



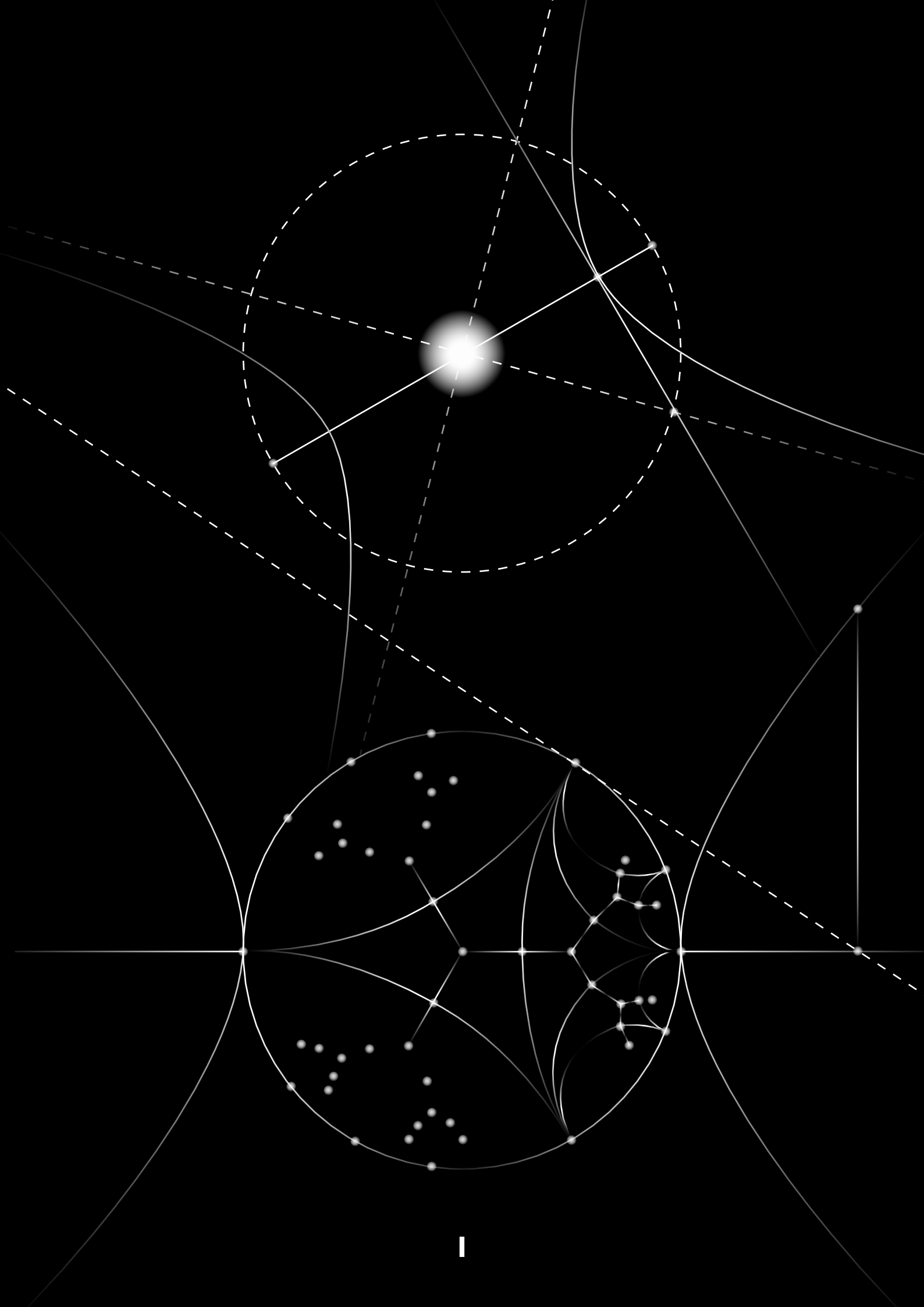
Figuring Planetary Space: Abandoning Man's Measure

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Figuring Planetary Space: Abandoning Man's Measure

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Historians sometimes describe their work as a dialogue in the present with the past about the future. The Anthropocene demands that we dramatically extend the temporal and spatial coordinates of those dialogues.¹

To encounter the planet in thought is to encounter something that is the condition of human existence and yet remains profoundly indifferent to that existence.²

In developing the scientific means to know our own past, we have exposed the mythical substructure of our ‘social science’ – what once appeared unassailable axioms, the stable points around which our self-knowledge is organised, are scattering like mice. What is the purpose of all this new knowledge, if not to reshape our conceptions of who we are and what we might yet become?³

I. Introduction

The futural stakes of a Planetary Turn ought not to obscure that what it obliges is a fundamental renegotiation of the past. The Planetary is not a topic, but a historical condition. While anthropogenic climate catastrophe may disclose the Planetary through complex, aggregated techno-scientific means, its significance overflows the epistemological borders of its fields of discovery, unsettling long-entrenched narratives that have governed dominant modalities of human activity for centuries. From the proliferation of *projective* cartography that transformed the Earth into a navigable and exploitable Globe made by “empire, capital, and technology,”⁴ the Planetary summons an *embedded* perspective enmeshed in metabolic, biogeochemical

1 Gabrielle Hecht, *Residual Governance: How South Africa Foretells Planetary Futures*, (Durham: Duke University Press, 2023), 34.

2 Dipesh Chakrabarty, *The Climate of History in a Planetary Age*, (Chicago: Chicago University Press, 2021), 70.

3 David Graeber and David Wengrow, *The Dawn of Everything: A New History of Humanity*, (London: Penguin Books, 2021), 525.

4 Dipesh Chakrabarty, *The Climate of History in a Planetary Age*, 68.

processes, most of which began without us, long before us. The Planetary may be indifferent to human life forms, but as our condition of uninhabitability, our forms of life are not indifferent to it.

What we may call a Planetary ‘meta-brief’ is pan-disciplinary in scope, and contingent upon an *agency to be changed* by how it addresses us in ways the canons and practices of Global Modernity do not.⁵ Considering the Planetary came into recognition through the measurement of residual accretion from human activities,⁶ the same can be said about the accretion of cultural and normative residues that naturalise self-images and the organisation of forms of life, now accelerating towards humanly uninhabitable conditions. Like paradigms of the past, there is reluctance, when not outright hostility to discoveries that challenge foundational world-pictures, our orientation therein, as well as household taxonomies and distributions of power. There is complacent comfort in “confirming” the familiar, rather than confronting an impasse, where a “conservative instinct” stifles questions, in favour of ready-made answers.⁷ As Derrick White wrote “practitioners of scientific paradigms, avoid, evade, and occasionally adjust to maintain normative status in the face of anomalies and crises,” not because a paradigm has “superior explanatory power” but simply in order to “save” the framework.⁸ For Thomas Kuhn, scientific paradigms shift in moments of crisis, which become intelligible when underlying referential frameworks fail to account for mounting exceptions, not unrelated to our ‘once-in-a-hundred year floods’ that now arrive in two-year cycles. In such crisis moments, “normal science” is suspended, and the labour of “extraordinary science” begins.⁹ ‘Extraordinary,’ here, is not a judgement of superior quality, but rather the abandonment of conventional referential frameworks that provide a base consensus grounding the pursuit of ‘worthwhile’ questions, as well as what counts as relevant information in the process of research. Over time and extraordinary experimentation, new commitments to foundational frameworks emerge, like the paradigmatic shift to heliocentrism from geocentrism in modeling our universe, such that to “desert the paradigm is to cease practicing the science it *defines*”.¹⁰ In collapsing the long-standing

5 Ibid., 92.

6 Gabrielle Hecht, *Residual Governance*, 29.

7 Gaston Bachelard, *The Formation of the Scientific Mind*, trans. M. McAllester Jones, (Manchester: Clinamen Press, 2002), 25.

8 Derrick White, “Black Metamorphosis: A Prelude to Sylvia Wynter’s Theory of the Human,” in *C.L.R. James Journal* 16, 2010, 127-148.

9 Thomas S. Kuhn, *The Structure of Scientific Revolutions*, (Chicago: Chicago University Press, 1970 [1962]), 82.

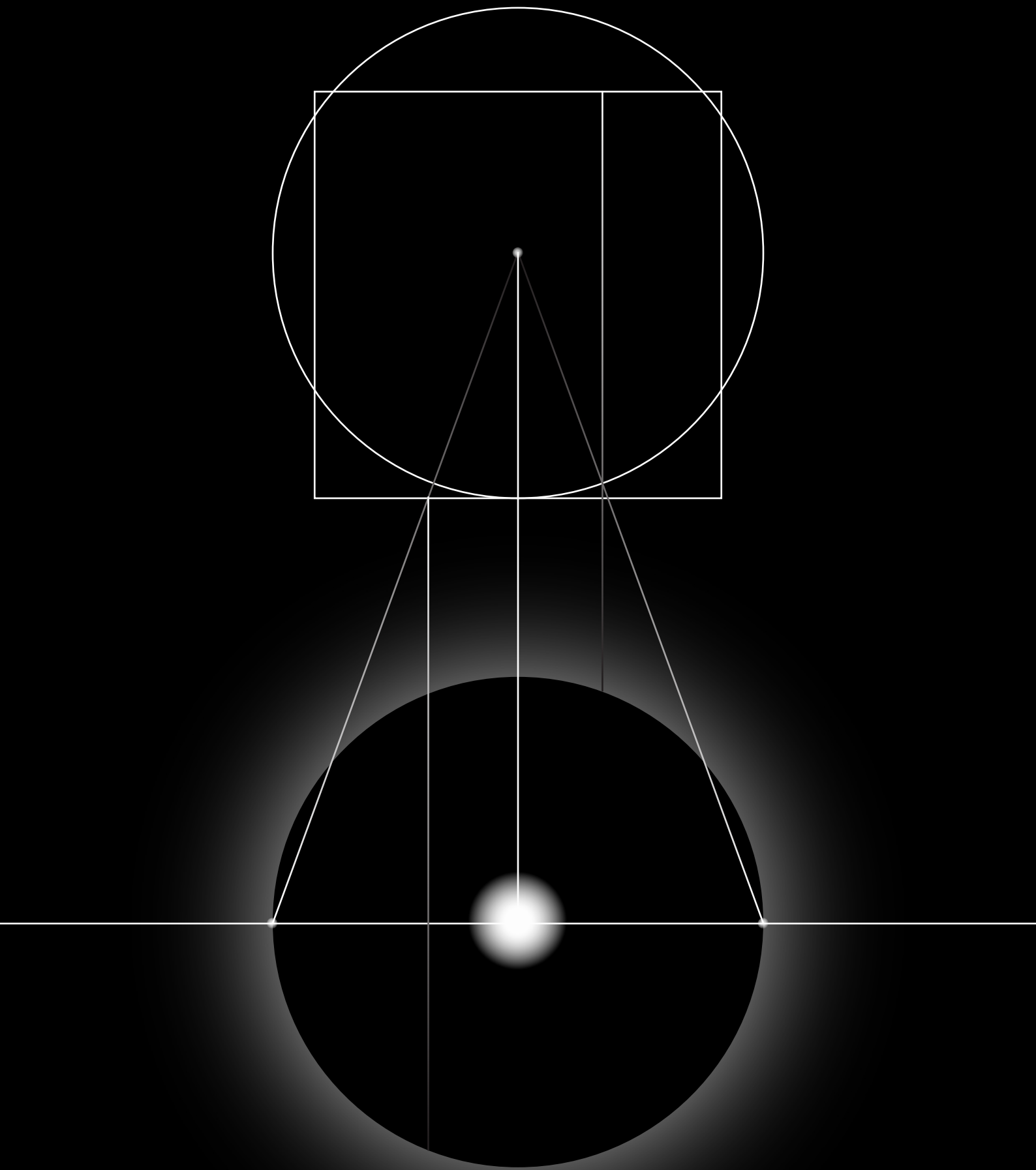
10 Ibid., 34. [Emphasis by the author].

conceptual separation between human and natural histories, the Planetary is of similar paradigm shifting consequence in epistemic, cultural, social, technological, economic and geopolitical terms. Across disciplines and practices, the Planetary arouses such extraordinary research, prompting the question as to which vehicles and practices may enable (or hinder), its sensible interpellation.

