

ACTION POTENTIALS: TEXTURE, EXPERIENCE, AND LITERATURE

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A Senior Honors Thesis

submitted in partial fulfillment of the requirements for the degree of

Bachelor of Arts with Honors in Comparative Literature

Brown University

May 2024

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Abstract

This thesis examines the idea of texture as an index of the affective capacities of things in the world, both in the history of science and in literature. I first look to the historical presence of texture in histology's investigation of the human body, considering how texture is invoked to connect structure and experience. I then move to George Eliot's *Middlemarch*, forging a connection between two textural logics in the novel, one histological and the other deconstructionist. Finally, I discuss this connection as it relates to problems of mediation in the writings of Rainer Maria Rilke.

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Obwohl wir die nächsten Bestandtheile thierischer Körper und deren chemische Zusammensetzung, sowie die meisten successiven Fakten, im Verlaufe der Organisation kennen, so können wir daraus doch noch keine Theorie derselben entwickeln; denn die Kenntniss der Erscheinungen während des Aktes der Organisation, ist noch keine Theorie, sondern bloß Geschichte derselben. Von der ältesten bis auf die neuere Zeit hat man sich abgemüht, diese Theorie zu finden; allein man hat entweder keine gefunden, oder ist auf falsche gekommen. Jenes geheimnisvolle Etwas, welches bewirkt, dass dieselbe Proteinverbindung in dem einen Falle sich zu dem, in dem anderen sich zu jenem Thiere organisiert, welches den ersten Impuls zur Organisation gibt, die einmal begonnen, unaufhaltsam fortschreitet, kennen wir wohl in seinen Erscheinungen, keineswegs aber in seinem Wesen. Wir bezeichnen es mit dem Namen einer Kraft, womit aber eben nicht mehr, als ein bloßer Name gegeben ist.

Joseph von Gerlach, *Handbuch der allgemeinen und speciellen Gewebelehre des menschlichen Körpers*, 1850.

Introduction

This is a thesis about mereology, about relations among and between parts and wholes.

This is another one. Text, like all composition, works by bringing elements together and setting them in certain kinds of relations. In texts (like this one) where the aim is to mean something in particular, the task involves setting up relations in the composition of the text that mimic, enact, or produce relations that accord with that particular meaning. Any text that seeks to mean will contain mereological claims implicit in the logic it relies on to compose an explicit meaning.

Texture, very broadly understood, emerges from any logic in which two things can be connected: signifier and signified, cause and effect, part to part, neuron to neuron, and so on. This thesis, for example, is interested in texture as an index of the relational logic of material objects: in a novel, in a poem, in an organism, in the brain, and in the perceptual act of perceiving any collections of parts as a whole in the first place. There will be many variations on this claim, both explicitly as the argument is extended to a set of diverse topics (histology, *Middlemarch*, and Rilke) and implicitly, insofar as it succeeds in integrating these topics, becoming a textual whole, and meaning what it says.

Texture shares a root in the Latin *texere* (to weave) with *text*, *context*, *textile* and *tissue*. A family of related meanings collect around these words, suspiciously objective and subjective, material and experiential. Texture is as much a name for a sensory or even sensual bodily experience—touching, feeling, squeezing, rubbing—as for the material composition of sensed objects. Making these two faces meet in anything more than a back-to-back fashion is the aim of this thesis. Getting around the Janus-faced quality of texture—looking inward to embodied sense

and outward to disembodied structure—entails losing the idea that texture is a gate where material and immaterial realms come into contact.

Texture, I will argue, is able to contain these apparently oppositional notions because it understands feeling as material. The qualities of material things are determined by (are immanent to) the properties of matter. Texture thus carries the possibility that embodied experience is thoroughly material—is in fact the feeling of being matter. Put more simply, texture suggests an immanent materialist account of subjective experience: life in matter can be the life of matter.

Crucial to this textural logic is the establishment of the thinking subject as material. The human body must be investigated as an assembly of interconnected material elements—as organs, tissues, and cells. Under whatever material metaphor it operates (clock, hydraulic, computer), biology systematizes in search of structures that could “correspond” to experience. We would not consider the project of anatomy complete, it seems, until we were shown a systematic description of our own bodies that matches up with what it feels like to be that system. In the first chapter of this thesis, I engage a part of that anatomical history to think about how the search for “correspondence” conflicts with the implications of its textural foundations. Looking to documents from the history of histology (the study of biological tissue) from the seventeenth, eighteenth, and nineteenth centuries, I aim to show how texture structures attempts to systematize the body, both as a way of thinking about the composition of objects from parts and as a perceptual strategy for dissection and categorization. The apparent dualism between these two sides of texture appears in histological discourse as an explicit commitment to mind-matter dualism, keeping the senses away from thought and on the side of matter. The gap across which mind and matter “correspond” is gradually shortened by new discoveries, especially that

of the cell, until the idea can finally be expressed that thought might arise from the complication of a primitive nervous system geared towards sensory response. Once thought is plausibly embodied in the tangling of a perception-action system made of independent but contiguous neurons, the sense of “being” the interrelation of parts extends from the sensory to cover the rest of subjective experience. The narrative of the first chapter stops there.

The idea of texture I am elaborating draws on two main theoretical sources. The first is work in queer theory on texture and affect (Eve Sedgwick and Renu Bora). The second is a set of philosophers (Baruch Spinoza, Henri Bergson, Gilles Deleuze) to help to think about how phenomena could exist immanently with the material world. Texture names the phenomenal qualities that accompany the kind of arbitrary local framing of the material world which an object embedded in it will always necessarily be engaged in, whether that object is a human, an atom, a star, or a sentence.

Contemporary affect theory was more or less spun out from the same two sources. I don’t know enough about the landscape of affect theory to position my argument inside of it, but my sense from what I have read (some of which I draw on in the second chapter) is that something similar has been developed by theorists like Isabelle Stengers and Steven Shaviro, looking to science—especially non-biological complexity sciences—to think about the affective in human experience as just a subset of a more general affective principle having to do with matter and forces.

One important term drawn from affect theory should be defined. Throughout the thesis, especially in the first chapter, I will refer to the “affective capacities” of things, mostly human bodies. Put simply, “affective capacities” are the possibilities available to a particular

arrangement of parts in virtue of the particular arrangement of parts that it is (and therefore its texture). It is just a way of talking about how what something can do or can have done to it (its “ever-gathering accretion of force-relations”) is a function of its material form (which can then be read as “a palimpsest of force-encounters”) (Gregg 2).

A corollary to the textural argument made with the histological texts is the idea of general non-priority, which appears to deal with two competing kinds of explanations: reduction (the part is prior to the whole) and monism (the whole is prior to the part). In the context of histology, priority is constantly invoked to explain relations between the many intermediate scales at which life operates. The discovery of multicellularity in particular makes the problem clear: which level, the microscopic (material) or the macroscopic (embodied experience), is more real? Non-priority is simply a rejection of such metaphysical grounding relations altogether. Any explanation that explains x in terms of y has made only a relative statement until y can be shown to be prior to x. In the flat materialist ontology adopted to address texture, there is no space for priority: not of past to present, not between wholes and parts, and not between mental and material things. Texture, I am arguing, encourages us to qualities relative to the scale and frame of observation. Without priority, qualities are real, relative, and phenomenal. They are not grounded by matter or the kind of being matter has.

Bypassing priority is easier said than done. (Notice how the preceding definition explains non-priority in terms of priority, as most definitions of non-dualism reference off dualism.) The second chapter turns to George Eliot’s *Middlemarch* for a worked example of the problem.

The novel is subtitled “a Study of Provincial Life.” *Middlemarch* is a novel of texture (one of the definitive novels of texture, according to Sedgwick) because it understands that the

particular province—the frame and scale of observation—is what allows for life to be studied (Sedgwick 15). The human stories of the Victorian novel are phenomenal to a certain kind of narration and observation, and simply dissolve when the frame or scale of observation shifts. Eliot's novel is at once an exemplary nineteenth-century novel—intricately plotted, with strong characters, romance, gossip, morals, etc.—and a strangely materialistic and rationalistic account. What was recently human is always in danger of resolving to action at a different scale, worse, the inorganic activity of matter. I will focus particularly on the way that character (in the sense of constitution or temperament) is described materially and indexed by texture, so that a person's nature may be spongy, infirm, stony, or soft. These textural qualities do not stand for, but literally are the affective capacities of that organism in matter.

The occasional shifts into a material description of human life are informed by nineteenth-century science's own “study of life” and by histology in particular. The novel is set in 1830s England just before the dawning of cell theory. Lydgate, one of the novel's central figures, is a histologist searching for the “primitive tissue.” Understanding Eliot's emphasis on the materiality of character together with the first chapter's arguments about histology, the use of texture can be seen to invoke the affective capacities of the person described. In this way the novel's materialism can be reconciled with its moral and familiarly human elements, as the biological and microscopic is brought to bear on what a body can learn, know, feel or do. In short, Eliot's meliorism relies on the same logic by which affect theory gets to pedagogy, since the body's materiality (texturally, its affective capacities) is the character of the person.

Nearby to this idea of texture as an index of affective capacities—what can be done to a thing, what has been done to it that it ended up this way, what it can do now—lies expression.

Middlemarch shows in a set of self-consciously textual metaphors how the materiality of the subject that expresses itself necessarily prohibits its apprehension of an objective picture. The unsettling feeling that Middlemarch can produce—what Henry James tried to dismiss as the lack of form of an “indifferent whole”—is a suggestion of the sublime terrain that lies outside of the epistemological limits of always-relative meaning. The novel meets those limits from within realist, materialist narrative.

There is something very human and very inhuman in Eliot’s novel (and indeed in her larger dream of creating a new “religion of humanity”). This unresolvable subject-object movement is where I locate a connection between Eliot and Rilke. There are basic problems with trying to recover something meaningful about a material human subject while understanding what its materiality means: finitude, total subjection to external forces, determinism. Such problems can all be described in terms of mediation. Their responses to the problem differ: Eliot tries to get the text to take on the materiality of its subjects; Rilke tries to set the text into the same kind of dynamics as a material system. For all its suggestive passages and strange decisions, *Middlemarch* is principally a novel obliged to tell a story about characters. Rilke’s writings, by comparison, are free to ask the relevant questions directly and let the text do what it would like. What does a dissolving subject dissolve into—or resolve towards? And what could knowledge of its destination or origin ever reveal about it?

There is in Rilke, as in Eliot, a closeness of the affective capacities of objects to expression. In an essay which I lean on for my interpretation, the poet imagines how any surface, if a phonographic needle were moved across it, would produce a sound. A potential expressivity hovers at the textural interface of all things, actualized only by the mediating action of the poet

and in the relative orders of language. In connection with this I read Rilke's text on Rodin's sculpture and the density of symbolic information contained on the surfaces of its bodies. Whether or not a text could exist a similar relation to its subject is less clear. Rilke's solution, I argue, is to make the language work according to its own inner logic (its own affective capacities) rather than to attempt to translate directly apprehended textures into the medium of language. This re-creates what is dynamic about texture without claiming direct correspondences to sense objects; these discovered dynamics can then be applied to representation.

This thesis does not claim to be discovering any special or exclusive meanings in the texts to which it attends. It is simply an experiment in reading with texture and affect. Anything that is "discovered" is discovered only relative to that project, not to the text itself. The presentation of apparently-loosely related subjects as though they form an integral, meaningful whole is a part of the experiment. Yet the relativity of any meaning-making operation is a strangely fundamental claim for texture to be able to make. How is it that it leverages its own relativity, transcending relativity only to dismiss itself, to suggest its own incompleteness marks a fundamental truth? That weird lever—where epistemology flattens out ontology—is the real interest of this thesis and perhaps its only chance at saying something.

Works Cited.

- Gregg, Melissa and Siegworth, Gregory J., “An Inventory of Shimmers,” *The Affect Theory Reader*. United Kingdom: Duke University Press, 2010.
- Sedgwick, Eve Kosofsky. *Touching Feeling*. United Kingdom: Duke University Press, 2003.

Chapter 1. Histology, Texture, and the Cell

My days are swifter than a weaver's shuttle, and are spent without hope.
O remember that my life is wind: mine eye shall no more see good.

Job 7:6

I. Action Potentials

Histology, the study of biological tissue, diverged from general anatomy with the invention and adoption of the microscope in the seventeenth century. From the start, microscopy was seen as a reflection of the telescope, disrupting in an analogous way a notion of the physical world that privileged the scale of ordinary human life. The two technologies developed at the same times and in the same places—primarily in Italy and the Netherlands, two nations where a Renaissance investment in linear perspective in painting accompanied the development of advanced geometrical optical sciences (Crary 19-23). As a result of the historical and technical connections between these two magnifying apparatuses, characterizations of microscopic investigation often borrow more from astronomy than anatomy (Wolpert 233). The histologist of historical narrative works by observation, surveying the microscopic field from a distance, losing days at a time squinting into eyepieces, recording movements, drawing bodies they can see but do not touch. As with astronomy, the fallibility of the intervening human mind is somehow displaced with the introduction of a visual instrument, as though the abstract geometric optics embodied in the telescope could lend credence to the perceptions and theories of its user.¹

Although already corrupt in the astronomical scene, there one can at least point to the telescope as a guarantee that the observer has not physically interfered with the object of observation. In the case of the microscope, the opposite is true. Here, one does not need to

¹ See Parts 6-10 in Paul Feyerabend's *Against Method*, pp. 54-105, for an argument that Galileo leveraged the telescope as part of his “propaganda” campaign. On the “incorporeal” vision of early modern geometric optics, see Crary, pp. 16-19.

carefully say that forms are discerned according to the limited set of actions the observer's body can imagine performing on the object—there is nothing imaginary about it. Histological observation is in every case prefaced by a physical contact with the textures of organic matter: in the dissection of the organism, the selection and sectioning of tissue for investigation, its fixation and staining with chemicals, considerations of light, thickness, cleanliness. The entire preparation is intensely *textural*: body-to-body, it refers to the arrangement of parts and resulting affective capacities of both observer and object. When histology takes the human body as its object, the same textures lie in some sense on both sides of the interaction. This chapter will work towards understanding what it means that these moments rely on texture for the possibility of exchange between apparently different kinds of entities (observing subject and body-object).

It is not a coincidence that flesh finds flesh touchable, separable, cuttable, and organized. Neither is it a correspondence. If the self-referential nature of histological perception compromises it as an objective science, the intuition that embodied experience could align with the material structure of the body implies an underlying logic in which subjective qualities are immanent to material things. The argument of this chapter is that no matter how much it announces its own dualisms, histological perception always relies on a fundamentally non-dualistic textural approach.

Before examining the history of histology in the words and drawings of its investigators in the second part of this chapter, it will be useful to build out a theoretical approach to histological perception. Like all embodied perception, histological perception is historical *because* it is physical. Body to body, it is structured both by what a human is and can do and what a human *thinks* it is and *thinks* it can do. This theoretical structure will help explain how the

histological gaze changed what it saw and how it eventually came to see something else. Rather than asking questions about progress—*why was it so easy to see tissue and fiber? why was it so hard to see the cell, and then impossible not to?*—we can take the field as a whole as a special kind of self-investigation: nominally, the search for a structure which could correspond to experience, yet proceeding by a textural technique that undermines any separation of terms between which a “correspondence” could be drawn.

The theoretical investigation will work from texture, drawing especially on the work of queer theorists Renu Bora and Eve Sedgwick (to think about texture’s connection to affect) and Manuel DeLanda’s materialist reading of Deleuze (to approach a non-essentialist, non-dualist view of form as something immanent to matter). The first section takes a cue from histology, which dedicates itself to the textural properties of biological matter as *tissue*, drawing on a textile metaphor for materiality. The second section reveals that texture, despite constructing this veil of tissue between mind/spirit/essence and body/world/matter, in fact relies on the embodied nature of perception. Thus, histology affirms the unity of mind and matter, as any definition of the material on textural terms is in essence phenomenological, referring to affect and feeling. The final section explores the affective dimension to texture as it relates to scale, especially relevant to the microscopical work of histology. Although there is no special scale at which texture exists, the specific texture found will vary relative to the scale at which it perceived. The possibility of microscopic explanation in histology is thus tied up with the limits of embodied knowledge in general. The goal is to use texture to build out the exact opposite possibility than that towards which histology historically employed it: not only is mind not prior to matter, but in fact any notion of priority (and any meaning in general) is relative and incomplete. Without priority,

integration and derivation no longer ascend and descend a metaphysical chain of explanation, but rather take us into spaces beside, implied by, and as real as the actual material world. What is contingent and phenomenal in our experience can then be understood as fundamental, not secondary: texture is the life of the embodied mind. The theoretical exposition of texture in this first section is designed to set up the entire thesis, not just the history of histology that follows.

Texture, Tissue, Textile.

Histology is properly the study of biological *tissue*. Both *texture* and *tissue* derive from the Latin *texere*, to weave, whence also *text*, *textile*, and *context*. *Histology* derives from the Greek *histos*, for loom, and *logos*, for word or study.² In the other relevant languages for this study, the same connection exists between the words for biological tissue and the verb for weaving: *Gewebe* from *weben* in German, *tejido* from *tejer* in Spanish, *tessuto* from *tessere* in Italian. Weaving has been a central metaphor for the materiality of things since antiquity, and through an association with women and women's labor, also for the human body.³ Textiles stand for materialization, morphogenesis, the coming or bringing into form of things. The metaphor relies on two opposing interpretations.

In the first, the textile symbolizes a kind of mystery of coherence, the appearance of a solid object out of something almost invisibly thin. In this model, the textile crosses a dimensional boundary, turning from one-dimensional thread into a two dimensional object by

² See entries on "texture" "tissue" and "histo-" in Hoad, T. F. *The Concise Oxford Dictionary of English Etymology*. Oxford University Press, 2003. A little more information: *texere* comes from the PIE *teks-, to weave, to fabricate. From what I have seen, it is actually unclear whether the meaning of weaving predates the meaning of fabrication in the more general sense of making. Luckily, my disinterest in priority relations means that it doesn't really matter which came first in time. In Romance languages, the main derivates are from *texere* and *tela* (web, net, fabric). From Greek, all the words related to *techne* (art, making, doing). In German, it's found in *Dachs* (badger, the weaver-carpenter animal), which looks like it should be related to *Dach* (and *decken*, by extension) but actually is not. (*Dach* comes from the same root as the Latin *tegere*, to roof/cover, likewise Greek *tekton*, builder).

³ There is a lot of literature on the subject. For a sampling, see Ionna Papadopoulou-Belmehdi, "Greek Weaving or the Feminine in Antithesis"; Brittany Myburgh, "Women's (Art)Work: Re-Weaving the Textile in Ancient Greece."

pursuing a limit in the manner of a space-filling fractal curve.⁴ The female weaving figure is present for the process but does not direct it; every birth is in some sense virgin birth. The textile/tissue emerges from the exploration and evolution in a certain space of possible states by fundamentally *active* matter. In contemporary theory, this most closely describes the stances of various thinkers in New Materialism, Feminist Materialism, and Affect Theory.⁵ It is also roughly the materialist position of this thesis—although unlike for some New Materialists, “agency” will not a useful word for my argument about what follows from the active properties (or “affective capacities”) of matter.

The other interpretation goes further: neither the mother *nor* the child is the true cause of the child—rather, the essence lies elsewhere, in an external pattern which is more or less faithfully executed. Such faith in a pattern that is prior to form is realized by the patriarchal language of a *matter-pattern*, *mater-pater* family drama. When morphogenesis is understood this way, texture signals the imposition of pattern from above, as the trace of extensive structural relations to a higher authority.⁶ The textile is in this mode submissive and refers to its prior (or father). It is grounded elsewhere.

It will be this second idea of texture, I argue, that early histologists use to cover the first. We might think of this as a fetishistic displacement of the real object of interest, indeed of the real itself, for it is the immanent materiality of the first that the idea of an extensively structural

⁴ See *A Thousand Plateaus*, on space-filling curves as a model for becoming in what Deleuze and Guattari call “smooth space”: “smooth, amorphous space of this kind is constituted by a *zone of indiscernibility* proper to ‘becoming’ (more than a line and less than a surface; less than a volume and more than a surface)” (pp. 488).

⁵ See for example Jane Bennett’s “A Vitalist Stopover on the Way to New Materialism” in *New Materialisms: Ontology, Agency, and Politics* for an argument about “agency” in matter, Diana Coole’s “The Inertia of Matter and the Generativity of Flesh” in the same volume for an argument about the autonomy of active matter, or Manuel DeLanda’s “The Actualization of the Virtual in Space” in *Intensive Science and Virtual Philosophy* for a description of morphogenesis that was influential for this chapter.

⁶ To continue the biblical metaphor to the body of Christ, consider the following passage, John 19:23: “Then the soldiers, when they had crucified Jesus, took his garments, and made four parts, to every soldier a part; and also his coat: *now the coat was without seam, woven from the top throughout*” (emphasis mine). Quoted in Moffitt’s “Mary as a Prophetic Seamstress” (in bibliography).

“design” works to obscure.⁷ Histologists displace an embodied intuition that would unify mind and body—exactly the intuition on which texture operates, as we will see—with the careful placement of just this veil, right across the neck, like the surgical drape set between mother and child during childbirth (or a magician cutting his assistant in half). The body is thus replaced by tissue of this second type, grounding the corporeal in the realm of patterns and ideas that the mind accesses. The patient looks down and sees cloth.

The arrival of cell theory in the 1830s opens up a second ground below tissue, one that could no longer be treated as passive. The reduction receives in this way what it could only have expected: a pluralistic view of the body as a society of individual elements, leading local lives. How will the textile survive this break with the continuous? What is a fiber made up of discrete elements?

The veil disintegrates, but not all at once. In an appendix to his book on Foucault, Gilles Deleuze generalizes Foucault’s analysis of a nineteenth-century historical turn in which humanity comes to feel the finitude of the “Man-form” in a two-step process. First, a discovery “breaks the series and fractures the continuums, which on the surface can no longer be developed” (*Foucault*, Deleuze 127). The emergence of cell theory puts an end to theories which imagined primitive tissues and fibers and an end to the continuity of the body itself.⁸ In this phase “the forces within man enter into a relation with new forces from the outside, which are forces of finitude” (126). The cell is such a force, rupturing the infinite, abstract *matter-pattern*

⁷ Working against the characterization of matter as passive is a central part of the materialist/affect theory I engage in this thesis—it was in reaction to dualistic, typological, or idealist approaches (like those of early modern biology) that the first view was developed in the terms I have used.

⁸ Already by 1830, before Schleiden and Schwann began to publish on and popularize cell theory, the existence of cells (especially in plants, where the cell wall was easily visible) was broadly accepted, especially in Germany. Tertius Lydgate, whom George Eliot has searching for the primitive tissue in exactly these years, is condemned to the wrong track not simply by a bad intuition related, it seems, to his general obstinacy and standoffishness, but also by simply being behind on the literature. Like Causabon, he would benefit from reading a little more German. More on this in the next chapter.

of eighteenth-century tissue with a new grounding in the plural and discrete.⁹ The mind-matter/mind-body dualism doesn't give way immediately, for the finite term must first studied as an external object (127). Only then, Deleuze writes,

in a second stage, does it create from this its own finitude. ... It is like the advent of a new dimension, an irreducible depth. ... Things, living creatures and words need only fold back on this depth as a new dimension, or fall back on these forces of finitude. There is no longer just a force of organization in life; there are also spatio-temporal programs of organization which are irreducible in themselves, and on the basis of which living beings are disseminated (127, 128).

To adapt this two-phase paradigm shift to the reorganization of histology around the cell, we can locate the first phase in the moment that lasts from the 1830s, when the cell was first “recognized” as a biological unit force (though it had been visible for centuries), until the 1890s, when the logic of cell theory was extended to the last remaining tissue: the brain. In the interstice, the cellular simply stood in for the body; now, faced with a cellular mind, the fold is necessary. The division of gray matter into distinct neurons—as opposed to the continuous fused network argued by the reticularists—marks the moment when the new cellular dimension folds back onto mankind as constraint, as a “force of finitude.” It is body and mind which are folded together, through each other, to create a new and thoroughly cellular organism. The double life of the cell becomes the single life of the new human: all mind, all body. Part of what I am arguing is that this collapse was conditioned in histology by a textural approach to bodily matter.

⁹ I think there's evidence for this in Foucault's own investigation of the idea of tissue in *Birth of the Clinic*. The idea of an internal surface, and of the disease as something manifesting in the matter of the patient, but existing in its real form as an essence in a space of classification. The clinic is interested in tissue, according to Deleuze's reading of Foucault, “because it consists in unfolding the tissue covering ‘two-dimensional areas’ and in developing in series the symptoms whose compositions are infinite” (126). Tissue makes classifying explanation possible—it turns the body into a textile surface in which general patterns can be read, and the individual (the finite and singular) ignored. Theodor Schwann, we will see in the second half of this chapter, first conceptualized cells as unit *forces*, with the goal of making a certain kind of vitalist argument that relied on a spatialized tissue-body impossible.

With the acceptance of the neuron doctrine as a completion of the finite side of the cellular project, histological tissue falls back onto the first of the two textile models mentioned at the beginning of the section. The body is directed only by itself, finds its form immanently. Following Deleuze, we might then consider this new finite human, in which it would make no sense to distinguish mind and body, as closer to animality. It would not have two lives (mind/body, cellular/human), but would live on many scales at once, never integrating or arranging them in a hierarchy. Attention to this polyvocal play of embodied life is what motivates textural interest. It is not an accident that texture guided the long journey traced by histologists on their way back to themselves. An organism wants to touch itself, see what it feels like. Could it be that a body feels like me?

Texture and Perception.

Texture is one entry into the connection between perception and action. Queer theorist Renu Bora writes that textural perception stands beside the fiction of objective perception. Texture asks questions about the object that imply its manipulation, past and actual:

(1) How did he get that way? (2) What do I want to do with him? (Stare? Ponder? Or reach out to touch the exciting surface?) Importantly, the questions of material, textural history (How did he get so smooth? Rubbing? Polishing? Heating? Fucking? Defecating?), and the questions of the desire to act upon this material, are answered in overlapping, inextricable ways. (Bora 95)

Eve Sedgwick, taking Bora's essay as point of departure for her book *Touching Feeling*, generalizes the formula and neuters the pronoun: how did *it* get that way; what could I do with *it* (Sedgwick 13). Histological perception of the body as texture swings between these two formulations, between body-subject (he) and body-object (it), between person and organ, tissue, or cell. To refer to *tissue*, for example, is to make an argument about morphogenesis,

embryogenesis: this is a woven object. It was made out of fibers. What's more, the textural description of biological material is a plan for further manipulation and dissection: I could rip this at the seam here, I could pull this fiber out. This part looks dense; I should cut it open to see why. Borrowing categories from Deleuze and Guattari, Bora relates textural perception to the exploration of smooth space by haptic means, a sort of reactive investigation that involves the potentials of the observer with that of their object.¹⁰

Histology is not an optical science that proceeds by observation alone, but rather touches everything it sees and sees by touch. In the second half of this chapter we will see how deeply histology relies on texture as a way to guess at the function and relations of biological matter. Histology's obsession with texture naturally constrains what it can observe to what the histologist can do or imagine doing. Texture, as Bora writes, is in this way fundamentally relative. “[A] kind of inevitable tactility of human agency, in performance or in labor, is crucial to any definition of what it means for something to occupy physical space” (101). The tautology here (we will recognize as material only what we can materially perceive) means for histology that the description realized by textural investigation of the body will be limited to precisely *what a body can perceive in itself, what a body feels like to itself.*

Yet the embodied subject already knows this—that is what embodied experience is. If histology claims to be on the hunt for a physical correspondence between the structure of biological organisms and the experience of being one, the omnipresence of texture as method of description betrays an unconscious disregard for such a “correspondence” from the very outset. If thinking and doing are mutually conditioned—something an honest approach to textural

¹⁰ We could equally invoke affective capacities. Brian Massumi has written a lot about the connection of Deleuze and Guattari's work to *affect*. See Massumi, Brian. “The Autonomy of Affect.” *Cultural Critique*, no. 31 (1995): 83–109.

