THE LOGIC OF ANATOMY

DISSECTIVE RATIONALITY AND THE DIFFERENCE OF INCARNATION

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For Lillian

ὧν οὐκ ἦν ἄξιος ὁ κόσμος (Heb. 11:38)

ABSTRACT

My thesis is that the tendency of modern medicine to reduce patients into causes to be mastered rather than persons to be treated does not stem from post-Enlightenment developments but rather lies within the beginnings of Western medicine itself, in what I call the anatomical rationality. I follow the development of this rationality through Hippocrates, the beginnings of anatomical dissection in Aristotle and Herophilus, and the theological translation of anatomy by Galen. I further show how this anatomical rationality that arises from medicine then transforms into dissective analysis that applies to theological and philosophical discourse, as seen paradigmatically in Nestorianism and the ontological logic of Avicenna. I argue that this anatomical rationality is a totalizing approach to knowing that creates new dualisms, such that nothing can escape the dissective gaze, God and man included. I suggest that the way to overcome the totalizing effects of the anatomical rationality is turning to the Incarnation of Christ, the God-man, who provides both the metaphysical ground and imagination for paradox and mystery, thereby protecting the integrity of God and man.

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I dedicate this thesis to my sister Lillian Kornu Campbell (1971-2001).

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O world of spring and autumn, birth and dying!
The endless cycle of idea and action,
Endless invention, endless experiment,
Brings knowledge of motion, but not of stillness;
Knowledge of speech, but not of silence;
Knowledge of words, and ignorance of the Word.
All our knowledge brings us nearer to our ignorance,
All our ignorance brings us nearer to death,
But nearness to death no nearer to GOD.
Where is the Life we have lost in living?
Where is the wisdom we have lost in knowledge?
Where is the knowledge we have lost in information?...

Our gaze is submarine, our eyes look upward
And see the light that fractures through unquiet water.
We see the light but see not whence it comes….

Therefore we thank Thee for our little light, that is dappled with shadow.
We thank Thee who hast moved us to building, to finding, to forming at the ends of our fingers and beams of our eyes.
And when we have built an altar to the Invisible Light, we may set thereon the little lights for which out bodily vision is made.
And we thank Thee that darkness reminds us of light.
O Light Invisible, we give Thee thanks for Thy great glory!

– T. S. Eliot

PROLOGUE

Nature loves to conceal herself.
– Heraclitus[1]

The secret things belong to the Lord our God, but the things that are revealed belong to us and to our children forever.
– Deuteronomy 29:29

What people accept as a justification shows how they think and live.
– Ludwig Wittgenstein[2]

Lillian's Story

Several years ago, my sister Lillian experienced one of her greatest joys when she discovered she was pregnant with her first child, a son. However, during one of her early prenatal visits, she had a markedly elevated white blood cell count on routine blood work. Such routine lab tests have the ability to dissect the body down into its ever-smaller parts to find out how the body works, to make visible what is invisible, by observing the invisible small corpuscular blood cells signified by visible numbers. Aside from morning sickness, Lillian felt completely healthy when her doctor gave the bad news: chronic lymphocytic leukemia (CLL). Her leukemia diagnosis was unusual because it did not fit the known profile: the typical patient is a white male over age sixty, not an Asian-American woman under age thirty. Her doctor did not know why she had this disease because she did not fit the profile.

Much to the delight of Lillian and her husband Travis, her pregnancy was uneventful. She gave birth to a healthy son, Evan. The standard of care for asymptomatic chronic lymphocytic leukemia is watchful waiting because the disease

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[1] Heraclitus, *On the Universe*, X. ET Hippocrates and Heraclitus, *Hippocrates: Volume IV; Heraclitus: On the Universe*, trans. W. H. S. Jones, Loeb Classical Library (Cambridge, Mass.: Harvard University Press, 1923), 472–73.
[2] Ludwig Wittgenstein, *Philosophical Investigations*, ed. P. M. S. Hacker and Joachim Schulte, trans. G. E. M. Anscombe, P. M. S. Hacker, and Joachim Schulte, 4th ed. (Chichester, West Sussex, U.K.; Malden, MA: Wiley-Blackwell, 2009), 113.

grows so slowly that there may be no symptoms for several years. Treatment is reserved for those who have symptoms due to proliferation of the lymphocytes that crowd out the other blood cells. Besides, at the time of her diagnosis, treatment was largely based on clinical observation and trial-and-error. Not long after the birth of her son, Lillian moved back to her home state to be closer to family and to find a new doctor at one of the premier hospitals for cancer research and treatment in the world. While the cancer was the primary reason to move back to her home state, Lillian lived her life like any new mother. She enjoyed this new stage of life, cherishing her son's smiles and coos, while experiencing exhaustion from sleepless nights. Life was good and cancer remained hidden in the background.

Life rapidly changed when Lillian's CLL underwent what is called a Richter's transformation, which is when the indolent CLL transforms into an aggressive, diffuse large B-cell lymphoma. Her beautiful face, which had been hiding the invisible cancer, soon revealed that the cancer had shown itself through the chain of golf ball sized lymph nodes that littered the underside of her jaw. The invisible cancer had become visible through signs only seen with the anatomical gaze. The cancer hospital confirmed the diagnosis and scheduled chemotherapy as soon as possible because treatment could not be delayed. Not long after the confirmation, she moved away from her life at home with her husband and infant son to live in an apartment near the cancer hospital to begin aggressive chemotherapy. On the way to her new life as a cancer patient, Lillian went to a gathering of friends who wanted to pray for her as she faced the prospect of the nauseating and debilitating effects of chemotherapy, not to mention the disease itself. As Lillian's friends prayed for her, they became silent because of the uncontrollable sobbing that overwhelmed them. In response, she revealed her strength by praying for them, that their hearts would not be discouraged

and that they would know that God is kind and merciful. Then off she went to endure the assault of chemotherapy in the efforts of saving her life.

Lillian subjected herself to the anatomical gaze of modern medicine. Modern medicine saw her body not as an integrated whole with a life narrative that gives holistic context and meaning to the body, but rather as a collection of organ systems. The clinical gaze saw the hematologic organ system as broken and in need of fixing, and chemotherapy was the "fix." Yet, chemotherapy is highly ironic. Chemotherapy intends to destroy the cancer, but because it does not target the cancer directly, the body sustains collateral damage. Even in the case of monoclonal antibodies, which are supposed to target specific proteins on the cancer cells, the body can experience terrible side effects that feel worse than cancer itself.

She began a treatment protocol entailing monthly treatments of high-dose chemotherapy. In between chemo cycles, she rested, slept, and battled crippling nausea, while she was hundreds of miles away from her husband and son. She spent her time either in the hospital or in an apartment that was not her home and manifested the aesthetic effects of chemotherapy with a baldhead. Yet, she actively sought out other cancer patients who needed encouragement and comfort. Unfortunately, the chemotherapy did not tame the cancer in ways that the physicians (or were they research scientists?) had hoped. Lillian's demographic profile of Asian-American woman under thirty years old was so rare that her case was presented at the world-renowned cancer hospital that actively researched CLL. Because the chemotherapy proved to be ineffective, the next step was a stem cell transplant. This was not a simple decision because, at the time of her treatment, she would need to remain in an isolation room in the hospital without the ability to leave for six weeks. But she needed the treatment if she was going to live to see her son grow up.

While waiting for a bone marrow donor match, she made new memories with her son at the beach with the chain of lymph nodes showing again on her face, revealing the juxtaposition of visible happiness and visible cancer. After a bone marrow donor match was found, she underwent toxic doses of chemotherapy and radiation to obliterate her own bone marrow so that the new transplanted bone marrow could take root and become her new immune system. On the day that she was admitted back into the hospital for the bone marrow transplant, she kissed and hugged her son. It would be for the last time.

She then faced the long isolation of the bone marrow transplant and engraftment process. The actual transplant was anticlimactic. All of the large build-up to the transplant seemed like a big fuss compared to the transplant itself, which looks like a simple blood transfusion to the visible eye. But to the anatomical gaze, the "simple blood transfusion" looks like water flowing from the fountain of life. Everyday seemed like the same day over and over again, stuck in isolation, with her husband sitting in an adjacent room no bigger than a walk-in closet, communicating through a shared window and an on-the-wall telephone. The only variations to her isolation were the levels of pain, nausea, and vomiting she suffered. And yet, Lillian still had the moral and spiritual strength to provide counsel to her friends who struggled with their own personal and relationship problems. In the time of her own time of darkness and brokenness, Lillian sustained the hope of healing and shared light and love to others. After the six-week isolation, she was discharged from the hospital to the apartment nearby that had become her temporary home.

But she did not last long at home. She developed intractable nausea and vomiting and was re-admitted to the hospital, never to return home again. During her last admission, a cascade of events occurred. While Lillian was treated for nausea and

vomiting, lab tests dissected her liver to show abnormal liver function tests. In order to evaluate why she had elevated liver function tests, the medical team made the decision to perform a liver biopsy. While a liver biopsy is typically well tolerated, the liver is a highly vascular organ so there are risks of bleeding. Unfortunately for Lillian, she had complications. Not long after the liver biopsy, she developed a form of respiratory failure called acute respiratory distress syndrome (ARDS). She required intubation and mechanical ventilation. This beautiful wife, mother, sister, and daughter became a functional cyborg with an impersonal machine doing the work of breathing for her. Those trained with the clinical gaze know that ARDS holds a high mortality rate (up to forty percent). My brother was a resident physician in Internal Medicine at the time and knew the real possibility of her death.

As a family we were distraught that an event such as ARDS could possibly be a consequence of the preceding liver biopsy. We asked the medical team if the liver doctor who performed the biopsy would come speak to us. We did not intend to accuse him of causing the ARDS, but at least he could show his sorrow and compassion for Lillian's new condition. To our dismay, the medical team told us that the liver doctor would not speak to us, because the liver doctor said, "I only deal with the liver. I have nothing to do with the lungs. There is no bleeding from the liver, so I have nothing more to do with the case." In that instant, the liver doctor did what so many modern physicians do time and again: anatomize the patient to her parts such that the patient is no longer human. Lillian was no longer the very sick person with cancer; with the anatomical gaze, she was reduced to a liver. Even I, as a palliative care physician, have been guilty of reducing patients to their parts.

After a few weeks of ventilator support and signs of gradual improvement, Lillian developed a mucus plug in her endotracheal tube, causing a period of lack of

oxygen and resultant anoxic brain injury. At that moment, we knew that the ventilator was no longer extending her life but prolonging her death. Yet, as she lay dying, we found out that the bone marrow biopsy prior to the event leading to her demise showed that the bone marrow was clear of CLL. Ironically, the hematologic organ system was treated successfully, but her lungs and brain were injured beyond repair. Family and friends flew in from all over the country to be at Lillian's side and to practice inpromptu bedside liturgies: we sang hymns over her, read scripture, rubbed her hands and feet, stroked her head, and her favorite pastor recited Psalms in the King James Version. After everyone said their goodbyes, our family made the decision to remove the burden of the ventilator and allow her to die. Her husband, my parents, and I were at the bedside when she took her last breath. She did not live to see her thirtieth birthday and left behind a husband and one year old son. In the wake of her death, questions came flooding in: Why did this happen? Why did this happen to a young, beautiful woman of faith who was a source of light and love to all her knew her? Wasn't she supposed to have the rest of her life ahead of her? Why was her life tragically cut short?

The question "why?" can be asked in two ways. First, is it a medical-scientific question? Was there a genetic reason for her CLL? Was there an environmental exposure that could have caused a new mutation, resulting in CLL? Did the liver biopsy cause the ARDS that led to her demise? Was there something wrong with her bone marrow transplant? One could ask an endless number of these "why" questions framed as efficient cause. Or, second, is the question "why" a moral-theological question? "Why is this happening to me? Am I being punished? What did I do wrong to deserve this?" In other words, the "why" questions are asking the purpose of having the disease. When Lillian was still in the midst of chemotherapy, my father

was dumbfounded to learn that my sister never asked "why me?" but instead framed the question as "why NOT me?" Lillian was so assured and certain of God's love for her that she knew that cancer was not a punishment but an opportunity to love anew. In Lillian's spiritual gaze, she saw cancer not as a constant warfare against an invisible enemy but as a gift to grow deeper in love for God and in love of others.

I am a practicing palliative care physician, entrusted with the care of the dying and those facing life-limiting illnesses. In my experience, of those patients who ask the "why" question, many of them ask it as a medical-scientific question, not a moral-theological one. They want to know if there is something they could have done differently to prevent the disease or if there is something that they did to cause the disease. "Was it all those years drinking and smoking?" "Was it my exposure to Agent Orange during the Vietnam War?" Or: "I didn't drink, I didn't smoke, I ate healthy, I did everything right. So why am I dying of cancer?" I have heard all of these questions from my own patients. These questions are asked as if there *must be* a hidden mechanism, not a hidden meaning, behind the life-limiting illness. If modern medicine could only reveal the hidden mechanism, they would at least know why this happened and find peace and solace, or so this way of thinking goes.

The Roots of Modern Medicine (and Philosophy)

In this thesis, I seek to answer my own "why" question: why does this medical-scientific line of thinking predominate not only for patients but also for physicians? Does not the "medical-scientific" designation presuppose its own moral-theological stance? Why does modern medicine find comfort in revealing and mastering these efficient causes in the body? Why does modern medicine equate knowledge of patients with reducing them to their atomistic parts? Jeffrey Bishop has

argued that the root of the malaise of modern medicine is a metaphysical disease: the metaphysics of efficient causation applied to the dead body is epistemologically normative for medical knowledge.[3] He borrows insights from the history and philosophy of science and from Michel Foucault's genealogy of modern medicine. He shows that pre-modern, fourfold, Aristotelian causation undergoes a dissection such that the final and formal causes are laid aside in favor of material and efficient causation, resulting in a philosophical materialism, characterized by the modern values of efficiency and efficacy. Bishop then builds on Foucault's genealogy that modern medicine arises in late eighteenth century Paris with the union of previously disparate practices of anatomical pathology and clinical medicine, thereby creating a new space of the modern clinic where disease that is identified in the cadaver can then be mapped onto the living body. Thus, life is nothing more than matter in motion, while death is merely the cessation of this motion. In this reading of the development of modern medicine, overturning fourfold causation is epistemologically prior to the birth of modern medicine.

