Medicinal Plant Ontology in Pliny the Elder's *Natural History*

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Abstract

This thesis offers an interpretation of the ontology associated with Medicinal Plants as displayed in Pliny the Elder's *Natural History*. The goal of this study, broadly speaking, was to provide new ways of thinking about medicine by paying attention to old ways of thinking about medicine; narrowing the study of Pliny's work to the vegetal specifically gave a necessary focal point in an otherwise too expansive field, while not closing off the possibility of extrapolating conclusions about medicine beyond either Plants or even Pliny.

The unique array of medical and ontological ideas convened by Pliny are both distant enough temporally, and different enough practically and philosophically, to stimulate thought and beg for questions to be asked. At the same time, similarity has been found not to be lacking between medical thought then and now, which suggests the tenability of comparing two snapshots of Western medicine.

The main finding of this thesis is that transparency regarding what medicine is, does, and where it comes from is often segregated, and sometimes forgotten altogether, in the pursuit of health as a subject now sterilized from philosophy. A practical recommendation based on this finding is that the Medical Humanities may offer a much-needed bridge between the now otherwise divergent fields of philosophy and medicine. The implications for medical education and practice of a human society more curious of its own medical history are far-reaching and could only begin to be touched upon in this thesis. An overall statement can be made however, that philosophy needs to once again more fully permeate medicine as it seems to have in 1st century Rome.

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PART ONE: Author & Text

Why *This* Study of Pliny?

Through this thesis I explore Pliny The Elder's *Natural History* as a means of understanding how its underlying plant and human ontologies relate to and interact with the practice of 'plant-based medicine' therein. More broadly, I draw upon this text as a means of contemplating the concept of medicine itself. Thankfully, just when I was searching for a way to clarify the breadth of this last sentence, Dr. Kristi Upson-Saia visited the University of Manitoba campus from Occidental College to speak about why we should study the history of medicine.[1] One of the first slides she presented was a circular chart depicting the four humors, a model of human bodily constitution from the ancient Mediterranean world. Her point was swiftly made: as much as it makes for interesting talk around the dinner table (for the stronger stomached), we aren't about to drag black bile into the 21st century, nor as she mentioned is the medical humanities concerned with whether foxglove 'still works'—it does in fact, as a current source for several chemicals used in prescription medications for congestive heart failure. But that only makes the point more strongly; medicine doesn't need the medical humanities for that, and the medical humanities aren't trying to be medicine. What they are doing is trying to make medicine look at its shadow, and then in the mirror. Upson-Saia made a case for unsticking routines of education, and inevitably practice, by first identifying legacies of thought and value; these are the things that can't be accomplished in the scientific laboratory… not exclusively. The laboratory for the medical humanities is often, I think, right here: in the print that results from historical and philosophical exploration. If so, then this thesis is an experiment, it's only guiding hypothesis: *that medicine has yet to sift all useful wisdom from The Natural History of Pliny the Elder* (and it follows, the ancient world). It will become apparent later in this

[1] 'Why Study the History of Medicine, Health, and Healing?', accessed 7 January 2020, https://eventscalendar.umanitoba.ca/site/arts/event/why-study-the-history-of-medicine-health-and-healing/.

thesis that I allow myself great leeway in 'thinking' about all things medicine; new ways of thinking demand a wholehearted celebration of cerebration, in writing, this means letting loose all available linguistic and literary tools, all theoretical methods and materials, to break through sticking points in perspective. Indeed, this is already implicit in a project which picks up Pliny the Elder's *Natural History* to 'help' 21st century medicine! My writing plays off of Pliny's recorded histories of medicine, taken as a kindred collection of stories with sprawling tangled tentacular addenda, with the goal of eking out peculiar propinquities, noting notable nodes and giving a nod to forgotten knots between ancient and modern medical ontologies. This is, above all, my way of helping myself as an interested party in the practice of medicine; additionally, hopefully, my thesis may act as an exemplary engagement in cognitive calisthenics—the beautification (*kallos*), and strengthening (*sthenos*), through the medical humanities, of the medically minded. This thesis therefore acts primarily as the performance of an argument, the argument that the medical humanities are a beneficial rumination and a necessary theoretical sidecar for the practice of medicine. I offer my own reverie and brooding over Pliny's *Natural History* as an example of how woolgathering abstraction can condense into surprisingly relevant observations at unexpected junctures, and how we cannot know what those might be in advance—I certainly did not.

My Use of Sources

I began my study of Pliny by reading some very topically divergent secondary sources alongside *The Natural History*, with a rough hierarchy in mind of plants-ontology-medicine-Pliny-Rome. Early on I found that sources which focused on Pliny in general or *The Natural History* specifically (Libonati, Murphy, Beagon) kept their interest mainly on the intersection of Rome, literature, politics, and the identity of Pliny, while those that discussed plants and philosophy (Marder, Iriagaray, Haraway) ignored Pliny in favour of more prominent and pure philosophical figures from the ancient Greco-Roman world, the Platos and Aristotles. There are currently no sources in the medical humanities which direct their attention towards *The Natural History*, no sources which

think about Pliny in relation to the philosophy of medicine in the present day; as such, the many intersections where ontology, plants, and medicine come to a head in *The Natural History* have been left open for discussion. To be fair, speaking to medicine in the present was never the intention of these aforementioned sources on Pliny, whose authors obviously felt it necessary, as I might have, to first explicate *The Natural History* more appropriately as a product of its time than as a relevant encyclopedia. I am therefore indebted to my sources on Pliny specifically, for the sketch they provide of him, for their consideration of the what kind of text *The Natural History* was, and for their recommendations for how it might be used today far removed from its original context. My sources on plants and philosophy, which discussed some of Pliny's near contemporaries, were useful in bolstering the discussion of Pliny as a philosopher, to the extent that he was so, and really came to the fore in thinking about the relationship between medicine and ontology both ancient and present. This study also required the addition of a third set of sources from current scientific and medical literature, which acted well as counterparts for examples of medicinal plant ontology in *The Natural History* and made for a livelier discussion of medicine across time. As indicated above, at a certain middling juncture, modern medical relevance became my primary focus and superseded history writing and answering such questions as '*who was Pliny?*' or '*what was The Natural History?'* It became clear to me that the best way to extract additional use out of *The Natural History*, *for medicine and as a medical humanities student*, was to 'transcend' using it to reconstruct Roman life or Pliny. Part of this decision was made by the fact that previous authors such as Trevor Murphy and Mary Beagon had already committed long studies to those topics, treating *The Natural History* as a cultural artefact and political document,[2] and forming to the best extent possible the life of its author. Numerous other short and topically focused studies have added to our available interpretations of Pliny, the work of Emma Libonati on '*the object habit'* being one of the first I stumbled upon. I am thus fortunate to be able to reconsider already conceived notions of this text and author, rather than to construct them from scratch. Beginning with a review of these prior historical studies, and in light of their collective impression of

[2] Trevor Morgan Murphy, *Pliny the Elder's Natural History: The Empire in the Encyclopedia* (Oxford ; New York: Oxford University Press, 2004), 2.

Pliny's life and work, I use this collage of *The Natural History* and the world which it aimed to capture as a springboard into a philosophical consideration of its significance for medicine today. As mentioned, Pliny's early encyclopedia is only one of two primary sources which I utilize as 'recorded histories of medicine', the other being relatively recent articles from the medical sciences. These two are then assessed both creatively than critically, through the adopted lenses of various philosophical ecologists and post-humanists who I bring together from their studies on plants, environment and the planet, to discuss Pliny and the ontology of plant-based medicine for the first time. In the end, I construct my own exploratory creative work, a story if not a history. This 'turn' allowed me to breathe new life into what felt like a caged bird—the 1st century Roman medical world of *The Natural History*, as well as to speak more productively about medicine today. Medicine, and science in general, do not move forward in a continuous straight line, but in skips, leaps, bounds, and hiccups, in lateral slides and circular returns, sometimes dimensionally off the page. Medicine's connection to its own history is not a clear heritage of domino-like discoveries, which is why something like a comparative study of 'medicines' far removed from one another but connected by their humanness and the shared locality of this planet is always welcome. On this point I cede my opinion to Michel Foucault, who, in response to a question about the eruption of genius at unexpected times, reportedly both acted out and narrated his own notion of history:

> Foucault said, "History does not move like this," and using his index finger he made a movement in a straight line. "It moves like this." His finger randomly stabbed the air. He was indicating a total dispersion.[3]

This "frenzied gesture",[4] poking holes in the Spencerian notion of human history, was performed by Foucault one morning in California under the lingering auspices of a night in Death Valley with the fungal/vegetal derivative LSD. My somewhat circular argument, using a philosopher's thought gathered under the influence of a plant that

[3] Simeon Wade, 'Foucault in California [A True Story—Wherein the Great French Philosopher Drops Acid in the Valley of Death]', Heyday, 4 September 2018, 63, https://heydaybooks.com/book/foucault-in-california/.
[4] Wade, 63.

behaves similarly for individuals across time, to support a comparison of medicines not clearly connected in a linear way, is, I think, both fair and fitting.

Coming from a religious studies department, I tread with caution in my use of the word 'comparative', which has often failed to achieve any sort of disambiguation of the phenomena it assesses, or the people brought under comparison. I can thank my exposure to Deconstruction, Midrash, and ancient Indology and Buddhology for my favouring of this approach under certain circumstances, as in this instance, when the goal is a broad and critical reflection upon the state and direction of a (somewhat) secular, state governed, institution—as medicine now is. My insistence here is that under the auspices of overt awareness of the difference, correlation can be as fruitful a tool for academic study as causation.

Any writing that hopes to inspire change is inherently political, and I am not interested in pretending that my writing here does not flash political at moments; I do intend to affect, to be *useful* to the always ongoing discussion of the trajectory of medicine. What makes my writing only tolerably political, I hope, is that I have no firm trajectory in mind, only that this trajectory should result from medicine reflecting upon itself with more fervor, liberality, candor, and dare I say—fun. I must admit that what I think medicine was, is, should and shouldn't be, evades solid ground as I read, write, and think my way through medicine's past and ponder its future; I think it would be a good thing if more people were consciously less sure about what medicine is doing… where medicine is going; this all starts with a conscious questioning of where medicine came from.

The evasiveness of medicine as a 'matter of fact' practice also enabled something else to occur with this thesis: I was able to let go of 'getting it right', which equaled admitting to myself that I was consciously choosing which Pliny and which *Natural History* I would present, which ancient Roman medicine I would find within its volumes, which facets of modern medicine I would thus highlight, critique, and thereby promote. If I hold fast to any argument in this paper, it is my sense affirmed by researching medicine in both the 1st century and now, that the trajectory of medicine (and 'health' in all its latitude) is more so a series of individual human decisions, now leading us in multiple directions, than a series of agency-free discoveries of nature's medical truths heading

towards a singular, destined end. As the fittingly named ‘Carbon Based Lifeforms’ state in their song *Set Theory*:

> Do you understand what I'm trying to tell you?
> There are no answers
> Only choices[5]

If there is a firm difference between medicine then and now, it is that the privilege and dominion of choice has exploded. The power of human will to outgrow happenstance discovery and observation only increases as our ability to manipulate nature develops. We still observe, uncover, and stumble upon medically applicable natural phenomena, but this has become a sideshow to a purposeful medicine ‘making’ endeavor which is at best inspired by nature, not bound by its time-evolved organizational patterns. Pliny may have been able to make a case for a medicine that grows organically out of nature, but we are long since beyond healing as a happy accident, an act of the gods, or the product of an intelligent demiurge. This may have us wonder why we should look to ancient medicine at all, if we have appointed our collective selves to the post of medical demiurge. But we are still looking for what to make of medicine, and more importantly, for answers as to whether we should or should not inflict our various medical fancies upon the order of the universe. For this we need to look sweepingly and curiously at the history of human interaction with the planet. Like the artificial reinstallation of greenspaces to Bangkok I regard below, medicine has the ability and burden to move, not blindly forwards and upwards like a skyscraper, or quietly backwards in a resignation of human endeavor, but rather in a way that shows conscious awareness of its precedent.

The Environmental Imperative

Speaking of 'the future', writing about plants and healing in an age of imminent environmental (and now I add medical) crisis has made my politicking as much an

[5] *Carbon Based Lifeforms – Set Theory*, accessed 16 November 2019, https://genius.com/Carbon-based-lifeforms-set-theory-lyrics.

external requisite as a personal imperative; it has often felt as if I couldn't pick up a book without apocalyptic overtones, and filled with 'what-we-must-and-mustn't-dos' to avert, reduce, reverse, or simply come to terms with the planetary hand we have dealt ourselves—to 'stay with the trouble' as Donna Haraway suggests. But this is the world we live in. As I write, my wife works in the coastal Southeast Asian metropolis of Bangkok, which by current computer rectified models of satellite elevation data, will be completely under water in thirty-one years' time, displacing millions.[6] Once again, ironically, more optimistic timelines for the fate of coastal settlements had been based on elevation calculations which had *forgotten to account for vegetal being*, the height of trees and the effects of soil erosion due to deforestation.[7] Sadly, it seems, even when we look at the planet with an eye to environmental concerns, we struggle to fathom the significance of plants in our mathematics, one more example of how looking down at the Earth from above, via ontological flight or satellite, is troublesome. It is also important to acknowledge however, that revisiting the thinking and the science behind our projection is what brought us to our current understanding, and what may potentially bring us to a solution down the road. In Bangkok's case, the reintroduction of nature to urban sprawl has begun in an attempt to mitigate flooding. Water management parks are now beginning to occupy formerly prime real estate, valued in the hundreds of millions, within the city limits.[8] The skyscrapers which marked the success of the economy, but whose sheer weight continue to press down the highly compactible clay around the Chao Phraya River basin, are being set aside for gardens full of native flora designed to funnel and retain water that would otherwise run freely through city streets. Uncontrolled water extraction which has exacerbated land subsistence is beginning to be regulated, in a growing awareness of the effects of short-term landscape manipulation on the long-term sustainability of human society and culture. In the broadest sense, the city is also

[6] 'Bangkok's Sinking Truth', The ASEAN Post, accessed 7 January 2020, https://theaseanpost.com/article/bangkoks-sinking-truth.

[7] Bangkok Post Public Company Limited, 'Revised Forecast Puts Bangkok Underwater by 2050', https://www.bangkokpost.com, accessed 7 January 2020, https://www.bangkokpost.com/thailand/general/1785569/revised-forecast-puts-bangkok-underwater-by-2050.

[8] Leanna Garfield, 'Bangkok Is Sinking, so It Built a Park That Holds a Million Gallons of Rainwater to Help Prevent Flooding', Business Insider, accessed 7 January 2020, https://www.businessinsider.com/bangkok-park-holds-a-million-gallons-of-rainwater-to-prevent-flooding-2018-7.

healthier for it, with trails and recreation areas for exercise, trees offsetting pollution and cooling the otherwise concrete laden metropolis, and vegetation and soil filtering and detoxifying water that ends up in drainage ponds. Having been to the park at Chulalongkorn University I can attest to the fact that it looks neither exactly like nature nor exactly like a human cultural phenomenon, but rather like something in between the two: a hand shake between the former combatants of sustainability and progress, between an understood past and a tentatively hopeful future.

In defense of what is to come then, and with medicine on the mind, I argue the obvious, that history comes to be onerous upon our future, and that we must accept this into the fold of our writing. To state this in religious studies terms: how belief affects praxis, and praxis planet, is now a binding spell cast whenever the word 'Earth' is uttered—***SOSPITO NATURA!***

Encyclopediaphobia: Emma Libonati and 'The Object Habit'

My fear about reading a big encyclopedia, aside from the fact that it sounded like my childhood nightmare come to life, was that 'encyclopedias' in my experience weren't especially thoughtful in their treatment of the subject matter they collected. Encyclopedias are by their nature a game of numbers, and like a phone book (no pun intended), the goal is to include everything; so as voluminous as they may be, a compromise is always made between depth of content and the sheer number of entries. You can't write 'about everything' and write 'everything about everything' as well, or literally *as well*. One of the first sources I took up on *The Natural History*, seemed to ratify my fears about big bad books, or amplify them. Emma Libonati's "An Aspect of the Object Habit: Pliny the Elder, Audience and Politics", reads Pliny as a curator of cures, or all material and mental objects, whose primary concern with the plants he curated, was political. Libonati grazes over much or all discussion of content beyond the basic fact of its inclusion; her point is to springboard into a discussion of the socio-cultural meaning of objects over time and across the audiences that curate them. Pliny, for Libonati, was a literary colonialist, writing objects into the ownership of the Roman

Empire, but her assessment, in many ways, amounts to a performance of the accusation she makes against Pliny—a taking in hand of Pliny's text as an object for a prefigured purpose, a succumbing to the object habit. Summarizing *The Natural History*, she writes:

> The text does not differentiate between Praxiteles' Apollo Sauroktonos, an Egyptian centaur preserved in honey, or a certain type of magpie. Pliny's universalist approach to objects, documenting both the banal and the fantastical (mirabilia), is necessary to the ideological goals of the text: what is known is entirely dependent on Roman power and control over the physical world.[9]

I disagree with this tapered assessment, because at certain moments Pliny lets on that he is acutely aware of the limitations of Roman power. For instance, he writes:

> I shall not myself pledge my own faith, and shall preferably ascribe the facts to the authorities who will be quoted for all doubtful points: only do not let us be too proud to follow the Greeks, because of their far greater industry or older devotion to study.[10]

Pliny, if we are keeping tabs, indeed seems to have captured intellectually many objects for the Roman Empire, and if we were to accept Libonati's assessment that this was the most significant of Pliny's motivations for writing, or that he could have been successful in this goal if it were (to *capture*, instead of to share, reveal, ponder, collide, intertwine), there would be no reason to investigate further regarding Pliny's non-human ontologies: the vegetal, botanical, or herbal, the animal and mineral, the sym-bio-medical. But should we stop at this assessment? The answer really depends upon whether you think a human being is capable of writing one-dimensionally, by personal desire, sheer accident, imperial expectation or otherwise. I can think of no more difficult a task than

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[9] Emma Libonati, 'An Aspect of the Object Habit: Pliny the Elder, Audience and Politics', *Museum History Journal* 10, no. 2 (2017): 128, https://doi.org/10.1080/19369816.2017.1328791.

[10] Pliny The Elder, 'Natural History', trans. Harris Rackham, Loeb Classical Library, bk. VII.ii.8, accessed 7 July 2019, https://www-loebclassics-com.uml.idm.oclc.org/view/pliny_elder-natural_history/1938/pb_LCL392.323.xml.

performing a singular consistent ideology throughout, of all things, an encyclopedia. *The Natural History*, I found increasingly, subverts the ideological goal of an imagined dependence for knowledge 'on Rome alone'; it does so through its exposition of interconnectivity, its re-iteration of fascinating multi-species medicines, its ongoing ontological mash-ups, and its both intentional and inadvertent intertextuality. This is not to mention that we also contribute by our own reading to a subversion of former receptions of *The Natural History*, be they intended or actual. Libonati expands on her earlier comment, writing:

> This paper looks at an aspect of the 'object habit' by considering the motivations behind an ancient technical text, Pliny the Elder's *Natural History*. The text is an 'encyclopaedia' of knowledge covering a vast range of subjects and approaches by studying objects including things found in nature and worked by man. For Pliny, these phenomena shared enough to be considered together while presenting an inventory of the resources in the Roman world and thus controlled by the emperor Titus (AD 79– 81), to whom the work is addressed. The collection of knowledge for Pliny is a political act. *The Natural History's* collapse of distinctions between objects, animate or inanimate, worked by man or in a natural state, as well as its insistence on political motivations for collecting objects and knowledge, serve as starting place for considering the 'object habit' and the impact of politics on collecting.[11]

But where Libonati describes Pliny's work as 'collapsing distinctions' between objects, for better or worse, this assessment needs more unpacking. To say that the phenomena of nature 'shared enough' in Pliny's eyes to be considered together in *The Natural History* as an aside to a Roman cataloguing project makes this 'collapse' appear problematic more so than potentiating. Is Pliny's tethering of all manner of being really just an accidental or instrumentally necessary mashing of political possessions under one imperial roof? Or is the Roman cosmos actually just that integral to this Roman author? Can it be both? If so, another language is needed to describe the messy multispecies

[11] Libonati, 'An Aspect of the Object Habit', 127.

collisions which appear in Pliny's catchall catalogue, both to think about what they may have meant to Pliny and his Roman audience, and to imagine what they could mean for us today.

The Artefact: Trevor Murphy's Take on Pliny and the *Natural History*

Trevor Murphy, in his 2004 study 'Pliny the Elder's *Natural History*'[12], considers *The Natural History* as a Roman artefact, and is thus a good place to continue from Libonati. Subtitled '*The Empire in The Encyclopedia'*, what starts by sounding like a more elaborate 'Libonati-esque' argument for Pliny as a politician, and *The Natural History* as the result of a politician's life, ends up going in surprising directions. Murphy speaks to the many other functions of the text and the empire it reveals, not just politically but philosophically/ontologically/relationally, offering much to a discussion of medicinal plant ontology based in *The Natural History*.

Murphy One: Biographical Fraud

Murphy, and I agree, does not believe it to be possible to find a single consistent voice in *The Natural History*, and then to know that voice to be authentically Pliny's rather than a rehearsed or regurgitated register, or merely one of an ephemeral many that surface and retreat. As Murphy aptly states, "the harder one looks for the real Pliny the farther he seems to retreat into clouds of self-contradiction, and the more any attempt to describe his intellectual position has to resort to terms like 'eclecticism' or 'pragmatic Stoicism'."[13] The only problem with denying oneself access to Pliny is the fact that Pliny's existence or authorship are not in question; he is slippery but not enough so to be semi-mythical. So, Murphy, like me, must surmise *something* about this rather prominent Roman compiler in a more roundabout way, and he must do so while taking any of his own conclusions with a grain of salt. The result is that Murphy both implicates Pliny in a

[12] Murphy, *Pliny the Elder's Natural History*.
[13] Murphy, 11.

certain ideology, and also suggests that any claim to truly know Pliny as a thinker and writer is bound to be somewhat fraudulent. Murphy reckons that "Pliny's implication in the dominant ideology of his time is clear not only in his encyclopedia, but also in his political career, his other writings, and even in his working habits";[14] In other words, taken alone, Pliny's life reinforces the dominance of his 'Romanness' in all that he did. His political service to the Empire, the genre of his other written works, which all speak indirectly to Roman power, and his loyalties professed in the preface to the encyclopedia itself, are all evidence that *The Natural History* is an instrument that was intended to parade that power literarily. Additionally, Murphy gathers from Pliny's known working habits as offered to us by Pliny's nephew, that first-hand observation does not weigh heavily in *The Natural History*, "almost all of the *Natural History*," says Murphy, "could have been written by a man who never set foot outside his library".[15] But countering himself, Murphy describes how Pliny's career "was also very good preparation for writing a book like *The Natural History*",[16] and that "Pliny was not always in his library",[17] a seemingly large understatement. Summarizing Pliny's career, Murphy writes that Pliny spent time as an *eques* at Rome's periphery and centre, a broad expanse to be sure, filling positions as cavalry officer, provincial financial administrator and counsellor in many provinces and territories, "in direct contact with subject peoples"[18], gaining and using "first-hand knowledge"[19] of the military and fiscal tools of Roman power and how they operated over "vast" distances; "his encyclopedia reflects those experiences"[20] says Murphy. The simple summary of Pliny as author to *The Natural History*, is that the two together, Pliny and text, reveal what might result from a quintessentially Roman man taking up the mental occupation of structuring the world and the things within it. His life seemed to sample the undertakings available to many Romans with similar opportunity; Roman historians can only hope that his work contains a percentage of each of these aspects of Roman life, historians of Pliny maybe a touch more. Where he was not quintessential perhaps, was in his apparent interest in *all things* rather than merely some,

[14] Murphy, 2.
[15] Murphy, 5.
[16] Murphy, 4–5.
[17] Murphy, 5.
[18] Murphy, 5.
[19] Murphy, 5.
[20] Murphy, 5.

as his summary of *The Natural History* as '*hoc est vita'* suggests, his goal was to compile and commentate nothing less than life itself. It is not the case that every man of his class compiled a natural history, and this makes him exceptional; we are, however, left to draw conclusions about what this exceptional production implies. There is a certain ecstasy over life that bubbles forth from the pages of *The Natural History*, an excitement which cannot be reduced to trivial travail over an imperial imperative. Is it possible to say that Pliny gained the avidity required to produce *The Natural History* from anywhere other than his very active life up to and during his period of writing, editing, and compiling it, or, that his keenness for knowledge was not itself a motivating factor in his career success? On the one hand we have Pliny's prototypical Roman career, his deferential preface, and his not-infrequent pro-Roman tone throughout *The Natural History*. On the other hand, Pliny, even *while* writing, seems to have favoured nature over library. By all accounts, his library was mobile and verbal; Pliny walked, worked, bathed, and travelled while coordinating *The Natural History's* 'putting-together', and one wonders in fact how frequently he ever gathered his own source materials from his library, or whether he simply sent for them whilst keeping on with his routine.

As regards his motivation, Pliny writes to Titus in his preface something which might give us insight into an inclination supplementing or exceeding patriotism:

> Nor do we doubt that there are many things that have escaped us also; for we are but human, and beset with duties, and we pursue this sort of interest in our spare moments, that is at night—lest any of your house should think that the night hours have been given to idleness. The days we devote to you, and we keep our account with sleep in terms of health, content even with this reward alone, that, while we are dallying (in Varro's phrase) with these trifles, we are adding hours to our life—since of a certainty to be alive means to be awake.[21]

This smacks of a man who is at least as curious as ambitious, pursuant of a labour of love and the fulfillment of a philosophy of life—an attempt to be fully awake.

[21] Pliny The Elder, 'NH (Rackham: LCL)', bk. pref.18-19.