“feeling” makes clear—there is no sense in treating one as prior to the other. Instead, I read the histological project as a covert search for exactly the opposite—for the liberation from that dualism. The aim is to discover (or rediscover) proof that what one’s own biological life *expresses* is not spirit, but matter, in all its finite power. The destruction of the “correspondence” is not, therefore, the destruction of the human category, but its re-articulation within the world of matter, as an emergent expression of what matter can do.¹¹ Histology’s main preoccupation—the *organization* of biological matter—can then be understood as a way to systematize and save what seems special about life: its self-effecting, self-organizing potential … its “self” in general. The historical story of this chapter ends with the discovery that nervous tissue, including the brain, is composed of individual cells. Once the circuitry of the nervous system can be understood as a complication of the space between perception and action, input and output, it no longer seems metaphorical to say that conscious experience is somehow about texture and affect.

In *Creative Evolution*, Henri Bergson provides a concise re-articulation of human exceptionalism in light of material constraints on what it can perceive:

Now, we have considered material objects generally. Are there not some objects privileged? The bodies we perceive are, so to speak, cut out of the stuff of nature by our perception, and the scissors follow, in some way, the marking of lines along which action might be taken. But the body which is to perform this action, the body which marks out upon matter the design of its eventual actions even before they are actual, the body that has only to point its sensory organs on the flow of the real in order to make that flow crystallize into definite forms and thus to create all the other bodies—in short, the living body—is this a body as others are? (12)

For Bergson, knowledge—the ability to distinguish objects—is embodied, and the greater the sophistication of those distinctions, the greater must be the organization of the distinguishing

¹¹ Here I am thinking about Deleuze and Guattari’s ideas of *content* and *expression* of matter from the third chapter of ATP, “On the Geology of Morals.”

body. George Eliot, who we will get to in the next chapter, founds her meliorism on the same material notion, setting the sophistication of oneself as a material thing as a moral aim.¹² Likewise for Bergson individuation is a “characteristic property” of life, though “not fully realized anywhere, even in man” (13).¹³ Though Eliot’s position comes before the neuron (but predicts the logic that would accompany it) and Bergson’s after it,¹⁴ both represent ways of folding the finitude of material form back onto the organism. A distinction becomes possible again: “life is a movement, materiality is the inverse movement” (Bergson 250).¹⁵

Even organization, which pretends to be a liftable feature, is bound through embodied perception with the strange self-interest of texture play in which the living investigates its own mysterious logic.¹⁶ We will return at the end of the historical section to this critical role of *feedback* in the evolution of the nervous system out of a perception-action system, as life extracts regularity from the environment. Such regularity appears phenomenally, like texture, relative to *scale*.

¹² Again, it is not a coincidence affect theory carries the same idea, often under the name of pedagogy: the possibility of “a body’s becoming an ever more worldly sensitive interface … resonant affinities of body and world, being open to more life or more to life” (“An Inventory of Shimmers,” *The Affect Theory Reader*, Siegworth & Gregg 12).

¹³ The force of organization propels life forward, “as if it strove to constitute systems naturally isolated, naturally closed” (15). Part of the reason, Bergson writes, that complete individuation is not possible for life, is that for reproduction to be possible, the organism must come apart, bleed at the edges, and eventually separate something from itself that can live on without it. “Individuality therefore harbors its enemy at home. Its very need of perpetuating itself in time condemns it never to be complete in space” (13).

¹⁴ Bergson was aware of Ramon y Cajal’s work—in fact, I think its possible that he read Cajal’s *Textura del hombre y los vertebrados*, for the argument in *Creative Evolution* on the nervous system contains similarities. Of Cajal Bergson once said that he suspects Cajal somehow *felt* the independence of neurons before he ever *saw* it (Callabed I Carracedo, Joaquim., Callabed, Joaquín. *Una mirada a Santiago Ramón y Cajal en su perfil humano y humanista*, 2019. Spain: Reial Acadèmia Europea de Doctors, 2019, 257).

¹⁵ The full passage gives a better sense of the possibility suggested by Bergson: “In reality, life is a movement, materiality is the inverse movement, and each of these two movements is simple, the matter forming a world is an undivided flow, undivided is also the life that passes through it by shaping living beings. Of these two currents, the latter counteracts the former, but the former nevertheless obtains something from the second. From them comes a modus vivendi, which is precisely the organization” (249-250). Life defines, for Bergson, matter which has begun to effectively model the world, so that its material, affective capacities are aligned with real patterns in its environment.

¹⁶ Bora writes: “when a surface (a rock, or your face, for example) has certain properties, we often project these properties into its interior, and by this interior I mean not just a cavity, invagination, fold, or center, but the structure, consistency, or *texxture* of its inner matter that extends liminally, asymptotically, into the surface” (101).

Texture and Scale.

Histological perception can remain textural under even the most extreme magnification because of texture's special scale-invariance. As Eve Sedgwick points out, it is by virtue of texture's connection to affect that it exists phenomenally relative to the scale of observation. "What [texture and affect] have in common," Sedgwick writes, "is that *at whatever scale they are attended to*, both are irreducibly phenomenological. To describe them primarily in terms of structure is always a qualitative misrepresentation" (21). The microscopist discovers texture does not appear at any specific scale and the same textures are not visible at all magnifications. What looks like a web of fibers at one magnification may, with a new lens, change to the brick-work of cellular lattice.

To say that texture is "irreducibly phenomenological" does not mean that it is not real. Rather, it means that texture is always relative to the scale (more generally, the frame) at which it is observed, and therefore actual only at that scale—but as real as anything that is not actively being observed. We might combine Sedgwick's notion that texture is perceptual data "whose degree of organization hovers just below the level of shape or structure," with Deleuze and Guattari's interest in the fractional dimensions of what they call *smooth space* (Sedgwick 16). One perceives texture at the level below wholes and above parts, in the "*zone of indiscernibility* proper to 'becoming' (more than a line and less than a surface; less than a volume and more than a surface)" (Deleuze and Guattari 488 and quoted in Bora 106). Texture is retrieved from the virtual by the perceiver, who supplies the limited reference frame against which it can appear, shimmering and mutual.

Once histology sees the cell, other grounds come alive. All the intermediate scales beneath the conscious are invigorated and redeemed in this fractional, smooth sense. The presence of texture at all levels of magnification in the organism now attaches to the discovery that there are life-processes occurring at every level, manifest as textures proper to that scale. They are alive exactly with respect to their dimensionality and scale—there is no excess. There is really tissue, it stretches and rips at the seams; there are really organs, they do the work local to them; there are really fibers, they contract and tear; there are really cells, they live and reproduce and die alone. Histology’s relationship with the microscope encourages this intensive reconceptualization of the organism on infinite scales of operation. Just as the microtome sections a three-dimensional block of tissue into two-dimensional slices for observation, so does the microscope take the integrated life process of organism apart into discrete, infinitesimally precise scales, the re-integration of which hangs ever over the head of the histologist as a spatial or geometrical version of the problem of texture in relation to structure. If texture is a phenomenon relative to the scale of its observation—is as much an expression of that observer-dependent *scale* as of the thing observed—then how can that relativity ever be removed?¹⁷ To what would the new thing be relative? If texture somehow, paradoxically, *got* to structure ... where would we have got to then?

¹⁷ Bora relates this problem with texture to the general problem of observation captured by Heisenberg’s principle from quantum mechanics. He writes: “the Heisenberg principle, almost identical to the problem of feedback in observation, becomes even more literally and epistemologically violent. For touch and physical pressure transform the materials one would like to know, assess, love” (99). The wave mechanics of particle motion mean that velocity, being the derivative of position, is inextricably locked to it for the purposes of measurement. The limitation is inherent to *sampling*, not to the wave itself. Maybe it is useful to imagine texture in a similar relation to structure. Then what is phenomenal in texture would be its status as an instantaneous sample of the real—a real which is also engaged in a constant development (becoming) of which texture is a sample. Digital objects (sound and photo date, for example) show different textures depending on the way they are sampled (with respect to what domain, with what sampling rate, etc.). Anyone who has noticed strange ripple-like artifacts when looking through a screen door at the right angles or a picket fence flashing by has noticed some such “illusory” textures (aliasing caused by the pixellating filter of the mesh or bars). The signal folds back on itself, potentially revealing new patterns in the signal through interference. All observation entails sampling; all cuts have a bias.

II. Cutting Looking: Sectioning the Histological Body

If phenomena come out with attention, we may have wasted time with all that abstract discussion. It would be best to get right into the matter and feel some histological text. Rather than pretend to present as continuous and complete the many digressions and divergences of its long history, I have prepared seven samples. As successive cross-sections move along a physical axis, these sections have been made chronologically, catching historical processes against the plane of the document. The history begins with early microscopical anatomy and ends with the neuron. Each “slide” presents a short passage from an important histological text alongside an illustration from the same text.

This section is meant to bring the body-textures so far under discussion into contact with the textual-textures with which the rest of the thesis will be dealing. For now, this will look like close attention to how metaphors and explanation work in a body constructed in language. *Text*, like *tissue*, is joined to *texture* not just through the common metaphor to the *textile* but in the sense that language, writing, weaving, touching, and feeling cooperate in any human attempt to live with matter. In chapters two and three I will try and read literary texts in light of this cooperation and argue that the cooperation can be understood materially. Part of the goal here is thus to provide a history against which they can be positioned, Eliot at a turning point in the 1870s and Rilke just after the establishment of the neuron and the fully-cellular body.

The history of anatomical texts organizing the body is also a history of the re-organization of text itself. Before the publication of Andreas Vesalius’s landmark human anatomy textbook *De humani corporis fabrica* (On the fabric of the human body) in 1543, medical texts, like most handwritten manuscripts, contained almost no illustrations (Lander 12).

Diagrams are difficult to copy faithfully by hand; text is easy. Unfortunately, as Vesalius noted, that also made them a lot less useful. Trying to identify structures from textual description while dissecting a real corpse, book here, body there, seemed to him a ridiculous inefficiency. To Vesalius, the “detestable ritual” of an anatomical dissection dramatized the distance of the book from the body (ibid 11). It took three people to get from book to body: the *lector*, the physician, who would stand by the book and read aloud, the *ostensor*, a little lower in status, who would point out with a rod where the cut should happen, and finally, the *sector*, a lowly barber, who would do the manual hand-knife work (ibid 11).

Vesalius, however, thought that physicians should get their hands dirty to understand the composition of the body. The book would have to get a little more bodily too—strangely, by the adoption of new printing techniques that obsolesced the manual production of the text. He contracted artists to make 171 woodcut illustrations, labelled and cross-referenced with precise textual description (ibid, 12). Unlike previous anatomical treatises, *De fabrica* was designed as a “visual aid” to the reader-dissector (ibid 14). More than simply providing reference diagrams, the book’s schematic organization into 188 chapters tells the reader where and how to take the body apart (ibid 15). “Each chapter represents an individual section, or cut, of the sector —and, therefore, a cut deeper into (or out of) the body, or subject of the text” (ibid 15).

We might put it like this: organization imposes a causal narrative because it tells a story about priority—what comes first, what is more fundamental. Following Vesalius, the histological texts in this section organize knowledge about biological matter by inscribing certain relations among discerned parts into the relations of elements in the text. The method is textural: it seeks to explain a quality of the object by reproducing the relations it takes to compose it. The smaller

the scale of observation, the more suggestively material these qualities become and the stranger the sought-after “correspondence.” The question is already here with Vesalius: which body is structuring the text—the one on the table or the one touching it, drawing it, describing? And what difference does it make? It’s the same body, isn’t it?



fig. 1. The cover page illustration from *de Fabrica* with Vesalius in center, performing the dissection himself, with his hand in the viscera, looking out at the viewer.

Slide 1. Helkiah Crooke, *Mikrokosmografia: A Description of the Body of Man*, 1615.

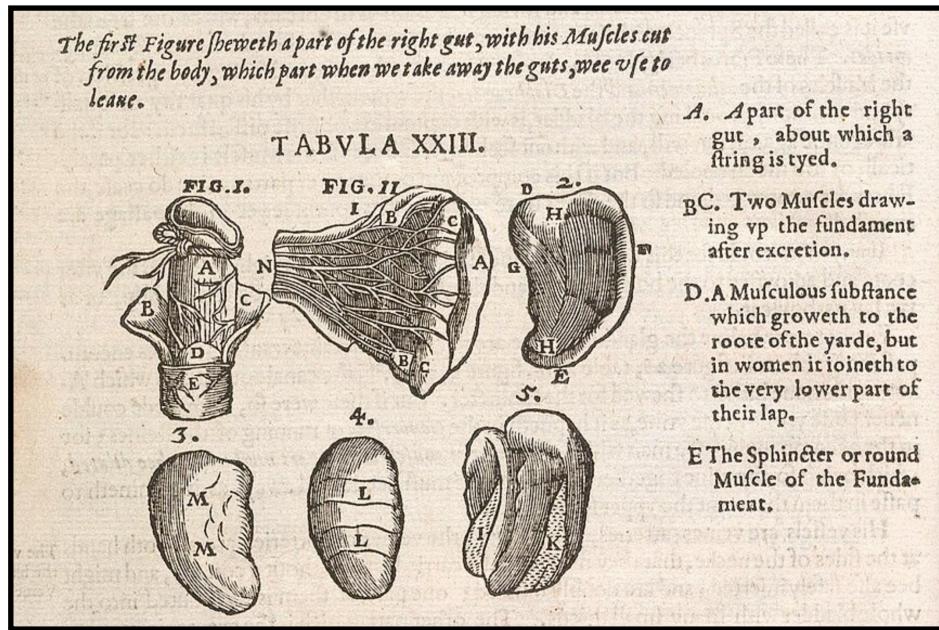


fig. 2. Drawings of the gut, labelled and numbered. At the top left, a string has been tied around the top of the gut. (Crooke 154)

Now there is amongst Physitians, a double acceptation of Anatomy; either it signifieth the action which is done with the hande; or the habite of the minde, that is, the most perfect action of the intellect. The first is called practicall Anatomy, the latter Theoretical or contemplative: the first is gained by experience, the second by reason and discourse: the first wee attaine only by Section and Inspection, the second by the living voice of a Teacher, or by their learned writings: the first we call Historical Anatomy, the second Scientifical: the first is altogether necessary for the practise of anatomy, the second is only profitable; but yet this profit is oftentimes more beneficall then the use it selfe of Anatomy: the first looketh into the structure of the partes, the second into the causes of the structure, and the actions and uses therefrom proceeding. (Crooke 26).

Helkiah Crooke seems to enjoy dissection. Taking inspiration from Vesalius, he divides and sub-divides his book into 485 sections, systematically arranged by analogy to the human body (Landers 16-17). The text organizes the body and then treats the resulting textual structure as the adoption of a natural hierarchical form, as if it was the body that had imposed an organization on the text. The body, Crooke writes, "is as it were the measure and exemplary

patterne of all corporeall things” (Crook 13). The text-book thus founds its authority to speak on material things to the extent that it adopts the edifying microcosm of the body as its model.

He has even taken anatomy apart. In the citation above, his cut follows the border of a mind-body dualism (as well as a real historical separation in disciplines between barber-surgeons and physicians). There is an anatomy of the hands, which takes things apart, and then there is an anatomy of the mind that integrates those parts to recover the whole. Even though he accepts that the manual work is “altogether necessary,” understanding will always come out *prior*. The material is not sufficient to explain itself. The coy remark that effort to understand is “only profitable” means to relate the mind to *excess* and patterns beyond the material. Reaching these, the mind exceeds the body with the magic of surplus,¹⁸ lifting the integration out of the material plane and into the realm of essences.¹⁹

Yet Crooke understands that the “sublunarie” body is paradoxically a prime site for seeing those patterns in action. Just as the cosmos contain lessons about physics, the body tell on the material world through its senses: “It was necessary that the body of man should be

¹⁸ “This alone,” Crooke writes, “is incorporeall, immortal, or immutable. This may be called the receptacle, promptuary, or store-house of all the species or kinds of things” (Crooke 4). Real knowledge is that which can be exchanged.

¹⁹ Notice the connection between this integrative logic and the idea of texture as the derivative of structure described at the end of the previous theoretical section. If material anatomy can be integrated to arrive at the essences, then the material seems to be derived from those essences. Why then does this conclusion not follow from idea of texture as a differential? The distinction is that Crooke relates parts and wholes such that the whole is *prior* to its parts. Philosopher (and monist) Jonathan Schaffer calls this *priority monism*, a view in which “metaphysical explanation dangling downward from the One” (31). Schaffer’s monism doesn’t rely on essences but rather the conviction that failing to capture priority relations—where parts are *grounded* by the larger scale wholes they compose—means missing something about the way the world really is (Schaffer, “Monism, or the Priority of the Whole,” and “On what grounds what”). Pluralism, which the cell will later suggest to its interpreters, inverts the priority, grounding the whole in its parts. One of the goals in this section is to work through these dualisms toward Deleuze and Guattari’s “magic formula”: “PLURALISM = MONISM” (ATP 21). If the phenomena appearing at a given scale are proper to it alone, there would then be no metaphysical excess; no profit for Crookes to take home.

composed of such a matter as might bee capable of these sences,” he writes, “but of all sences the foundation is *Touching*” (Crooke 6). Tissue belongs to this touch-forward sensorium.²⁰

A diagram from the section on the “Fundament” (the end of the gastrointestinal tract) visualizes some parts of the fibrous, textile body of early-modern anatomy (fig. 2). The hatch-shading makes solidity from the arrangement of contour lines like crossing fibers; muscles peel away in sheets like torn fabric. The mass of an organ seems a lumpen ball of yarn. In the first figure a piece of string has been tied around the muscle, metaphorically acting out the constriction of the rectum, so as to better picture the function of the sphincter muscles in retaining and expelling waste. That the tensile, fibrous strength of the string seems a suitable substitution for muscular constrictive force speaks not just to the textile body but to the touching manipulation that the textile body invites in dissection. The nearness of the investigation of gastrointestinal function to an anal play of retention and expulsion²¹ is almost acknowledged by Crooke, who notes that when the muscles of sphincter that “retract the fundament” are weakened, “men are constrainyd to use their fingers to doe that office.” The two interventions—the anatomist that ties a string around the organ to make a mock rectum and the person who uses their fingers to relax a weak sphincter—have a kinship in their intuitive treatment of the body as matter among matter. Still, it is a disquieting image: the string seems to make meat out of flesh, tied like butcher twine on intestinal casing. In all this fabric and fiber, there is a lot of binding, contraction, tightening of collars, constraint. These are the intricacies of the human body: the

²⁰ More on early modern theories of perception in which touch was primary in the second chapter. An important earlier precedent is found in Aristotle (by contrast to the Platonic path to knowledge from sight). See S. H. Rosen. “Thought and Touch: A Note on Aristotle’s ‘De Anima.’” *Phronesis* 6, no. 2 (1961): 127–37. For a more general history of touch in philosophy (in which Crooke is discussed), see Harvey, Elizabeth D. “The Portal of Touch.” *The American Historical Review* 116, no. 2 (2011): 385–400. See also Derrida, Jacques. *On Touching-Jean-Luc Nancy*. United States: Stanford University Press, 2005.

²¹ See Bora, pp. 97, on the “joys of anal management” for more on this particular site of texture.

interconnections that determine what it can do and what can be done to it. The textile body is woven out of these interconnections. Equally, the texture of the sphincter muscle (the direction its fibers run, the strength of those fibers, etc.) is what suggests that a string could simulate a rectum. Crooke's functional analysis of human anatomy relies in this way on texture as an index of the affective capacities of material objects. He would like it to be keep hand and mind separate, yet even in his own writing the hand rebels and intervenes: "men are constrainyd to use their fingers."

Slide 2. Robert Hooke. *Micrographia, or some Physiological Descriptions of Minute Bodies, made by Magnifying Glasses, with Observations and Inquiries thereupon*, 1664.

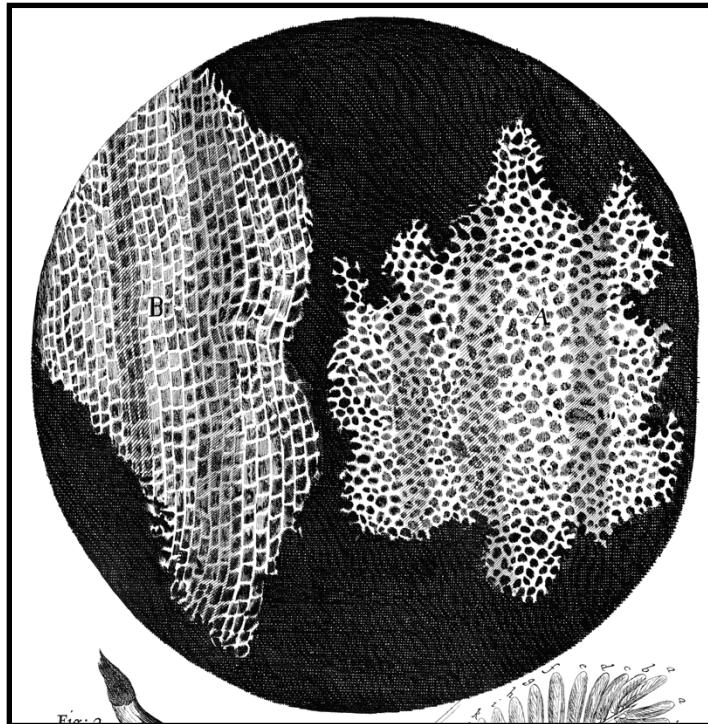


fig. 3. Illustration of the texture of cork (Hooke 114).

I took a good clear piece of Cork, and with a Pen-knife sharpen'd as keen as a Razor, I cut a piece of it off, and thereby left the surface of it exceeding smooth, ... me thought I could perceive it to appear a little porous; but I could not so plainly distinguish them, as to be sure that they were pores, much less what Figure they were of: But judging from the lightness and yielding quality of the Cork, that certainly the texture could not be so curious, but that possibly, if I could use some further diligence, I might find it to be discernable with a Microscope, I with the same sharp Penknife, cut off from the former smooth surface an exceeding thin piece of it, and placing it on a black object Plate, because it was it self a white body, and casting the light on it with a deep plano convex Glass, I could exceeding plainly perceive it to be all perforated and porous, much like Honey-comb ... the whole mass consists of an infinite company of small Boxes or Bladders of Air, which is a substance of a springy nature (Hooke 112-3).

Robert Hooke, an early adopter of the microscope, records here the first known sighting of the cell (Wolpert 227). His account is intensely technical, like many from early microscopy.²² In this description of his investigation of cork, one can see how the technical details of method (the qualities of tools and the way they were used) are as important to the observed result as the quality of the material under investigation (its porosity, lightness, and buoyancy; its “springiness and swelling nature when compress’d”). The two textures interfere as two sets of affective capacities. What is worth observing here is cutting an object in sections, the preparation of thin samples for viewing under the microscope, obscures the interference it represents as the knife gets sharper and the face of the slice gets smoother. This smoothness is the fiction of textural lack (that is, the lack of a texture imposed by the observer and the revelation of the true internal texture) and the condition for seeing of textile-tissue under the microscope.

There is no extricating hand from mind. The graduated perfection of textures in Hooke’s narrative—the sharpening of the knife, the geometrical perfection of the lighting glass, the smooth blackness of the plate—reflects a haptic awareness on the part of the microscopist that their handiwork is reflected in the final texture. Smoothness, as Bora writes, is a strange, self-effacing type of texture: it is “both a type of texture and texture’s other,” signifying “the willed erasure of its history” (Bora 99, Sedgwick 15). In histology, smoothness is the face of the cut. There’s nothing sinister in the effort to take a sample that registers minimal information about the way the sample was taken. The aim is simply to reduce the confusion of information relative to

²² It took a long time for microscopic techniques to be standardized, so results had to be accompanied by detailed accounts of their production. A by-product is the consideration of one’s tools as material objects. At one point, he even puts a microscope lens under his microscope to study the smoothness of the glass: “even in the most curious wrought Glasses for *Microscopes*, and other Optical uses, I have, when the Sun has shone well on them, discover’d their surface to be variously raz’d or scratched, and to consist of an infinity of small broken surfaces, which reflect the light of very various and differing colours.”

the sampling process with information from the exposed surface.²³ Hooke gives a technical account of his method for the same reason: so that the revealed texture can be read in light of what it took to reveal it.

Hooke's obsessive sharpening likely has its root in the microscopist's knowledge that a blade is never truly sharp—and that while nature produces exactitude easily, the human hand is microscopically imprecise.²⁴ The first three observations of *Micrographia* deal with human imprecision in the first three dimensions: the point of a needle, the edge of a razor, and a piece of cloth (point, line, plane; 0, 1, 2).²⁵ The needlepoint no longer appears sharp and even, but rather reveals “a multitude of holes and scratches and ruggednesses” (Hooke 1). The razor seems now twisted and rough, the wider part criss-crossed by “several great and deep scratches, or furrows,” and the sharpest area looking even “rougher than the other, looking almost like a plow'd field, with many parallels, ridges, and furrows,” (ibid 4). (These furrow-marks return these supposedly advanced fabrications to primitive human technologies: plows, hand-axes.) The fine piece of linen fares no better. The “plain and base” threads of flax have been woven into a “fine contexture” that *feels* silken “both to the eye and the touch, full as *fine* and as *glossie*” (ibid 5). Yet under the microscope, it becomes a “piece of coarse Matting” with more holes than substance (a “lattice-window”).

It is not a coincidence that Hooke's drawing of silk mesh resembles the cell structure of his cork diagram. At the end of his section on fabrics, he speculates that the “tenacity of *bodies*”

²³ Especially in the early days of microscopy, it was common for optical noise relating to the set-up to lead observers astray, sometimes identifying as structures of the object tricks of light (Wolpert 229).

²⁴ “So unaccurate is it, in all its productions, even in those which seem most neat, that if examin'd with an organ more acute then that by which they were made, the more we see of their *shape*, the less appearance will there be of their *beauty*: whereas in the works of *Nature*, the deepest Discoveries shew us the greatest Excellencies.” (Hook 1)

²⁵ Hooke was probably consciously following Euclid with this dimensional growth. He writes of the razor that “The sharpest *Edge* hath the same kind of affinity to the sharpest *Point* in Physicks, as a *line* hath to a *point* in Mathematicks … since as we just now shew'd that a *point* appear'd a *circle*, 'tis rational a *line* should be a *parallelogram*” (Hooke 2).

is a result of a “more exact” interweaving of fibers to create a “contexture” (as opposed to the Epicurean view of “hooked” atoms). The generalization from two-dimensional textile to the composition of three-dimensional objects like cork is thus justified by a common texture or quality (“tenacity,” a kind of plastic strength arising from intricacy). The greater the tenacity, the more organized, intricate, and alive the object is: in tenacity, according to Hooke, animals are superior to vegetables and vegetables to minerals. The textile is a proxy for the contexture of organic matter, with the metaphorical *pattern* in the former becoming spirit in the latter.

Texture, acting in the interstitial, inter-dimensional zone, makes possible the application of textile to organic mass. It also works in the other direction. As histology developed and microtomes replaced the steady hand and sharp pen-knife, it became possible to take thinner and thinner sections of material. The three-dimensional aspects of the object thus become less and less visible, left more to the integrating spatial memory of the microscopist. Sectioning, as Hooke’s drawing of cork shows, cuts fabric-like sheets off of the material. It would be easy for a histologist to mistake their mental recombination of the object from cross sections for its actual composition. Then a lattice would seem to be formed by the compounding of tissues.