Attending to the cultural and normative historical pathways that have delivered humanity into this *general* recognition of climate crisis, the *specific* figure of Man comes into focus as a referential framework in need of abandonment and the forms of life *defined* in his image. While Man's techno-scientific achievements enabled a witnessing of the Planetary in measurable terms, his unendurable paradigm has sealed "its own fate by the operation of its own dynamic".¹¹ This observation brings us in direct contact with spatial and architectural thought, since there is no operationality of Man's philosophical and normative logics without his artefactual externalisation in a corresponding space to 'home' his self-image. How may spatial thought that once catalysed Man's Euromodern *cum* Global reach conduct such extraordinary research without his referential basis? What historically 'unassailable axioms' are troubled by a Planetary address,¹² and how have those axioms been naturalised in our artefactual remains? How are historical, cultural accretive residues carried over within our fields of practice that foreclose upon the capacity to be changed by this Planetary address, and what experimental forms of mediation may facilitate a transformed self-narration?

11 Donna J. Haraway, *Crystals, Fabrics, and Fields: Metaphors of Organicism in Twentieth-Century Developmental Biology*, (New Haven: Yale University Press, 1976), 6.

12 I am echoing this notion of 'Planetary address' from Lukáš Likavčan, "The Long L: Habitability in Substrate-Agnostic Ecologies," in *Antikythera Journal*, 2025. <https://longl.antikythera.org/>



... [B]ecause our world is ‘an interacting system’ in dynamic change, our system of scholarship ‘rooted in its own sanctified categories, is, in a large part, un-availing to the needs of mankind.’ If...we are to ‘understand a newer and still evolving world...if we are to abandon categories and institutions that belong to a vanished world as it is well-nigh desperate that we should ... then knowledge must be rewritten.’¹³

II. Man’s Schematic Self-Image

Enclosed by a cosmic circle and terrestrial box marking bodily, phenomenologically ‘knowable’ limits, Vitruvian Man became the inadvertent logo of Euromodernity. Its schematic measure announced a system of self-reference lubricating Janus-faced worldmaking operations that have produced both feats of achievement as well as monumental violence, where these twinned histories have now culminated in our present eco-social crises. Produced roughly two-years before the European colonisation of the Americas in 1492, da Vinci’s figure stands in both an X and T pose with angelically curled hair as a diagram for universal measure captioned by the formula: “4 fingers make a palm, 4 palms make a foot, 6 palms make a cubit, 4 cubits make a man, 4 cubits make a footstep, 24 palms make a man and *these measures are in his buildings*”.¹⁴ The seeds of Euromodern operations were sown in spatial thought.

From physical architecture to conceptual architecture, Man’s self-referential measure ushered in a transformed cosmological orientation. The schema of self-reference, resurrected from principles introduced by Vitruvius’ treatise *De Architectura*, written 1500 years earlier between 20-30 BCE, marked the birth of philosophical Humanism in artistic form. In an epochal historical shift from Western medieval theological cosmogony (origin stories), this newly “degodded,” “who we are” story of Humanist Man instilled with

13 Stafford Beer qtd. in Sylvia Wynter, “The Ceremony Must be Found: After Humanism,” in *boundary 2*, Vol. 12, No. 3, On Humanism and the University I: The Discourse of Humanism (Spring - Autumn, 1984), 19–70.

14 S. Magazù, N. Coletta, F. Migliardo, “The Vitruvian Man of Leonardo da Vinci as a Representation of an Operational Approach to Knowledge,” in *Found Sci* 24, 2019, 751–773. [Emphasis by the author].

rationality as his 'natural' endowment¹⁵ propelled a self-narration of mastery over his environment, bearing a world crafted and conceived in his image. Vitruvius' fawning appeal to the birthright power of Emperor Caesar "to command the world" in the book's opening, was effectively transposed upon Humanist Man¹⁶ – a prototype deployed as a stand-in for humanness at large, that was and is, in practice, a purely "Greco-Roman concept of the human figure".¹⁷ It is in this movement of inflating what Sylvia Wynter calls a particular "genre of being human" to the universal status of humanity,¹⁸ that Man does not represent an individual, but rather a model. This model demarcates specific criteria for entry and recognition within the category 'human,' thus coming to define, and represent gendered and racialised hierarchical schisms within the species, whether intentionally or otherwise. In Walter Mignolo's words: "Vitruvian Man translated into visual language what humanists were portraying in words [...] Man and *humanitas* became the frame of reference allowing the enunciator inscribed in Greco-Latin genealogy of thoughts to decide who belonged (not just to Christianity) but to humanity."¹⁹ While the logics and operations of Humanist Man may have constructed epistemologies that enable an eventual witnessing of the Planetary, there is no paradigmatic interpellation of its address without repairing this foundational hierarchical split of humanity from itself. Such a split (or co-human negation in the parlance of Wynter) is not only an occurrence within human global histories, but is also metabolically significant as a Planetary phenomenon: its environmental traces can be seen from space and chemically sensed in the atmosphere and hydrosphere.²⁰

That this model Man derives from spatial thought is of further consequence than the geometrical shapes enclosing him as a symbolic border of selection/

- 15 Sylvia Wynter, "Unsettling the Coloniality of Being/Power/Truth/Freedom: Towards the Human, After Man, Its Overrepresentation--An Argument," in *The New Centennial Review*, Vol. 3, No. 3, Fall 2003, 257-337.
- 16 Vitruvius, *Ten Books on Architecture*, trans. Morris Hicky Morgan, (Cambridge: Harvard University Press, 1914).
- 17 Walter D. Mignolo, "Sylvia Wynter: What Does It Mean to Be Human?," in *Sylvia Wynter: On Being Human as Praxis*, ed. K. McKittrick, (Durham: Duke University Press, 2015), 109.
- 18 Sylvia Wynter, "Unsettling the Coloniality of Being/Power/Truth/Freedom".
- 19 Walter D. Mignolo, "Who Speaks for the "Human" in Human Rights?," in *Human Rights in Latin American and Iberian Cultures* Hispanic Issues On Line 5.1 (2009).
- 20 Gabrielle Hecht, "You Can See Apartheid From Space," in *Residual Governance*, 19-45.

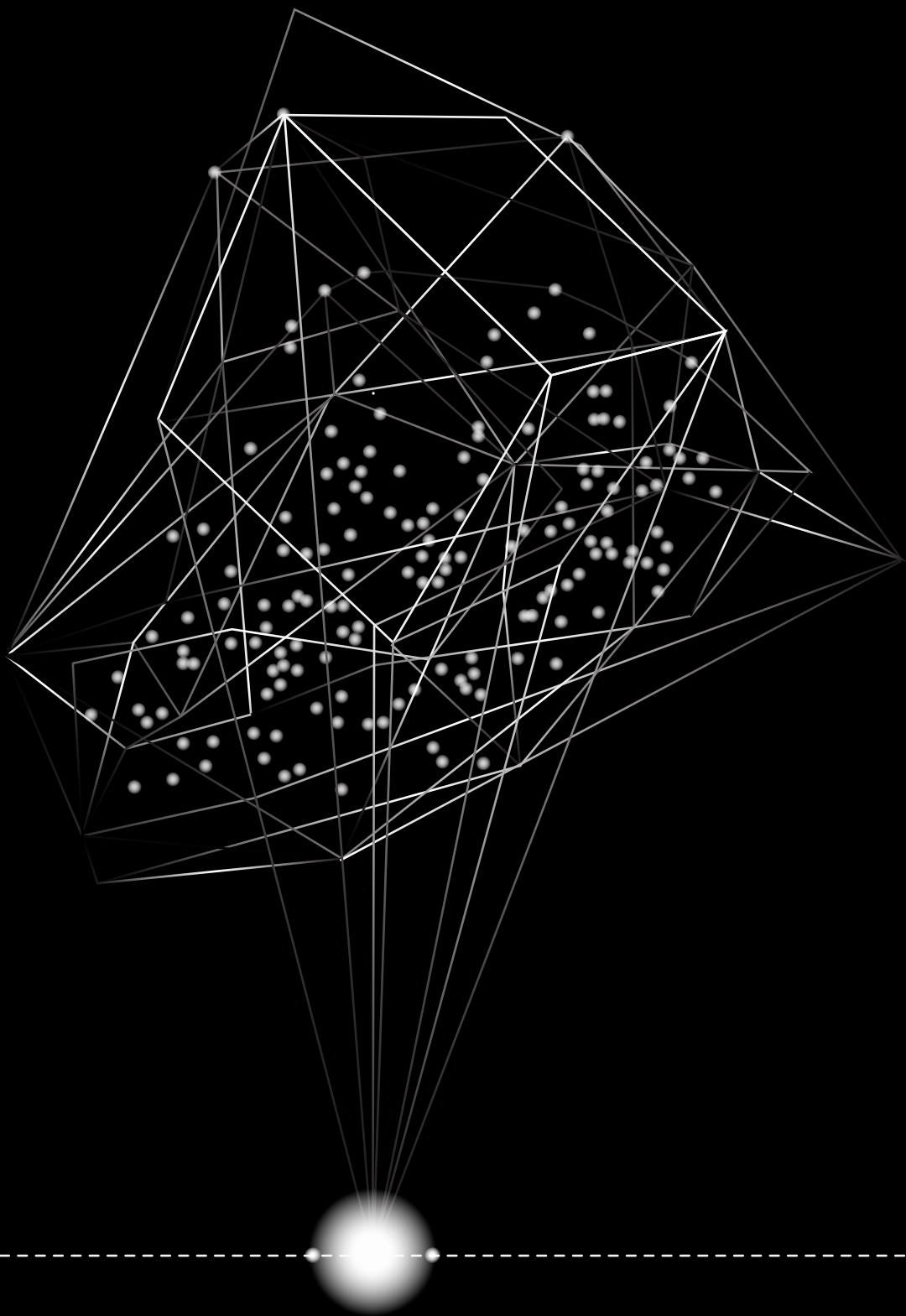
dyssselection within the category human. Man's self-referential measure overextends the logic of his *proportion* (interior relations between parts), to that of *scale* (exterior relations *relative* to the Planet). Such self-referential measure belonging to Vitruvian Man is today, baked into technologies such as CNC milling machines, where his naval is the literal homing coordinate for the machine to orient its automated cuts, as Francesca Hughes has pointed out.²¹ The consequences of the conflation between proportion and scale, mirrored in practices of representation, is a relation to the world in mono-scalar terms, or what Zachary Horton calls "scalar collapse". Namely, "medial practices that unwittingly or deliberately normalize" Man's phenomenological scale "to the dynamics, features, and cultural status of another".²² As the historical consequences of Man's worldmaking practices now compel a "Planetary Realism" in climate crisis,²³ enacting an abandonment from this conceptual architecture that has historically been dramatised in spatial thought, is pressing. What are the conditions of a 'vanished world', its 'categories and institutions' that cascade in Man's image demanding abandonment? How can the transcalar dynamics of Planetary metabolism be figured where the "lumpers" of "one-worldism" (those who defer to an aggregate Earth Systems Science scale of the Anthropos in climate collapse to the neglect of imperial human history) are politically mediated by the critical "splitters" (those who call attention to existential, imperial divisions along "colony, race, class, gender")?²⁴ How can the struggle against Man's 'anthropo'-centric measure be squared with our *anthropomorphic* condition – especially from the purview of spatial practice within which Man's naturalisation as a model took root? What are the stakes of the epistemological obstacles and canonised 'preservativisms' that persist in this undertaking, whether deliberate or not?