Murphy Two: The Strange Symphony of Pliny The Elder

Murphy points to a connection between three ancient technologies whereby knowledge was proven: maps, triumphs, and literature. But there exist some important distinctions between *The Natural History* and an ancient triumph or publicly displayed map of the known and conquered world. In some ways, *The Natural History* looked quite like a Roman triumph or map, both of which seem to proclaim, *'Look what Rome has made available for you to see!'* But we should also note that both triumphs and maps were much less shapeless and meandering than *The Natural History*. A text may be considered in part as a supplementary addendum to the many explorations and wars, or to the resultant triumphs and maps of an expanded Empire, but it would be wrong to think of a triumph and a text as simply *equivalent*. The voice of an author, as Pliny puts on full display, had the ability to undermine in so many ways the touting of Roman power that the silent map or orderly procession did not; this is why rulers such as Nero made it difficult for certain authors to publish, and why Pliny did not publish *The Natural History* or anything potentially controversial during Nero's reign. Pliny's "literary retirement"[22] during the reign of Nero became an *amicitia principum*[23], an official counsel to Vespasian and Titus, under whom he completed his encyclopedia. And when he did write and publish, thanks to his meaningful guise of Roman patriotism which sets the reader at ease, the reader may have been none the wiser—nor Pliny himself perhaps, to the ways in which the text strays from this tidy triumph. Pliny does not offer your basic accompanying pamphlet to Roman conquest and power, and his "associative drift",[24] makes for more informational networking than any map could contain, or any triumph display comprehensibly to a Roman audience. As Murphy says, "the thirty-seven books of the encyclopedia articulate the world as a web of divisions and affinities".[25] Triumphs move in relatively straight lines, maps are static snapshots; Rome and the Cosmos as seen through Pliny's aperture is of an order of entanglement that neither map nor parade could

[22] Murphy, *Pliny the Elder's Natural History*, 4.
[23] Murphy, 4.
[24] Murphy, 24.
[25] Murphy, 29.

equal. The "precipitous decension"[26] of Pliny's rhetorical prose comes across as an over caffeinated colour commentary—*Robin Williams from Good Morning Vietnam… Robin Williams from anything really*—transposed to narrate the history of Roman triumphs. This colourfulness often detracts from the triumph itself; each run-away sentence untethers the fixedness of Roman power, like a lude satyr or loose tiger in the triumphal procession, drawing everyone's attention hither and fro. Pliny's trailing off reveals the difficulty perhaps in both pursuing an expansion of imperial power, and at once desiring a certain stability of that power. Murphy asserts that we must admit this discontinuity as part of the deep structure of the work. The intricate aesthetic appears too thorough not to be a deliberate choice, and we should allow ourselves to consider them as a structural replication of the interconnected cosmos Pliny wished to encapsulate. Pliny's "hyperbolic digression",[27] his "diffuse and miscellaneous" commentary,[28] and the "whimsical gigantism"[29] that defines *The Natural History* as a whole, might just be a successful panorama of the poetic and permeable cosmos as Pliny imagined it, and as Rome could comprehend it.

It appears problematic when we first notice that *The Natural History* is both the triumph *and* the lude satyr in the triumph, but this resolves itself when we embrace the possibility of a different notion of power. Roman power, if we let Pliny be our model citizen, arises from the ambition to know, record, and possess… but not from this ambition *alone*. Alongside and forever married to this ambition is an insuppressible awe at what is seen and captured; I like to think that this awe came before the ambition and remains the greater force (Pliny provides much evidence for this). These two, ambition and awe, are rounded off with enough curiosity to constantly poke holes in the fabric of imperial power as it is woven, even whilst the Roman triumphal banner made from that fabric is held high.

Two Continued: Text as Cosmos

[26] Murphy, 35.
[27] Murphy, 31.
[28] Murphy, 32.
[29] Murphy, 34.

Murphy provides the following example from *The Natural History*, which I restate for its seeming mundanity and unrelatedness to medicine proper, even falling outside *The Natural History's* sections on medicine. This perceived 'falling outside' on the part of anything foreign and unrecognizable is a bias towards modern conceptions of medicine that I held, and which is, I believe, commonly held; it therefore becomes relevant to start considering what 'health-relevant' thought has been ignored in our modern narrowing of the concept of 'medicine'. In the example below, what transpires in the span of a single one of Pliny's paragraphs is a remarkable lesson on relevance, a series of lateral maneuvers that acknowledge Rome as expected, but if we look closely, also reveal a certain understanding of origin, being, health, and the integrity of relationships amongst aspects of the cosmos, however unapparent to the modern medical eye:

> How strange that the barbarian tribes that subsist on milk either have not known or have scorned for so many centuries the benefit of cheese, but in general coagulate milk into a tasty sour substance and fatty butter… the cheese most highly prized at Rome, where the goods of all nations are judged side by side, is from the provinces of Nemausus… it can be understood that there is salt in pasture grasses, even when not apparent, because all cheeses become saltier as they age, even as they regain their fresh taste when soaked in vinegar and thyme. They say that Zoroaster lived for twenty years in the desert on a cheese so compounded as not to suffer the effects of age.[30]

This example shows how the Cosmos is strung together according to Pliny, who ventures into defining norms and standards, allowing stray thoughts on extended and peripheral value to seep in and participate, and offering stories to make human sense of non-human entities which occupy space in human cultural life. In this example, we are shown not just what cheese is and is not to a Roman, but also given a sense of the value of pasture-grass-fed cattle for the nutritional value of their dairy; Pliny even parlays simultaneously, with a story of Zoroaster, a feeling of religious continuity born by cheese

[30] Murphy, 19.

across time and an example of a food bearing anti-aging properties via its sheer density. When a Roman eats cheese, they are participating in an ecology, consuming the rarefied essence of a salty, mineral rich plant, processed through the transformative and integrative power of an animal, and selectively cultured by a certain nation of people into a unique product to be compared amongst other cheeses at Rome. The consumer of cheese is nourishing their body on the very same compounded substance that preserved Zoroaster in the desert, and thus perhaps nourishing their soul too, and one is inclined to connect the immortality of religious wisdom with the extended longevity of the wise who consume this cultured and culture laden milk derivative. With the simple example of cheese, we saw that while Rome may have been the collection point for determining taste and quality, the true originating power was actually firstly grass, secondarily the cow, and only thirdly a human—not a *Roman* mind you, but someone from a peripheral province. Likewise, the stories of other nations and of Zoroaster teleport the reader away from Rome. Rome's power is therefore put in its place as a specific *kind* of power which only comprises one aspect of the many-faced power of the cosmos. Furthermore, the power Rome does have is shown to be dependent and not originary. A blade of grass is owed as much a debt for cheese as Rome itself. Unassuming examples like this in *The Natural History* do not just counter ideas like 'the object habit', they make them utterly nonsensical. It is my impression that the Roman concept of 'Power' was a thing we greatly fail to comprehend in all its richness, and one need only look as far as household food items to deconstruct the simple 'central' notion of power we may attribute to this ancient civilization. Pliny's writing suggests that, with notable exceptions such as Nero, Roman 'Power' was able to tolerate, or even willing to encourage its own destabilization in the name of seeking to know and experience not exclusively Roman World in all its richness.

If we suppose that Pliny has merely tried to organize intellectually what Rome controlled militarily, we are soon faced with a problem. As we see when comparing *The Natural History's* own index with its contents, something has gone awry. The Roman power we might have assumed the text to display, is dispersed in as many directions as it was gathered from. Did Pliny set out to mislead his reader on purpose? Did he feel compelled in writing an encyclopedia to provide a tentative structure, and then equally

compelled to break it? It is as if Pliny's account of Nature and Life is resistant to indexing, and as soon as Pliny begins to write the body of his text, sometimes *within* the index itself, he has surrendered his headings to his gnarled and nifty universe. Perhaps my favourite of these 'index digressions' is what reads like a poem on fish:

> Fish that have a pebble in their heads;
> Fish that hide in winter;
> Fish that feel the influence of the stars;
> Extraordinary prices paid for certain fish.[31]

As Murphy relates, "in *The Natural History* you can read about fish as portent, as commodity, as food, as medicine—not fish as they are, in short, but fish in their importance to the Romans."[32] *'Fish*' is the connecting thread here, and that is enough for Pliny; a fish is not simply a fish in *The Natural History* but a node, a chakra, a keyhole to the universe as a whole. The cosmos manifests itself literarily through Pliny's thinking of fish, which we must assume to be a written projection of the actual cosmos according to Pliny. This is the case throughout all thirty-seven volumes; if the text was compiled with an eye to 'importance to the Romans', this only means that the Romans held the 'feelings of fish towards the stars' to be as important as 'the value of fish to the economy'. However odd we might find it, such confluence can at once be a statement of ontological truth and a fact of political relevance, we need not separate the two for their inherent tension.

To follow Pliny across any of the ontological lines he traverses is to go on an imaginative spin oneself, Murphy writes:

> Animals, plants, the elements, and other similar symbols are counters or vehicles that enable certain patterns of thought. When they are studied for what they enable us to think, these imaginative systems can lead us on in turn to important patterns of culture, the rules according to which the game-pieces are to

[31] Murphy, 36.
[32] Murphy, 7.

be moved.[33]

Be it cheese, fish, flower or farmer, Pliny's index offers opportunities to adopt and then dismantle categories of thought, sometimes before we even depart the index itself. We are eased into entertaining an imaginative system from another time and place by the misleading presence of an index, as if Roman 'Life' could be bound literally and figuratively in a manner easily digestible to us today. A 'game-piece' like the plant *maidenhair* might lead us down a contemplative road, from cockfighting, to not-yet adolescent boy urine, to land at last on concepts of youth and vigor. An indication of the uses of *aconite* might drag us into the underworld; a fruit tree oppositely might lead us to gaze up at the heavens. From here, who knows what contemporary connections we ourselves might leapfrog into. In doing so we learn something about both Roman thought patterns and our own. *The Natural History's* index, we can say, reflects the Roman predicament resulting from its absolutely integral worldview meeting its practical goal, it is an attempt to artificially apply order to, and make humanly intelligible, a pluralistic cosmos that fights the empire and the encyclopedist every step of the way. Pliny doesn't seem to have very successfully applied an external order, as his index would imply, but rather begun a task that could never actually be completed—to represent the cosmos in all its complexity and unity. In *The Natural History*, representing life 'as it is' is held in tension with "aspirations towards rounded perfection";[34] whether Pliny felt the pull of such tension can only be inferred from the text we have before us, but his life, compilation method, and all aspects of the text itself, from style to its sheer length and breadth, admit a certain awareness of having undertaken such an overwhelming and unreachable goal. Again though, we can speak to our own awareness of this feeling in reading the text, and can make a value judgement regarding whether it is useful or desirable to write in such an uncomfortably ambitious manner today. One thing is certain, and *The Natural History* hyperbolizes this: life writing is a human occupation that pushes for two contradictory goals simultaneously. The first of these is obvious, to objectify and reify knowledge "by removing it from the uncertain sphere of play and speculation, and

[33] Murphy, 7.
[34] Murphy, 13.

rendering it stable and quantified";[35] this is a material fact of the printed book that needs no 'empire' to be true. Secondly, and this should be equally apparent although it has been grossly understated in studies on Pliny, is the fact that on account of its difference of arrangement, its breadth, variety, and awesomeness, such writing (on medicine for instance) can and does, knowingly and unknowingly, force the reconsideration and recalibration of current and later systems of objective quantification—such as our own today. That is why, with this second goal in mind, I personally think the best way to bring *The Natural History* into a discussion of medicine today, is to continue Pliny's "willingness to see significant correspondences between different phenomena"[36] and to adopt, however awkwardly and tentatively, a medical ontology that approximates a Plinian reading/critique of medicine.

Plant Medicine *in Particular* (if that can be said)

Instances of plant medicine in *The Natural History* give us a new way of looking at the structure of the Roman world that betrays the divisions found in Pliny's own index. The encyclopedia is said by Pliny himself to be broken down into several tidy categories: heavens, geography, humans and animals, plants—leading into a large section on medicines of all sorts, and finally rounding off with metals and minerals. This however can be proven incorrect in a single instance of plant-based medicine, which might relate a certain location, a concoction necessitating an animal ingredient, a specific kind of metal utensil, or a careful human ritual of acquisition under the eye of the heavens. The index thus offers "a misleadingly tidy picture",[37] of the world Pliny actually presents beyond it, and the books on plant medicine, as much as anywhere, are riddled with the reality of individual cases or facts diverging from convenient order, jumping across categories, and contradicting norms or normalcy (like fish or cheese); all this is accepted in the name of health. This really gets to the heart of the matter for our ontological concerns in relation to medical modalities in the present. In 1st century Rome, medicine, *to be medicine*, was

[35] Murphy, 14.
[36] Murphy, 37.
[37] Murphy, 30.

left to define its own parameters, which were not restricted by, but rather operated in conversation with ontologies; an effective medicine might define an ontology, as much as a preexisting ontology might dictate a medical theory or practice. This is why one cannot pin down the specific location of 'medicine alone' in *The Natural History*; it is diffuse, redefining taxonomies and ontologies while it is described. The relevance for us today, is that this appears to be true as much so for medicine presently as in the 1st century. Medicine renovates ontologies in its production and evolution, and relies upon them likewise to guide its imagination, research, and practice. The difference is that in *The Natural History* medicines are offered up with ontological rationale fearlessly and unapologetically; this allows a certain transparency to flourish, where today there is only an opaque ontological sterility.

Murphy Three: Marvel, Myth, Paradox, and Lie

Before we get to the content of *The Natural History* itself, or to my use of it, it is pertinent to consider just what sort of content we are dealing with. For, it is not the case that much of what Pliny counts among his 20,000 'facts' today, would be considered factual by today's standards. Many things he says are unverifiable, or sometimes by our measure, verifiably wrong; this goes for medicinal information as much as anything else. What pragmatic article then are we to find for today's physician, researcher, or ethicist even? The answer is that we are not looking for a 'thing', a 'content piece', or a 'fact', but rather a *way*—a way of putting knowledge amidst its unruly neighbors of marvel, myth, and metaphor, between paradox and flat out untruth; it is only alongside this lineup of sordid characters that we can correctly identify and describe the nature of our knowledge and our relationship to its use. As Pliny shows, the 'nature of Nature' is not straightforwardly accessible through fact, but, some best approximation of Nature is possible by exploring what we think we know to its very periphery, and mapping where our knowledge seeps into uncharted territory.

Murphy singles out a particular literary phenomenon found in Pliny, in a section

he calls "The Necessity of Marvels".[38] Pliny's inclusion of the marvelous speaks to the need to keep the imagination close at heart in historical and non-fiction writing. Limits and values come to the fore when we are faced with antithesis and contrast, extremes and peculiarities that we don't know where to place. Pliny's non-fiction becomes more relatable because of its flirtation with fiction, as "contrast with the abnormal circumscribes the limits of the field of the normal by implication".[39] If we don't know what perturbs our sense of normalcy and acceptable reality, we become aware through what strikes us as abnormal or unacceptable when faced with it. This is a lesson we can extract for the sake of a modern medicine against which little is set in opposition. The questions that come up in sections on plant medicine in this thesis, the questions that I had, were often of the nature of inquiring into norms and boundaries, and intended to offer perspective on broader medical aims and guiding values, questions of ontologies seemingly implied but unspoken in the practice of medicine. Murphy holds that "part of the pleasure of reading about wonders is that, after the initial effect of strangeness and astonishment, they are reassuring and even soothing";[40] but, for the purpose of this study, I would like to take the potential for wonders in a different direction. In the case of medicine throughout time, where strangeness is always in a process of becoming commonplace, and where progress implies getting comfortable with the strange and new, what we as patients, physicians, scientists and *humans* really need is the opposite of soothing. Science demands exposure to the strange and adaptation to our own astonishment at it. We thus do not require comfort as much as *discomfort* from those who are to write about medicine. Murphy expands on paradox, saying, "despite its sensationalism, paradoxography has a conservative tendency. Reading about uncertain margins of knowledge contributes by contrast to the solidity of the familiar and the close-at-hand".[41] This is one side of the coin. I would argue however, that today the idea of 'the solidity of the familiar' should be shaken theoretically, as a preparatory practice, in order that we not be taken aback when faced with the absolute falsehood of the idea of solidity—*keep the familiar close keep the unfamiliar closer*, would be a useful motto.

[38] Murphy, 18.
[39] Murphy, 19.
[40] Murphy, 22.
[41] Murphy, 22.

I do agree with Murphy that "unverifiable knowledge has value, although of a different kind from the value of more verifiable knowledge. It is not a truth, but a gesture signifying completeness"[42] As a gesture, the inclusion of imagined trajectories, borders and histories, of faint cultural memories and projected possibilities, is both reassuringly familiar and startlingly insightful. From a medical perspective, I would suggest that if we are only reassured or comforted by what we read, then we need to be reading something else. Writing from the medical humanities should bring awareness to where we stand by first making us question our footing—we can use Pliny to instigate this questioning if we commit to reading *The Natural History* for the everyday uncanny it lets us see in our present medical ontologies. What is the tenured outcome of our scientific research? The logic behind any certain procedure, The point of medicine in this or that instance, or at all? How many individual and unique goals, complimentary and not, are there guiding how many hopes for health? Without the art of straying from the 'soothing' centre of knowledge, medicine is alone, adrift in a literal world, willfully ignorant to the past simply because it is incompletely painted, and equally blind to the future because it is as yet imaginary but we have failed to imagine it. Values, ethics, goals, and reasons act upon the present but are formed in consideration of past and future time. Some would call this lying. Oscar Wilde once listed Pliny as one of history's great liars,[43] and we would be hard pressed to disagree. So much of *The Natural History* works at the construction of novel and alien edifices, however old they now are, which at first have us in awe, before we recognize their component parts in our own cultural constructions, our own medicines. The whole text of *The Natural History* is one big metaphor for the cosmos, formed from thousands of smaller ones, or proven by them. From it we can guess about Pliny's ontology, but we can also hypothesize about our own. Pliny's work was a hopeful project, a "joyful flirtation with chaos"[44] whereby one lies in excess, with faith that it will in part be true, or that some truth will come to the surface over and above the lie, or that at the very least we will know through and through the lie to be so, thus clarifying the truth.

[42] Murphy, 20.
[43] Murphy, 41.
[44] Murphy, 40.

Terrestrialization of Thought: Pliny's Curious Eye

While in its worst sense, *curiosus* was used in Rome to denote "peering through stranger's doors", "reading private correspondence", and "snooping on secret rites"[45]… in essence *spying* and *informing*, currently our best investigations of plants in nature, summaries of which include Diana Beresford-Kroeger's *To Speak for the Trees*, Emanuelle Coccia's *The Life of Plants*, and Daniel Chamovitz's *What a Plant Knows*, amount to precisely this: spying on the secret rites and private correspondences of the vegetal strangers we call plants. To our surprise, plants have been spying on us too, which may lead to us thinking about the thinking of plants *differently*.

But beyond plants (*if that can be said*), most of what we have collected as information to guide our hypotheses and form our theories about the natural universe overall is the result of meddling in things not specifically related to our own everyday interests, but neither related to anything we might relate to spiritual aspirations. Sometimes what we learn comes to be medically applicable, sometimes culturally useful, sometimes it seems, what we know is not directable to anything at all, it is just *information*. Much of what we have come to know collectively and cumulatively then, is, depending on who you ask, vacant of meaning… personally impractical… accidental… excessive; the Romans had a word for this: *superuacua*. We cannot say precisely where this, as Plutarch called it—"bittersweet itch"[46] arose from, but argument over what counts as a good or bad expression of *cura* has been carrying on long enough for Aristotle to have said in his metaphysics that all men desire naturally to know[47], or Cicero that our love of learning is innate[48]. These are both neutral spins on the idea, but some ancient authors such as Varro had been more admonitive, pointing to discipline and discrimination as key to avoiding an excess of curiosity—the futile and meddlesome variety. Of course, what amounts to a harmful inquisitiveness never escaped being the tool of religious, political, or philosophical argument; certainly, such debate did not slow

[45] Mary Beagon, 'The Curious Eye of The Elder Pliny', in *Pliny the Elder: Themes and Contexts*, ed. Roy K. Gibson and Ruth Morello, Mnemosyne, Bibliotheca Classica Batava. Supplementum. Monographs on Greek and Roman Language and Literature; v. 329 (Leiden : Boston: Brill, 2011), 71.
[46] Beagon, 71.
[47] Beagon, 71.
[48] Beagon, 71.

going into a Christian medieval Europe, nor with the advent of 'The Enlightenment'. As science ramped up ways to be curious and things to be curious of, so did the critics posit new criticisms of knowledge seeking and knowledge itself. It may be only now, in a largely secularly governed world, that we have given into this natural desire for indiscriminate inquiry without as great a caution or self-reprimand; the exploration for exploration sake of the sciences is no longer tinged with an air of espionage (*mostly*). It is also obvious, as we read the feedback of the planet and battle with our own scientific ethics, that the results of this freedom of curiosity have been mixed—*but I will get to that later*.

What this all amounts to when we look at Pliny, and when we think about plants, medicine, and ontology, is that where, when and how one directs one's gaze is thought to be key to understanding their religious or philosophical bent. By this connection of attention with intention, this section's hypothesis is that Pliny's ontology could be deduced or extrapolated from *The Natural History* by taking note of the direction, timing, frequency and longevity of his curiosity, his *spying*; this is what Mary Beagon proposes in "The Curious Eye of The Elder Pliny".[49] Pliny had said that nothing is to be deemed empty of purpose, meaning, or use, nothing '*superuacua'*; *how could this be so? What was he getting at?* Seneca had imagined objects of human interest as "stepping-stones"[50] from literally more terrestrial things: lands, sea, and tides, to things more elevated: the atmosphere, meteorological phenomena, and finally the divinity of the mind's eye. Pliny on the other hand, as Beagon points out, seems to embody the sort of "busy idleness"[51] which Seneca would condescend as fiddling with earth-bound minutia—the "useless furniture of learning".[52] Like the modern sciences though, Pliny's method evidences the idea that "something unique, and occasionally worth keeping, emerges simply from the juxtaposition of material",[53] and, not opposed to 'wonder' as a danger to the mind, Pliny rather offers the alternative that wonder "kickstarts reason to life".[54] A frequent visitation of nature, in *any* and *all* its aspects, *should* lead to wonder (not away as many of Pliny's

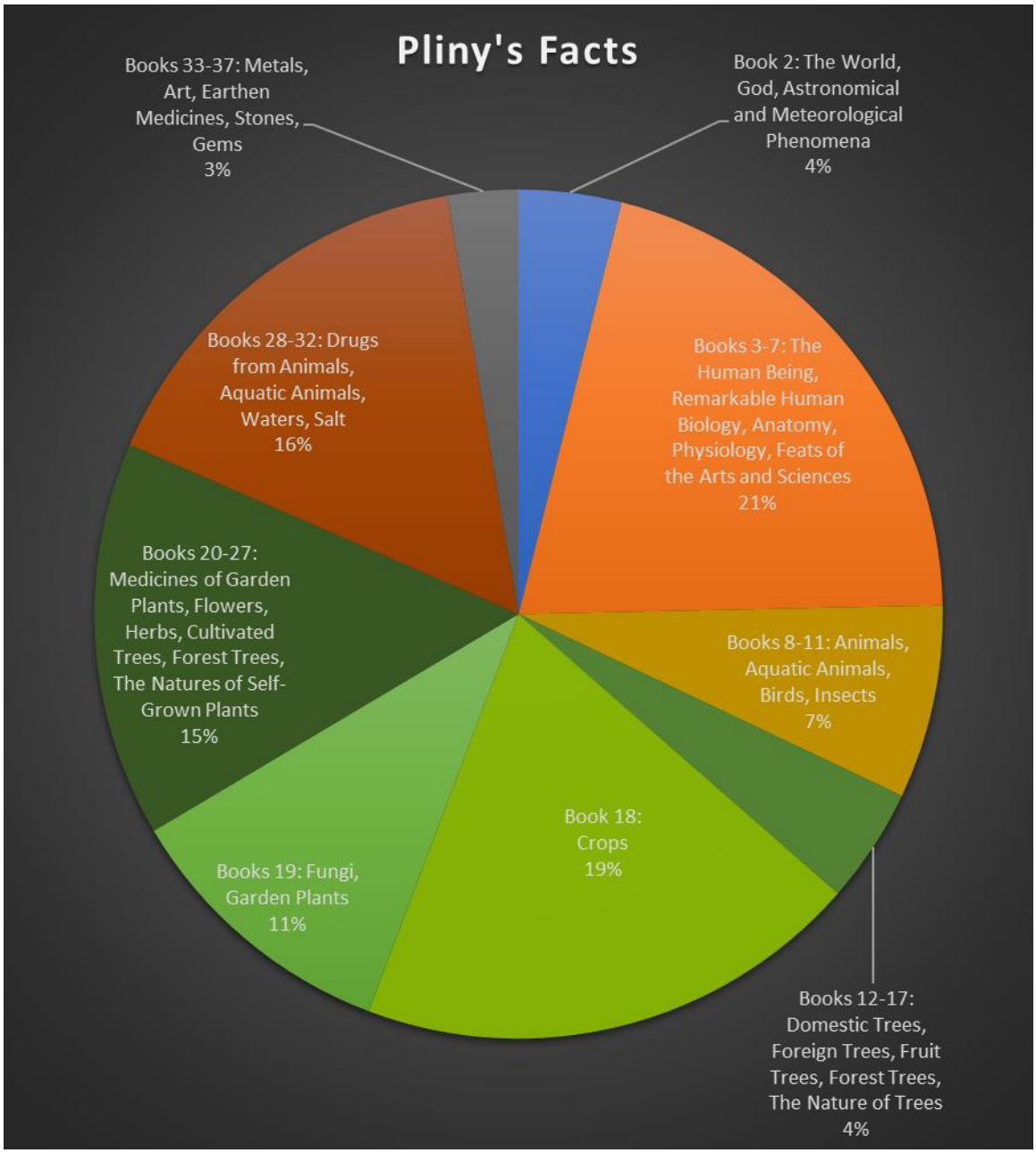
[49] Beagon, 'The Curious Eye of The Elder Pliny'.
[50] Beagon, 73.
[51] Beagon, 73.
[52] Beagon, 73.
[53] Christopher Hadley, *Hollow Places: An Unusual History of Land and Legend* (William Collins, 2019), 109.
[54] Beagon, 'The Curious Eye of The Elder Pliny', 82.

contemporaries implore); this wonder should in turn cause both appreciation of those aspects of nature discovered, and a renewed vigour for further investigation.

We will see in the section on God in *The Natural History*, that *if there is a God*, certainly they are not to be distinguished from Nature or found elsewhere than Nature. For Pliny, the minutia of Earth (a motherly figure for Pliny) lends itself to greater collocation than the heavens, it can even be inferred by a quantitative study of *The Natural History*'s contents that more of God's 'goad to reason' can be found in proximity to Earth—there are more facts to be gathered, more observations to be had, and moreover these are always changing, refreshing themselves, renewing wonder. Beagon writes that for Pliny "it is the earth which literally bubbles with the divine power of nature…as situated deep within her, rather than concentrated in the heavens".[55] What sort of ontology might we derive from such an aversion to elevation? Pliny does make room for sections on so-called heavenly things, but these hardly overshadow the terrestrial—the human, the animal, the vegetal and mineral, which do not precede the celestial, as Seneca may have saw fit, but come after and in greater abundance in *The Natural History*.