Hooke understands that the macroscopic effects of “springiness,” “toughness,” “friability” and “brittleness” are phenomenal. The discovery of hollow cells in cork, he writes, provides the “true and intelligible reason of all the *Phænomena* of Cork,” as an analysis of other materials would “render the true reason of all their *Phænomena*, … namely, what were the cause[s]” of their macroscopic qualities (114). When Hooke speaks about the discovery of causes and reasons lying in the parts of an object (its “*Schematisme* and *Texture*”), he invokes explanation by reduction, a natural direction of explanation for microscopy. To speak causally

about a quality is to make a metaphysical claim about what can explain what. What is worth noticing is how the first intuition (that phenomena/qualities/textures are derivative with respect to a material ground truth) leads to priority relations across scales (a piece of cork floats because its made of microscopic hollow boxes) and the sense that some scales are more fundamental than others. The obvious question is then: where do we fit in? Tissue suspends this problem by covering the body with the textile, a made object to which only higher parental forces (*mater-pater*) are prior.²⁶ Hooke's work shows how texture not only mediates conceptually between two-dimensional textile and three-dimensional body, but also physically, in the preparation of sections.

²⁶ Foucault describes clinical interest in tissue as the attempt to discover such an “internal surface” for the re-mapping of the elements of the body: “the isolation of tissue—a functional, two-dimensional area—in contrast with the functioning mass of the organ, constituting the paradox of an ‘internal surface’” (Foucault, *Clinic*, xviii). As Foucault writes, the clinic cannot be born until histopathology spatializes the body. Then there can be “a welding of the disease onto the organism … that situates the being of the disease with its causes and effects in a three-dimensional space” (ibid). Such a move relies on the connection between texture and affect that Hooke previews with his investigation of cork cells and fabric. Tissue’s construction from the textile metaphor (its general lack of priority, its status as patterned matter) structures the investigation of the body as matter from the outset. For more on Hooke’s influence on the concept of body as textile/tissue, see Hisao Ishizuka, “Visualizing the Fiber-Woven Body,” pp. 115-117. Although Hooke makes a step toward the cell in his description of cork, he still considers the cells to be like the openings in a weave, as though neighboring cells are sharing a wall. He misses their independence with his textile reading, taking the whole phenomenon (texture) as prior to its components (the cells).

Slide 3. Nehemiah Grew, *The Anatomy of Plants*, 1682.

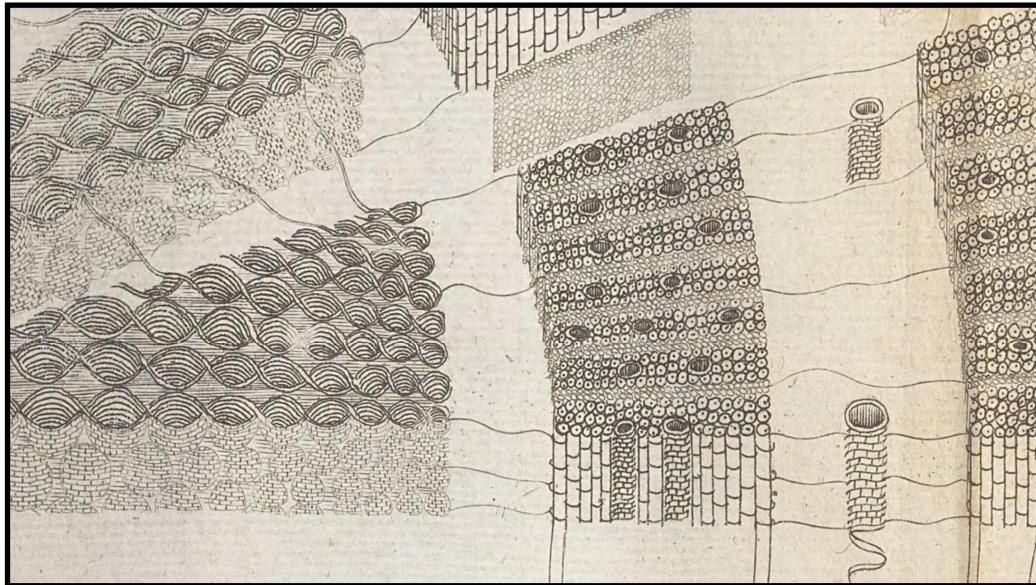


fig. 4. Detail from one of Grew's illustrations of plant tissue.

The Contexture [of both the pithy and ligneous part of the plant], is Fibrous.

Whence we understand, How the several Braces and Threds of the Vessels are made: For the Vessels running by the length of the Root, as the Warp; by the Parenchymous Fibres running cross or horizontally, as the Woof: they are thus knit and as it were stitched up together. Yet their weftage seemeth not to be simple, as in Cloath; but that many of the Parenchymous Fibres are wraped round about each Vessel; and, in the same manner, are continued from one Vessel to another; thereby knitting them altogether, more closely, into one Tubulary Thred; and those Threds, again, into one Brace: much after the manner of the Needle work called Back-Stitch or that used in Quilting of Balls (Grew 77).

Nehemiah Grew wrote at the beginning of a long moment in which the metaphor of *tissue* had so been so successfully extended to microscopic perception that histologists had begun to

theorize about and search for the primitive fibers from which this tissue was woven.²⁷ This provides an opportunity to think about how fiber, as part of the textile metaphor, encourages thinking about what physical connections extending between parts say about how a thing functions. The functional analysis of the fibrous body thus extends that of tissue (as in Hooke and Crooke) to a more exact investigation of the organism as a machine.

In Grew's large drawing above, the richness of surface texture along the plane of the cut extends down into a third dimension, showing the nature of the processes which meet the cross-section. With the addition of depth, Grew can show not only the fibers that run along the plane of the cut but also those intercepted by it. Nothing is left discrete—everything is in some direction composed by strands, tubes, or vessels. It is curious how much certain textures resemble brickwork—both the double-wave strands on the left and the columns on the right—considering that brickwork, or any sort of building-block metaphor for construction, would have struck closer to the cellular nature of tissue. That would however have ruled out the possibility, essential for Grew, that many fibers act as channels (“Vessels”) for controlling flows.

Other contemporary microscopists had proposed other, more discrete elemental parts—the globule and the gland, for example, from van Leeuwanhoek and Malpighi respectively—but it was Grew's fiber model that won out, later dominating eighteenth century histology (Ishizuka 114-115, 117). Fiber was not simply the natural division of the textile body, but also worked with a new machinic metaphor: the hydraulic (*Ibid*, 115). At the same time as microscopists were seeing, for the first time, the *thickness* of what had seemed invisibly thin threads, machines

²⁷ Albrech von Haller, in his 1757 book *Elementa physiologiae corporis humani*, wrote about the fiber as the ultimate elemental part of the body. “A fiber is for a physiologist what the line is for a geometer: that out of which all other figures are constructed” (Wolpert 228).

which operated by pushing fluids through tubes were becoming more and more prevalent. In the 1650s Blaise Pascal worked out an important equation describing hydraulic transmission (Pascal's Law), effectively creating the science of hydrodynamics. The vascular body applied the new systems science to organic machinery as a way to explain how parts mechanically interacted. Only a few years before Pascal's formalization, René Descartes published *Les Passions de l'âme* (*The Passions of the Soul*), schematizing the soul's operation upon the "machine of our body" in the controlled opening and closing of valves in the pineal gland. Pressure differentials from the valve manipulation sent animal spirits "excited by the heat of the heart" circulating through the body and coordinated muscle movement (Descartes, I. 18). The soul intervenes (or supervenes) upon the material system from outside.²⁸ The textile body, I argued, reserves a space for priors; the Cartesian hydraulic solution elaborates a logic that locates the conscious in that space too, preserving the feeling that the mind can direct the body.

What Descartes needs from the hydraulic metaphor to establish his dualism is the notion of matter doing something *according to the properties of matter*—changes in pressure propagating through fluid in a tube due to heat energy from the heart. The soul can thus act locally and as a unity, while the hydraulic vascular system carries the burdens of matter: distribution across space, contiguity, decentralization. Starting in the 1660s, anatomists like Frederik Ruysch lent credence to Descartes' hydraulic explanation, developing new techniques to render the vascular networks of the body visible (Ishizuka 115). Ruysch's method of perfusion, for example, entailed the injection of a dark red cinnabar-based mixture into the veins of a fresh corpse, staining very delicate ramifications of the vascular system a deep vermillion (Boer). He

²⁸ "The whole action of the soul," Descartes writes, "consists in this: merely by willing something, it makes the little gland to which it is closely joined move" (*ibid*, I. 41).

preserved his samples, many of them congenitally deformed infants, in glass jars. Their faces retain a strange vital flush, the permeation of the dense capillary system of facial tissue by the red chemical. Ruysch's experiments seemed evidence for the claim implicit in Descartes' hydraulics: liveliness is an artifact of the body's machinic operation.

Although Grew's work was on plants, not human bodies, the tubes and vessels still carry the hydraulic significance of communication. The fiber is fundamental because interconnection ("Contexture") is fundamental to what an organism is. Processes "are continued from one *Vessel* to another; thereby knitting them altogether." Nature knits it into existence, giving it density and form by the progressive entanglement of its internal connections. If Grew's meticulous drawings have a *horror vacui* to them, it is because *density* is their subject. The denseness of "contexture" is a sign that a material machine is at work, since physical connections (now seen through the hydraulic metaphor) are what allow the parts of the system to influence each other. This densifying movement is also meant to perform another dimensional shift, moving from fiber to textile, as though the necessity of tubes in the machine were now grounding the observation of tissue. The language of textile production continues to dominate the metaphors of the text, only now it is the formation of the fibers under discussion, wrapping, coiling around, breaking the textile down into warp and weft. Fibers make a natural reduction from within the metaphorical space of the textile, preserving continuity (flows, threads, vascular networks) while becoming more machinic about the organic. The body becomes a container by default, a vessel, as *Faser* collects into *Gefäß* or *vaso* to *vaso*.

Slide 4. Matthias Schleiden, “Beiträge zur Phytogenesis,” *Archiv für Anatomie, Physiologie und Wissenschaftliche Medicin*, 1838.

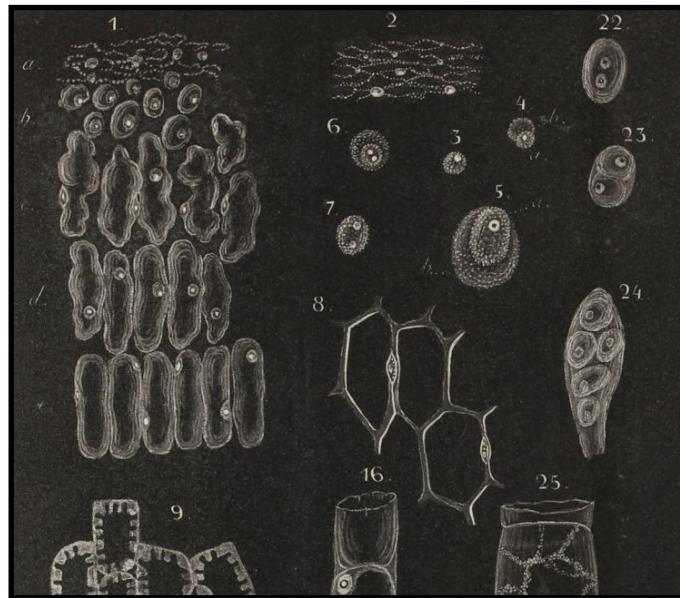


fig. 5. Illustrations from the *Beiträge*. In the top left, cell formation from substance (1) through intermediate forms (2-7) to stable structure (8).

Jede nur etwas höher ausgebildete Pflanze ist aber ein Aggregat von völlig individualisierten, in sich abgeschlossenen Einzelwesen, eben den Zellen selbst. Jede Zelle führt nun ein zweifaches Leben: ein ganz selbständiges, nur ihrer eigenen Entwicklung angehöriges und ein andres mittelbares, in so fern sie ein integrierender Theil einer Pflanze geworden. [So, given the cellular composition of plants:] Was heisst wachsen? ...

1. Die Pflanze wächst, d. h. sie bildet die ihr zukommende Anzahl von Zellen.
2. Die Pflanze entfaltet sich, indem die gebildeten Zellen sich ausdehnen und entwickeln. — Es ist besonders diese für die Pflanze ganz eigenthümliche Erscheinung, die, weil sie auf der Zusammensetzung derselben aus Zellen beruht, bei den Kristallen, wie bei den Tieren in keiner auch nur entfernten Form vorkommen kann.
3. Die Wände der ausgewachsenen Zellen verdicken sich durch neuabgelagerte Schichten, ein Process, den man nach der alten Regel: *a posteriori fit denominatio*, am zweckmässigsten das Verholzen der Pflanze nennen kann. (Schleiden, 137-138, 160-161).

By the time Matthias Schleiden left law to join the anatomy lab of Berlin anatomist Johannes Müller, the promise of elementary fibers had been replaced by early forms of cell theory (Vienne 634). Botanists like Schleiden got to the cell before their zoological counterparts. In plants, the cell is delineated by a semi-rigid cell wall; in animals (which need to move and bend), the only boundary is the amorphous lipid layer of the cell membrane.

In the article cited above, Schleiden begins with an exposition of the double-ground realized by the cell. There is something duplicitous about the cell's "zweifaches Leben" (one might hear *Zweifel*). The individuality of the cell is cast selfish: it pursues its own development first and foremost, acting as a part only indirectly, "in so fern" as it wishes to contribute. One begins to worry that it is not really committed to the plant, whose growth nevertheless relies on its own—in fact, unfolds (*entfaltet*) as one half of that two-facedness. The question Schleiden is grappling with—how can the continuous, imperceptible growth of an organism occur if its parts are discrete?²⁹—can therefore be read as a question about the collective nature of morphogenesis. With this question, Schleiden pushes the reduction around what structure houses the affective capacities of the organism into the discrete world of the cell.³⁰

Just because the growth of something can be described as the growth of an individual, Schleiden explains, does not mean that it does not at the same time take part in a larger process or exist as a product of smaller processes. It is because the cell is clearly alive to-itself that this relativism becomes necessary. Even though the cells are "völlig individualisierten," one would

²⁹ Schleiden will not be able to answer the question of growth entirely, for it will be another few decades before the process of cell division (*mitosis*) is described by Remak and *omnis cellula e cellula* accepted as the slogan for biological matter (Wolpert 231). Like Schwann, he hypothesizes that cells are generated *de novo* from concentrations of the right materials in a fluid (Schleiden 172). Actually, the fact of cell division (that every organism starts from a single cell) vindicates his distaste for the word *verwachsen*.

³⁰ Earlier candidates for such structures do not lose explanatory power with these progressive reductions (there are organs, tissues, fibers, etc), but rather lose their claim to "fundamentality" in certain priority schema.

miss something to consider the organism in which they take part as an inert by-product—it, too, is alive. To illustrate this point, Schleiden mocks the use by other botanists of the verb *verwachsen*, which, he claims, smuggles in the old idea that biological structures are formed by the growing together of processes with different origins (as tissue from fiber).³¹ “Was würde der Zoologe dazu sagen,” he asks ironically, “wollte man den Truncus als eine Verwachsung der Extremitäten ansehen” (*ibid*, 160). We can read this critique of *verwachsen* as a critique of *contexture* and the textile metaphor for tissue in general. The mistake consists in mistaking the legibility of a surface—the fact that it coalesces to form a perceivable texture—for information about the history of that surface. To imagine the torso as the joint production of the extremities—each stumbling upon each other and intertwining³²—fails where it tries to insert priority into the double-grounded figure. Reading Schleiden’s critique together with the description he offers of *wachsen* suggests that it might be equally wrong to think of the extremities as productions of the torso.

Of course, Schleiden was a botanist and did not yet know definitively that human life, too, was cellular. The joke about the torso and extremities, like the comment that keeps humans and crystals safe from the cell, could be read with a measure of denial. It is, after all, a child that gives the first answer to the question “was heisst wachsen” (“wenn ich so gross werde wie Vater”), framing the entire discussion of growth by both the human and non-human sense of *Bildung* (158). It is against a human-applicable idea of formation that the cellular account is

³¹ “Das Wort ‘Verwachsen’ hat aber seit ewigen Zeiten in Leben und Wissenschaft die Bedeutung gehabt, dass zwei oder mehrere ursprünglich und ihrer Natur nach getrennte Theile durch den Prozess des Wachstums entweder abnorm, oder unter gewissen Umständen gesetzmässig vereinigt werden” (Schleiden 159).

³² If it were not grotesque enough to suggest an image of autonomous body parts grasping and melting together into new masses of tissue, Schleiden’s joke works as a pun as well, since *verwachsen* can also mean “deformed” (*Verwachsung*, “deformity”). Explaining the formation of wholes as the deformation of parts does not, for Schleiden, make a satisfying theory of morphogenesis. Rilke’s famous poem “Archaischer Torso Apollos” could be read productively alongside Schleiden’s claim.

measured. The question is forced by priority: are wholes just parts coming together? or are parts just deformations of a whole?

The three-part definition of growth given oscillates between these two accounts, between pluralism and monism. In each part, the plant is conceded an active verb but the action of that verb must then be redefined by a subordinate clause in terms of cells. Plants exist, cells exist, but the verb will have to be redefined, specified in terms of the other ground: “wächst, d.h. [etc]”, “entfaltet sich, indem [etc].” In the other direction (from cell to plant), the cell walls “verdicken sich,” bringing about a macroscopic effect: “das Verholzen der Pflanze.”

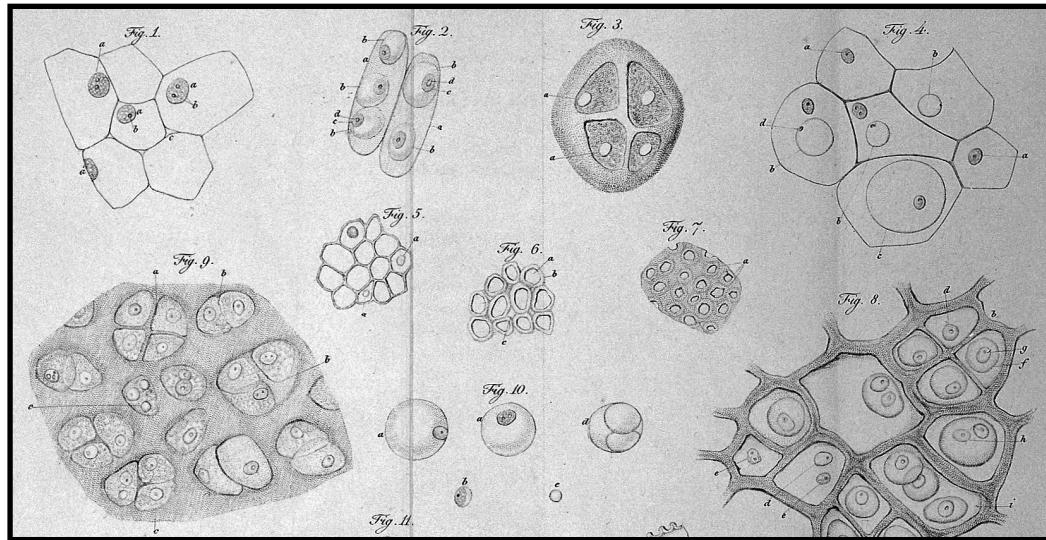
Schleiden investigates the life process of the cell as an individual in order to unify it with the life process of the organism as an individual, all around growth: *Bildung, Wachstum*. The two grounds, macroscopic and microscopic, share basic organic features: both are alive, both grow, develop, die.³³ Schleiden’s *wachsen* describes the movement from one to the other, as an excess of dimension in the small scale (the *Verdickung* of cell walls, for instance) spills upwards into the larger scalar object, registered as a change in texture (the *Verholzen* of the plant’s limb). And though names will still follow that macroscopic texture, it is only following a custom (*a potiori fit denominatio*) to enforce a priority relation with a name (*a denominationi fit potior*). Schleiden

³³ Schleiden considered individuality as a spectrum, achieved only (or nearly) in very few cases, depending upon the criterion. Annual and biennial plants (if you consider the death of the organism), unicellular organisms (if you stipulate no multi-cellular life). Like Bergson after him, he appreciated that the organism’s need to perpetuate itself in time forecloses any possibility of its closure in space (*Creative Evolution*, 12-14.). There are shades to death. Schleiden writes: “Der Begriff des individuellen Leben fordert auch nothwendig als Merkmal, den schon in der Organisation selbst bedingten individuellen Tod. Wo aber ein solcher Tod nicht als endlicher Abschluss durch innere Nothwendigkeit, als innerlich im voraus bedingtes Aufhören der organisierenden Thätigkeit gegeben ist, kann auch von keinem Individuum die Rede sein” (168-169).

has noticed the names regrouping. Wholes open up; the ground gives way. He finds new sentences here: “es giebt aber keinen Baum, der Blätter hat” (170).³⁴

³⁴ There is a cooperation between language and the dissolution of a named entity that is being thoroughly “explained.” The dissolution, as I allude to in this section, can happen because explanations are bits of language that ground x by reference to y, with the result that a good explanation leaves the explained thing with a spectral, insubstantial feeling. This idea will be relevant for the causal, materialist narrative of *Middlemarch* in the second chapter and to the diffusing and compounding movements in Rilke’s poetry in the third chapter, where two *Bäumen* appear in the analysis in even stranger sentences.

Slide 5. Theodor Schwann, Mikroskopische Untersuchungen über die Übereinstimmung in der Struktur und dem Wachsthum der Thiere und Pflanzen, 1839.



Wenn man ein tierisches Gebilde den Pflanzenzellen parallel stellen will, so muß man beweisen, nicht nur daß das eine Zelle ist, sondern daß in dieser Zelle ähnliche Kräfte wirken, wie in den Pflanzenzellen oder, da dies direkt unmöglich ist, daß die Erscheinungen, wodurch sich die Tätigkeit dieser **Zellen** Kräfte äußert, nämlich Ernährung und Wachstum, auf dieselbe, oder ähnliche Weise vor sich gehe wie bei den Pflanzen. (from Schwann's drafts, quoted in Parnes 47).

In 1837 Theodor Schwann, another researcher at Müller's anatomy lab, sat down for lunch with Schleiden. They probably talked about their boss, about whom they both held reservations. In 1835, Schwann's second year at the lab, he wrote a letter to his older brother Peter, a priest, complaining about theological problems he saw in Müller's research program. Müller (inspired by Schelling) wanted to give an account of human life in which the "psychic principle," as Schwann called it, was responsible throughout the human body as a quasi-electric force (Vienne 642). Where Descartes' soul was limited mostly to the valves of the brain, Müller's

vitalism imagined the causal forces of mind operating throughout the body. Schwann thought Müller's mapping of mind onto body threatened to collapse a categorical distinction between the two. If the soul became spatialized and substantial, it would no longer be a soul. The notional separation between the two could easily collapse, or worse, reverse in priority.³⁵

All this as a catholic; as a scientist, he saw no reason to imagine an abstract vital force as the causal agent in physical processes. To disprove this notion, he sought to distinguish macroscopic bodily phenomena with reducible material causes (say, pain, strength) from those without (consciousness, the life of the mind and soul). His early research in Müller's lab sought microscopic explanations for macroscopic effects: muscle contraction, digestion, fermentation (ibid 643). Paradoxically, in order to preserve the dualism that keeps matter beneath spirit, it became necessary to give an account of material phenomena from below, in some quantifiable relation to smaller causal agents.³⁶ Already in 1835, he was imagining in his personal notebook a comparative general anatomy ("vergleichende allgemeine Anatomie") that could unify diverse macroscopic biological phenomena by discovering common structural causes ("die wesentliche Struktur zu ermitteln") (Parnes 36).

When Schwann heard about Schleiden's research into the cell nucleus during their lunch, he thought of a corresponding structure he had seen in animal tissue (Parnes 46). The potential consequence struck him immediately: if the cell could be shown to be the elemental part of all

³⁵ Schleiden also found Müller's conviction that there was some mapping that associated the spiritual and physical improbable and distasteful (Vienne 644).

³⁶ In February of 1835, Schwann stresses the importance of *quantifying* processes like muscle contraction "Meiner Ansicht nach muß unser Hauptstreben darauf gerichtet sein, Rechnung in die Physiologie einzuführen." (quoted in Parnes 34). The quantified body would have qualities only due to phenomenal perception, helping along Schwann's goal: "die Frage über den Sitz der Seele [...] ganz aus der Physiologie zu verbannen" (ibid 34). He theorized, for example, that muscle contractility might scale (as a quantity) relative to the ratio of light to dark parts in the "Primitivfasern" composing them (ibid 36). It is a curious irony that a quantity-quality dualism lead through the discovery of the cell to the independent neuron and the quantization of the brain. In a way, the introduction of causal *Rechnung* did do a lot to banish the question of the soul from physiology—the trouble is that the territory of banishment has since expanded to cover most of what is considered provably real.

life, then the vitalist account would be replaced by a pluralist one. This displacement succeeds by replacing a mereological priority relation with a causal one: the microscope concretizes and discretizes abstract vital force into the living cell. The body becomes an organization of *causal agents*—organs, tissues, etc., all of which have their model of causal independence in the cell.³⁷ A pluralist body cannot, for Schwann, also be the location of the soul, which belongs to a metaphysical movement heading in the other direction, coming down from the essential, spiritual, and unified. Schwann’s encounter with finitude in the figure of the cell is thus staved off, preserving the mind-matter dualism by attaching another dualism, monism-pluralism. It is fairly Crookian: the physical and the mental have different kinds of causes, colliding in the human, whose double-nature is the meeting point of two metaphysical derivations from unity (the body rising from matter, the soul descending from the divine). Only after Schwann tissue and fiber will never again be continuous in anything more than a relative sense, as a crowd seems fluid at a distance.

In the citation above, which comes from an early draft of *Mikroskopische Untersuchungen*, Schwann notes that cell theory can be unified if cells are thought of as elementary causal units: forces, *Kräfte*, to which tissue is an incidental, contingent production. The goal is very literally to ground macroscopic phenomena (*Erscheinungen*)—tissue, texture, flash or shines of life—as collateral *expressions* of the cell-as-force: “die Erscheinungen, wodurch sich die Tätigkeit dieser *Zellen* Kräfte äußert.” In German, as in English, force turns to expression when it exceeds its origin,³⁸ crosses out (of) the cell (*Druck* to *Ausdruck*, pressure

³⁷ See Ohad Parnes “Vom Prinzip zum Begriff,” *Begriffsgeschichte der Naturwissenschaften*, pp. 27-51, for a discussion of Schwann’s research notebooks and his turn toward causal agents on the way to the cell.

³⁸ In German the word for origin, *Ursprung*, also contains the sense of departure as an expulsion or a leap.

to expression, *Außerung*). The cell is its forces, and those forces speak to the extent that they spill over into higher dimensions, incidentally weaving up tissues, aggregating and unfolding into complex bodies. Schwann's replacement of mereological speculation on priority (as in Crooke, Hooke) with a causal account thus discovers a way for matter to be only an expression of its own fundamental forces, harnessed by the cell. Such a material expression lets the *Stimme* push *Übereinstimmung* into a *univocity* for life in matter. The organic sings its plural origin, expresses its unit force: the cell.³⁹ Schwann has brought the vital force inside, breathing life into what had been the passive matter of the body.⁴⁰ The cell is “alive” in order to embody a more general pluralistic principle that ascribes agency and causal priority to matter. One can read histology’s interest in texture this way from the beginning: as relying on the intuition that the affective capacities of things are apprehensible from their material forms.