21 Francesca Hughes, "Circling the Digital: a Troubled History," lecture, *Yale University*, New Haven CT, September 19, 2024.
<https://www.youtube.com/watch?v=j6QJj8sk640&t=2201s>

22 Zachary Horton, *The Cosmic Zoom: Scale, Knowledge, and Mediation*, (Chicago: Chicago University Press, 2021), 11.

23 Josephine Berry emphasises that Planetary Realism is not a rehearsal of distant "objectivisms" from Realisms of the past, but a proximate focus on the internality of sensation from within Planetary conditions: "[A] Realism suspended between a complicity with the objectifying and dissociative regime of capitalism and its role as a vital navigational tool that could help us plot a collective course out of incipient ecological collapse." In *Planetary Realism: Art Against Apocalypse*, (London: Sternberg Press, 2025), 13.

24 Dipesh Chakrabarty, *The Climate of History in a Planetary Age*, 17-18.



To be effective, systems of power must be discursively legitimated [...] is to suggest the equiprimordiality of structure and cultural conceptions in the genesis of power. These cultural conceptions, encoded in language and other signifying systems, shape the development of political structures and are also shaped by them. The cultural aspects of power are as original as the structural aspects; each serves as a code for the other's development. It is from these elementary cultural conceptions that complex legitimating discourses are constructed.²⁵

III. **Aesthetemes and the Mediation of Man's Space**

Sylvia Wynter's identification and elaboration of Man (as model) serving as a frame of reference for Euromodern worldmaking, deepens Michel Foucault's designation of 'epistemes' as a general *discursive* configuration that conditions modes of knowing belonging to a specific historical bracket. Notably, albeit scantily, Wynter introduced the complementary 'aestheteme' to describe a similar tendency within representational practices (with literature being her prime focus).²⁶ While Wynter only used this term twice in her prolific oeuvre with untraceable citation, it brings to the fore her recursive understanding of human cultures and the role representational activities play in rehearsing "who we are" narratives as foundational 'laws,' and justificatory, referential operators within any historical human order. Influenced by anthropologist Clifford Geertz's semiotic concept of culture, for Wynter cosmogonical "who we are" descriptive statements weave particular "webs of significance" into which all humans are inescapably thrust, despite vast differences between what those narrations are, and the regulatory normative/cultural conditions they institute, highlighting the role storytelling plays within human symbolic systems that are irreducible to fixed or essentialist

25 Sylvia Wynter, "Beyond the Categories of the Master Conception: The Counterdoctrine of the Jamesian Poiesis," in *C.L.R. James's Caribbean*, eds. P. Henry and P. Buhle, (Durham: Duke University Press, 1992), 63–91.

26 See Sylvia Wynter, "The Ceremony Must Be Found: After Humanism," and Sylvia Wynter, "The Ceremony Found: Towards the Autopoietic Turn/Overturn, its Autonomy of Human Agency and Extraterritoriality of (Self-)Cognition," in *Black Knowledges/Black Struggles*, eds.: J. R. Ambroise and S. Broeck, Liverpool: Liverpool University Press, 2015.

description.²⁷ Humans, Wynter asserts, are a verb, not a noun, and self-understanding as a socio-cultural frame of reference emerges in our doings. Aesthetemes externalise semiotic predilections, and their artefactual status enables shareable exchange, rendering otherwise abstract discursive concepts amenable to perception, experience, mimesis, and actionability. In other words, aesthetemes mediate cognition by introducing an artefactual interface through which to see, understand and relate to a world. Informed by Kuhn's theory of scientific paradigm shifts, the *general* question outlined by Wynter, is how human *cultures* undergo paradigm shifts which amount to a transformation in 'who we are' narration. The *specific* problem is how to overcome such loops of self-reference when said regional cosmogony is inflated to the status of global humanity in *concept*, but in practice legislates a split in the species 'we'. In early Euromodernity this split occurs in civic, degodded, and ratiocentric terms (Man1), where Man is divided from his 'irrational' others (generic 'Indians'), thus projected as *by-Nature* superiorly different.²⁸ Man2 emerges from post-evolutionary theory extending the first institutionalised form of race as a biocentric divide following the 19th century logics of W.E.B. DuBois' "Color Line".²⁹ Narrated as *by-evolution* superior, Man2 naturalises our more familiar Liberal-humanist

- 27 Clifford Geertz, "Thick Description: Toward an Interpretive Theory of Culture," in *The Interpretation of Cultures: Selected Essays by Clifford Geertz*, (New York: Basic Books, 1973), 3–30.
- 28 Sylvia Wynter, "The Ceremony Found," 202.
- 29 W.E.B. DuBois, *The Philadelphia Negro: A Social Study*, (New York: Schocken Books, 1967 [1899]). DuBois notably widened his Color Line framing after his 1949 visit to the Warsaw Ghetto, as well as drawing from his experiences of "The Jewish Problem" having witnessed unconscionable antisemitism while living in Berlin during the rise of the Third Reich, linking struggles against "race segregation, religious discrimination and the oppression by wealth" into what today might be called an 'intersectional' project of solidarity. This expansion of the Color Line logic is of particular resonance today where a trade off in forms of discrimination is often implicitly or explicitly endorsed as a zero-sum equation, as if the advocacy of Black liberation comes at the expense of white people, or the advocacy of Palestinian self-determination implies antisemitism. Du Bois' description of the Warsaw Ghetto chillingly echoes images from Gaza on our timelines today: "There had been complete, planned and utter destruction. Some streets had been so obliterated that only by using photographs of the past could they tell where the street was," leading further credence to Masha Gessen's assertion on the necessity for comparison (which doesn't mean "identical") when practicing "Never Again" as a minimal, international political imperative for human dignity following WWII. See W.E.B. DuBois, "The Negro and the Warsaw Ghetto," in *The Negro and the Warsaw Ghetto* (New York, NY: Orthodox Jewish Congregations of America, 1952); and Masha Gessen, "In the Shadow of the Holocaust," in *The New Yorker*, December 2023. <https://www.newyorker.com/news/the-weekend-essay/in-the-shadow-of-the-holocaust>

Man, that establishes narrative justification for superiority/inferiority in a Neo-Darwinist register within an Euro/Anglo Modern World-System as a particular regulatory practice, culminating in the “fiction of *homo oeconomicus*”.³⁰

Man's initial proliferation as a ‘universal’ model (a *discursive concept*) is inseparable from the invention of ordered, mathematised space inherent to Euromodernity, most clearly evident in Florentine linear perspective (a *representational template*)³¹ through which to mirror Man's newly degodded, ratiocentric agencies. This historical precedent demonstrates that a once purely philosophical idea gained operational traction because it co-emerged alongside a representational spatial system, a particular externalisation to see and position himself, and from within its logics, to reason. Man's later proliferation finds its counterpart in the Eameses' *Powers of Ten*, one of the most iconic films of the 20th century deriving from spatial thought. Despite the film's inhuman scales it deploys the “Vitruvian norms of the human lifeworld” in a smooth zoom, resulting in what Derek Woods calls “scalism” – an expansion of Man's mesocosm to “encompass totality”, demanding no revision of normative spatial/proportional ontology.³² As a filmic artefact of Man's degodded, yet masterful Gods-eye-view, the scalism of *Powers of Ten* eclipses the planetary realism of ecological scale variance: “the observation that things happen differently at different scales due to physical constraints upon becoming.”³³ Operations enacted in the explicit or implicit image of Man can be tersely (if too politely) described as an

30 Nicholas Georgescu-Roegen, *The Entropy Law and the Economic Process*, (Cambridge: Harvard University Press, 1971), 1. “No science has been criticized by its own servants as openly and constantly as economics. The motives of dissatisfaction are many, but the most important pertains to the fiction of *homo oeconomicus*. The complaint is that this fiction strips man's behavior of every cultural propensity, which is tantamount to saying that in his economic life man acts mechanically. This is why the shortcoming is ordinarily exposed as the mechanistic outlook of modern economics. The criticism is irrefutable. However, the mechanistic sin of economic science is much deeper than this criticism implies. For the sin is still there even if we look at the economic process from the purely physical viewpoint only. The whole truth is that economics, in the way this discipline is now generally professed, is mechanistic in the same strong sense in which we generally believe only Classical mechanics to be.”

31 John Bamberg and Tim Penttila, “From Perspective to Projective,” in *Analytic Projective Geometry* (Cambridge: Cambridge University Press, 2023), 313.

32 Derek Woods, “Epistemic Things in Charles and Ray Eames's *Powers of Ten*,” in *Scale in Literature and Culture*, eds. Michael Tavel Clarke and David Wittenberg (Cham: Palgrave Macmillan, 2017), 78.

