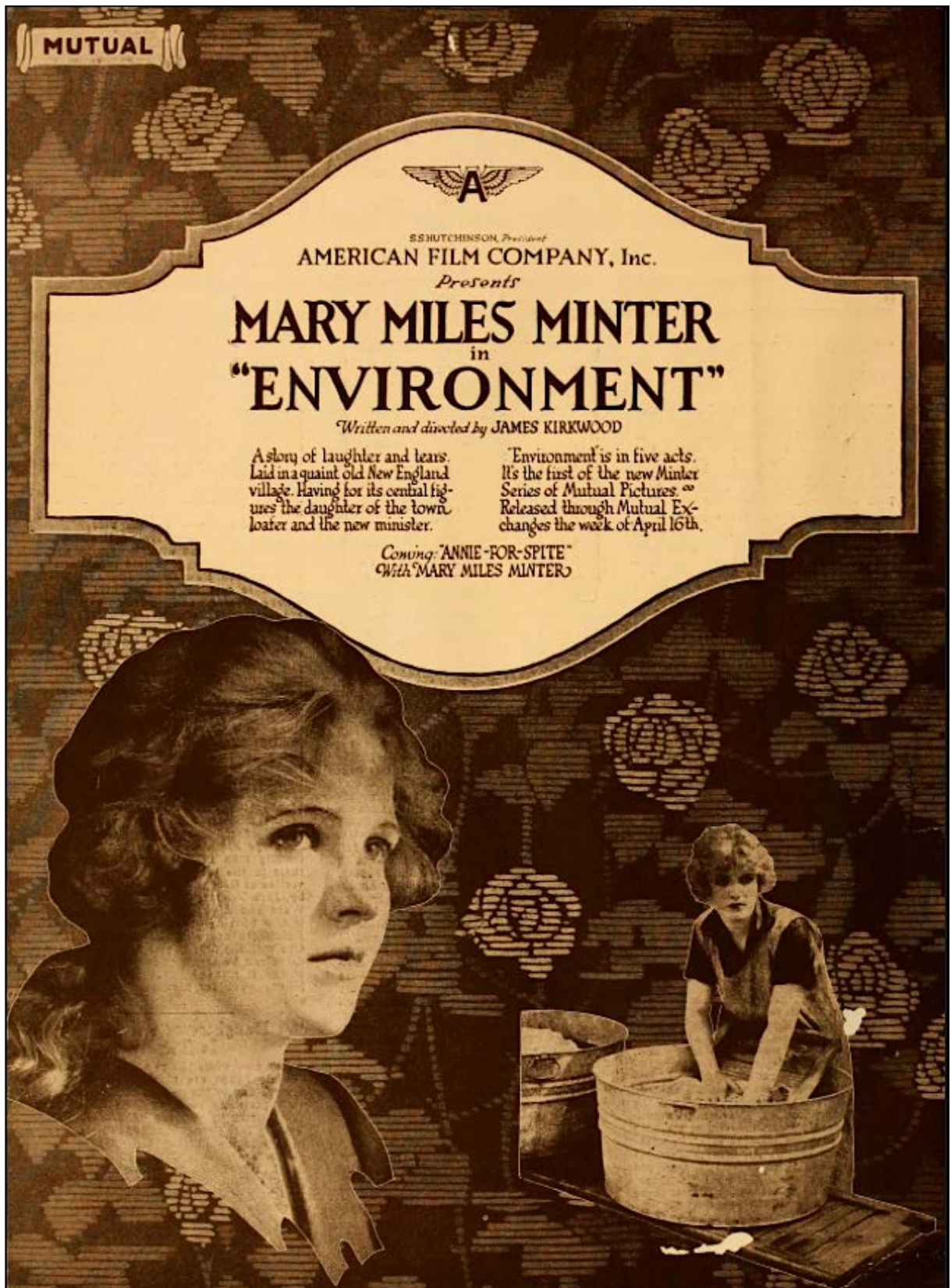


Figure 25—Advertisement for *Environment*, directed by James Kirkwood (1875–1963), 1917

the new republic, Mr. H.G. Wells”<sup>112</sup> (1866–1946) and his *Mankind in the Making* of 1903: “It is not birth rates that want raising but Ideals.”<sup>113</sup> A chemist and sanitary engineer, Richards was also, by the early twentieth century, a leading figure in the Home Economics movement, both founding and funding the *Journal of Home Economics*, the first issue of which was published in



1909 (and continued to be published until 1994 when it was renamed the *Journal of Family and Consumer Sciences*). In 1910, the year before her death, Richards published her manifesto, *Euthenics: the science of controllable environment*. “Eugenics,” she declared programmatically, “deals with race improvement through heredity” while, “Euthenics,” rounds out the equation by dealing “with race improvement through environment.”<sup>114</sup>

Whether or not Zollinger’s “moon-eyed lady” of 1905 was an allusion to Richards or her colleagues, her satire identified the movement. “Dirt and disease threaten us with deterioration,”<sup>115</sup> Richards had declared only the year before. Thus, by the early twentieth century, environment had unambiguously become a matter of significance. It was closely associated with issues of hygiene, health, and the biopolitical imperative to maximise the power potential of the population—or, rather, of the race.<sup>116</sup> Issues relating to nonhuman living beings remained, however, in another register.

While opening a “Conference on the Conservation of Natural Resources” at the White House in 1908, Theodore Roosevelt bemoaned the inability of “the average man” to realise his “dependence upon nature,” while so-called “savages” were said to concern themselves only with that which “they obtain from the actual surface of the ground.”<sup>117</sup> The conservation movement in the United States was indeed concerned with what surrounded the rapidly expanding metropolises but these relations were not articulated as environmental as such, nor did they have the progressive political associations that they would come to be typified by half a century later.<sup>118</sup>

Likewise, while, in recent years, Humboldt’s terrestrial physics of circulation, balance, and natural unity has earned him such soubriquets as “The Forgotten Father of Environmentalism,” and “The Man Who Made Nature Modern,”<sup>119</sup> the significance of such conceptions in earlier years was quite different. While such natural unification is today widely interpreted in the register of overcoming modern dualisms—Cartesian, Kantian, and otherwise<sup>120</sup>—in the nineteenth century, such romanticisms could have rather other resonances.

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<sup>112</sup> *Ibid.*, 10.

<sup>113</sup> *Ibid.*, Front cover.