While Bishop's thesis provides an accurate description of modern medicine's metaphysics, I offer a different genealogy of medical knowledge. I argue that an anatomical way of knowing that develops in Western medicine and philosophy – what I call shall call the "anatomical rationality"[4] – becomes the paradigm for knowing in general, both medically and philosophically. In tracing the development of the anatomical rationality, I show that there is a mutual insemination between anatomical methodology and philosophical thought. The anatomical rationality arises with the advent of anatomical dissection in Greek medicine. In this intentionality towards the

[3] Jeffrey P. Bishop, *The Anticipatory Corpse: Medicine, Power, and the Care of the Dying* (Notre Dame, Ind.: University of Notre Dame Press, 2011).
[4] I borrow this term from Roger K. French, *Dissection and Vivisection in the European Renaissance* (Brookfield, Vt.: Ashgate, 1999), but I use the term more broadly than French does.

human body, to know the body is to cut the body into its smaller parts, compartmentalizing the parts into precise categories that can be exhaustively known. However, a key dimension to the anatomical rationality is that "anatomy" – Greek *anatomē* meaning "to dissect or cut up" – is not restricted to the methodological practice of cutting up human bodies to further knowledge of natural philosophy and medicine but takes on a broadened semantic range that applies to the methodological practice of cutting up philosophical concepts for the sake of metaphysical and theological knowledge, culminating in the *anatomia entis*, the anatomy of being. In this anatomical rationality, to know something, bodies and ideas included, entails cutting up the object of inquiry into its parts. The *anatomia entis* as the completion of the anatomical rationality even subjects God to the dissective gaze. The desire of the anatomical rationality is to make visible that which is invisible. Peering into the invisible is to know the thing, whether that means cutting below the human skin to reveal the invisible parts of the body or whether that means using the mind to cut up an object of inquiry with the tools of logic to reveal what was previously hidden to the mind's eye. One major implication to the rise of the anatomical rationality is that, contrary to the predominant view that philosophy always preceded medicine in conceptual development,[5] medicine directly influenced and transformed philosophy in its metaphysics and epistemology. This anatomically informed philosophy then exerts influence on the development of medicine thereafter, the effects of which remain in modern medicine.

I also argue that the anatomical rationality as an epistemology directly informs ethics. As a paradigm of the anatomical rationality, anatomical dissection is a practice

[5] For example, Eric Krakauer calls modern medicine the standard bearer of Western metaphysics. Eric L. Krakauer, "Prescriptions: Autonomy, Humanism and the Purpose of Health Technology," *Theoretical Medicine and Bioethics* 19, no. 6 (1998): 525–45, here at p. 535. Jeffrey Bishop's thesis on the metaphysical origins of modern medicine assumes that "medicine embraced the metaphysics of the modern natural sciences." Bishop, *The Anticipatory Corpse*, 22.

that forms and shapes practitioners to see – both with visual perception and with the mental vision of the mind's eye – its objects of inquiry in a particular kind of way that allows for cutting, manipulation, and even violence for the sake of some desired knowledge, whether that knowledge be medical, philosophical, or theological. Consequently, nothing is excluded from this dissective gaze: not the mystery of the human person, not even God himself.

In following the thread of this anatomical rationality, I employ a genealogical and archaeological method inspired by Michel Foucault and Giorgio Agamben. I attempt to show that the roots of modern medicine does not begin with the union of anatomical pathology and clinical medicine in the eighteenth century Paris, as Foucault argued in *The Birth of the Clinic*,[6] but rather with the beginnings of Western medicine itself, tracing back to Hippocrates who plants the seeds of the anatomical rationality. In other words, the anatomical rationality is encoded into the epistemological DNA of Western medicine, whether ancient, medieval, or modern. I build on Foucault's view of genealogy not as a study of ideal, inevitable origins but rather as a study of the body and history that exposes power struggles. Such a history is unstable because man's body is unstable as the basis of self-recognition or understanding other men. Foucault describes the power of knowledge of the body provocatively: "This is because knowledge is not made for understanding; it is made for cutting."[7] In the anatomical rationality, Foucault's statement regarding knowledge and cutting should be inverted: cutting is done for knowledge. In this way, the anatomical rationality exercises power over the human body and, by extension, exercises power over being. As a *genealogy* of medical knowledge, this inquiry

[6] Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception*, trans. A. M. Sheridan Smith (New York: Vintage, 1994).
[7] Michel Foucault, "Nietzsche, Genealogy, History," in *The Foucault Reader*, ed. Paul Rabinow (New York: Pantheon Books, 1984), 83–88, quotation on p. 88.

assumes that anatomical dissection is a particular cultural, historical practice. Thus, an investigation into the anatomical rationality is an investigation into a way of knowing that did not arise out of medical necessity that is universalizable to all times and cultures. As Shigehisa Kuriyama's comparative history of ancient Greek and Chinese medicine has shown, anatomical dissection is *not* an inevitable development of progressive, medical knowledge but rather is a particular development within Greek medicine that generates a new way of seeing and touching the body and thus a new way of knowing the body.[8] The tradition of Chinese medicine never appealed to anatomical dissection as a way of knowing the body. This is why I focus my inquiry on Western medical knowledge and Western philosophy and theology.

I also build on Agamben's conception of archaeology as a study in paradigms. For Agamben, the paradigm is a form of analogical knowledge that functions both as exemplar and particular and is historically situated in the crossing of the diachronic and the synchronic.[9] Accordingly, anatomical dissection, while a particular practice that developed in the history of Greek medicine, functions as an exemplar as a way of knowing that can be analogically related to other practices of knowing, notably in philosophy as an embodied mode of inquiry. I make the methodological assumption that while theory shapes practice, embodied practice shapes theory in equal measure, if not more so. While human anatomical dissection was inaugurated in the fourth century BCE and is currently taught in modern medical schools, mental dissection through logic is practiced in areas that seek surgical precision and clarity of thought, as seen in the tradition of analytic philosophy. For example, the early Wittgenstein unwittingly adopts the paradigm of anatomical dissection when he describes logical

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[8] Shigehisa Kuriyama, *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine* (New York: Zone Books, 1999).
[9] Giorgio Agamben, *The Signature of All Things: On Method*, trans. Luca D'Isanto and Kevin Attell (New York: Zone Books ; Distributed by the MIT Press, 2009), 9–32.

definitions: "A name cannot be dissected any further by means of a definition: it is a primitive sign. […] Names *cannot* be anatomized by means of definitions."[10] Thus, the paradigm of the anatomical rationality persists in the modern medical and the philosophical mindset. And yet, not only does the anatomical rationality apply to the specialized fields of medicine and analytic philosophy, but also anatomy refers to analysis in general. The Oxford English Dictionary provides an additional definition for "anatomy": "The dissection or dividing of anything material or immaterial, for the purpose of examining its parts; detailed examination, analysis."[11] In everyday language, anything that one intends to understand more deeply will perform an "anatomy" of that object. For example, if one wants to better understand the hospital, one performs an "anatomy of the hospital," and so forth. I intend to show how this paradigm of anatomical rationality develops from an ancient medical practice into a generalized mode of inquiry in the Western philosophical tradition.

* * *

David Bentley Hart summarizes Foucault's work as a "phenomenology of original sin" in the sense that Foucault effectively described the structures of power that manifest the powers and principalities of the kingdom of this world.[12] As a Foucauldian, Bishop effectively describes the metaphysics and biopolitical structures of modern medicine, but he does not, in my view, provide an adequate account of the "original sin" of medicine, which I regard to be the anatomical rationality. As the method of this thesis is genealogical, I focus on the thought and practice of important figures in the Western medical, philosophical, and Christian theological traditions that

[10] Ludwig Wittgenstein, *Tractatus Logico-Philosophicus*, trans. David Francis Pears and Brian McGuinness, Rev. ed (London: Routledge, 2001), 3.26, 3.261. Emphasis original.
[11] *Oxford English Dictionary Online,* s. v. "anatomy," accessed September 23, 2016, http://www.oed.com/view/Entry/7179?redirectedFrom=anatomy#eid.
[12] David Bentley Hart, *The Beauty of the Infinite: The Aesthetics of Christian Truth* (Grand Rapids, Mich.: W.B. Eerdmans, 2003), 68.

are judged to be vital to the conception, birth, maturation, and transmutation of the anatomical rationality. The genealogy begins with Hippocrates and ends with Avicenna. I intentionally exclude discussion of the resurrection of human anatomical dissection in the thirteenth century in the Christian Latin West and the "culture of dissection" in the sixteenth century because I concentrate on the philosophical and theological developments that provide the conditions of possibility for the practice of anatomical dissection to arise yet again.[13]

While this project is critical of modern medicine, I do not intend to overturn modern medicine *tout court* because it is remains useful to provide cure of disease, relief of pain, and comfort in suffering, when well-circumscribed regarding its limits and ends. I continue to practice modern medicine and to employ its techniques in the care of the dying, while fully acknowledging that such care is limited and must be shared with other non-medical practices, not monopolized by the power of medicine. Modern medicine is a tool that needs to remain a tool and not a totalizing practice and discourse that crowds out other ways of knowing and being.

The first chapter, "Conceiving the Anatomical Rationality: Hippocrates' Proto-Baconian Project," deals with the close interplay between Hippocratic medicine in the fifth century BCE and pre-Socratic philosophy, wherein the Hippocratic corpus not only appropriates philosophical concepts from the day but also actively transforms Greek natural philosophy. I challenge the prevailing contemporary notion that the main continuity of the Hippocratic tradition for today is Hippocratic ethics and

[13] Several historians of medicine have attempted to explain the rebirth of anatomical dissection in the thirteenth century and its subsequent development. See Jonathan Sawday, *The Body Emblazoned: Dissection and the Human Body in Renaissance Culture* (London: Routledge, 1995); Andrew Cunningham, *The Anatomical Renaissance: The Resurrection of the Anatomical Projects of the Ancients* (Aldershot: Scolar Press, 1997); Roger K. French, *Dissection and Vivisection in the European Renaissance*; Andrea Carlino, *Books of the Body: Anatomical Ritual and Renaissance Learning*, trans. John Tedeschi and Anne C. Tedeschi (Chicago: University of Chicago Press, 1999); Katharine Park, *Secrets of Women: Gender, Generation, and the Origins of Human Dissection* (New York: Zone Books, 2006).

instead argue that Hippocratic epistemology is constitutive for Hippocratic ethics. I show how the Hippocratic corpus gives rise to rational medicine, the human sciences, and the beginnings of a proto-Baconian project. Hippocrates plants the seed of the anatomical rationality in the drive to unveil what nature has hidden.

The second chapter, "The Birth of the Anatomical Rationality: The Divine (Medical) Gaze of Aristotle and Herophilus," builds on the previous chapter and explores the historical beginnings of anatomical dissection for the sake of medical and philosophical knowledge. I show that Aristotle, as the first to practice systematic anatomical dissection, manifests the desire to dissect animals because of the explicit desire to know the soul of animals and, consequently, to acquire divine knowledge. Moreover, I argue that Aristotle's development of logical division is directly informed by the practice of physical anatomical dissection, such that physical dissection and logical dissection exhibit a reciprocal causality. Anatomical dissection entails mental dissection and vice versa. I then show how Herophilus, as the first to practice human anatomical dissection, adopts Aristotle's epistemology but applies it for medical purposes. In other words, human anatomical dissection flows out of Aristotle's logic of anatomical dissection.

The third chapter, "Maturing the Anatomical Rationality: Galen's Anatomical Theology," explores how Galen further intensifies the themes from the preceding chapters. I show how Galen further develops Hippocratic medicine by synthesizing the twin epistemic pillars of reason and experience with the precise tool of anatomical dissection and, in so doing, creates a new way of philosophizing and theologizing with a scalpel. I argue that Galen's anatomical epistemology places a primacy on revealing the teleology of nature and the wisdom of the Demiurge. I then show how Galen's anatomical rationality is fulfilled in a liturgically-enacted anatomical

theology that surpasses competing Greek mystery cults, such that the practice of dissection reveals the wisdom of God.

The fourth chapter, "Theologizing the Anatomical Rationality: Dissecting the Two Natures of Christ," marks a crucial transition from anatomical theology to a theological anatomy. Anatomical dissection moves out of the realm from dissection of the physical body to the metaphysical dissection of the person of Christ into the two natures. I show how Nestorius employs an metaphysical anatomical rationality – what I call Nestorian logic – in order to understand the relation of Christ's divine and human natures by completely cutting them apart from one another ontologically. I then show how Cyril of Alexandria eschews the anatomical rationality by appealing to the mystery and paradox of the unity of Christ's person in the differences of natures. Building on Cyrilline Christology, I argue that Maximus the Confessor ultimately overcomes the anatomical rationality with the development of Chalcedonian metaphysics that eschews all dualisms in cosmology, anthropology, and epistemology through the paradoxical unity and difference of Christ through whom all things hold together.

The fifth chapter, "Dissecting the Symbolic Ontology: The Iconoclastic and Eucharistic Controversies," builds on the metaphysical developments of the previous chapter and applies them to the iconoclastic controversies in the eighth and ninth centuries and the second Eucharistic controversy in the eleventh century. I show that the iconodules and the terms of the pre-Eucharistic controversy hold to the Chalcedonian metaphysics, thereby ensuring unity in difference. I then show that the iconoclasts and the terms of the Eucharistic controversy demonstrate a Nestorian logic that dissects what ought to be held together, thereby creating dualisms such matter vs. spirit, visible vs. invisible, nature vs. supernature, and reality vs. symbol. In the wake

of these theological controversies and these dualisms, I argue that iconoclasm and exclusive emphasis on the Real Presence result in an epistemology of exact representation and the model for modern technology.

The sixth and final chapter, "The Disembodied Anatomical Rationality: Avicenna's *Anatomia entis* and the De-humanization of Man," completes the progression of the anatomical rationality from physical dissection to mental dissection and demonstrates the disastrous metaphysical consequences. I show that Avicenna completes Aristotle's project through the development of an ontologized logic, such that all knowledge of reality can be acquired through the careful use of logic as a mental scalpel to dissect being itself. I argue that nothing escapes Avicenna's dissective gaze, including God and man. God becomes another object of mental dissection and man is ontologically dissected into body and soul, resulting in the isolation of God from the world and the de-humanization of man. In the final analysis, the anatomical rationality ultimately cuts off human knowledge from the very things it wants to know most: knowledge of God and knowledge of self.