³⁹ Reading a different early nineteenth century biologist working on morphology, Geoffrey Saint-Hilaire, Deleuze and Guattari find a similar univocity resting on plurality. They characterize his view so: “the important thing is the principle of the simultaneous unity and variety of the stratum: isomorphism of forms but no correspondence” (ATP 46). The breadth of plant and animal life is unified by a certain idea of morphogenesis as the immanent exploration of matter by matter: “the same formal relations or connections are then effectuated in entirely different forms and arrangements. It is still the same abstract Animal that is realized throughout the stratum, only to varying degrees, in varying modes” (ibid). The “abstract Animal” in the case of Saint-Hilaire is yet more abstract for Schwann, something like an *abstract organism*, the set of virtual potentials of which the cell is merely a vector.

⁴⁰ Schwann eventually calls the vital force metabolism—a force of change. “Die unbekannte Ursache all dieser Erscheinungen, die wir unter dem Namen metabolische Erscheinungen der Zellen zusammenfassen, wollen wir die *metabolische Kraft* nennen” (quoted in Parnes 51). The movement of the vital force into the cell can also be found in successors to Schwann, such as Joseph von Gerlach. A relevant quote from the introduction to his histology textbook prefaces the thesis.

Slide 6. Camillo Golgi, *Sulla fina anatomia degli organi centrali del sistema nervoso*, 1885.

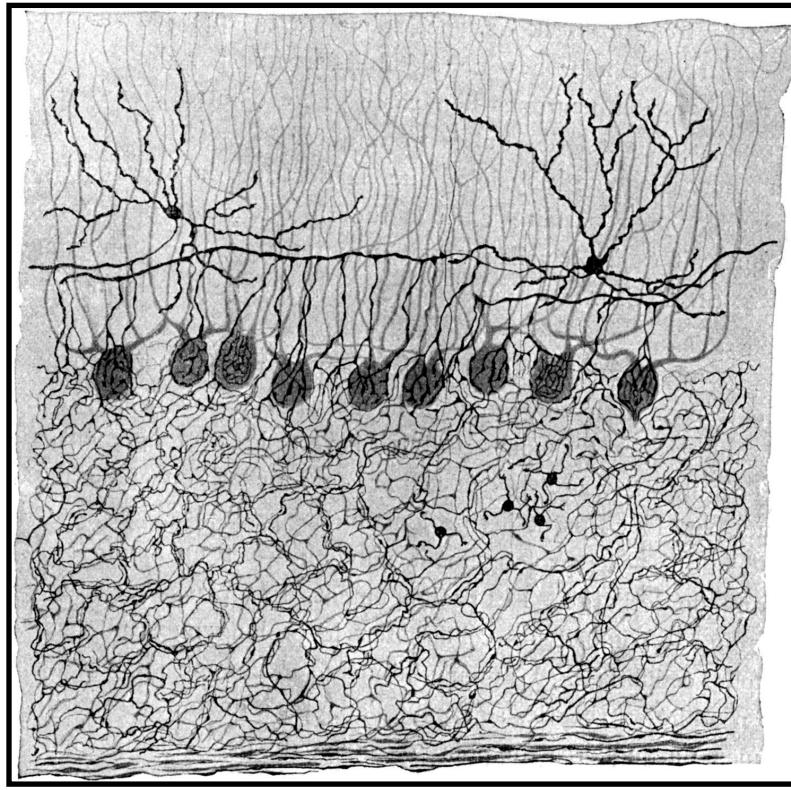


Fig. #. A drawing showing anastomoses among the axons of the cerebellar cortex (bottom half of image) (Golgi 1906).

L'elemento costitutivo fondamentale del tessuto interstiziale, tanto della sostanza bianca quanta della grigia, è sempre la cellula raggiata. ... [S]econdo i metodi descritte precedentemente (lieve indurimento-macerazione), dei preparati per disgregazione, si possono isolare in grande number eleganti cellule connettive ... In sifatte sezioni si possono scorgere [nerve cells] ricchissime di prolungamenti, anzi quasi completamente contornate da essi; agli orli delle sezioni poi, o nei punti ove esse raggiungono il massimo di finezza, lo stroma interstiziale si presenta anche negli strati più profondi della corteccia distintamente fibrillare (155, 164, 166).

In 1873 Camillo Golgi published a new method he had developed for staining nervous tissue (Raviola). Soft grey and white matter, extracted from a cadaver, was first placed in potassium dichromate as a fixative, hardening the fragile tissue for easier manipulation and sectioning (Golgi 184). Fixation with potassium dichromate was common and really only prepared the way for the actual staining, where tissue is impregnated with pigment through infusion (immersion in a chemical bath) or perfusion (circulation of the chemical through bodily vessels, like Ruysch's cinnabar). Different stains visualized different structures according to the nature of the chemical reactions between the stain and tissue elements. Before Golgi, the two most important histological dyes were adaptations of Meso-American textile dyes: carmine, from the cactus parasite cochineal, and hematoxylin, from the logwood tree (Raviola, Ortiz-Hidalgo). Impregnation with these dyes would stain the tissue thoroughly—too thoroughly, in fact, to be useful for dense nervous tissue (Raviola). Experimenting instead with temperamental silver nitrate, Golgi found a way to stain only a small selection with clarity. He called his process *la reazione nera*, the black reaction, for the dark silver chromate deposits that collected on the surface of nerve cells and their prolongations (Golgi 184).

Golgi's process rendered the fine structure of the neuron visible for the first time, leading eventually to its formalization as an individual cell, distinct from but contiguous to the others in its network. Golgi, however, was not the one to get there. In the passage above, he describes a nervous tissue that is not the arrangement of cells in a lattice, but rather a tissue *at the cellular level*, formed by the fusion of fine branches coming off of the nerve cell's axon cylinder. This "interstitial nervous tissue"—elsewhere he calls it a "diffuse nervous network"—was for him a single, fused organ through which communication between the nerves occurred (Raviola). Such a

“reticulum” had been proposed in less precise form by Joseph von Gerlach already in 1872 (ibid). Its proponents are the hold-outs of a theory in which continuity at the microscopic level corresponds with the apparent continuity of experience. The brain is their last refuge.

Golgi’s idea of the neuron is wrong in a subtle way. As was later discovered using his own staining technique, neurons are in fact connected in such a way that they can communicate with each other. However, these connections (synapses) are chemical, not physical, and rarely communicate from axon to axon. Usually, communication goes from the axon terminals of one cell to the dendrites of the next. Between the dendrites of a cell and the axon lies the cell body itself, the soma. Signals are thus transmitted *through the cell body* in one direction, not, as Golgi thought, moving about in a tissue formed by radiations from the axons. Golgi’s confusion stems in part from thinking that the dendrites (perhaps due to their resemblance to a root structure) were not part of the communication but simply brought nutrients to the cell body. Golgi’s cell is a telegraph station: each cell is joined to the network only in the sense that it could send signals into it or receive them from it. It is really an outpost to thought and secondary to neural action.

The decomposition of the brain into cells poses instantiation problems for the phenomena of consciousness—or specifically, of an abiding and unified conscious experience. The reticulum solves the problem by *fusing* the network to form a whole; a unit phenomenon is housed by an irreducible material whole. Even tissue is too phenomenal, too likely to come apart into fibers or cells: the reticulum affords tissue the integral properties it wants to save in the mind.

The reticulum is a synthesis of cellular logic with the continuum of the textile-tissue body. If cells can produce aggregate life, can grow and develop, why couldn’t they grow into each other literally, fusing, *verwachsen*, forming a true continuous tissue? The trick involves

passing the phenomenal continuity of multicellular life onto what is discontinuous at the microscopic scale. The reticulum relies on anastomoses between processes radiating from the axon—that is, the emanations physically join to form a single structure.⁴¹ Anastomosis (from Greek ἀναστομώω, “to provide with a mouth,” as a river opens onto another from a difference source) undercuts any univocal possibility for a pluralistic system like cellular tissue, since it ensures that the discrete produces an actual continuous whole and not merely the appearance of one.⁴² In the drawings he made to accompany his Nobel Prize lecture, Golgi has exaggerated the anastomoses among the axons to form a wild tangle.⁴³ The entire bottom half of the image is dedicated to the bramble formed by these converging, deforming, fusing processes (*Verwachsungen*). The simple cell bodies have fallen to the background, gray behind the tendrils that emanate from them and interlace, tracing shaky cycles. Lines work themselves into substance in the interstice, filling the cracks between dimensions—line to figure, cell to tissue, tissue to mind—and warding off the disassembling potential of a reduction. Reticularism takes the material mind seriously but enforces continuity of spirit as hydrodynamic flow: conspiracy. It

⁴¹ Golgi invokes an interesting language of emanation to enhance this improbable metaphor by which ramifying branches actually re-converge to form a whole (“un fitto intreccio”) (176). In the passage above, he speaks of the “cellula raggiata.” Elsewhere, the “tenuissime ramificazioni dei filamenti emananti” (177). How sources relate to their emanations—and how emanations communicate among themselves—will be relevant especially in the third chapter.

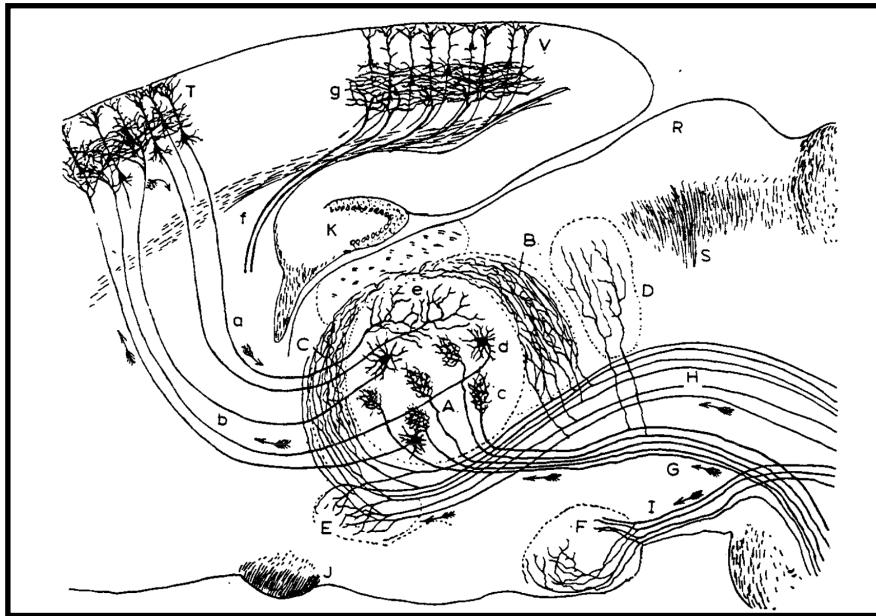
⁴² In the final chapter of *Finnegan’s Wake*, Stephen (a medical student) invokes anastomosis to describe a kind of tree of life viewed from the present backwards. Then all humanity would be linked to a very distant, maternal (material) origin, to which “we are linked up with by successive anastomosis of navelcords.” Elsewhere, two characters are “wedded now evermore in annastomoses by a ground plan of the placehunter” (placehunter—placenta). Anastomosis, the convergence of distinct flows, acts out in space the reverse of any accepted account of time, by which things are always diverging, differentiating, and entropy increasing. Joyce does not seem to mind the strange spatio-temporal incest of the anastomotic figure, keeping what seems past in play, making it converge again, form a denser net. Even words, separated by great distances, can meet again—as *placenta* and *place(hunter)* make an impossible recovery of a common root from Proto-Indo-European denoting the *flat*, the *planar* (and the root of *flat* and *planar* likewise). This sense in which anastomosis, the opposite of divergence, associates the distant past with a lost wholeness—and makes it the task of literature to work on this entropic dissolution—will come back in the discussion of Rilke.

⁴³ In Golgi’s earlier, more precise drawings, the connections are fewer and the network far less visible (Raviola). These drawings were made in service of a 1906 Nobel Prize lecture in which he defended the reticular theory against its (already victorious) competitor, the neuron doctrine.

listens to its own collective breath as evidence of a unified process.⁴⁴ Golgi's position is itself an intermediary form, equally cellular and continuous—in this sense, it captures the real problem of reconciling the real qualities of embodied experience with the real cellularity operating within it. As before, texture helps to cover or collapse the gap, with the affective capacities of the organ (processing of perception, motor control, thought) instantiated by reference to the complex contexture of its parts. What is preserved with Golgi—and will finally fall away with Cajal in the next and final slide—is that the phenomenal continuity of the textile is still treated in the case of nervous tissue and the experience to which it “corresponds” as non-phenomenal, that is, as an actual structural continuity.

⁴⁴ William James concludes his essay “Does ‘Consciousness’ Exist” by attributing the sense of continuity in conscious experience to the continuous flow of breath (James 491). For James, this connection is spurious. When we get to Rilke in the third chapter, more ancient connections between spirit and the movements of air will return.

Slide 7. Santiago Ramon y Cajal, *Textura del sistema nervioso del hombre y de los vertebrados*, 1899.



Como hemos expuesto en otro trabajo (2), el filtro delicadísimo del órgano de Corti, así como el de los bastoncitos y conos de la retina, ha operado en el complexus de movimientos recibidos del ambiente una selección de ondulaciones, organizadas en imagen y proyectadas en haz sobre la corteza cerebral, la cual las transforma en sensaciones, ideas y voliciones. No necesita, pues, el cerebro de los vertebrados, ó el ganglio encefálico de los invertebrados, crear imágenes; se las dan hechas y perfectamente organizadas, con matices de intensidad proporcional á la energía de los estímulos, los órganos de los sentidos, cuya maravillosa arquitectura constituye la causa primordial de la actividad mental superior de los animales. En una palabra, la morfología y composición química de una célula, con ser tan importantes para la forma del trabajo psíquico, no determinan exclusi-

vamente la jerarquía de éste, que depende principalmente de la calidad de la excitación recibida del mundo exterior (Cajal 1899 6-7).

As a child in the northern Spanish peasant town of Petilla de Aragon, Santiago Ramon y Cajal drew in secret on scrap paper, mixing his own pigments by dissolving wall paint or ink from printed material in water. Smooth surfaces attracted him. He liked to see a mark develop into an image; he had a mania, he later confessed, for staining (Cajal 2006 VI). His father, a barber-surgeon who taught himself to read, discovered a capacity for perfect textual recall, and was now on his way to becoming a doctor, did what he could to keep his son away from the arts. Once, he showed a drawing he had made to a painter in a nearby town and got a brutal verdict back: “Ni esto es apóstol, ni la figura tiene proporciones, ni los paños son propios... ni el chico será jamás un artista!” (RDMV VI). Santiago’s father forbade any further painting and sent him off to study medicine.

Eventually, Cajal learned his proportions. For three years, Cajal worked alongside his father at the dissection table, “desmontando pieza a pieza la enrevesada maquinaria de músculos, nervios y vasos.” They went about it in Vesalian style, following along in an anatomical textbook (“para no extraviarnos en la selva inextricable de vasos y nervios”) while preparing their own. Cajal made the diagrams while his father took on the dissection (*ibid*).

Cajal’s uncanny ability with images—as a child he loved to copy maps—soon brought him to histology. After learning a modified version of Golgi’s staining technique, he began his own researches into the structure of nervous tissue. Unsatisfied with the penetration of the stain into the tissue, he worked with nervous tissue from much earlier stages of development in which the fatty layer surrounding the axon and resisting the stain (the myelin sheath) had not yet grown

in. This younger, often embryonic tissue received the stain more consistently and deeply. Instead of the diffuse nervous tissue woven from axo-axonal connections described by Golgi, Cajal saw axons terminating freely in these early brains. Where they did attach to other cells, the attachment was more commonly on dendrites, not other axons (De Carlos). With this discovery he began a lifelong attack on reticularism. The neuron doctrine, as it came to be known, proposed that the signal moves along the entire neuron, from the dendrite through the cell body and along the axon to the axon terminals, where it is then passed to the dendrites of the cells on which those axons terminate. Unlike reticularism, “neuronism” keeps nerve cells distinct and contiguous, forming a network with cells as junctions.

Cajal’s “ontogenetic method”—studying neurons in earlier stages of development—shows the influence that Darwinian natural selection had on his understanding of the nervous system.⁴⁵ Natural selection allowed Cajal to imagine the nervous system developing gradually to better respond to external stimulus—that is, as a complication of a perception-action system that would have initially been the direct linkage of sensory to motor neurons. His account is given most concisely in the first chapter of his textbook *Textura del sistema nervioso del hombre y de los vertebrados* and quoted above. In it, Cajal describes the brain’s evolution from a very primitive nervous system of localized, peripheral reflexes. We will not have to do much work to perform a textural-affective reading here, as Cajal’s account has conscious experience—those “fenomenos tan admirables como la sensación, el pensamiento y la voluntad”—residing in (and emerging from) the elaboration of a perception-action system with textural perception as its limit

⁴⁵ Of course, the ontogenetic method is not properly Darwinian, since it does not involve studying the historical development of the brain so much as its morphogenetic history, relying on the recapitulationist argument that “ontogeny recapitulates phylogeny.” In the argument that is next described from the *Textura*, a similarly quasi-Darwinian argument is given in which the stage of development of the nervous system in a given species is used to place these species in a history of development. For more on Cajal’s teleological ideas about the evolution of the nervous system, see the next footnote.

and origin (Cajal 1). Experience is literally built inside of textural perception, as the embodied experience of one's own affective potentials. It will also let us say something more interesting about texture as it relates to human embodied experience: texture bounds human experience, flattening into one term its simple origin and most complex products. The former is tactility, peripheral response, contact sense perceptions. The latter is the complex weave of nervous tissue that results from developing machinery to discover more complex patterns in the first (specifically, the reconstruction of an extensive environment). Texture bridges the two, forgoing correspondence.

The story of the nervous system, as Cajal tells it,⁴⁶ begins with the senses of immediate peripheral contact (“táctilo y thermal”). Simple organisms without proper nervous systems can respond to these local stimuli by linking sensory and motor neurons directly. All reflex at this level is local, irritable, nervous. As one moves to organisms with more complex responses to stimuli, there appear intermediary neurons (*neuronas de asociación*) that extend and complicate the chain of reflex action (“la cadena del acto reflejo se complica … por la intervención de anillos intermedios,” 5). Now a local stimulus could be responded to with a muscle on the other side of the organism, or with the entire body, depending on the level of excitation. The complication of the nervous system thus requires also the division of labor in the organism, since specialization and coordination would be useless without each other (ibid 2). To achieve a high division of labor, organisms must become multicellular colonies (*colonias*) (ibid 2). Cajal notes

⁴⁶ Cajal's account is self-consciously teleological with the human nervous system at its end. (The first sentence of the textbook calls the nervous system the “último término de la evolución…la máquina más complicada…de más nobles actividades” (Cajal 1).) In a certain sense this is justified by the tautological logic of natural selection. Indeed, he states directly that he understands the “goal” of the nervous system to be the increased efficiency of action taken in response to stimulus. The brain—for Cajal, the crown jewel of the nervous system—arose toward this simple end: to get classify inputs and respond to them efficiently. Cajal draws his teleological notion of evolution from Eduard Pflügers “Die teleologische Mechanik der lebendigen Natur.”

the strange consequence, with which Schwann and Schleiden also grappled, that any organism with seemingly sophisticated and unified behavior in fact owes this trait to the division of labor among its parts (*ibid* 2).⁴⁷

Now Cajal takes an information-theoretic turn. At this primitive point, he writes, the tactile and thermal sense perception done on the outer boundary of the organism on its immediate surroundings was simply not sophisticated enough to encourage the development of complex neural circuitry. These haptic senses, directly in contact with what they perceive, play in a smooth space that defies stratification and classification: “*incierta, difusa, sin relaciones precisas de extensión y forma*” (*ibid* 7). Stimuli were simply *intensities* that either exceeded certain thresholds (action potentials in the nerve cells) or did not. The cutaneous nervous system, even with intermediate groups of neurons, had so far only learned to read the immediate external milieu of the organism intensively.

The development of new sense organs (eyes, nose, and ears), however, meant that suddenly a new kind of information was modeled, richer for classification than what had come before. These new impressions were “*previamente organizadas, verdaderas imágenes del mundo exterior con relaciones fijas de espacio y tiempo*” (*ibid* 6). The new organs of extensive perception—“*verdaderos aparatos numeradores*, es decir, que son colectores específicos de movimientos ondulatorios”—developed *out of* intensive sense perception, as the increasingly complex circuitry learned how to reconstruct extensive knowledge (to treat local disturbances as *waves* emanating from other sources) (*ibid* 6). The “*maravillosa arquitectura*” of these new sense

⁴⁷ “The variety of parts ensures cooperation, since specialization requires losing the ability to survive independently: “cada célula diferenciada y entregada á un particular oficio, no se basta á sí misma” (Cajal 2). The nervous system makes unity possible, since it is the literal interlinkage of parts, the communication network that allows for the organism to be a system at all: “en cuanto este sistema aparece, la unidad del ser viviente se acentúa” (1).

organs “constituye la causa primordial de la actividad mental superior de los animales” (*ibid* 7).

This is an information-theoretic argument about the origins of consciousness (though the language didn't exist to make it as such yet): Cajal claims that the nervous system took on some of the complexity of the extensive information it was learning to reconstruct. It brings the truth inside—notice the dignity of “verdaderos aparatos” built to deal with “verdaderas imágenes.” Notice two things: first, that “truth” is equated with extensive information, with the *image*, and with the apprehension of an external objective world, and second, that the organism's development advances only as it learns to produce extensive knowledge from what is immediately, intensively available to it. This argument describes the epistemological limits of subjectivity as a consequence of the subject's material form, but suggests that the subject, engaged in the constant work of trying to reconstruct the object from limited and local information, is itself a product of the constraints matter places on matter. Everything happens at the site of the body. This is what Bergson meant by the special status of highly organized and organizing bodies: they seem to be drawing their own organization from the environment—or else having it imparted on them. If this particularly valuable kind of information has come to structure the body and therefore experience (confer an architecture, as Cajal says), the question is: what is the structure of that information?

The story as Cajal tells it misses the element of *feedback*, treating the development of the nervous system as progress in modeling the qualities of the inorganic world. We can refine the narrative: life did not learn to sense the world abstractly, but rather populated the world and learned to sense *its own presence*. The goal of the nervous system, as defined by Cajal, is to

perfect the ability of the organism to defend and feed itself.⁴⁸ There is not so much to eat or defend against that is not alive.⁴⁹ The movements of other creatures, the way they deflect light, emit sounds, smells, send waves in water or air—this is the information worth sensing with extensive sense perception. It is worth learning to treat what one feels at the periphery as waves from other sources. It's worth it because it's true, but it doesn't become true until an organism's external milieu is saturated with other sources, is teeming with life. All those other bodies emanating the fact of their presence create something worth sensing and modeling: fields formed by signals, origins, and reflections.

The condition for the development of extensive sense perception would then be the presence of life in the world. Evolution works on feedback: organisms populate and modify the world to which they are adapting, thus adapting to a world they help define. Feedback between evolving organisms and the world they are evolving to model is not an incidental feature: it is how and why life develops in the direction it does.⁵⁰

Cajal is right to relate the organization of the nervous system to the organization of its input information rather than to the morphological or chemical properties of individual cells. With this move he rescues those who took refuge from pluralism in reticularism without sacrificing the independence of the cell. He allows both directions of cause to cooperate: the cells have an independent local life, but the organization of these cells in the aggregate has taken in

⁴⁸ “En cuanto este sistema aparece, la unidad del ser viviente se acentúa, sus recursos para procurarse el alimento y sus defensas de los ataques del mundo exterior se multiplican, adquiriendo también mayor precisión, eficacia y congruencia” (Cajal 1).

⁴⁹ At least that requires specialized extensive sense perceptions. Environmental features worth sensing (concentrations of minerals or heat) are less localized and discrete with respect to the organism.

⁵⁰ Some argue that this is really what life is, in that its ability to affect its own development. Stuart Kauffman uses a version of this fact to make the argument that life escapes standard physical laws by defining its own phase space. Its development would then be irreducible (that is, incalculable by anything less than the full process in the world). See Kauffman, Stuart. 2020.

“Answering Schrödinger’s ‘What Is Life?’” *Entropy* 22, no. 8: 815., in response to Schrödinger’s *What is life?* where similar questions are asked. Michael Polanyi, another philosopher of science, makes a different argument about the irreducibility of life processes in relation to their boundary conditions in Michael Polanyi, Life’s Irreducible Structure, *Science* 160, 1308-1312 (1968).

structure from outside. Evolution allows the double-ground of internal and external causes (cell, organism, species, world), external constraining what internally-caused expressions are useful, and internal constraining what useful expressions are possible. Life extracts from the environment a regularity which it, by proliferation, supplies.⁵¹

Adjusting Cajal's information-theoretic narrative to include feedback between the evolution of organic forms and the world they are evolving to model, the notion that "organization" was in any one place *first* can at last be left behind. Order in the material world does not start anywhere—priority here would only be the temporal precedence of "previamente organizada" information. It is cleaner to consider all of this as matter's inexorable exploration of the space defined by the implications of its properties. Life appears in this space of implications like a hypothetical, a runaway rule, bootstrapping itself up on its own growing complexity.

To conclude, let's make it clear how texture fits in. In Cajal's picture of the nervous system, the texture of the body (the connections of its parts that form the particular weave of nervous tissue) is able to take on both valences (structure and experience) which this chapter set out to bring together. It does so by understanding the experience of the conscious subject as the complication of a simple perception-action processing system. In doing so it predicts contemporary affect theory's conception of a subject whose experience is determined by the

⁵¹ Evolution is one mechanism by which collective adaptive systems utilize feedback, allowing the parts to adapt to features of the whole. As Jessica Flack points out in "Coarse-graining as a downward causation mechanism," the fact that parts can only have limited information about the whole system they contribute to is how the computation works (Flack, Jessica C. "Coarse-Graining as a Downward Causation Mechanism." *Philosophical Transactions of the Royal Society* 375, no. 2109 (November 13, 2017)). Component agents are forced to "course-grain," to compress information and learn its regularities so that it can be estimated. Perception is used to approximate the macro state of the system; this approximation informs how individuals behave, influencing the state of the macro-system (very slightly as the individual, entirely as a the collective). The macro state is predictable and regular because it is a statistical aggregate of the actions of many microscopic agents—downward causation works on phenomena that appear with scale. Flack's argument relates to those made from physics in the previous footnote, but invokes computation to think about what is happening in-between perception and action, in the space the brain grew out of, and in the collective space where phenomena like cities, languages, and culture are made and make themselves. See also: Ross, Lauren N., and Dani S. Bassett. "Causation in Neuroscience: Keeping Mechanism Meaningful" *Nature Reviews Neuroscience* 25, no. 2 (February 2024): 81–90.

affective capacities of its material form. Conscious, subjective experience arises in that space of intervention, among the tangled intermediary neurons. The phenomenal character of that experience (Cajal names feeling, thought, and will) can then be seen simply as the life of that intervening matter. For Cajal, that intervening space where the subject lives is developed specifically by learning to “read” textures (intensive sense perceptions) extensively as traces of a world that extends around and envelops the subject. This method (by which the intensive is read for signs of other things) at once gives the subject the idea of an objective world and forecloses anything but relative access to it. Symbolic representation carries this problem: it only becomes efficient by substituting. The next chapter on *Middlemarch* will go deeper into the constitutive role matter plays in human subjectivity and how we, as finite material things, are stuck with relative meanings, feelings, and textural readings. That contingency is fundamental. We are constrained to use our fingers.

Works Cited. Part I.

Bergson, Henri. *Creative Evolution*. H. Holt, 1911.

Bora, Renu. "Outing Texture." *Novel Gazing: Queer Readings in Fiction*. Duke University Press, 1997, pp. 94-127.

DeLanda, Manuel. *Intensive Science and Virtual Philosophy*. Bloomsbury Academic, 2002.

Deleuze, Gilles. *A Thousand Plateaus: Capitalism and Schizophrenia*. U of Minnesota Press, 1987.