<sup>114</sup> Richards 1910, viii.

<sup>115</sup> Richards 1904, 47.

<sup>116</sup> Shilliam 2018.

<sup>117</sup> Dorsey 2016, 2.

<sup>118</sup> Taylor 2016.

<sup>119</sup> Wulf 2015b; Wulf 2015a; Wulf 2015c; cf. Cushman 2011.

<sup>120</sup> Walls 2009, 229–231; Walls 2005.

The American poets, Walt Whitman (1819–1892) wrote around 1855, “shall be kosmos.”<sup>121</sup> A fervent enthusiast of the westward expansion, around 1868, inspired by the completion of the Suez Canal, the American transcontinental railroad, and the transatlantic Atlantic cable,<sup>122</sup> Whitman wrote:

“Passage to India!  
Lo, soul! seest thou not God’s purpose from the first?  
The earth to be spann’d, connected by network,  
The races, neighbors, to marry and be given in marriage,  
The oceans to be cross’d, the distant brought near,  
The lands to be welded together.”<sup>123</sup>

The unity of nature and the unity of economy were, for mid-nineteenth-century romantics, by no means incommensurable.

Though having little time for Germanic poetics, in 1895, after praising Humboldt’s scientifically foundational example, Mackinder advised that a young geographer must become practiced in the analysis of “environment,” this term signifying “the local resultant of world-wide systems.”<sup>124</sup> Being essentially localised, there could, therefore, be no “world-wide” environment as such. Nevertheless, the sense of connective totality was crucial. In 1904, with consummately Victorian-Edwardian dourness, he wrote, further, that, with the “political appropriation” of the world “virtually complete,” and the age of “geographical exploration” thus being commonly regarded as over, worldly unity brought fresh dangers.

“Every explosion of social forces, instead of being dissipated in a surrounding circuit of unknown space and barbaric chaos, will be sharply re-echoed from the far side of the globe, and weak elements in the political and economic organism of the world will be shattered in consequence.”

It was therefore necessary for the geographer “to exhibit human history as part of the life of the world organism”—not just to describe local environments but to illustratively bring into patency the torsive, tight-packed territorial tinderbox.<sup>125</sup>

Fundamental to this world-effect was its sense of providence. Geography was fate. “Man and not nature initiates, but nature in large measure controls.”<sup>126</sup> On occasion, “human genius” may seemingly defy such limitations; however, “in the long-run Nature asserts her supremacy.”<sup>127</sup> Such a distribution of agencies, later known as environmental determinism,

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<sup>121</sup> Whitman 1855, vii.

<sup>122</sup> Oliver 2005, 148.

<sup>123</sup> Whitman 1894, 316.

<sup>124</sup> Mackinder 1895, 376.

<sup>125</sup> Mackinder 1904, 422; Kearns 2009; Parker 1982.

<sup>126</sup> Mackinder 1904, 421–422.

<sup>127</sup> Mackinder 1895, 507.

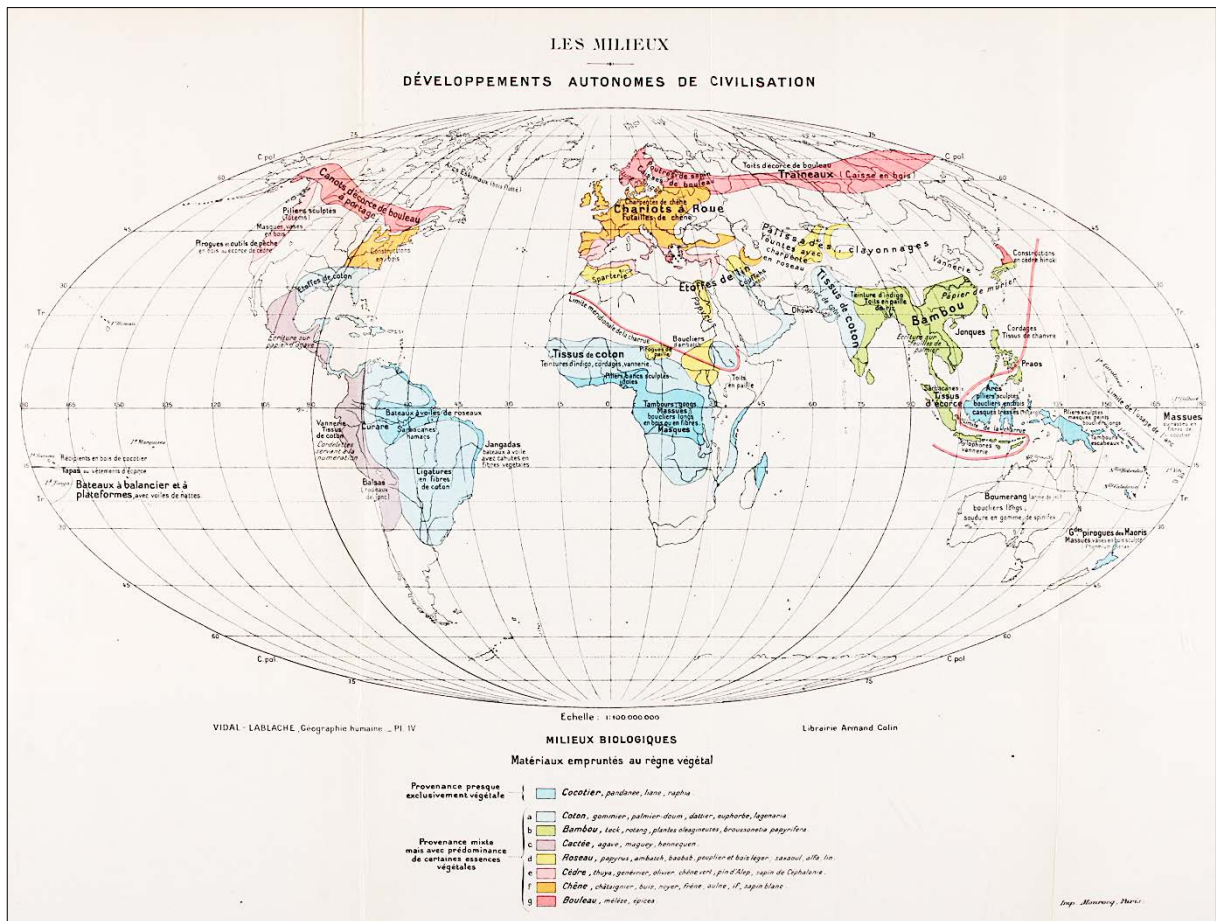


Figure 26—"Biological Milieus: Materials taken from the vegetal kingdom"; Vidal de la Blache, 1922

could always be tempered in ascensional terms. As Mackinder later wrote in *Democratic Ideals and Reality* (1919), formerly "the power of nature over man was still great" but, today, "[i]n no small measure man now controls the forces of nature," giving rise to the expectation that "a fairer division of wealth" should be in attained (a prospect for which Mackinder, by now a Unionist MP, was distinctly frosty).<sup>128</sup>