CHAPTER 1
CONCEIVING THE ANATOMICAL RATIONALITY: HIPPOCRATES' PROTO-BACONIAN PROJECT

> *It is impossible to understand the history of philosophy…without keeping the history of medicine constantly in view.*
> – John Burnet[14]

> *All, or nearly all, of the questions [the Hippocratic Corpus] asks are echoed in the history of Greek philosophy.*
> – Auguste Diès[15]

> *The nature of the body is the beginning of discourse on medicine.*
> – Hippocrates[16]

Hippocratic Fundamentalism

Hippocrates is popularly cited as the standard for traditional medical ethics, epitomized by the maxim, "First, do no harm," and summarized in the Hippocratic *Oath*. However, many physicians are not aware that "First, do no harm" is not found in the *Oath* but rather is found in a clinical work of case observations, *Epidemics I.* In *A Short History of Medical Ethics*, Albert Jonsen makes a similar point about traditional medical ethics when he tells his own story about the rise of medical ethics as a field of inquiry. Physicians in the 1960s and 1970s were skeptical about the field of medical ethics (which later became bioethics) since the medical profession had taken for granted a "long tradition" of simple rules, such as dedication and courtesy to patients, confidentiality, and duty to provide free care to the poor. Jonsen argues that the rise of new technical and scientific capabilities in medicine would press the simple

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[14] John Burnet, *Early Greek Philosophy*, 4th ed. (London: A. & C. Black, 1930), 201 n.4.
[15] Auguste Diès, *Autour de Platon. Essai de critique et d'histoire.*, 2nd ed. revised and corrected (Paris: Les Belles lettres, 1972), 15, quoted in Jacques Jouanna, "The Theory of Sensation, Thought and the Soul in the Hippocratic Treatise Regimen: Its Connections with Empedocles and Plato's Timaeus," in *Greek Medicine from Hippocrates to Galen: Selected Papers*, ed. Philip van der Eijk, trans. Neil Allies, Studies in Ancient Medicine 40 (Leiden: Brill, 2012), 196.
[16] Hippocrates, *Hippocrates Places in Man: Edited and Translated with Introduction and Commentary*, trans. Elizabeth M. Craik (New York: Oxford University Press, 1998), 39.

rules of the received tradition to their breaking point.[17] Jonsen goes on to tell a brief history of medical ethics, starting with ancient Greece and the Hippocratic Corpus. Jonsen points out that of the more than sixty works in the Hippocratic Corpus, *Precepts, Art, Law, Decorum, Physician,* and *Oath* are explicit ethical treatises, while *Epidemics I* advises physicians "to help and not to harm" when treating patients.[18] Jonsen concludes: "The Hippocratic ethic, then, consists of two powerful deontological pieces, the maxim of *Epidemics I* and *Oath*, and an ample exposition of decorum that can be seen either as mere etiquette or as an ethic of virtue and character."[19]

I open with Jonsen not because he is a scholar of Hippocrates but precisely because he is not a Hippocrates scholar. Rather, as one of the first generation of scholars in the rise of bioethics as a field, his reading of Hippocratic ethics is representative of bioethics in general. The general sense is that Hippocratic medicine entails a fidelity to patients characterized by the principles of beneficence and nonmaleficence coupled with proper etiquette and virtues such as temperance. Together they constitute what one could call "Hippocratic fundamentalism." Much like religious fundamentalism, which distills down a whole religion to a few dogmas or practices and neglecting the rest of the tradition, all that is needed to know about Hippocratic ethics can be reduced to the handful of works mentioned above and codified by the Hippocratic *Oath*, while disregarding the rest of the Hippocratic Corpus.

Stephen Miles, a physician and medical ethicist, advocates for such a Hippocratic fundamentalism and views Hippocratic medicine as a medical-ethical panacea for the issues and problems in medical ethics. He argues that the original

[17] Albert R. Jonsen, *A Short History of Medical Ethics* (New York: Oxford University Press, 2000), v.
[18] Ibid., 2.
[19] Ibid., 8.

Hippocratic *Oath* has enduring relevance for today because: (1) it addresses perennial issues in medical ethics such as the physician-patient relationship, abortion, euthanasia, and medical education, and (2) it provides a moral framework for outlining the fundamental elements of medical ethics, namely how physicians ground professionalism, in what way they are accountable, and to what they are committed.[20]

Indeed, the *Oath* and the larger Hippocratic Corpus demonstrated a robust humanism that was yet unseen in the ancient world. Greek lexical evidence includes the repeated use of *anthropos*, "human being," to refer to the patient, regardless of social or economic status.[21] The Hippocratic ethic of the *Oath* raised the standard of pagan morality and was later Christianized.[22] As the text of the *Oath* attests, the Hippocratic ethic keeps the best interest of the patient in view with the moral obligations of beneficence and nonmaleficence:[23] "And I will use regimens for the benefit of the ill in accordance with my ability and my judgment, but from [what is] to their harm or injustice I will keep [them]."[24]

Yet Miles' optimism for the utility of the Hippocratic *Oath* in contemporary medical ethics must be tempered by historical, pragmatic, and philosophical concerns. From an empirical, pragmatic standpoint, there is evidence that medical school oath

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[20] Steven H. Miles, *The Hippocratic Oath and the Ethics of Medicine* (New York: Oxford University Press, 2004).

[21] Jacques Jouanna, *Hippocrates*, trans. M. B. DeBevoise, Medicine & Culture (Baltimore: John Hopkins University Press, 1999), 125.

[22] A Christian version of the *Oath* survives in a medieval manuscript, replacing pagan divinities called upon at the beginning of the *Oath* with God and Jesus Christ. For the text of a Christian version, see W. H. S. Jones, *The Doctor's Oath: An Essay in the History of Medicine* (New York: Cambridge University Press, 1924).

[23] Beneficence and nonmaleficence are two of the four principles that reign in contemporary bioethics, the other two being autonomy and justice. Such a framework is termed "principlism," as developed by Beauchamp and Childress. Their textbook, *Principles of Biomedical Ethics*, is currently in its seventh edition and has become part of the bioethics canon and clinical ethics practice. See Tom L. Beauchamp and James F. Childress, *Principles of Biomedical Ethics*, 7th ed. (New York: Oxford University Press, 2013). However, several criticisms have been leveled against principlism, notably its assumption that there is a universal, common morality upon which all can agree. The common morality of Beauchamp and Childress reflects secular, Western liberal values.

[24] Translation from Heinrich von Staden, "'In a Pure and Holy Way': Personal and Professional Conduct in the Hippocratic Oath?," *Journal of the History of Medicine and Allied Sciences* 51, no. 4 (1996): 404–37, here at p. 407.

taking, while compelling as a solemn event and long-standing tradition, does not play a large part in the professional and moral formation of physicians. Rather, the professional and moral formation of contemporary physicians is shaped more by their specific traditions than by medical school oaths, whether Hippocratic or other.[25] Indeed, as Rachel Prentice's ethnography of anatomy and surgical education argues, "medical embodiment goes beyond the acquisition of skills to include the development of perceptions, affects, judgments, and ethics that occurs through bodily practice in a clinical milieu" that is formed directly through sensory interaction with and anatomical dissection of the cadaver.[26] In other words, the moral formation of physicians must take into account the embodied practices of medical education that shape bodies and souls, epitomized by the formative experiences of the anatomy lab.

From a historical perspective, the utility of the Hippocratic *Oath* has been diverse and varied. An analysis of early medieval tracts on medical ethics from the eighth to eleventh centuries suggests that moral behavior has more to do with the character of the particular individual regardless of the content of the *Oath* or any other similar text. But after the eleventh century, dramatic changes occurred, namely the professionalization and regulation of medical ethics and practice. Oath taking was less about reviving an ancient tradition and more about the consolidation of public institutional authority, which had an interest in regulating medical practice.[27] In this way, the *Oath* functioned as a way to unify the profession and centralize its power.

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[25] In a recent survey, only one in four physicians regarded oaths as exerting a lot of influence on their practice. Instead, over ninety percent of these physicians cited their own personal sense of right and wrong as chief moral guide, with some appealing to the formative influence of their specific religious traditions. See Ryan M. Antiel et al., "The Impact of Medical School Oaths and Other Professional Codes of Ethics: Results of a National Physician Survey," *Archives of Internal Medicine* 171, no. 5 (2011): 469–71.

[26] Rachel Prentice, *Bodies in Formation: An Ethnography of Anatomy and Surgery Education* (Durham, NC and London: Duke University Press, 2013), 6.

[27] Carlos R. Galvao-Sobrinho, "Hippocratic Ideals, Medical Ethics, and the Practice of Medicine in the Early Middle Ages: The Legacy of the Hippocratic Oath," *Journal of the History of Medicine and Allied Sciences* 51, no. 4 (1996): 438–55.

The professional unifying utility of the *Oath* is further demonstrated in modern medicine. Dale Smith has argued that the Hippocratic *Oath* serves at least three functions in the modern era: (1) professional obligation, (2) professional statement to the public about the ethics of medicine, and (3) affirmation of heritage.[28] Yet, as Smith argues, while the text of the *Oath* may remain the same, thereby allowing the medical profession to claim a loosely common tradition, how the ethical precepts in the *Oath* are interpreted and appropriated reflect the values and uses of the contemporary profession at different points in the history of medicine, not some static tradition. As David Cantor points out, the Hippocratic tradition is an invented and re-invented tradition based on selective readings of the diverse Hippocratic Corpus made to serve the purposes of particular groups such that Hippocrates is a "malleable cultural artifact."[29]

Of supreme importance is the philosophical perspective regarding medical ethics and the *Oath*. As Edmund Pellegrino has consistently argued, to ground a biomedical ethics one must first have a philosophy of medicine.[30] Fabrice Jotterand argues that an appeal to the Hippocratic *Oath* as a stabilizing normative force for medical professionalism and ethics is insufficient because of powerful, overarching biopolitical concerns that drive contemporary bioethics. Instead, to protect the morality of medicine from changing along with contemporary social mores, medical

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[28] Dale C. Smith, "The Hippocratic Oath and Modern Medicine," *Journal of the History of Medicine and Allied Sciences* 51, no. 4 (1996): 484–500. T. J. Murray, a Canadian physician in the 1960s, crystallizes these functions well: "The Hippocratic Oath is important in that the ideas of ideals and principles in the practice of medicine are embodied in its words." "The Hippocratic Oath today," *Canadian Doctor,* April 1965, 36-37, quoted in Smith, "The Hippocratic Oath and Modern Medicine," 498.

[29] David Cantor, "Introduction: The Uses and Meanings of Hippocrates," in *Reinventing Hippocrates* (Burlington, VT: Ashgate, 2001), 3.

[30] One could argue that Pellegrino single-handedly resurrected the philosophy of medicine as a field of inquiry. For the most comprehensive view of this thought, see Edmund D. Pellegrino and David C. Thomasma, *A Philosophical Basis of Medical Practice: Toward a Philosophy and Ethic of the Healing Professions* (New York: Oxford University Press, 1981); Edmund D. Pellegrino and David C. Thomasma, *For the Patient's Good: The Restoration of Beneficence in Health Care* (New York: Oxford University Press, 1988); Edmund D. Pellegrino and David C. Thomasma, *The Virtues in Medical Practice* (New York: Oxford University Press, 1993).

ethics requires a philosophy of medicine to sustain its identity.[31] For Pellegrino, the philosophy of medicine is the phenomenological reality of what the clinical encounter *is*, which is the relational meeting of a vulnerable patient in need and a physician with the requisite training to bring about healing. Thus, embedded within the encounter between physician and patient is an "internal morality of clinical medicine."[32]

From a phenomenological perspective, I agree with Pellegrino's philosophy of medicine. Yet, the important dimension about which Pellegrino appears to be naïve is how the physician "sees" the patient. The medical school curriculum often begins with the anatomy lab, a space that initiates physicians-in-training into seeing the patient as a mechanical body. In the anatomy lab, the instructor tells the class that their first patient is the dead patient, that is, the cadaver who is "patient" to the student's medical gaze and dissective techniques for the sake of knowledge. The anatomy lab is the beginning of a long journey of not only learning the new and strange language of Western biomedicine, which is modern medicine's *lingua franca*[33], but also the shaping of identities, with medical education as a kind of moral

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[31] Fabrice Jotterand, "The Hippocratic Oath and Contemporary Medicine: Dialectic Between Past Ideals and Present Reality?," *Journal of Medicine and Philosophy* 30, no. 1 (2005): 107–28. For a representative example of a social constructionist ethic, see Friedrich Heubel, "The 'Soul of Professionalism' in the Hippocratic Oath and Today," *Medicine, Health Care and Philosophy* 18, no. 2 (2015): 185–94, who argues, almost self-evidently, that "the ethical justification for serving the ill" is "the common ground of the agreement between profession and public." Quote on page 194.

[32] For a detailed yet succinct summary of Pellegrino's view of what the philosophy of medicine is, see Edmund D. Pellegrino, "What the Philosophy of Medicine Is," *Theoretical Medicine and Bioethics* 19, no. 4 (1998): 315–36; Edmund D. Pellegrino, "The Internal Morality of Clinical Medicine: A Paradigm for the Ethics of the Helping and Healing Professions," *Journal of Medicine and Philosophy* 26, no. 6 (2001): 559–79. Both articles can be found in Edmund D. Pellegrino, *The Philosophy of Medicine Reborn: A Pellegrino Reader*, ed. H. Tristram Engelhardt, Jr. and Fabrice Jotterand (University of Notre Dame Press, 2008). For critiques of Pellegrino's essentialist conception of the "internal morality of clinical medicine," see John D. Arras, "A Method in Search of a Purpose: The Internal Morality of Medicine," *Journal of Medicine and Philosophy* 26, no. 6 (2001): 643–62; Tom L. Beauchamp, "Internal and External Standards for Medical Morality," *Journal of Medicine and Philosophy* 26, no. 6 (2001): 601–19; Franklin G. Miller and Howard Brody, "The Internal Morality of Medicine: An Evolutionary Perspective," *Journal of Medicine and Philosophy* 26, no. 6 (2001): 581–99; Robert M. Veatch, "The Impossibility of a Morality Internal to Medicine," *Journal of Medicine and Philosophy* 26, no. 6 (2001): 621–42.

[33] I owe the application of this felicitous metaphor to modern medicine to Prentice, *Bodies in Formation: An Ethnography of Anatomy and Surgery Education*, 3.

formation.[34] Through the process of medical training, students learn that medicine constructs its objects of study and control.[35] While calling the cadaver a "patient" intends to humanize and personalize the person's body that lies in front of the student, such rhetoric reveals deeper epistemological and metaphysical commitments of Western medicine, which tend toward a reductionistic knowledge of patients to their resultant parts. In other words, to say that a physician knows the patient is to reduce that patient to her parts, such that the sum is not greater than her parts.