Below is an example of a quantitative look at Pliny's text, a comparison of the number of 'facts, investigations, and observations'—as counted by Pliny himself, across the thirty-six books (minus the table of contents in book I) of *The Natural History*. The chart has been divided into 'slices' based on supernatural and cosmological, human, animal, vegetal, and mineral topics, and broken down into percentage of facts relative to the text as a whole:

[55] Beagon, 75.



It is quite 'green' isn't it. This is no error; based on the number of facts listed, *The Natural History* is fourty-nine percent vegetal. Plants and their uses as medicines, foods, textiles, and just 'as they are' comprise almost half of the subject matter Pliny concerned himself with. Non-human animals occupy twenty-three percent, the human being twenty-one, and 'the rest' the final seven percent. That 'rest' includes everything encompassed in the sky and heavens: stars, comets, and planets, and as one of those planets *The World*, and everything inorganic within it: stones, rock formation, gemstones and the like. Keep

in mind, these categories are of course of the loosest variety which can be conceived; book XI on insects begins with a discussion of Nature's subtlety, book XXXI on drugs derived from aquatic animals strays into the benefits of sea voyage, and book XXXIV which begins on copper metals ventures into the first statues of women, worm-eaten bronze, and a magic sixpence. I thus do not wish to reify categories with this chart, but to point out something about *The Natural History*'s theme, which suggests that 'a natural history' is a story; the story is one told from a human perspective, but one whose main characters are vegetal, animal, fungal, mineral, and sometimes cosmological, things humanity "might otherwise take for granted"[56] if their story weren't told. It is for just this "distinctly earthly tinge"[57] that Pliny stands out, not as a better or worse Stoic than the likes of Seneca or others, but as one who might receive a more favourable review by modern standards regarding the philosophical treatment of the material world. This will become apparent in my later sections which read Pliny alongside the thoroughly terrestrial eyes of Donna Haraway, Luce Irigarary, and Michael Marder. Beagon cites a 1960 Andre Labhardt assessment, which argues that Pliny wasn't trying to "quit the terrestrial world";[58] this might be considered the highest sort of compliment from deep ecological, post-human, and weak philosophical schools.

As the near-majority stakeholder in the text, the sheer breadth of plants being enlisted for discussion in *The Natural History* tends to draw the reader into contemplation of how precisely plant being connects to human being ontologically. And in centering human life, work, *medicine*, and accomplishment around terrestrially rooted plants, Pliny holds the reader at ground level amidst their philosophical inquiry into the cosmos. With plants as the physical centre of his work, nothing is too big or too small to be recorded and shared by Pliny with his audience, it is all worth wondering at, and the categories he indexes, or the political reasoning for the work as a whole, often seem superfluous to this wonder. As Pliny says, Rome is merely a *second* sun, Nature first illuminating and revealing itself to the gods and the ancients before the Roman revival (of which Pliny most certainly figures himself a part). Beagon summarizes the result of Pliny's *curiositas* well:

[56] Beagon, 83.
[57] Beagon, 74.
[58] Beagon, 75.

> To understand nature for Pliny is to understand that wonder and explanation can knit together in a never-ending circle of intellectual curiosity, rather than presenting the inquirer with a simple and finite one-way journey from wonder to explanation. This is the essence of reality, of consciousness, of being truly alive. To replace definitively a 'wondered-at' world with a 'fully-explained' world would only encourage inactivity of mind and unconsciousness towards the vitality of Plinian *uita*.[59]

If we take his gaze as evidence, Pliny peddles a more 'earthly superstition' than many of his philosopher contemporaries. He neither allows humanity to drift off philosophically into the heavens where it might gaze down with condescension upon everything below, avoiding the Platonic plant inversion Michael Marder chagrins in *The Philosopher's Plant*, nor does he accomplish a similar goal by encouraging segregation from ground level. Rather, he promotes appreciation over mere use; this opens the door to possibilities for conceiving of humanity not as an isolated being incorporating objectified others for instrumental aid, but as a 'mode of being' that realizes its potential for health and life when its permeability to the environment and other beings has it approach being indistinguishable from that environment, from those beings.

PART TWO: The Ontological 'Big Picture'; God, World, Earth, and Humanity in *The Natural History*

God According to *The Natural History*

What is God? Or rather what is God according to Pliny? I will attempt to answer this to the extent that it furthers the discussion of Pliny's Medicinal Plant Ontology. The question of the nature of being, here the being of plants and persons, seems unavoidably to intersect with Pliny's consideration of a prior and primary principle, a God, or many, or

[59] Beagon, 86.

perhaps none. Thinking about whether and what God is or is not, required for Pliny a consideration of the coordinated and intelligent operation of Nature, Earth and all its organic and inorganic components, and the known surrounding universe. The conclusion he reaches, I can only call an assertive yet ambiguous agnosticism. To be fair, *The Natural History* is not intended to be a theological study but only irresistibly digresses that way for Pliny at times. Pliny is not wholly convinced that there is a God, but he still has much to say about what God/the gods must and mustn't be, which we gather from his strong opinions about contemporary and ancient beliefs which either inform or differ from his own wavering opinion. Pliny finds fault in the human endeavor to conceptualize God materially in any limited capacity, piecemeal, distinct or specialized manner which would defeat the concept of a God that accomplishes whatever a God should be capable of. To Pliny, applying human virtue, vice, emotion or ability to a multitude of gods who are coincidentally appropriate to individual human concerns, is a foolish reassurance in the face of human insecurity about illness and death. A concept of God seems pointless to Pliny if it only serves to falsely qualm fears by reducing God to a one-dimensional human character with limited scope and power, In Book II.v he writes:

> I deem it a mark of human weakness to seek to discover the shape and form of God. Whoever God is—provided there is a God—and in whatever region he is, he consists wholly of sense, sight and hearing, wholly of soul, wholly of mind, wholly of himself. To believe in gods without number, and gods corresponding to men's vices as well as to their virtues, like the Goddesses of Modesty, Concord, Intelligence, Hope, Honour, Mercy and Faith—or else, as Democritus held, only two, Punishment and Reward, reaches an even greater height of folly. Frail, toiling mortality, remembering its own weakness, has divided such deities into groups, so as to worship in sections, each the deity he is most in need of.[60]

For Pliny, it is in even worse taste to imagine God divided into a multitude of aspects, or reduced to lesser gods that come to represent not just human traits and behaviors, but flawed ones. Such fancy offends him twofold. First, Pliny asserts that there

[60] Pliny The Elder, 'NH (Rackham: LCL)', bk. II.v.7.

is simply no evidence that a plethora of gods are elevated to the heavens only to live humanly flawed lives. Beyond a lack of evidence, Pliny's argument here seems simply to be 'what would be the point?'. As a continuation of the first argument in II.v, Pliny is also confounded by this theological proposition that would leave man with no ideal to emulate—the gods being as susceptible to base behavior as their human worshippers. His last line on the matter gives a good idea as to what he would prefer, and what he perhaps believes, that mortal aiding mortal is godlier than god harming god:

> To believe even in marriages taking place between gods, without anybody all through the long ages of time being born as a result of them, and that some are always old and grey, others youths and boys, and gods with dusky complexions, winged, lame, born from eggs, living and dying on alternate days—this almost ranks with the mad fancies of children; but it passes all bounds of shamelessness to invent acts of adultery taking place between the gods themselves, followed by altercation and enmity, and the existence of deities of theft and of crime. For mortal to aid mortal—this is god[61]

Pliny holds to a grand distinction between human and God, however he does infer a special relationship that leaves an opening for comparison:

> Man was not born God's next of kin for the purpose of approximating to the beasts in vileness[62]

But if any closure of this gap is to occur, he is solely in favour of humanity elevating itself to its best approximation of a singular glorious God, over God being parsed and reduced to human depravity for approachability sake. This is not to say however, that imagining a singular God, however great, amounts to imagining an all-powerful one. The observation of Nature suggests to Pliny that God lacks omnipotence in a curious way, and this observation is in fact where we best find Pliny's definition of

[61] Pliny The Elder, bk. II.v.17-18.
[62] Pliny The Elder, bk. II.v.27.

God. The very power of Nature's laws not to be overruled arbitrarily by human or god, demonstrates to Pliny that Nature is one and the same with God. God does not override Nature, because Nature is the operation of God's own intention and being. In Pliny's eyes, Nature is busy *being* the physics of God, while humanity wastes much time flying in the face of the former (Nature) while petitioning the latter (God) to act *against the former* as if distinct. The solution that Pliny's Natural History seems to propose, is that humanity observe, understand, and live in accordance with the Nature, and that questions of the God will either solve themselves or fall away. In this way, a practical understanding of Nature's form and function seems to be Pliny's preferred form of theology, hence his writing of *The Natural History*. In Book II.v we again read:

> But the chief consolations for nature's imperfection in the case of man are that not even for God are all things possible—for he cannot, even if he wishes, commit suicide, the supreme boon that he has bestowed on man among all the penalties of life, nor bestow eternity on mortals or recall the deceased, nor cause a man that has lived not to have lived or one that has held high office not to have held it—and that he has no power over what is past save to forget it, and (to link our fellowship with God by means of frivolous arguments as well) that he cannot cause twice ten not to be twenty or do many things on similar lines: which facts unquestionably demonstrate the power of nature and prove that it is this that we mean by the word 'God.'[63]

The strange shortcomings of Nature as God, God as Nature, are that God cannot seem to defeat its own operation or existence, cannot end its own life, undo its own history, change the mathematical or physical principles by which it operates, or interfere with the lives of biological beings outside of what Nature already provides as solutions to their ailments. God's inability to do such things, Pliny derives from the fact that they have not been done, although there is no consideration by Pliny of a God which does not do any or all of the things within its power by wisdom of choice. But to consider any of these impossibilities as imperfections is not precisely Pliny's intention; Pliny is clear on

[63] Pliny The Elder, bk. II.v.27.

the fact that man is still very far away from understanding the world, let alone Nature as the universe or God. This appears to be our strongest hint regarding Pliny's choice to title his work *The Natural History* as distinct from a theology or philosophy. Pliny is specifically aiming to tell the history of what he thinks are natural phenomena, matter and processes that no intelligent entity *over and above* Nature seeks or is able to manipulate. This is an observationally derived hypothesis that he tests and tinkers with throughout his writing. It indeed sometimes sounds as though Pliny is piecing things together as he writes, which may very well have been the case, and which would explain the inconsistency found across the thirty-seven books. We must give him some credit for his suggestion that Nature does not seem to violate its own principles for the sake of human interest, but that those natural principles which seem inconsistent or violable are merely poorly understood and consequently run amuck by human guesswork and imagination. Pliny is not very confident in the idea that the great God he envisions would have time or desire to hear the many and varied ritual pleas that are cast out in God's name. But his main objection here is not that the very notion of God paying heed to man's affairs is impossible, but that collectively humanity is simply inconsistent, lazy, and overly demanding. On top of this, there is a sense in which Pliny believes that most of his contemporaries merely misunderstand how God functions, which if equal to Nature would demand the progress of Natural Science and not as many different rituals as there are persons, for as many different deities as there are problems to name:

> That that supreme being, whate'er it be, pays heed to man's affairs is a ridiculous notion. Can we believe that it would not be defied by so gloomy and so multifarious a duty?[64]

Pliny leaves us to piece together an odd intermediary solution to this problem; God certainly does not answer each and every petty call of ours, yet Pliny still holds that ritual has some effect. (He never explains this contradiction, but perhaps one can be inferred/hypothesized?); book II.liv states:

[64] Pliny The Elder, bk. II.v.20.

> It takes a bold man to believe that Nature obeys the behests of ritual, and equally it takes a dull man to deny that ritual has beneficent powers[65]

This seems to be made possible by a mechanism which we will see at work in some of Pliny's studies on Plant Medicine. Plants, as a part of Nature and therefore God, are already compatible with certain human ritual uses, thus there are at least as many unique compatibilities as there are plant species and human ailments. Uncovering these pre-ordained responses of Nature to human medicinal needs, is equivalent to finding the impersonal means by which God both avoids and accomplishes the 'gloomy and so multifarious duty' to pay heed to man's affairs. This is where Medicinal Plant Ontology becomes fascinating in Pliny's *Natural History*. Medicine, and Plant Medicine as it pertains to human beings in particular, occupies a significant portion of Pliny's text, I think, because the manner in which Nature's vegetal being grows and flourishes to help or harm both itself and other aspects of Nature, human beings included, is telling of the place of humanity within Nature, and clarifies the relationship between the human, the vegetal as a vigorous and biologically active form of Nature, and God as the whole of Nature, if nothing more, who's assistance to humankind often comes in the form of medicinal plants. Whatever is possible for God shows itself in the unamenable operation of the universe, the most prolific partner of which is the vegetal. Plants are tentacular[66], growing down into the earth with a spectacular series of tentacles, growing up above the earth—like Isabelle Stenger's Gaia, "a fearful and devastating power that intrudes on our categories of thought"[67], not a resource or a mother, not existing for piecemeal exploitation or humanocentric nourishment. Again, we look back to the question *'does God even care?'* and are faced with Pliny's leaning of *'not really'*. Or is it just that as symbionts who have failed to consider our sympoietic, symbiotic reality, we cast the word 'care' in a carelessly anthropocentric manner, thus forcing ourselves to respond 'no' when there are other ways of imagining 'care' that allow us to answer 'yes', perhaps to replace the term or question altogether. This is especially possible for authors like Pliny

[65] Pliny The Elder, bk. II.liv.141.
[66] Donna Haraway, 'Duke University Press - Staying with the Trouble', 43, accessed 26 September 2019, https://www.dukeupress.edu/staying-with-the-trouble.
[67] Haraway, 43.

who also leave open the question of God, who drag the pantheon of gods kicking and screaming away from humanesque modes of being while at once tethering them both to one another and to the ground, making part-time terrans and symbionts out of otherwise scattered, embattled, supernatural individuals. The question of care itself arises from asking what makes health possible ontologically for a human being. Health is made possible by differing manifestations of caring: the care of a physician for a patient, a family member for a loved one, and in this study, a plant for a person, but only if a person first gives care enough to that plant or Nature in its entirety. Medicine for Pliny, of any variety that sees the use of a plant, depends upon the placation to God by means of a conscious attendance to Nature, accomplished through a ritualized gathering, mixture, and administering of vegetal substances. With this ritual taken note of by a knowing Natural God, healing is possible. God likewise reveals whatever existence he has through, among other things, the very existence of vegetal being which acts as a respite of healing for humanity and the world as a whole. Ritual and presence are the evidence of an open healing conversation between man, Nature, and God.

The World According to *The Natural History*

In consideration of the question '*what is The World?'*, let me begin this section with a whimsical reflection by Pliny in Book II.iii on the matter:

> Whether the sound of this vast mass whirling in unceasing rotation is of enormous volume and consequently beyond the capacity of our ears to perceive, for my own part I cannot easily say—any more in fact than whether this is true of the tinkling of the stars that travel round with it, revolving in their own orbits; or whether it emits a sweet harmonious music that is beyond belief charming. To us who live within it, the world glides silently alike by day and night.[68]

Just as with his consideration of God and the gods, Pliny's discussion of The World

[68] Pliny The Elder, 'NH (Rackham: LCL)', bk. II.iii.6-7.

accommodates much human imagination. An admitted lack of proof does not deter him from including myth and fanciful imagery in *The Natural History* alongside facts and best hypotheses of the time. With the benefit of posterity, we could easily look at such inclusions as a side effect of the many scientific apertures in the 1st century A.D., but this would veil other important differences, particularly in his attitude towards knowledge, that come to be relevant for medicinal plant ontology. Human knowledge continues to expand, which makes criticism of The World at our back all too easy, but how knowledge is arranged and used is worth at the very least equal consideration. Additionally, and importantly, sometimes these inclusions are not so farfetched even today, which shows us just how little we know about *what we may know* in the future. But beyond praising accurate guesswork, what is genuinely praiseworthy is Pliny's refusal to dismiss outright the possible but unlikely, the uncertain, and even the unlikeliest of hypotheses. Pliny also, without a definitive theological outlook, stays true to seeking out harmony in The World—equivalent to the universe knowable and imaginable to humanity, amidst the as yet unknown. Such a 'seeking out of harmony' is the basis of medicine itself, where compatibilities become cures, and imagination becomes invention. One could say that this was the best of Roman Imperial traits for the sake of medicine—the way it imagined its role in the cosmos as a bringer of peace, harmony, order and stability. The "music-box planet" theory is an interesting inclusion by Pliny, because for all its apparent whimsy, it isn't entirely incorrect. There is presently much buzz about NASA's recent project to convert previously recorded data of the various electromagnetic wave emissions and particle oscillation frequencies of the Sun, and various planets and their moons—including ours, into audible format.[69] Pliny is thus spot on in his assessment that these 'sounds' are beyond our normal capacity to hear, due to both the vacuum of space and the limitations of our hearing. In this way it is more correct to call them energies than sounds, however, energy is convertible, and this is precisely what was done by NASA. So, while general consensus based on my perusal of YouTube comments is that some of the sounds NASA has converted are more haunting than charming, especially those of Saturn (which have humorously been compared to Satan), they are certainly beyond belief; some might even

[69] NASA Content Administrator, 'Spooky Space "Sounds"', NASA, 26 October 2017, http://www.nasa.gov/vision/universe/features/halloween_sounds.html.

call them beautiful. The real question in all this is what effect does consideration of a 'music-box planet' have on Medicinal Plant Ontology and medicinal plant usage? It seems to me that the answer to this is simple: the effort to find harmonious health individually cannot be divorced from the effort to explore affinities, keep an ear open to harmony, and find beauty in the cosmos generally.

Let us consider another series of examples from *The Natural History*, which bring together supernatural, cosmic, and worldly phenomena. In Book II. xviii, Pliny writes about "the myth that thunderbolts are the javelins hurled by Jupiter," adding that "Consequently, heavenly fire is spit forth by the planet as crackling charcoal flies from a burning log, bringing prophecies with it, as even the part of himself that he discards does not cease to function in its divine tasks."[70] Acknowledging again the mythical status of this idea, Pliny still finds it worth mentioning; the concept of prophecy is both alive and unsettled in 1st century Rome, which prompts Pliny to share this explanation that answers at once for Jupiter's activity and for the apparent presence of prophecy within The World. Unlike the previous example, this theory seems to contrast sharply with modern theories about Jupiter, which posit that the largest, most gravitatious planet in our solar system does not eject, but rather attracts cosmic debris with its vacuum like pull—intercepting much incoming matter otherwise on a path towards our own planet, allowing the centre of the human World to flourish safely as it has, albeit at a much reduced mass. Pliny's myth here seems a more apt description of Io, one of Jupiter's many moons, and the most volcanically active of all in the solar system. But, while the myth fails for several reasons as a modern theory, Pliny's inclusion of it highlights certain vital aspects of his overall picture of the universe. Pliny's World, the human locus of perspective, is permeable to both gods and planets, or planetary gods, which are involved in divine tasks that inform or assist humanity regarding its future actions; this outlook mingles the existential possibilities of people and planets, and as we will see in upcoming sections, plants. Plant medicine is therefore largely a matter of figuring out what the gods, God, or Nature intend(s) to occur between plants and persons in an intelligently inter-communicative World. As we saw, Pliny is opposed to the idea that any truly supernatural being occupies its existence serving the individual pleas of the ailing, or merely wanting individual, as they surface. But in place of this, The World appears to

[70] Pliny The Elder, 'NH (Rackham: LCL)', bk. II.xviii.82.

contain in-built solutions, and in this example, to receive occasional beacons of information from the heavens. All of this is coherent as a theory if we recall that Nature itself might be God, which jives nicely with Pliny's ongoing examples, collectively postulating that Nature operates in a way which serves itself as a whole, rather than any one person—although any one person may also be served within such a model. There is also an interesting idea that Pliny adds to the Jupiter myth, which is that nothing is wasted by the gods, and we might infer throughout the natural universe. Physical matter serves supernatural purposes, from Jupiter's thunderbolts to the many plants, flowers, trees, and animals found throughout the Natural History.

Pliny restates the above idea again in Book II.xlii—that the world is permeable to the heavens. Here, it is stars not planets, but we must assume a certain level of consistency across all of these instances of heavenly matter falling down to The World:

> Consequently, I would not go against the view that it is also possible for the fires of stars to fall from above into the clouds[71]

In an interesting turn, Pliny confounds what might be expected of stars in the ancient world. Pliny here offers a rare first-hand account of the star-birthing World around him, and details some of the names and functions of such Earth-born stars, ending again with his overall attitude towards a world in which this is all possible but not fully understood. He reinforces the idea of a Nature/God which is singular and apparently does not distinguish as to where stars must be created or where they must act. Pliny's account below from II.xxxvii, asserts a relationship between all parts of the universe at large, the influential bodies above in the heavens and Earth below are not held distinct, with stars taking on distinctly un-star-like behavior in their proximity to persons, expressing human and animal-like traits:

> Stars also come into existence at sea and on land. I have seen a radiance of star-like appearance clinging to the javelins of soldiers on sentry duty at night in front of the rampart; and on a voyage stars alight on the yards and other parts of the ship,

[71] Pliny The Elder, bk. II.xliii.112.

> with a sound resembling a voice, hopping from perch to perch in the manner of birds. These when they come singly are disastrously heavy and wreck ships, and if they fall into the hold burn them up. If there are two of them, they denote safety and portend a successful voyage; and their approach is said to put to flight the terrible star called Helena: for this reason, they are called Castor and Pollux, and people pray to them as gods for aid at sea. They also shine round men's heads at evening time; this is a great portent. All these things admit of no certain explanation; they are hidden away in the grandeur of nature.[72]

A number of ideas are put forth here that taken with the rest of *The Natural History* become observable as motives for science and medicine beyond Pliny. The mysterious grandeur of Nature which hints at the existence of not-yet-understood phenomena lends itself to exploration by humanity. For Pliny, much is hidden or unexplained, little is untrue or impossible; a star may very well be born on a javelin or fall with all its fiery mass into the hold of a ship, the atmosphere of Earth is merely a soft border and a place of transition. The worldview here is one where 'World' is not equivalent or limited to Earth, which is why Pliny does in fact treat Earth, the literal stuff of the ground, as a separate topic. The World encompasses the humanly perceived and studied, the imagined, hyperbolized and mythologized universe with this planet Earth where we reside as a central locus; but within our human World, Nature acts as an sympoietic system that participates in a human transcending logic of its own; the activities of The World may not go our way individually and or as a species. This is something which current theories on Earth as 'Gaia' have recently revisited, and it appears to be the case that Nature as God, or in lieu of God, is a necessary prerequisite for entertaining this humano-peripheral idea; Pliny seems to fall into such a category of thought. We as humanity 'have' a World, it is a constant production, 'what is' amended into 'what is for us', which is decided individually, culturally, and societally. The World is hence not equivalent with reality, as can be evidenced by Pliny, if not as much by our constantly changing and heterogenous thinking about what The World is today. The Roman World according to Pliny was the hub of planet Earth, with Rome as its absolute

[72] Pliny The Elder, bk. II.xxxvii.101.

middle literally and ontologically, with a periphery extending as far as the Roman could see and imagine. Our World is much different from this World, but not entirely; our medicine is thus much different from that of the Roman world, but not entirely.

Earth According to *The Natural History*

Earth's material *relationship* with humanity is not simply a meaningless factual thing for Pliny. Physics and the physical Earth are actually *thought about* without reducing them to mundanity. We can stand upright, well what is it that supports us in this Pliny asks? It is Earth. We have food to eat and shelter from the elements, these too are afforded to us by Earth, not The Earth as a many-element planet, but Earth as singular component of it, as soil, ground, stability. It is not something that can be reduced to facts, our existence and the nature of our existence as upright contemplative creatures, who, frail as we are compared to other animals, can thrive here and nowhere easily else, is thanks in large part to firm and fertile orb which nurtures us like a mother, acting as a substrate for our food and material for our cultural endeavors. Even our etched gravestones, which extend the memory of our lives beyond our biological longevity, Pliny notes, are taken from and upheld by Earth. But this is not even the half of it; Pliny here shows how thoroughly the Stoic blood sometimes courses through his veins, moving tangentially from the kindness of Earth to the many ignorant, ungrateful, and trivial pursuits of humanity—all unbegrudgingly accommodated, forgiven and erased by Earth; in II.lxiii we find:

> Next comes the earth, the one division of the natural world on which for its merits we have bestowed the venerable title of mother. She belongs to men as the sky belongs to God: she receives us at birth, and gives us nurture after birth,[73]

[73] Pliny The Elder, bk. II.lxiii.154.

As Pliny continues, we see that the Earth is a passive power, a motherly figure, whose belonging to humankind comes in the form of an unequal relationship of provision and care; picking up again in II.lxiii, Pliny writes:

> Brought forth she upholds us always, and at the last when we have now been disinherited by the rest of Nature she embraces us in her bosom and at that very time gives us her maternal shelter; sanctified by no service more than that whereby she makes us also sacred, even bearing our monuments and epitaphs and prolonging our name and extending our memory against the shortness of time.[74]

The Earth for Pliny is literally the substance and element of 'earth' as opposed to a planetary name encompassing all elements. Earth is not the 'blue planet', but the brown, red, black, and many-other-toned one of clay and soil, rock and mineral; it is not even the lavish and lush vegetal green of the planet—although this it supports and nourishes, in many ways like ourselves. This clarifies Earth's distinct passivity and stability in opposition to other elements found within 'The World' that are much more active and volatile; Pliny complements her greatly in II.lxiii:

> She is the only element that is never wroth with man. Water rises in mist, freezes into hail, swells in waves, falls headlong in torrents; air becomes thick with clouds and rages with storms; but earth is kind and gentle and indulgent, ever a handmaid in the service of mortals, producing under our compulsion, or lavishing of her own accord, what scents and savours, what juices, what surfaces for the touch, what colours! How honestly she repays the interest lent her! What produce she fosters for our benefit![75]

[74] Pliny The Elder, bk. II.lxiii.154.
[75] Pliny The Elder, bk. II.lxiii.155.

Regarding medicine specifically, Earth provides the full spectrum of solutions to human ailments, solutions to life and those also to escape it. The idea that health includes death at the right time, place, and in the correct amount (either partial, or complete), and that ideally these should be under our control, is a prominent idea in *The Natural History*; here in II.lxiii, we see that Pliny gives Earth much credit for this possibility:

> She produces medicinal herbs, and is ever fertile for man's benefit; nay, even poisons she may be thought to have invented out of compassion for us, lest, when we were weary of life, hunger, the death most alien to earth's beneficence, should consume us with slow decay, lest precipices should scatter in fragments our lacerated body, lest we should be tortured by the perverted punishment of the noose which imprisons the breath whose departure it is seeking; lest if we sought death in the deep our burial should serve for fodder; lest the torture of the steel should cleave our body. So is it! In mercy did she generate the potion whereof the easiest draught—as men drink when thirsty—might painlessly just blot us out, without injury to the body or loss of blood, in such wise that when dead no birds nor beasts should touch us, and one that had perished for himself should be preserved for the earth.[76]

When injustice or suffering becomes too much, which Pliny attributes solely to the human mode of living, or if a worse end is in sight, Earth has provided—as Pliny describes with an excess of romance—a peaceful method of bowing out of the game of life. Here the source as well as the full spectrum of use of medicinal herbs comes to light; Earth has furnished cure and poison alike, and as we will see with the likes of *Aconite*, some poisons which can also serve as cures.