Deleuze, Gilles. *Foucault: A Critical Introduction*. Continuum, 1999.

Foucault, Michel. *The Birth of the Clinic: An Archaeology of Medical Perception*. United Kingdom: Routledge, 2003.

Marks, John. "Molecular Biology in the Work of Deleuze and Guattari." *Paragraph* 29, no. 2 (2006): 81–97.

Moffitt, John F. "Mary as a 'Prophetic Seamstress' in Siglo de Oro Sevillian Painting." *Wallraf-Richartz-Jahrbuch* 54 (1993): 141–61. <http://www.jstor.org/stable/24661529>.

Schaffer, Jonathan. "Monism: The Priority of the Whole." *The Philosophical Review* 119, no. 1 (January 1, 2010): 31–76.

Sedgwick, Eve Kosofsky. *Touching Feeling: Affect, Pedagogy, Performativity*. Duke University Press, 2003.

Works Cited. Part II.

- Boer, Lucas, Anna B. Radziun, and Roelof-Jan Oostra. "Frederik Ruysch (1638–1731): Historical Perspective and Contemporary Analysis of His Teratological Legacy." *American Journal of Medical Genetics. Part a* 173, no. 1 (January 2017): 16–41.
- Crary, Jonathan. *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. United Kingdom: Penguin Random House LLC, 1992.
- De Carlos, Juan A., and José Borrell. "A Historical Reflection of the Contributions of Cajal and Golgi to the Foundations of Neuroscience." *Brain Research Reviews*, Intercellular Communication in the Brain, 55, no. 1 (August 1, 2007): 8–16.
- Flack, Jessica C. "Coarse-Graining as a Downward Causation Mechanism." *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences* 375, no. 2109 (November 13, 2017): 20160338.
- Golgi, Camillo. *Sulla fina anatomia degli organi centrali del sistema nervoso*. S. Calderini, 1885.
- Hansen, Mark. "Becoming as Creative Involution?: Contextualizing Deleuze and Guattari's Biophilosophy." *Postmodern Culture* 11, no. 1 (2000).
- James, William. "Does 'Consciousness' Exist?" *The Journal of Philosophy, Psychology and Scientific Methods* 1, no. 18 (1904): 477–91.
- Jones, Edward G. "Cajal's Debt to Golgi." *Brain Research Reviews* 66, no. 1–2 (January 2011): 83–91.
- Landers, Matthew, and Brian Muñoz. *Anatomy and the Organization of Knowledge, 1500-1850. The Body, Gender and Culture*; No. 9. London: Pickering & Chatto, 2012.

- Parnes, Ohad. "Vom Prinzip zum Begriff. Theodor Schwann und die Entdeckung der Zelle (1835–1838)." In *Vom Prinzip zum Begriff. Theodor Schwann und die Entdeckung der Zelle (1835–1838)*, 27–52. De Gruyter, 2009.
- Pflüger, E. "Die teleologische Mechanik der lebendigen Natur." *Archiv für die gesamte Physiologie des Menschen und der Tiere* 15, no. 1 (December 1, 1877): 57–103.
- Ramón y Cajal, Santiago. *Recuerdos de mi vida*. Spain: Crítica, 2006.
- Ramon y Cajal, Santiago. *Textura del sistema nervioso del hombre y de los vertebrados: estudios sobre el plan estructural y composición histológica de los centros nerviosos adicionados de consideraciones fisiológicas fundadas en los nuevos descubrimientos*. N. Moya, 1899.
- Raviola, Elio, and Paolo Mazzarello. "The Diffuse Nervous Network of Camillo Golgi: Facts and Fiction." *Brain Research Reviews*, Camillo Golgi and Modern Neuroscience, 66, no. 1 (January 7, 2011): 75–82.
- Ross, Lauren N., and Dani S. Bassett. "Causation in Neuroscience: Keeping Mechanism Meaningful | Nature Reviews Neuroscience." *Nature Reviews Neuroscience* 25, no. 2 (February 2024): 81–90.
- Schleiden, Matthias. "Beiträge zur Phytogenesis," *Archiv Für Anatomie, Physiologie Und Wissenschaftliche Medicin, Johannes Müller*. Vol. 1838. Berlin, 1838.
- Schwann, Theodor. *Mikroskopische Untersuchungen über die Uebereinstimmung in der Struktur und dem Wachsthum der Thiere und Pflanzen*. Sander, 1839.
- Vienne, Florence. "Worlds Conflicting: The Cell Theories of François-Vincent Raspail and Theodor Schwann." *Historical Studies in the Natural Sciences* 47, no. 5 (2017): 629–52.

Wolpert, L. "Evolution of the Cell Theory." *Philosophical Transactions: Biological Sciences* 349, no. 1329 (1995): 227–33.

Chapter 2. *Signs of Life* in Middlemarch

Yet no one has hitherto determined what the body is capable of ... For no one has hitherto known the body so accurately as to be able to explain all its functions (Spinoza 165).

When *Middlemarch* was first published, two common problems cropped up in reviews: first, that the narration often took on a quasi-scientific tone that spoiled the human drama of the novel and second, that its variety did not properly coalesce to form a single vision. Henry James voiced both criticisms in his review: “*Middlemarch* is too often an echo of Messrs. Darwin and Huxley ... a treasure-house of details, but ... an indifferent whole” (Beer 139, Puckett 292). In this chapter, I want to explore the connection between these critiques—in particular, how that *indifference* might be intentional, representing the consequence of trying to write a “realist” nineteenth-century novel in light of new scientific claims about what human life “really” was. In doing so, Eliot will have to reconcile the ever-extending materialist ontology of scientific rationalism (of which histological discoveries formed just one small part) with the human-oriented features of the Victorian novel, namely character and narrative.

Among the varied secondary literature on *Middlemarch*, two strains of criticism can be imagined as responses to those two critiques. Some work on *Middlemarch* from the biological angle, situating Eliot in relation to Darwinism, histology, taxonomy, or natural history.¹ Some work on the problem of meaning for a text that makes many self-conscious references to its own limited, subjective position, to the relativity of all meaning and metaphors, and to mysterious power of the sign.² There is usually some trade between these two approaches, as the crisis of

¹ See for example Gillian Beer’s chapter on *Middlemarch* from *Darwin’s Plots: Evolutionary Narrative in Darwin*, Sally Shuttleworth’s *George Eliot and Nineteenth-Century Science*, or the articles on microscopy and taxonomy cited in footnotes 3 and 4 below.

² See for example Miller, J. Hillis, “Optic and Semiotic in *Middlemarch*,” and Hertz, Neil, *George Eliot’s Pulse* (both in bibliography).

meaning identified in the latter roughly-deconstructionist strain can be read in light of the extremely relative position to which nineteenth century science (the context provided by the former) relegated human affairs. This chapter is meant as one such synthesis, drawing specifically on the ideas developed in the first chapter on histology” a materialism in which texture is an index of affective capacities and the idea that epistemological limits are a corollary to the embedding of the subject in an extensive material field.³ The aim is to see how these ideas work in the novel’s formal constraints (especially characterization and narrative focus) and to bring them to bear on a question that will be important for the next chapter: what is the material status of expression?

First, some background will be given on Eliot’s relationships to histology and nineteenth-century scientific materialism and rationalism in general. This will then be used to provide a thesis on why she came to understand the human form as a locus of affective capacities, using the characterization of the histologist Lydgate as an example. Moving to the novel, we will look at how two important textures—or to use Eliot’s preferred metaphor, webs—interact. One, the tissue of the body, understood as character and described texturally, the other, the web of seemingly infinite relations in the objective world, that “tempting range of relevancies called the universe.” Two soft characters—Mr. Brooke and Rosamond Vincy—and one hard one—Lord Casaubon—will serve to illustrate how Eliot’s biologically-inspired textural characterizations apprehend the “distinguishable physiognomies” of virtue, fault and conceits, varying “in correspondence with the minutiae of mental make” (149). Finally, building off of the association

³ S. Pearl Brilmyer’s reading of Eliot’s “materialist charactereology,” which helped develop the textural readings of this chapter is one such source. See also Pratt-Smith, Stella. “Inside-Out: Texture and Belief in George Eliot’s ‘Bubble-World.’” *George Eliot - George Henry Lewes Studies*, no. 60/61 (2011): 62–76.

in the characterization of Casaubon with writing, I will show how the problem and promise of the sign in *Middlemarch* can be read as material in two senses previewed by the last chapter: as an epistemological limit of an embodied, embedded subject and as the expression of an immanent and active material ground. The sign contains for Eliot the basic bittersweet fact of human life: enmeshment entails bondage and freedom in equal measure.

George Eliot and Life Science

Early in her research notebooks for *Middlemarch* George Eliot makes an entry on microscopy and cell theory. The entry consists of a simple list of important histologists and their work, beginning with cell theory (she cites the texts by Schleiden and Schwann seen in the previous chapter), naming some important earlier figures (Leeuwenhoek, Ehrenberg) and even mentioning the 1830 paper in which Robert Brown describes what came to be known as Brownian motion (Eliot *Quarry for Middlemarch*, 25-26). Eliot likely compiled the list from some combination of prior knowledge, the T.H. Huxley article on cell theory mentioned below, and from her partner George Henry Lewes, an amateur histologist. At the time of *Middlemarch*'s publication in 1871, Lewes had already published some popular articles on the microscopic world, dramatizing, for example, all the tiny life contained within a single drop of pond water.⁴ In 1859, Eliot worked with Lewes to collect and identify invertebrate specimens for a book, *Sea-Side Studies at Ilfracombe*.⁵

⁴ George Henry Lewes, "Only a Pond!" *Blackwood's Edinburgh Magazine* 85 (1859).

⁵ Eliot's "Ilfracombe Journal" from this time is rich with material on natural history and humankind's place in it. Some passages from are present in Lewes' book. For more on the project, see Harper, Lila Marz. "Reexamining taxonomy and gender: T.H. Huxley, G.H. Lewes, and George Eliot view the Medusa." *Nineteenth-Century Prose* 38, no. 1 (2011).

The first entry on cell theory is sandwiched in-between notes on the other early 1830s developments that would form the historical backdrop to the novel: cholera outbreaks, land reform, legal reform (“Capital punishment for sheepstealing abolished 1832”), the Reform Act of 1832,⁶ notes on methods for treating cholera (25, 30-34). A little later, another entry is added, copying out a passage on the French histologist Xavier Bichat from an influential review of German cell theory by Thomas Henry Huxley (31). Huxley’s review denied that the cell’s development was totally responsible for the development of the organism, insisting that there must be some way that the organism’s form could be changed by events, decisions, or desires in its own lifetime—in short, an epigenetic factor.⁷ This is an essential assumption for Eliot’s moralism.

Next, she copies out a passage from Francois-Vincent Raspail in 1833 on the “membrane ou substance molle des tissus,” a sort of basic proteinous substance out of which animal bodies are fundamentally composed (32).⁸ Immediately after these histological quotes, she jots down some “Mottoes”, the first of which, from Goethe, reads “Mit kleinen that man kleine Thaten/Mit grossen wird der Kleine gross” (33).

⁶ Lots of reform—for more on how these reforms represented to Eliot part of a longer term “shift in the center of gravity” toward people like the provincial subjects of Wilhelms, Cherry. “Conservative Reform in Middlemarch.” *Theoria: A Journal of Social and Political Theory*, no. 53 (1979): 47–57.

⁷ See Richmond M. L. “T.H. Huxley’s criticism of German cell theory: an epigenetic and physiological interpretation of cell structure.” *Journal of the History of Biology*, 33, 247–289. One does not need to go to epigenetic factors to explain how an organism’s character changes over the course of its life: Ramon y Cajal’s notion that the nervous system can learn by encoding new patterns occurs applies not just at the evolutionary scale but also (obviously) in the course of an individual’s life—that is what most learning must somehow consist of.

⁸ “Il reste une substance blanche comme l’albumine coagulée, mais bien moins élastique, que les alcalis ou les acides concentrés désorganisent ou dépouillent, mais ne dissolvent jamais entièrement.” Raspail claims here that vertebrates have a “membranous tissue” in contrast to the cellular/vascular tissue of plants.

Lydgate's Histological Complex

It must have been from this material that Eliot devised the character of Tertius Lydgate, an ambitious young histologist who dreams of doing “good small work for Middlemarch, and great work for the world” (149). The first full characterization of him comes in the fifteenth chapter. Eliot’s materialist charactereology (as S. Pearl Brilmyer calls it) takes on in this section a histological vocabulary and logic which will allow the conclusions of the previous chapter to bear on what exactly it means, for Eliot, to conceive of character texturally.

Ever since his first encounter with the analogy of the body-as-machine (the “finely adjusted mechanism of the human frame”) from a description of the “valves” of the heart, Lydgate has “longed to demonstrate the more intimate relations of living structure” and pursues a career in medicine alongside his research (144, 148). He comes to the small town of Middlemarch after a period in France studying Bichat’s tissue typology: “the great Frenchman first carried out the conception that living bodies, fundamentally considered … must be regarded as consisting of certain primary webs or tissues, out of which the various organs … are compacted” (148).

Lydgate has set his sights on what he imagines would be the fundamental element underlying Bichat’s typology. He seeks the “primitive tissue,” something like the atomic constituents of Raspail’s membranous substance. Eliot knows she has not exactly set him up for success, but she does not condemn him either: “What was the primitive tissue? In that way Lydgate put the question—not quite in the way required by the awaiting answer; but such missing of the word befalls many seekers” (148).

How to read Lydgate? On the one hand, he is a man of science and a rationalist whose “intellectual passion” was awakened and strengthened by the anatomical systematization of the body. These are certainly virtues in Eliot’s eyes, who had come from Christianity, through a Spinoza-inspired pantheism, and arrived ultimately at a position more or less atheist, materialist, and scientific (Levine 269-70). Lydgate’s interest in medicine situates him within a wider rationalist striving toward an objective, scientific view. With anatomy, she writes, “the world was made new to him by a presentiment of endless processes filling the vast spaces planked out of his sight by that wordy ignorance which he had supposed to be knowledge” (144). For Eliot, the physical sciences—because they are physical and force the thinker to consider the endlessly processual material world—are the ticket to a rationalist viewpoint more generally:

The great conception of universal regular sequence, without partiality and without caprice—the conception which is the most potent force at work in the modification of our faith, and of the practical form given to our sentiments—could only grow out of that patient watching of external fact, and that silencing of preconceived notions, which are urged upon the mind by the problems of physical science (“The Influence of Rationalism” in *Essays* 413).

In both descriptions, the independence of matter humbles those who recognize it, repositions them inside of its machinic evolutions. The long sentence cited here (which concludes her essay on rationalism), with its own large, exacting, patient, plodding force, is itself a model for how Eliot might have imagined language learning from the scientific method. It provides provisos where necessary, defines its terms, and makes a roughly causal claim (self-negating attention to external facts inspires rational beliefs and is encouraged by science). It is an actualization of modified faith and a model for the “practical form” a sentiment should take—namely, rationalist sentiment should conform to physical laws not passively, but actively, incorporating them into its explanations and thought.

There is something sublimely indifferent in the inexorable advancing of the “universal regular sequence.” The particular variety of universal regular sequence she has in mind is of course historical and grown especially, as she notes, out of a set of increasingly precise, increasingly complex descriptions of the world, the anatomical, biological and material sciences with which this chapter is concerned being only one small part of “the newly felt exigencies of an increasingly complex modern spatiotemporal order” in which Eliot worked to situate her realist fiction (Laughlin).⁹ The sublime, or the glimpses of it that appear in Eliot’s writing, is derived from the contemplation of the indifference of these modern absolutes to the scale of human life. The embodied subject is at once intimately tied to the life of the world—as Neil Hertz notes, especially through the motif of the *pulse* (as the embodiment of *sequence* or *process* conditions Lydgate’s moment of recognition with the valves)—and irredeemably isolated from all that is not interior to that subject. The expansion and complication of the interior to better accord with whatever can be recovered about that world beyond the curtain, then, is in Eliot’s rationalism the only noble goal.

Easier said than done. Lydgate, for one, is far from perfect, despite his scientific inclinations: he is proud and stubborn, uninterested in his neighbors, bad with money, and inconsiderate in his early dealings with Rosamond. Again, Eliot does not condemn him—in fact, he is saved by the exact processual, materialist logic he is at work applying in his histological researches. It would be unwise, she writes, in writing off Lydgate at this early juncture:

⁹ One could point, for example, to physics: Robert Brown’s paper (the one Eliot recorded in her preparatory notes) on the motion of microscopic inorganic particles played an important role in suggesting that matter might be active and have its own energy. Curiously—and perhaps not coincidentally—Brownian motion would end up as the first accepted evidence of the atomistic statistical dynamics proposed by Ludwig Boltzmann, therefore of the entropic arrow of time (the first explanation for why the sequence is universal and regular). For more on how the sequence conditions Eliot’s style in the historical dimension of the novel, see Laughlin’s article in the bibliography.

For character, too, is a process and an unfolding. The man was still in the making ... and there were both virtues and faults capable of shrinking or expanding.

Among our valued friends is there not some one or other [...] whose distinguished mind is not a little spotted with commonness who is a little too pinched here and protuberant there (150).¹⁰

In this passage, Eliot links personal development to the growth and development of underlying matter, drawing on the plastic histological bodies with which Lydgate is associated earlier in the chapter in the description of his research aims. The process of matter, the unfolding of events or of a material forms as it grows and extends: these implicate character in the general movement of the world by reference to the unfixed soft bodies of histology. One can hear echoes of Schleiden's double-coded *Bildung* in his description of the growth of plants which unfold themselves through the activity of their cells ("entfaltet sich, indem die gebildeten Zellen sich ausdehnen und entwickeln"). If Eliot did not read Schleiden's text itself, she at least read Huxley's discussion of it in his review article, which describes his findings in detail (Huxley 257-259).

Likewise, the notion that development is a period of softness, freedom to move, shrink, or expand—together with the contrasting threat of arrested development in the form of chemical hardening or fixation¹¹—underlies both Schleiden's *verholzen*, the process of tissue fixation for observation, and the animal softness of Raspail's "substance molle." Lydgate, as a form, is still in

¹⁰ This warning (that no one could know Lydgate will turn out because he is still early in his development) is actually a special case of a more general distaste Eliot has for betting and those who rely on chance (like Fred Vincy's misfortunes with horses and expecting money). The context for the quote is somewhat contrived: if it were the case that people enjoyed betting on the fortunes of young men, Lydgate would be an attractive problem for those who "appreciate the complicated probabilities of an arduous purpose" (149). Knowing Eliot's dislike for betting—and in fact that Lydgate ends up achieving far less than he dreamed of—we can read this as a special case of either for the awareness of epistemological limits (no one could predict what will happen to a person) or conversely, for the special unpredictability of people. Spinoza, in Eliot's translation of the *Ethics*: "no one has hitherto determined what the body is capable of" (165).

¹¹ Lydgate, Eliot relates in the same chapter, narrowly escaped such a hardening once already following the rejection of a woman to whom he proposes not only rejects him but reveals herself to be a murderer. Lydgate returns to his experiments in galvanism after only three days, "saved from hardening effects by the abundant kindness of his heart and his belief that human life might be made better" (153).

development—indeed, the epigenetic sort of development as argued by Huxley’s article. The plasticity afforded to the organism by histology holds the possibility that defections might be smoothed out, cleaned, reinforced—in some way modified by virtue of the same manipulations that deformed them in the first place.

Lydgate’s spots of commonness, we learn, lie “in the complexion of his prejudices.” *Complexion* is a good word for it, referring to both outward appearance (as countenance) and degree of inner *complication* (contexture). The two together describe the affective capacities of a person in the mode of character: what they are like to deal with, what they can hope to do, etc. Eliot’s novelistic characterization assigns qualities to fictional persons by manipulating them, pinching and squeezing, taking a look at their insides, not unlike a microscopist investigating a chunk of matter or a taxonomist by the tide pool, examining a slightly imperfect specimen—later he will even appear metaphorically in invertebrate form (“unconcerned as a jelly-fish which gets melted without knowing it”) (271).

If the narrator often takes on the tone of a microscopical or biological text, it is in order to explicitly take matter into account. It works as a kind of meta-commentary on the weaknesses of character (the same character which is receiving a material treatment), since Eliot sees much weakness of character to be the result of insufficient cultivation of the kind of rationalistic stance that makes the description possible in the first place. During Lydgate’s physical examination, for example, she makes it clear: his prejudices are of an ordinary complexion precisely because “that distinction of mind which belonged to his intellectual ardor, did not penetrate his feeling and judgment about furniture, or women,” or any other thing that seems too human to be the subject of scientific interest (150).

The irony is of course that Lydgate's research is founded on the possibility of treating humans as scientific subjects.¹² As the brainless jelly-fish, his lack of concern for his immediate surroundings (for his neighbors in the nearest, *Nachbarn* sense) will end with him getting melted, dissolved under the willful pressure of Rosamond Vincy, as we will see later.

Adequate Forms. Spinoza and Mr. Brooke

The chapter on Lydgate is in many ways a sketch of his potentials. These potentials are a function both of his engagement with the ideas of histology *and* of his material existence as the kind of unfolding, adaptable, active matter that histology makes thinkable. The question of human potential—how much and what it contains, how best to realize it—is thoroughly bodily. Eliot recognizes as realized only that which has actually, really, been done. Lydgate is not *Middlemarch*'s only example of unrealized potential: one finds also Casaubon's unfinished work on the “key to all mythologies” and the dilettantism of Mr. Brooke.

We will return to Casaubon at the end of the chapter; for now, I'd like to investigate how the characterization of Mr. Brooke works by textural description, involving two other texts of Eliot's as context for her material imaginary. The first is her translation of Spinoza's *Ethics* (its earliest translation into English), completed in 1856 but never published. The second is the 1868 essay “Notes on Form in Art,” written just before she began work on *Middlemarch* and also left unpublished. The translation itself is merely a record of her contact with the anti-Cartesian,

¹² Or even science as a bodily subject. Almost raving, repressing worries about his debts, he rants to Mr. Farebrother that “there must be a systole and diastole in all inquiry,” and that “a man’s mind must be continually expanding and shrinking between the whole human horizon and the horizon of an object-glass” (640).

panentheistic philosophy of Spinoza, while the essay presents the possibility of tracking its influence on her own thought at the time of the novel's composition.¹³

Spinoza's undertaking in the *Ethics* might be described as an attempt to extend rationality to include itself—that is, to enclose all that is within a single indivisible ground of being (“God or Nature”), in which all things appear as modes. The machinic materiality of the Cartesian body would thus expand to cover all human experience, from the low passions to the most logical thought, and to the existence of ideas themselves.

Eliot was at work on her translation while writing her essay on “The Influence of Rationalism,” cited above. With Lydgate, Eliot shows how the failure to apply the logic of “universal regular sequence” from the bodily and physical to the emotional and mental domain has the consequences—indeed, has consequences because the two interact as part of the same world. This echoes the arguments on the physical reality of emotion in Part III of the *Ethics*, “On the Origin and Nature of the Emotions”:

the laws of nature according to which all things come into existence and pass from one form to another, are every where and always the same, and therefore the means of understanding the nature of all things must be one and the same, namely, by the universal laws of nature. Hence passions such as hatred, anger, envy and the like, considered in themselves, follow from the same necessity and power of nature as other phenomena; and consequently they have determined causes whereby they might be understood, and determined qualities (162).

The implication of Spinoza's suggestion here—that emotional life is a part of the same general process as everything else—is then that much emotion, because it is in contradiction with its own nature as a deterministic process, contributes to “mutilated or confused” ideas on the part of the subject (164). Such “inadequate ideas” associated with the passions are contrasted to

¹³ I will quote throughout from Eliot's translation. For an in-depth discussion of Eliot's path to Spinoza and his influence on her work, see Claire Carlisle's introduction, pp. 1-68.

“adequate” rationalist ones which *do* accord with the nature of the universe and its physical laws (168). To this it is eventually added that anything that agrees with the nature of a thing is good for it and anything which is evil to a thing is evil to the extent that it is contrary to its nature (246). Therefore the more adequate one’s thinking becomes, the less one suffers under false knowledge and the greater internal and external accordance in the human community (249, 312). The moral force of rationalist thought for Eliot (especially the necessity of applying it to human life and experience as practiced in her fiction writing) follows this pathway in Spinoza’s argument strongly. A corollary, found in both Spinoza and Eliot, is that being affected by the world is only one part of this obligation: one must also act, actualizing or expressing the capacities of the body aligned (by rational inquiry) after the truth of the absolute.¹⁴

Take Mr. Brooke. He is notoriously infirm in his judgements, easily swayed by argument, and has never managed to commit himself to any one thing, maintaining instead a shallow, dilettante’s familiarity with any subject that might come up. Even his name suggests transience and fluidity. He stands in the novel as a specter of unachieved potential, haunting the hopeful young lives of Lydgate, Will, and Dorothea. When Eliot speaks of the uncertainty of Lydgate’s future and his ongoing development, these are positives; they give Lydgate a chance. Mr. Brooke, by contrast, has settled permanently into the unpredictability of youth.

He had travelled in his younger years, and was held in this part of the county to have contracted a too rambling habit of mind. Mr. Brooke’s conclusions were as difficult to predict as the weather: it was only safe to say that he would act with benevolent intentions, and that he would spend as little money as possible in

¹⁴ For Spinoza, found especially in Part V of the *Ethics*, “On the Power of the Intellect, or, On Human Liberty.” See Prop. XXXIX (“He who has a body capable of a great variety of actions has a mind the greater proportion of which is eternal”) or XL (“The more perfection any being has, the more it acts and the less it suffers, and conversely, the more it acts the more perfect it is”) (313-4).

carrying them out. For the most glutinously indefinite minds enclose some hard grains of habit (8).

His neighbors suspect that all that youthful variety addled his brain. That experienced variety somehow spreads him too thinly to form reliable patterns. The sparse nervous tissue of a “glutinously indefinite” mind is directly the form that variety has given to his internal composition. Later, Eliot puts these textural characterizations in the mouths of other Middlemarchers, for whom Brooke is a “pulpy fellow”; “he will run into any mould, but he won’t keep shape” (VIII). As has been stated before but is especially clear here, texture works to index affective capacities because it relates how something is affected (youthful travel experiences) to what it can do (infirmity, distraction, shallowness). The specifically proteinous nature of the “glutinous” substance recalls Raspail’s albumen-like organic substrate as well as nineteenth-century material science on proteins (Brilmyer 65). Gluten and egg-white were early examples not just of organic proteins but of polymer chains, a class of extremely pliant substances that, in organic matter, were thought to structurally enclose “grainy” elements. It is possible to read this characterization of Brooke, then, as relating his character to the material properties of his constituent matter.¹⁵

Brooke’s constant refrain, the refrain of underdevelopment and lack of focus, is that for any given subject, he will have interacted with it “at one time.”¹⁶ He had plenty of experiences in

¹⁵ Brilmyer writes: “[w]e thus might read Eliot’s maxim—‘Even the most glutinously indefinite minds enclose some hard grains of habit’—more straightforwardly as a description of all minds, which, consisting of proteins (as well as, to a much lesser extent, carbohydrates) are composed of both plastic and rigid molecules. Brooke’s mind, in this sense, is literally part glutinous, part grainy, and his capacity for characterological shape shifting is tied to his body’s proteinous base” (65).

¹⁶ “I went into science a great deal myself at one time … I took in all the new ideas at one time … It carried me a good way at one time … I made a great study of theology at one time” (17, 19). “Clever sons, clever mothers. I went a good deal into that, at one time” (46). “I did a little in this way [sketching] myself at one time … I was too indolent, you know: else I might have been anywhere at one time … I had a notion of [becoming an explorer] myself at one time.” (81). “I overdid it [studying ancient mythology] at one time” (276).

his youth, plenty of potential, but nothing ever solidified or fixed, leaving only the soft and early form. In Chapter IX, his bittersweet refrain contrasts the discussion of the development of Will Ladislaw, who is also intent on aimless roaming. At the start of the next chapter, Eliot speaks of youthful development, again taking recourse to biological (here embryological) metaphors.