33 *Ibid.*, 65.

aversion to encounter alterity in its own terms – whether that alterity is physiological, gendered, raced, classed, cultural, scalar, epistemic, and so on. This legacy persists in Humanist adjudications of Artificial Intelligence, whereby Man's particular expression of 'intelligence' (unto itself, a contested, mutating model) is often upheld as the universal measure by which to evaluate intelligence, as such.³⁴

Wynter names the specific shift in paradigm of our moment a "ceremony," amounting to the abolition of "the grammars of regularity" of Man that serve as a referential framework, whose primary relation to the world is one of domestication.³⁵ Vitruvian Man's geometrical enclosures portray both his self-model as a hierarchical separation within humanity, while simultaneously schematising his status apart from nature – effectively inflating Man's scalar *niche*, to the world, in and of itself. That these forces of inter-human gendered and racialised species schisms, human-nature separation, as well as a flattening of scalar difference are historically bound, troubles ecological discourses premised on "Anthropos-" that quietly neutralise a continuation of Man as an ahistorical, undifferentiated totality of species-equals, often covertly carried over into sustainability discourses suggesting "that nature be seen and treated as something separate from humans, a standing reserve of resources and 'ecosystem services' to be managed".³⁶ The "epistemic disobedience" required to renounce Man's "provincialism of the universal," that is, from projecting his niche upon the surface of the Globe, towards Planetary frameworks wherein humanity is embedded in Earth Systems, is not only a discursive dispute with imperial definitions of humanity,³⁷ but a *spatial disobedience* with the aesthetemes mediating Man's measure in absolute terms. Unlike the homogenising impulses of Man projecting his measure in infinite space to cognitively tame the unfamiliar, disobedience hinges on a renegotiation of encounters with alterity – an of alterity irreducible to morality, but an opportunity for the "irruption" of thought and convention.³⁸

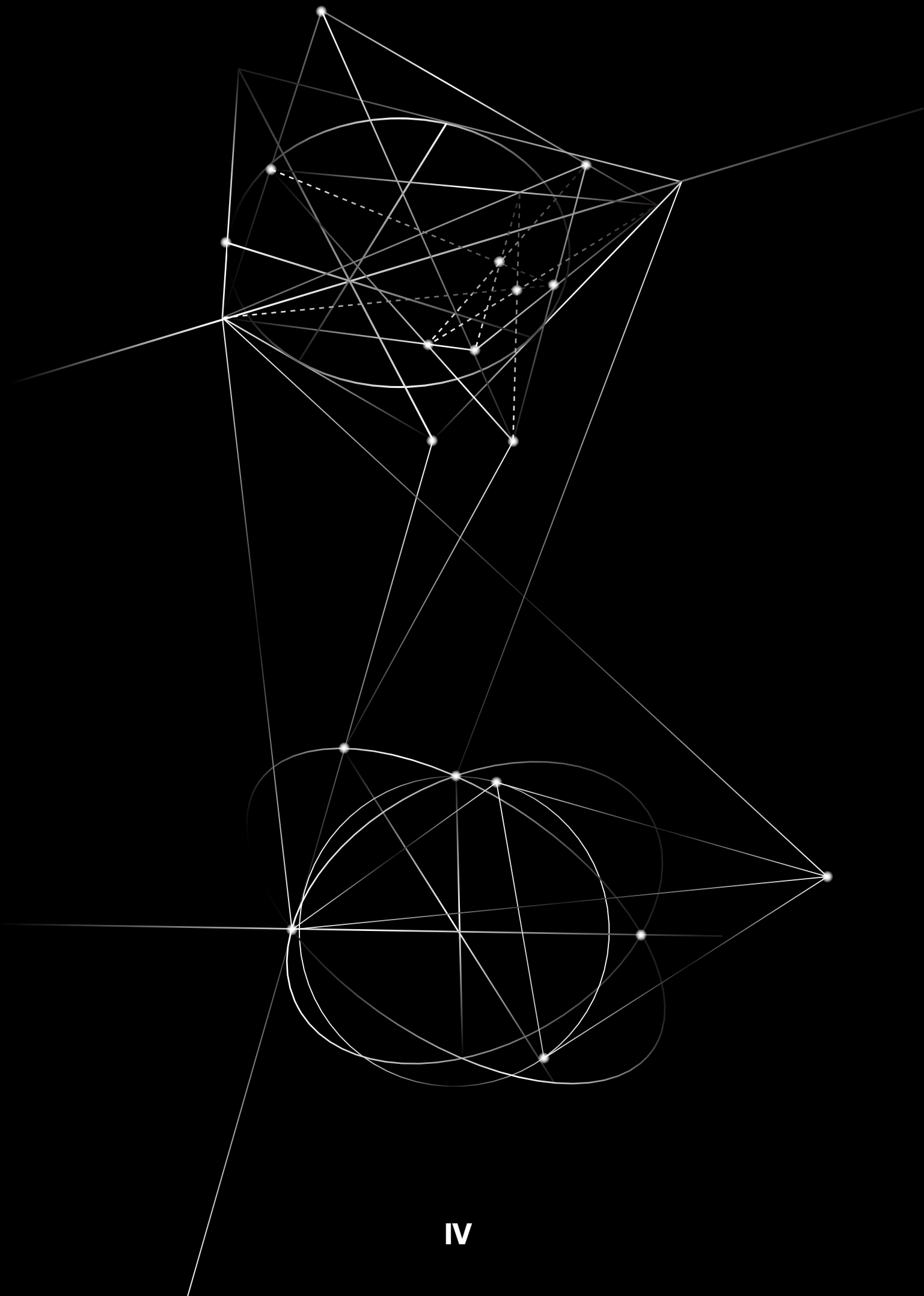
34 See: AA Cavia, "Turing Trauma: Blind Spots in the Synoptic Vision of Intelligence," presented at *Marxism & The Pittsburgh School*, University College London, London, 11 June 2024; and Leif Weatherby, *Language Machines: Cultural AI and the End of Remainder Humanism*, (Minneapolis: Minnesota University Press, 2025).

35 Sylvia Wynter, "A Ceremony Must Be Found".

36 J. S. Blake and N. Gilman, *Children of a Modest Star: Planetary Thinking for an Age of Crises*, (Stanford: Stanford University Press, 2024), 8.

37 Walter D. Mignolo, "Who Speaks for the 'Human' in Human Rights?".

38 Zachary Horton, *The Cosmic Zoom*, 13.



IV

Living systems are units of interactions: they exist in an ambience. From a purely biological point of view they cannot be understood independently of that part of the ambience with which they interact: the niche; nor can the niche be defined independently of the living system that specifies it.³⁹

A system changes only if its domain of interactions changes.⁴⁰

IV. Mesocosm and Perceptual Niche

Man's self-referential measure overflows his buildings, coming to encode a conceptual 'domus': his space of perception, sensing, and reasoning. His spatially Euclidean, phenomenologically proportioned, and epistemologically tamed *Raumgefühl* [sense of space] became his *Weltgefühl* [sense of World] as his *mental home*. The recursive structure Wynter deploys in her elaboration of Man as worldbuilding force derives from Humberto Maturana and Francisco Varela's *Autopoiesis and Cognition*,⁴¹ which addresses how living organisms collapse seeing and knowing the world, such that what is sensed does "not represent the world outside the living organism; rather, it is the living organism that fabricates an image of the world through the internal / neurological processing of information".⁴² Preceding this understanding of autopoiesis as a subject-dependent picture of a system, Jakob von Uexküll advanced the biosemiotic concept of *Umwelt* which names the systemic interaction between the "organism and the world sensed by it",⁴³ where the operation of sign-processing conjoining organism and world is named "semiosis," thereby expanding the domain of semiotics beyond the self-referential scope of human natural languages as the sole bearer of meaning. An *Umwelt* is not interchangeable with uniform environment, but is an organism-specific world, its meaningfulness is relative to an organism's

39 Humberto Maturana, "Biology of Cognition," in *Autopoeisis and Cognition: Realization of the Living* (Dordrecht: D. Reidel, 1980), 9.

40 *Ibid.*, 12.

41 Humberto Maturana and Francisco Varela, *Autopoeisis and Cognition: Realization of the Living* (Dordrecht: D. Reidel, 1980).

42 Walter D. Mignolo, "Sylvia Wynter: What Does it Mean to be Human?," 107.

43 Donald Favereau, "Introduction: An Evolutionary History of Biosemiotics," in *Essential Readings in Biosemiotics*, ed. D. Favereau (Dordrecht: Springer, 2009), 41.

morphology and sensory affordances – like the chemical sign of butyric acid (sweat) as meaningful in a tick’s world. The epistemic disobedience enabled by this autopoietic approach dismantled narrow categories of knowledge and synthesised disciplines that would typically be arranged discretely into biology, cybernetics, cultural studies, epistemology and psychology, abandoning of the “categories and institutions that belong to a vanished world” in which they can be held apart.⁴⁴ Moreover, despite critiques of autopoiesis and its explanatory limitations rooted in “operational closure” that is “incompatible with a biosphere composed of relations all the way down”,⁴⁵ it continues to provide an important counter to a *mechanical* picturing of biology and the socially pervasive Neo-Darwinism evolving from it, that “claims to unite the early twentieth-century discoveries of heredity [individual genomic make-up]...with concepts of Darwinian evolution.”⁴⁶ As the authors of autopoiesis themselves noted, mechanical Neo-Darwinism “seemed to offer...a scientific justification for the subordination of the destiny of the individuals to the transcendental values supposedly embodied in notions such as mankind”.⁴⁷ It is in this mechanical instrumentalisation of bioevolutionary explanations that common narratives used to justify socio-economic stratification, epitomised by Richard Dawkins popularisation of the ‘selfish gene’ concept based on genetic-individual ‘fitness,’ have come to legitimise inter-human economic/material disparity as a ‘law’ of nature, and not as evidence of a failed, or insufficient socio-economic order (a constructed niche).

Wynter’s significant contribution to this autopoietic account, from a Black-Caribbean world-historical standpoint, was to emphasise the psycho-social and normative internalisation of Man’s inflated niche-world upon so-called ‘demythologised’ epistemological claims by extending Frantz Fanon’s principle of sociogeny. Developed while practicing as a psychiatrist with colonised peoples in French-ruled Algeria, for whom ‘properly’ adapting to Man’s social milieu implied subordinating oneself to a perceptual space of dis-individualised inferiority (when not far worse).⁴⁸ After declaring “besides

- 44 Stafford Beer, “Preface,” in Humberto Maturana and Francisco Varela *Autopoeisis and Cognition*, 64.
- 45 Derek Woods, “Prosthetic Symbiosis,” in *The New Centennial Review*, Vol. 22, No 1, 2022, 157–186.
- 46 Lynn Margulis, “Big Trouble in Biology,” in *Slanted Truths: Essays on Gaia, Symbiosis and Evolution*, (New York: Copernicus, 1997), 270.
- 47 Humberto Maturana and Francisco Varela, “Autopoeisis: The Organization of the Living,” 117.
- 48 Ato Sekyi-Otu, “Is She Not Also a Human Being?,” in *Left Universalism, Africentric Essays*, (London: Routledge, 2019).

phylogeny [evolutionary history of a species] and ontogeny [development of an individual organism from birth to maturity] stands sociogeny,”⁴⁹ Fanon shifted the ground of thinking ‘human being’ as isolatable, fixed essence to ‘being human’ as a socially/environmentally entrenched, and thus a transforming and transformable figure. Fanon’s sociogeny complicated the naturalisation of Man’s niche-world epistemes that purported to explain ‘human being’ in ‘objective,’ a-social terms, with the political consequence that necessitates socio-environmental transformation, *not* adaptation to punitive conditions.