[76] Pliny The Elder, bk. II.lxiii.155-56.

Pliny also provides contrast and backdrop for the methods recommended in acquiring medicinal plants. Whereas collectively, humanity seems only to abuse the planet for entirely meaningless, self-aggrandizing, and non-medicinal purposes (the difference between these two is key), healing is possible only with a total lack of concern for simply oneself and instead an awareness of the interconnectedness of World, Earth, and Nature as God; II.lxiii states:

> Let us own the truth: what Earth has produced as a cure for our ills, we have made into a deadly poison; why, do we not also put her indispensable gift of iron to a similar use? Nor yet should we have any right to complain even if she had engendered poison to serve the purpose of crime. In fact, in regard to one of Nature's elements we have no gratitude. For what luxuries and for what outrageous uses does she not subserve mankind? She is flung into the sea or dug away to allow us to let in the channels. Water, iron, wood, fire, stone, growing crops, are employed to torture her at all hours, and much more to make her minister to our luxuries than our sustenance. Yet in order to make the sufferings inflicted on her surface and mere outer skin seem endurable, we probe her entrails, digging into her veins of gold and silver and mines of copper and lead; we actually drive shafts down into the depth to search for gems and certain tiny stones; we drag out her entrails, we seek a jewel merely to be worn upon a finger! How many hands are worn away with toil that a single knuckle may shine resplendent! If any beings of the nether world… existed, assuredly even they would have been dug up ere now by the burrowings of avarice and luxury![77]

The Stoic Pliny here comes out in full force, chagrining human aims for superficial luxury which come at the expense of a misplaced and unequal amount of human toil and suffering. But more than human exploitation of itself, is a larger sense of putting oneself before the many and the whole, which includes the Earth from surface to core. Pliny is

[77] Pliny The Elder, bk. II.lxiii.157-58.

setting up a way for us to intuit how a medicine might be thought to work in his World: something which is good only for oneself is not really good for oneself in any medicinal sense at all, whereas material 'requested and borrowed' from the network of Nature, respectful of the harmony at play, will be efficacious medicinally. Medicine is a set of rules governing these processes of asking, acquiescence, and use—which Pliny notes are incompletely known. Two possibilities thus exist for the failure of medicine: a lack of knowledge and a lack of respect for Nature; these two ideas are also inseparable in that an excess of knowledge cannot substitute for a lack of respect, nor can an excess of ritual placation replace material understanding.

Pliny, contradicting his thought just prior—that Earth is not responsible for the violence of other creatures, here in II.lxiii entertains the idea that perhaps Earth did intend to nurture such creatures, but only for the sake of the illumination of our wrong-headed activity:

> And can we wonder if earth has also generated some creatures for our harm? Since the wild animals, I well believe, are her guardians, and protect her from sacrilegious hands; do not serpents infest our mines, do we not handle veins of gold mingled with the roots of poison? Yet that shows the goddess all the kinder towards us, because all these avenues from which wealth issues lead but to crime and slaughter and warfare, and her whom we besprinkle with our blood we cover with unburied bones, over which nevertheless, when at length our madness has been finally discharged, she draws herself as a veil, and hides even the crimes of mortals.[78]

I find this section to be one of Pliny's more beautiful images of the vegetally blanketed Earth. The final medicine for a self-destructive humanity is erasure, a vegetal growth enveloping and earthly decomposition churning-invisible our sordid past. The hope of a fresh start is therefore also the medicine for ignorance and its resultant evil, the cure for future generations from the sicknesses of past generations' errors. Medicine is never merely

[78] Pliny The Elder, bk. II.lxiii.159.

an individual concern in *The Natural History*. Pliny also seems to provide a quiet critique of warfare, suggesting that our misuses of Earth-as-if-it-were-resources, is met 'kindly' with pre-emptive warnings of serpents and poisons and an ultimate reward of only strife and death. Another example of why we should look past Pliny's military career and towards his unique philosophical brand when deciding how to paint either Pliny or *The Natural History*. Earth is not just an amalgam of objects to be warred over, it is a system and being that creates, nurtures, and informs life. And Rome is not a place that ideally wishes for battle and conquest, but one that ushers in and maintains a peace and order it feels itself destined to uphold. Earth, as goddess and mother, is a repository for medicine and wisdom, perpetually refreshing itself, and with it our ability to 'get it right' as a participant therein. What else is one to expect, asks Pliny, from sacrilegious hands scouring for shiny elements and wielding swords and shields, other than an embattled life? This blunt and unfeeling "kindness" by Earth is once again in-sync with a Nature-as-God which is never responsive to individual calls for intervention, but which is instead always already in-built with solutions to every human problem, ailment, or ignorance. Sometimes the solution is a medicine, sometimes a poison, sometimes what Pliny paints as the inevitable bloodshed surrounding useless wealth stolen from the Earth. What human madness can Earth not tolerate and then rebut with a lesson, before a vegetal, fungal, microbial blanket covers it for all eternity. If Earth is a mother, it is that mother who let their children play outside, scrape their knee (or worse) falling from a tree, and then say 'serves you right' or 'I hope you've learned your lesson' while the sting of iodine elicits complaints made tentatively and dismissed assertively. Pliny here plays the voice of that mother, Mother Earth.

Humanity and the Human Patient According to *The Natural History*: Healing an Undefined Species

Naked, weeping, helpless and draped with alien resources, so says Pliny of the human being's entrance into the world[79]. While Earth is imagined as a mother, Nature as a whole is only *sometimes* a kind parent. At other times, Pliny complains, Nature behaves

[79] Pliny The Elder, bk. VII.nulla.2.

like a harsh stepmother. Earth is benevolent, but other powers of The World at large are alienating and unforgiving; additionally, of all animals, the human being seems most ill equipped to thrive here. Our sense of belonging is therefore something to be questioned.

Pliny's is a confusing ontological family tree to sort out, since we just established that God, if there is a God, could be equated with Nature. Whatever *is* responsible for our existence, surely the responsible party must take the role of parent. Pliny's divergent thinking here offers us two very different possibilities for our parenthood. If Nature is in fact a parent, and Earth a mother figure, that would make Nature as God presumably a father. Our true home would then be split between a more expansive and non-local Nature and the quite tangible stuff of Earth. This is not such a surprising theory. On the other hand, if Earth is a mother, and Nature is not actually another parent but only a stepmother, then we are the product of a truly unique upbringing, with our home very much here on Earth; moreover, any ties to the cosmos at large would be a secondary step—a step towards a step mother. Haraway might agree with this assessment of otherworldly ambition (I haven't asked, have I even asked myself?); of course, we could play all day with Pliny's linguistic inconsistencies and wonder, as I'm sure he himself did at the possibilities. Perhaps visiting Pliny's philosophical influences will get us closer to our answer. Pliny is often labelled as some sort of Stoic, which is a fair assessment despite his resistance to the title, and so long as we don't use it as an excuse not to nuance his leanings any further. So, let us nuance things a bit, as far as it serves an exploration into 'what we are'.

Havard Lokke writes that "as the Stoics saw it, human beings are at home in a rationally governed World and have a unique role to play in it, as rational animals. Many ancient philosophers saw things differently: for instance, Platonists denied that we are at home in this World, and Epicureans denied that we have a unique role to play in it."[80] As we saw with Pliny's two theories of Nature, one theory would make it possible to argue that we are at home solely on Earth, and without an alien Father figure. The other theory would have our parents' homes set in different localities, and so our home could be either the Earth of our Mother or the Nature 'at large' of our Father. It would be hard to argue

[80] Håvard Løkke, *Knowledge and Virtue in Early Stoicism* (Dordrecht: Springer Netherlands, 2015), 9, https://doi.org/10.1007/978-94-007-2153-1.

that Pliny sees the human being, especially the Roman one, as not playing a special role on Earth. Hence, the Epicurean denial Lokke mentions is off the table… let us consider further. Lokke again writes, "the early Stoics' main concern in epistemology was to argue that it is possible to attain knowledge of what sort of creatures we are and how we should live our lives."[81] This in large part, or entirely, could be seen as the project *The Natural History* undertakes—attaining and disseminating knowledge. Pliny is trying both to figure out and to share with his audience just what sort of creatures we are; he does so via the accumulated mass of facts he publishes and commentates as a 'history'. Without excessive formality, Pliny digresses often into how we as individuals and as a species have lived our lives, with enough judgement that we can assume to a great extent how he thinks we should. One could note of course that Pliny imagines the proper place of the Roman nation much differently from the others he peers in on. I do not know that this becomes ontologically relevant. Nevertheless, I think we can assume that Pliny, like the Stoics, deemed knowledge of who we are and how we should live possible. We could almost take Pliny to be an outright Stoic, but then there are enough instances of contradiction to indicate that we should not leave Platonism completely out of any title we bestow upon him. One brief example is his praise of Hipparchus in Book II.xxiv, "who can never be sufficiently praised", says Pliny, "no one having done more to prove that man is related to the stars and that our souls are a part of heaven".[82] This statement hybridizes both the human being ontologically and Pliny philosophically. By itself, this suggests that the human soul has a different home than the human body, which seems to fit more so with Platonism than Stoicism. We might care to consider that Pliny's is in large part a humanistic-psychological argument, that how Pliny feels about life he counts as evidence of ontological belonging as much as any logical point. Certainly, there is meaning in life for Pliny, as a Roman illuminating the natural world he thinks this task is 'meant for him'. His Nature, World, Earth are not operating at random. This meaning is tempered however by a sense of the difficulty of living itself, which has Pliny inquire into a divine reason that would construct a World which both caters to and terrorizes the oddly equipped animal of human. Lokke writes that:

[81] Løkke, 10.
[82] Pliny The Elder, 'NH (Rackham: LCL)', bk. II.xxiv.95.

> The Stoic world is not a hostile environment where evil powers are at work, or a lonely place where things happen by chance. It is instead a well-organized home for human beings that is providentially governed by a divine reason. The importance of this reminder can hardly be over-emphasized, mind you, for as a matter of fact we cannot fully understand early Stoic epistemology unless we realize that, according to the Stoic, the world is governed by a divine providence whose rationality we internalize."[83]

Following this, it is difficult to pin Pliny solely on the Stoic team—which of course has its own internal variations that may stray from the mean. But Pliny harbors enough doubt about our human home and divine reason itself, and knowing human knowledge to be incomplete, he would prefer to hold off judgement on either topic, satisfied to sort through and arrange the ideas he reads like puzzle pieces for a puzzle which he admittedly lacks the entirety of. Additionally, Pliny disagrees experientially with the idea that life lacks suffering, or the World hostility or evil. In Book VII.xl of *The Natural History* we read:

> What of the fact that goods are not equal to evils even if of equal number, and that no joy can counterbalance the smallest grief? Alas what vain and foolish application! We count the number of the days, when it is their weight that is in question![84]

As mentioned earlier, there is room to view Pliny's 'evils' here as stemming from human ignorance and not The World alone, but then there is the matter of why divine reason brings together an ignorant being prone to evil with a World prone to return the favor in kind. Pliny does not venture far enough into the teleological function of Nature, World, Earth, nor human strife or suffering, to answer such questions for us. This lack is what prevents Pliny from being a "philosopher", and what lets us accept him as truly,

[83] Løkke, *Knowledge and Virtue in Early Stoicism*, 2.
[84] Pliny The Elder, 'NH (Rackham: LCL)', bk. VII.xl.132.

primarily a "natural historian", he does not buy wholly into, nor construct afresh his own philosophical theory to explain human life. *The Natural History* floats between assertion and doubt-casting, opening more avenues of questioning than it closes. Where a philosopher like Plato might have Timaeus propose a likely explanation for the Cosmos and all that lies within it, including us, Pliny as a 'philosophically curious' natural historian is content with incomplete knowledge and further inquiry—in this sense he is quite a scientist, exploring until the day he died instead of trying to round off the unknown with the imagined.

Humanity and the Human Patient According to *The Natural History*: Healing an Undefined Species

The next examples from *The Natural History*, and in some sense those from the sciences as well (to what extent is the question), offer a break from rational considerations of human being, some SF—speculative fabulation (a Harawayism) for un-figuring 'human'. I like to imagine that if we allowed a little more ameliorative amnesia about the limitations of the being we call human, a little more SF—science fiction, we could think our way through many more of the predicaments bound to us confront medically in the future. As a way of exemplifying one such predicament, I offer the modern example of tissue engineering and its incumbent self-examination in the face of practical and ethical obstacles. Mythology and biomedical engineering thus come together to show that medicine as a multispecies exploration has a long imaginative history behind it. Pliny evidences a longstanding collective human mind that is extravagantly porous to sympoietic solutions to human predicaments, and today's stem cell research reveals that we have maintained this porosity across time.

In Book VII.ii, Pliny forwards this story from Ctesias about a dog-headed race from India:

> While on many of the mountains there is a tribe of human beings with dogs' heads, who wear a covering of wild beasts' skins, whose speech is a bark and who live on the produce of hunting and fowling, for which they use their nails as

> weapons; he says that they numbered more than 120,000 when he published his work[85]

Let us begin to ponder the idea that a human being might persist yet as a human being with a dog's head and not a human head. Is not the head taken to be the measure of the Cartesian human in the West? According to Ctesias' anthropology, Descartes sits as a mere blip on the radar between a post-human present and, *is it possible? A post-human past?* Does Descartes merely represent a failing resistance to a persistent post-human drive? What does a person with the head of a dog think? And therefore, what are they? Furthermore, how does one treat them medically, or, does their hybridity itself solve certain problems of human existence, medical or otherwise? Which serves Medicine better, the Cartesian or the *Ctesian*? The first thing which comes to mind to help us think about this doggedly persistent thought, for the idea has occupied the human imagination as long as recorded history, is the serious exploration throughout Western myth and medicine of xenotransplantation, or the use of heterogenous transplants. To begin with the Greeks, we find the story of Daedelus and his son Icarus:

> Daedelus, who grafted bird feathers to his arms, was perhaps the first to transplant across the species barrier successfully. He escaped from his island prison in Crete and flew to the mainland of Greece. A similar experiment by his son, Icarus, ended in acute graft rejection, attributed to a thermolabile adhesive. After flying too close to the sun he plunged into the water, which is now called, in his honor, the Icaran Sea[86].

From the example of Daedelus, we can already see what the human imagination is getting at. Human beings are confronted throughout their history with problems which cannot be solved by exclusively human beings with exclusively human anatomies and physiologies, genotypes and phenotypes. We therefore turn, as Daedelus, to xenografting potential solutions to ourselves with varying success (sometimes we are too ambitious

[85] Pliny The Elder, bk. VII.ii.23.
[86] Keith Reemtsma, 'Xenotransplantation: A Historical Perspective', *ILAR Journal* 37, no. 1 (1 January 1995): 9–12, https://doi.org/10.1093/ilar.37.1.9.

and fail, like Icarus). We often overlook the commonality of this methodology, by dismissing less thorough versions of grafting and transplantation; for instance, it goes almost unnoticed that the same dog-headed humans in Ctesias's story wear 'wild beasts' skins'—which we can only imagine must be wilder than the dogs whose heads they permanently wear. In the same vein, Canada goose-down-filled coats, sheepskin and rabbit fur mukluks, beaver-pelt hats, and bovine leather jackets are some of the local Manitoba animal *'gibecrackes'* that come to mind in our recent past and present—the vegetal ones go largely unnoticed and are significantly more numerous. The normalizing superficiality and frequency of xenotransplantation, the grafting of coats and boots and hats, as a means of procuring "good enough quasi-individuality to get through the day"[87], almost prevents us from calling it what it is: a tentative, exploratory, maybe-reversible, tawdry, jerry-built imitation of the 'naturally selected' evolution which already surrounds us and is us—quick fur-fixes. Recall that Pliny was most disturbed by the naked, furless, seemingly ill-equipped state in which the human being entered The World. Is this the theoretical impetus behind xenotransplantation? There is a sense of discontent which overhangs the human condition; it leads to both brilliant observation of our material environment, to greater and greater depths with scientific tools, as well as to an impatient unwillingness to accept our lot, our fate, to wait for evolution to make choices for our us, or rather for our offspring and not us. The discovered plenitude of the environment and other beings is interpreted as humanity's lack, an inequity we seek to correct through a utilization, often a hijacking, of difference. Death is an inevitability (Isn't it? Is it?), but if we could only prevent this, reverse that, cut-and-paste a little of that over there to this over here—Nature be damned, then maybe…

An article published October 2019 in the World Journal of Stem Cells, shows the persistence of this 'maybe'. The article, which discusses limiting factors in the tissue engineering industry, begins, "Tissue engineering has yet to reach its ideal goal…"[88]; I will attempt to briefly unravel this 'ideal goal' as a means of saying something about human medical ambition in general. My impression is that this ambition has not changed

[87] Haraway, 'Duke University Press - Staying with the Trouble', 46.
[88] Mohammadhossein Khorraminejad-Shirazi et al., 'Aging: A Cell Source Limiting Factor in Tissue Engineering', *World Journal of Stem Cells* 11, no. 10 (26 October 2019): 787, https://doi.org/10.4252/wjsc.v11.i10.787.

over time; we are addressing the same issue of mortality—our issue *with* mortality—with new biological and material borrowings. To save time and space, I will abbreviate the relevant science of the article. Cells, the building blocks of biological organisms, die. Stem cells, the instigators of cellular proliferation, they die too; before this, they slowly lose their ability to proliferate new life, new cells. This, in essence, is the basis of mortality as explained by the current scientific model of the human being; our regenerative ability declines, and death on a cellular level, caused by many external and internal factors, eventually overwhelms the capacity for organismic ongoingness. *C'est la vie*. The finitude of the life *of a single life* (our own) is a problem, but the cyclic nature of life in general around us makes us wonder whether repetition, rejuvenation, a return to the past in the future, is not possible. This doubt-denying assertion reminds me of a certain literary character:

> "Can't repeat the past?" he cried incredulously. "Why of course you can!"
>
> He looked around him wildly, as if the past were lurking here in the shadow of his house, just out of reach of his hand.
>
> "I'm going to fix everything just the way it was before," he said, nodding determinedly.[89]

Jay Gatsby's 'fixing' of course ended tragically, Fitzgerald meaning to warn us that the past cannot be retrieved. But life is patterned, it repeats itself, nature is full of mimicry, and species are chocked full of genotypic and phenotypic identicality and approximation. New life is reminiscent of old life and this gives our desire for repetition hope. The spirit of Gatsby becomes hard to shake in such an environment. But intersubjective compatibility is more subtle and hidden—trickier than expected our science is finding, and the ethics of sourcing the project of self-renewal are questionable. It's a problem. Previous to the secular scientific world, this problem was dealt with via manipulation of the terms of the *next* life, the *afterlife*, or, to a lesser extent, through the pursuit of alchemy, magic, placation to the gods, or perhaps the use of a plant or animal to extend *this* life. Human mortality has always bothered humanity (logically enough),

[89] F. Scott Fitzgerald, *The Great Gatsby* (London: Penguin Books, 2013).

the Greeks and Romans obsessed over it at least as much as we, they only seemed to lack the egoistic confidence to confront it 'here and now' as an *exclusively* material dilemma. Today this problem is addressed head on 'as if' we are the sole agents of our own immortality—but, as current research shows, immortality folds in on itself and death casually filches our confidence with a serious ethical refrain.

The article, "Aging: a cell source limiting factor in tissue engineering", deals with the problem of aging and senescence in stem cells, and discusses various geroprotective measures which may be pursued. The authors' impression is that "although aging is an inevitable process that can eventually limit the function and stemness of stem cells, it is a conquerable phenomenon"[90]. His message is understated but clear: *Someday human cells will not be limited by aging. Someday mortality will be overcome. Someday we will live forever, be im-mortal* (cue the scent of melting wax beneath the scorching sun). In the article, three cell sources are discussed: autologous (the recipient is also the donor), allogeneic (the donor is the same species), and xenogeneic (a different but as-compatible-as-possible species is used). Medically and ethically, each of the three donor types has its draws and drawbacks, and the ensuing conversation surrounding the choice to be made is enlightening to the concept of multispecies medicine, to its material possibilities and limitations, and to its ethical constraints in the face of possibility and choice. A xenogeneic cell source provides the most straightforward entry into multispecies medicine, but not by any means a simple one. As the article states, "a great number of ethical red tape and immunological roadblocks are yet to be surpassed"[91]; graft rejection and zoonotic infection via unidentified viruses are a few of the serious risks we are already aware of in the incorporation of the other. The 'ethical red tape' cited here, is referred to in the article as 'sacrificing animals', which begs the question as to which deity is the recipient of this sacrifice… *our collective human selves?* My suspicion is that this wording is merely a way of avoiding the discomfort of harsher verbal descriptors for the medical use of animals…killing…murdering…slaughtering; whichever language is chosen to discuss the ending of one life to extend another, we recognize a problem. An

[90] Mohammadhossein Khorraminejad-Shirazi et al., 'Aging: A Cell Source Limiting Factor in Tissue Engineering', *World Journal of Stem Cells* 11, no. 10 (26 October 2019): 787–802, https://doi.org/10.4252/wjsc.v11.i10.788.
[91] Khorraminejad-Shirazi et al., 790.

autologous donor sounds like the solution to both the medical and ethical barriers of xenogeneic transplantation. The main issue here, however, is that the recipient, as we might expect of a medical patient, is more often than not a poor candidate for donation of healthy, viable cells in any significant number; "age-associated morbidities and cellular senescence"[92] of autologous donors is a seemingly unscalable wall for medicine. You can't treat the sick by means of the sick.

Previously, as for Icarus, the notion of evolution via genetic mutation and natural selection was unavailable to think. For Icarus, the way to evolve was post-genetically, to dawn a wax-grafted costume and take flight; the curious experimentation was understandable. But what is our excuse? To be clear, this is not a criticism, merely a critique. We know a change is coming to our species; somehow, someway, in the distant future (if there is a distant future for our species) the species we are will cease to be 'as is'. As discussed in a later section, evolution by natural selection, and supplemented by Horizontal Gene Transfer via viral infection, these are what we believe most strongly in as the drivers of change for all species including our own. Still, this is not enough. We seek to tap into the genetically gifted tools of our animal, mineral, vegetal co-habitants of the planet for the sake of food, clothing, shelter, *medicine*. From the standpoint of wholistic 'health' or 'well-being', these are all forms of medicine; they allow us to live on and thrive within new and challenging environments, to face and avoid problems instigated by nature or humanity itself, to realize imagined material existences that transcend all basic notions of health, refiguring 'life' itself.

Michael Marder complains that "rationality sets bounds, rules, and winners"[93], whereas actual Nature, the aforementioned 'natural selection', which the scientific community fought so hard to establish, is unbound materially on the time-space continuum. Post Darwin, we know that for a being, potential manifests or does not, but that a particular being is not limited to or by its manifestation, rather, it is defined by its ability to manifest change across generations, through reproduction and mutation, as a solution to problems of existence; Horizontal Gene Transfer only showed this history of evolution to be more rapid and random than even Darwin could dream. We of course

[92] Khorraminejad-Shirazi et al., 789.
[93] Michael Marder, *Plant-Thinking: A Philosophy of Vegetal Life* (New York: Columbia University Press, 2013).

cannot help but see solutions to our present problems and future dreams all around us in divergently evolving Nature; the vegetal, animal, mineral, the organic and inorganic, are constantly proving themselves capable of feats beyond our means—some of which we steal and graft in order to, successfully as Daedelus, or unsuccessfully as Icarus, fly from our current status, or transcend what ails us. Icarus' 'fly me to the sun' has more recently become Bart Howard's 'fly me to the moon', but the ambition is the same, to paraphrase Nietzsche from memory: 'the desire to incorporate everything', one being at a time, until all of our problems are solved, all of our ailments eradicated, all of our material dreams realized. So rather than thinking of the most recent cell science as something entirely new, might we let the Greek *xenos* harken us instead back to humanity's many previous attempts to invite otherness in. *Xeno*transplantation is a dog-headed, Cartesian-confounding animal, which has been gnawing at medicine since before its official inception, and if we count evolution as a medicine of sorts, as a series of solutions to environmental ailments, then 'Medicine' proper is just an impatient, ambitious formalization of this process, of life adapting to life, of beings adapting together/against/with/alongside other beings.

Two possibilities exist for interpreting how Pliny might have accepted this mountain dwelling race as human. Perhaps a dog head is not enough to make a human more or less than human, perhaps, despite barking like a dog, these beings think 'humanly' enough to be *thought of* as human by their judging human compatriots—Ctesias, Pliny, their audiences and contemporaries. On the other hand, the somewhat fixed lookout from which I survey the varieties of human race in Pliny, makes it hard for me to comprehend such plurality *within* what I am told should be a fairly narrow category… 'Anatomically Modern Humans'. Humanity presently has enough trouble comprehending its own differences in gender, skin colour, language and religiosity, without adding dog-headedness to the mix. We *know* what a human being is, I would argue that sometimes we think we know *too much* what human being is. Pliny was able to suspend, not just belief, but knowledge of what a human being is, in a way that we struggle with. I am sure I will say this again, but Pliny's 'correctness' is not always the most relevant factor in his ability to help us think about medicine.

There are more examples in *The Natural History*, which show Ctesias' account not

to be an uncharacteristic inclusion, In Book VII.ii Pliny again writes:

> At the extreme boundary of India to the East, near the source of the Ganges, he puts the Astomi tribe, that has no mouth and a body hairy all over; they dress in cottonwool and live only on the air they breathe and the scent they inhale through their nostrils[94]

What is perhaps most fascinating about Pliny's impression here, is not that these beings exist at all, it is that these beings are still, to him, undeniably 'human'; they are simply of a different tribe:

> These and similar varieties of the human race have been made by the ingenuity of Nature as toys for herself and marvels for us. And indeed, who could possibly recount the various things she does every day and almost every hour? Let it suffice for the disclosure of her power to have included whole races of mankind among her marvels.[95]

Here, humanity is not seen as the maker of itself, but the marveller of itself and its variegated specimens. Throughout this section I have been trying not necessarily to problematize, but to highlight a trend, one which traces itself back to Pliny's stories and before, but that has been 'ramped up' with new scientific discoveries regarding the human body and Nature at large. Medicine today is more transparently *both* marveller and maker, or at the very least, the human scientific-medical investigation into, and to give it credit, understanding of Nature, has reached a point where the two seeming opposites—marvelling and making—are coming noticeably closer together. Medicine and the humans who practice and utilize it, have, as is often accused of physicians superficially, a God complex; the Nature as God of Pliny's *Natural History* is losing its grip and mystery as humanity accomplishes what Pliny set out to accomplish in his voluminous treatise, to know all of Nature, that is, Life.