However, such apologetic determinisms by no means went uncontested.<sup>129</sup> In France, by the 1920s, the tradition of human geography that had become firmly institutionally ensconced—a tradition more securely established, and frequently at odds with, Durkheimian sociology—was that centring around Paul Vidal de la Blache (1845–1918).<sup>130</sup> Published posthumously in 1922, Vidal's *Principes de la géographie humaine*<sup>131</sup> took as its two core principles "terrestrial unity" and "the notion of milieu," paying paid tribute, first, to Ratzel and, then, to Humboldt. The notion of milieu had emerged from the latter's study of all the varied conditions

<sup>128</sup> Mackinder 1919, 9–10.

<sup>129</sup> Parker 2000.

<sup>130</sup> Berdoulay 1978.

<sup>131</sup> Vidal de La Blache 1922; English translation: Vidal de La Blache 1926.

of plant distribution. However, with particular regard to the ecology of Ernst Haeckel (1834–1919), Vidal added:

“if we reflect on all that is implied in this word milieu, or *environnement* following the English expression, on all the unsuspected threads of which the fabric that enfolds us is woven [*tissée la trame qui nous enlace*], what living organism could escape [*soustraire*]?”<sup>132</sup>

The value of milieu, or environment, was thus that it encapsulated such untranscendable entanglement.

However, the ontology of Vidalian human geography was not especially concerned with the global determinants of human being. Rather, it was the regional influences of “man” on the milieu itself that was of interest—an influence that had been ongoing “longer and more generally than has been supposed.”<sup>133</sup> Climate, it was now understood, “oscillates about a mean” rather than demonstrating consistency. Nevertheless, such oscillations, as per Buffon et al. a century and a half previously, were distinctly susceptible to human “intervention.” The powers of peoples were particularly augmented through “the allies [*auxiliaires*] they mobilise in the living world—cultivated plants and domestic animals,” and man had been a geographic agent since at least “the Pliocene period,”<sup>134</sup> when a great number of species went extinct.<sup>135</sup> Nevertheless, the depth of such anthropogenic effects could not suggest parity.

“Today all parts of the earth are interrelated [*en rapport*]. Isolation is an anomaly which seems like a challenge [*un défi*].”<sup>136</sup>

Indeed, the “present and future undertakings of man” were far out of proportion with anything that distant ancestors could have envisaged.

“Let us congratulate ourselves, because the task [*l’entreprise*] of colonisation which constitutes the glory of our age [*époque*] would be only a sham if nature set definite, rigid boundaries [*cadres*], instead of leaving a margin for the work of transformation or reparation [*restauration*] which it is within man’s power to perform.”<sup>137</sup>

Thus, whatever the events of then-recent years, the Vidalian school remained ontodesically committed to the contemporaneous neo-Kantian repudiation of determinism, and to the re-emboldened *mission civilisatrice*.<sup>138</sup> Also in 1922, Lucien Febvre dubbed this school of thought “possibilist,” writing:

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<sup>132</sup> Vidal de La Blache 1926, 9–10; Vidal de La Blache 1922, 7.

<sup>133</sup> Vidal de La Blache 1926, 12.

<sup>134</sup> Strictly speak, the Pliocene is an epoch.

<sup>135</sup> Vidal de La Blache 1926, 21–23; Vidal de La Blache 1922, 14–15.

<sup>136</sup> Vidal de La Blache 1926, 19; Vidal de La Blache 1922, 12.

<sup>137</sup> Vidal de La Blache 1926, 23–24; Vidal de La Blache 1922, 15.

<sup>138</sup> Berdoulay 1976.

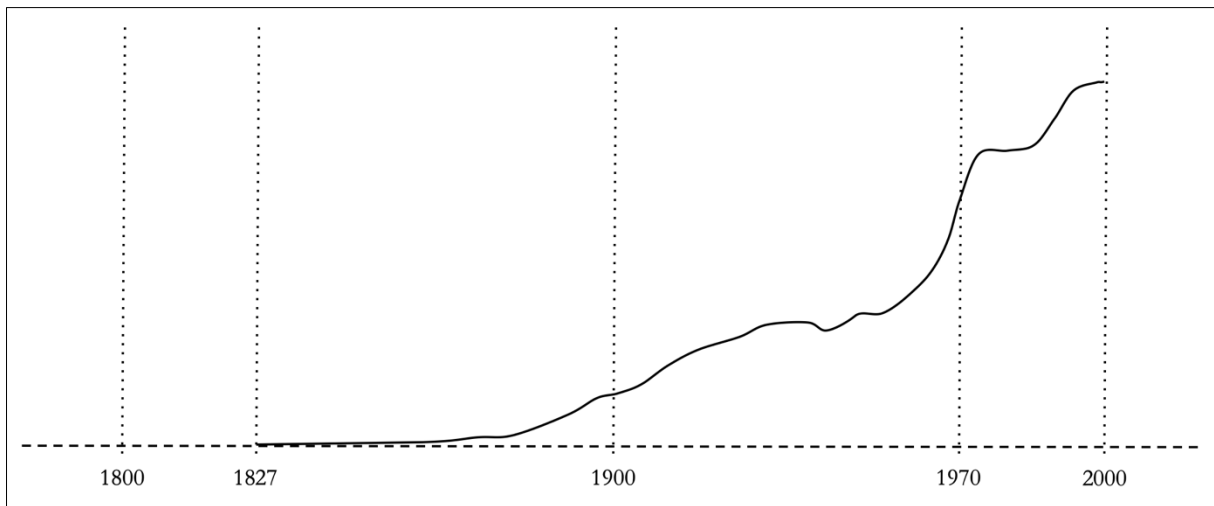


Figure 27—Incidence of “environment” in Google Ngram corpus, 1800–2000

“There are no necessities, but everywhere possibilities; and man, as master of the possibilities, is the judge of their use.”<sup>139</sup>

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Whether romantic or utilitarian, liberal or conservative, socialist or individualist, imperialist or anti-imperialist, determinist or possibilist, by the early decades of the twentieth century, milieu, climate, and environment had, in different ways and on different timelines, become commonplaces of political and intellectual discourse in the Euro-American world. Moreover, causal-circumambient conceptions of milieu and environment had become conceptually foundational to the sciences of sociology and, later, human geography. While such conceptions had not been formative of Darwinian-Wallacean evolutionary biology, they had been prominently enrolled in its defence and propagation.