Pushing beyond social/psychological constructivism of Fanon, in ecological thought what’s known as ‘niche construction’ undermines a more *laissez-faire* narrative of mechanical bioevolution wherein an organism adapts (or not) to a universal ‘Real’ environment. Niche construction is far more dynamic, where humans (along with all other organisms) coevolve with environments as “active constructors of each other’s affordances”,⁵⁰ they build environments “out of the bits and pieces of the external world”.⁵¹ As Lynn Margulis wrote: “life does not adapt to a passive physicochemical environment, as the Neo-Darwinists assume...[r]ather, life actively produces and modifies its surroundings”.⁵² What emerges in the account of Man and his niche-world, is that his narrative justification is premised on a *mechanical* self-picturing, and self-projection. This ‘adaption-only’ legacy inherent to Man’s Neo-Darwinist/mechanical world, ought to give us pause when the rhetorical mediation of climate catastrophe is often trafficked in terms of “adaptive resilience,” the latter part of the expression borrowed from 19th century materials science, and more recently extended to the domain of psychology.⁵³

What Man’s mechanical niche-world frame of reference fails to mediate, is a metabolic, environmental causality that dislocates consequences of activity within the bounds of the ‘local’ attuned to Man’s measure. While on the one hand celebrating mastery over an environment, this mechanical instrumentalisation of Man fails to account for the multi-directional force of his environmental interventions upon his self-understanding, defaulting to a teleological

49 Frantz Fanon, *Black Skin, White Masks*, trans. C. L. Markmann, (London: Pluto Press, 1986), 13.

50 Lukáš Likavčan, “The Long L: Habitability in Substrate-Agnostic Ecologies,” in *Antikythera Journal*, 2025. <https://longl.antikythera.org/>

51 Richard Lewontin qtd. in Lukáš Likavčan, “The Long L”.

52 Lynn Margulis, “Big Trouble in Biology,” 280.

53 Tetsuo Sawaragi, “Design of Resilient Socio-technical Systems by Human-System Co-creation,” in *Artificial Life and Robotics* 25, 2020, 219–232.

law-like narrative serving an imperially tainted ‘progress’.⁵⁴ In this discrepancy whereby Man inflates his niche-world mesocosm to the scale of totality, is a problem of mediating diverse resolutions of causality, resonating with what Joshua DiCaglio called “situated dislocation”:⁵⁵ in certain scales of interaction mechanistic causality plays out – there is an immediately perceptible environmental response from an activity as an individual. Within Planetary trans-scalar processes and metabolic feedback dynamics, perceptible consequences of activity evade immediate sensory response,⁵⁶ such that abandoning Man’s measure is dependent upon discovering ways of mediating this discrepancy between diverse resolutions of causal interaction – both on an inter-human scale, as well as metabolically speaking in spatial and temporal terms.

Wynter’s adoption of the ‘sociogenic principle’⁵⁷ in her autopoietic account of Euromodernity points to the double bind of epistemology in upholding a ‘normal science’ and thus a familiar space of Man’s frameworks for thought: that it both provides an empowering modality of knowing, but that we are also held captive by its specific, categorical frames of reference that condition said knowledge, and the evaluation of ‘relevant’ information in a certain way. If, as Maturana and Varela wrote, every “observation implies a theoretical perspective, and no ... observation has significance or can be interpreted outside the theoretical framework in which it took place,”⁵⁸ then it is impossible to study ‘humanity’ shorn of its normative environment, its niche-world constructed by Man, such that it becomes necessary to study the narrative “that has been produced with the very instruments (or categories) that we study with”.⁵⁹ By studying Man’s spatial aesthetemes and instruments, we are not only gazing back at the invention of absolute and infinite space, but to the *training* of a way to see, sense, understand, relate to the world and each other, from a mechanistic mesocosm, with art serving as an initial

54 Suhail Malik, “Risk Exposure – Surfeit Futurity,” in *Making & Breaking* #02, 2021. <https://makingandbreaking.org/article/risk-exposure-surfeit-futurity/>

55 Joshua DiCaglio, *Scale Theory: A Nondisciplinary Inquiry*, (Minneapolis: Minnesota University Press, 2021), 32.

56 See Rob Nixon, *Slow Violence and the Environmentalism of the Poor*, (Cambridge: Harvard University Press, 2011); and Michelle Murphy, “Chemical Regimes of Living,” in *Environmental History* 13, 2008, 695–703.

57 Karen M. Gagne, “On the Obsolescence of the Disciplines: Frantz Fanon and Sylvia Wynter Propose a New Mode of Being Human,” in *Human Architecture: Journal of the Sociology of Self-Knowledge*, Vol. 5: no. 3, 2007. Available at: <http://scholarworks.umb.edu/humanarchitecture/vol5/iss3/23>

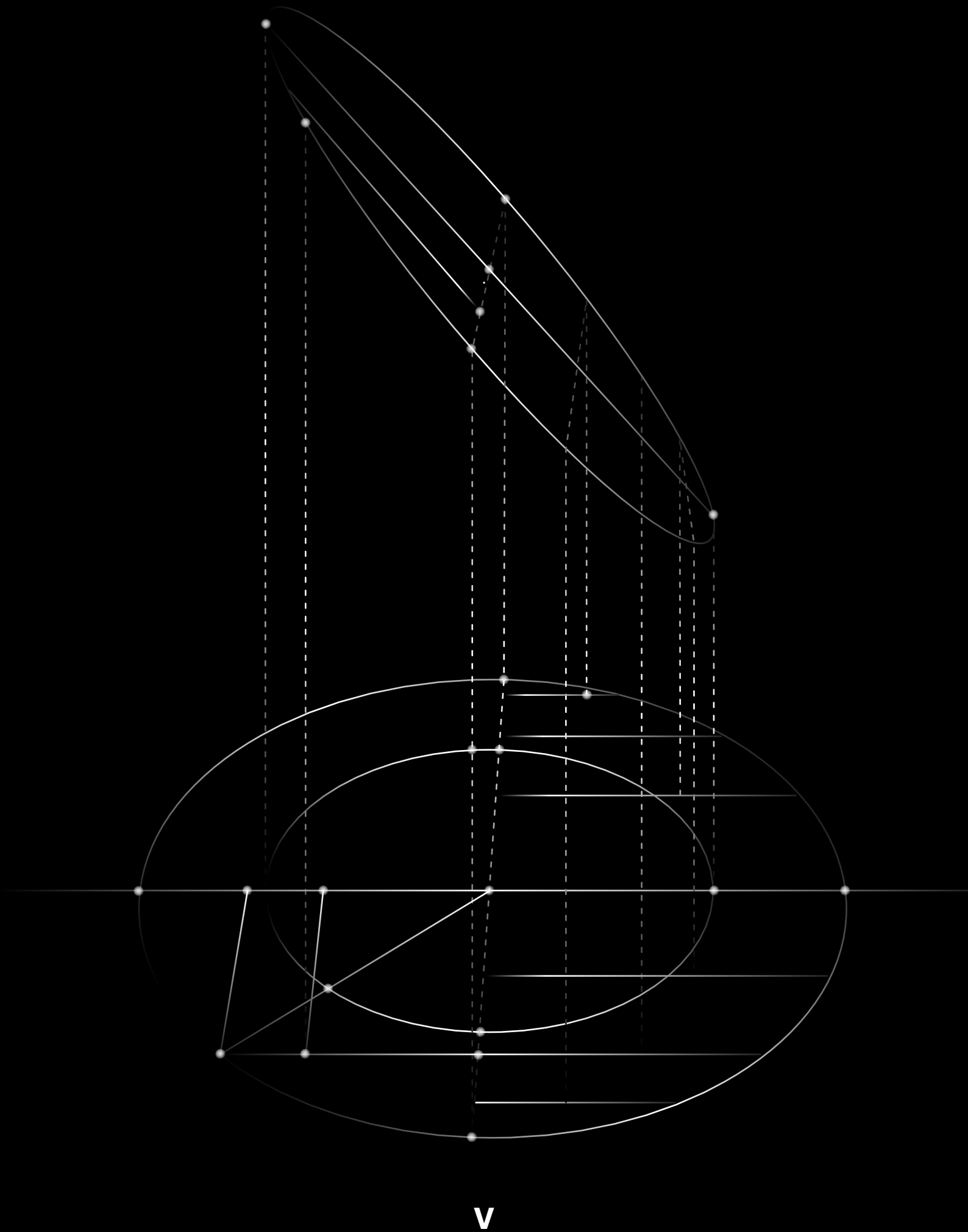
58 Humberto Maturana and Francisco Varela, “Autopoeisis: The Organization of the Living,” 83.

59 Walter D. Mignolo, “Sylvia Wynter: What Does it Mean to be Human?,” 107.

cognitive technology towards this perceptual end.⁶⁰ Examining the aesthetemes that have mediated the construction of Man's niche and its systemic logics, we discover the (sometimes obscured, because familiar) conventions of a vanished world, against which extraordinary research takes shape. If a 'system changes only if its domain of interactions changes' a commitment to immanent transformations emerges. It is here, where tinkering in the domain of artefactual interactions can be understood as an *abductive* intervention, responding to a central problem of how to *realisably* enact thought and practice without the frameworks of Man in actionable terms without passively wagering on speculative, transcendental models of paradigmatic transformation. While there is no possibility to "escape our own ecological embeddedness," it is possible to transform the modeling of the conditions of our embedding.⁶¹

60 Christopher S. Wood, "Introduction," in *Perspective as Symbolic Form* by Erwin Panofsky, (New York: Zone Books, 1991), 12.

61 Cary Wolfe, "Jagged Ontologies in The Anthropocene, or, The Five Cs," in *Life in the Posthuman Condition: Critical Responses to the Anthropocene*, eds. S. E. Wilmer and A. Žukauskaite, (Edinburgh: Edinburgh University Press, 2023), 198.



[T]he ability (perhaps even need) to grasp the world as a picture may well be what heralds the modern subject as ‘new’ and ‘modern,’ yet it was through ‘technologies’ like the ability to picture the world that such subject positions were brought into being.⁶²

He who judges painting according to the concept of resemblance shows the understanding of a child.⁶³

V. Perspectival Mechanisation

The co-emergence of Man with the invention of absolute and infinite space of Renaissance perspectivism brought together “‘aesthetic space’ and ‘theoretical space’” to train self-perception, relative to his burgeoning, constructed niche in both symbolic and logical form.⁶⁴ Humanist Man of early Euromodernity was incompatible with Medieval space, as a “non-ordered, unsystematic overlapping of bodies in [a] divine medium.”⁶⁵ Rather, Man’s ordered space, which collapses “geometrical optics, pictorial representation, and land surveying,” rationalised his vision, and in so doing, expanded geometry from the study of shapes and figures to the mathematisation of space itself.⁶⁶ Linear perspective naturalises the distortion of represented entities in conformance with a fixed position of a particular observer, subordinating empirical reality to Man’s gaze, where the perceivable world vanishes at the local limits of human vision. As Erwin Panofsky noted, this triumph of perspectival spatial invention simultaneously produced a “*distancing* and objectifying sense of the real” as much as it reflects a “*distance-denying* human struggle for control” effectively systematising the external world “as an extension of the domain” of Humanist Man’s self-model.⁶⁷ Echoing Vitruvian Man’s self-referential measure, the

62 David L. Martin, *Curious Visions of Modernity: Enchantment, Magic, and the Sacred* (Cambridge, MA: MIT Press, 2011), 137.

63 SouChe, qtd. in Massimo Scolari, *Oblique Drawing: A History of Anti-Perspective*, (Cambridge, MIT Press, 2012), 348.

64 Erwin Panofsky, *Perspective as Symbolic Form*, trans. C. S. Wood, (New York: Zone Books, 1991), 45.

65 Damjan Jovanovic, “Anticipating the Digital: The Game of Supersurface,” in: *Architectural Design*, 2019, pp. 122–127.