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[94] Pliny The Elder, 'NH (Rackham: LCL)', bk. VII.ii.25.
[95] Pliny The Elder, bk. VII.ii.32.

I suppose in all this, I merely wish to highlight one longwinded and multifaceted question:

Is humanity an unknowably variegated species, always susceptible to change because of the modifications of matter within space-time, and the genetic opportunities of reproduction and death, in a world of infinite others constrained by the same conditions and thus divergent, and/or/but, is humanity headed at once backwards and forwards toward a transgression of time, space, and material difference through the incorporation, destruction, and dissolution of all otherness, made possible by science, technology, the knowledge and manipulation of matter over time and in space, headed towards the end of reproduction and death—two ideas antithetical with immortality? Furthermore, which one of these does Medicine attempt to nurture?

I have suspicions of my own, preferences and biases, but the point in this question is not to tell an imagined singularity of 'Medicine' what its motivations are or must be, it is to point those who draw upon this term 'Medicine', to have them think about the plurality of motives that move a patient to seek treatment and practitioner to treat. The question *what do we seek?* must be pursued at an individual level by anyone who hopes to bring an *informed* contribution to medicine or benefit from it, rather than to merely participate with blind excitement and unconscious hopes. What I have tried to clarify through this scrapbooking of human grafting endeavors, is that, to borrow from Haraway, "human beings are not in a separate compost pile. We are humus, not Homo, not Anthropos; we are compost, not posthuman".[96] Pliny's Stoicism was good at this, in part. The Stoic soul was denied a lofty afterlife, decomposing instead amidst a moving and growing and recycling web of vegetal and non-vegetal tentacular being. "Nothing makes itself",[97] says Haraway, which I would reroute here to "nothing heals itself". We are aware of this, as our stem cell research shows; we are not looking exclusively to our own individual selves for our internal 'refreshment'. We leave our hybridity out in plain site on the laboratory table. So just as human beings are not in a separate compost pile, which we might phrase as "nothing dies itself", additionally, nothing comes to life, sustains, or heals itself. To state once more Haraway's words, health in both Pliny's medicine and our

[96] Haraway, 'Duke University Press - Staying with the Trouble', 55.
[97] Haraway, 58.

own today is little more than a "good enough quasi-individuality to get through the day".[98] Pliny's tales of medicine mirror, in the unique language of 1st century Rome, Haraway's tales of bobtail squid or pea aphid symbiosis; the modern genomics boom has enabled the revelation of multitudes of symbionts, but ancient medicine was already dabbling in this reality—that a renunciation of individuality is required to thrive or merely get by as a human symbiont. The human patient is not all that human after all.

Interlude: A Brief Note on Health and Illness in the 1st and 21 centuries C.E.

The basic premise of medicine across all time periods is that health is a state which can return once it has temporarily and partially left, been interrupted, sent off kilter. To permanently and wholly "lose" such a state would of course imply death; and while enlivening the dead is not unheard of in the ancient world (even in *The Natural History*), I will here limit my discussion of plant medicine to the treatment of the living person whose health has only temporarily been upset. Nevertheless, with certain plant-based medicines found in *The Natural History,* a negotiation with death becomes the central theme of their use.

For health to return to the *un*-healthy human person, be it the 1st or 21st century, the trauma, humoral imbalance, divine prompt, biological pathogen, or other such affront to their initial equilibrium must be dealt with. Of course, how this was thought to be accomplished, and indeed sometimes how it *was* accomplished—for people had and have been healed in both the 1st and 21st centuries—was different in Pliny' world than it is in ours. But, there is one commonality in healing practices across time which is essential for a greater understanding of how both human and plant ontologies affect medicine: the chosen treatment is thought to be compatible or relatable to the patient in some way, even if it is simply more of the illness' cause, as in homeopathy. There is a believed relationship between the plant that heals, and the patient who is healed, just as there is between any treatment and patient. Absolute incompatibility or lack of relationship would

[98] Haraway, 60.

simply result in a failed treatment: a rejected organ donation, an allergic reaction to a drug, or a poorly fit prosthetic. Similarly, for plant medicine to be enlisted, an imagined (correctly or not) relationship between plant and human being is a necessary precursor. More specifically, there must be seen to be a more or less positive compatibility specific to the ailment between one type, species, or instance of a plant—a unique and singular plant being and its qualities, or sometimes several unique plants or other vegetal and non-vegetal healing partners, and one equally unique human being—an individual patient. What that relationship is, has been negotiated philosophically and scientifically throughout history, by rearranging the ontologies of plants and persons, and thus their relationship to each other as well. So, the way a particular plant is employed in the healing of a person, relies on the ontology of both the plant and the human being, and these ontologies must not be so divorced as to negate the belief that a relationship exists or could be formed for the sake of one healing the other. Needless to say, if a plant is used by a physician as a method of healing, unless he is a complete charlatan, there is an implied belief in two ontologies, and most importantly, a belief in a relationship between these ontologies. Part of the great utility of *The Natural History* is that it re-iterates at length the peculiar interactions between plants and persons, beginning with the plant's gatherer, and continuing to involve the physician or general user, the afflicted person, and the uniquely apropos medicinal plant, who are all tied together within the watchful cosmos by the act of medicine. From this we can glean much about the ontological arrangement of Pliny's era and area. As plants and plant medicine occupy roughly half of Pliny's encyclopedic work, and as these eighteen middling vegetocentric chapters reveal, *The Natural History* fancies not just 'a relationship' between us and plants, but a complex, multifaceted, frequent and thoroughgoing one. People in Pliny's world interacted with plants, for better or worse, on a much more frequent basis and in a much more intimate manner than all but the most obsessive botanist or eccentric herbologist might today. In fact, even in *The Natural History* we see Pliny lament over a loss of connection of the Roman with the botanical world, which has become alien as a result of cumulative societal factors; how much more so today.

(In reading over this again, I want to say something about how science and technology has allowed this lack of intimacy, but how an imagined lack of intimacy

encouraged a distancing through technology too, and that here we are today, unsure of which led to which—but the order nevertheless does not matter because the fact is that here we are in this 'situation'. And further, that it is not worth discussing whether what has been imagined is correct, as we clearly have the ability to shape the world based solely on imagined ontologies, and thus to prop up those ontologies with the fact of our having acted upon them as if they were certain and not only imagined).

There is an interesting relationship between ontology and intimacy that a study of plant medicine in the ancient world makes apparent to us in the current world. The difference in our intimacy with plants, which I here define as inclusive of a literal personal, sensual, and intellectual proximity to them, cannot but be related to an ideological proximity. I once had occasion to speak to a farmer, whose method of interacting with plants comes to mind at present. Like many, this farmer uses a GPS guided, yet 'manned' tractor, to seed and harvest fields. As no active involvement in the harvesting of wheat is required, he reads e-books, listens to music, watches movies, sleeps, or on the occasion of my conversation, answers farm survey questions over the phone. By my definition, there exists in such examples a lack of intimacy even in physical and psychological proximity. To contrast, I suggest that plants were much more intimately 'manned' (used by humanity) in the examples which I will explore going forward in *The Natural History* than in the above example, where the machine is barely 'manned', and the plant is 'machined'. This is especially true in cases of medical practice in *The Natural History*, where recognition of the relationship between the plant and procurer, patient, or healer was seen as essential to the harvesting and healing process. In speaking of relationship, Part Three of this thesis picks up my discussion of 'The Human Patient' of Pliny's World and has them meet a series of plants as medicines. Identifying the implied human and plant ontologies which Pliny refers to, and reinforces himself in his discussion of plant medicine, is only half of my task. As a 'host' for a gathering of plants and the people who think and write about them—at my desk, in my head, on paper, at my defense—my greater ambition is that I am changed by welcoming a conviviality with plants, that "the host is no longer the same."[99] More so, I hope that I have taken my due turn in instead being useful to plants, which offer myself and all of humanity the

[99] Michael Marder, *Grafts: Writings on Plants* (Minneapolis, MN: Univocal, 2016), 15.

capacity to live, breathe and be nourished, as a foundation for even thinking about words we have singled out like 'health' or 'medicine', and which are sometimes forgetfully spoken about without reference to the atmosphere which vegetal being provides as air through which such words might be uttered.

PART THREE: Medicinal Plant Ontology According to *The Natural History*

> Plant processes as well as vegetal images and metaphors, exert a formative influence on thinking[100] – Michael Marder, *Grafts*

Vegetal Dreams

I am going to propose an untested hypothesis going forward, that the tangible physiological mechanism which coincides with what we call "dreaming" is the same today as it was in Pliny's time. This is not to say that the cause or content of dreams is unvaried, but merely that what happens physiologically when dreams occur is comparable in human beings across time, barring any major evolutionary changes which biology may have noted over a vastly longer period than I am here considering (roughly 2000 years). It is necessary that we hold to this idea, which may seem obvious, in order to say anything productive for ourselves today about how dreams were interpreted in 1st century Rome. With this foundation, we can have a conversation about how dreams and other states of consciousness, and their relationship to one another, was, *without any actual physiological difference*, conceived of in a much different fashion. This socio-cultural and philosophical difference, ignoring the variable of physiology, is where we find something fascinating and perhaps productive to speak of. Today, due to instrumentation, we understand much about brain activity, what happens where and when in various states of consciousness, we can track with electroencephalogram the strangely

[100] Marder, 74.

active but non-communicative brain during anesthesia, yet consciousness itself remains a mystery. Dream interpretation is therefore one of those areas where indulging in past theories remains a productive enterprise.

Whereas today dreams are largely ignored as a factor in the health care of an individual, the established ontology of consciousness in 1st century Rome gave the experiential content of dreams a natural voice across the whole spectrum of human healthcare. To make this fundamental difference clear, I give the example of a September 2018 article, "The Phenomenology of Dream-Reality Confusion: A Quantitative Study".[101] We can note from the tone of this title alone, a distinct difference in the most basic definitions of both the terms "dream" and "reality", a distinction which did not hold as firmly for a Roman of the 1st century CE. The article assumes the existence of two utterly distinct states, not merely experientially different, to the point that "DRC", Dream-Reality *Confusion*, today defines a believed medical pathology worthier of quantitative study than dreams themselves. DRC is stated to have crossovers with neuroticism, borderline personality disorder, proneness to fantasy, and dissociation from what is established today as "reality"[102]. Essentially, any blurring of the lines between "reality" and "dreaming" is considered a divergence from the normal towards the abnormal. In the 1st century CE, as evidenced in *The Natural History*, and extending both backward and forward many centuries, this was not the case. William Harris, in his study of dreams in classical antiquity, has argued that there is continuity of dream representation from ancient Greece, to Rome, through medieval Europe, ending only with secularization in the sixteenth and seventeenth centuries.[103] The proximity of this immensely different representation of dream experiences to our own time today is intriguing; using medical plant ontology as springboard into this discussion affords a useful specificity that has not been employed prior.

If Pliny says nothing about "confusing" dreams with reality, this is because dream states and waking ones were permitted to intermingle as the unified consciousness of the individual. In other words, the confusion was not over *whether* dreams had meaning in

[101] Dagna Skrzypińska et al., 'The Phenomenology of Dream–Reality Confusion: A Quantitative Study', *Dreaming* 28, no. 3 (2018): 245–60, https://doi.org/10.1037/drm0000078.
[102] Skrzypińska et al.
[103] Skrzypińska et al.

the "real" world, but *what* meaning. At worst, dreams in antiquity were "meant" to mislead, to confuse the dreamer into acting with false confidence, as when Zeus sends 'dire Dream' to trick Agamemnon into attacking the Trojans in *Iliad II*; but this confidence was only derived from the certainty that dreams often did bear truth. And even when we see avid doubt about the divine origin of particular dreams, or even *most* dreams, as with Artabanus, who asserts that dreams are generally "remains of the day"[104]—an interpretation that still holds weight today, *some* dreams, as in Herodotus' *Histories*, where a tall fine-looking man appears before Xerxes on two occasions, are yet credited with genuine divine origin. Here, a second dream of the same nature was enough to clear Xerxes doubt and elevate the dream from psychological debris to divine dictate. The confusion was not that the dream 'seemed' real but clearly was not, it was that the dream *was* real, but Xerxes could not be absolutely sure of the dream's ontological origin. In the context of Greco-Roman dreaming then, DRC takes on a different meaning. There is in practice *less* confusion today when we (most of us) are absolutely decided upon the impossibility of dreams being related to reality, than in a world where dreams may or may not be of divine origin, may or may not be revelatory, and may or may not be delivered with honesty. There was much more to be considered 'post-dream' in Pliny's world than in our own secular Western scientific one where they are just interesting stories around the breakfast table. In *The Natural History*, Pliny retells several dreams involving plant medicine, the ontological status of which already having been determined to be divine. This leaves us to find new ways of conceptualizing dreams and their content, which may include animal or vegetal being, the individuals who dream, spiritual figures who appear in or deliver dreams, as well as ordinary 'reality', none of which can be assumed to have held the same ontological relationships to one another as they do today.

In his study on dreams in classical antiquity, Harris makes the distinction between "epiphany dreams" and "episodic dreams"[105], both of which are present in *The Natural History* as ways in which a plant medicine may come to be '*pre*-scribed', a truly fitting word considering the time stamp on the dreams' content. The first thing we may notice

[104] William V. Harris, 'From Epiphany to Episode: A Revolution in the Description of Dreams', in *Dreams and Experience in Classical Antiquity* (Harvard University Press, 2009), 25, https://www.jstor.org/stable/j.ctt13x0jbg.7.
[105] Harris, 'From Epiphany to Episode'.

about both ‘epiphany’ and ‘episodic’ dreams is that they point to, prescribe, or depict ‘real’ possible *futures*. Linear time is thus the first of today’s constructs which dissolve in ancient dreamscapes. There is no medicine today which any physician would be comfortable suggesting works with 100% assurance. By contrast, an epiphany or episode in a dream, barring trickery or incorrect interpretation, was a definitive cure waiting to be employed. But this difference is not absolute; we should note here that ultimately both today’s pharmacological medicine and the botanical, herbal, or vegetal medicines of the past merely had different ways of circumventing the problem of inefficacy. Nevertheless, the ability to imagine a future where whichever illness confronting one is no longer present is a feature of both past and present medicine. The distinction is that the successes and failures in achieving said future state were and are explained in different ways. Today, a *plant* is something you find outside growing from the ground, and if they appear in a dream, they are not considered to be present in consciousness in any actual, or perhaps I should say *real*, way. The only way a plant is thought to have a relationship with consciousness in our current consensus on reality, is to interfere with it in various ways chemically—to sharpen, heighten, blur, or completely distort. Sometimes the stronger of these psychoactive drugs are called ‘reality altering’, but what is really implied here is that one’s grasp on reality is temporarily ‘lost’ and it is generally understood that what was experienced during this time was in no way ‘real’. To contrast, the following examples from *The Natural History* provide a glimpse into the various ways that dream content found its way into reality prior to being ingested or otherwise interacted with in any ‘hard’ physical way. Dreams here operate as a space, one not bound by linear time, where mythology, physical landscape and particular embodiments of vegetal being, specifically medicinal plants, were seen to merge with real future healing events. A dream here is not a different order of consciousness incompatible with reality, but an equally real state which shares a border with wakefulness; this is a border which various entities—people, plants, places, animals, and gods—are able to permeate, revealing or recommending future action.

In book XXII.xx of *The Natural History*, Pliny relates a story about the dream prescription of the plant *Perdicum*:

> Perdicium or parthenium or, to give it yet another name, sideritis, is another plant, called by some of our countrymen urceolaris, by others astercum. It has a leaf similar to that of basil, only darker, and it grows on tiles and among ruins. Pounded and sprinkled with a pinch of salt it cures the same diseases as dead nettle, all of them, and is administered in the same way. The juice too taken hot is good for abscesses, and is remarkably good for convulsions, ruptures, bruises caused by slipping or by falling from a height, for instance, when vehicles overturn. A household slave, a favourite of Pericles, first citizen of Athens, when engaged in building the temple on the Acropolis, crawled on the top of the high roof and fell. He is said to have been cured by this plant, which in a dream was prescribed to Pericles by Minerva; therefore, it began to be called parthenium, and was consecrated to that goddess. This is the slave whose portrait was cast in bronze, the famous Entrail Roaster.[106]

The above extract reiterates the story of an 'epiphany dream', where Parthenium, as it was thereafter called, was prescribed by Minerva, here as Minerva Medica (goddess of medicine and physicians), to Pericles. In Pliny's time, we can see that Parthenium is believed to be 'remarkably good' for precisely the type of physical injury to which Pericles' household slave succumbed after falling from a rooftop. The epiphany dream is thus a one-time event whereby a cure comes to be prescribed not only in one particular instance, but for any occasion thereafter. What might we conclude about the nature of plants and plant medicine from this dream and Pliny's commentary? I will use another example shortly to make this more apparent, but it already seems to be the case that a god, an overarching demiurge, or the Stoic superlative Nature itself maintains a special relationship to plants. Here we see a plant which otherwise exists in a 'real' physical landscape, offered in a dream by a goddess to a sleeping man. What is this plant's true origin and ontology? Is it merely a physical entity as we would be content to label it today? How could it exist in the hand of a goddess to be given if this were so? It might be simpler for us to say that the prescribed *perdicum* outside of the dream and the *perdicum* given by the goddess Minerva in the dream, are two completely distinct things that are

[106] Pliny The Elder, 'NH (Rackham: LCL)', bk. XXII.xx.43-44.

only brought together by the story of the treatment's success. However, this serves only our current sensibilities, and I do not believe that this is how Pliny or any other Roman imagined it. It also does little to *explain* the content of dreams or the efficacy of vegetal-medicines in any satisfying way for us today. The *perdicum* of Pliny's reiteration was imagined rather to always already belong to multiple places, times, orders of being and states of consciousness at once—for this we have no satisfactory response that is not condescending or dismissive.

Looking at another example of vegetal dreaming from Book XXV.vi, we see the episodic revelation of *cynorrhodon*, by 'chance', as a cure for a very specific problem:

> There is no sure method of discovery; for even of those we already know chance has sometimes been the finder; at other times, to speak the truth, the discoverer was a god. Down to recent years there has been no cure for the bite of a mad dog, a symptom of which is dread of water and aversion to drink of any kind. Recently the mother of a man serving in the praetorian guard saw in a dream how she sent to her son to be taken in drink the root of the wild rose, called cynorrhodon, which by its appearance had attracted her the day before in a shrubbery. Operations were going on in Lacetania, the part of Spain nearest to Italy, and by chance it happened that the soldier, after being bitten by a dog, was beginning to show a horror of water, when a letter arrived from the mother, who begged him to obey the heavenly warning. So, his life was unexpectedly saved, as was that of all who afterwards tried a similar remedy.[107]

'Chance' – *fortuna*, thrice mentioned in this dream's discussion, is a main character in ancient Roman affairs, but Pliny clarifies that the use of chance as an explanatory mechanism has gone off the rails, and that for him chance is not a deity, 'Chance' or 'Fortune', but a retrospective descriptor of the operations of God or Nature seemingly beyond the coincidental, but not yet understood by humanity. For Pliny, the deification of the turn of phrase 'by chance' into 'Chance' or 'Fortune' acts as a most confusing and inconsistent intermediary between humanity and God; Pliny indeed ranks the deified

[107] Pliny The Elder, bk. XXV.vi.17-18.

Chance amongst the likes of oracles, prophecies and trifle omens such as a sneeze. This distaste for an irrational and unexplainable World is consistent with Pliny's opinion of God, who he asserts must be more so the epitome of sensibility and order than a being of happenstance and whim, or one who relinquishes control of his creation to a deity favouring disorder and chaos. By his complaint, we can be fairly certain that the 'chance' used in Pliny's description of *cynorrhodon* is not the deified 'Chance', but a richer sense of the word in which *'by chance'* refers to something wholly materially explainable (just not at the time)—a Godly or Natural but misunderstood relationship. The story above of the dream involving *cynorrhodon* is telling of how Pliny imagines chance to operate; below, to contrast, is his venting about Fortune in Book II.v:

> Nevertheless, mortality has rendered our guesses about God even more obscure by inventing for itself a deity intermediate between these two conceptions. Everywhere in the whole world at every hour by all men's voices Fortune alone is invoked and named, alone accused, alone impeached, alone pondered, alone applauded, alone rebuked and visited with reproaches; deemed volatile and indeed by most men blind as well, wayward, inconstant, uncertain, fickle in her favours and favouring the unworthy. To her is debited all that is spent and credited all that is received, she alone fills both pages in the whole of mortals' account; and we are so much at the mercy of chance that Chance herself, by whom God is proved uncertain, takes the place of God.[108]

In the example of *cynorrhodon*, the chance to which Pliny refers precipitates from two related occurrences transpiring within the intelligent and aware cosmos in different locations but at the same time; from this, one can infer that there is a most intimate correlation between plants (and perhaps other organic beings or material objects) and events, where a dream is 'triggered' on the 'chance' event of a 'cure' and a 'need' flickering their existence at one and the same time within a singular, connected, and self-aware Nature. This is the cosmic equivalent of becoming aware of an itch on your left foot and knowing the nail on your right index finger would take care of it nicely at once—*but*

[108] Pliny The Elder, bk. II.v.22.

applied to the whole cosmos! From the perspective of a human being within the larger cosmos, this might only be referred to as 'chance', which implies an 'intuited' positive and purposeful relationship between events, however beyond mental apprehension. Pliny opposes the existence of an entropic deity contradictory to the idea of an orderly cosmos; in this both the Stoics and Platonists would approve.

A mother and her relationship to her son is perhaps significant here too; would the plant have caught anyone else's eye? The mother here happens upon a shrubbery containing *cynorrhodon* and takes notice. Why does it catch *her* eye? Because in the time-bending cosmos, there is already an inkling of a future dream, a dream of an even further in the future employment by her son, the praetorian guardsman, of *cynorrhodon* as a plant medicine designed to be used for exactly the ailment from which he suffers. We see with other plants that who one's parents are must be vocalized in the ritual of harvesting a vegetal cure; it can be assumed that *cynorrhodon* is tethered likewise to the familial tenor pervading matters of life, death and health which it addresses. The dream here thus operates as an intermediary between the plant in one location and the son in another; the dream is sensibly sent to the mother so that she might know to deliver the rose and the imploring letter to her son in the nick of time (but it is obvious that time was never going to be a problem). Such a dream would only be odd to the Roman mind if it were sent to a completely unrelated person, who aside from the general impetus of human kindness might lack the motherly motive to bring the dream to fruition. Unsurprisingly, the continuity of life and health is most often a family affair on some level, just as many issues of health in the ancient world are related to reproduction and the successful operation of family life. That dreams may contain both real individuals in their current state of health, as well as specific plant species and their future employment as medicines, says something about the ontological status of dreams, beings of various kinds—here plant and human, as well as the behavior of time within different states of consciousness. It could from this example be argued that dreams in ancient Rome had a greater relationship to 'reality' than ordinary waking consciousness, which lacked access to anything but present time and the limited space of one's cognizable surroundings.

The main thing which science and medicine can learn from Pliny's tales of dream prescription, is that *no explanation* is not a suitable explanation for anything within the

cosmos; to say that something happens randomly and without purpose is only to say that we don't understand the purpose and have not fathomed the relationship between one thing and another. To ask only whether *parthenium* or *cynorrhodon* 'work' as prescribed is to miss the underlying *prescription* by Pliny and the Roman mind—that it is okay to exhibit a little *faith* in the meaningfulness or potential comprehensibility of material existence, which is what drives scientific enquiry in the first place. Where some might read these ancient stories of dreams as just that—*stories*, science actually needs us to entertain our dreams and not just be entertained by them.

The Waking Dream of Myth: Aconite, Life and Death

> Perhaps all writing, is motivated, deep down, by a fear of and fascination with mortality—by a desire to make the risky trip to the Underworld, and to bring something or someone back from the dead.[109] - Margaret Atwood, *Negotiating with the Dead*

> It matters which stories tell stories.[110] - Donna Haraway, *Staying with the Trouble*

In her *Staying with the Trouble: Making Kin in the Chthulucene*, Donna Haraway is bold enough to imagine an epoch grounded in recognition of an interconnected world. Hopeful for *Terra*, not too terrified to hope, she calls this possible epoch the Chthulucene. In these troubled times, Haraway outlines the need to think and see existent and potential kinships that challenge the boundaries of family and offspring. Such a newfangled epoch is really just a call to stay present with what we are: "mortal critters entwined in myriad unfinished configurations of places, times, matters, meanings".[111] Staying present however requires work, the work of active recognition of that which we are, *or could be*, entwined with "a thousand somethings else",[112] each an unfinished worlding, stretching spatio-

[109] Hadley, *Hollow Places*, 311.
[110] Haraway, 'Duke University Press - Staying with the Trouble', 37.
[111] Haraway, 1.
[112] Haraway, 52.

temporally, challenging human exceptionalism with their "more-than-human flesh".[113] These are the "chthonic ones,"[114] the very earthbound species here and now all around us, "replete with tentacles, feelers, digits, cords, whiptails, spider legs, and very unruly hair".[115] As a keeper of rather homely poodles myself, the overgrown and haphazard curls of a dog are the first thing that 'unruly hair' calls to mind, *and let us not get started on unruly behavior*. But there is another dogged character from the ancient world, along with its vegetal offspring, which even more aptly fits each and every adjective and trait which Haraway sets forth. I hesitate to call the former a dog and the latter a plant because of their very multispecies natures; *hesitation in naming a something as an individual being is a good pause to make*.

To do proper justice to an earthbound study of the herbaceous, hearty, perennial magnoliophyte medicine which Dioscorides termed *aconitum*, the *Through the Looking Glass* Carrollism '*down the rabbit hole'* is an appropriate description for where one must go, for this plant does not enjoy coming out into the light. Haraway writes of her remembrance "that *tentacle* comes from the Latin *tentaculum*, meaning 'feeler,' and *tentare*, meaning 'to feel' and 'to try'",[116] and so I will conjoin the two, to 'try-to-feel' my way around in the dark Heraclean soil and below as I embark upon this underworldly adventure. Let us go then, you and I, down to where a thousand somethings else compose a chthonic canine—Cerberus, from which, like for all plants, with a little sunlight, the potent poison of Pontus, *aconite*, sprang sympoietically forth.