As Jeffrey Bishop has forcefully argued, modern medicine views the dead body – epitomized by the cadaver in the anatomy lab as the first patient – as the normative body that is then mapped onto the living. An epistemology of the dead body results in a metaphysics of efficient causation that produces practices that manipulate bodies and souls as essentially matter in motion.[36] Amending Pellegrino's "internal morality of medicine," which looks romantically at Hippocrates and the *Oath*, one could paraphrase Bishop's metaphysics of efficient causation as the "internal metaphysics of medicine." Pellegrino's philosophy of medicine must account for Bishop's devastating critique of modern medicine. Such an internal metaphysics of medicine that uses beneficent ends of relieving human suffering to justify medicine's Baconian tendency toward violent means of coercing nature epitomized by the paradigm of "dissecting" nature[37] tends to undermine the internal

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[34] Warren A. Kinghorn, "Medical Education as Moral Formation: An Aristotelian Account of Medical Professionalsim," *Perspectives in Biology and Medicine* 53, no. 1 (2010): 87–105.
[35] For an anthropological account of this process, see Byron J. Good, *Medicine, Rationality, and Experience: An Anthropological Perspective* (New York: Cambridge University Press, 1994), 65–87.
[36] Jeffrey P. Bishop, *The Anticipatory Corpse: Medicine, Power, and the Care of the Dying* (University of Notre Dame Press, 2011).
[37] Francis Bacon, *The New Organon*, ed. Lisa Jardine and Michael Silverthorne (Cambridge: Cambridge University Press, 2000). Pierre Hadot calls medicine's violent stance towards nature for the sake of relieving suffering as "Promethean." *The Veil of Isis: An Essay on the History of the Idea of Nature*, trans. Michael Chase (Cambridge, Mass.: Belknap Press of Harvard University Press, 2006), 91–98.

morality of medicine by subjecting the patient as object under the dissective gaze of the physician.

In this chapter, I shall argue that the seeds of the medical dissective gaze that results in the internal metaphysics of medicine are planted in the fifth century BCE with the Hippocratic Corpus, which spans over sixty unnamed works of diverse authorship.[38] One may object that beyond the Hippocratic ethic found in the *Oath*, the famous maxim "First, do no harm,"[39] and other ethical writings, the works of Hippocrates have no relevance for modern medicine. Modern medicine differs vastly from ancient Greek medicine, which relied upon the doctrine of the humors to explain health and disease. Has not such a view been disproven by a more "Enlightened" understanding of nature and the body? The Hippocratic Corpus reveals minimal knowledge of anatomy and no evidence of anatomical dissection. Is not anatomy fundamental to the knowledge and practice of medicine? In response to these

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[38] Much literature exists on the question of Hippocratic authorship, known as the "Hippocratic question." Hippocrates scholars agree that the Hippocratic corpus could not have been written by a single author for the following reasons: differences in vocabulary, contradictions in doctrine, and Aristotle's attribution of authorship to disciples of Hippocrates. The only commonality within the diversity of the Hippocratic corpus is that they are written in the Ionian dialect. For general discussion, see Ludwig Edelstein, *Ancient Medicine: Selected Papers of Ludwig Edelstein*, ed. Owsei Temkin and C. Lilian Temkin, trans. C. Lilian Edelstein (Baltimore: Johns Hopkins University Press, 1967), 133–44; G. E. R. Lloyd, "The Hippocratic Question," in *Methods and Problems in Greek Science* (Cambridge; New York: Cambridge University Press, 1991), 194–223; Jouanna, *Hippocrates*, 57–71; Philip van der Eijk, "The Role of Medicine in the Formation of Early Greek Thought," in *The Oxford Handbook of Presocratic Philosophy*, ed. Patricia Curd and Daniel W. Graham (Oxford: Oxford University Press, 2008), 390. For two important opposing views on the problem between the authentic Hippocrates and the Hippocratic school, see Jaap Mansfeld, "The Historical Hippocrates and the Origins of Scientific Medicine," in *Nature Animated*, ed. Michael Ruse (Dordrecht: D. Reidel Pub. Co., 1983), 49–76 and Robert Joly, "Hippocrates and the School of Cos," in *Nature Animated*, ed. Michael Ruse (Dordrecht: D. Reidel Pub. Co., 1983), 29–47, respectively.

For our purposes, the Hippocratic question has no bearing because the importance and influence of the name of Hippocrates is clearly seen in the subsequent reception history of ancient, medieval, and Renaissance medicine. Hereafter, "Hippocrates" will be used to designate both the "Hippocratic corpus" and "author of the Hippocratic work" unless otherwise indicated, acknowledging that the authorship of any particular Hippocratic work may not be attributed to the historical Hippocrates.

For a clear and helpful summary of each Hippocratic treatise, including content, authorship, dates, and editions, see the appendix in Jouanna, *Hippocrates*, 373–416.

[39] Hippocrates, *Epidemics I* 11, LCL I, 165 in Hippocrates, *Hippocrates*, trans. W. H. S. Jones et al., 10 vols., Loeb Classical Library (Cambridge, Mass.: Harvard University Press, 1923). Hereafter, translations and citations of the Hippocratic corpus will be taken from the Loeb Classical Library (LCL) unless otherwise indicated. The citations for the LCL will occur as follows: name of Hippocratic treatise, chapter of treatise, volume of book in the Loeb Series, page of English translation.

objections, as G. E. R. Lloyd attests, Hippocrates has enduring significance for us today not only for the ethical ideal of the physician but also for "the insight they provide into the origins and development of rational medicine in the West."[40] Early twentieth century medical historiography approached ancient Greek medicine with a "teleological progressivism," looking to Hippocrates' empirical methodology as a direct forerunner to modern medicine and the societal benefits that it bestows.[41] I challenge this Whiggish reading of ancient medicine and instead argue that the reductionistic metaphysics of modern medicine, which has its own ethical thrust, has its beginnings in the Hippocratic Corpus and develops thereafter. As we shall see, not only does Hippocrates codify a new rational approach to medicine but also establishes a new method of natural philosophy, which later develops into the anatomical rationality. I trace the beginnings of the anatomical rationality by showing how the Hippocratic Corpus (1) gives birth to rational medicine, (2) gives birth to the human sciences, and (3) reflects the beginnings of a proto-Baconianism. We shall see that epistemology shapes ethics and that, correlatively, the anatomical rationality extends beyond the boundaries of the practice of anatomical dissection and into a way of thinking and being in medicine.

Epistemology Shapes Ethics

Ways of knowing are ways of being, and ways of being are ways of acting. Thus, ways of knowing are ways of acting. Or to put it differently, epistemology directly informs ethics. Rather than separating Hippocratic ethics from Hippocratic epistemology, understanding Hippocrates' method of knowing medicine is vital for

[40] G. E. R. Lloyd, "Introduction to Hippocratic Writings," in *Hippocratic Writings* (New York: Penguin, 1983), 9.
[41] Philip J. van der Eijk, *Medicine and Philosophy in Classical Antiquity: Doctors and Philosophers on Nature, Soul, Health and Disease* (Cambridge: Cambridge University Press, 2005), 2–4.

seeing the implications of Hippocratic medicine for Hippocratic ethics. Through a broader reading of the Hippocratic Corpus that extends beyond the *Oath* and the explicitly ethical statements in the Corpus, Robert Bartz argues that the Hippocratic ethic arises out of a new bodily semiotics of medicine, distinct from other non-Hippocratic healers: "trust and reputation were essential to practice, emerging from the demands of a transforming *episteme* focused on reading and interpreting bodily signs" which was "part of a *strategy* of healing that is necessarily embedded in close personal encounters and interactions."[42] While Bartz should be lauded for making the connection between Hippocratic medical epistemology and Hippocratic medical ethics, his reading subordinates ethics as a handmaiden of epistemology: "In order to gain access, the physician needed to gain the trust of the patient so that personal or bodily secrets would be revealed."[43] Bartz's integration of Hippocratic ethics and medical practice results in a decidedly pragmatic ethic. Consequently, such a pragmatic ethic makes Hippocratic medicine vulnerable to Baconian tendencies, as we shall see.

The epistemological commitments of Hippocratic medicine inform Hippocratic ethics, yet the epistemology of the anatomical rationality sets up internal, moral inconsistencies in Hippocratic medicine. Lexical evidence for this can be found in the Hippocratic *Oath*. According to Heinrich von Staden, based on the *Oath* text "in a pure and holy way I will guard my life and my *technē*," there is a professional conduct orientation in the *Oath*, resting upon the notion of *technē* (often translated "art")[44], as well as an integrated personal conduct aspect because of the "pure and

[42] Robert Bartz, "Remembering the Hippocratics: Knowledge, Practice, and Ethos of Ancient Greek Physician-Healers," in *Bioethics: Ancient Themes in Contemporary Issues*, ed. Mark G. Kuczewski and Ronald M. Polansky (Cambridge, Mass.: MIT Press, 2000), 15–16. Emphasis added.
[43] Ibid., 15.
[44] "*Technē*" rather than "art" will be used throughout because no English translation adequately captures the entire Greek meaning of *technē*.

holy way," thereby ensuring complete integrity of the Hippocratic physician.[45] The *Oath* is the *locus classicus* for the ideal of the virtuous Hippocratic physician. However, von Staden notes that *technē* used in the Hippocratic Corpus elsewhere also refers to a "result-oriented professional expertise." This *technē* justifies committing violence against nature so that the *technē* can unveil the secrets of nature, and in the domain of medicine, for the purpose of healing the body and treating disease.[46] This will be further discussed later in the chapter. For now, it is vital to see that within the *technē* of medicine resides a double agonistic relationship: (1) conflict between *technē* and nature (*physis*), and (2) tension between ethics of medicine and the method of medicine. This method of medicine is the anatomical rationality. To be sure, there is no evidence that Hippocrates actually performed anatomical dissections.[47] But as we shall see from close readings of the Hippocratic works *On the Sacred Disease, On Ancient Medicine,* and *On the Art*, the seeds of the anatomical rationality begin with Hippocrates and ancient Greek medicine.

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[45] von Staden, "'In a Pure and Holy Way': Personal and Professional Conduct in the Hippocratic Oath?" Friedrich Heubel argues similarly: "In precisely the centre of the text there appears the promise of the oath taker, formulated in religious terms, to lead not only his professional life as a physician but as well his life in general in moral perfection." Heubel, "The 'Soul of Professionalism' in the Hippocratic Oath and Today," 187.

[46] Heinrich von Staden, "*Physis* and *Technē* in Greek Medicine," in *The Artificial and the Natural: An Evolving Polarity*, ed. Bernadette Bensaude-Vincent and William R. Newman (Cambridge, Mass.: MIT Press, 2007), 22.

[47] One notable exception is found in the Hippocratic treatise *Heart* where there is evidence of dissection and even vivisection: "A person takes drink mostly into his gut, for the oesophagus, being shaped like a funnel, receives the greatest amount of what we consume; but he also takes some drink into his larynx, although just a little and only as much as escapes notice in flowing in through the narrow opening: for the epiglottis, being a close cover, will not let more of the drink pass through. *Here is proof:* if someone were to mix water with blue or red colouring and give it to a very thirsty animal to drink – especially a pig, as this animal is neither careful nor elegant – and then, while the animal was still drinking, you were to *cut its throat*, you would find this (i.e. the trachea) coloured by the drink." Hippocrates, *Heart* 2, LCL IX, 59. However, scholars date the work not to the fifth or fourth century BCE but to the third century BCE, which is contemporary with the Alexandrian physicians Herophilus and Erasistratus who did practice systematic dissection, as we shall see in chapter 2. See G. E. R. Lloyd, *Methods and Problems in Greek Science* (Cambridge; New York: Cambridge University Press, 1991), 184.

To illustrate the anatomical rationality, let us recount the legendary meeting between Hippocrates and Democritus,[48] which will serve as the paradigm for this new way of knowing. The council of Abdera summons Hippocrates, the divine physician, to heal Democritus from what is thought to be madness due to his great learning. Hippocrates finds Democritus with poor hygiene, emaciated, surrounded by papyrus scrolls, "and stacked around were a large number of animals, generally cut up."[49] Yet, when Democritus speaks, he is pleasant and highly rational. Ironically, he declares that he is writing a treatise on madness. He cuts up animals to look for the nature and location of gall, the build up of which was believed to be the cause of dementia in humans. Democritus concludes that madness is a societal problem manifesting as deviant behavior and misguided ends. He later admits that in order to identify the fundamental cause of madness he should look to men themselves by opening up and peering inside men's homes as a surrogate for opening up men's souls:

> In looking for the cause of madness I stretch animals out and cut them up, but I should be seeking the cause from men. […] I wish I had the power to open up everyone's home and leave nothing covering what is within and so see what was being done inside. We would see some people eating, some vomiting, others torturing people with indignities, some mixing poisons, some contriving plots, some voting, some rejoicing, others weeping, some composing accusations against friends, some mad with ambition. And there are deeper actions that are hidden in the soul.[50]

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[48] Scholars are agreed that it is impossible to know whether this meeting is historically true. As Jouanna comments, "All that can be said is that Hippocrates and Democritus were contemporaries, and that Hippocrates (or his disciples) did actually treat patients at Abdera." Jouanna, *Hippocrates*, 20. Whether or not this story is historically true has no direct relevance for our purposes. As a paradigm of a way of knowing, it exemplifies and shapes the anatomical imagination. This paradigm is so powerful in shaping the imagination that the pseudonym for Robert Burton's seventeenth century work *Anatomy of Melancholy* is Democritus Junior.

For the textual account, see Hippocrates, *Pseudepigraphic Writings: Letters--Embassy--Speech from the Altar--Decree*, trans. Wesley D. Smith (New York: E.J. Brill, 1990), 55–93, especially Letter 17.

[49] Hippocrates, *Pseudepigraphic Writings*, 75.

[50] Ibid., 89. Wesley Smith regards the sentence "and there are deeper actions that are hidden in the soul" as incoherent, following the incoherence of the passage. *Pace* Smith, I do not think he considers the possibility of an anatomical rationality that I am proposing, which does not make an artificial separation between physical and mental dissection that reveals the invisible as visible.

We can glean three important dimensions from this story. First, Democritus uses the method of anatomical dissection of animals to localize the cause of madness, which is, of course, a deeply cultural, ethical, and political phenomenon.[51] There is little to no separation between medical and philosophical concerns. Second, the metaphor of opening up homes to reveal what is hidden in the soul is borrowed directly from opening up the bodies of animals through dissection. In this way, anatomical dissection applies to seeing not only inside the body but to observing the soul itself. Third, anatomical dissection, either in a physical or metaphorical sense, attempts to answer metaphysical questions about the actions and nature of the soul. As we shall see, the anatomical rationality seeks to answer not only medical questions but also metaphysical questions.