66 Antoine Bousquet, “The Perspectival Eye,” in *Glass-Bead Research*, 2017. <https://www.glass-bead.org/research-platform/the-perspectival-eye/?lang=enview>

67 Erwin Panofsky, *Perspective as Symbolic Form*, 67. [Emphasis by the author].

mathematical objectification of space is an ‘objectivity’ contingent upon “the psychological and physical” projections of Man.⁶⁸ Moreover, in bringing the stuff of the Earth into visual, metric order, the invention of Florentine space coincides with Man’s emerging scientific worldview that then became “subject to that logical symbolization”.⁶⁹ The implications of this reproducible aestheteme were significant, schematically organising the visible world for Man’s observation as the cosmos “was once thought to be arranged for God”,⁷⁰ fashioning him “as its new sovereign”.⁷¹ As Antoine Bousquet has cautioned however, this unidirectional picture of control issuing Man as outright sovereign is troubled by the reciprocal effects of this particular self-referential space: that Man himself became an object of ‘rationality’ “located within the same homogenous mathematized space, its embodied perception now subordinated to abstract laws of vision”.⁷² At stake here is not ‘rationality’ as such, as it is often a caricatured target of critical theory, but the *conditioning* of it by Man’s particular “logical space of reasons” wherein knowledge claims are placed or localised within its niche frameworks “of justifying and being able to justify what one says”.⁷³ The particular context of Man’s self-referential perspectival space, as a visual artefact of his logical space of reasoning, unveils the terms of a mechanical framework of justification, most notably his perceived infinite extensibility into a similarly infinite, absolute space.

As a technology of mechanised human vision,⁷⁴ Florentine space and its representation in linear perspective served as a reproducible algorithm through which to mediate the niche-world of Man; a means of sensual interaction with his otherwise purely philosophical premises, including his newly ordained Humanist affordances. That this particular artistic technology was also the representation of a historical world-view and a ‘proper’ way to think, can be evidenced in the attempts of Jesuit Missionaries in China in the 16th Century to introduce this particular spatialising logic. These efforts, as Massimo Scolari noted, went far beyond an attempt at

68 Ibid.

69 William M. Ivins, Jr., *On the Rationalization of Sight: With an Examination of Three Renaissance Texts on Perspective*, (New York: Da Capo Press, 1973 [1938]), 13.

70 John Berger qtd. in Antoine Bousquet, “The Perspectival Eye”.

71 Antoine Bousquet, “The Perspectival Eye”.

72 Ibid.

73 Wilfrid Sellars, “Empiricism and Philosophy of Mind,” in *Minnesota Studies in the Philosophy of Science*, vol. I, eds. H. Feigl & M. Scriven, (Minneapolis: University of Minnesota Press, 1956).

74 Antoine Bousquet, “The Perspectival Eye”.

convincing the Chinese of this ‘proper’ way of depicting reality, since changing “the way of seeing, and therefore of representing, meant changing the mode of thinking,” illustrative of this spatial force that carries weight far beyond the canons of art history. The failed attempts of the Jesuits to convert sight and thought in China through painterly technique, divulge the non-universal actuality of this worldview in the confrontation of two radically different logics, where the attempts to “institute a single viewpoint contradicted the very roots of Chinese thought, in which man is not the measure of all things”.⁷⁵ This critique is not reducible to a blanket condemnation of the mathematisation of space and its epistemic consequences, as such. It is, however, a dramatisation of the naturalisation and inflation of its abstraction in the conjoining of aesthetic and theoretical reasoning that persists as a default “ordering apparatus” in most modeling software applications that begin construction from an empty stage devoid of bodies, shorn of geography, emptied of interference, and bereft of context.⁷⁶

When understanding the representation of Man’s projective space as a broader technology summoning a transformed relationship to self and world, the location of agency shifts from the sheer will, or intentional force of Humanist Man, to the semiotic influence of a “mediant” that conjoins him to the world imbued with specific conditions of signification.⁷⁷ In affirming the distribution of agencies across human and nonhuman entities, Arjun Appadurai has critically addressed some of the normative shortcomings of new materialisms by introducing the mediant as a concept causally linking mediation and materiality. While the invention of linear perspective is often discussed as the mechanisation of vision devoid of the necessity of a biophysical substrate,⁷⁸ its semiotic force of mediation is an “*embodied practice*” that “produces materiality as the effect of its operations”. As Appadurai continues, “materiality is the site of what mediation—as an embodied practice—reveals”.⁷⁹ Tersely stated, the accrual of residual toxicities through which the Planetary comes into cognition as site, is revelatory of Man’s embodied practices of spatial mediation. The mediant, (rather than Bruno Latour’s ‘actant’), aligns with the causal multi-directionality of

75 Massimo Scolari, *Oblique Drawing: A History of Anti-Perspective*, (Cambridge, MIT Press, 2012), 348.

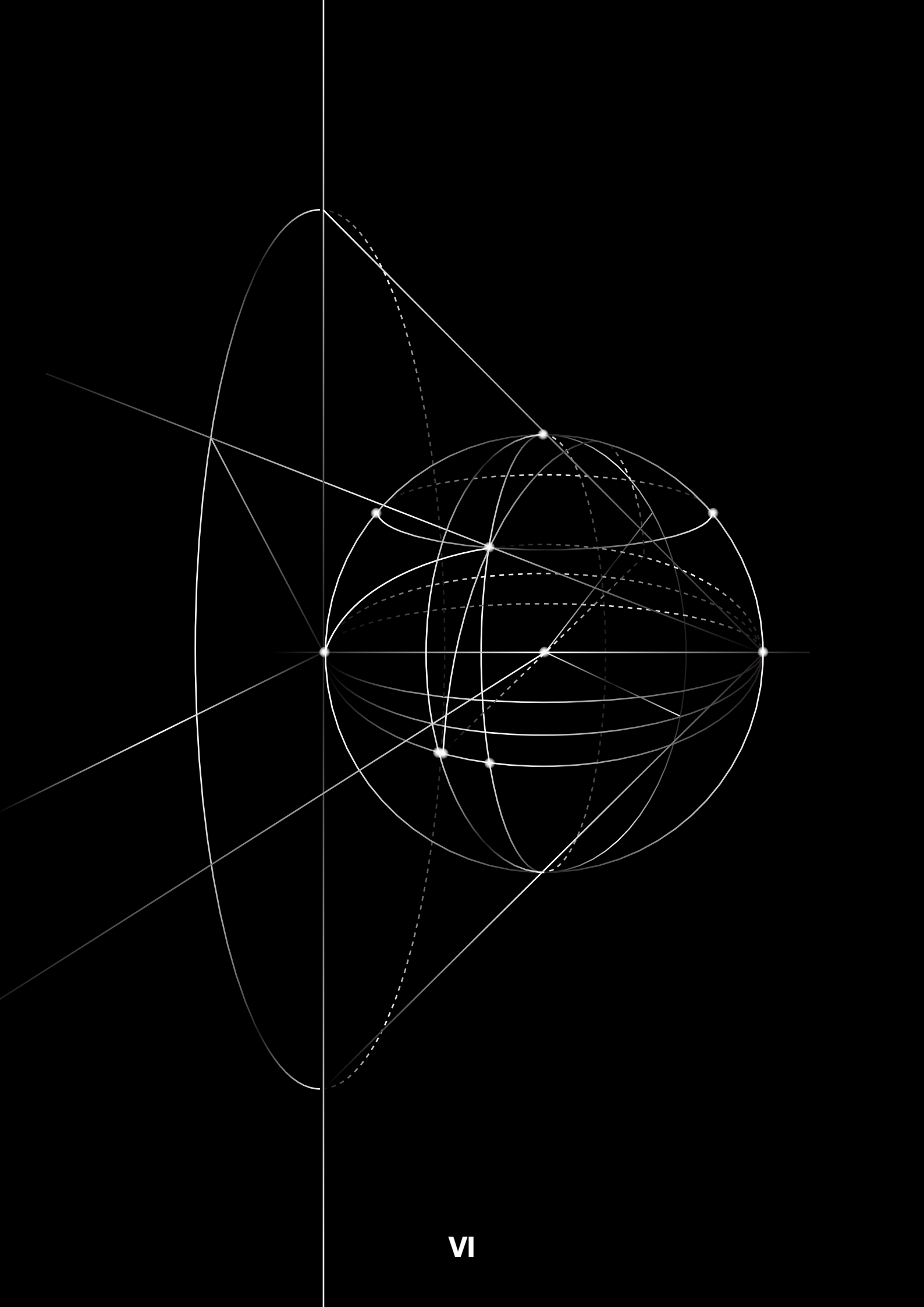
76 Damjan Jovanovic, “Anticipating the Digital”.

77 Arjun Appadurai, “Mediants, Materiality, Normativity,” in *Public Culture* 27, 2015, 221–237.

78 Antoine Bousquet, “The Perspectival Eye”.

79 Arjun Appadurai, “Mediants, Materiality, Normativity”. [Emphasis by the author].

environmental niche-construction, accommodating a “range of vitalities, energies, and agencies that bind the human order to other natural orders and the visible to the invisible within the ontologies of different human orders”.⁸⁰ Additionally, it should be highlighted, by shifting the terms of agency towards intermediaries of interaction, a different genre of ‘one-worldist, scalar collapse is avoided in counter-anthropocentric discourses, that risk flattening different affordances, morphologies, histories and accountabilities across organisms by lumping everything into a uniform molecular scale.



[T]he ‘everything is connected’ view of ecology that seems to undermine the ‘god’s eye view’ ... is, in fact, simply the flip side of the same coin, because the ability to say that ‘everything is connected’ ... requires, by definition, the ability to have a view of ‘everything’.⁸¹

Nothing occurs on a single site anymore. There’s no such thing as a discrete location in the world.⁸²

VI. Vernadskian Space, Metabolism and Entanglement

The limits of Man’s perspectival and logical space of self-referential measure came to an acute epistemic impasse one-hundred years ago. The cognitive, technical, experiential and cultural consequences of which have yet to be thoroughly interpellated, which is another way of saying, sensibly and narratively mediated. The seeds for Planetary recognition can be found in the scientific publication of *The Biosphere* (1926), that point to a framework for ecological thought, marking an end to discrete and mechanistic ways of thinking.⁸³ Written by a self-professed ‘cosmic realist,’ Vladimir Vernadsky’s book (scripted in Russian) introduced a biogeochemical perspective upon Earth as an complex energetic system, disobeying rigid disciplinary specialisations that separated living matter from a lawlike physical and/or mathematical cosmos. What is common knowledge today, that something like CO₂ emissions on Earth effect the chemical composition of the atmosphere, was unimaginable before the concept of the Biosphere; a concept denoting complex feedback dynamics between various ‘spheres’ that produce conditions of ecosystemic inhabitation.⁸⁴

Vernadsky’s integrative approach emphasising metabolic exchange highlights organismic entanglement with a cosmic environment, as a notable counter-position to most of 20th century biology which studied organisms, including Man, as autonomous entities. More

81 Cary Wolfe, “Jagged Ontologies in The Anthropocene,” 217.

82 Liam Young, “One ‘Planet City’ for 10 Billion People? A Provocative Take on Rewilding,” (No. #50), in *Urgent Futures Podcast* with Jesse Damiani, Sept. 3, 2025. <https://www.youtube.com/watch?v=tZ13M-XRilQ&t=270s>

83 Vladimir Vernadsky, *The Biosphere*, trans. David B. Langmuir, (New York: Copernicus / Springer-Verlag), 1998.

84 Adam Frank, “The Coming Second Copernican Revolution,” in *Noema Magazine*, 2024. <https://www.noemamag.com/the-coming-second-copernican-revolution/>

simply stated, this biogeochemical understanding prioritises dynamics of energetic interaction, effectively undoing the separability of a figure from ground of Man's representation conventions, while destabilising any picture of a site or location as self-evidently contained. Any study, Vernadsky warned, of an organismic phenomenon shorn of its environmental milieu, was merely the study of a "pure product" of a model of thought, wholly divorced from the material world as an energetic system.⁸⁵ As the history of paradigm changing ideas goes (particularly when cultural and scientific exchanges are impeded by geopolitical strife, as in the Cold War), Vernadsky's concept was widely chastised by the adherents of both mechanistic models of thought and those who studied organisms in isolation, and the Biosphere only entered Anglo-American scientific discourses in 1970 with an issue dedicated to it in *Scientific American*,⁸⁶ followed up by a disputed, selective translation into English in a somewhat corporate effort to promote the Biosphere 2 project in the 1980's,⁸⁷ with the academic translation arriving some 70 years after its initial Russian release. Those who took up and applied such energetic, non-mechanistic premises in their respective fields seem prescient in hindsight, as prophetic thinkers for our time when committing to an ontology of energetic entanglement has become an existential necessity. Figures like the mathematician and economist Nicholas Georgescu-Roegen who contested Neoclassical doctrines of his field, highlighted how mechanical representations of economic processes neither affect, nor are affected by qualitative changes "of the environment into which [they] are anchored"; not to mention the mediating contact with nature economic models often convey in terms confined to that of "Ricardian land" [a premise of land rental value, wherein soil fertility/quality is modeled as immutable].⁸⁸ In a biogeochemical space of reasons, for

85 Vladimir Vernadsky qtd. in Jacques Grinevald, "Introduction: The Invisibility of the Vernadskian Revolution," in *The Biosphere*, 30.