The AACC tells us that "In Western medicine preparations of aconite were used until just after the middle of the 20th century, but it is no longer employed as it has been replaced by safer and more effective drugs and treatments".[117] Certain traditional and folk medicines—Chinese, Slovenian, and Indian among others—still employ variously processed and detoxified versions of the plant, in which the dozen or so deadly antiarrhythmic alkaloids are deactivated… *usually*. From personal experience, as of 2015 in Varanasi, Ayurvedic preparations could still be acquired with relative ease from any local

[113] Haraway, 52.
[114] Haraway, 2.
[115] Haraway, 2.
[116] Haraway, 31.
[117] 'Monkshood | AACC.Org', accessed 20 October 2019, https://www.aacc.org/community/divisions/tdm-and-toxicology/toxin-library/monkshood.

Vaidya or even household oil salesman, perhaps why several native Indian species—*aconitum chasmanthum, aconitum heterophyllum, aconitum violaceum*—can be found on the IUCN Red List of threatened species[118]. The potential blotting out, species by species, of this hundred plus member genus which returns perennially to its rocky soil and to our literary history, from Ovid to Keats, Shakespeare to Shelley, reminding us of our relationship to death should not go unnoticed. What is lost when one of our most potent living reminders of both mortality and perennial return disappears from the earth? What does the death of the deathly mean for the health of the planet and those living upon it?

It has already been mentioned that prior to its absolute actual extinction from the earth, which is today ongoing (As Haraway notes, extinction is a long event that draws itself out before us), it had already gone extinct from the collective Allopathic medical system, from so called 'Western Medicine' as such. Is this departure of Hippocratic medicine's heir from the story of *aconite* telling of a changing philosophy of medicine that crept into place over more than two centuries? Is the decommissioning of *aconite* symptomatic of a change in 'our' thinking about life and death? *Aconite's* shady relationship to safety, or might we say, its relationship to shade, is storied; some of these stories might be enlightening. Pliny's *Natural History*, from where my investigation into *aconite* sprang forth, is a good middling place to start, a good place to start meddling.

In Book XXVII.ii of *The Natural History*, Pliny writes of a most rapid and rabid poison:

> But who could revere enough the diligent research of the ancients? It is established that of all poisons the quickest to act is aconite, and that death occurs on the same day if the genitals of a female creature are but touched by it. This was the poison that Marcus Caelius accused Calpurnius Bestia of using to kill his wives in their sleep. Hence the damning peroration of the prosecutor's speech accusing the defendant's finger. Fable has it that aconite sprang out of the foam of the dog Cerberus when Hercules dragged him from the underworld, and that this is why it grows around Heraclea in Pontus, where is pointed out the entrance to the

[118] 'The IUCN Red List of Threatened Species', IUCN Red List of Threatened Species, accessed 20 October 2019, https://www.iucnredlist.org/en.

> underworld used by Hercules. Yet even aconite the ancients have turned to the benefit of human health, by finding out by experience that administered in warm wine it neutralizes the stings of scorpions. It is its nature to kill a human being unless in that being it finds something else to destroy. Against this alone it struggles.[119]

Here we have a most interesting fable, which explores the relationship between the state of death, human medical physiology, a god—Hercules, a mythical beast—Cerberus, the geographical correlate to the underworld on the ancient landscape—Pontus, and a plant—*aconite*, which is the embodiment of this fable and ties all of these elements together into one vegetal being. *Aconite* convenes what Haraway coins "SF"—"string figures" and "speculative fabulation"[120], the multispecies intertwining of beings and beliefs, both in time and timeless, conjuring "what the world in its sheer not-one-selfness is"[121]; aconite even expands Haraway's categories of tentacular being into the mythological without getting lost in the clouds—a no-no for staying with the trouble of this multispecies world.

"The tentacular ones are not disembodied figures," says Haraway, "they are cnidarians, spiders, fingery beings like humans and racoons, squid, jellyfish, neural extravaganzas, fibrous entities, flagellated beings, myofibril braids, matted and felted microbial and fungal tangles, probing creepers, swelling roots, reaching and climbing tendrilled ones"[122]. Pliny's story of *aconite* has all of the above characters…if we allow ourselves the leeway of a little SF—speculative fabulation. The 'fingery' human being is always obvious in the equation, but in the story of *aconite* we have an accused human finger itself, a digit probing into the sleeping life of another, assuming a shared guilt with a plant whose 'swelling roots' offer 'neural extravaganzas' of ventricular fibrillation and tachycardia. Who or what is the *accessory* to murder here? The plant? The person? They are both "critters rendering each other capable of unexpected feats in actual encounters."[123] The human is on the scene, part of the equation, but peripheral in the eyes of the prosecutor. This is the view the Chthulucene asks us to adopt: the decentralization of

[119] Pliny The Elder, 'NH (Rackham: LCL)', bk. XXVII.ii.4-5.
[120] Haraway, 'Duke University Press - Staying with the Trouble', 10.
[121] Haraway, 36.
[122] Haraway, 32.
[123] Haraway, 7.

human being and behavior, not an escaping, but a sharing of accountability, contribution, and susceptibility.

Beyond human appendages, the 'foul-necked', 'shaggy coated' Cerberus, the unsleeping and unkempt keeper, gives us our 'matted and felted microbial and fungal tangles'.[124] Wide awake but underground, he prompts our mind to creep into the complexities of death and consciousness, his many heads bristling and hissing with many-more heads of vipers, which lash and whip and flagellate. Cerberus is always already multispecies, multidirectional, multiple—as messy as the relationship between life and death itself.

And what can we say about Hercules, proving his might and fearlessness in the face of death by traversing the underworld? Was this not all for the sake of fame and glory, is he not the 'reaching and climbing tendrilled one' in this story (like Icarus), a mind seeking transcendence above earthbound mortality by collaring death's doordog? Such aspiration for deification seems to fly in the face of 'making kin in the Chthulucene', Haraway's composting project to relieve us of unsustainable posthumanism. Is humanity's hero evidence of the early onset of today's Anthropocene angst? Are we reading in Hercules the battle between the Anthropocene and the Chthulucene? And is not today's 'trouble' evidence that we adopted the wrong *cene* for the ongoingness of ourselves and the planet? Still, we must thank Hercules in part for the surfacing of *aconite*.

But let me return to the vegetal for the time being.

Aconite is deadly under almost all circumstances; it is the vegetal embodiment of death, coming to life ironically and contrarily (what does this say about the relationship between life and death?) from the foam of the beastly prison guard of the underworld. *Aconite* seems to embody this 'death from below' mythology, housing most of its poison in its seeds and roots which bury themselves and extend tentacularly into the soil. The plant, which seeks to inflict death when contacted, will however accept a more sinister substitute if present, and spare its human 'host'. *Aconite* is much how we might imagine Cerberus in this regard: a living being keeping the dead and deadly at bay, coming to life for the sake of death. *Aconite* also speaks to the human means of perpetuality and life-making: killing the

[124] John G. Fitch and Seneca The Younger, trans., 'Hercules', Loeb Classical Library, accessed 13 October 2019, https://www-loebclassics-com.uml.idm.oclc.org/view/seneca_younger-hercules/2018/pb_LCL062.79.xml.

human being most easily through contact with the reproductive organs which instigate life. This 'double SF'—serpentine fable of supernatural finitude—brings life and death into intimate relationship with one another, where they stand not on opposite ends of a spectrum, but rather side by side in constant tension. This is of course how life and death exist in the human imagination which houses the myth, thought of one instigates thought of the other.

With Pliny's brief rendition of *aconite's* birth, it serves us again to follow the roots of Cerberus, which extend further downward into the underworld and backward into Greek mythology, to find out what other stories tell stories about *aconite* as a botanical beast, a Cerberian cure.

Homer first names Cerberus "the hound of loathed Hades",[125] to which Hesiod adds, "intractable, unspeakable bronze-voiced and fifty headed"[126]; but it is Euphorion who offers perhaps the most striking imagery:

> Golden
> And in his fear
> Thick (droplets?) with foam
> And lurking under his shaggy belly behind him
> The serpents of his tail licked round his ribs,
> And in their lids his eyes flashed out blue-black.
> Such flashes from furnaces perhaps
> In Meligounis, when the hammer smites the iron,
> Dart through the air (and the much pounded anvil
> Groans aloud)
> Or sooty Etna, resting place of Asteropus.
> To Tiryns, to Eurystheus in his spite,
> He came alive from Hades: last of twelve ordeals.
> And at the cross-roads of Midea, rich in barley,

[125] Homer, 'Iliad', trans. A.T. Murray and William F. Wyatt, Loeb Classical Library, accessed 13 October 2019, https://www-loebclassics-com.uml.idm.oclc.org/view/homer-iliad/1924/pb_LCL170.379.xml.
[126] Hesiod, 'Theogony', trans. Glenn W. Most, Loeb Classical Library, accessed 13 October 2019, https://www-loebclassics-com.uml.idm.oclc.org/view/hesiod-theogony/2018/pb_LCL057.27.xml.

The frightened women watched him with their sons.[127]

Euphorion thickens our myth with a few key details, having Cerberus come 'alive' upon exiting the underworld (what was he before?), and telling us that the foam which becomes *aconite* is a product of fear. Death has come to life, and full of fear, spewed a plant which houses medicinal properties we should perhaps expect under such circumstances. Cerberus' fear is itself a product of circumstance, of time and place, the physical location of the underworld being somehow less fear inducing than the light of day. To Cerberus, and *aconite* too it certainly seems, death is less frightening than life. Humanity appears not to have decided between the two (Deepak Chopra once told me it was 'non-existence' we fear rather than death, but he is notoriously flaky in his abstractions). Various authors are also in disagreement over the task Cerberus is charged with; Virgil, Hesiod, and Apuleius contradict one another, does the hound guard the entrance to the underworld, the exit, or both?[128] Regardless, it is difficult to imagine an anatomical profile better fit for the task; Seneca the Younger even has him prick up his ears to hear ghosts,[129] so sensitive is he to the subtleties of death, and as a many dog-eared, many-serpent-tongued chthonic one, we should expect no less acoustic acuity. The apparent contradiction of Cerberus and his relationship to death makes his only true offspring, *aconite*, an equally contradictory sort of medicinal plant. The story of *aconite* provides one of the earliest examples of death being used to sustain life and displays an historically early awareness that a body which harbors the wrong sort of life, too much life, or unwelcome or out-of-place living entities, will succumb inevitably to death.

Time, place and amount are everything when speaking of the lives of living entities on this planet, and the biological balance of the planet as a whole. I relate briefly two stories, one of fire and one of ice—extremes in the human imagination and material world; both speak to the way medicine today has continued in the heritage of Hercules and *aconite*, death ensnared and put to the service of life.

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[127] Euphorion, 'Poetic Fragments', trans. J.L. Lightfoot, Loeb Classical Library, accessed 13 October 2019, https://www-loebclassics-com.uml.idm.oclc.org/view/euphorion_chalcis-poetic_fragments/2010/pb_LCL508.301.xml.

[128] Virgil, 'Aeneid', trans. H. Rushton Fairclough, Loeb Classical Library, accessed 23 October 2019, https://www-loebclassics-com.uml.idm.oclc.org/view/virgil-aeneid/1916/pb_LCL063.563.xml.

[129] Fitch and Seneca The Younger, 'Hercules', 79.

Living in Manitoba, one can scarcely deny that environments and beings are sympoietic. What better and more horrid image of unworlding is there than that of the slow retreat of ice, shattered shards of a world-enabling glass floor, the literal and figurative ground of *Polar-Bear-being*, melting into its arctic substrate. "The circumpolar North bears the brunt of the Anthropocene and Capitalocene," Haraway relates to this already aware Manitoban, "the Arctic is warming at almost twice the rate of the global average. Sea ice, glaciers and permafrost melt; people, animals, microbes, and plants can no longer rely on the seasons. Eating each other properly means meeting each other properly, and that requires good-enough synchronicity."[130] Haraway's last remark makes especially clear sense to me in this present historical moment and in this very place. As spring ice melts into summer in Manitoba, always a little earlier than before, ever shortening the hunting season of the Polar Bear, *this year* the human world is simultaneously held static under its own self-isolation. *This year*, it is clear that we are not so different from the Polar Bear stranded on an ice float and fearing hunger. Amidst these two events, these two simultaneous unworldings of Human and Polar Bear (both of which are imagined to be temporary, but this belief is without certainty), the essentialness of meeting and synchronicity for health and ongoingness becomes a poignant issue. What is enough, what is too much or too little of something, of anything, of any material, action or *inter*action, is a question we now negotiate individually and collectively. Have we not accepted *some* social and economic death as a means of healing and sustaining future life? Right here and now (on May 5th 2020 and in Manitoba) the relationship between the literal meeting of physical beings, the many figurative consumptions of the other in society, and the ability to live healthily is difficult to contest.

To contrast with ice, Haraway also uses the image of fire in her Cthulucene story. Again in Canada, we are taken to a fire set deliberately by Sustainable Resource Alberta (as a Canadian I am shocked that such an entity exists in *Alberta*) to highlight the shifting semiotics of fire in the face of the current environmental crisis. The fire barrier, ablaze near the Saskatchewan River Crossing, was hoped to halt the continued spread of mountain pine beetles, disable future wildfires, and enhance biodiversity.[131] The use of

[130] Haraway, 'Duke University Press - Staying with the Trouble', 73.
[131] Haraway, 44.

fire to fight fire, or worse—the slow death of trees and ecosystem diversity to uncontrolled invasive species, draws interesting parallels to the Heraclean herb under discussion. Haraway calls fire "an essential element for ongoing, as well as an agent of double death, the killing of ongoingness",[132] which could easily substitute as a definition for *aconite*. When a fire is set deliberately by Sustainable Resource Alberta, the goal is to re-assert *sustainability*; the blaze is kept, like Cerberus, on a tight leash, and like *aconite* when employed for a scorpion sting, the hope is that the flames will effect just enough destruction to prevent an unharnessed force from effecting destruction too thoroughly.

Medicine today thrives upon 'double death', even as it only kindles under the surface of our consciousness. Employing *aconite*-esque actors fixed with ever-more precision of delivery, we seek to exclude desirable life from attacks by the deathly medicines we set free throughout the body, or likewise, we inject life-giving foreign bodies to regenerate a body unable to do so itself. This is merely the continuation of the work a fearsome, fearful, frothing dog began three millenia ago, before the Trojans died at the hands of a seemingly innocuous *dourateos hippos*, which they invited within the walls of their city—Troy obviously hadn't heard of Cerberus and his Trojan horse *aconite*. Likewise, had Roman physicians forgotten about Troy in their continued use of *aconite*? It is possible that 'the body as the field of war' was exactly the mechanism their medicine too had been looking for. Other obvious examples of 'subterfuge for the sake of victory' or 'death for the sake of life' in medicine might count amputation, bloodletting, and the like; the concept is the same: life and death are not worlds apart, the underworld is right beneath our feet. These two ostensible opposites meet in the middle for the sake of medical treatment, homeostasis, and *ongoingness*.

As both an ancient and currently in vogue method of healthful living via selectively imposed death, metabolic fire to fight fire, the therapeutic practice of fasting comes to mind. The 2016 Nobel Prize in Physiology or Medicine was awarded to Yoshinori Ohsumi for his work on vacuolar proteolysis[133], "an evolutionarily conserved lysosomal catabolic process by which cells degrade and recycle intracellular endogenous

[132] Haraway, 44.

[133] K. Takeshige et al., 'Autophagy in Yeast Demonstrated with Proteinase-Deficient Mutants and Conditions for Its Induction', *The Journal of Cell Biology* 119, no. 2 (October 1992): 301–11, https://doi.org/10.1083/jcb.119.2.301.

(damaged organelles, misfolded or mutant proteins and macromolecules) and exogenous (viruses and bacteria) components to maintain cellular homeostasis"[134]. Tested first in yeast cells, the process is now instigated like clockwork by countless individuals who fast 'intermittently' on a daily basis, hoping to allow a daily dose of death to rejuvenate the body, while restricting calorie consumption to a smaller window of time; OMAD—one meal a day, 12/8—eating between the hours of 12pm and 8pm, or 20/4—also known as 'the warrior diet' are the most popular phenotypes of this dietary philosophy. And it is a philosophy, is it not? One has to believe that a little death is good for life, that the body safely harnesses its own stable of Trojan horses, that human cellular physiology has ears like Cerberus which prick up to the hauntings of unwelcome ghosts floating about. The mechanism of 'autophagy', now that we know what it is, is simple enough to explain: don't eat for long enough and the body will eat itself, starting with the most misfit parts, to sustain its need for building blocks of ongoing life and energetic consumption. Catabolism for anabolism. Pliny, we recall, said something similar of *aconite* 'it is its nature to kill a human being unless in that being it finds something else to destroy'; thus, death does not always seem to be the enemy of life, only death wrongly prescribed. A tentacular trojan horse, rightly prescribed according to place (oncolytic virotherapy targeting cancer cells), time (fasting intermittently but not to starvation), or circumstance (*aconite*, but only if one has been stung by a scorpion) is not absolute death, it is inviting Cerberus within, stopping underworldly beings from thriving in the light of day, holding back the beetles with a blaze. In this circumstantial killing, we can trace a line from Cerberus, through *aconite*, to the human body itself; each is ravenously hungry, and each's appetite is only satisfied through the death of something, *but*, each is also selective, *intelligent*, in satisfying this appetite: Cerberus will only attack those who don't belong within or without the underworld, he maintains the faint line between life and death. *Aconite* will choose preferentially to defeat life's antagonists, be it scorpion venom coursing through the body or simply a fever; it too acts to sustain homeostasis by manipulating closures and openings between worlds, here the worlds inside and outside a cell wall regulated by voltage-dependent sodium channels. And the body itself, it will

[134] Fernanda Antunes et al., 'Autophagy and Intermittent Fasting: The Connection for Cancer Therapy?', *Clinics* 73 (2018), https://doi.org/10.6061/clinics/2018/e814s.

dismantle and recycle every defunct intra and extracellular item on offer before unwillingly attacking the necessary parts and mechanisms of the body (the actual starvation mode few of us ever reach). Death and life thus make kin for the sake of something that is neither and both—ongoingness. *Ongoingness*, more than either life or death, is the medical modality of the Chthulucene.

Traits and Trees: The Grand Scheme of Multispecies Ongoingness

"Bacteria and Archaea did it first".[135] Haraway's 'whodunnit first' refers to the organismic incorporation of other genetic components leading to adaptation, the sympoiesis followed by natural selection that leads to evolution:

> The fusion of genomes in symbiosis, followed by natural selection—with a very modest role for mutation as a motor of system level change—leads to increasingly complex levels of good enough quasi-individuality to get through the day, or the aeon.[136]

Haraway's pilgrimage into evolution takes us most of the way to a workable definition of plant medicine sensitive to a joint ontology of plant and patient. In her task, she recruits the help of evolutionary theorist Lynn Margulis to nuance the thoroughness of sym-bio-genesis, the making-together of life well adapted to living. Margulis' theory was that "new kinds of cells, tissues, organs, and species evolve primarily through the long-lasting intimacy of strangers".[137] By this description we might best frame plant-based medicine as a provisional version of this kin-making. If evolution results from the marriage of genomes, a human remedied through plant medicine, likewise could be said to have enacted the tentative trysting of two beings, two biochemistries. Human ongoingness entails the repeated 'making-acquaintance' with any number of diverse plant partners. Stopping short of mutation leading to evolution, we now know plants come to

[135] Haraway, 'Duke University Press - Staying with the Trouble', 60.
[136] Haraway, 60.
[137] Haraway, 60.

affect their consumers in myriad ways, beginning with brief biochemical flings, and ending with life changing, health helping or harming gene expression. The human patient is thus served by their promiscuity with plants, which offer my oft' repeated Harawayism, 'good enough quasi-individuality to get through the day'. Could this not be the ancient Sumerian slogan on a bottle of salicin-rich willow bark, which has exploded into a whole array of NSAIDs over the last century and a quarter, or a bottle of *aconite*-laced Montepulciano d'Abruzzo, '*one glass after a scorpion bite offers good enough quasi-individuality to get through the day*'.

Recall that Haraway uses the sign "SF" to pull together the many contributors to multispecies storytelling—*science fiction*, *speculative feminism*, *science fantasy*, *speculative fabulation*, *science fact*, and *string figures* among others.[138] The name of the game is eschewing damning epochal conceptions, the Anthropocene or Capitalocene, epochal trends which SF—*seem to forget*—that the human being is an 'environorganism' in an ongoing, nearly-too-complex-to-trace process of living and dying *with*, with *each other*. "Think we must"[139] however, attempting to trace and unravel our history of practices which link us to un-noticed, unforeseen, and underappreciated others. An appreciation of the other as the very being of our being, is something we must SF—*start to feel*—if we hope to *string* together a *future*.

We are sympoietic in our finitude, not autopoietic in our immortality. At least, this is one way to think. This choice is something I feel medicine holds in constant tension, seeming to seek both at once. Haraway tells us that "stories for living in the Chthulucene demand a certain suspension of ontologies and epistemologies, holding them lightly, in favour of more venturesome, experimental natural histories".[140] Each mortal-man-muddling vegetal concoction outlined in Pliny's *Natural History* tells of a continuous queering of more-than-human beings, peculiar plant-plus-people solutions that we habitually call 'medicine' without further thought about what this means ontologically for the parties involved. Pliny offers us a multitude of ways to think about multispecies medical ontologies from the ancient world, about plants and people who "render each other

[138] Haraway, 10.
[139] Haraway, 30.
[140] Haraway, 88.

capable of a finite flourishing";[141] the collective effect of reading *The Natural History* should be an imperative to think about how we define this finite flourishing as finite beings.

In his *The Tangled Tree*, David Quammen writes about the complexity of genetic acquisitions and mergers between otherwise divergent beings. In his *The Natural History*, Pliny writes about the complexity of ontological acquisitions and mergers between otherwise divergent beings. In this section I would like to explore the intersection between these two otherwise divergent projects.

Molecular phylogenetics began in the nineteen-sixties as an attempt to move beyond the gross comparative anatomy and physiology projects of the pre and post-Darwinian scientific world. This attempt did not result in its expected outcome, greatly underestimating the complexity of interaction between organic beings on this planet. We stand on the periphery of an applied medicine which modern genetic exploration has afforded the commencement of. Great fear and excitement surround what may seem to some like a wholly new venture. But rather than aim to enhance either of these emotions, I would instead like to calm the apprehension of an imagined novelty, by pointing out that genetic medicine is merely the inheritance of a long tradition of healing by addition, subtraction and substitution. If one doubts this, they might simply ask where the impetus for genetics came from in the human mind. What will be found, I suggest, is that science is no more than the continued pursuit for answers to questions which were asked long ago but insufficiently answered.

The late 19th and early 20th centuries, which still relied on superficial trait comparison by the unaided eye, produced understandably simpler trees of life than were about to be sketched in the era of protein taxonomy and chemical paleogenetics leading up to the present. Quammen defines molecular phylogenetics as "reading the deep history of life and the patterns of relatedness from the sequence of constituent units in certain long molecules, as those molecules exist today within living creatures".[142] The new phylogenetics uncovered three history re-writing theories: the species smashing process of Horizontal Gene Transfer, the new taxonomic category of being called Archaea, and finally, our descendance from the preceding chaotic genetic knot, which today looks more

[141] Haraway, 16.
[142] David Quammen, *The Tangled Tree: A Radical New History of Life* (New York, NY: Simon & Schuster, 2018), xii.

like the convoluted tollway networks of Bangkok, leading with only the rhyme and reason of randomness to and from multifarious Northern, Southern, Western, and Eastern locations, confusing even Google Maps to my chagrin on numerous occasions (satellites don't do well with vertically layered roads). It appears that the bare-branched, tidily-twigged tree, singly stumped in the soil, was merely the lingering memory of a scientifically simpler time, the time of *natural historians*, the time of the Pliny's of the world. But this is perhaps a misleading representation of the development of the taxonomic tree of life in human thought. While Aristotle conceived of a more or less hierarchical ladder—which the Christians were more than happy to adapt as a stairway to heaven, thinkers, both early and late, have taken the tree in surprising directions filled with colorfully corrupted categories and confusing catchalls that defy genetic relationships for more visible phenotypic rationale. Early trees display bewildering relationships, while some later trees seem bent on preconceived hierarchies and longstanding segregation between species. Throughout history, theorists have thrown up their hands in frustration trying to decipher which twigs go on which branches go on which limbs. Additionally, perspective and belief have often become personally politicized, and trees have become reified by the desire to hold on to and know something once and for all. Some of the best geneticists of the past hundred years have been bent on ignoring new discovery in an effort to keep their life's work relevant for at least as long as the duration of their life itself. The rapid-fire revelations of molecular phylogenetics have made this all but impossible, relativizing truth into the brief timeframe between its discovery and its overturning in the face of the next.

As late as 1735, Carl Linneaus was still including, for lack of a better place, a side-car column called *'Paradoxa'* which included "a wild-card assemblage of mythic chimeras and befuddling but real creatures, including the unicorn, the satyr, the phoenix, the dragon, and a certain giant tadpole,"[143] now appropriately named *pseudis paradoxa* for the shrunken frog it metamorphosizes into. But we might also credit Linneaus with pushing into acceptance, via his nomenclature which calls out polygamous and polyandrous plant *menages*, an inkling that life becomes new life by a series of disturbing distributions and amoral infiltrations of previous living systems, structures and beings.

[143] Quammen, 15.

From Linneaus alone, we can see that the trajectory towards today's tree has not been a straight line and it is difficult to place any individual figure without exception above another. Linneaus was both right and wrong, and significantly, we can learn as much from his wrongs as his rights, which is true of Pliny as well. Individual 'ontological taxonomists', those among us who name and categorize beings 'officially', have been consistently inconsistent in their task, scrambling to account for the being of recorded history and legend; they work with what they have, and they never have everything.

Pliny himself did not draw a tree or ladder in his *Natural History,* perhaps accepting those of Aristotle, Dioscorides and others extant at the time as sufficient, but if he had it might clear up many of the ontological questions we now ask his text to answer on his behalf. The retrospective assembly of a medical ontology for *The Natural History* is hard to distinguish from a project which seeks to draw Pliny's tree; I am really asking Pliny why one form of being was thought to be medicine to another in the 1st century, why medicine was proposed to work between what we now know to be evolutionarily divergent beings. More than this, I am interested in how observational tool and thinker interact to arrive at the applied science of medicine. We are aware to a great extent what philosophical and observational tools Pliny had available with which to 'think a tree' and to relate the medicine that happens within its branches, but other trees are also enlightening in this.