Medicine and Philosophy

To see how Hippocratic epistemology germinates into the anatomical rationality, we must first briefly look at the relationship between medicine and philosophy during the time of Hippocrates, who was contemporaneous with the pre-Socratic philosophers.[52] Among the physicians contemporary with Hippocrates, debate about medical-epistemological method was ultimately made over the relationship between medicine and philosophy. The Hippocratic physicians saw the importance of knowing the nature of man and the methods of medical knowing. Method and epistemology were central to the *technē* of medicine. As Michael Frede remarks, "Thus a concern for epistemological and methodological questions stood at

[51] Cf. Michel Foucault, *History of Madness*, trans. Jean Khalfa and Jonathan Murphy (London; New York: Routledge, 2006).
[52] The study of ancient medicine is becoming increasingly vital for the study of ancient philosophy. According to van der Eijk, "the relevance of Greek medicine to the study of ancient philosophy is much more widely appreciated, not only by historians of science and medicine but also by students of philosophy in a more narrow sense." van der Eijk, *Medicine and Philosophy in Classical Antiquity*, 8.

the very beginning of the new art of the physician."[53] But does philosophy hold primacy over medicine in what is termed "philosophical medicine," such that speculative cosmological theories are then superimposed upon medical practice?[54] Or is medicine autonomous from philosophy?[55] According to Jacques Jouanna, a foremost Hippocratic scholar,

> *The debate over medicine and philosophy is at the very heart of the Hippocratic Collection as a whole.* Owing to its diversity, the collection preserves works representing each of the two camps. It therefore provides a vivid description of a crisis in medicine – a crisis in the sense in which the Hippocratic physicians spoke of crisis in the context of disease, that is, a decisive moment – when the medical art began to assert its autonomy in relation to philosophy.[56]

In the process of medicine asserting its autonomy from philosophy, medicine goes one step further to challenge and to transform philosophy.

What developments in Hippocratic medicine transformed philosophy? They can best be summarized under three categories: (1) birth of rational medicine, such that there is regularity in nature to provide natural causes for disease, (2) birth of the human sciences,[57] such that the human becomes the methodological center of knowing, both subjectively and objectively, and (3) proto-Baconianism, meaning that medicine as a *technē* exerts violent power over nature to unveil her secrets for the purpose of relieving the human condition. These three developments interpenetrate and fertilize one another to conceive the anatomical rationality. We shall address each development in turn. Let us now proceed to look at specific Hippocratic texts.

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[53] Michael Frede, "Philosophy and Medicine in Antiquity," in *Essays in Ancient Philosophy* (Minneapolis, Minn.: University of Minnesota Press, 1987), 233.
[54] Representative Hippocratic works with the philosophical medicine view include *On Fleshes, Places in Man,* and *On Regimen*.
[55] Works with the medicine-autonomous-from-philosophy view include *Nature of Man* and *On Ancient Medicine*.
[56] Jouanna, *Hippocrates*, 259. Emphasis added.
[57] I borrow this insight from Ibid., 210–42.

Birth of Rational Medicine

First, we turn to the birth of rational medicine. Despite the diversity within the Hippocratic Corpus, there is a philosophical, medical unity in that the authors all practiced a rational medicine. The treatise *Sacred Disease* is representative of this view in which we find three main themes: (1) theology of nature,[58] (2) rational medicine, and (3) evidence of the anatomical rationality. Jouanna judges this treatise to be the beginning of a new era in Western thought: "The polemical part [in *On the Sacred Disease*] contains an account of the highest importance for the history of ideas. For the first time, a rational medicine is posited in express opposition to a religious and magical medicine."[59] Hippocrates states at the beginning of the work that he will discuss what the ancients called the "sacred disease," which today we call epilepsy.[60] He forcefully asserts that this disease does not have a divine origin but rather has a natural cause like every other disease. But Hippocrates does not deny religion altogether as would an atheist. Instead, he offers his own modified view of the relationship between nature, disease, and religion. On the one hand, particularly in the case of the "sacred disease," he attacks magical, religious healing and instead

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[58] I follow Ian Barbour's taxonomy of natural theology vs. theology of nature: "In natural theology, it is claimed that the existence of God can be inferred from the evidences of design in nature, of which science has made us more aware. In a theology of nature, the main sources of theology lie outside science, but scientific theories may affect the reformulation of certain doctrines, particularly the doctrines of creation and human nature. […] It starts from a religious tradition based on religious experience and historical revelation. But it holds that some traditional doctrines need to be reformulated in the light of current science. Here science and religion are considered to be relatively independent sources of ideas, but with some areas of overlap in their concerns." Ian G. Barbour, *Religion and Science: Historical and Contemporary Issues*, 1st rev. ed (San Francisco: Harper San Francisco, 1997), 98, 100.

In light of Barbour's schema, Hippocrates does not attempt to prove God's existence by the design argument based on the regularity of nature but instead assumes God's existence and posits the regularity of nature such that the latter modifies one's understanding of the former.

[59] Jouanna, *Hippocrates*, 184.

[60] Hippocrates, *Sacred Disease* 1, LCL II, 139. On the "sacred disease" in antiquity, see Owsei Temkin, *The Falling Sickness: A History of Epilepsy from the Greeks to the Beginnings of Modern Neurology*, 2d ed., rev (Baltimore: Johns Hopkins Press, 1971). Jacques Jouanna argues that lexically the "sacred disease" should be translated the "disease called sacred," thereby highlighting the difference of the Hippocratic view with that of the traditional view, such that "none of the Hippocratic authors attribute a sacred character to it. Jacques Jouanna, "Hippocrates and the Sacred," in *Greek Medicine from Hippocrates to Galen: Selected Papers*, ed. Philip van der Eijk, trans. Neil Allies (Leiden: Brill, 2012), 99–100.

attributes divine causation to a natural cause, while he defends religious practice for moral purification, on the other.

Hippocrates begins arguing that the reason why his opponents have attributed a sacred character to the disease is because those who practice "magico-religious" medicine (as opposed to "empirico-rational" medicine)[61] are ignorant to the true cause yet feign religious piety and claim superior knowledge. He takes them seriously as opponents because religious medicine rivals rational medicine by employing the same method of correlating subtle differences in symptoms to various diseases.[62] Because these magicians and religious healers do not know the cause of epilepsy, they resort to a God-of-the-gaps form of reasoning in that they call the disease "sacred," meaning that the gods directly cause it. Because they judge the malady to be pollution from God, only religious purification rituals can rid the afflicted person of the disease. Hippocrates accuses the magico-religious practitioners of hiding themselves behind superstition to conceal their ignorance. His indictment goes even further. By imposing these ritual observances due to the divine origin of the disease and claiming superior knowledge, the magico-religious healers can claim to have healed the patient if she recovers, but if the patient should die, the healers can place all of the blame on the gods.[63] In essence, Hippocrates accuses his opponents of gaming the system, so to speak.

Furthermore, Hippocrates turns his opponents' argument on its head by asserting that their view does not show piety but rather impiety. He goes so far as to call them outright atheists[64] by appealing to a theological argument. Hippocrates notes that his opponents claim to know how to control the sun, moon, and the elements

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[61] Henry Sigerist employed the categories of "magico-religious" and "empirico-rational" in the classic *A History of Medicine*, 2 vols. (New York: Oxford University Press, 1951-1961).
[62] Jouanna, "Hippocrates and the Sacred," 104.
[63] Hippocrates, *Sacred Disease* 2, LCL II, 141-143.
[64] Hippocrates, *Sacred Disease* 3, LCL II, 145.

through rituals. But he counters with the objection that exerting such power over the environment presupposes that the gods are non-existent or impotent: "For if a man by magic and sacrifice will bring the moon down, eclipse the sun, and cause storm and sunshine, I shall not believe that any of these things is divine, but human, seeing that the power of godhead is overcome and enslaved by the cunning of man."[65] In other words, if man's magical rituals can overcome the power of the gods, then certainly disease is not the work of the gods.

On his own view, Hippocrates does not see diseases as natural, in the modern sense of inert and mechanical matter in motion, thereby either making God a deistic intelligent designer or excluding God altogether. Rather, for Hippocrates diseases are natural as both divine and human: "there is no need to put the disease in a special class and to consider it more divine than the others; they are all divine and all human. Each has a nature (*physin*) and power (*dynamin*) of its own."[66] According to van der Eijk's analysis, disease is "divine in virtue of having a *physis*, a 'nature,' that is, a definite character and regular pattern of origin (cause) and growth…that shows a constant pattern of development. […] The disease is human in virtue of being capable of treatment and cure by human beings…."[67] Hippocrates' own religious view about the role of purifications is that there is moral value for the pious. He affirms that prayer and sacrifice in the temple bring purification and sanctification. Yet, in contrast to his opponents, he flatly denies that diseases are pollution from the gods:

> However, I hold that a man's body is not polluted by a god, the one being utterly corrupt the other perfectly holy. Nay, even should it have been polluted or in any way injured through some different agency, a god is more likely to

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[65] Hippocrates, *Sacred Disease* 4, LCL II, 147.
[66] Hippocrates, *Sacred Disease* 21, LCL II, 183. Cf. Hippocrates, *Sacred Disease* 5, LCL II, 151: "But this disease is in my opinion no more divine than any other; it has the same nature (*physin*) as other diseases, and the cause that gives rise to individual diseases."
[67] Philip van der Eijk, "The 'Theology' of the Hippocratic Treatise On the Sacred Disease," in *Medicine and Philosophy in Classical Antiquity: Doctors and Philosophers on Nature, Soul, Health and Disease* (Cambridge, UK; New York: Cambridge University Press, 2005), 49–50.

> purify and sanctify it than he is to cause pollution. At least it is godhead that purifies, sanctifies and cleanses us from the greatest and most impious of our sins; and we ourselves fix boundaries to the sanctuaries and precincts of the gods, so that nobody may cross them unless he be pure; and when we enter we sprinkle ourselves, not as polluting ourselves thereby, but to wash away any pollution we may have already contracted. Such is my opinion about purifications.[68]

From this passage, we can surmise that Hippocrates believes in gods who grant purification for moral transgression and should be worshipped in temples with prayer and ritual sacrifice. In this way, Hippocrates upholds the notion of the divine both for religious life and for disease, but he offers a new explanation for disease.

Now we are in a place to see how Hippocrates' theology of nature provides the framework for the development of rational medicine without eschewing religious belief. While Hippocrates views nature as both divine and human, we must not read "nature" in the same way that Aristotle understands "nature." Contrary to Aristotle's view of nature as teleological, Hippocrates has no such concept of natural teleology. As von Staden shows, in the Hippocratic Corpus *physis* means "the regularly recurring cluster of characteristics by which one can always recognize a thing as what it is." But there are multiple "natures" that one can recognize. The wide diversity ranges from humans as a class, humans in particular, body parts, and bodily organs, to humors, food and drink, drugs, diseases, even locations. Each of these things has a unique *physis.*[69]

In *On the Sacred Disease*, Hippocrates speaks of diseases as having a *physis.* In particular, the sacredness of the "sacred disease" (that is, epilepsy) is removed to expose its natural cause precisely because it has a *physis*: "But this disease is in my opinion no more divine than any other; it has the same nature (*physis*) as other

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[68] Hippocrates, *Sacred Disease* 4, LCL II, 149-151. Translation modified.
[69] von Staden, "*Physis* and *Technē* in Greek Medicine," 22. In all of fifth century BCE Greek literature, *physis* is used most frequently in the Hippocratic corpus. John Walter Beardslee, *The Use of ΦΥΣΙΣ in Fifth-Century Greek Literature* (Chicago: University of Chicago Press, 1918), 31.

diseases, and the cause (*prophasin*) that gives rise to individual diseases."[70] In other words, because all diseases have a *physis*, epilepsy as disease also has a *physis*.

Hippocrates develops this view by making scientific theoretical assertions based on observation in a systematic way. First, Hippocrates presupposes the theory of the humors and the importance of the environment. The four humors are blood, yellow bile, black bile, and phlegm, which are augmented by temperature and moistness. Disease occurs when there is humoral imbalance.[71] He states that the origin (*archetai*) of epilepsy lies in heredity, observing that a parent with a humoral imbalance or particular disease passes it on to their child, in a sort of proto-genetic theory: "for the seed comes from every part of the body, healthy seed from the healthy parts, diseased seed from the diseased parts."[72]

He then develops the notion how epilepsy is a localizable disease in the brain. "The fact is that the cause of this affection, as of the more serious diseases generally, is the brain."[73] He goes on to explain the "the manner and the cause (*aitios*)" of the disease. The details of the manner are not important for our purposes but it is important to highlight the spirit of the discourse. Hippocrates appeals to an anatomical explanation of how vessels in the body relate to the brain. These are not vessels in the same modern sense of conduits of blood but rather, for Hippocrates, vessels are "vents of our body." Disruptions in the vessels lead to imbalances in the "breath" of the body.[74] He explains the cause of epilepsy as a phlegmatic discharge that blocks the vessels communicating with the brain by showing through various examples how imbalance in the humors, manifested by differences in age and weather, results in

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[70] Hippocrates, *Sacred Disease* 5, LCL II, 151.
[71] Hippocrates develops the humoral theory most fully in *On the Nature of Man,* LCL IV. Based on this work, Galen propagates the humoral theory in *On Mixtures.*
[72] Hippocrates, *Sacred Disease* 5, LCL II, 151.
[73] Hippocrates, *Sacred Disease* 6, LCL II, 153.
[74] Hippocrates, *Sacred Disease* 6-7, LCL II, 153-155.

epilepsy.[75] While Hippocrates does not have the same model of modern nature, he relies upon a rational explanation of disease, gesturing towards an anatomical rationality.

Even the use of "cause" (*aitios*) in this Hippocratic work, as in other Hippocratic works, reflects a new innovation in natural philosophy. Greek philosophy slowly developed the notion of physical causation. Before *aitia* had the general sense of "cause," it meant responsibility or blame, derived from the domain of human responsibility and its corresponding social and political associations.[76] But with the birth of rational medicine came a new way to investigate nature. G. E. R. Lloyd remarks that medicine helped pave the way for investigation into nature: "So far as the inquiry into nature is concerned, it so happens that both the distinction between cause and coincidence, and the idea that every effect has a cause, are first clearly expressed in medical writers, and…it is clear that the investigation of diseases provided one of the chief contexts in which Greek ideas on physical causation developed."[77]

Hippocrates then argues that our psychological, emotional, sensible, intelligent, and even moral life comes from the brain, thereby planting the conceptual roots for a proto-neuroscience. The following lengthy quotation illustrates all of these aspects:

> Men ought to know that from the brain and from the brain only, arise our pleasures, joys, laughter and jests, as well as our sorrows, pains, griefs and tears. Through it, in particular, we think, see, hear, and distinguish the ugly from the beautiful, the bad from the good, the pleasant from the unpleasant, in some cases using custom as a test, in others perceiving them from their utility. It is the same thing which makes us mad or delirious, inspires us with dread and fear, whether by night or by day, brings sleeplessness, inopportune mistakes, aimless anxieties, absent-mindedness, and acts that are contrary to

[75] Hippocrates, *Sacred Disease* 8-13, LCL II, 155-169.
[76] G. E. R. Lloyd, *Magic, Reason, and Experience: Studies in the Origin and Development of Greek Science* (Cambridge: Cambridge University Press, 1979), 52.
[77] Lloyd, "Introduction to Hippocratic Writings," 29–30.