86 G. Evelyn Hutchinson, "The Biosphere," in *Scientific American* vol. 223, no. 3, 1970, 45–53.

87 Biosphere 2 is an experimental sealed, artificial ecosystem located in Arizona that was only used twice for its intended purpose of sustaining 8 humans for 2-year periods, within which several biomes were created to study interactions in global ecology. Both instances failed to complete the experiment with insufficient oxygen and food in the first trial, and the second ended early following the dissolution of the managing company Space Biospheres Ventures. It is currently under the control of the University of Arizona as a research centre, and open to the public.

88 Nicholas Georgescu-Roegen, *The Entropy Law and the Economic Process*, 2.

instance, the very idea of an economic “externality”, simply makes no sense. Or, Lynn Margulis who championed symbiosis as a way to understand interdependencies across species in the production of life worlds (originally coined by Anton deBary in 1873, defined as the “living together of very different organisms”), feeding into symbiogenesis foregrounding cooperation in evolutionary understanding through the formation of new organisms via a symbiotic merger against competition alone as the sole driver of evolutionary mutation, delegitimizing the narrative Great Chain of Being placing Man at the top of an ecosystemic pyramid.⁸⁹ In other words, the announcement of the Biosphere, and its biogeochemical, integrative understanding of energetic exchanges, carries significant ripple effects across disciplines, impacting not only the space of reasoning, but the modalities of reasoning spatial relationships.

As the co-authors to the English translation foreword noted, what “Darwin did for all life through time, Vernadsky did for life through space...Just as we are all connected in time through evolution to common ancestors, so we are all – through the atmosphere, lithosphere, hydrosphere, and these days even the ionosphere [crucial in long-distance communication] – connected in space...[we] are tied through Vernadskian space to Darwinian time.”⁹⁰

At the centennial of its publication that finds us in geopolitical, ecological and social tumult, it’s worth revisiting and committing conceptually to this premise of ‘being tied’ through space *The Biosphere* compels as a cosmological thought experiment with empirical, and mediant-making urgency.⁹¹

Being ‘tied in space’ means little when reduced to a uniform “everything is connected” ecological view. The descriptors like interdependence, relationality, and entanglement that proliferate within ecological thought in attempts to grasp the implications of a biogeochemical Planetary condition, do not, by default imply any immediate ethical, nor practical consequences. What such descriptors more rigorously gesture to, is a different *structural* figuration of space itself, such that thoroughly mediating the conditions of Planetary embedding are dependent upon this endeavour. Decades of robust and critical dissections of Man’s epistemic practices that undo his self-narration of neutrality, often call for a feminist ‘politics of

89 Lynn Margulis, *The Symbiotic Planet: A New Look at Evolution*, (London: Phoenix, 1999), 43.

90 Lynn Margulis et. al, “Foreword,” in *The Biosphere*.

91 Another “connection through space” can be found in Sorin Sonea’s “The Global Organism: A New View of Bacteria” wherein semiosis is described as taking place even in the bacterial world. In *The Sciences*, Vol. 28, No. 4, 1988, 38–45.

location’⁹² by ‘situating knowledge’⁹³ claims as a way to address the normative dimension of thought and its rehearsal of Man’s bias, not to mention an unsettling of a strictly cartographic ‘overview’ form of knowing that devalues practical ‘know-how’. Such approaches, however, neglect to make explicit the spatial conditions of where a location or site begins and ends, leaving the back door open for Man’s naturalised, mechanical-niche of spatial mediation of ‘the local’ to seep in.

When locations may be metabolically proximate, despite vast meter-based distances of distribution that stretch long beyond (behind, above, and below) the vanishing point of a human observer, the ‘politics of location’ in a Planetary condition is inseparable from the spatial mediation of what is understood by the ‘local’ in the first instance. The question thus shifts from a common-sense, purely phenomenal spatial framework of the ‘local’ implicitly adhering to the mono-scalar niche-world of Man, towards the politics of *mediating localisation* within Planetary spatial frameworks that juxtapose conditions of site-specificity with those of scale-specificity. Localisation is an activity; a process related to location or place, however expanded to address the mediation of orientation, without upholding Man’s default spatial (a-metabolic) dichotomy between the local and the global. Unlike the Vitruvian ‘smooth zoom’ of *The Powers of Ten*, the juxtapositions between site-specificity and scale-specificity adhere to what Cary Wolfe calls a “jagged ontology” wherein each scalar domain is imbued with its specific causal context of interaction,⁹⁴ thus resisting the rehearsal of an absolute spatial reasoning conditioning Man’s niche-world, and his alone. Spatial disobedience for Planetary conditions unfolds in mediating localisation across places, temporalities, and materials that orient metabolic perceptibility, without eclipsing the inter-human domain of global history. The encounter of jagged relations between site-and-scale specific domains opens engagement with alterity, without Man’s domesticating impulse to flatten, smooth, or “occlude scalar difference” in conformance with his measure.⁹⁵

The mediation of Planetary localisation (an issue of importance for political claims) from without the spatial frameworks of Man highlight the role of adjacent entities in carrying dialogues of our

92 Rosi Braidotti, “Posthuman, All Too Human? A Cultural Political Cartography,” lecture, *Symposium Inhuman* at Fredericianum, Kassel, Germany, August 10, 2015. <https://www.youtube.com/watch?v=gNJPR78DptA&t=33s>

93 Donna Haraway, “Situated Knowledges: The Science Question in Feminism and the Privilege of Partial Perspective,” in *Feminist Studies*, Vol. 14, No. 3. (Autumn, 1988), pp. 575–599.

94 Cary Wolfe, “Jagged Ontologies in The Anthropocene, or, The Five Cs,” 195–221.

95 Zachary Horton, *The Cosmic Zoom*, 3.

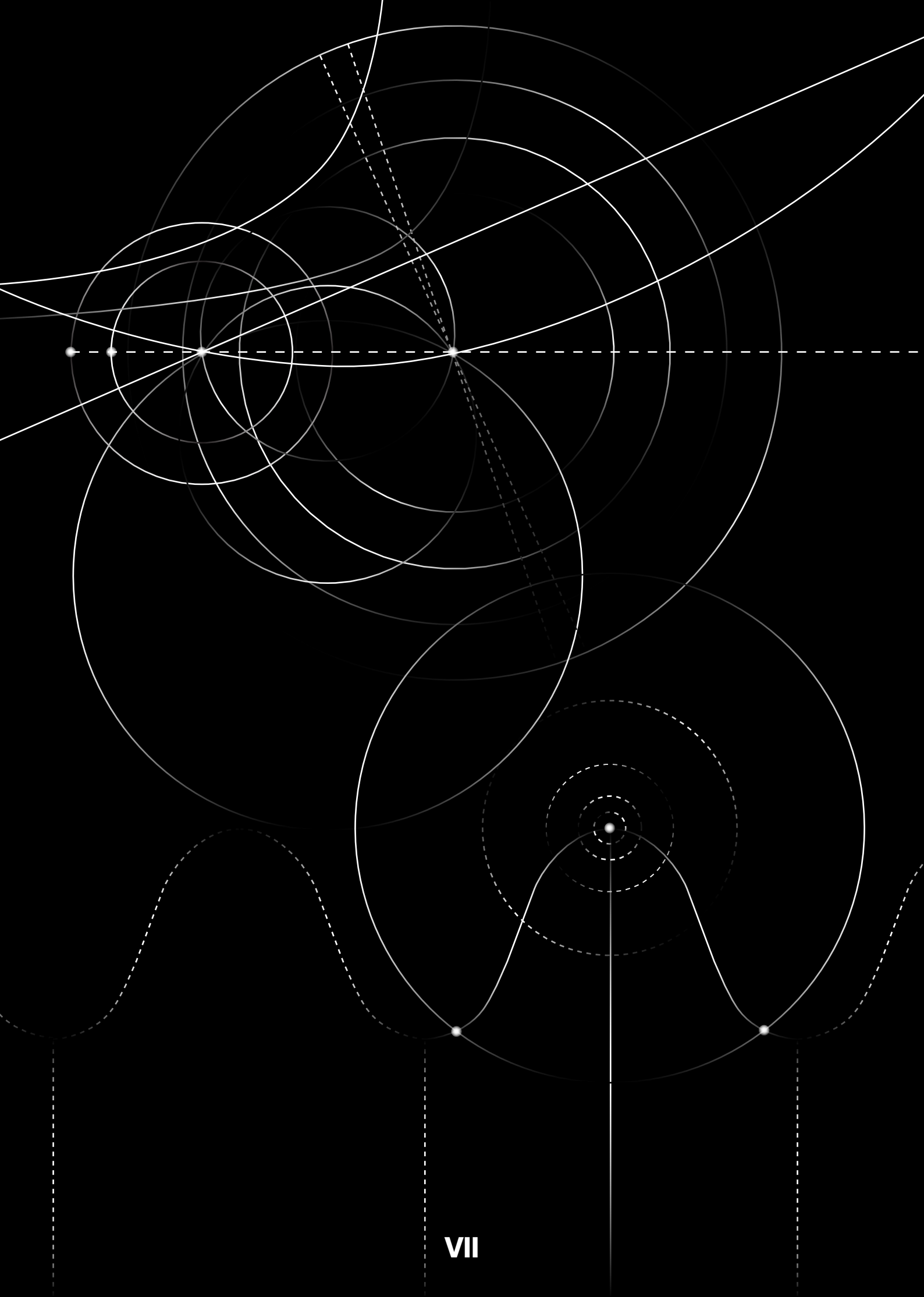
“present with the past about the future” in dramatically extended “temporal and spatial coordinates”.⁹⁶ In decentering human standpoints, the alter-mobility of adjacent entities enables narration that traverses multi-scalar domains, embedding particular human histories and forms of life within general biogeochemical Planetary dynamics. Adjacent material protagonists ‘touched’ by diverse and multiple forces both contain and relay Planetary stories when provided a contextual space-time of narrative elaboration unconstrained by “conventions of Newtonian mechanics”.⁹⁷ As anthropologist Gabrielle Hecht has demonstrated in the outline of her “interscalar vehicle” methodology, the vantage point of a uranium-bearing rock enables space-time-travel “from Gabon to France to Japan, from the 1970s to our planet’s early history to the distant future.”⁹⁸ Interscalar vehicles construct ways of mediating Planetary historicity across ‘Vernadskian’ space without defaulting to the ‘one-worldism’ of the Anthropos that not only obscures imperial violence, but reifies an imagination of the Planetary in unfathomably immense terms alone, mystifying its possible intelligibility. For Hecht, places and locations serve as points of departure from which to travel “between” and “within” emic (particular) and etic (general) domains, not enclosed geometries to zoom in upon.⁹⁹ Departing from Mounana, Gabon (a uranium mining centre operated by the French corporation COMUF until 1999) her *empirical*, interscalar vehicle of the uranium-bearing rock becomes a mobile site upon which to ‘ride,’ effectively connecting human and deep time, with geological and political space. In Planetary conditions, the indiscreteness of location need not foreclose upon situating knowledge claims, however the emphasis shifts from the fixity of a site to the mobility of relations departing from it, and the mediants that facilitate such transits. The picture of narrative agency here, to emphasise, is not upon the singular will of author, but is distributed in the interaction with said interscalar mediant and the specific conditions of signification this engagement unleashes for cognition and sense.