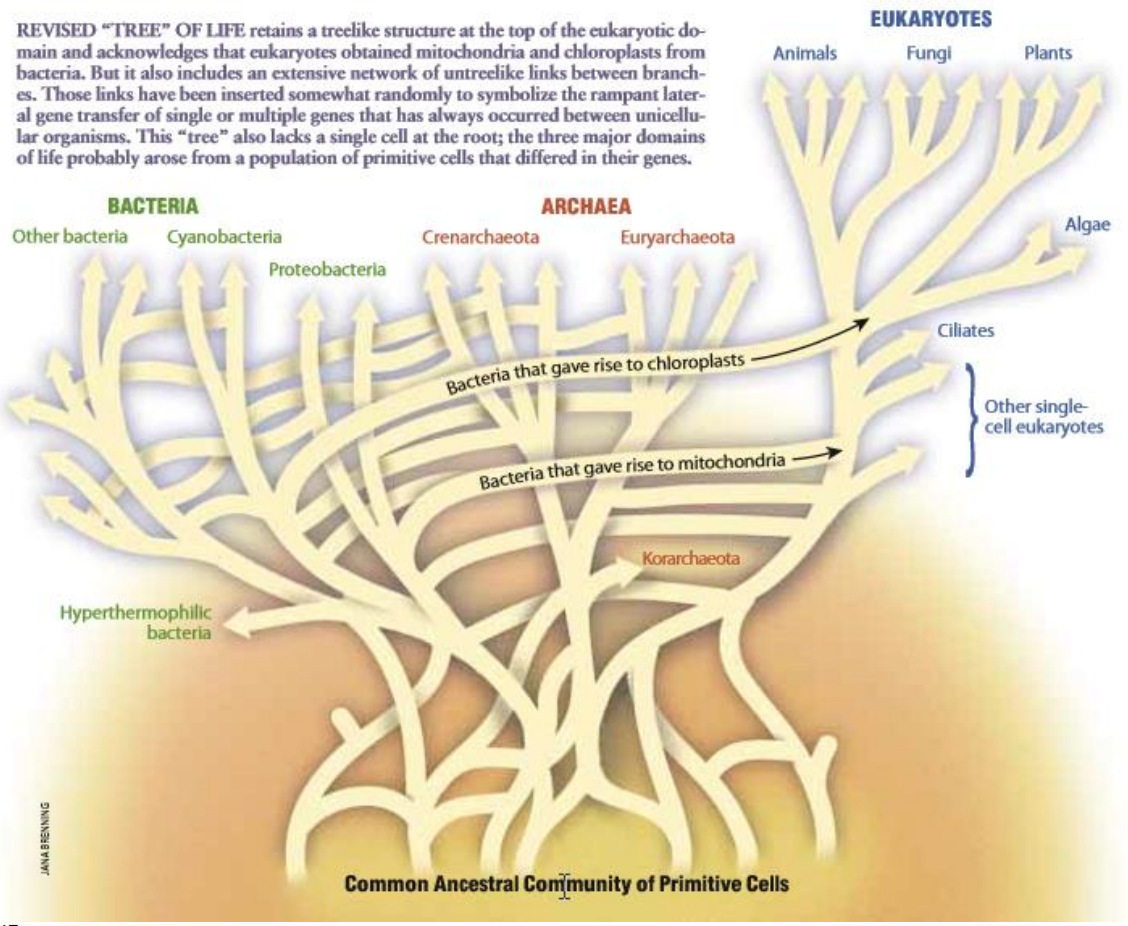
But let me get back to Quammen before I stray too far. Quammen asserts that "taken together, these three surprises raise deep new uncertainties—and carry big implications about human identity, human individuality, human health."[144] To understand why the 'tree of life' underwent such thorough and lasting revision, it is necessary to look more closely at the discovered process of Horizontal Gene Transfer (HGT). HGT, which acts exactly as named, is a widespread phenomenon which has pressed scientists to adjust the Darwinian plain eye observation-based assumption, however insightful at the time, of purely vertical inheritance shaped by natural selection. Undoubtedly, Darwin's intuition of environmentally selected change over time was a step towards where we stand now; questioning the origin of species brought the tree of life *back to life*, serving as the main prompt for those now seeking the mechanism by which inheritance might take place. It

[144] Quammen, xiii.

was in the wake of Darwin, with some delay and resistance, that the largely Christian-influenced scientific community's notion of intelligent design was edited. To be fair, Darwin's freethinking physician grandfather, Erasmus, was already onto heritable change decades earlier in his 'Zoonomia', with liberal dreams of a single filament for all life and improvement over generations. And others, such as Jean-Baptiste Lamarck, were on to gradual transformation… inheritance… *evolution*, by the end of the 18th century; such innovations in thought changed what any 'tree of life' represented thereafter. HGT however, problematized all these as too simple yet; "evolution is trickier, far more intricate, than we had realized," states Quammen, "the tree of life is more tangled. Genes don't move just vertically. They can also pass laterally across species boundaries, across wider gaps, even between different kingdoms of life, and some have passed sideways into our own lineage—the primate lineage—from unsuspected, non-primate sources."[145] I like Quammen's simile here, "it's a little like learning, with a jolt, that your great-great-great-grandfather came not from Lithuania but from Mars."[146]

I reproduce the following diagram from retired Dalhousie University molecular biologist W. Ford Doolittle's 2000 article 'Uprooting the Tree of Life" to relate what metaphor cannot:

[145] Quammen, xiii.
[146] Quammen, xiii.



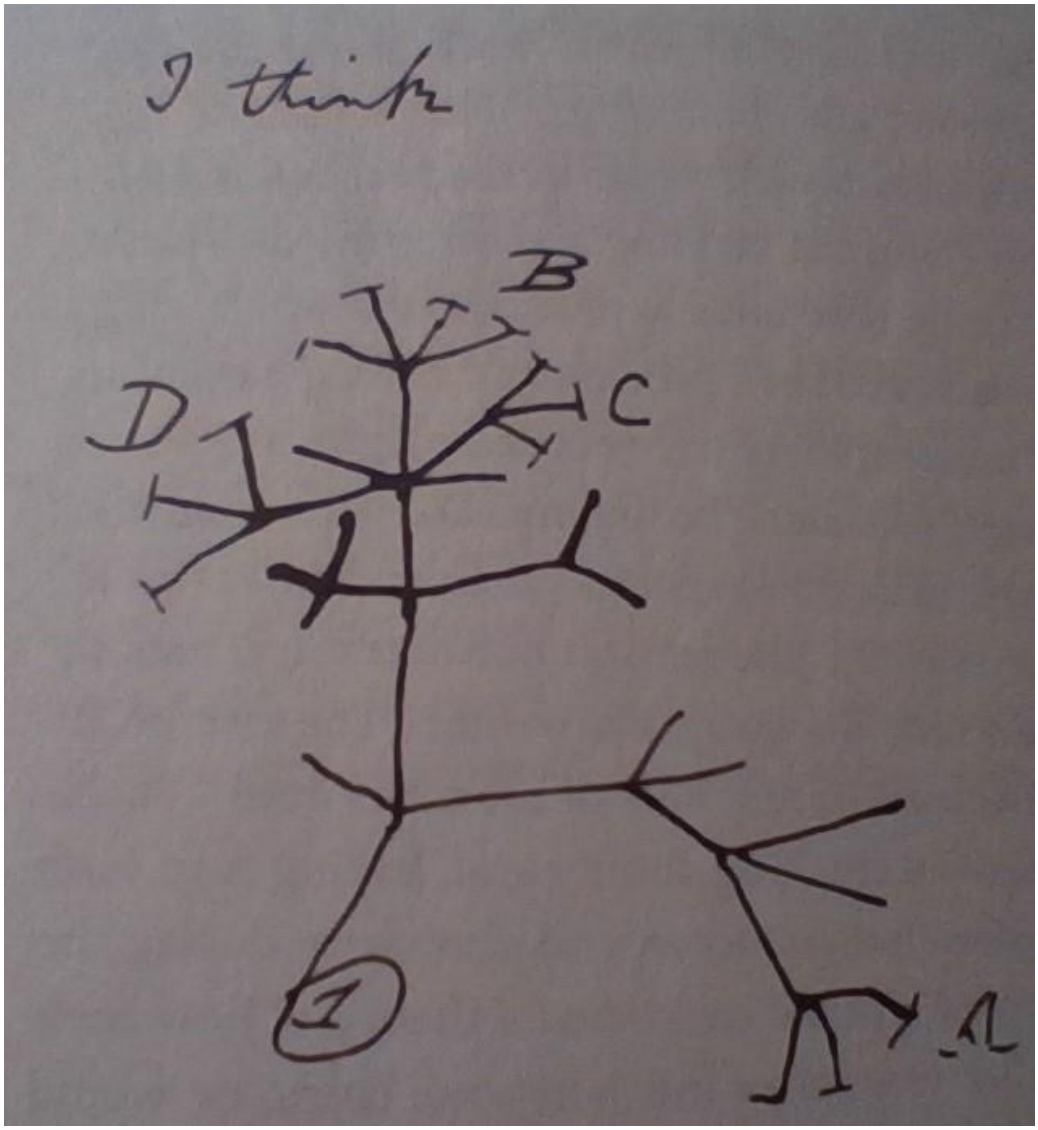
147

Quammen summarizes this diagram nicely, saying "we are not precisely who we thought we were. We are composite creatures";[148] but then, when were we under the impression that we were not? The answer to this is not so straightforward, there is no particular time or place where all have agreed as to the composition of the human being. Theorizing about what sort of composite we are and what that reflects about our place in the cosmos has been a relatively unbroken trend in human thought, with or without a tree to show for it. Our arboreal images demand a decision-making process whereby certain kinships are accentuated, and certain others are perhaps omitted, or many times not yet known. There are also a few occasions in which individual thinkers or schools of thought have balked at established knowledge in their formation of a tree of life, or struggled to adapt dogma to new insights. Despite this, for the most part, trees have served our

[147] W Ford Doolittle, 'The Tree of Life the Basic Outline of How Modern Life-Forms Evolved. Now Parts of Their Tidy Scheme Are Unraveling', *Scientific American*, 2000, 95.

[148] Quammen, *The Tangled Tree*, xiii.

imagination quite well: they are able to relate the idea of divergence over time, and can capture a portion of the complexity suggested by even the most up-to-date science. The 'tree' above from Doolittle's article though suggests that trees may no longer be the best medium to portray what has simply become too complex. We knew at least from the time that Darwin—*Charles*, scribbled "*irregularly branched*"[149] in his notebook, that life owed itself to a complex relationship amongst its living components. But similar thinking was already available in Pliny and in his sources before him, different as it was in its mechanism of explanation. Below, we see Darwin's previously profound, but these days, quite simple tree diagram:



[149] Quammen, 7.

[150]

And actually, if we look at Darwin's 1837 sketch of an evolutionary tree, we might find more resemblance, due to sheer disorder, between *The Natural History*'s structure and Doolittle's tangled diagram than between it and Darwin's relatively neat drawing by comparison. Where Darwin jots down 'I think', Pliny could hypothesize less tentatively in his intellectual environment. Pliny's tree, if I were forced to draw it, might be too tangled, never mind too undecided, to know where first to set one's pen to sketch it. This is not to say that Pliny was 'onto' molecular phylogenetics or evolution in his exposition of Greco-Roman medicine, but it is also not the case that his somewhat "metaphorically accurate" messiness was entirely accidental, this was Murphy's argument at least. Species in the pagan world were much more porous to one another than would be allowed of them until the resurgence of what must have seemed to the Christian mind to be a pagan-esque science in Darwinism. Considering Pliny alone, medicine which has us cross species boundaries, and consider 'the whole' inclusive of other beings and the environment—such medicine is saying something about how the world *ought to* operate, if not making a statement about how it *does*. Each medicinal recipe or recommendation sketches for us a piece of an implied tree of life.

As tangled as Pliny's tree might have been, Pliny was not an evolutionist. It took the visible pressures offered by population growth and density in 19th century Europe to snatch humanity away from its statically stemming sapplings. Darwin's reading of the clergyman Thomas Malthus' "An Essay on the Principle of Population" gave him an understanding of the power of strife and struggle in fitness for life, and the proliferation of change; these gave Darwin a cause for evolution in lieu of a reason. With Pliny of course we have an ontological reason for admixture without any suspicion of evolution. *The Natural History* offers frequent reminders that *being*, certainly human being, left unchanged, is ill-adapted to thrive on its own. Being without the medicament of other being cannot hope to manage; to echo Linneaus, life has to *menage* to manage.

In Book XXII.xvi of *The Natural History*, Pliny forwards a suggestion regarding the medicinal use of nettles which feels a little 'phylogenetic', and it is worth considering why:

[150] Quammen, 8.

> That species of nettle which I have called lamium (dead-nettle), a very mild kind with leaves that do not sting, cures with a sprinkling of salt contusions, bruises, burns, scrofulous sores, tumours, gouty pains and wounds. The middle of the leaf is white, and cures erysipelas. Certain of our countrymen have distinguished nettles by their season, stating that the disease is cured if the root of the autumn nettle is used as an amulet for tertian ague, provided that when this root is dug up the names of the patients be uttered, and it be said for what man it is taken up and who his parents are; the same method is effective in quartan agues.[151]

To this extract I add some further uses of the varieties of nettles which Pliny mentions prior in Book XXII.xv:

> With barley-water it clears the chest and promotes menstruation", and, "We are told that should an animal resist conception, its parts should be rubbed with a nettle.[152]

The question I here ask is, *what does medical genetics look like before the inception of genetics?* There are several aspects of the above treatments that point to an awareness of interconnectedness that cannot be dismissed as simple or even superficial, but rather imply a non-phylogenetic intuition of kinship. Such an understanding of ontological kinship and an observation of familial relevance is used to treat problems of reproductive and sexual health. This type of medicine is revealed here in a four-fold way: the method of bringing treatment to patient (amulet, ingestible, or topical salve are exemplified here), the recognition of a lineage that becomes medically relevant (one's parents), the utterance to a Nature/Cosmos/God that allows the efficacy of the treatment in the first place (calling aloud), and the fact of the ailment being sexual or reproductive in nature (tumours, menstruation, conception). What we are looking at here is really a 'pre-genetic' intervention. First, there is the chosen medicine, here the plant family of

[151] Pliny The Elder, 'NH (Rackham: LCL)', bk. XXII.xvi.37-38.
[152] Pliny The Elder, bk. XXII.xv.35-36.

nettles, which need to be brought in proximity to the patient. Now, mind you, this aspect of the treatment may seem crude, but this is the *closest contact* a plant and patient were believed to be able to effectively make at the time. An amulet around the neck was a method of 'long-term' proximal treatment, just as ingestion of a solution of nettle in barley water was as 'interior' as one could think to get, or a salve applied directly to the exterior of the affected body part as 'close'. The latter two of these application methods are still in use today, with oral medications and topical steroids widely used and accepted (not that this fact matters, we are looking at *intention* here). Second, we have the apparent relevance of who one's parents are; this is seen in several instances throughout *The Natural History*. This might be thought to relate to the predominance of certain traits in the patient as inherited from the parents—heat, cold, moisture etc., which the treatment would need to account for. This takes us to our third point, the fact that Nature could in fact *account for* or *keep track of* lineage or inherited traits… but how? In this example we see the need for an oral proclamation that awakens a recognition of this latent truth. Finally, it is the result of several factors, not least of which being the commonality of sexual and reproductive complaints, that problems with conception, menstruation, and unnatural growths such as tumours and skin conditions such as leprosy were targeted with plant-based medicines in this way. But more than the mere frequency with which these problems appeared, was the belief that within this interconnected cosmos they actually could be rectified by supplementing the body with organic material from elsewhere, with other being.

Another instance among many, which all vary slightly in their approach to treatment, is the use of quinces for similar ailments, in Book XXIII.liv Pliny writes:

> The most useful are the quinces imported from Sicily; while the sparrow quince, although nearly related, is not so good. The root of the quince tree, after a ring has been drawn round it, is pulled up with the left hand, the person doing so being careful to state why he is pulling it, and for whom. An amulet from such a root cures scrofulous sores.[153]

[153] Pliny The Elder, bk. XXIII.liv.103.

Scrofulous sores are examples of inflammation and swelling at the skin's surface. In other words, we have another example of unnatural outgrowth, not visibly unlike a tumor from the last example. Additionally, quinces are recommended in the treatment of prolapses of the uterus, the regulation of menstruation, and inflammation of breast tissue. Quinces are thus used, although their uses do not begin or end there, for similar problems with reproductive and sexual health as well as for unnatural growths in general. We also see a similar mode of harvesting quinces for medicinal use, with a ritual involving proclamation of illness and patient, and the further complexity of using the left hand after tracing round the chosen root with care. In the context of 1st century Rome, these measures are not surprising, and one wonders in fact why they are not seen more consistently throughout *The Natural History* instead of simply sometimes. Finally, we find quinces employed as an amulet, ingested orally with honey or wine, or applied like nettles to the affected area. This is all reminiscent of the previous example. What Pliny is really showing us is that the very general truth that stuff from 'over there' is related to the stuff from 'over here', that beings, like a plant and a person, and certainly a person and another person of the same family, are in relationship by some pervasive material fact of the cosmos, and more so, that this is medically relevant. We would be remiss to ignore the echoes here in modern genetics, however much more miniscule and targeted our awareness of relationship has become. Quammen writes, in response to molecular phylogenetics' findings, that "we are suddenly challenged to adjust our basic understandings of who we humans are, what has gone into the making of us, and how the living world works."[154] I'm not certain how much I agree with this phrasing, 'suddenly', that we have only by the newest science been abruptly introduced to certain possibilities for self-understanding. The surprise has been ongoing…stepwise; I have been surprised in many instances by *what Pliny has said*, but never by *what Pliny is saying*, even less am I surprised by much of the most modern scientific theories about humanity and the cosmos. In tracing medical ontologies, I can only conclude that humanity has never felt the question of 'who we are' to be either new or sudden. A certain medical Lamarckism was being toyed with from before Pliny's time, not of giraffes becoming taller by reaching hopefully for foliage and then passing that new height along (the famous

[154] Quammen, xiii.

Lamarck example), but of human bodies becoming well by reaching for the traits of other beings, and then passing knowledge of that multispecies medicine along, encoded as it were encyclopedically. In Pliny I see the hope of adaptation, of improvement, if only in this life and for one being. There is a pervasive suspicion that some beings' traits may be the solution to other beings' problems; this is all much before the introduction of molecular fingerprinting could provide underlying distinctions between species, but as Quammen says "there were easier ways to tell a pig from a shark".[155] Ancient medicine relied on these easier ways, available at the time, to identify and correct deficiencies, balance humours, fulfill desired states of being, and the like. Many of these superficial or superstitious medicines may have been quote unquote "wrong", but as Quammen says of science "wrong doesn't mean useless".[156] The question of 'who we are' was always being pursued, and it has brought us here. It is also important to note that an increase in complexity has not always brought us a *better* solution to a problem previously addressed more simply by ancient medicines, merely a *more complex* one.

Looking at the present state of molecular phylogenetics and the many trees leading up to it, I tend to think that the pervasiveness of mythological creatures and the unusual theories of adaptation and inheritance filled in the space that genetics now occupies. A substitute for complexity and unity stood in until such a time when a sufficiently complex tree could be drawn by science to satisfy our imagining of the world and our needs from it. The needs fulfilled by mythical hybrid creatures are now filled by actual hybrid creatures, thanks at last to molecular phylogenetics which traces the history of the movement of molecules across being—traces hybridity. Even so, we would be remiss to think that our refiguring of human being and being in general is winding to a close with phylogenetics rather than ramping up, "science itself, however precise and objective, is a human activity. It's a way of wondering as well as a way of knowing. It's a process, not a body of facts of laws. Like music, like poetry, like baseball, like grandmaster chess, it's something gloriously imperfect that people do. The smudgy fingerprints of our humanness are all over it."[157] The activity and process of scientific wondering, an imperfect doing that leads to an incomplete knowing, leaving us inspired

[155] Quammen, 43.
[156] Quammen, 48.
[157] Quammen, xvi.

but restless, has no visible end in sight. In many ways, we have yet to fulfill a scientific understanding of the complex tree which Pliny implied in *The Natural History*.

Watching Mergers and Acquisitions Through Vegetal Being

> They are with you without really being with[158] – Luce Irigaray, *Through Vegetal Being*

I purchased an Apple Watch 5, in an aesthetically pleasing gold stainless steel finish, this past October. Last month in March, less than six months later, I gave that very watch to my sister—*my watch*, the proposed *watchdog* of my health. It had been in my sock drawer since January, before that, mostly on my nightstand keeping its charge full, *watchful* no longer. In many ways, it was I who now watched it, noticing it in passing, thinking about it in a way that; removed from my wrist, it could think no longer about me. One of the questions which surfaced during this period was to what extent this had always been the case. Who had done more thinking about whom? Who had paid more attention in the relationship? Who had *given more time* to whom? In taking off the watch, I must already have come partially to an answer to these questions, although I don't recall precisely the words to accompany the feeling I had at the time; I know that I was no longer willing to give my *time* ironically and counterintuitively to a *timekeeping* device. Perhaps for myself alone, or because I feel embarrassed in sharing my brief tech affair with an audience, with you, I feel the need to justify my purchase (about which I now feel there was no justification). I have never been one to wear a watch. Never have I been so far removed from 'the time' when it was required of me to know it, that I felt it pertinent to wear it on my person. And now, participating in the 'going cellular' of the world, a party which I was more than fashionably late to join, I do, like most, carry the time with me in my pocket. *Time* hence—at least in the colloquial 'time of day' sense—was not the impetus for me to suddenly wear a digital watch. It was rather in the spirit of *keeping*

[158] Luce Irigaray and Michael Marder, *Through Vegetal Being: Two Philosophical Perspectives*, Critical Life Studies (New York: Columbia University Press, 2016), 58, http://www.umanitoba.eblib.com/EBLWeb/patron/?target=patron&extendedid=P_4532760_0.

track of my time, my *pace* or my *time in relation to my position in space*, that I felt newly inclined to consent to 'being watched', to 'watching' myself. The watch was therefore supposed to be a tool, an accompaniment to running (about which I now also feel different on account of my watch experience, among other things). I had been enjoying so much my experience of running in rural Thailand at mini-marathons, surrounding which there is a great culture, and for which there are great natural settings, that I decided to follow my friend and invest in some technology to enhance that experience. For many reasons however, I found my acquisition to be more of an unnecessary burden than a health-boosting aid. To be fair, I am aware that I am atypical in many ways regarding my use of technology, which has often bordered on impractical aversion, and that many of different mind certainly do find great joy and use out of their various smartwatch purchases. But more to the point, and I think this is key to the issue I raise in this section, it must be stated that my purchase was not made out of a dire need for any of the health-probing applications the watch makes available, for any of the uses which made the watch *more* than simply a watch (for which I previously had no need), but was more so an experimental venture into modern gadgetry on a level I thought I could tolerate or even enjoy…obviously wrongly. This realization, especially amidst my writing of this thesis, and partly because of it, had me thinking about the recent algae-like bloom of smart wearable devices, how they are expected to enhance our lives and give us the jump on health, and whether, how, and who in the human population would truly benefit from this new ability to wear our hearts on our sleeves. I also couldn't help but notice in Pliny's *Natural History* what else we have been wearing in the name of health, namely plants; I thus took Michael Marder's advice and let vegetal images exert a formative influence on my thinking.

In his *Grafts: writings on plants*, Michael Marder ventures into how plant being operates as a constant exposure to the outside world, that in essence, plants hand their bodies over to exteriority in nourishment, growth, reproduction and death.[159] While my own graft of a golden Apple didn't take, what did stick was what I witnessed in trying, an 'exteriorization' of my human being made possible by the superimposition of a nature-derived, medically applicable tool onto my body. With any such graft we are, in essence,

[159] Marder, *Grafts*, 25.

giving over our essence, osmosing vital statistics and vital fluids, exposing the secrets of our much-valued human interiority to the outside world for the sake of having greater access to them ourselves; to know our own being we are choosing to compromise our permeable dermal border, the most visible interface where human being meets the otherness of Nature. Using our intelligence to manufacture, from nature, devices which take over some of the work of our intellects, is suggestive of an interesting dynamic between the two—nature and Intellect. Human intelligence floats somewhere between being *enhanced* and *displaced* by nature, which has been of course invited willingly into the equation—as a watch for instance. Whether the actual border of human intelligence, and for the interest of this thesis, human *health*, is actually a genuine border at all becomes a valid question in such an interactive environment. Marder posits that we should consider "the relational whole organism-environment the basic unit of intelligence"[160]; this is hard to refuse entirely when we visit the relationships we have pursued with our environment and other organisms. Medicine is one of the greatest motivations for this pursuit, but the perceived relationship between the human organism and nature—how the two ontologies relate—has varied greatly across time and affected the practice of medicine substantially. It is possible, as I will point to in this section, to identify a certain disavowal, or if you will, a fractured embrace of Marder's 'relational whole' perspective in various instantiations of modern science. Marder's idea implies an equal and dispersed intelligence not preferencing the human; often this does not jive well with technology and the human notion of progress, which works for a reallocation of intelligence from nature and its own being to humanity. As I found however, the idea that the intelligence of nature can be repurposed to an increase in the intelligence of human persons instead, is largely an oversimplification if not a misnomer entirely. An increase in information is not one and the same with an increase in intelligence, and the information acquired does not come without a cost at many levels, from natural resources, to humans who become resources, to users who trade time and attentiveness for statistics, which are in many cases *not* vital; this was certainly the case for me. My vitality and self-awareness were both compromised for information, which was not needed but only fleetingly desired and inevitably burdensome, and I truly feel a *not abstract* but *direct* sense of guilt

[160] Marder, 34.

over my failure to apprehend the repercussions of my constricted notion of *self*-improvement and *self*-care for the ongoingness of life in general, which basically amounts to a *selfishness*. Upon deeper reflection, a broader understanding of health and ongoingness, both inclusive of and beyond oneself, is needed (*can I plead that I knew this but briefly forgot?*) if humanity wishes to realize a health which is less self-contradictory, more all-encompassing, and actually sustainable—which I do think is possible. With that in mind, without oversimplifying, Pliny's inclusions of a humanity that 'watches' plants and a nature that 'watches' humanity in turn, these remedies which stem from a mutual *watchfulness* seem to suggest that something Marder-esque is at play in the Roman approach to medicine… a recognition of the terrestrial, vegetal, animal and overall natural as intelligent parties through the whole medicine-thinking process.