Environmental expressions provided a conceptual means of coordinating and contesting varied issues existing across the lines of the very disciplinary and institutional divisions that had been established over these decades. As such, their use was by no means wedded to any particular political disposition. However, as a conceptual means of comparatively relating problematic spatial differences, environmental concepts were of particular relevance to matters of colonial administration, and its contestation. Thus, while, Mackinder and Vidal may have disagreed as regards the distribution of human and natural agency, they were as one in taking the spatial relation of local environments as being the proper means of understanding “the glory of our age [*époque*].”

¹³⁹ Febvre 1925, 236; Febvre [1922] 1949, 284.

Excursus F: Ontochronic: The complication of condemnation

As seen in §3, for Lucien Febvre, “the sin that cannot be forgiven,” for a historian, is that of “anachronism.”¹ To be in the wrong time, to mistake one epoch for another, is a characteristically “modern” paranoia—a fear closely related to the loudly clunking chains of those “implicit systems in which we find ourselves prisoners,”² as Michel Foucault had it (§2).

Not all collectives figure time in this fashion.³ Thus, if one accepts that “no single common-place can inflate its borders” so as to become a “universal tradition,” and if one thus wishes to maintain the possibility that a “cross-roads qua commonplace presupposes ancestral relations to places elsewhere” (§E)—roads once taken, or not taken, that might yet be taken—then certain conceits must be confronted.

In particular, what Dipesh Chakrabarty characterised (§3) as that “desire to be free of the past”—to “reduce the past to a nullity”⁴—must be considered as regards both the possibility of historical writing, and the powerfully political operation that is declaring anything to be “a thing of the past.”

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However ‘revelatory’ Comte’s Damascene moment, early one morning in 1822, may have been (§5.1), his delineation of historical-theoretical states or stages—“the theological or fictional”; “the metaphysical or abstract”; “the scientific or positive”<sup>5</sup>—was far from original. Amongst Scottish historians and political economists of the previous century, such as William Robertson (1721–1793), Adam Smith (1723–1790), Adam Ferguson (1723–1816), and John Millar (1735–1801), it was a commonplace that all peoples will pass through four stages, from hunter-gatherer, to pastoral-nomadic, to agricultural, and then commercial. Such schemas were a staple of nineteenth-century thought, with Georg Wilhelm Friedrich Hegel (1770–1831), Lewis Henry Morgan (1818–1881), Herbert Spencer (1820–1903), and Karl Marx (1818–1883), among many others, formulating their own accounts.

When a specifically stage-based theory was not employed, history remained conventionally directional. Humboldt, for one, had written, around 1844, of “the mysterious course of ideas” that yielded “the first glimmering perception” of nature’s cosmic unity.<sup>6</sup> Later,

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<sup>1</sup> Febvre 1982, 5; Febvre 1942, 8; cf. Rancière 2016.

<sup>2</sup> Foucault and Simon 1971, 198.

<sup>3</sup> Nandy 1995; Chakrabarty 2000; Simpson 2017.

<sup>4</sup> Chakrabarty 2008, 244.

<sup>5</sup> Comte 1998, 81.

<sup>6</sup> Humboldt 1849, vol. 1, 2; Humboldt 1846a, vol. 1, 2.

in 1910 the lecturer and journalist Norman Angell (1872–1967) wrote in his popular book *The Great Illusion* of:

“man’s irresistible drift away from conflict and towards co-operation is but the completer adaptation of the organism (man) to its environment (the planet, wild nature), resulting in a more intense vitality.”<sup>7</sup>

Similarly, in his presidential manifesto of 1913, the former academic historian Woodrow Wilson (1856–1924) propounded that existing political institutions had been put together under the influence of the Newtonian age, while the state of today must be reconstructed for the Darwinian:

“[Government] is modified by its environment, necessitated by its tasks, shaped to its functions by the sheer pressure of life.”<sup>8</sup>

Between pacification and pressure, the commonplace of this moment, among white, patriarchal Euro-American elites, was found in a heady tension between fears of racial degeneration, and an irresistible forward-upward civilisational momentum. Both Mackinderesque apprehension as to the “explosion of social forces” possible on a politically unruly and yet unified terrestrial sphere,<sup>9</sup> and Vidalian self-congratulation as to what was “within man’s power to perform,”<sup>10</sup> were pervasive amongst the governing classes. The new century exuded both problem and promise.

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The sense of history wafting from a page is never more acute than when said page was penned immediately before what the reader knows to be an event. The more epochal the event, the more dramatic the irony.

The outbreak of war between the European empires and the conceptual tendencies identified as “the birth of geopolitics” (§1) are surely inseparable. The generalisation of competition, domination, civilisational hierarchy, universal propriety, and territorial acquisitiveness in popular Euro-American parlance was, by this time, well-established. In the late 1890s, Eugénie Dutoit, in her pathbreaking history of milieu, wrote of “drive and ferment [*Drängen und Gähren*]” of the era of Hippolyte Taine (1828–1893).¹¹ The moment of “*race, milieu, et moment*” would prove enduring. While Ratzel’s *lebensraum* (living-space) found its significance only in Hitlerian Nazidom, the spectre of abutting national organisms set against implacably hostile environments was commonplace by the 1910s.

⁷ Angell [1910] 1911, 179. Expanding upon a pamphlet published the previous year: Angell 1909.

⁸ Wilson 1913, 43.

⁹ Mackinder 1904, 422; Kearns 2009; Parker 1982.

¹⁰ Vidal de La Blache 1926, 23–24; Vidal de La Blache 1922, 15.

¹¹ Dutoit 1899, 5–6.