96 Gabrielle Hecht, *Residual Governance*, 34.

97 Gabrielle Hecht, “Interscalar Vehicles for an African Anthropocene: On Waste, Temporality, and Violence,” in *Cultural Anthropology*, Vol. 33 No. 1, 2018. <https://journal.culanth.org/index.php/ca/article/view/ca33.1.05>

98 Ibid.

99 Ibid.



The word “space” always comes with an accompanying adjective, which specifies what kind of structure, or in other words, what relational properties of space one is focusing on.¹⁰⁰

[F]irst, objects and problems seek out their theories and, second, theories generate their own objects and problems.¹⁰¹

VII. Species of Spatiality

From Man’s early Euclidean technologies of vision that projectively organised the perception and construction of a Euromodern niche-world in absolute, which is to say, “naïve” space that proportionately mirrors Greco-Roman morphologies in a physical world; to the proliferation of “species of spaces” after Riemann since the mid-19th Century with each ‘species’ delineating its own notion of “locality,” where “structure is not absolute, but rather context sensitive to its embedding space,”¹⁰² historically, the refiguring of space catalyses different modalities of understanding the world. Classical mechanics follows from Cartesian coordinate systems, Riemann’s manifolds (curved spaces) serve as the background for the Einstein’s General Relativity,¹⁰³ and Hilbert space undergirds the counter-intuitive domain of quantum mechanics.¹⁰⁴ The invention of various spaces destabilises familiar frameworks to localize ideas that would otherwise be impossible to model. It’s likely that most of us are unable to grasp these increasingly complicated geometrical developments in depth (this author included), however the *function* of them as invented ‘sites’ through which to ‘locate’ ideas otherwise, demonstrates the role conceptions of space play in activating cognitive abduction from familiar frameworks of understanding and representing. The invention of various species of spaces not only unleashes diverse

100 Matilde Marcolli, *Lumen Naturae: Visions of the Abstract in Art and Mathematics*, (Cambridge: MIT Press, 2020), 42.

101 Sebastian Giessmann and Steven Lindberg, *The Connectivity of Things: Network Cultures since 1832*, (Cambridge: MIT Press, 2024), 116.

102 AA Cavia qtd. in AA Cavia and Patricia Reed, “Pointless Topology: Figuring Space in Computation and Cognition,” in *KI-Realitäten: Modelle, Praktiken und Topologien maschinellen Lernens*, eds. R. Groß and R. Jordan, (Bielefeld: transcript Verlag), 2023, 351–364.

103 Matilde Marcolli, *Lumen Naturae*, 21.

104 Arturo Tozzi, “Towards Mathematical Spaces for Biological Processes,” 2026. arXiv:2601.15854v1 [q-bio.OT]

structural conditions for figuring relations (and therefore crucial in rendering Planetary entanglements intelligible), but it alters the space of reasoning itself, aiding the procedural question of how to accountably conceive and practice *from without* the spatial determinations of Man and his particular structuring of ‘locality’ and ‘site’.

Recalling our pan-disciplinary meta-brief, it can be inferred that the practical enactment of extraordinary research is conjoined with the remodeling, re-diagramming, and refiguring of space. This is not to suggest through the geometric examples above, that spatial reinvention ‘belongs’ to this particular mathematical branch, most often at a distance from empirical and material conditions as its theoretical condition of exploratory mobility. On the contrary. It is, on the one hand, to avoid the reductive demonisation of geometry, as such, often from within the humanities which rightly criticise Man’s particular rationalisation of space in his measure, but in so doing often conflate this instance with the entirety of the field that ignores the immense creativity geometry has undergone since the mid-19th century, and the way these abstractions have facilitated discovery that fundamentally unsettles Man’s centrality.¹⁰⁵ And, on the other hand, to assert that by way of empirical carriers like an interscalar vehicle, alternative modalities of space are also constructed that support analytic, Planetary narration without conforming to Man’s mechanical niche-world and the space of reasoning it delimits, encodes, and constrains.

The title of this essay, “Figuring Planetary Space,” takes inspiration from mathematician and philosopher Gilles Châtelet’s *Figuring Space: Philosophy, Mathematics and Physics*.¹⁰⁶ In it, Châtelet places emphasis on *virtual* thought experiments and their *actual* diagrammatic articulation, described as a gestural movement of imagination. For Châtelet diagrammes are agential mediants that create new mathematical and physical spaces to facilitate a generative loss of one’s “bearings” when “discernment is by no means self-evident”.¹⁰⁷ Like the mobility of an interscalar vehicle, diagrams are similarly vehicles for transporting oneself through thought as a means to subvert “sensible clichés” given to us by familiar frameworks that structure concepts and practice.¹⁰⁸ Gesture-laden diagrams embody abstraction,

105 Fernando Zalamea, *Synthetic Philosophy and Contemporary Mathematics*, trans. Zachary Luke Fraser, (Falmouth: Urbanomic, 2012).

106 Gilles Châtelet, *Figuring Space: Philosophy, Mathematics and Physics*, trans. R. Shore and M. Zagha, (Dordrecht: Kluwer Academic Publishers, 2000 [1993]).

107 *Ibid.*, 11.

108 *Ibid.*

and their spatialisation is underwritten by a particular understanding of a horizon unbound to immediacy of Man's phenomenological tropes of perception for which a vanishing point symbolises the boundary of his grounded location. Rather, Châtelet describes the horizon as that which orients anticipation experientially: we are beckoned by its blind spots as a virtual site from which to generate perspectives.¹⁰⁹ Unlike linear perspective that mediate Man's conceived space of projection, summoning his self-placing in the "space and time of the image," for Châtelet the diagramme catalyses a self-placing in the horizon point through "audacious thought experiments (a bold fictioning)" as a site of departure for exploration.¹¹⁰ Here, the horizon is highlighted not as a retinal artifact of perception, but as a virtual site for the practice of extraordinary research, of working with the alterity of losing one's bearings in unfamiliar conceptual space as an intermediary of imagining and cognising otherwise.

As a meta-brief, abandoning Man's measure is not a negation of human morphology, but a call to remediate sensibilities of localisation that are conjoined with a refiguring of Planetary space embedding us as metabolic creatures. Like the speciation of geometrical space that affords the diversification of the structuring of locales through which to model worlds of thought, this is not a call for the invention of singular Planetary space, but an experimental suspension of Man's spatial frameworks in mono-scalar terms, inflated to the scale of the Globe that reinforce his niche as referential totality. In her "Imperative to Re-Imagine the Planet," Gayatri Spivak humourously quipped that no one lives on the Globe, "it is the logo of the World Bank," contrasting such abstractions with existential conditions of human forms of life, while addressing the Planetary as a "species of alterity".¹¹¹ The question of re-imagining the Planet, however, is not a unidirectional proposition, nor one wherein *differences* between the abstract and the existential, the conceptual and the material are *separable*. Rather, the capacity for its crucial re-imagination is a reciprocal activity contingent upon mediating how the alterity of the Planet re-figures us, addressed as embedded subjects born of "planetary accident," who

109 David Burrows, "Science Fictioning Singularities: The Diagrammatic Imaginaries of Physics," in *Data Loam: Sometimes Hard, Usually Soft – The Future of Knowledge Systems*, eds.: J. Golding, M. Reinhart, M. Paganelli, (Leiden: De Gruyter) 2020, 38–64.

110 Ibid.

111 Gayatri Chakravorty Spivak, "Imperative to Re-Imagine the Planet," in *An Aesthetic Education in the Era of Globalization*, (Cambridge: Harvard University Press, 2013), 335–350.

nonetheless construct and inhabit our mutating niche-worlds in meaningful ways.¹¹² The indifference of the Planetary to us accidental subjects can nevertheless be purposeful *for us*, as the encounter with its biogeochemical alterity, not to mention the multitude of microorganisms upon which we depend, “embarrass[es] our orderings” that have cascaded from Man’s measure.¹¹³ When we accept the *discursive* premise that the Planetary indexes a *structural* condition of entanglement and feedback dynamics, the spatial imaginary of Euromodernity collapses, summoning extraordinary research in learning how to navigate, localise, mediate and narrate such conditions of our embedding, through which distributed understandings of agency (and accountability) emerge. Against the flattening or domestication of scales and life-worlds predicated upon bloating the spatial logics of Man, the default settings of ‘locality’ and ‘site’ become diversified when figured in terms of generative encounters between partially overlapping, but non-uniform *Umwelten*,¹¹⁴ and developing informational sensitivity to said encounters between niche-worlds.

In spatial terms, the abandonment of Man’s measure is a rejection of his diminishment and taming of dimensionality, invalidating the practicing of space, as well as the space of reasons it defines. Ultimately, we are speaking of learning how to navigate, localise, mediate and narrate conditions of causal complexity, which today have an urgent and direct political valence. As we confront global instances of fascism, it is important to highlight that such political moves are predicated on radical reduction and destructive forms of simplification, echoing the tendencies of Man to eradicate diversification, in favour of elevating his niche-world to universal proportions. As Aurora Apolito poignantly noted in her elaboration of computational communism, fascism takes the form of “scale growth (imperial aspirations) coupled to a dramatic suppression of all levels of complexity.”¹¹⁵ Against this tendency, it becomes clear that any figuration of the Planetary in non-authoritarian configurations requires the navigability of complexity and alterity, not its obliteration via reductive uniformity, nor niche-world absolutising projection. If planetary entanglement is to

112 Ibid.

113 Zachary Horton, *The Cosmic Zoom*, 26.

114 N. Katherine Hayles, *Bacteria to AI: Human Futures with Our Nonhuman Symbionts*, (Chicago: Chicago University Press, 2025), 69.

115 Aurora Apolito, “The Problem of Scale in Anarchism and the Case for Cybernetic Communism,” from Center for a Stateless Society Symposium on Decentralization and Economic Coordination. 25 June 2020. <https://c4ss.org/content/52970>

be realised as a practicable diversification of life-forms, it is contingent not only upon how humanness is remodeled by its address, but the spatial mediants that enable such refiguring.

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