We know what a masquerade all development is, and what effective shapes may be disguised in helpless embryos. In fact, the world is full of hopeful analogies and handsome dubious eggs called possibilities. Will saw clearly enough the pitiable instances of long incubation producing no chick (83).

Although Casaubon is the “pitiable instance” named next, it could just as well be against the example of Brooke that Ladislaw forms the resolve “to make or do, not anything in general, but something in particular” (83). Indeed, the association here to embryos and eggs—pure, seemingly uncommitted organic matter—harkens more to the unstructured protein-body of the “glutinous” Mr. Brooke than to the reserved Casaubon (who is more commonly related texturally to stones and books, as we will explore later).

Action, particularly expression (making or doing something), appears as the natural opposite to the narcissistic nursing of such modally-dubious eggs. Of course, Casaubon and Brooke would like to do something as well, but their projects are ill-defined, too general in scope, too vague; Ladislaw is set on the *particular*. As was the case with Lydgate’s histologically-inflected *Bildung*, the invocation of the biological schema is not simply working as a metaphor. The implication is that the metaphor applies because human development is a material process like any other and therefore that a better course of development, one more in line with the nature *of* development, is available to those who take that rational material explanation seriously.

Brooke's problem, put in Spinoza's terms, is he has not managed to turn all his experiences into adequate thoughts. He seems to have developed little internal complication as a result of all his dalliances, and therefore contains nothing but those "few hard grains of habit." The textural metaphor makes it clear that this character flaw is physical. It is the failure to cultivate a proper weave and thus a failure to actualize the potentials of the human form to take on the relations of nature. Eliot, in "Notes on Form in Art," voices something similar.

The highest Form, then, is the highest organism, that is to say, the most varied group of relations bound together in a wholeness which again has the most varied relations with all other phenomena (*Essays* 433).

Two webs: the internal relations that bind the organism into a whole and the external relations that organism can then have with the world. Following Spinoza, the wholeness of the former relies on the regularity and rationality of the latter, both as substrate and as a source of information in the process of "grouping or association which constitutes the very growth & natural history of mind") (435). The textures accessed by Eliot in the course of character description describe qualitatively the "multiplex interdependent" internal relations that determine actions, its "inward balance, by which a man swims and makes his point or else is carried headlong" (*Essays* 433, *Middlemarch* 149). It is only through action (or failure to act) that one realizes the potentials encoded in its particular makeup.

Indeed, it is the signature of the "highest Form" that its actions are determined by unseen causes, hidden deep in the structure of the organism's particular web.¹⁷ In the essay, Eliot asks the reader to consider the difference between the movement of a rock flying through the air and

¹⁷ This idea is not unique to *Middlemarch*. See for example Gillian Beer's discussion the following passage from *Daniel Deronda* in *Darwin's Plots*: "Why could she not rebel, and defy him? She longed to do it. But she might as well have tried to defy the texture of her nerves and the palpitation of her heart." (Beer 214-5). Neil Hertz's *George Eliot's Pulse* also contains much valuable discussion on biological form in Eliot's writings.

the movements of the athlete who throws it. Whereas the movements of inorganic matter refer more to forces from other bodies (“the line with which a rock cuts the sky”), the immediate causes of a human action are internal (“the muscular strength” that sets such a projectile in motion)(434). Even in the human, though, internal composition will have its causes; it is just that they are digested, preserved, and find expression together with other external influences now absent. In both cases, the rock and the rock thrower, the movement is the expression of impinging force.¹⁸ The parabolic arc of the rock refers to its thrower just as the coordinated movements of the thrower refer to “relations within the body” (*ibid* 434). The more those internal relations “agree with their nature,” in Spinoza’s sense, the more actions will be possible: “[h]e who has a body capable of a great variety of actions has a mind the greater proportion of which is eternal” (Spinoza 313).

Rosamond. Lovely Anencephalous Monsters.

Rosamond Vincy is not a person with a great variety of actions at her disposal. It may also be that only a small proportion of her mind is eternal. So probably for many of us. Continuing with the frame of textural characterization, but moving now more into its relation in the novel to positive actions rather than potentials (neither Lydgate nor Brooke carry out their plans), we can try to show a meaningful relation between the delicate, superficial, soft texture of Rosamond’s character to what she does and how she does it.

¹⁸ Spinoza actually objects to this reading of the comparison between man and stone—namely, that “a stone and a man agree only in this, that each is finite, weak, [...] that each] does not exist from the necessity of its own nature, or lastly, that it is infinitely surpassed by the power of of external causes. ... For things which agree in a negation alone, or in what they do *not* possess, do in fact agree in nothing” (247). Spinoza, though, is thinking about whether things share attributes—I am only asserting that both belong to a common ground and obey the same physical laws.

Rosamond is one of the novel's more disconcerting characters. Kent Puckett suggests that Rosamond's "brainlessness" haunts the novel as a specter of the efficacy of inadequate thought (Puckett 294). The first significant description of her comes from Lydgate, to whom she appears an ideal woman: "she is grace itself; she is perfectly lovely ... That is what a woman ought to be: she ought to produce the effect of exquisite music" (94). Lydgate takes pleasure in the effect and finds his pleasure pleasantly mystifying. She musical in the sense that she affects him and he either cannot say why or would not like to know; for this reason he does not make any attempt to decipher her actions past the feeling they produce on him.¹⁹ As stated in the character portrait of him that comes a few chapters later, this is one of Lydgate's significant faults—no coincidence that his last love interest was an actress (150-151). Bookending his experience with the actress is a conspicuous detail: his experiments in galvanism. Like the frogs and rabbits he exposes to a "trying and mysterious dispensation of unexplained shocks," he finds something exciting mystification of the cause of his excitement.

The reader, on the other hand, is let behind the curtain. Later in their flirtation, her "melodic charm" returns. She plays the piano better than he had imagined she could. Enraptured, he watches as "a hidden soul seemed to be flowing forth from Rosamond's fingers" (161). The reader is soon let in on the secret: she merely a very good mimic. The "hidden soul" belongs to her old piano teacher. She, "with the executant's instinct, had seized his manner of playing, and gave forth his large rendering of noble music with the precision of an echo" (161). The trick only works because Lydgate (and the other viewers), interested in their personal experience of beauty, do not make any inquiries into the depth of Rosamond's expression. If they did, they might find

¹⁹ "Plain women he regarded as he did the other severe facts of life, to be faced with philosophy and investigated by science. But Rosamond Vincy seemed to have the true melodic charm" (94).

that her loveliness is not so distant to that of the “lovely anencephalic monster” that Lydgate acquires from Farebrother in the following chapter (172, Puckett 296). It takes a fairly empty space to produce a precise echo.

The trope of bearing of a “hidden soul” inverts to demonstrate Rosamond’s superficiality: she acts as a channel, automatically; she does not complicate or analyze. She is oriented so thoroughly toward the outside that she lacks the “multiplex interdependent” internal relations which expression might ordinarily be the expression of. One sign of this superficiality is an unusual association in the novel between her and the word “circumstance.” Compare two characterizations from later in the novel:

To Rosamond it seemed as if she and Lydgate were as good as engaged. That they were some time to be engaged had long been an idea in her mind; and ideas, we know, tend to a more solid kind of existence, the necessary materials being at hand. … Circumstance was almost sure to be on the side of Rosamond’s idea, which had a shaping activity and looked through watchful blue eyes, whereas Lydgate’s lay blind and unconcerned as a jelly-fish which gets melted without knowing it (271).

The circumstance called Rosamond was particularly forcible by means of that mild persistence which, as we know, enables a white soft living substance to make its way in spite of opposing rock (345).

“Circumstance” can be understood in both passages to record the extent to which Rosamond’s actions address only her most immediate surroundings. In the second passage, she is herself a circumstance, a set of externalities. Her superficiality finds its textural correspondent in something like Raspail’s white soft membranous substance. As Brilmyer notes, Rosamond is not compared to the substance, but rather “is said to derive her forcibility from the *very same quality* that allows this plastic substance to envelop rigid structures” (79). Her persistence is likened to a very basic organic struggle: the tender thing against the hard, the primitive animal that acts

intensively on the environment immediately available to it or from the simple echoing of past impressions.²⁰ There is real pathos for Rosamond in this picture, though it's achieved only by lowering her a good deal on the *scala naturae*.

As circumstance, she represents only the persistence of the universal sequence itself — she is in a direct relation to her surroundings. She works with a shaping action by persistence, not planned action. Eliot seems to draw on the biological notion that an organism comes to reflect its milieu. Here, the imitation is complete. This uncanny possibility (one Eliot would like to distance her morals from but must acknowledge) will be worked out further by Rilke in relation to Rodin's sculptures.

Narcissism and Narratological Relativism

Rosamond's vacuity results from a failure both to form a complex interior and to engage in a measured, self-negating way with the extensive world. It is hopefully clear by now that these are the same failure—the two condition each other. In the first of the two cited passages on circumstance, she appears as a sun which would melt the washed-up Lydgate. At the beginning of the same chapter, a length metaphor for the deceptively subjective nature of perceptions also casts Rosamond as a “little sun.”

Your pier-glass or extensive surface of polished steel made to be rubbed by a housemaid, will be minutely and multitudinously scratched in all directions; but place now against it a lighted candle as a centre of illumination, and lo! the scratches will seem to arrange themselves in a fine series of concentric circles round that little sun. ... These things are a parable. The scratches are events, and the candle is the egoism of any person now absent—of Miss Vincy, for example. Rosamond had a Providence of her own ... (264).

²⁰ The “inward repetition of looks, words, and phrases, which makes a large part in the lives of most girls” 166.

What is dignified here—in the “serene light of science” by the narrator’s unnamed philosopher friend—is a Romantic shift from metaphors of imitation (mainly mirrors) to expression, where the mind acts like a lamp, illuminating only a circle around the subject (Abrams). Jonathan Crary, in his history of nineteenth-century optics in *Techniques of the Observer* relates a history in which science did pick up this observation (made by the Romantics in relation to poetry) and worked to adapt the earlier geometrical optics of perfect parallel lines and angles to a more corporeal physiological optics attendant to the particularities of the human eye. One result was that the relativity of visual information was established scientifically.²¹

In “Optic and Semiotic in Middlemarch,” J. Hillis Miller notes a connection between the lighting operation described here and the way the novel’s narrator, in other places, describes the task of narration. “I at least have so much to do in unraveling certain human lots, and seeing how they were woven and interwoven, that all the light I can command must be concentrated on this particular web” (141). The narrator must selectively represent different areas of the massive relational web (“that tempting range of relevancies called the universe”).²² Any telling will be in some sense an arbitrary selection from the field of possible connections, with the connections misleadingly serving as explanatory. Miller calls it a “parabolic” operation of meaning (referencing the fact that the narrator refers to the story as a parable). Something is always seen

²¹ Ramon y Cajal’s work on the neuron discussed in the last chapter (particularly is polarity) grew out of his own related investigation of the sense organs and basic considerations about how information might flow through the brain. The school of Austrian positivists lead by scientists like Ernst Mach and psychologists like Franz Brentano, which will be relevant in the following chapter, also grew out of this return to the relativity of embodied perception against which objectivity was constructed. See also Daston, Lorraine., Galison, Peter. “Epistemologies of the Eye,” *Objectivity*. United States: Zone Books, 2021.

²² One might equally think of Henry James’ famous formulation: “universally, human relations stop nowhere, and the exquisite problem of the artist is eternally but to draw, by a geometry of his own, the circle within which they shall happily *appear* to do so” (Laughlin). His criticism of the “indifference” of *Middlemarch*, read in light of this quote, would be that Eliot has not been quite strict enough with her geometrical constraints. The novel has too little human form, too little artistry and too much world-brain (Puckett 292).

in the light of something else (especially in the light of the self), always treating the real as a sign of something else, perhaps, like the parabolic arc of a rock through the sky.²³ In the same vein, Hertz describes Eliot's fascination with "signs of the impingement of force on a receptive surface" (7).

Note that it does not necessarily follow from the existence of a universal regular sequence that cause runs in any one direction—rather, even the appearance and direction of the sequence could just as well be features of our sort of life in a universal regular object. Miller identifies a family of totalizing metaphors for something like the independent world: a "spatially or temporally deployed material complex—a labyrinth, or flowing water, or woven cloth" (129). Yet the subject's limited ability to interact with the real universal object is what makes partial metaphors like these necessary. The connection to the experiment with the pier-glass suggests that this is a version of a more general phenomenon, namely, the limited affective scope of any finite thing.

In this light, I would add a histological example from the text to Miller's deconstructive argument. Later in the chapter that begins with the pier-glass parable—the chapter which contains Lydgate's long characterization discussed earlier—the reader encounters more suspicious scientific lights:

the conception wrought out by Bichat, with his detailed study of the different tissues, acted necessarily on medical questions as the turning of gas-light would act on a dim, oil-lit street, showing new connections and hitherto hidden facts of structure ... but it was open to another mind to say, have not these structures some common basis from which they have all started, as your sarsnet, gauze, net, satin, and velvet from the raw cocoon? Here would be another light, as of oxy-

²³ "A parable is set or thrown at some distance from the meaning which controls it and to which it obliquely or parabolically refers, as a parabolic curve is controlled, across a space, by its parallelism to a line on the cone of which it is a section. The line and the cone may have only a virtual or imaginary existence" (Miller 139).

hydrogen, showing the very grain of things, and revising all former explanations (148).

Read in the context of the parable of the pier-glass, the facts of structure being revealed may say more about positioning of the lights than the composition of bodies. The journey into the fiber and textile bodies of histology in the first chapter made a similar suggestion about role the metaphor played in what structures could be revealed. The schematizing, differentiating drive of Bichat's "detailed study" produces more than reveals the "different tissues" as typological entities. Likewise, the comparison to textiles is what justifies the idea of a common vital basis (the raw cocoon) out of which the tissues would progressively differentiate. Even the shift from the slick "gas-light" on an "oil-lit" street to the intense light of oxy-hyrdogen invokes the progress of science and human ingenuity together with a certain fiction: the light of oxy-hydrogen is the limelight. Perhaps the spot-light will indeed help to break-up the smoother, continuous textures of the tissue-body, exposing the discrete fact of the cell, "the very grain of things." Yet a spot-light will never illuminate the entire object. What is foreclosed by the connection to the parable with the pier-glass is the possibility of ever knowing the whole body at once (and thus the "whole" self—a self bigger than the subject). Lydgate is only able to recognize himself metaphorically, through the mediation of a symbolic term, as valve, textile, seed (or even heart, muscle, cell—all metaphors).²⁴

The mixture of soft tissue and grain recalls the glutinous mind of Mr. Brooke and its "hard grains of habit" as well as Lydgate's own spots of commonness. Here, though, grain is not

²⁴ The metaphorical nature of Lydgate's histological inquiries and explanations is then also the metaphorical nature of Eliot's textural characterizations; these critiques always fall back on the techniques of fiction and representation. Perhaps Eliot was thinking of the conclusion to Huxley's essay, which reads, "Physiology and Ontology are two sciences which cannot be too carefully kept apart; there may be such entities as causes, powers, and forces, but they are the subjects of the latter, and not of the former science, in which their assumption has hitherto been a mere gaudy cloak for ignorance" (Huxley "The Cell Theory").

only a part of the tissue-textural metaphor, but the foreshadowing of the cell through the unit life of the seed. Hertz notes a connection in Eliot between *seed* and *pulse*. Another way to get between the hydraulic-flow of the vascular body and the lattice of the cellular: “[e]ach refers to a small, replicable unit of vitality, and as such is a sign of life” (13). In the histological example, humans approach the body looking for signs of their own life, for the moment of auto-affection —there is however always some mediation, some intervening term.²⁵ In the novel, it is an admission that the omniscient narrative voice which goes so easily inside the bodies and minds of its subjects is even there limited to the parabolic operation and to indirect, incomplete knowledge. This allows a synthesis of the textural method of characterization with the relativity of knowledge; it is because Lydgate is “loosely structured material system” that he can appear to his neighbors as a “cluster of signs” and to the reader as the “concatenation of words that whirr and spin to produce the effect of human life” (Brilmyer 75, *Middlemarch* 142). Eliot’s digs in on the materiality of characterization then in order to undermine the simultaneous appearance in the novel of a traditional Victorian humanist moral subject, “offering in place of an ethically stable notion of the self the somewhat less reassuring figure of a focus of semiotic energy” (Hertz 23). If character is a cluster of signs, that is, a text, the reasonable next question is: what sort of character does a text have? In the next and final section, this is explored through the figure of Casaubon.

²⁵ See Derrida, Jacques. *Voice and Phenomenon: Introduction to the Problem of the Sign in Husserl's Phenomenology*. United States: Northwestern University Press, 2011, pp. 67-68. For Hertz’s brief mention of auto-affection in relation to Eliot see pp. 14 in *George Eliot’s Pulse*, also the chapter “Behind ‘The Lifted Veil’” for a discussion of the voice in relation to omniscient narration and awareness/otherness of oneself.

Casaubon. Signs and Life

Casaubon is a bookish older scholar and not personable. These features collapse in his characterization by the narrator, by his detractors, and even by Dorothea. He therefore provides a view into how Eliot thought about the relation of writing (physical signs independent of a person) to human life. “Sound-hearted” James Chettam and Mrs. Cadwallader, an “active voracious” protozoon herself,²⁶ find in him not so much an other presented as signs but one consisting of them.

Somebody put a drop [of his blood] under a magnifying-glass and it was all semicolons and parentheses. . . . Oh, he dreams footnotes, and they run away with all his brains. They say, when he was a little boy, he made an abstract of ‘Hop o’ my Thumb,’ and he has been making abstracts ever since (71).

By their account, Casaubon is barely alive. Just as Mr. Brooke has “contracted” his infirmity of mind, so is Casaubon showing the symptoms of some textual disease. Of course, Chettam and Cadwallader are merely gossiping about a person they don’t like (and perhaps a mild critique of rural education or literacy), but notice how their reading of the available signs quickly leads to guesses about internal constitution. The ironical suggestion that he has been “making abstracts” since childhood likewise implies that dealing with things without direct relevance to ordinary life (abstract in the adjectival sense) has somehow “run away” with his life-force. This can be read with the parabolic operation of meaning that Miller identifies in Eliot to suggest that becoming-sign necessitates the removal or casting-away of the symbol from its referent. To have become writing is in some sense to no longer have a person there; he has become “a sort of parchment code” (69). Brainlessness here means not superficiality in

²⁶ In probably the most famous microscopic passage in *Middlemarch*, Mrs. Cadwallader’s manipulations of the social web in her match-making schemes are compared to a microscopic scene in which a unicelled

Rosamond's sense but lifelessness, inability to respond to stimulus and literally weakness of pulse: “[h]e has got no good red blood in his body” (70). Rosamond by comparison has a strong pulse (she flirts by controlled blushing, she works by feeling, instrumentally). We should connect this sapping of life force with the abstracting motion of the sign in Eliot and notice how the trope of the dead letter (albeit in Mrs. Cadwallader's ironic figure) is defined by recourse to the microscopic and anatomical.

For Dorothea it is initially a part of her attraction to Casaubon, but Eliot has by then set the reader up to be suspicious of what Dorothea finds virtuous. In the prelude she provides Saint Theresa as a model for the kind of self-sacrifice that Dorothea is after. There, such self-sacrifice involves the explicit treatment of one's own life as the “constant unfolding of far-resonant action”—that is, as the sign of distant forces (3). From the very first line of the novel, Dorothea's self-sacrifice is seen to work by these metaphorical, parabolic comparison: “Miss Brooke had that kind of beauty which seems to be thrown into relief by poor dress” (7). She, too, starts to resemble her textual sources (more hagiographical than scholarly in her case); she has “the impressiveness of a fine quotation from the Bible,—or from one of our elder poets,—in a paragraph of to-day's newspaper” (7). Even the comparison of texts works out the anachronism (from the biblical and elderly to the news) which occurs when anything—a person, a word, a scratch—is seen to refer to something that predates the present. Dorothea finds this anachronistic self-sacrifice in Casaubon, a man with a memory full of “forgotten writing,” and thinks she has met a kindred soul (and a dead-ringer for Locke) (27).

He was all she had at first imagined him to be: almost everything he had said seemed like a specimen from a mine, or the inscription on the door of a museum which might open on the treasures of past ages (32-3).

[W]hen he re-entered the library, he found Dorothea seated and already deep in one of the pamphlets which had some marginal manuscript of Mr. Casaubon's,— taking it in as eagerly as she might have taken in the scent of a fresh bouquet after a dry, hot, dreary walk (38).

In these scenes from their early courtship, Dorothea is able to treat Casaubon not so much as a real person present to an equal to her in activity but as a cluster of signs presented for her interpretation—indeed, something like a character relative to her own life, as a scratch arrayed around her “little sun.” He is not taken as the source of his own utterances; he is rather a conduit for other, older texts and for historical forces. She applies the citational logic of deconstruction—fair enough, all language is citational, that is the nature of language—but refuses the corollary: that each instance represents a real break, a real new context, and a real new possibility.²⁷ It is to the fiction of these sustained, unmediated historical sources that Dorothea would like to subjugate herself through her relationship to Casaubon. She would like to join him in the margins of pure texts (texts which might be decoded by a single static “key”).

The tension here, as Hertz points out in “Recognizing Casaubon,” is that there is no one exempt from this symbolic characterization of Casaubon. The narrator, the reader, Dorothea, the other Middlemarchers, even Casaubon himself—any production of Casaubon as a character with certain stable qualities involves reading him in some way that displaces the actual event he constitutes. The symbolic/parabolic problem of relative meanings invoked in the pier-glass passage, when applied to the cluster of signs (or loose material systems) of persons, forecloses any true “recognition” of the other. The only thing to recognize is in fact the limit itself, a limit

²⁷ “Every sign, linguistic or nonlinguistic, spoken or written (in the current sense of this opposition), in a small or large unit, can be cited” put between quotation marks; in so doing it can break with every given context, engendering an infinity of new contexts in a manner which is absolutely illimitable. This does not imply that the mark is valid outside of a context, but on the contrary that there are only contexts without any center or absolute anchoring” (Derrida “Signature Event Context” 12).

imposed by the problem an organism has of reconstructing extensive things from intensive perceptions. The problem of characterization in fiction is thus brought to bear on question of whether or not one can ever have knowledge of the other—or indeed, as with histology and the problem of auto-affection, of the self, for even the self is an object to construct, and even the recognition that the other cannot be accessed trades on the degree of possible self-knowledge.

Dorothea's recognition of Casaubon is presaged by a sublime, discomfiting experience during their honeymoon in Rome, corresponding to a rapid expansion of the real extending far beyond herself temporally and spatially (193-195, Hertz 34-37). The illusion of concentric scratches is undone and the indifference of an inhuman ground is revealed as if by the “monotonous light of an alien world” (194). The narrator warns that such intense recognitions cannot be sustained, either by the reader in response to Dorothea or by Dorothea in response to her world:

That element of tragedy which lies in the very fact of frequency, has not yet wrought itself into the coarse emotion of mankind; and perhaps our frames could hardly bear much of it. If we had a keen vision and feeling of all ordinary human life, it would be like hearing the grass grow and the squirrel's heart beat, and we should die of that roar which lies on the other side of silence. As it is, the quickest of us walk about well wadded with stupidity (194).

To “frequency” one could connect any of the totalizing metaphors Miller identifies, the indifference of the “universal regular sequence,” Hertz’s *pulse*, or Lydgate’s “presentiment of endless processes”—but any of these things would be metaphorical and necessarily indirect.²⁸ Each of them would cover, abstract, or run-away with the “fact” under investigation. This

²⁸ Gillian Beer provides the following passage from T.H. Huxley’s 1869 essay “The Physical Basis of Life” as an almost definite inspiration for Eliot’s “roar”: “the wonderful noonday silence of a tropical forest is, after all, due only to the dullness of our hearing; and could our ears catch the murmur of those tiny Maelstroms, as they whirl in the innumerable myriads of living cells which constitute each tree, we should be stunned, as with the roar of a great city” (Beer 142).

passage, appearing in-between Dorothea's recognition of Rome and her coming recognition of Casaubon as an “equivalent center of self, whence the lights and shadows must always fall with a certain difference,” draws a parallel between the problem of interpersonal recognition and the more basic “epistemological confrontation” of which interpersonal recognition is only a particularly relevant instance: the problem of knowing anything at all about the real outside of oneself (the grass, the squirrels, the action of matter in general) from within the fragile and particular “coarse emotion” of the human “frame” (*MM* 211, Hertz 38). The two presentiments—Lydgate’s “presentiment of endless processes” and Dorothea’s “presentiment that there might be a sad consciousness in [Casaubon’s] life which made as great a need on his side as on her own”—are not distinct. The fact that they are pre-sentimental indicates the rational operation counter to sense and experience which, for Eliot, is the epistemological escape maneuver necessary to recover morality after rationalism.²⁹ Yet, as is evident from the relativity even of scientific inquiry and omniscient narration in the novel, even that willfully-extensive moral imagination will be constrained to what can be produced by the play of limited lights on a total object.

It is not merely the case that we cannot see the inside of things; our senses (extensive and intensive, “vision and feeling” both) are inadequate *even for the perception of ordinary human life*. My contention, following Hertz’s exposition of Eliot’s anti-egotism (“I know no speck so troublesome as self”) is that the self gets in the way not as a positive distraction but as a simple blot, absence, or limit; this ties into the deconstructive argument through Derrida’s claim that unmediated auto-affection is impossible and to the textural/affective argument through the problem of mediation. If texture can be aligned with the affective capacities of an organism

²⁹ Hertz writes that for Eliot “it is against the inertia of this mode of imaginative activity, the narcissistic dwelling on and in an image, that the moral imagination has both to define itself and defend itself” (29).

understood as a perception-action system—a conception we have seen at work in Eliot’s materialist characterizations—the conscious subject would then be in the strange position of residing neither inside of peripheral contacts (in the inner, felt composition) nor in the signs presented (in the external visible composition). The subject exists in the intervening space only as a transient feature of matter’s action.

The phenomenon of self or other thus appears, as women to Mr. Brooke, a problem as difficult as “the revolutions of an irregular solid” (42). He’s not wrong: Eliot, as Brilmyer argues, refers with the revolving solid to the genuinely difficult problems in mid-nineteenth century physics of revolving solids and the coherence of “loose material systems” that derive their unpredictability precisely from their loose and incomplete form (Brilmyer 72-76). If Eliot’s characterization follows Spinoza’s “geometrical method” and treats “human actions and appetites as if the subject were lines, surfaces, or solids,” it is no surprise that even the slimmest glimmer of recognition comes only to the adequately prepared mind (Spinoza 162). In the moment of Dorothea’s recognition of Casaubon, one finds exactly this collapse of “reflection” back onto “feeling”:

We are all of us born in moral stupidity, taking the world as an udder to feed our supreme selves: Dorothea had early begun to emerge from that stupidity, but yet it had been easier to her to imagine how she would devote herself to Mr. Casaubon, and become wise and strong in his strength and wisdom, than to conceive with that distinctness which is no longer reflection but feeling—an idea wrought back to the directness of sense, like the solidity of objects—that he had an equivalent centre of self, whence the lights and shadows must always fall with a certain difference (211).