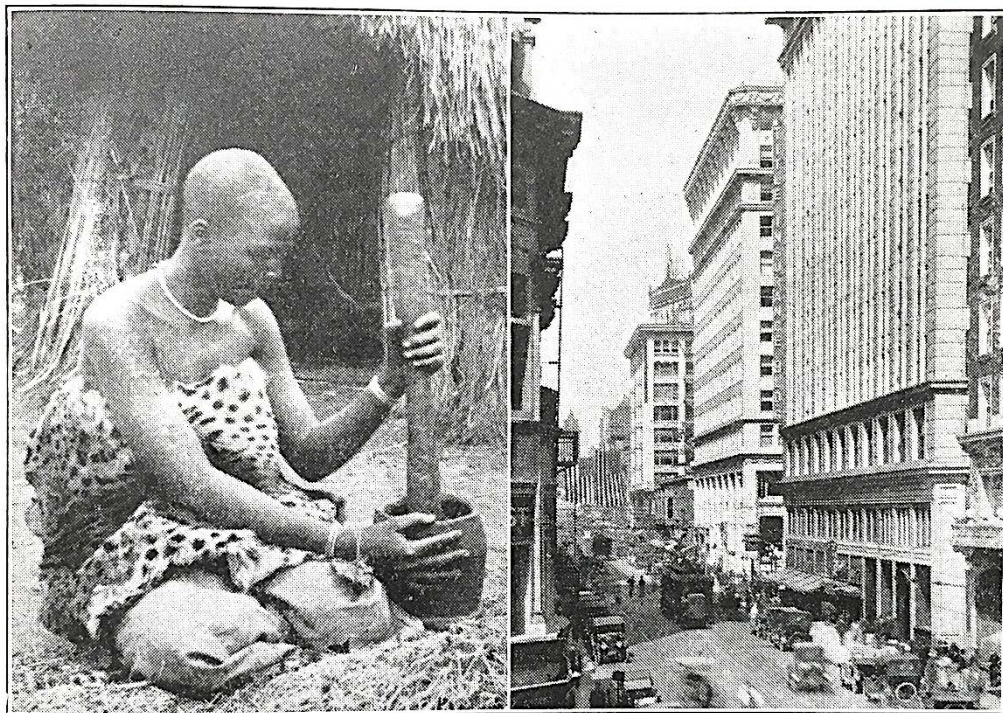


FIGURE 10. — COMPARE THESE TWO ENVIRONMENTS.

What factors are alike? What are different? What made the vast difference in the two scenes? Explain fully after reading sections 6, 7, and 8.

Figure 28—Comparison of environments, from *Our Environment: How We Use and Control It*, 1927

Once again, environmental concepts cannot, at this time or any other, be straightforwardly aligned with any particular intellectual disposition or political agenda. However, it is certainly no coincidence that these physical, biological, sociological and, later, geographical, concepts came to be so imbued with a sense of moment amongst the elites of Euro-American empires, around the time of this, their apotheosis of self-celebration.

Environment, in the sense common to biologists and sociologists after Comte, can be understood as *structure plus ambience*. As Durkheim put it, one may know the relation of phenomena to milieu “without knowing by what, or how, it is connected [*tient*].”¹² This explanatory power was fundamental to making ontodesic claims upon the basis of aggregate statistical information. However, environmental concepts also afforded means of ontoturgic encapsulation more generally. Environment as “the local resultant of world-wide systems”¹³—a sense still in formation at this time—allowed the indefinite ontographic complexity of

¹² Durkheim 1982, 106; Durkheim 1919, 93. Translation modified.

¹³ Mackinder 1895, 376.

planetary being to be articulated in interrelated, describable portions. Environment, inasmuch as it still carried connotations of the physical milieu, bore the sense of serious concreteness, and indefinite relatability. Yet, as an intrinsically aesthetically, subjectively, or organismically relative concept, it was both intuitive and positive. It could even be exciting, glorious, joyous.

Environment was structural in that it put entities into more or less stable relations of explanation. Yet this was an ambient structure in that the specificities of such relations need not be specified. It granted the conceptualiser the power, for any given being, to set the “solid ground” and to institute “the experiment,” as Zola put it.¹⁴ However, its further power was that it could not only reduce but also, at the same time, bring into patency—to make experientially manifest.

With particular consideration to its involvement in the development of geopolitical thinking, it can then be said that the invention of environment amounted to the invention the means of perceiving empire as world.

It is this moment just prior to the war of empires—amidst the clamour but before the crisis—that this text takes as its moment of departure. Considered ontologically, this returns us to questions of epochal decision (§3).

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In 1996, reflecting on Febvre’s 1942 statement regarding anachronism as the “sin of all sins,”<sup>15</sup> Jacques Rancière wrote that the claim that something is anachronistic entails that “something *could not have existed* at this date.”<sup>16</sup> For Febvre, the non-existent in question was atheism in the sixteenth century. However, the significance of this historiographical ethic goes well beyond any particular *histoire-problème*.<sup>17</sup>

A fundamental commonplace of modern ontology has been the understanding of historical time as consisting of periodic ruptures that either sweep away that which does not belong to each new era or else subordinate what remains to that which has ascended to the higher existential level. Not unlike Cuvier’s terrestrial “revolutions,”<sup>18</sup> through this recurrent process of supersedence, the past is reduced “to a nullity”<sup>19</sup>—to ancestral disavowal; freedom from the responsibility for the present that this past has produced.

History is made by making things history; by making things “a thing of the past.” Of course, this process involves vastly more than narration alone. Nevertheless, as seen with d’Alembert’s *Discours préliminaire* or Cuvier’s *éloge* for Lamarck, to take but two, rather prosaic,

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<sup>14</sup> Zola 1902, 7–8.

<sup>15</sup> Febvre 1982, 5; Febvre 1942, 8.

<sup>16</sup> Rancière 2016, 28; Rancière 1996.

<sup>17</sup> Tournier 1981.

<sup>18</sup> Cuvier 1825; Cuvier 1831.

<sup>19</sup> Chakrabarty 2008, 244.