> habit. These things that we suffer all come from the brain, when it is not healthy, but becomes abnormally hot, cold, moist, or dry, or suffers any other unnatural affection to which it was not accustomed. Madness comes from its moistness.[78]
>
> In these ways I hold that the brain is the most powerful organ of the human body, for when it is healthy it is an interpreter to us of the phenomena caused by the air, as it is the air that gives it intelligence.[79]

Notice that one's sanity or madness is localized to the brain and explained by humoral imbalance. Recall the legendary encounter between Hippocrates and Democritus. Animal corpses surrounded the latter since he was looking for the location of gall in the brain as the source of madness. The method he used for his investigation was anatomical dissection.

Within the entire Hippocratic Corpus, *On the Sacred Disease* best demonstrates the anatomical rationality when proof of epilepsy is revealed through dissection. Over the course of the explanation for the cause of epilepsy, he comes to the point where the disease is irreversible due to the brain being overly moist with phlegm. He then explains that the best way to show this is by cutting open the head. In this case, it is the head of a goat, but reasoning analogically, the same conclusion is made for humans.

> The truth of this is best shown by the cattle that are attacked by this disease, especially by the goats, which are the most common victims. If you *cut open the head* you will find the brain moist, very full of dropsy and of an evil odor, whereby you may learn that it is not a god but the disease which injures the body. So is it also with a man.[80]

The significance of this passage cannot be overstated for three reasons. First, not only does Hippocrates argue that one may visualize clear evidence of the cause of the disease through anatomical dissection, but also, and more importantly, one learns that the cause of epilepsy is a disease with a *physis*, not the result of divine intervention. In

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[78] Hippocrates, *Sacred Disease* 17, LCL II, 175.
[79] Hippocrates, *Sacred Disease* 19, LCL II, 179.
[80] Hippocrates, *Sacred Disease* 14, LCL II, 169. Emphasis added.

other words, in the case of the "sacred disease," anatomical dissection reveals that epilepsy is natural, not divine. Second, using dissection as a tool to discover the cause of disease is a novel concept in antiquity up to the point of the writing of the treatise (later fifth century BCE[81]). Post-mortem examination to establish the cause of death or to determine the etiology of disease never became a common practice at any point in the ancient world.[82] Finally, such anatomical demonstration strengthened rational medicine's claims in the competing marketplace of medical ideas. As Mark Schiefsky remarks, "Knowledge of *physis* brought with it the knowledge of causes, and hence the ability to explain and justify medical practice."[83] Here, this novel anatomical rationality exerts its power to explain nature, to augment a theology of nature, and to establish the stature of medical elites.

Birth of the Human Sciences

Let us now turn to the issue of how Hippocratic medicine transforms philosophy with the birth of the human sciences. But what do we mean by "human sciences"? In his magisterial *Hippocrates*, Jacques Jouanna has a chapter entitled

[81] A similar story exists in Plutarch's *Life of Pericles*. Anaxagoras, who is contemporaneous with the writing of *On the Sacred Disease*, cuts open the head of an animal to discover the cause of the one-horned ram as a defect in the brain. The following is Brooke Holmes' account and analysis of the story: "Someone brings a one-horned ram for inspection to Pericles; he, in turn, solicits two interpretations of the prodigy. One of the experts consulted, the seer Lampon, taking into account Pericles' position as the head of one of two factions struggling for control of Athens, announces that the leader on whose estate the ram appeared will soon secure power. Lampon thus treats the ram as a conduit of divine knowledge about the future of the *polis*. Given the opportunity to offer his own interpretation, his rival, the physicist Anaxagoras, cuts open the animal's head in order to demonstrate that the single horn has been caused by a defect in the brain. Instead of filling its proper position, the brain 'had all slipped together to a point, like an egg, at that particular spot from which the root of the horn begins' (Per. 6.2). Anaxagoras thus identifies the cause of the irregularity by probing beneath the surface of the skin. […] In making his cut, he upholds a fundamental principle in the inquiry into nature: phenomena can be understood by looking below the surface to their hidden causes. […] Yet, in another sense, he sees something else entirely, insofar as his looking is conditioned by new ideas about the *physis* of a complex organism." Brooke Holmes, *The Symptom and the Subject: The Emergence of the Physical Body in Ancient Greece* (Princeton: Princeton University Press, 2010), 84–85. The dimensions of looking below the surface to reveal hidden causes and of employing a new way of looking are key aspects of the anatomical rationality, as we shall see.

[82] Lloyd, *Magic, Reason, and Experience*, 23–24.

[83] Mark J. Schiefsky, *Hippocrates On Ancient Medicine: Translated with Introduction and Commentary* (Leiden: Brill, 2005), 10.

"Hippocrates and the Birth of the Human Sciences." As a French scholar, he clearly read Michel Foucault, whose work *The Order of Things* is subtitled *An Archaeology of the Human Sciences*.[84] Jouanna regards the "human sciences" as humanism, broadly construed as humanity becoming aware of its place in the universe and the subsequent discovery that humans become an object of science.[85] According to Jouanna, humanism in this sense developed in the fifth century BCE, due in large part to the Hippocratic Corpus with its overarching concerns with human nature. Thus, based on our previous discussion of the birth of rationalist medicine, both rationalism and humanism arose in the context of the varied discussions of medicine in the pre-Socratic period. As we saw from the theology of nature in *On the Sacred Disease*, humans were no longer victims to the whims of the gods. Rather, this new humanistic approach viewed humans as influenced by natural forces of the external world. The Hippocratic work *Airs, Waters, Places* examines the influence that geography and climate have on health, disease, and the constitution of varying people groups, thus anticipating Montesquieu's *The Spirit of the Laws*.[86] This treatise has been called "the first treatise of medical climatology in world literature and it is also the first treatise of anthropology."[87] While Jouanna's notion of human sciences refers to anthropology and ethnography, I mean "human sciences" to include Jouanna's already provocative notion but also to expand to the social and epistemological level.

In his essay "Clues: Roots of an Evidential Paradigm," Carlo Ginzburg discusses how medicine became the queen of the humane sciences in the nineteenth century because of its power and prestige: "But it is medicine, above all others, which

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[84] Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (New York: Vintage Books, 1973).
[85] Jouanna, *Hippocrates*, 210.
[86] Charles de Secondat Montesquieu, *The Spirit of the Laws*, trans. Anne M. Cohler, Basia Carolyn Miller, and Harold Samuel Stone (Cambridge; New York: Cambridge University Press, 1989).
[87] George Sarton, *A History of Science*, 2 vols. (Cambridge: Harvard University Press, 1952).

assumes a preeminent position, thanks to its prestige epistemologically and socially. All the 'humane sciences' attempt to relate themselves to it, explicitly or implicitly."[88] However, medical epistemology developed into two parallel tracks. On the one hand was the development of medical semiotics as the interpretation of symptoms found supremely in Hippocratic medicine, which Ginzburg calls a "conjectural paradigm" of uncertain knowledge. On the other hand, there is the emerging anatomical model that fits within a more exact scientific knowledge, but at the expense of the particulars of the individual, resulting in emotional detachment in inquiry: "The tendency to obliterate the individual traits of an object is directly proportional to the emotional distance of the observer."[89] At this juncture, Ginzburg argues that the human sciences went along with the conjectural paradigm of semiotics, eschewing the exactness of the anatomical paradigm. While Ginzburg's insight into the role of medicine in the development of the human sciences is profound, his historical analysis creates a false dilemma. Based on the development of the anatomical rationality that I have been arguing, the anatomical model is not mutually exclusive to the semiotic model; rather, the anatomical rationality shares the same desire as semiotics, which is the desire to reveal what is hidden. In this way, the anatomical rationality that is conceived in Hippocratic medicine is fulfilled in medicine as the queen of the human sciences.

Furthermore, at the epistemological level, the birth of the human sciences in Hippocrates refers to a deeper metaphysical stance. In the Jäsche lectures on logic, Immanuel Kant famously summarized the field of philosophy into four questions: (1) What can I know? (2) What ought I to do? (3) What may I hope? (4) What is man? Metaphysics answers the first question, morals the second, religion the third, and anthropology the fourth. Yet Kant goes on to make a striking assertion:

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[88] Carlo Ginzburg, *Clues, Myths, and the Historical Method*, trans. John and Anne C. Tedeschi (Baltimore, MD: Johns Hopkins University Press, 1989), 96–125, 200–214, quote on 118.
[89] Ibid., 112.

"Fundamentally, however, we could reckon all of this as anthropology, because the first three questions relate to the last one."[90] In other words, philosophy can be reduced to anthropology. In his seminal interpretation of Kant in *Kant and the Problem of Metaphysics*, Heidegger picks up on this seismic change in what he terms a "philosophical anthropology" whereby "the grounding of metaphysics is a questioning with regard to the human being, i.e., anthropology."[91] In other words, anthropology becomes the ground for metaphysics. Thus for Heidegger, the question "What is Man?" becomes the fundamental question of philosophy. Interestingly, Hippocrates makes a similar claim about medicine: "The nature (*physis*) of the body is the beginning of discourse on medicine."[92] I should point out here that Heidegger and Hippocrates inhabit radically different historical epochs. On the one hand, Kant and Heidegger live in the modern, post-Cartesian world that is concerned with the mind of man as the essence of man. On the other hand, most of the Hippocratic Corpus is pre-Socratic, meaning that the concept of the soul (*psychē*) has yet to be elucidated. Instead, Hippocrates speaks of the body as the nature of man. In fact, Brooke Holmes has cogently argued that the concept of the body begins with Hippocrates and only thereafter does the concept of the soul arise.[93] But as we shall see shortly, Hippocrates argues against his philosophical opponents that only medicine provides the method (*hodos*) for both the knowledge of man (both subjective and objective genitive) in particular and of cosmology in general. Despite the major difference between Heidegger and Hippocrates on the nature of man, the

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[90] Immanuel Kant, *Lectures on Logic*, trans. J. Michael Young (Cambridge; New York: Cambridge University Press, 1992), 538.
[91] Martin Heidegger, *Kant and the Problem of Metaphysics*, trans. Richard Taft, 5th ed. (Bloomington, Ind.: Indiana University Press, 1997), 144. For Heidegger's full discussion of philosophical anthropology in this work, see pages 144-153.
[92] Hippocrates, *Places in Man* 2, trans. Craik, 39.
[93] Holmes, *The Symptom and the Subject*, ch. 5, 192–227.

epistemological and ultimately metaphysical starting point is the same: man is the beginning point of knowledge. It is in this sense that we mean the "human sciences."

So how exactly does birth of the human sciences arise? Three reasons predominate: (1) the birth of humanism, (2) health as the greatest blessing, and (3) the birth of the concept of the physical body. The first two reasons provide the contextual *zeitgeist* and motivation, respectively, while Hippocrates innovates the methodology with the third. We shall address each in turn. First, fifth century BCE in ancient Greece witnessed the birth of humanism. From the middle of the fifth century onward philosophers became focused on questions about the human condition, influenced by Sophists, historians, and physicians. As Jouanna attests, "It was then, in the rather exceptional climate of intellectual excitement that prevailed at that time, that Greek man both discovered himself and questioned the nature of his being at the very moment of this self-discovery. Thus it was that the century of Pericles saw the birth of rationalism, humanism, and science."[94] Indeed, the Hippocratic Corpus helped redefine and re-imagine the nature of man during the fifth century BCE. Humanism became the spirit of the age around the time of the Hippocratic writings.

Health was the greatest blessing and chief value in classical Greece. We find textual evidence for this in the Hippocratic Corpus. In *Regimen in Health*, Hippocrates writes, "A wise man should consider that *health is the greatest of human blessings*, and learn how by his own thought to derive benefit in his illnesses."[95] Elsewhere in *Affections,* he declares, "Any man who is intelligent must, on considering that *health is of the utmost value to human beings*, have the personal understanding necessary to help himself in diseases, and be able to understand and to

[94] Jouanna, *Hippocrates*, 179–80.
[95] Hippocrates, *Regimen in Health* 9, LCL IV, 59. Emphasis added.

judge what physicians say and what they administer to his body, being versed in each of these matters to a degree reasonable for a layman."[96]

Health is even regarded as the supreme Good, approaching divinity. We see this in the celebrated hymn by the poet Ariphron of Sicyon, a contemporary of Hippocrates:

> Health! The most venerable of the blessed divinities, would that I might pass the rest of my life with thee! Would that thou might be a benevolent companion to me in my house! If there is, in fact, any charm in wealth, or in children, or in the royal power that makes man equal to a god, or in the desires that we pursue with the secret nets of Aphrodite, or any other pleasure or repose come from the gods may so appear to [us in] our tiredness, it is in thy company, blessed Health, that everything flourishes, that the company of the Graces shines; but without thee, there is no happiness.[97]

Health is the greatest Good in Greek culture, placed ahead of beauty and wealth.[98] Indeed, as the greatest Good health is deified, in the form of the goddess Hygieia, the hypostasis of health, as one of the most venerated daughters of Asclepius, the god of medicine.[99] Later in the Hellenistic period, so Emma and Ludwig Edelstein suggest, health became the *summum bonum* in antiquity as the pre-condition for all joy and happiness, giving rise to the cult of Asclepius.[100] Asclepius held a high place in the pantheon of the gods, achieving cosmic importance, precisely because of his power to heal and to give health. In charge of the health of the universe as the physician of the whole world, he was the savior of the world. As the god of medicine, Asclepius took on such importance among the Neo-Platonists that he took his place in the "pagan trinity" alongside Zeus and Apollo.[101] As the most cherished value, health provided

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[96] Hippocrates, *On Affections* 1, LCL V, VII. Emphasis added.
[97] Quoted in Jouanna, *Hippocrates*, 125.
[98] Plato, *Gorgias* 451e–452a.
[99] Jouanna, *Hippocrates*, 323. Hygeia, commonly translated as "Health," is named in the litany of gods and goddesses at the beginning of the Hippocratic *Oath*.
[100] Emma J. Edelstein and Ludwig Edelstein, *Asclepius: Collection and Interpretation of the Testimonies* (Baltimore; London: Johns Hopkins University Press, 1998), 2:122-123.
[101] Ibid., 2:106-108.

the motivation for Hippocratic medicine to view inquiry into the nature of man for the sake of improving and relieving the human condition like a sacred duty.