The insufficiency of her initial “reflection” is that of a simple mirror (or pier-glass) of imagined devotion. The simple chiasmus of “*wise and strong in his strength and wisdom*” realizes this reflection and reduces it to a bit of wordplay, a kind of abstract, arbitrary

manipulation of signifiers in Dorothea's mind. Such images, Eliot tells us, "are the brood of desire," and only when Dorothea conquers her own tendency to "brooding abstraction" will Casaubon become suddenly concrete, solid and sensible. Yet the projective mechanism that shows her the "distinctness of sense" is still metaphorical ("like the solidity of objects"), still treats of an essential distinction or *difference* referenced off of a first term (an *equivalent* centre of self). Even the most radical recognition of parallel, external, or indifferent existences to one's own must proceed by binary differentiation.

The collapse of thought onto the feeling which the thought originally reflected might be connected to the "folding back" of finitude onto the man-form identified by Deleuze as Foucault's characterization of nineteenth-century reception of various apparent limits back onto ontology. The materialist reading I have suggested in this chapter suggests that Eliot's novel is an attempt to work out some of the real implications of what she called "the dubious aspect which many chartered respectabilities are beginning to near under the light of this nineteenth century" (Carlisle 10). It is simultaneously a questioning of that lighting operation, as worked out in this chapter by reference to the microscopic and textual metaphors of the histological body. Eliot adopts the metaphors while at the same time casting doubt on their fundamentality and on the possibility of a fundamental system of meaning in general. Internal texture characterizes because it describes a person's affective capacities in relation to the web of real relations. Even the web, though, is a metaphor—in fact, it is the ur-metaphor of *Middlemarch*, woven from the reading of signifier-signified connections between pairs. It is with equal irony and honesty, then, that I read the novel's paradoxical invocation of metaphor in its very denunciation: "we all of us, grave or light, get our thoughts entangled in metaphors, and act fatally on the strength of them" (85).

Works Cited.

- Abrams, Meyer Howard. *The Mirror and the Lamp: Romantic Theory and the Critical Tradition*. Oxford University Press, 1971.
- Crary, Jonathan. *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century*. MIT Press, 1992.
- Deleuze, Gilles. *Spinoza: The Velocities of Thought*. Purdue University Research Repository.
- Eliot, George. *Middlemarch: A Study of Provincial Life*. United Kingdom: Penguin Books, 1994.
- Eliot, George. “Notes on Form in Art,” *Essays of George Eliot*. United Kingdom: Routledge, 2015.
- Eliot, George. *Quarry for Middlemarch*. United States: University of California Press, 2022.
- Hertz, Neil. *George Eliot’s Pulse*. Stanford University Press, 2003.
- Levine, George. “Determinism and Responsibility in the Works of George Eliot.” *PMLA* 77, no. 3 (1962): 268–79.
- Mansell, Darrel. “George Eliot’s Conception of ‘Form.’” *Studies in English Literature, 1500-1900* 5, no. 4 (1965): 651.
- Miller, J. Hillis. “Optic and Semiotic in *Middlemarch*,” *The Worlds of Victorian Fiction*. Harvard University Press, 1975: 125-148.
- Miller, J. Hillis. *Reading for Our Time: “Adam Bede” and “Middlemarch” Revisited*. Edinburgh, United Kingdom: Edinburgh University Press, 2012.
- Paris, Bernard J. “George Eliot’s Religion of Humanity.” *ELH* 29, no. 4 (1962): 418–43.
- Puckett, Kent. “Stupid Sensations: Henry James, Good Form, and Reading Middlemarch Without a Brain.” *The Henry James Review* 28, no. 3 (September 2007): 292–98.

Spinoza, Benedictus de. *Spinoza's Ethics*. Trans. George Eliot. Ed. Claire Carlisle. United Kingdom: Princeton University Press, 2020.

Wormald, Mark. "Microscopy and Semiotic in *Middlemarch*." *Nineteenth-Century Literature* 50, no. 4 (1996): 501–24.

Chapter 3. Phonographia: Texture and Mediation in Rilke's Poetics

Around 1890, at the Sankt-Pölten imperial military academy in Austria, a group of students, Rainer Maria Rilke among them, assembled a rudimentary phonograph (Kittler 43). They cobbled it together from odd items: a bit of cardboard rolled into a funnel, some stretchy material to form a drum and vibrate, a needle to pass the vibrations on, a cylinder covered with candle wax. The needle would scratch a long, winding furrow into the rotating wax as the children yelled into the funnel. Running the machine in reverse, the pattern would reproduce something like the sounds that had produced it.

Sprach oder sang jemand in den Schalltrichter hinein, so übertrug der in dem Pergamente steckende Stift die Tonwellen auf die empfängliche Oberfläche der langsam an ihm vorbeigedrehten Rolle, und ließ man gleich darauf den eifrigen Zeiger seinen eigenen (inzwischen durch einen Firnis befestigten) Weg wieder verfolgen, so zitterte, schwante aus der papierenen Tüte der eben noch unsrige Klang, unsicher zwar, unbeschreiblich leise und zaghaft und stellenweise versagend, auf uns zurück (Rilke 1919, 13-14).

The memory of that tender, suffering sound, the sound of some newly discovered part of the real asking for help,¹ slipped from young Rilke's mind. An impression, though—perhaps the very logic of impression—remained. The abstraction of the voice, the lost call briefly resurfacing, the materiality of the transfer, the idea of a conduit, the connection of wind and voice, resurrection from mark—all this informs Rilke's poetry. Put simply, the logic of mediation which the phonograph lays bare both in its recording and its re-production from trace will be seen to animate an equivalent problem of mediation in Rilke's poetics: how does the object of inspiration change, disappear, or reappear re-invested as it moves through the poet and into language, that is, into the symbolic trace-work of the poem. This follows the connection made in

¹ "Man stand gewissermaßen einer neuen, noch undendlich zarten Stelle der Wirklichkeit gegenüber, aus der uns, Kinder, ein bei weitem Überlegenes doch unsäglich anfängerhaft und gleichsam Hilfe suchend ansprach" (15).

the previous chapter between the textures of material relations on the one hand and inter-connects of symbolic or semantic systems on the other. Before moving on to his writings on Rodin and the *Duino Elegies*, let's finish with the phonograph.

Years later, in anatomy class in Paris, Rilke fixates on the human skeleton. The skull in particular attracts him.² He buys a skull and stays up late with it. One night, its texture jumps out, animated by the “oft so eigenmäßig wachen und auffordernden” light of a candle. The coronal suture (*die Kronen-Naht*) attracts him:

und schon wußte ich auch, woran sie mich erinnerte: an eine jener unvergessenen Spuren, wie sie einmal durch die Spitze einer Borste in eine kleine Wachsrolle eingeritzt worden waren! (16)

And now the idea emerges: what if the (phonographic) needle were placed along this seam, this mark which is not the “graphischen Übersetzung” of a sound, “sondern ein an sich und natürlich Bestehendes”—in this case, the record of the body’s knitting shut of the brain. “Ein Ton müßte entstehen, eine Tonfolge, ein Musik … Gefühle — welche?” (17). What would it sound like, this “Ur-Geräusch,” the primal sound of the man-form?

What has stuck with Rilke from the experiment with the phonograph is not just the fact that a lossy transference is possible, but that the mediating form, the transition from phenomena to phenomena, is an inscription. The possibility of hearing a surface would be to listen to the history of trading forces that a texture is. Before Rilke, Friedrich Kittler writes in *Gramophone, Film, Telegraph*, “nobody had ever suggested to decode a trace that nobody had encoded and that encoded nothing” (44). The noise of that nothing, thematized in the *Duino Elegies* as a voice in the wind, is what is nominally explored in Rilke’s most existential works. Rilke’s work on Rodin

² He wonders in particular at how it manages to contain mental life: “im engen Einschluß schon wieder grenzenlos Wirkendes in seinem festeten Schutzt” (16).

likewise describes an artistic process in which the artist acts as a conduit for the forces of life, as though a direct causal line can be drawn between any point on the surface of the sculpture and its corresponding point on the real body of the model.

Yet all these decodings naturally involve the intervention of the poet and the non-trivial passage of the real into the medium of language and the relative meanings of a symbolic order. It seems impossible, by the same deconstructionist arguments mentioned briefly in relation to *Middlemarch*, that anything could have truly passed into the text in the manner that a phonograph traces a sound wave. In his chapter on Rilke in *Allegories of Reading*, Paul de Man argues that Rilke's poems present exactly this "juxtaposition of two readings in which the first forgets and the second acknowledges the linguistic structure that makes it come into being" (51). The phonographic premise—that the poet is acting as a conduit—is then fictional with respect to the real signifieds named (stars, wind, acrobats). In fact, the poem's figures emerge from and follow the exploration happening in the *lexis* (*ibid* 45, 50, 53). Thus in some sense the poet does act as a conduit, just for the texture of language and associative space rather than the texture of sensual, material objects. The phonograph makes visible the abyss through which things must pass to move from one order of experience to another (Kittler 45); the disjunction in Rilke's poetry between an intense attention to the real and its totally abstracted representation image this abyss. What de Man calls Rilke's "phonocentric poetics of chiasmus" has Kittler's abyssal space as the chasm or void around or across which the signifiers dance.

There is however the possibility, even after the deconstructionist break worked out by de Man, of a small but powerful re-unification of these two orders of experience. It will have to however be a non-imitative, non-correspondence relation—that is, one without priority. In the

last chapter, I tried to show how Eliot imagines relativity of meaning in the text operating analogically to the loose and shifting arrangements underlying apparently solid objects and organisms. They don't so much correspond in that the one takes on the qualities of the other directly, but the possibility that symbolic representation or metaphor could have features of the same type as a material system is exactly what texture (in the affective materialist conception) is after. Rilke's exploration of language and his own associative space (his internal composition or textures as *Weltinnenraum*) can then be re-integrated into the same ground as the objects from which it would be seem cut off by the impossibility of representing them. This chapter will try to understand Rilke on these terms: as using language to ask questions about being not by representational tricks, but by investigating the kind of being that language has and the sorts of things it would like to do. In my reading, this does not represent, as de Man argues, the reversal of a traditional priority in representational systems but rather its transcendence, a move to non-priority and the possibility of causal action or signification going in any direction between any two terms. In the reading of the *Duino Elegies* that comes later in the chapter, the mutuality between expression and emanation work acts out non-priority, *logos* and *lexis*, as living and dead.

In *Incomprehensible Certainty: Metaphysics and Hermeneutics of the Image*, Thomas Pfau writes that (not coincidentally around the time of his time with Rodin) Rilke's poetic method shifted toward "moments of focused visualization [through which] the lyric image is being reconceived as a form of participation, akin to Plato's theory of *methexis*, in the very being of things" (668-9). Pfau reads Rilke's poetry in a kind of mutual prediction with contemporary work by Husserl on the mechanics of transcendental modes of thinking or being—"phantasy"

and “image-consciousness” (*Phantasie* and *Bildbewußtsein*)—distinct from direct sensory perception (648). Seeing in these images (what Pfau calls “epiphanic vision”) is to receive them in the course of those transcendental states, with the knowledge that they are at once incomplete and fragmentary and yet must be, by virtue of the fact they manifested at all, in some determined relation to an “ultimate source.”³ Rilke’s recovery of ontology from the intense epistemological crush of skepticism and positivism can then be seen as emerging from the phenomenon of material transfer, even when heavily mediated (Pfau 722).⁴ In the next section on Rodin, the role of the artist as mediator is developed together with the physical constitution of the subject, attaching the “ultimate source” to the encoding and decoding of textures on the surface of the body.

Rodin: Gestures that complete elsewhere

In his essay on Auguste Rodin, written after a period in which he worked as the sculptor’s secretary and observer of secret habits, Rilke sought the source of the magnitude he felt in Rodin’s work. For Rilke, Rodin had invented a new kind of monumental sculpture. His sculptures made the body large by attention to its composing details, transforming the surface into a compound of traces or marks. “Indem er ihnen viele Stellen gibt, unzählbar viele, vollkommene und bestimmte Flächen, macht er sie groß” (Rilke 1920, 43). It was an expansion at the level of detail and a reframing of detail as the trace of an interaction, of past relations with

³ A few times in the course of this essay I will suggest that this source shares features with Spinoza’s absolute “God or Nature” being. I do this not just to make the link to the previous chapters clearer, but also because Rilke had some engagement with Spinoza and I think the comparison is valid. For Rilke’s letters on with Lou-Andreas Salome on Spinoza, see Rilke, Rainer Maria., Andreas-Salomé, Lou. *Briefwechsel*. ed. Ersnt Pfeiffer, Switzerland: M. Niehans, 1952, pp. 318-323.

⁴ “Rilke’s claim that things can be apprehended, under the artist’s contemplative gaze, in their undiluted and unfiltered phenomenality, is not just another aesthetic or epistemological assertion. Rather, it presupposes a certain ontology” (Pfau 671).

a world at least as large as the granularity of the sculptural depiction. The granularity, then, that approaches the uncountably infinite (“viele Stellen … unzählbar viele”) brings this scale-crossing complication of particular surfaces to a perfection (“vollkommene und bestimmte Flächen”). Indeed, the question of how the two-dimensional (*Flach*) complicates into a real surface (*Oberfläche*)—the kind that a needle could make sing—will motivate Rilke’s investigation of the coherence in Rodin’s sculpture. The phenomenal coherence of material systems (namely humans) will be seen to be the result of constitutive, mark-making processes on the part of the world as “ultimate source.” The idea of the body that Rilke elaborates here is thus implicated in a similar logic of affective exchanges as has been earlier discussed. Unlike Eliot, however, who feels the insides of her characters and reports on the texture of that object, Rilke, following Rodin, will work here on the surface alone.

Rodin’s portraiture, as Rilke saw it, recovered in features (a broken nose, an asymmetry in a smile, the relaxation of a hand) not so much a personal history but a record of the encounters (a fist, a trauma, a pleasant thought) that determined that personal history. It made the marks of the body speak. Rilke writes:

Das alles steht in dem Werke Rodins. Er, der schon durch soviel Leben gegangen war, hier fand er des Lebens Fülle und Überfluß. Die Körper, an denen jede Stelle Wille war, die Munde, die die Form von Schreien hatten, welche aus den Tiefen der Erde zu steigen schienen (39).

If every mark on the body can be read as a record of interactions, then each mark makes a gesture outward and speaks for what is not there (a bit like Rosamond-as-circumstance). Each position on the sculpture has a will and speaks according to the nature of its being. “[J]ede Stelle war ein Mund, der es sagte, in seiner Art” (28). These mouths speak their existence with modal variation in relation to a common being. In this way they are able to cohere. As Pfau writes, “the

artwork constitutes itself as the tangible record of the artist's intensely focused visual encounter with his subject" (670). The question is: what is cohering then? The artist or the world?

One might recall the coherence of Spinoza's affective body or the cellular *Übereinstimmung* of Schwann's. Margarete Ingrid Christian finds a specific biological idea in Rilke's insistence that the organism can be read as a symbol for its environment: the *milieu* (Christian 73). Christian argues that Rilke's "hybrid concept of the milieu" combines the importance of environmental factors from Darwinian and Neo-Darwinian theories of evolution (in which an organism reflects environmental pressures in and outside of its life) with art-historical aesthetic theories (in which historical and cultural milieu can be read in artworks) (Christian 78-81). She concludes, drawing on Heidegger, that his mapping of environment as symbol onto the surface of Rodin's bodies "can be understood not only as his biovitalist attempt to rescue the artwork's autonomy in the face of mechanistic incursions but also as his Nietzschean (Zarathustrian) endeavor to rescue notions of will in the face of fate." (Christian 82). The effort to treat the organism's phenotype as not just genetic but epigenetic information—as a way of reinserting will into what form things take—echoes the argument of T.H. Huxley that we saw in the last chapter inflected in Eliot's textural charactereology.

Yet these traces do not belong to the individual (even if they might define them); they refer outward to their maker(s). The trace becomes a scream for the lost partner from the interaction that produced it, like a word that calling out for its writer. The surface, composed of these mouths, can never be complete in itself—it is visibly the record of things not present. In this sense Rodin's sculpture captures something like the limits on how much information a body can take on or know from itself.

Rilke identified this casting-outward (not at the viewer, but to a virtual environment) as the truly distinctive quality of Rodin's sculpture: *the gesture was never completed in the thing itself*. Such unfinishing is a corollary of the mechanistic "thrown-ness" of the world described by scientific rationalism.⁵ Completion would be an abstraction.

It was different with the ancients. Whatever casting out ancient sculpture managed, Rilke writes, always fell back to itself, so that the entire gestural motion was contained in the surface. "In die hieratisch verhaltene Gebärde uralter Kulte war die Unruhe lebendiger Flächen eingeschlossen, wie Wasser in die Wände des Gefäßes" (26). The redemptive power of broken-off and unfinishing things is evident even in Rilke's description of the total self-containment of older sculpture. Precisely because it failed to finish the investigation of gesture and form, it too stands as an unfinishing gesture. The adjective *verhalten* prefigures the reversal that Rodin will perform, as the original restraint becomes the condition under which a second term can be added and a fixed relation—*ein Verhältnis*—can be developed. That second term (whatever world the surface traces are a record of) is present as overwhelming constraint—of "verhalten," but also "eingeschlossen" and "Gefäß"—and can be connected along with "Flächen" to the constraints of pre-modern fiber and textile anatomies. The *Flach* or *Fläche* forms the plane of contact in the binary relation.

It is a scale effect. A gesture that doesn't complete at the scale of observation gives the effect of magnitude by a disorder-order relation of parts to the larger wholes they compose. What appears disorderly in the sculpture—the competing contours, the many-mouthed cacophony—

⁵ For a discussion of Heidegger's "thrownness" (*Geworfenheit*) in relation to Rilke, see Christian 82, Pfau 718-720, or Heidegger's own lecture on Rilke, "Wozu Dichter?" The later discussion of the Fifth Elegy in relation to the already-active material world is relevant as well.

completes somewhere else, somewhere other than the body, out in the milieu. In the inverse (and equally possible formulation), these bodies are the completion of all else that they record and are absent to them. Rilke writes:

Er erfüllte eine Intention der Natur. Er vollendete etwas, was im Werden hilflos war, er deckte die Zusammenhänge auf, wie der Abend eines Nebeltages die Berge aufdeckt, die in großen Wellen sich fortpflanzen in die Ferne (51).

As elsewhere, Rilke speaks of the density of information in the sculpture as a sort of fullness that tends toward solidity, just as a cloud which up close would be invisible is able, at a great distance, to block the mountains. *Erfüllen* and *vollenden* invoke a kind of space-filling fleshing out by which an object at a lower scale approaches a higher-dimensional shape at the limit of its filling out. Rodin's sculpture takes phenomenal coherence (*die Zusammenhänge*) as method.⁶

Like the strata left by sedimentation, the *Schichte* of surface layers or tissues aggregate into a *Geschichte* that compact to form the body. Rodin, cast in Rilke's unusual essay as a stoic hero or partial god, channels life itself by the consistency of his technical approach. He acts with the force of natural history. Everything that happens to his people he must act out. He is the one who breaks the statue's nose. He thus represents, in Rilke's analysis, the other side of every mark. In the phonographic metaphor for the work of the artist, we see that he has taken the world's manner of operation on as method through a kind of open simple seeing (Pfau 670). He is the mark-maker in the sense that he realizes, in his own affective capacities (his *Weltinnenraum*, as Rilke will later come to refer to it) the structure of affective interaction in the

⁶ Rilke puts the following words in the mouth of Rodin: "es handelt sich für mich, d.h. für den Plastiker par excellence, nicht drum, die Farben oder die Konturen zu sehen oder zu studieren, sondern das, was die Plastik ausmacht, die Oberflächen. Die Art derselben, ob sie rauh oder glatt sind, glänzend oder stumpf (nicht in der Farbe, sondern im Wesen!)" (*Briefe* 35).

world.⁷ The complication of self and object through attentive seeing (Pfau's "epiphanic vision") has the possibility of modifying one's inner space such that representation could again be, even if only in a partial way, in some actual imitative relation to its object.⁸

Like Spinoza's absolute, the sculptor (in relation to his work) is exempted from cause, embodying the causal ground itself. Part of what these sculptures communicate is the possibility of a singular ultimate prior. The echoes of Genesis in Rilke's text make this godlike causal ability verbal. "Und er schuf" (37). The strange intransitive use of *schaffen*, as if the sentence, too, were completed by the making alone, refocuses the power of the creative act on the act itself. God is not God because of the world he made, but because he was able to make at all.⁹ Here, Rilke opens up the structure of the transitive verb in order to get at information that would disappear with the appearance of the object in a transitive formulation. The entire essay is an effort to get at the inside of a transitive process, to get from the inscription back into the rich process that produced it. In the *Elegies* and *Sonnets* Rilke will continue this effort, textually, restructuring and ripping at verbal texture to reveal hidden investments, discrete interactions. Like the hung transitive of "Und er schuf," Rilke's poetry pushes words across categories—verbal adjectives, adjectival nouns—on the one hand as a technical strategy for exposing the internal action of words and on the other as a method for producing new encounters akin to the "neue Oberflächen, neue Gebärden" toward which he understood Rodin to be reaching (73). Rilke describes the

⁷ "For as it opens itself to, and absorbs, the infinitely variegated play of aspects that comprise the body's total surface, the beholding consciousness experiences itself as continuous with its object. Beholder and thing appear to share one and the same phenomenological spacewhat Rilke will later call *Weltinnenraum*" (Pfau 670).

⁸ "The two epigraphs to the essay are clarified by the idea of the artist-as-conduit. First, because his sculptural method relies on the emulation of the historical processes that were involved in the emergence of his subject, the first epigraph ("Die Schriftsteller wirken durch Worte ... / Die Bildhauer aber durch Taten") applies directly (6). His technique aligns him with action in general—tautologically, the process is process, the production production. As that to which all things point (or acting on behalf of that power), he is the centered hero of the second epigraph: "the hero is he who is immovably centered" (6).

⁹ In a letter after his first meeting with Rodin, Rilke notes how much lighter the French word that Rodin uses (*création*) is than the German *Schöpfung*: "es hatte sich aus allen Sprachen losgelöst, losgekauft ... war allein in der Welt: [and then, on its own line] *création* ..." (Briefe 27).

attention which Rodin brought to his models, how even the subtlest scar would be brought over into the sculpture, so as to pass the strange incongruence of life into the art, giving the art in turn the congruency of life. Rilke was committed to doing something similar with his poetic practice.¹⁰ One could read this in light of the “pedagogic” dimension to affect theory discussed in earlier chapters, as a way of transmitting the properties of objects into the properties of art in a way that preserves the qualities of the original over those of the target medium. A similar idea is worked out in Walter Benjamin’s “The Task of the Translator.” The target language should be made to speak in a way unnatural to it.

The sculptures cohere through their common relation to Rodin, standing in for life—for whatever it is that leaves its marks on us. The Rodin of Rilke’s text likewise coheres through Rilke’s intense focus on Rodin. Hardly a sentence goes by that he is not in some way present. The mythological stylization of Rilke’s portrait of Rodin is an exercise in the same strategy of monument-making that Rilke attributes to Rodin. The consistency of style forms the structural support in which Rodin coheres. If, as Rilke implies, Rodin’s method makes him a sort of medium through which all of life passes, the text (which does not let up in intensity or mode from beginning to end) has received and preserved this clarity *as style*.

The text’s hagiographical structure builds its own surface texture up from a series of repeated strivings—the records of Rodin’s contact with life, his own traces. What is repetitive in the text (the characterization of Rodin and his work) forms the armature on which the details of

¹⁰ De Man, Pfau, and Christian all locate a shift in Rilke’s poetics around the time he was in Paris working with Rodin (the beginning of the twentieth century) (de Man 27, Pfau 647, Christian 93). For more on the *Dinggedichte* in particular, see Broek, Claire Y. van den. “How the Panther Stole the Poem: The Search for Alterity in Rilke’s ‘Dinggedichte.’” *Monatshefte* 105, no. 2 (2013): 225–46.

individual pieces and moments in his life accumulate like surface elements and interact.¹¹ A consequence of centering Rodin as a hero is that, unified by his dedication to his work, he becomes a strange sub- or super-human figure.¹²

Since Rilke takes portraiture as an approach to the question of what the subject *is*—with the method of the portrait artist replicating or extending formational processes and thus providing information about how the subject was formed—the text provides, in its attempt at portraiture, its own model. It is one based on the steady application of a decomposing attention, so that the object (subject) under investigation comes apart into details that are their own histories and record their own causes by their own physical extension. With Eliot, we saw a strategy of characterization in which affective capacities had to do with internal make. Here, it is the external texture where an affective history is read. “Rodin’s sculptures celebrate no other enigma but that of visibility” (Pfau 670).

What does it mean for a text to be, as Rilke repeatedly writes of Rodin’s figures, more about bodies (“in denen das Leben größer war, grausamer und ruheloser”) than faces (20)? Unlike facial expression, which is the concerted effort of mind, bodily gesture coheres (so we are told) with the accidental grace of natural phenomena (the “Gnade der großen Dinge”)(9). In fact, it has its coherence only because it has taken in its milieu through genetic and epigenetic formative processes. Language would ordinarily be grouped with faces and with expression.

¹¹ For Rilke, a text is sculptural when it decorates and complicates its structural information with the manipulation of the surface. When discussing Rodin’s reading of poetry, he writes: “Und in diesen Versen gab es Stellen, die heraustraten aus der Schrift, die nicht geschrieben, sondern geformt schienen, Worte und Gruppen von Worten, die geschmolzen waren in den heißen Händen des Dichters, Zeilen, die sich wie Reliefs anfühlten, und Sonette, die wie Säulen mit verworrenen Kapitälern die Last eines bangen Gedankens trugen” (20). Notice also the implication that different features are present at different scales: from words and groups of words melted like raw material, to lines which begin to give an outline, a trace, to sonnets, which have architectural features.

¹² The last line of the essay captures this holy reversal through renunciation: “Darin lag eine Art von Verzicht auf das Leben; aber gerade mit dieser Geduld gewann er es: denn zu seinem Werkzeug kam die Welt” (73).

Individual utterances are for the most part made with some intention and with some imagined, if fictional, idea of a “real” signification occurring. Rilke would like to do for language what Rodin has done for bodies: that is, cast off the traditional priority of the signified and allow the signifiers to reveal features of the space they occupy. One approach—the one I am about to argue Rilke makes in the *Duino Elegies*—is to turn the *lexis* into the milieu into which every instant lively *logos* is sent out with a diffusing energy. The two are locked in the same mutual shaping action as the organism and its environment: the *logos* will adapt and define itself against the *lexis*, even as it diffuses into and contributes to it.

Expression, Emanation, and Priority in the Duino Elegies

It is said that Rilke heard the opening lines of the *Duino Elegies* in the strong northern wind that blows along the cliffs at Duino. Listening to the wind, through symbolic association of breath, voice, spirit, and other airy movement, positions Rilke as a sort of receiver and conduit for the world’s spirit. In the reading that will follow, I would like to show that Rilke’s “listening to the wind” is achieved in the poem by submitting expressions into the wind (calling out) and listening to what comes back (as emanation) from the entanglement of that expression with the complex affective potentials of language. It is not an allegorical procedure. Language does not simply stand for the inherited complexity of the world and the diffused, effaced life of dead pasts; language really is a part of the complexity we are both shaped by and work to shape. The dynamics of Rilke’s poetry can thus be read as at once an expression of a *Weltinnenraum* aligned with language through poetic mastery *and* the operation of the dynamics inherent in language.

The “rhetorical potentialities of the signifier” do not live elsewhere (de Man 45). Already in the famous first lines the dynamic is present in the proximity of call and response:

Wer, wenn ich schriee, hörte mich denn aus der Engel Ordnungen?
 und gesetzt selbst, es nähme
 einer mich plötzlich ans Herz: ich verginge von seinem
 stärkeren Dasein. Denn das Schöne ist nichts
 als des Schrecklichen Anfang, den wir grade ertragen,
 und wir bewundern es so, weil es gelassen verschmäht,
 uns zu zerstören (Rilke 1923, 7).