Figure 29—*The Slave Ship; or, Slavers throwing overboard the Dead and Dying—Typhoon coming on;* JMW Turner (1775–1851), 1840

examples, narrative may well lay claim to the power of self-fulfilment—though such claims are readily refuted by the agents upon which they claim to bind. For instance, the refrain of Indigenous peoples throughout Euro-American empires, today: “We are still here.”<sup>20</sup>

Epochal decision—that is, the situated determination of which aspects of the past are still able to have a hold on the present (and in what way)—is, therefore, an inescapable aspect of what it is to write history. This practice always carries the risk of misanachronisation—of presuming to be past what will not acquiesce to being so. Thus, it may be that precisely what you set out to leave behind reaches back to grasp you, despite your every effort.

How, then, are we to decide?

“The master’s tools will never dismantle the master’s house.”

Thus wrote the poet, feminist, and activist Audre Lorde in 1979.<sup>21</sup> This is the final resounding “cry” that I wish to dramatise.

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<sup>20</sup> Harjo et al. 1997, 30–31.

<sup>21</sup> Lorde [1984] 2012, 110–113. Comments delivered at the Second Sex Conference, New York, September 29, 1979.

In writing these words, Lorde was preparing to speak at a conference celebrating the thirtieth anniversary of Simone de Beauvoir's *The Second Sex*,<sup>22</sup> having been specifically invited to respond to the question of "the role of difference within the lives of american women: difference of race, sexuality, class, and age." Her response was scathing, noting the preponderant absence of precisely those women—poor, Black, lesbian, non-Western—whose experiences were supposed to be under discussion.

"What does it mean when the tools of a racist patriarchy are used to examine the fruits of that same patriarchy? It means that only the most narrow perimeters of change are possible and allowable."<sup>23</sup>

This cry must be heard not because this thesis has attempted to answer it—clearly it has not—but, rather, because it brings into sharp relief necessary ontochronic questions of inheritance and responsibility.

The preceding history of environmental concepts has, in a sense, been a survey of "the master's house"—or, at least, some small facet of it. In undertaking such a survey—and then attempting to "learn from" it—I am, it must be said, making a claim that it is imperative to appreciate: I am recognising myself as an inheritor of this house. To be sure, there is no irrefusable obligation whatsoever for any reader of this text to accept this positioning themselves. However, the important question, upon this recognition, becomes that of whether this inheritance has been taken on responsibly—that is, whether it has adequately negotiated the conflicted confluence of *reclamation*, *condemnation*, and *nullification*.

From Kant's snide dismissal of the cosmopolitan purpose of the Tahitians, to Spencer's pathologically callous rationalisation of *an Gorta Mór*, this is has been a history with no shortage of brutality or apologism. Yes, we share with Spencer more than his terminology. Doubtless, there are many, still today, who would find in his spiteful prose a refreshingly unencumbered lilt against political correctness. Such things are assuredly not "a thing of the past." But this is not all that we share. The processes of unquenchable capitalist acquisitiveness that Spencer's doctrine deigned to rationalise remain contemporary, however radically reconfigured. His "pressures" remain ours—though we do not by any means experience them in the same way.

In §3, I distinguished between the historical *author*, the philosophical *persona*, and the political *symptom*. The vast majority of proper-names invoked herein have been of the former sort—the authors of statements to be situated and interpreted in terms of what they say about the past world of which they were part. Certain statements have been identified explicitly as symptomatic. Others doubtless could be.

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<sup>22</sup> de Beauvoir [1949] 1953.

<sup>23</sup> Lorde 2012, 110–111.

However, as necessary as the register of condemnation demonstrably is, we must be wary of the nullification that would result from the generalisation of such a judgemental disposition. Condemnation—in the sense that one would condemn a house—cannot suffice to its own ends. To make something “a thing of the past” requires not just demolition but counter-construction. Moreover, to be positioned as an inheritor of a history is to be made responsible—in however partial or minor a manner—for the impositions of the resultant present. Thus, to avoid the indulgence of nullification—‘it’s all a sham; let it burn, let it burn’—condemnation cannot exclude the possibility of reclamation.

However grotesque its filiations, if a past remains active in a present—and, more precisely, if needful courses of action continue to depend upon some derivation of it—then it must be possible to reclaim from that history. The environmental concepts investigated herein remain active—they continue to tell us “what’s what, and where’s where,” as James put it.<sup>24</sup> The question of their reclamation thus remains likewise.

This text has, therefore, undertaken two quite different tasks: First, and predominantly, to reconstruct the principal contours of the evidentiary record of the history in question, while beginning to piece together a sense of the past world that a fuller historiography might realise. However, and second, it has also attempted to articulate a series of ontological recompositions, in the manner of speculative philosophy, that would, in turn, do two things simultaneously: First, provide analytical means of better understanding the relevant events. Second, maintain the conviction that what was ever valuable in this history never *required* the violence that came with it. In other words, these speculative reconceptions have attempted to make sense of the history without accepting its inevitability. More specifically, they attempt to articulate a mode of existence for environmental conceptions that would admit of the possibility of reclamation without acquiescence to, or apologism for, that which must be condemned. This must be emphasised as speculative and propositional. However, it is also purposeful.

When, in 1620, Francis Bacon propounded the agenda of his *Instauratio Magna*—that is, Great Instauration, or Restoration—this was, as he put it, “to begin the whole labor of the mind again.”<sup>25</sup> While all precisely defined moments of origin are undoubtedly spurious, this statement can be taken to typify the modern imperative to transcend the past, vaulting forever into a future of ever more intensified mastery. To be sure, this disposition can readily be complicated. As seen in §6, spurred by that modernist Revolution par excellence (the French), there was a concerted effort to reclaim precisely those ancients (in particular, Hippocrates) who Bacon could so sweepingly dismiss.<sup>26</sup> Nevertheless, while the exact orientation of such ancestral claims and

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<sup>24</sup> James 1987, 1012–1016.

<sup>25</sup> Bacon 1902, 7.

<sup>26</sup> E.g. Volney 1799, 172–173.

counterclaims may wax and wane, and often be reversed, the question of ontochronic responsibility has rarely been made explicit. This is not true of every tradition.

As the Potawatomi philosopher Kyle Powys Whyte writes:

“Detaching one’s self from one’s ancestral fantasies is a problematic activity because we cease to acknowledge the counterfactual space of unfolding dialogue with our ancestors and descendants from particular generations.”