The Hippocratic Corpus gave birth to the concept of the physical body, which provided a new philosophical method. Brooke Holmes has shown how the medical writers innovated the conceptual emergence of the physical body in a groundbreaking book, *The Symptom and the Subject.* Because her thesis is so important for our purposes, we shall spend some time unpacking her argument. Holmes begins her story with the Homeric period, prior to the concept of the physical body. Bruno Snell argues that the Homeric Greeks did not have a modern concept of the body. In Homer, around the seventh century BCE, the Greek word *sōma*, which subsequently came to mean "body" (as we see in the Hippocratic Corpus), never referred to a living being but rather denoted a corpse.[102] The Homeric Greeks did not have the conceptual apparatus to make the physical body an object of thought. Rather than know the body *qua* body in the modern sense, the Homeric man viewed the body as a sum total of his limbs.[103]

Holmes picks up on this development of the concept of the physical body through the Hippocratic Corpus. The medical writers view the body, the *sōma*, as a hidden, invisible world of fluids and organs loosely organized by the notion of *physis* that lies beyond what can be seen or touched in a realm of "semiotic inference and imagination."[104] Symptoms elicited from the patient function as visible signs that connect the invisible, unseen realm under the skin of the body, interpreted by the physician. The semiotic function of symptoms as signifiers of the invisible reality of the signified body is the crux of Holmes' argument and the development of the novel

[102] Bruno Snell, *The Discovery of the Mind: The Greek Origins of European Thought*, trans. Thomas G. Rosenmeyer (New York: Harper, 1960), 5.
[103] Ibid., 8.
[104] Holmes, *The Symptom and the Subject*, ix.

conceptual apparatus of the physical body. Three major consequences arise from this development. First, both physical seeing and mental seeing of the body are required for the physical body to emerge as a conceptual object.[105] Ironically, the physical body, able to be touched and seen with sensory perception, does not become an *object* of sensory perception until it becomes an object of mental vision, as seen in the imagination of the physician who interprets symptoms as disease manifestations through reasoning. The vision of symptoms is a new way to see the body, as a kind of hermeneutics of the body. As Holmes insightfully remarks, the *how* of seeing transforms *what* is seen:

> I understand [symptoms], on the one hand, as a means of seeing that proceeds from inferential leaps from phenomena into an unseen world; and, on the other hand, as points of passage into an unseen world that has been reimagined and, more specifically, reimagined in relationship to the person. In other words, what is seen is as important as how it is seen; *the how of seeing is crucial to understanding the nature of what is seen.*[106]

In other words, the world of symptoms functions as a surrogate for the invisible world inside the body, which reconfigures how the body is imagined in relation to the person. In this way, emergence of the physical body allows for the self to identify with one's body *qua* object.[107] Through this conceptual shift, the physical body arises as something new in the late classical period. With the birth of the physical body comes the body as an object of investigation.

Second, Holmes argues that the science and practice of medicine through the physician-patient relationship actually results in further division between the knowing subject (the physician) and the object of study (patient's body) in two ways. (1) The Hippocratic physicians offer a robust account of human nature, grounded in the study of the body as an object. This encourages subsequent investigations in human nature

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[105] Ibid., 18–19.
[106] Ibid., 16–17. Emphasis added.
[107] Ibid., 21.

to focus either on the body or the soul, thereby resulting in the possibility of lack of identity between self and body. (2) Physicians acknowledge the difference between the patient's person and the patient's body as well as the difference between sensing (physical seeing) and knowledge (mental seeing), both grounded in the physician-patient relationship. Holmes goes so far as to argue that this results in a "disembodied" epistemological perspective of the physician, reserved only for the physician:

> For in this [physician-patient] relationship, the physician assumes an essentially disembodied position of knowledge about the physical body. By 'disembodied,' I do not mean that the physician does not use his senses; the senses, in fact, are indispensable to his acquisition of knowledge. Rather, I mean the physician stands outside the body looking in. The *basic dynamics of medical knowledge*, then, including knowledge of human nature, split the person into the knower, who strives to understand and manipulate the body, and the body itself. […] The strangeness of the physical body means that if the person is to know anything about it and, hence, take care of it, he must *adopt the position of a physician.*[108]

The importance and power of this claim that Holmes is making cannot be emphasized enough. She argues that the physician-patient relationship plays a key role in the separation between the knowing subject and object of knowledge. Because the physician holds the privileged position of examining the body, eliciting symptoms, and then interpreting the symptoms with mental vision, knowledge of the body requires the perspective of the physician, who, by definition, is *not* the object of study.

Third, such a development provides the conceptual ground for the anatomical rationality to arise as a practice. At the confluence of physician as knowing subject of the body and the body as object of investigation, the body becomes the central pivot point for a new moment in epistemology. Holmes notes the change from a Homeric

[108] Ibid., 118–19. Emphasis original.

non-anatomical rationality to an emerging anatomical rationality of the physicians which then becomes fulfilled with the Hellenistic anatomists:

> What happens when the flesh is cut open in Homer? … Epic poetry associates the revelation of innards with the moment of death, when the warrior is on his way to becoming a corpse and, hence, no longer animated from within. Only with the inquiry into nature and the subsequent changes to medicine does the inside of the living body come to be imagined primarily as potentially seen, a historical shift that culminates with the desire of Hellenistic physicians to bear witness to the inner life of the body through vivisection.[109]

The anatomist is the "disembodied" knower – "outside the body looking in" as Holmes puts it – who, driven by mental vision about the inside of the body, practices physical cutting to subject the inside of the body to physical vision. With the innovation of a new conceptual apparatus of the invisible world of the inner body comes a new way of knowing the body, which is "patient" to the practices of dissection.

Let us now turn more closely to the Hippocratic method[110] of knowing the nature (*physis*) of man. The "method" of Hippocrates holds deeper significance than a contemporary sense of method that connotes the procedure or process of knowing such as scientific method. As Heidegger notes in his lecture course *Parmenides*, for the pre-Socratic Greeks, *methodos* ("method") is related to the word *hodos* or "way" such that "the basic feature of the way – *hē hodos* [way], *hē methodos* [method] – is that by conveying along the course, underway, it opens up a view and a perspective and hence provides the disclosure of something."[111] In Heidegger's interpretation of ancient Greek thought, the "way" belongs within the realm of *alēthia*, or truth. Heidegger's definition of truth, *alēthia,* means unconcealedness. The "way," then, is required to unconceal that which is hidden, that is, to reveal the truth. In this sense,

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[109] Ibid., 63.
[110] Socrates discusses the method of Hippocrates as knowing the nature of the body. See *Phaedrus* 270 B-C.
[111] Martin Heidegger, *Parmenides*, trans. André Schuwer and Richard Rojecewicz (Bloomington, Ind.: Indiana University Press, 1998), 66.

then, "method" in the pre-Socratic thought world essentially means unconcealing the truth. As we have seen with the birth of the concept of the physical body, symptoms and mental vision become the method for seeing the invisible realm inside the body, such that the hidden is unconcealed, in the Heideggerian sense of truth.

An important part of the Hippocratic method to know nature is an innovation in conceptual terminology. As Heinrich von Staden points out in an important essay, "*PHYSIS* and *TECHNĒ* in Greek Medicine," the Hippocratic Corpus makes a distinction between a thing's visible, external form or appearance (*idea*, *eidos*), its invisible but knowable capacities (*dunameis*), and its invisible nature (*physis*) in order to provide ways of explaining health and disease in rational ways that are not subject to divine arbitrariness. The Hippocratic writers attempted to make sense of the relationship between the visible and the invisible in their medical discourse. In employing this conceptual terminology, the medical writers developed the notions of *physis* and *technē*.[112] The former refers to regularity in nature, as we saw in our discussion in *On the Sacred Disease,* while the latter refers to a professional expertise, based on the knowledge of and the ability to control nature. We shall look at the Hippocratic methods of knowing *physis* and practicing *technē* in the works *On Ancient Medicine* and *On the Art*, respectively.

Let us now turn to *On Ancient Medicine* to see how the method of medicine uncovers the *physis* of the body.[113] This treatise opens with a polemical tone. Hippocrates addresses his opponents who seek to base medicine on a speculative

[112] von Staden, "*Physis* and *Technē* in Greek Medicine," 21–22.
[113] Several scholars note the historic importance of this work. John Cooper notes that in the Hellenistic world and thereafter, *On Ancient Medicine* was largely ignored or dismissed, particularly because of the influence of Galen, who denied Hippocratic authorship. Yet, while current scholarship also denies authentic Hippocratic authorship, the work is one of the most studied and widely read Hippocratic treatises, evidenced by the large number of specialized studies on this work in the past 150 years. John M. Cooper, "Method and Science in On Ancient Medicine," in *Knowledge, Nature, and the Good: Essays on Ancient Philosophy* (Princeton, N.J.: Princeton University Press, 2004), 3–42.

hypothesis (*hypothesin*)[114] derived from a single causal principle such as heat, cold, moisture, dryness, etc. Instead, Hippocrates claims that medicine already has an origin and method of progressive discoveries over time that are based on observation of bodily effects to various kinds of foods in relation to healthy and sick bodily constitutions:

> But medicine has long since had everything it needs, both a principle (*archē*) and a discovered method (*hodos*), by which many admirable discoveries have been made over a long period of time and those that remain will be discovered, if one who is adequate to the task and knows what has been discovered sets out from these things in his investigation.[115]
>
> For the art (*technē*) of medicine would never have been discovered to begin with, nor would anyone have sought for it – for there would have been no need for it – if it were beneficial for the sick to follow the same regimen and diet as the healthy, taking the same foods and drinks and following the same regimen in other respects, and if there were not other things better than these. But in fact necessity itself caused medicine to be sought for and discovered by human beings, for it was not beneficial for the sick to take the same foods as the healthy, just as it is not beneficial for them to do so today.[116]

In other words, medicine has no need for a singular hypothesis because it has a method of systematic observation to understand the natures of diets and humans. For example, Hippocrates observes that cheese cannot be classified as a bad food *tout court*. Rather, one must observe the effects cheese has on the particular person, its reasons, and the constituent of the man that is affected. In some cases the person has ill effects whereas another person is strengthened.[117]

So how are the effects of the body observed which reveal the nature (*physis*) of the body? For Hippocrates, there is an important distinction between *dynamis*

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[114] The English translations in Jones and Chadwick and Mann render *hypothesin* as "postulate," whereas Schiefsky more accurately renders it as "hypothesis," meaning "conjectural fundamental principle." For further discussion, see Schiefsky, *Hippocrates On Ancient Medicine: Translated with Introduction and Commentary*, 111–14.
[115] The Jones translation in LCL of *On Ancient Medicine* is clunky and, at times, misleading. Translation is taken from Mark Schiefsky, *Hippocrates On Ancient Medicine: Translated with Introduction and Commentary*, 75.
[116] Hippocrates, *On Ancient Medicine* 3, trans. Schiefsky, 77.
[117] Hippocrates, *On Ancient Medicine* 20.

(often translated as "power" or "capacity") and *physis*.[118] *Dynamis* derives from the verb *dynamai*, "to be able."[119] According to Hippocrates' doctrine of human nature, humans comprise various constituents, each of which he conceives primarily as a *dynamis*. When the various *dynameis* are balanced, the person is healthy, whereas imbalance causes sickness. However, not only do humans have *dynameis*, but foodstuffs also have *dynameis*. "*Dynamis* is a simple real entity which is characterized and identified by its specific activity and whose specific essential nature is revealed to the senses by its activity. The *physis* is then composed of an indefinite number of *dynameis*."[120] By virtue of its visible manifestation, one can observe the activity of *dynamis* and know the invisible yet real *physis* of an entity. In other words, the *dynamis* is the empirical principle of knowledge by means of which one can determine the reality of *physis*. For Hippocrates, in order to know the nature (*physis*) of the human, one must observe the *dynamis* of foodstuffs as they relate to the *dynameis* of humans. By implication, knowledge of *dynameis* (both food and human) allows one to exert power over human *physis*.

In telling the story of the birth of medicine, or the "archeology of medicine" as Jouanna puts it,[121] Hippocrates states that medicine shares the same method as dietetics and cooking: "To me it is evident that the method was identical and the discovery one and the same."[122] Modifications in diet, through cooking and changing amount of intake, vary based on the natures and constitution of the particular person. With the birth of dietetics comes the birth of medicine, since the purpose of observing the effects of foods is health and prevention of disease. For dietetics, foods are

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[118] Hippocrates, *On Ancient Medicine* 13-19.
[119] Holmes, *The Symptom and the Subject*, 173.
[120] Harold W. Miller, "Dynamis and Physis in On Ancient Medicine," *Transactions and Proceedings of the American Philological Association*, 1952, 191.
[121] Jouanna, *Hippocrates*, 232.
[122] Hippocrates, *On Ancient Medicine* 7, trans. Schiefsky, 83.

observed to maintain healthy constitution and prevent disease and death, whereas for medicine, diets are modified to best aid sick persons. Remarkably, for Hippocrates, the story of the origin of medicine also tracks with the history of humankind. *On Ancient Medicine* chronicles an epochal transition in history from savagery to civilization, or to put it differently, the change from the state of nature to that of culture:[123]

> For human beings endured much terrible suffering because of their strong and brutish regimen, consuming foods that were raw, unblended, and possessing great powers – suffering like that which they would experience from these foods today as well, falling into severe pains and diseases followed by a speedy death.[124]
>
> What difference, then, is to be seen between the reasoning of the one who is called a doctor and is agreed to be a craftsman, who discovered the regimen and nourishment of the sick, and that of the person who originally discovered and prepared for all human beings the nourishment we make use of today from that savage and brutish regimen?[125]

In other words, Hippocrates notes how medicine built on the dietetic insights of cooking which enabled a progression from a "brutish regimen" that results in disease and death to an enlightened regimen for the nourishment of the healthy and the sick. This method of observing the effects of various foods on varying human constitutions in sickness provides the means for the discovery of the medical *technē* for the sake of health, preservation, and human nourishment in place of the savage regimen that leads to suffering, disease, and death.[126] Medicine, as one of the several arts, enabled the transition from nature to culture because it provided the way to control and to master nature. Significantly, the power of *technē* was thought to be god-like.[127]

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[123] For further discussion on this transition, see Jouanna, *Hippocrates*, 232–33; Francis Dunn, "On Ancient Medicine and Its Intellectual Context," in *Hippocrates in Context: Papers Read at the XIth International Hippocrates Colloquium, University of Newcastle upon Tyne, 27-31 August 2002*, ed. Philip J. van der Eijk (Leiden: Brill, 2005), 49–67.
[124] Hippocrates, *On Ancient Medicine* 3, trans. Schiefsky, 77-79.
[125] Hippocrates, *On Ancient Medicine* 7, trans. Schiefsky, 83.
[126] Hippocrates, *On Ancient Medicine* 8, LCL I, 3.
[127] Hippocrates, *On Ancient Medicine* 14, LCL I, 37.