The scale transitions—what de Man calls a chiastic poetics—carry signifiers past their own boundaries. Like a gesture that completes outside of itself, *das Schöne* makes adjective (*schön*) into noun through the addition of an *-e* and a capitalization, as though the adjectival noun were the pluralization of a feature or the suspension of a noun not yet visible.¹³ The same *-e* makes the counterfactual subjunctives of “schriee,” “hörte,” “nähme,” and “verginge.” As in the adjectival noun, it marks the delicate extension of the word just beyond its means (and beyond a real referent, into the play of signifiers), like the echoes of that first call off the cliff, surviving just long enough to invert the stuttering “grade ertragen” at which point these opening lines enter, with the ground well enough established (*gesetzt*), the stronger indicative territory to which the text transitioned with “Denn.” As if by consequence of moving from instance to aggregation, *schön* to *das Schöne*, the *ich* has become a *wir*. The scale transition of “Denn” has caught the rest of us, made an *Anfang* of the angel’s original clutch (*Fang*) of the speaker, and, as the hypothetical initial clauses lead to a verbally real consequence, made a trap out of a beginning. These opening lines are like the setting of a lure: the *schriee* that is the sibilant beginning of *Schrecklich* calls angel and reader into the text at once, as one investing presence of breath, so

¹³ The suspension or falling away of a noun—because if there were a noun there, the adjective would also take that *-e* ending, as in *das schöne Ding*.

that hearing becomes a kind of ordering of diffuse information that bends *hörte* toward *Ordnungen*. Hearing a voice in the wind, the text, wanting also to be heard, will take on the character of that wind—rushing, fricative, densifying, lifting, sinking, “der Wind voller Weltraum.”

This first section ends with an imperative:

Wirf aus den Armen die Leere
zu den Räumen hinzu, die wir atmen; vielleicht daß die Vögel
die erweiterte Luft fühlen mit innigem Flug (ibid 7).

Such flinging out is the characteristic gesture of the elegies, for it entangles expression with disappearance and therefore life with death. Thus the poems perform an elegiac lament for the living as the earliest dead of all. Life, in the Elegies, looks like one long expulsion of the self. Expression, as the externalization of internal energies, is the mechanism by which the parts of the self break off and enter the thrown action of the world. As spirit turns into breath and breath to wind, the speaker invests the world with their own spirit. This investment, which bends toward death, dissolves into the forces of the world (“das zahllos Brauende,” as Rilke puts it); it is the sum of all past investments that return as emanation. Yet if all that was moving and haunting the world was simply the past of which it is constructed (like the bodies of Rodin’s sculptures), why is the received thing, the world we enter, so unrecognizable, so much larger and stranger than us? Why does meaning sometimes cohere despite the variety of the emanation—what is an angel? The poems ask this to language; humans might analogically ask it to the world they inherit.

Second Elegy

The second elegy explores the relationship between the fleeting, diffusing nature of human life on earth with the striking purity of the angels that seem to have their being in that diffuse space itself. The poem builds out the mutual relation between human expression and angelic emanation as a scale-transgressing operation. Two consequences follow. First, the angels act as proper messengers and not the sources of their own messages. They purify the chaotic life of the world as a statistical law simplifies names the tendency of a system in the aggregate. There is no single or simple source of the messages they bring; they carry distilled existence. Second, the angels can be symbolically aligned with the other sites where Rilke sees human essence still self-contained and pure: youth and past. This is a natural consequence of the poem's logic: the young have simply not had time to evaporate yet.

Unlike the angels, Rilke writes, we cannot contain ourselves:

Denn wir, wo wir fühlen, verflüchtigen; ach wir
atmen uns aus und dahin. (11)

Feeling effects a disappearance: here, in a very simple sense, the manner of expression carries the language always away from the speaker. It begins a section in which the “wir” will be constantly appearing in order to dissolve. At first clutching to the pronoun (“wir, wo wir”), the grammar exacts its revenge for the relative construction by forcing the adjacency of the two verbs (as with “hörte, schrie” from the opening line of the First Elegy), almost as though the second were a rephrasing of the first, or as though the “wir” has turned into the “ver” within “verflüchtigen.” Before the line ends, the pronoun returns (“ach wir”), now protected from the

coming verb by enjambment. Yet at the start of the next line, the sighing “ach” turns to the breathing “atmen” and the “wir,” now reflected, becomes an “uns” that, rather than returning the pronoun to solidity, run off sonically into the “aus.” Finally, the “dahin” directs the breath past some horizon of visibility—perhaps toward the place asked after by the earlier asked “Wohin sind die Tage Tobiae.” *Hin*, a place where gestures complete:

Wie Tau von dem Frühgras
hebt sich das Unsre von uns, wie die Hitze
von einem heißen Gericht. O Lächeln, wohin? (11-12)

Caught between two similes that assist in the disinvestment of the “wir” that only appears diffused into the “wie”s, the kernel of this sentence continues the abstraction, the breathing out of the “wir.” What happens between the similes is the emptying of the “wir;” “das Unsre” moves itself and leaves behind the “uns.” The identity subtraction—the removal of an essence from its site—briefly relieves the poem of the “wir,” allowing the verb to be addressed. “O Lächeln, wohin?” The unconjugated potential of the infinitive is both what lets it pass into noun and the reason the poem can ask it “wohin.” As the subject diminishes, the syntax passes through a limit to infinitives: “O Lächeln … O Aufschaun.”¹⁴ The infinitive targets the expression itself and therefore the beginning of what rises to form part of the emanation. The dense interaction of verbal elements form never-quite-completed chiastic couplings, performing the imperfect call and response which is the nominal subject of the poem. Notice that the appearance of *lächeln*, first in the infinitive and next as the noun in the apostrophe with *Aufschaun* is able to bring even

¹⁴ The association of infinitive structures with the absolute disembodiment that occurs at death or any other culmination of diffusion happens also in the First Elegy, in the lines that begin with “Freilich ist es selfsame, die Erde nicht mehr zu bewohnen.” *Lächeln* itself will return in the discussion of the Fifth Elegy below.

the facial expression excluded from Rilke's Rodin into the gestural language through its assimilation in the sign, which there can be arbitrary play.

Every time the “wir” disappears, it manages to return. It possesses a curious endurance. After those infinitives, there there is a dash, a semicolon, and then: “weh mir, wir *sinds* doch.” Although it seems at first to lament the special transient nature of human existence (“wir nur ziehen allem vorbei wie ein luftiger Austausch”) it could also be read as an affirmation that any existence happens at all in such circumstances. There is at the very least something that we are—a singular thing, represented by a single letter, *s*, almost hidden in the verb. What is contrary about this being (one is tempted to say *Dochsein*) is that the diffusion and disappearance (which is what the “*s*” of “*sinds*” seems to refer to) is what allows the “wir” to be and to return to the poem after its vanishing. On this paradoxically affirmative note the question can be directly posed:

Schmeckt denn der Weltraum,
in den wir uns lösen, nach uns? (12)

The logic goes: whatever we are as individuals is not preserved but rather enters the world through materially mediated expression. But humanity as a collective (or language as a collective), as “wir,” has at least this transient strategy as a defining characteristic (“wir nur ziehen allem vorbei”). Wouldn't, then, our communal outpouring leave something distinct in the world (“ein wenig/unseres Wesens dabei”) and therefore form a part of the angels' composition? *Lösen*, which combines dissolving and resolving, also calls out to the redemptive *Erlösung* that would keep the past present in space or would have the world constituted by the past, as with Rodin's object-attention (“des Dingseins leise Erlösung”) (Rilke 1920, 38, Pfau 647).

Space that is constituted by being is angel space (“Räume aus Wesen”). A connection is therefore made between the diffusion of human life into space and the angel world. In the short second stanza of the second elegy, the angels get their description. It answers the question “Wer seid ihr” with a list. The angels are names, things, and do not disappear into verbs but instead fill space. They are like the past: already created, self-contained.

Frühe Geglückte, ihr Verwöhnten der Schöpfung,
Höhenzüge, morgenrötliche Grate
aller Erschaffung,— (11)

In the first line, internal rhymes in the pairs of umlauted vowels inaugurate a sonically rich and harmonious space, in which gestures are finished, paired off. “Höhenzüge” even matches the two vowel sounds of the first line more concisely, in reverse. It is as if the poem is gathering everything back into itself. Likewise “Grate/aller Erschaffung” mix and mirror “a” “e” and “r,” while “Erschaffung” meets and extends “Schöpfung.” The final element in the list are the mirrors of self-containment themselves:

Spiegel, die die entströmte eigene Schönheit
wiederschöpfen zurück in das eigene Antlitz. (ibid)

These final lines make a chiastic return to the “Schöpfung” of the first line while performing a few doublings of their own: “die die,” to start, the *possessives* of “eigene Schönheit” and “eigene Antlitz,” the “schö-” sounds of “Schönheit/wiederschöpfen zurück” interlaced with the mirroring motions of “wieder” and “zurück.” The tidy closure of the stanza is the angelic self-containment of essence. Their being does not escape them because they are the place into which being escapes. As each connection is realized and the first term redeemed by the second, the “Gelenke des Lichtes” form like bands, holding the angelic textual texture integral.

Do we only access such eternities and essences by diffusing into them (by playing with words)? Or are there moments where humans can negotiate containment among themselves?

Rilke turns to lovers, in whom the mirroring of embrace allows for a brief access to duration:

weil die Liebkosung verhält,
weil die Stelle nicht schwindet, die ihr, Zärtliche,
zudeckt; weil ihr darunter das reine
Dauern verspürt. (13)

The intransitive use of *verhalten* here makes containing its own aim and invokes the part-to-part mutual action of *Verhältnis*.¹⁵ The contact sets the lovers into a certain dynamic, like a pattern or ratio, and that relation that emerges between them gives them access to a pure, essential thing (“das reine Dauern”). It is because of the non-priority between the two terms that there can be no excess in this sort of exchange. There is also the hint of biological reproduction as a method for the reproduction of a pattern through fleeting instances. The lovers gather in some way around this counter-intuitive endurance through disappearance.

It is a natural movement from the covering of a “Stelle” that refuses to disappear to another covering that works against disappearance, the “attischen Stelen.” There is a return here to another *verhalten*, that of the “hieratisch verhaltene Gebärde” of ancient sculpture. The caressing “berühren” of the lovers softens, literally lightens its emphasis in the “drucklos beruhen” of the sculptural hands. Their evaporated lightness means they have reached a limit:

Diese Beherrschten wußten damit: so weit sind wirs,
dieses ist unser, uns *so* zu berühren (13)

¹⁵ See Lisi, Leonardo F. "Intransitive Love in Rainer Maria Rilke's The Notebooks of Malte Laurids Brigge" In *Marginal Modernity: The Aesthetics of Dependency from Kierkegaard to Joyce*, 247-268. New York, USA: Fordham University Press, 2012.

With this inversion of the “wir *sinds* doch,” the predicate nominative “*s*” that had been tagged onto the verb now attaches to the subject as if joining with the “wir.” The next line, “*dieses ist uns*er,” could almost be saying “*dies S ist uns*er,” claiming the letter back from the “*sinds*.” This is in line with the *Verhältnis* formed by lovers contact: the two sides of the predicate are together and suddenly capacious. They form a new wide word: “so weit sind wirs.” The movements of the single letter “*s*” seem somehow to be invested with humanity’s claim on language and what language can do. It is claimed back from being (*sinds*) by us (*wir, dieses ist Unser*). I read in this struggle Rilke’s own concern about whether was developed in poetry that necessarily gives up its extra-textual claim (as de Man argues) could ever be brought back, in some way, to the object world of signifieds.

The elegy ends with a wish toward a paradise of containment: “ein reines, verhaltenes, schmales/Menschliches [...] zwischen Strom und Gestein” (13). It is as though what was special about Eden was the walls.¹⁶ In such a place one’s own released energies would not escape into some higher order object that speaks in unrecognizable, terrible ways, but could rather be recovered, followed, and brought back into human life without destroying it (“ich verginge ...”). The Elegies are not such a textual place, although they occasionally act it out in the name of the angels. Every call is carried off, every expression diffuses into the general emanating Thing—the object which the text is or is forming.

¹⁶ This is not just a place from the past (as it is the ancient world of the *Stelen*, an Eden, or the angel’s domain described earlier) but the past itself. Part of the desire to be completed and constrained is realized in history, in the childhood of humanity, all by association with a youthful moment before diffusion. If one takes spreading out as the constant action of life, there is a necessary assumption of an ordered past—in fact, at the limit, of an initial condition of perfectly low entropy. The past is literally more contained, less spread out across space. The same logic lead to theorization of the Big Bang and is our only support for an entropic arrow of time, where it is known as the “past hypothesis,” the principal boundary condition for statistical mechanics. Rilke will express a similar yearning in the Fifth Elegy (which is discussed next) beginning with the line “Wo, o wo ist der Ort,” and then again, modified, with “Engel! Es wäre ein Platz, den wir nicht wissen.” The *Sonnets to Orpheus* also explore a more-contained, more-structured space, as if inside of a grave marker or a mosaic.

Fifth Elegy

In the Fifth Elegy one can see more clearly how the opening of grammatical structures allows internal information to spill out, exposing what sort of diffusion is happening—and what is diffusing—when meaning coheres. The acrobatics of the text do not need to correspond to the actual acrobatics of its figures, but rather to the poetic figures as they are created by the text, which in turn suggest further energetic activations.

Two sides of this active materiality are explored at once in the poem: the first, an atomic chaos in which elements are thrown around by an invisible will, and the second, the thin substance of surface appearances as manifest in the textile. The poem demonstrates the intimate connection of these two scales, oscillating between discrete elements (words and letters) and continuous texture (a barely-cohering meaning which constantly adjusting to the implications of the lower-scale play). Taking substance at a given scale as a kind of ordering of its lower-scale components, the forces that coordinate those components appear to the substance as its form and to the components like the imposition of a mysterious will. As the poem is also a kind of texture formed from the coordination of smaller parts, Rilke's aim in the fifth elegy is to make that fabric as diaphanous as possible, even tear at it, so that the hidden compositional forces in words can spill out, fray, and at the extreme become so insubstantially thin that something entirely different is seen—whatever, if anything, is the animating being of the textual object.

Rilke wrote this poem with acrobats in mind—he had seen Picasso's "Family of Saltimbanques" and Saltimbanques themselves during his time in Paris with Rodin. Perhaps he was drawn to these figures, as Picasso seems to have been, because their acrobatic living

literalized the acrobatics of life: the precariousness of impoverishment, the restlessness, homelessness, existing in performance. Following the portrait work of Rodin, Rilke subjugates them to a will beyond access. Like atoms seen from our perspective looking “down,” their movements are the controlled by larger powers. We should remember in this context the problems of will and the constitutive role of the artist from Rilke’s writing on Rodin. When humans are thrown about like atoms, what higher-scale thing are they subject to? (Or in the textual register: who speaks the language in which human lives are words?) Divine beings are the traditional answer, and though Rilke’s angels occupy the right hierarchical position, the strictly top-down imposition of will is challenged in the Fifth Elegy’s scale acrobatics, showing organization and emergence as inverse descriptions of the same phenomenon of composition.¹⁷

The poem begins with a question.

Wer aber *sind* sie, sag mir, die Fahrenden, diese ein wenig
Flüchtigern noch als wir selbst, die dringend von früh an
wringt ein *wem, wem* zu Liebe
niemals zufriedener Wille? (20)

The poem goes right away into an acrobatic sequence, not so much with neat or broken chiastic mirroring but with a long, headlong tumble of sounds toward the question mark. The internal rhyme of “Wer aber” and the consonance of “*sind* sie, *sag*” switch a symmetry at the ends of the word for one at the beginning, flipping through the italic tilt and landing again at “mir,” which joins the *-r* endings with the vowel sound of the adjacent “die.” When, after this tumbling, we arrive at “Fahrenden,” the first stressed syllable attaches sonically to those *-r*

¹⁷ Undermining any top-down or bottom-up account is a consequence of not privileging any scale of observation (non-priority). When, in the Second Elegy, Rilke suggests that angels are in part composed of essence diffused from human lives, the same undermining of the hierarchy happens. The question is really: given a parts to whole relationship, does the whole organize the parts (imposing a formal will on them) or does the whole emerge from the parts (through diffusion and interaction of parts). Rilke leaves room for both accounts to operate at once.

endings and leaves “enden” like a remainder wandering out beyond the movement pattern, a little lost. These moving targets carry the language across categories, making nouns out of comparative adjectives (“ein wenig Flüchtigern”) and adjectives out of interjections (“ein *wem*, *wem* zu Liebe/niemals zufriedener Wille”). The wringing action suggests the manipulation of a fabric (the tissues of the acrobats’ bodies and the text) but the effect of that wringing is a repositioning that shifts attention to the matter of which the fabric is composed. The stress on the texture opens voids in a fundamentally discrete object. It is only because of the chaotic movement that the internal energies of a word like *wem* are let out—a very incomplete verbal gesture. The eternal motion (*ewiger Aufsprung*) of the acrobats, influenced by a mysterious will, resonates with a Lucretian picture of atomistic turmoil complete with *clinamen*. The consistency of the manipulation lets the text form, briefly, the regular pattern that leads to the emergence of a simple texture:

er wringt sie,
biegt sie, schlingt sie und schwingt sie,
wirft sie und fängt sie zurück. (20)

As in Rilke’s understanding of Rodin’s surface textures, the most stable materiality comes from the compounding of actions on the surface, as the consistency of the manipulation becomes the even patterning of the text’s material. The “er” that initiates the sequence falls away and the verbs begin to look like properties of their objects as much as the actions of a distant subject. It is like the “sie” itself—who the initial question asked after—is materializing in the word play.

De Man might say that the will is really Rilke’s (as the will in Rodin’s sculptures was in the most immediate sense Rodin’s) and that the text only pretends not to know what’s going on,

forming a “screen of a language that controls its own representational mastery” (22). Yet rather than a screen, what forms from the regular actions of the preceding verbs of motion is rather the thin textile of the Teppich, which we might take for the coherence of elemental relationships into an unstable text:

wie aus geölter,
glatterer Luft kommen sie nieder
auf dem verzehrten, von ihrem ewigen
Aufsprung dünneren Teppich, diesem verlorenen
Teppich im Weltall. (20)

The two motions—falling and rising—that fight across enjambment in “nieder/auf,” are the oscillation of the poem between the scale of part and whole. They give birth (niederkommen) to the textile, pulled as if out of the air. As the poem descends, the words will continue to attempt to rise, as if resisting the gravity that would bring them back down to the carpet again. Four lines in that first section begin with *auf*: “auf dem verzehrten,” “Aufsprung,” “Aufgelegt,” and “aufrecht.” The ambiguity of the preposition that can mean either landing on or leaping up from the carpet captures that indeterminate motion between emergence and dissolution of poetic textures.¹⁸ The way the poem leaps from topic to topic, these associative movements, are the constant coherence and decoherence. Like “die Rose des Zuschauns” that “blüht und entblättert,” coming together and coming apart at the interest of spectators, the fleeting subjects of the poem consist of the attention given them. When the attention follows instead some other motion elsewhere, as if taken off course by the energies of many colliding elements, the phenomena dissipate. Having no essential character other than the kind of observation that makes them

¹⁸ The other half of the “Aufsprung” that wears the carpet thinner will reverberate through the whole poem with all sorts of evasive prepositional attachments: “Ansprung,” “Ursprung,” “Übersprungne,” “Bespringen,” “Umspring.” The eternal chaotic leaping about thins the texture of the poem since constant movement doesn’t allow a densifying buildup on any one area, but at the same time it provides what texture the poem does have in the form of acrobatic style.

present, what exists in the text is contingent on the scale at which it is observable. The text, in traversing that space, takes the path of emergence (when scaling up) and decoherence (when scaling down), remapping the traditional ascension and descension of the elegiac couplet onto incomplete chiastic figures: assembly and disassembly of sounds and meanings.

Later in the poem, for example, the language follows its own associations in a manner that would normally be digressive (as a prolonged hypotaxis) but is instead seen to allow the “subordinate” meanings to influence the meaning of the main clause and various antecedents from which they depart.

Du, der mit dem Aufschlag,
wie nur Früchte ihn kennen, unreif,
täglich hundertmal abfällt vom Baum der gemeinsam
erbauten Bewegung (der, rascher als Wasser, in wenig
Minuten Lenz, Sommer und Herbst hat) —
abfällt und anprallt ans Grab: (21)

Immediately converting second person to third by reference to the moment of impact and then further escaping to a relative clause describing the impact metaphorically, one expects the text to be carried away by the digressive possibilities of relative clauses.¹⁹ Yet these interruptions not only reveal hidden aspects of their antecedents (as “der” begins an objectifying relation to the “Du”) but sometimes discover hidden antecedents (as “wie” refers to the as yet not explicit manner of that Aufschlag). The relative clause works here to open up words not in the manner of infinite digressive association, but by the falling back of the subordinate meaning back onto the point of departure. This acts out more of the leaping away and the falling back motion, wearing the text’s coherence down.

¹⁹ German’s special provisions around the relative clause are probably partly responsible for the digressive flight of this passage and others. In English, without the strong cases and comma structure of German, it would be more difficult and far less legible to be always adding more information in which the antecedent takes on new positions.

What is revealed in these relative clauses breaks out of the comma and mixes into the original scale when the return is made. “[T]he seductions of the syntax and of the figuration have to make even the most extreme paradoxes appear natural” (de Man 53). Fruits, which at first seemed an incidental comparison, become as involved as anything else. “Abfällt von Baum” must refer to the original “der” and yet still refers to the falling of the fruits, even sonically, as one hears “Apfel” in “abfällt.” As the failure to coordinate limbs (“gemeinsam erbauten Bewegung”) results in the repeated falling of the young acrobat, so does the attempt to leap to the fruits only bring them crashing back down into the place from which the simile departed. Eventually the mention of a tree of movement (also seemingly grown out of fruit and fall) sets off yet another relative clause from which the only escape is a dash, breaking off the gesture with the movement still underway. The return to conjugated verbs of motion (“abfällt und anprallt ans Grab”) is again a failure to stay afloat in that acrobatic, digressive space, among the diffuse material that was spun out from the original “Du.”

An expression is an attempt at coordination—but whose attempt is it? Whose will? The “gemeinsam erbauten Bewegung” suggests the mutual work of parts, as does the spinning off into relative clauses. One might think of the Babel-esque confusion of mouths on Rodin’s surfaces playing out here as a communal movement, a common gesture, is undertaken. There is some movement upwards beyond simple assembly, a transcendence from *erbauen* (over simple *bauen*). Yet next it is the expression that seeks a source in the face: “manchmal, in halber Pause, will dir ein liebes/Antlitz entstehn [...] doch an deinen Körper verliert sich.” Unable to even make the unifying gesture of an expression, the body is next dismembered. It becomes in turn a “kaum versuchte Gesicht,” an “immer trabenden Herzens,” soon “kommt das Brennen der

Fußsohln,” and “in die Augen gejagten leiblichen Tränen.” The association of each body part with a separate verb plays into the decoherence of the body even while the text gathers density with the enumerating, schematizing breakdown. When the smile finally does come, “blindlings,” no soul shines behind it—none besides whatever animates the text (the mysterious *Wille* of the first stanza). Neuter, dispossessed, the return of the smile broken down into the body-language of gesture: “das Lächeln . . .” After the long pause, as if waiting for those five dots to grow into letters, a five-letter call does come, accelerating the vocatives (“Oh ihr” and “Du”) which began the last two stanzas into the renewed call: “Engel!”

The point of all this confused analysis is to show how freely elements in the text at different levels are involved with each other. As these relationships form from the play of signifiers in the spaces particular to language (phonic, etymological, associative), a text coheres not with the unified intention of expression, but with the grace of the larger milieu of language. Rilke’s mastery with language allows him not to serve as a conduit between life and language (where he would form the abyssal term in the chiastic movement) but between language as a whole and its elements or instances. The figures that emerge thus emerge out of necessity, as the consequences of the relations taken on by the elements during the work of composition or decoding the wind. As the elements are made to answer to the meaning they make, the space of play is constrained and likewise the development of the readable meaning of the text as a whole. The feedback between scales is not due to the system operating analogically to a material system (as an outside constraint of correspondence) but rather the dynamics internal to the system itself. What Rilke’s poetry shows, then, is that texture arises (or at least can arise) in a text as a result of the dynamics particular to language, not by direct imitation of the dynamics of material systems.

Very briefly, to conclude this already long-too-long thesis, I'll walk backwards (and make my own chiasmus) through the arguments already made in light of the textual texture described above. I have claimed that Rilke accesses virtual features in words by directing an intense attention to the *logos*, discovering virtual features and then actualizing them (adjectival nouns, transitive-intransitive play, ambiguous deployment of prepositions, etc). This resembles the way that he read Rodin's textured sculptural surfaces as always poised towards an external milieu. Likewise, the feedback of expression and emanation in the realm of language (or even poem and the figure it is immanently discovering) might be related to way an organism forges a niche by adapting to *and* modifying its environment.

Next to the phonographic idea, one can note that the vision of true *mimesis* is not as dead as it would seem from the deconstructionist reading. The problem of material mediation only makes it impossible that the image could be produced through anything like a direct translation. It cannot foreclose on the possibility that anything with the same qualities could be produced in the target medium, just that the relation would have to be more rhizomatic, more about the convergence of the expressive possibilities of two affective systems.

With Eliot, texture worked as an index of the affective capacities of a person and as the loose collection of signs with which that person appeared and it applied to both *for the same reason*. One might mention Rilke's *Weltinnenraum* by analogy to Eliot's textural interior and as a way to get from the external-orientation of Rodin's surfaces back to the inside of a person and to the texture of experience.

Finally, histology more or less rested on the assumption that the world the body inhabits could be captured or modeled by a text and by the limits of its methods of meaning. The search

for a correspondence between experience and structure at the level of texture had to go forward by the mechanistic logic that hoped to schematize the relations among the body's parts. With the establishment of the neuron doctrine, it gets what it wants, establishing a material basis for the semiotic logic in the reconstruction of extensive from intensive information. Life—at least our kind—evolves, in some sense, by taking up the semiotic stance. The sign, however, has its own logic and its own mechanics, entangled with but distinct from those of our composing matter. Texture names the possibility of the two systems having some common structural description by which their two manifestations—texts and bodies—might align as they seem to in the linguistically-mediated experience of the modern subject. Whether such an alignment is ever possible from within the limits of either system is the problem presented by the texts read in this thesis and worked by Rilke in the *Elegies*, where inspiration means both listening to the wind—the song of matter—and reading to the wind-as-sign, that is, as spirit, as the expiration of our long collaboration with the index. We are constrained to use our fingers.

Works Cited.

- Christian, Margareta Ingrid. "Saturated Forms: Rilke's and Rodin's Sculpture of Environment," *Objects in Air: Artworks and Their Outside around 1900*. University of Chicago Press, 2021, 71-109.
- De Man, Paul. *Allegories of Reading: Figural Language in Rousseau, Nietzsche, Rilke, and Proust*. Yale University Press, 1979.
- Kittler, Friedrich A.. *Gramophone, Film, Typewriter*. United States: Stanford University Press, 1999.
- Rilke, Rainer Maria. "Ur-Geräusch," *Das Inselschiff*, 1.1, Oktober 1919, 14-20
- Rilke, Rainer Maria. *Auguste Rodin: mit 96 Vollbildern*. Germany: Insel-Verlag zu Leipzig, 1920.
- Rilke, Rainer Maria. *Duineser Elegien*. Germany: Insel-Verlag, 1923.
- Pfau, Thomas. "The Epiphanic Image: Husserl—Cézanne—Rilke," *Incomprehensible Certainty: Metaphysics and Hermeneutics of the Image*. United States: University of Notre Dame Press, 2022.