Here, Whyte is particularly concerned with the manner in which Indigenous peoples are made, by would-be settler allies, into “resources that can be used for better or worse purposes for the advancement of humanity.” In so doing, would-be allies permit themselves to be fashioned as “protagonists for Indigenous peoples”—a detachment of ancestral relations that, in the terms developed herein, erases the particularity of each common-place, claiming each product of human ingenuity as a universal inheritance. However well-meaning this appropriative condescension may be, it “erases the fact that Indigenous peoples everywhere have been through repeated apocalypses”—multiple dystopian disasters to which would-be allies indeed bear, however indirectly, a relation of ancestral accomplicity (and, quite often, present ignorance).<sup>27</sup>

It is not, of course, Whyte admits, that settler peoples are unique in their heritage of violence, although colonists are wont to “strategically misrepresent” the misdeeds of the colonised so as to relativise their own crimes.

“We are always in dialogue with our ancestors as dystopianists and fantasizers. Would the hidden interests of our descendants really involve their finding out that our current generation tried to cover up the errors of our ancestors?”<sup>28</sup>

It is with respect to something like this problem of collective significance that I take Stengers to have defined “humour” as “the capacity to recognize oneself as a product of the history whose construction one is trying to follow.”<sup>29</sup> Irony in history is unavoidable. We are appraised of the future of those whose present we retrospect. However, operating in a mode of sympathy and discovery is also possible.

It is not that we should have any sympathy for the letter, or even the spirit, of Comte’s supercilious dogmas, or Montesquieu’s magisterial decrees. Nor, to reaffirm, am I requiring that any reader of this text recognise such figures as ancestors in any meaningful sense—this is as much a methodological relation as any. However, if such filiation is accepted, intellectually if nothing else, then we may admit that if we wish to share nothing of such doctrines, we should at least recognise ourselves in the problems that they addressed.

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<sup>27</sup> Whyte 2018, 15.

<sup>28</sup> Ibid.; cf. Simpson 2017, 192–193.

<sup>29</sup> Stengers 2000, 66; Stengers 1993.

Thus understood, conceptual history is not the history of how things came to be the way they are. Such a mode of articulation cannot elicit the “drive and ferment” of a historical process, in Dutoit’s words. It can, however, elicit the story of how past presents were acted with, and against—how agents acted amidst worlds relevant to them, and how they could have done otherwise.

If *conception*, as James put it, “tells us what’s what, and where’s where,” adapting us “to an immense environment,” then *reception* is the concept that acknowledges this immensity to be not *taken* but *given*. This is the *arkhé* pertaining to historical ontology, as now reconceived: the commitment to reception that conditions the possibility of coexistence (§E).

It is not, then, “to begin the whole labor of the mind again” that another great instauration is called for.<sup>30</sup> Rather, it is to begin the whole labour of the world, as worlds—perhaps, for some, for the first time. To construct “a world in which many worlds fit,” as per the much-quoted declaration of the Zapatistas.<sup>31</sup> A situation of “contrast” without “contradiction,” as Stengers might put it.<sup>32</sup> To be sure, this is not our world—not yet.

This thesis has attempted to formulate an empirical and conceptual apparatus for the realisation of such a situation with regard to the case of environmental concepts up to around the start of the twentieth century.

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<sup>30</sup> Stengers and Latour 2015, 87.

<sup>31</sup> Translated and quoted in: de la Cadena and Blaser 2018b, 1.

<sup>32</sup> Stengers 2005a, 193.

## 10: Conclusion

Where are we? What time are we in? What is our shared reality?

Substantively, this thesis has traced the distinct but interrelated histories of milieu, climate, and environment up to the start of the twentieth century. Analytically, it has differentiated between specific instances of conception, emphasising their contemporaneous significance. Diagnostically, it has understood these conceptions to be formative of ontological relations. Conceptually, it has de-amalgamated “ontology” into six distinct but interdependent dimensions. Speculatively, even somewhat mythologically, it has begun to reformulate certain strands of this inherited history with a view to what they might mean in the present. Thus, integrally, this thesis has been concerned with matters of spatial relation, epochal differentiation, and ontological association.

The history previously explicated may now, therefore, be recapitulated.

In the Ancient world, sky and earth were intimately entwined. Concern with the medical consequences of airs, waters, and places was established long before *klíma* entered any vocabulary. Later, variations on this expression could designate regions. Systems of climatic bands, often numbering seven, related astral bodies to earthly fates. Inhabitation of the middlemost was particularly desired, for reasons of humoral health, balanced temperament, and prophetic aptitude.

The geocentric cosmos came to a close in the arena of expanding empires, emboldening capital, enclosures, and witch-hunts. Climes became displaced by climates, which, in turn, came to stand for then-archaic, skyey expressions of spatial being. Around the same time, questions of physical media, resistance, and dynamics were becoming imperative for the slowly formalising institutions of royal patronage, private wealth, state governance, and gentlemanly curiosity.

Newtonian physics came to displace Cartesian in the equations and affections of European elites. Achievements of mechanical prediction were supplemented by speculations as to cosmic causation, leading to the widespread suffusion of mechanical and immaterial media. These acted as principles of universal connection, suggestive of illimitable power. Meanwhile, the sundry fermentations and occult excretions of the earth were the subject of both medical rumination and aesthetic reflexion. From skies down to bodies—localities were, then, composed and rendered distinct by chains of extensive, complex mechanical causation.

Climates, too, became related to mechanical, fibral conceptions of physique. While the tension of such forces with the rights and proprieties of individual agency was oft-acknowledged, for the purposes of governance, the far-seeing facilities of “tendency” and “inclination,” with regard to forces incumbent upon entire collectives, proved powerful. Here, climate became a commonplace and contested concept. It was increasingly recognised to be irreducible to mere

latitude, incorporating a complex range of factors, many of which were quantifiable. Soon after, climate was crucial to neo-Hippocratic demands for post-Revolutionary rational holism, lending conceptual weight to the expanded empirical range of increasingly state-integrated analysts.

As the salience of surroundings to being and well-being became increasingly formalised and fêted, the environed individual was shielded from materialistic determination by History—that is, by the maintaining of developmental stages that progressively emancipate the more highly civilised from the indignities of attachment to nature. Indeed, now-abstract and “positive” milieus and environments themselves came to be principles of individuation—the more expansive the environment, the more exalted the individual.