Therefore, in this section I set examples from *The Natural History* alongside the rapidly expanding field of wearable biotechnology. Doing this I ask: Can we receive the boon of improved health which such biotechnology promises whilst at once embracing the broad individual and societal benefits of a more patient approach to living healthfully? Comparing modern and ancient examples of "wearables" offers us some useful data for thought on this. New wearable technologies present us with the enticing possibility of knowing more about our biological health markers, and myriad other pieces of information, and knowing faster. But, is this "infoboom" a solution to our health problems, or merely a symptom of our always-on society? Surely this is an issue that cannot be solved by more of the same. Is health, instead, a matter of more individual mindfulness and patience towards our self-care even if it comes at the expense of bioinformatics burgeoning forth from our wrists? Overarching both of these questions we might ask, are these two approaches to health mutually exclusive or are they separated by a bridgeable gap that we must learn to negotiate along the way?

In Book XXIII.lxiv of *The Natural History*, we find traditional recommendations for the use of *winter wild fig* as a wearable or externally applicable medicine, Pliny writes:

> The winter wild fig, boiled in vinegar and beaten up, clears up eczema. The branches with the bark removed are scraped to produce particles as fine as sawdust,

> which are used as an application. The wild fig too has one miraculous medicinal property attributed to it; if a boy not yet adolescent break off a branch and tears off with his teeth its bark swollen with sap, the mere pith tied on as an amulet before sunrise keeps away, it is said, scrofulous sores. The wild fig, if a branch be put round the neck of a bull, however fierce, by its miraculous nature so subdues the animal as to make him incapable of movement.[161]

'Particles as fine as sawdust', sounds miniscule, but with the scientific tools available to the current 'wearables' industry, technologists have taken the idea of applications and amulets *nanoscale*. Plant-based hydrogels, liquid-crystal elastomers, rubbery memory polymers and the like, house and adhere experimental computer tech, from gold nanorods, to miniscule graphene threads, to finely parsed silicon or even 3D printed live bacteria, to the skins surface. Still in their early inception, these patches are already capable of taking diagnostic measurements of environmental chemical stimuli, as well as a host of internal bodily signals: interstitial pH, blood sugar or sodium, electrical activity in the brain, heart arrythmia or muscular functioning. Such removable digital tattoos now offer to act as miniature laboratories, studying the ongoings of the interiors of our bodies and providing to-the-minute feedback and responsiveness, all while operating less invasively and more conveniently than our contemporary diagnostics. Such technologies have us looking at current pin-prick blood drawing for type II diabetes as if it were our version of the crude bloodletting of bygone eras. The hope behind these wearable technologies is that health care will shift from *reactive* to *proactive*—mere 'reactivity' being a common critique by 'natural health' or 'holistic health' advocates directed towards Allopathic or 'Mainstream' Medicine; "these tiny digital tattoos could immediately signal if a measurement is out of range or significantly differs from the average—and the user or the doctor could promptly respond to it."[162] In other words, instead of waiting for a too-late-and-damning diagnosis due to purely human symptom awareness by the patient themselves, or a routine but not especially frequent check-up by a physician, wearables promise to transform patient health diagnosis into an immediate

[161] Pliny The Elder, 'NH (Rackham: LCL)', bk. XXIII.lxiv.129-30.
[162] 'Digital Tattoos Make Healthcare More Invisible', The Medical Futurist, 4 September 2018, https://medicalfuturist.com/digital-tattoos-make-healthcare-more-invisible.

and continuous aspect of life; bluetooth technology, already available on nanoscale devices, even delocalizes the diagnostic process, freeing up both patient and physician spatially. It is a little like wearing a Traditional Chinese Medicine practitioner on one's wrist, but one making pulse reading seem like only the tip of the bio-marker iceberg; this indeed does sound more convenient, perhaps even revolutionary.

Pliny offers another example of an ancient wearable; whether external or internal, the plant *milax antrophoros* is among many mentioned in *The Natural History* which promise to optimize the health of the patient by their sheer proximity. Book XXIV.xlix reads:

> A chaplet of it made with an odd number of leaves is said to be a cure for headache. Some authorities have declared that there are two kinds of milax. One is very nearly everlasting, grows in shaded valleys, is a climber of trees, bears berries in luxuriant clusters, and is most efficacious against all poisonous things to such a degree that, if the juice of the berries is repeatedly administered in drops to babies, no poison will hereafter do them any harm.[163]

The idea that the right medical tool applied now could put a stopper in immediate or future health complaints is at the very heart of new wearable technologies. Taking the notion of wearables internal, Pliny's drops of *milax anthrophoros* administered for future poisons look to be an interiorizing trend away from the mere chaplet made of the same plant, and are practically but not motivationally so different from another, more current, internal preventative: the Max Planck Institute's 800-micron-wide nanobots. These small submersibles are steerable via magnetically controlled propulsion, and may be injected into bodily fluids of the lymphatic or cardiovascular system to deliver targeted medicine, or otherwise operate like preventative sentinels; "the microrobots being designed by the team literally are swimmers; they are scallop-like devices designed to paddle through non-Newtonian fluids like blood and plasma."[164] With both drops of *milax* and drops of nanoscallop-laden fluid, the human physician and patient have their eye on a future where

[163] Pliny The Elder, 'NH (Rackham: LCL)', bk. XXIV.xlix.82-83.
[164] 'Scallop Microbots Designed to Swim through Your Bodily Fluids', New Atlas, 13 November 2014, https://newatlas.com/scallop-microbots-swim-body-max-planck/34589/.

health threats have already been addressed in advance, leaving to *Chance or Fortune*—that begrudged deity Pliny mentions—nothing but illnesses which have yet to be seen or conceived. Prevention here, the move from reactive medicine to proactive medicine, takes on the form of reallocating some of the intelligence of nature to the exterior or interior of the human body, where, held in proximity, it may snag signs of illness well before they show themselves to the patient. My comparison here might have you believe that I find little to no difference between 1st century Roman and 21st century Western medicine, excepting the superficial appearance of tools and technologies. There are however differences which even superficial appearances betray, and which are more than shallow rifts between ancient and modern Hippocratic healing modalities.

Here we go 'round the mulberry bush. If we allow ourselves a moment to 'circumambulate' Pliny's description of *mulberry* in Book XXIII.lxxi, there are some marked differences in the human treatment of ancient plants vs modern examples of wearables which unfold, and which should not be overlooked:

> There are besides marvels related of the mulberry. When it begins to bud, but before the leaves unfold, the fruit-to-be is plucked with the left hand. The Greeks call them ricini. These, if they have not touched the ground, when worn as an amulet stay a flow of blood, whether it flows from a wound, the mouth, the nostrils, or from haemorrhoids. For this purpose, they are stored away and kept. The same effect is said to be produced if there be broken off at a full moon a branch beginning to bear; it must not touch the ground, and is specially useful when tied on the upper arm of a woman to prevent excessive menstruation. It is thought that the same result is obtained if the woman herself breaks off a branch at any time, provided that it does not touch the ground before it is used as an amulet.[165]

Mulberry is another example of a vegetal wearable, not unlike *wild fig* or *milax*. But further details are offered here by Pliny regarding the harvesting or gathering which happens before the application, the *acquisition* before the *merger*. Long before *mulberry* makes its way onto the upper arm of a woman, the timing of Nature is given due

[165] Pliny The Elder, 'NH (Rackham: LCL)', bk. XXIII.lxxi.137-38.

attention. *Is the plant budding? Is there a full moon?* We may disagree with the need for a full moon or dismiss what a full moon is said to 'do' to the plant, but we cannot dispute that the spirit of this detail extends its significance beyond merely being 'correct'. There is an essential underlying characteristic of *patience* which permeates many or most of Pliny's listed examples of vegetal medicine acquisition. 'Nature Time', I will call it for lack of a better name, is *related to* or *kept in mind* and not overwritten for the sake of keeping up with 'Human Time', a notion of time which despite the regularity of clocks and calendars really has no consistent rhythm, and is rather governed by the human will to transcend the limitations of space-time generally speaking. 'Human Time' is very often the artificial veneer of *impatience* applied with varying efficacy atop 'Nature Time'; is it not ironic to say that we *'don't have time for Nature'* despite every indication being that Time is a function of Nature itself? We must note that the time we aspire to keep with our new smart watches is not actually one where there are twenty-four hours in a day and three-hundred and sixty-five days in a year. As much as I enjoy having an interactive Mickey Mouse tap his foot and tell me 'its 8:32! Good morning pal!', the time which is *really* offered up by such devices as my former watch is 'always' and 'right now'.

In other words, our notion of proactivity with regard to health is now related to one where The Earth and *her* resources are repurposed to the task of providing a time which is based on natural rhythms but does not use the observable signals of those rhythms—the seasons, the sun and moon, etc., to indicate that time. Because we are also a part of nature but largely ignore this discrepancy, we also override our own rhythms and do not pay attention to them. The information with which we supplant natural measures of time do not bear any meaning within the larger framework of life; a time of day or day of the week does not offer anything qualitative, a cumulative sensory 'feeling' by which we might guide our ongoingness and optimize our health, so instead we invent our own *pace*, as I did, and base our concept of health upon a, can I say, *wrong* method of tending to the tempo of our life, which seeks its unique nuance within, but not separate from that of nature overall. I will provide an example of the danger of this seemingly minor difference, which I recall distinctly because it was the last day I wore my former watch. After three consecutive days of logging the half-marathon distance of 21.1 kilometres, a not so moderate 63.3 kilometres in three days, I decided based on a number of psycho-

physical factors to take a rest day. The response of my watch to this was telling of a problem with 'smart' technology: "keep it going" it said to me, "your exercise rings are usually farther along by now", and later a passive-aggressive "find some time to be active today". Such a nagging, which I did ignore, could be brushed off as a need to re-program my activity goals so as to avoid this digital harassment, but how many people actually do this once setting their watch initially, and to what efficacy? There will in fact never be a time in the foreseeable future (I think ever), even with A.I. in mind, where a device will be able to outdo the refinement of the body's own intuition as to what is healthy; we cannot begin to fathom the number of factors involved in our own health, our different 'healths' as individual notions, our changing healths in a changing cosmos, and therefore we cannot create a piece of hardware or software to do so. Strangely, our insecurity over our lack of self-omniscience is what led us towards outsource our body-awareness to technology in the first place. This has only made the impossibility of self-knowledge more glaring. I therefore took off my watch, knowing it would never, without my constant intercession, be able to provide me with useful information—information that I was basically providing first to it. Moreover, I knew that this information would still not guarantee headway towards *my* image of health, which does not include to-the-minute quantification of it. I thus followed Luce Irigaray when she retreated to the forests and "surfaced from a world in which all is planned in a more or less arbitrary and imperative way."[166]

Now, there is a counter argument to be made here, which I am not oblivious to and which I will make against my previous example presently. Certainly, as with the example of nanobots or even a smartwatch, several uses can be brought to mind which aim to restore health to an individual whose body has fallen out of rhythm. In my work at the Manitoba Cardiac Institute, I witnessed many instances of what might be considered the 'correct' use of smart wearable technology by those recovering from various types of cardiopulmonary surgery; these recently discharged patients had good reason to monitor their heartrate on a moment-to-moment basis as a means of regulating their return to healthful ongoingness in a safe manner. It was therefore, *to them*, worth the investment of money, time, and the effort of frequent tinkering with settings to garner information

[166] Irigaray and Marder, *Through Vegetal Being*, 41.

which actually was vital to that individual. This of course still went along with physician monitored stress tests, and a nurse guided cardiac rehabilitation program; the information is therefore never useful alone but only in conjunction with an accompanying human intelligence to at first design it, and at last to decipher it. The question is, for what percentage of wearers of such devices can we say the information gathered is of the 'essential-to-life' variety? Five percent? *One* percent? *Less*? Obviously, it is a matter of perceived need, a self-determined paradigm, that makes the difference between a good and a bad Apple. It should also be noted that even a good apple is consumed and then disposed of, composted, recycled. Likewise, such a technologically supported *nursing* back to health is not intended to be permanent, and only remains so if fails to achieve its goal of rehabilitation; Irigaray writes that "if the sciences and their products can prolong our survival, they do not contribute to a growth and cultivation of life as such. In most cases, they maintain people in a state of dependence on a knowledge that acts as a parental and authoritarian power, which deprives them of the freedom that they need for becoming".[167] The success of a medicine or medical tool therefore, should always be measured by how well it allows for a transcending of its application and use, over and above its efficacy for maintaining life while *in* use; health also entails a freedom from medicine and the quantitative measurement of medical tools, along with the data they provide.

But before I conclude prematurely, there is much that goes on before this consideration is even to be made.

Honeyed Soil for Iris Oil? What if it took three months forethought to get one's hands, literally, on a medicine today…only to have it burn you, also literally; certainly, this does not sound satisfactory to our current logic, which prides itself on readily available pharmaceuticals. However, such is the case with the unearthing of *iris*, which is not only a very personal matter (preferring a chaste handler), but requires a libation of honey water to be offered to Earth, a character we might recall from earlier, a whole three months in advance of digging it up; Pliny records this ritual in Book XXI.xix:

> The Pisidian variety, too, is by no means despised. Those who are going to

[167] Irigaray and Marder, 93.

> dig it up pour hydromel around it three months previously. This is as it were a libation to please the earth. Then they draw three circles round it with the point of a sword, gather it and at once raise it heaven-wards. It is hot by nature, and when handled raises blisters like those of a burn. It is especially enjoined that those who gather it should be chaste. Not only when dried, but also when in the ground, it is very easily subject to worms. Previously the best iris oil used to be brought from Leucas and Elis—for it has been planted there a long time—now the best comes from Pamphylia, but the Cilician too is highly praised, as is also that coming from the northern parts.[168]

What is being done here, is to a great extent what Marder argues for, "de-objectifying plants"[169] by taking responsibility for how we relate to them "as living subjects in their own right".[170] The *iris* here is 'used', but it is also 'requested', 'waited for', 'attended to', 'and discerned' as a unique representation amongst even others of its own species. A *Pisidian iris* is not a *Pampylian iris* or a *Cicilian*, and its history with its locality is known and accounted for. Marder says of the grafted-to plant that "its flowers or fruits coexist with those of the grafted variety".[171] What Pliny is saying of *iris*, is that this is also true of the patient who grafts a plant to their own being; their fate as a patient, the fruit of their treatment, coexists with the fruit of the unearthed plant. The responsibility taken by the gatherer in the process of acquiring medicine is thus both *self-serving* and *considerate of the plant*; these two motivations cannot be practically separated in Roman Nature. To contrast, even a shallow dive into how rare earth minerals are acquired for our current smart devices—my Apple watch for instance…my phone…*any* cellular phone—returns disturbing information about the mindless and destructive unearthing practices in countries such as Chile, Peru, and Mongolia, purposefully out of sight of the main consumer of the final product.[172] Myanmar, which supplies the greatest percentage of Terbium and Dysprosium to the tech industry, is

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[168] Pliny The Elder, 'NH (Rackham: LCL)', bk. XXI.xix.42.
[169] Marder, *Grafts*, 82.
[170] Marder, 82.
[171] Marder, 15.
[172] 'Extraction of Raw Materials | IPhone Commodity Chain', accessed 12 May 2020, https://u.osu.edu/iphonecommoditychainproject/extraction-of-raw-materials/.

currently traded entirely illegally through third party back-channels to China[173]; the environmental and human cost of such mining makes the example of *iris* above stand in especially strong contrast, where a sword merely scratches the surface of the soil, and only for the sake of demarcating to the heavens the violation of The Earth around a single specimen. The plant taken is raised overhead and the act made *more* visible, a direct contradiction to the sweeping under the rug of unwillingly sacrificed life in Myanmar and elsewhere. I would at this point refer you back to what Pliny writes about the mistreatment of Earth despite its nurturing of our health, or the Earth's nurturing of our health despite our mistreatment of it and even each other. He was not wrong. In *The Natural History*, the greatest cost to human life during the acquisition of sought-after elements of Nature, is in Book XXV.xxi, when an eagle flies overhead while *melampodium* (black Hellebore) is gathered, signaling that the gatherer will die that year.[174] My point here is, I hope, straightforward…even if the matter is not: When it comes to acquisition practices, an *iPhone* is not an *iRis*. What health our new smart-devices offer, only when finally merged with the human body as a finished product, must be thought of as part and parcel with the entire process, from acquisition to Apple. Perhaps the bite taken out of the Apple logo should be recalled as that piece of Nature humanity has dug its teeth into, all for a notion of health that ignores the 'sacred balance' (an old David Suzuki-ism) believed in and thus respected in 1st century Rome.

To me, current wearables truly are a revolution in thinking, but not necessarily an evolution. To me, a true evolution in thinking would be one that does not deny the value of information, but one that also sometimes denies the need for it based on context. We don't all need to wear our hearts on our sleeves, even if the capability is available to us; a natural intelligence knows when and how to apply an artificial one, and does not "leap over the cultivation of our incarnation".[175] There is an enjoyment in having the capacity to attend to subtle expressiveness of the body, even if this is difficult to grasp, and impossible to quantify or share on Strava. There are better ways to share subjectivity anyway, and not all experiences need to be or even can be shared; that is the beautiful

[173] 'Rare Earths Trade between China, Myanmar Facing Challenges', *MINING.COM* (blog), 24 December 2019, https://www.mining.com/rare-earths-trade-between-china-myanmar-facing-challenges/.
[174] Pliny The Elder, 'NH (Rackham: LCL)', bk. XXV.xxi.
[175] Irigaray and Marder, *Through Vegetal Being*, 54.

limitation of having an interior life to begin with. As Irigaray says "sharing information sometimes can help us to fit into a given society, culture, or place; however, more often than not, it transforms us into the mechanism of a universe that is not our own"[176]. We do not want to exile ourselves from our own interior spaces. A 'smart' wearable largely should come into play only when our natural 'smarts' have either glitched or faded due to illness, injury, or disability. For these occasions and for these individuals there are more than enough natural resources if only those who *do not* need them can discern this lack of need for themselves and embrace this 'lack' as a freedom. The next time I awaken to the chanting of monks at 4 am in Pak Chong, Nakhon Ratchasima, Thailand to run 5 kilometres up a hill, I won't know that it is actually only 4.8 kilometres, or that my pace was inconsistent, because I won't be wearing a watch to provide information that does not enhance my experience of life, running, or improve my health; sometimes "life escapes representation as it escapes the tool of a representational way of thinking",[177] and our aspirations for health and ongoingness ought to embrace this.

There is no Conclusion to Ongoingness

> If a rush of troubled stories is the best way to tell contaminated diversity, then it's time to make that rush part of our knowledge practices[178]

In Part One of this thesis I tried to make sense of what sort of text other scholars of Classical Rome said I had in hand with *The Natural History*. I respectfully left this mostly to my sources, knowing early on my project would not be one of 'making sense' of Pliny or *The Natural History*; if 'making sense' has anything to do with a reduction of potential, possibly much the opposite. Mostly, I have resisted any conclusions or closures that had previously been attempted on the subject of Pliny or his work. Suitable to the subject of Medicinal Plant Ontology, I have preferred the sort of vegetal complexity that makes the rational human mind feel too small and tightly wound in the face of the

[176] Irigaray and Marder, 59–60.
[177] Irigaray and Marder, 16.
[178] Haraway, 'Duke University Press - Staying with the Trouble', 37.

openness of nature. I have aimed for a humble going along with the playful messiness of vegetal being, taking this over any feigned certainty of what I was looking at, a certainty which would not in any case have been honest or long-lasting.

Part Two was about building a 'BIG' ontological framework (God, World, Earth, Humanity), within which I could find a home for plants as medicines in human culture, plants as things *through which* we might think. I by no means 'figured it all out' regarding what these grand ideas meant in the ancient Roman World; each of the four could easily (not so easily) have been a thesis on its own. Stopping my reading at Pliny for the most part was necessary for limitations of space and time, but kept my study in shallow water for practicality sake. Numerous other projects came to mind in writing this section, among them placing Pliny more accurately amongst his philosophical predecessors and contemporaries in terms of his understanding of these four principles. Additionally, placing this section before that of plants may have been misleading, and should be more so thought of as a 'getting out of the way' of things not specifically on plants, if that can be said, or on the medicines they make or make me think of.

Part Three of my thesis, was essentially 'the point' of my thesis—Dreams, Death, DNA, and Data in relation to health, medicine, ongoingness. These I contemplated experimentally through my impression of a Plinian vegetal ontological lens. These four are things which I think in retrospect we hide from and that hide from us, leading to a great deal of ignorance and misunderstanding regarding their importance for our lives. That Part Three lacks a singular argument from section to section was an *intended* mimicry of the vegetal, a thesis as an interpretation of a plant which branches out organically and says something ineluctably cohesive. Following University guidelines, I elected to cut this mimicry far short of where it may have taken my work. There is an assumed practicality in following these guidelines, just as there is an assumed practicality in much of medicine today; the implications of being wholly practical instead of impractically wholistic is something I have visited in my writing. I imagine that there is a time and place for both, if that is a thesis statement on the place of and need for the medical humanities then so be it. Each of the four sections of Part Three, to which endless more could be added, was a 'graft', "the entire body put together thanks to additions and superimpositions, not as a closed *either/or* totality but as a potential infinity

of *and, and, and*."[179] If I have successfully signaled the infinite potential of human-vegetal partnership for the sake of medicine or of the utility of thinking medically *through vegetal being*, than I must be satisfied that my "quiet rebellion against the strictures of identity"[180] was an adequate agronomic accomplishment. Each page of any thesis is truly, already, the grafting of the pulp of what were once likely neighboring trees in a forest, a literal run-of-the-mill process today; in adding pages to a thesis, one at a time, we know not whether we are bringing back together elements from a once whole single organism or diverse and distant trees. All this 'grafting' imagery may seem poetic, but to me it is actual, factual; to 'use' paper for a thesis on plants demands at least this much awareness to not be wholly hypocritical.

To some I fear, it may seem as though I have simply built story upon story into a heap, but if my stories are troubled, as Haraway would say, all the better. Because of my initial reactionary fisticuff with Libonati, I felt challenged from the start to avoid saying anything simply dismissive about *The Natural History*. I wanted more from such a quirkily composed, vegetally-exhaustive text than the embezzlement of nature for political gain. Surprisingly, as they say, I found exactly what I was looking for. In my reading, there is nothing so straightforward as a political agenda going on in Pliny's work, which is why it survived beyond the Roman Empire as a template for similar projects into the 18th century, when such blurry taxonomies were no longer tolerable outside of fiction. And yet, here we are today, approaching a post-human science-fiction future (have we ever been *Human*? *Scientific*? *Non-fiction*) chalked full of biotechnology and scientific discovery that is blurring the tidy taxonomic borders we so recently hashed. It seems we left behind the strangeness of Pliny's composition only to return to it and surpass it with a renewed vigour for the strange. And so I wonder, what is so troublesome about a world *without* lines drawn in the sand between species when those lines last only as long as Tibetan mandalas? It is a groundlessness of self I think we should get used to ASAP if we wish not to be frightened by the fluidity our own medical bodies in days to come. What is available to a reader of *The Natural History* is an opportunity to wonder about where human being begins and ends in relation to nature, other beings, time, space,

[179] Marder, *Grafts*, 15.
[180] Marder, 15.

myth, imagination, consciousness, life and death. Whatever medicine is as a practice, it begins with opportunities to wonder at nature's infiltration of the human body and being; that is the temporally ticking cure, the health of the mortal being, hosted by a helpful and hostile world, which recycles us and upholds our remembrances afterward. The vegetal medicine we read in *The Natural History*, which, If I am to be honest, smacks at first as utter nonsense to the 21st century brain, in the end offers more than an opportunity to point out truths and falsehoods—if we let it. Pliny is early on the scene to the Harawayan 'Chthulucene', speculating strange therapeutic strings between people, plants, and other players on a planet that is all-natural, and where Nature may be supernatural. He teaches us to embrace tentacular treatments for what ails us, offering endless examples of a kind of thinking that we have already been forced to return to for the sake of our health and this planet's very survival. What we have before us with *The Natural History* is a text, relatively unchanged some nineteen hundred years later, but pointing to *what* and authored by *who*? Decipherment indeed looks grim if we are looking for a replica. But the good news is that, for the medical humanities, the antecedent world *isn't* what we are looking for, instead medicine today is best aided by what the antecedent world can teach going forward, in which case, scraps and fragments will suffice—*a rush of troubled stories*. We aren't Jay Gatsby and the Roman medical world our 1917 Daisy—we don't want *that* medicine back unchanged, and we aren't trying to repeat the past; the green light flickering from across the bay is enough to get us thinking with a melancholy respect for prior medical practice and ancient ontologies, without being born back ceaselessly. In this instance, that green light is *The Natural History*.

I have criticized medicine some, if only from obtuse angles. I do think 'progress' in medicine is still the name of the game, but that it can *always* be of a wiser, more tentative, more responsible—even, slower kind... if that can be called progress. Perhaps simply 'better' medicine is what we are looking for, more historically informed and inspired research, and before that, better questioning, to take the linearity of 'progress' out of it (*does medicine move forward, or does it simply move?*). If we are lucky, we will avoid chasing some orgastic future,[181] which we sometimes do, or sell, as medicine for ourselves. At the very least, there is room for the human seeker of medicine—patient *and*

[181] Fitzgerald, *The Great Gatsby*.

physician—to become more acutely aware of what incites, inspires and lures us on. In working on this project, I have not cared so much who Pliny really was or what *The Natural History* stood for; I have cared about what happens to me and my ideas about medicine when grafting the pages of this text to myself and letting them grow, *my* vegetal-medical metamorphosis, *yours* would no doubt be different. I am, of course, interested in what all this reading-back-in of old Roman thought could lead *us*—collectively as a populations, cultures, and societies—to think about and do regarding the vegetal world and plant-based medicine, or any medicine. If I have said something that sounds like a statement of 'truth' about Pliny, his work, or his World, please do not think that I mean it; it is just a tentative graft. Alternatively, if I say something about what medicine today is, does, is not or does not do, I may have meant it… at the time, but it is likely the result of some past graft of a text or idea onto myself that stuck, that has grown into a gnarly knot in my head; if pressed into a dark corner about it I will likely bend like a phototropic plant toward the light of day, and so my ideas will continue growing.

> The task is to make kin in lines of inventive connection as a practice of learning to live and die well with each other in a thick present[182] - Donna Haraway, *Staying With the Trouble*

> 'Do you realize,' the phytolinguist will say to the aesthetic critic, 'that [once upon a time] they couldn't even read Eggplant?' And they will smile at our ignorance, as they pick up their rucksacks and hike on up to read the newly deciphered lyrics of the lichen on the north face of Pike's Peak.'[183] – Ursula K. Le Guin, *The Compass Rose*

[182] Haraway, 'Duke University Press - Staying with the Trouble', 1.
[183] Haraway, 57.

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