While not initially integral to Darwinian–Wallacean evolutionary theory, the abstract-positive concepts were enrolled in their justification and popularisation. As they were propagated, common grounds were established for the still-emergent disciplines of Western scientific knowledge, as well as moral, theological, philosophical, and political claimants to such dignity. However, environments and milieus remained “shadows with substance.” Environed beings—man, organism, race, state, etc.—were affirmed in their individuality, even as they were encircled by certified causal incursions into their being. However, echoes of the elemental milieu remained detectable, and, from the stage to the debating chamber, the significance of the surrounding was widely avowed.

From the “sympathies” of the Scottish Enlightenment, to the “visualities” of Carlylean Great Men, to the “phantoms” and metaphysics of Tardean–Durkheimian disciplinary manoeuvring, the dynamic of subject-and-surroundings was integral to the development of sociological thinking. Such concepts as the social milieu provided a means of conceiving the actual existence of the probabilistic—of giving conceptual flesh to the increasingly abundant flows of statistics and calculations.

And so, as it became delineable into climates, milieus, and environments, the planet itself became a panorama for those who sought empire, duskless—a world on which the sun would never set, even though, down below, storm clouds gathered over a state of geopolitical connection, impression, and fracture.

This, *in nuce*, then, is the historical contribution of this thesis—an account of these three concepts, up until around the start of the twentieth century. However, as well as being a historical text, it has also been a philosophical one—with the difference between historical and philosophical practice, itself, given a distinct articulation. The principal philosophical contribution of this thesis concerns the concept of ontology. Beginning from a dissatisfaction with the presumption that *lógos* be taken as the lodestone of questions concerning the real, the preceding has instead undertaken to de-amalgamate the ontological, reconceptualising it as consisting of six dimensions.



The ontonomic maintains that the fundamental relation in question is that of the committed reception of things as real through practices of collective cultivation. This section also introduced an alternative founding mythos for collectivity, based not in the earth, taken as a pre-given totality, but in the trivium, crossroads, or common-place, formed in earth over time.

The ontoturgic maintains that the reception of such realities as a “world” requires work—world-making labours that can be understood through, though certainly not reduced to, the workings of fiction. In particular, it was shown how sociological conceptions may be productive of such world-effects, even as they deny the validity of “ontology” as such.

The ontodesic maintains that, while received realities must be performed into patency, this should not be confused with a reduction of such realities to their reception. Indeed, a renewed ethos of “realism” recognises that assumed agential distributions may be refuted by the agents in question, as per the case of the Haitian Revolution, or contemporary climate crisis.

The ontographic maintains that the traditional, exclusive, and hierarchical opposition between the ontic and the ontological may be replaced by consideration of “paradigmatically existing things.” While the ontoturgic renders constituents into worlds through exemplary existential patterns, the ontographic concerns the full range of those things that exist, without foreclosing the necessary heterogeneity of this constitution.

The ontomesic maintains that if collectives, and hence worlds, are conceived as “manifold” then this multiplicity should not—or, at least, not necessarily—entail a fundamental alienation that would amount to incommunicability, or the impossibility of liaison, relation, or alliance. On the contrary, the very concept of the trivium qua common-place suggests the ancestrally received fact of coexistence and coordination.

The ontochronic, finally, maintains that the diverse manners by which time might be divided must not be foreclosed or hastily generalised. It is with respect to this admission that the ontological can be reconnected back to the historical, since historiography, such as it is practiced herein, requires a careful understanding of what it means to make something “a thing of the past.”

The limitations to which the preceding history has been subject have already been acknowledged (§1.2). However, it is now possible to recognise several constraints more exactly.

First, various offshoots of a more comprehensive history have been elicited without being developed. For example, the analysis of the “ambient” was curtailed at Newton (§4.1), without showing its further development as *ambiente* or *medi ambiente* in other Romance languages. Second, in adhering closely to the history of “concepts” (as defined in §3), more general conditions of possibility for the emergence of the issues and ideas in question have not been investigated. For example, conceptions of “the state of nature” in seventeenth and eighteenth century political philosophy would be informative in this respect, particularly as regards establishing the mythic earth-relation that is addressed by what I have called the trivium

qua common-place. Third, the restricted timeframe, though necessary, and meaningful in its end-point, has precluded analysis of, for example, the popularisation of *Umwelt* in the early twentieth century, and the historical analysis of “world” that would be attendant to that. The philosophical reconception of “manifold worlds” therefore remains relatively underdeveloped, requiring, as it does, more cohesive and extensive consideration of the significance of “world,” in comparison with other environmental concepts, particularly as regards the legacy of phenomenology in contemporary social and political theory. Finally, the limited engagement with the significance of environment after the 1960s, and through to the “Earth system” era since the 1980s, has constrained the degree to which this history of environmental concepts has been able to address what are, no doubt, some of the more straightforward relations of significance with regard to these concepts in the present. Both the preceding narrative and concept of historical ontology therefore stand to be variously expanded and re-problematised, if and when this study is taken further.

From the geocentric to the egographic, egocentric, geographic, geopolitical, but not yet, not fully, to the geomoral—this thesis is not, then, a comprehensive account of the task it set itself, either empirically or creatively. However, it provides the basis for a more far-reaching account, in both respects.

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<sup>1</sup> Weichhart 1979, 526.

<sup>2</sup> Unknown 1937.

<sup>3</sup> Unknown 1845.

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<sup>5</sup> Comte 1891, between pages 332 and 333.

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<sup>7</sup> Capellani 1913.

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<sup>12</sup> Titian 1520; Rubens 1636.

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<sup>13</sup> Halley 1686c; Halley 1686b.

<sup>14</sup> Halley 1702.

<sup>15</sup> Humboldt and Bonpland 1807a.

<sup>16</sup> Humboldt 1817, between pages 122 and 123.

<sup>17</sup> Whipple 1852.

<sup>18</sup> Humboldt 1797, vol. 1, Annex.

<sup>19</sup> Anon 1908a.

<sup>20</sup> Molena 1912, 341.

<sup>21</sup> Church 1859.

<sup>22</sup> Carlyle 1898, 285.

<sup>23</sup> Darwin 1839, Annex.

<sup>24</sup> Darwin 1845, 379.

<sup>25</sup> Weismann 1893, 303.

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<sup>26</sup> Chalmers Publishing Company 1917; Kirkwood 1917; see also: Cummings 1922.

<sup>27</sup> Vidal de La Blache 1922, Annex.

<sup>28</sup> Wood and Carpenter 1927, 15.

<sup>29</sup> Turner 1840.

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