Hippocrates goes on to address an important problem in medical therapeutics: how do we know that the therapy is effective and what is the measure? He responds to the overly simplistic conclusion from the preceding discussion that stronger foods are harmful while weaker foods are beneficial, and so weaker foods should be given to both the healthy and the sick. Hippocrates points out that inadequate food intake can be as harmful as strong foods. What is required is matching the strength of the regimen to the strength of the patient's constitution according to the particular measure. However, given these complexities of treating the ill, there is no perfect, quantitative measure and there is no exact knowledge. So what is this measure? Crucially, Hippocrates regards the measure to be the "feeling of the body" (*tou sōmatos tēn aisthēsin*).[128]

This is a remarkable claim. Hippocrates is saying that knowledge about the effects of diet on the patient and thus the nature of the patient can only be measured by the feeling (*aisthēsis*) of the body (*sōma*), thereby making medical epistemology depend upon the body. But is *aisthēsis* of the *sōma* an objective or subjective genitive? In other words, does feeling of the body refer to the doctor's perception of the patient's body or to the patient's perception through her own senses? Galen's commentary on this phrase reveals ambiguity in the ancient world.[129] Modern scholars fall on both sides of the debate.[130] However, Brooke Holmes' reading is most persuasive because it takes most seriously the physician-patient relationship. Given the context of the passage, she argues that *aisthēsis* should be read as a reaction of the patient's *sōma* to symptoms.[131] In this way, *aisthēsis* of the *sōma* is a subjective genitive, whereby the patient has the best experiential knowledge of the symptom, but

[128] Hippocrates, *On Ancient Medicine* 9.
[129] Schiefsky, *Hippocrates On Ancient Medicine: Translated with Introduction and Commentary*, 197.
[130] For recent discussions, see Ibid., 34, 196–200; Cooper, "Method and Science in On Ancient Medicine," 35–36.
[131] Holmes, *The Symptom and the Subject*, 167–69.

because the feeling of the body is a symptom, the physician also has empirical access to it. Both patient and physician can make inferences about the cause on the basis of the symptom, but because the physician has a better grasp of causes, the physician holds the more privileged perspective. In contrast to his opponents who argue for an overarching hypothesis in a top-down approach for philosophy superimposed on medicine, Hippocrates makes a novel move in basing all medical epistemology on the body alone, in a sort of anthropocentric methodology.

Yet, Hippocrates transposes this anthropocentric methodology into an explicit philosophical key, which we see in chapter 20 of *On Ancient Medicine*. After giving a prolonged exposition on the origins and epistemology of medicine, Hippocrates returns to his polemical tone in chapter 1. "Physicians and sophists" claim that in order to know medicine, one must have knowledge of what man (*anthrōpos*) is – that is, the origins of man, how he came into being, and his original elemental constitution. Such philosophy is exemplified by Empedocles, known as the first to introduce the doctrine of the four elements, who writes about nature (*peri physeōs*), which is a technical term that refers to the genre of "inquiry into nature." In other words, his opponents appeal to a speculative anthropogony that is required for medicine in a top-down approach. Hippocrates responds by calling these speculations a concern for "philosophy" (*philosophiēn*) in a pejorative sense. Significantly, contemporary scholars agree that this is likely the earliest attestation of the substantive "philosophy" that refers to a distinct kind of intellectual activity defined by theoretical speculation with totalizing consequences.[132] Hippocrates thinks such "philosophy" is useless for medicine. Rather, he makes a bold claim:

[132] Harold W Miller, "On Ancient Medicine and the Origin of Medicine," *Transactions and Proceedings of the American Philological Association*, 1949, 187 n. 3; Cooper, "Method and Science in On Ancient Medicine," 11; van der Eijk, *Medicine and Philosophy in Classical Antiquity*, 18–19;

> It is impossible to have any clear knowledge about nature (*peri physios*[133]) from any other source than medicine. This knowledge can be acquired when one has correctly grasped medicine itself in its entirety, but until then it is impossible.[134]

While Hippocrates eschews the totalizing speculative philosophy of his opponents, he essentially posits his own philosophical methodology that only medicine can perform. Through the empirical observation of effects of foods on individual patients who have differing natures, physicians can discern the natures of humans and, in turn, can have clear knowledge of nature in general.

Four major implications arise from this seminal claim. First, by becoming autonomous from philosophy, medicine proclaims itself as the chief branch of knowledge on human nature. As Jouanna comments on the importance of this autonomous move, "The status of medicine as a branch of knowledge was thus altered as well. No longer was medicine obliged to tag along behind philosophical anthropology; medicine was now itself the science of man."[135] Second, not only does medicine claim primacy in the sciences of man, medicine also subordinates natural science (*peri physeōs*) underneath it. Thus, clear knowledge about natural science can only be acquired through the study of medicine.[136] Third, medicine is the only method to obtain clear knowledge about nature as a whole. Put differently, the correct way for grasping the principles that govern nature as a whole is to study human nature, framed by human health, disease, and therapeutics. In this way, knowledge of the cosmos is gained through a bottom-up approach via medicine, instead of the top-down approach of his opponents. In other words, medicine is the foundation for cosmology. While

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Schiefsky, *Hippocrates On Ancient Medicine: Translated with Introduction and Commentary*, 300–301.

[133] *Peri physios* is a variant spelling of *peri physeōs*, reflecting the Ionian dialect in which *On Ancient Medicine* is written. Other Pre-Socratic writings and thereafter generally use the spelling *peri physeōs*.

[134] Hippocrates, *On Ancient Medicine* 20, trans. Schiefsky, 103.

[135] Jouanna, *Hippocrates*, 284.

[136] James Longrigg, "Presocratic Philosophy and Hippocratic Medicine," *History of Science* 27 (1989): 1–39.

scholars disagree about whether "clear knowledge about nature" means knowledge of human nature or nature in general,[137] the key to settling this question rests upon the technical meaning that the pre-Socratics placed upon the notion *peri physeōs*, or inquiry into nature. As Gerard Naddaf has shown, "inquiry into nature," as a technical term, entails a full-blooded history of the universe that explains its origin, the stages of its evolution, and the cosmos that is known currently, which, by implication, includes the origins of man.[138] Finally, starting with knowledge of human nature as a way to knowledge of nature in general manifests a kind of reasoning from the microcosm to the macrocosm, a method that exerts considerable force in subsequent history.[139] Again, only the method of medicine allows for this epistemological move.

Based on these four implications, in contrast to the speculative philosophers, Hippocrates claims that medicine is the queen of the sciences, by way of a newly innovated philosophical anthropology. Here we can see Hippocrates already anticipating the philosophical anthropology of Kant and Heidegger in which the nature of man is the ground for metaphysics. One could say, in a sense, Hippocrates is at play among the moderns.

Proto-Baconianism

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[137] For the most robust argument for "nature in general" which relies upon the inferences drawn from human's interaction with his natural surroundings, see Cooper, "Method and Science in On Ancient Medicine," 13–14 nn.16, 38–39 47. For discussion of arguments for "human nature," which rely largely on internal context, see Hippocrates, *L'ancienne médecine*, ed. Jacques Jouanna, Œuvres complètes, tome II, 1re partie (Paris: Les Belles Lettres, 1990), 208; Schiefsky, *Hippocrates On Ancient Medicine: Translated with Introduction and Commentary*, 298, 304–5; Holmes, *The Symptom and the Subject*, 163–64 n.67.

[138] Gerard Naddaf, *The Greek Concept of Nature* (Albany, NY: State University of New York Press, 2005), 11–35.

[139] Miller, "On Ancient Medicine and the Origin of Medicine," 202. In chapter 4, we shall see the importance microcosm/macrocosm plays in the metaphysics of Maximus the Confessor. For the classic treatment on microcosm/macrocosm, see Rudolf Allers, "Microcosmus: From Anaximandros to Paracelsus," *Traditio* 2 (1944): 319–407.

With medicine claiming a place of epistemological prominence, Hippocrates also claims that medicine as *technē* brings control and mastery over nature. In chapter 12 of *On Ancient Medicine*, Hippocrates insists that medicine is a *technē* through a process of discovery driven by reasoning (*logismos*), not by chance (*tuchē*). Medicine has achieved success with near perfect accuracy in determining proper therapeutic dietary regimens in the sick. Medicine as a *technē* results from the application of human knowledge and provides the power to control the affairs of the sick. The language of the power of medical knowledge resounds in the Hippocratic work *Places in Man*: "For luck (*tuchē*) is absolute in power and is ungovernable (*autokratēs*), and it is not its way to come in response to one's wish. But knowledge is governable (*archomai*) and brings success when the one with knowledge wishes to use it."[140] In this way, knowledge brings control and mastery while luck is uncontrollable. Holmes comments that *On Ancient Medicine* defines human beings as those who exert deliberate control over the physical world and it is the "gift of medicine" that allows for this kind of mastery and control. Medical "knowledge, by making it possible to harness *dunameis*, thus creates a conduit between desire and its realization."[141] In other words, part of what it means to be human is to exert control over nature through the exercise of the *technē* of medicine. Here we already see a proto-Baconian impulse in Hippocrates: nature must be mastered for the sake of health. Let us now turn to the Hippocratic treatise *On the Art* to see further textual evidence for the beginnings of a proto-Baconian project.

On the Art, like *On Ancient Medicine*, opens with a polemical yet philosophical tone. Hippocrates responds to those who claim that *technē* in general and medicine in particular do not exist. In response, he argues for realism over against

[140] Hippocrates, *Places in Man* 46.1, trans. Craik, 85.
[141] Holmes, *The Symptom and the Subject*, 172–73.

nominalism and, correlatively, a defense of natural kinds. In an appeal to common sense, he states that what exists can be seen with the eyes and known with the mind and what does not exist cannot be seen nor known. Joel Mann calls this treatise "the earliest defense of scientific realism in the history of philosophy."[142] Because medicine has a visible form (*eidos*), manifested as bringing the sick to health, medicine as *technē* exists.[143] Hippocrates further proves that medicine exists in two ways. First, he argues that by following the *technē*, patients recover from their illnesses. But by not following the *technē*, then patients are at the mercy of chance (*tuchē*). With the recovery of health, one can see the visible form (*eidos*) of medicine and recognize its power (*dunamis*) over illness.[144] Second, he points out that even those patients that do not believe that medicine exists are saved by medicine, thereby proving the existence of medicine and its power. In this way, the patient who attributes her recovery to a particular regimen unwittingly proves the existence of medicine.[145] Therefore, medicine is real because it follows a reasoned process of causal connections that explains various phenomena and predicts the future.[146] A corollary of this view follows our discussion of Hippocrates' theology of nature in *On the Sacred Disease*: medicine's existence assumes that causes are deterministic, not teleological.[147]

After establishing the existence of medicine as *technē*, Hippocrates then moves to discuss the epistemology of the *technē*, particularly knowing visible and

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[142] Joel E. Mann, *Hippocrates, On the Art of Medicine* (Leiden: Brill, 2012), 23.
[143] Hippocrates, *On the Art* 1-4.
[144] Hippocrates, *On the Art* 4.
[145] Hippocrates, *On the Art* 5.
[146] Hippocrates, *On the Art* 6.
[147] Jouanna comments on this passage: "One of the greatest virtues of the physicians of the Hippocratic Collection is to have stated, in its most universal form, what was later to be called the principle of determinism. All that occurs has a cause. It is in the treatise of *The Art* that the most theoretical statement of this principle is to be found." Jouanna, *Hippocrates*, 254. Cf. "The Hippocratic physician was convinced that there existed laws of nature called 'necessities of nature'; but these laws were understood as expressing a determinism rather than a teleology." Ibid., 347.

hidden diseases. Recall that the Hippocratic Corpus gave rise to the concept of the physical body because of the vision of symptoms that gave access to the hidden dimensions of the body. Hippocrates points out that those who know the *technē* acknowledge that there are a few diseases that can be seen with the eyes because they manifest as skin eruptions, swelling, color, temperature, or texture changes. The *technē* can attend to these open diseases. Yet, Hippocrates seeks to show that medicine is not helpless to know diseases found in the bodily cavities that are hidden to physical sight.[148] What is the epistemological principle that uncovers the hidden diseases? "For what eludes the sight of the eyes is captured by the *sight of the mind* (*gnomēs*)."[149] This appears to be the first attestation of the metaphor, "mind's eye," which became popular particularly in contemplative metaphysics.[150] Through the "sight of the mind," the *technē* can "see" into the invisible parts of the body by a reasoned process of making inferences from visible symptoms to invisible diseases. Hippocrates gives the examples of quality of voice, respiratory rate, and qualities of discharged bodily fluids, all of which notably originate in the body's interior. Through these visible manifestations and the exercise of the sight of the mind, medicine "makes an inference to the conditions of which these things are signs, including what has already been suffered and what it is possible yet to suffer."[151] In other words, by seeing the invisible, medicine can diagnose the disease and make a prognosis about the future.

But what about when the diseases still remain hidden? Is medicine now helpless? On the contrary, the *technē* performs violence against nature to uncover her

[148] Hippocrates, *On the Art* 9-10.
[149] Hippocrates, *On the Art* 11, trans. Mann, 62.
[150] Jouanna, *Hippocrates*, 249; Holmes, *The Symptom and the Subject*, 17 n.57.
[151] Hippocrates, *On the Art* 12, trans. Mann, 63.

secrets for the purpose of relieving the human condition. To this end, medicine employs coercive means to compel and coerce nature to reveal what is hidden:

> And whenever nature herself does not willingly relinquish these informants, medicine has discovered devices of compulsion by which nature is forced – without injury – to give up her secrets. She is released once she has made it evident to those knowledgeable in the art what should be done.[152]

By using techniques to force nature to reveal symptoms, medicine as *technē* makes visible what was previously invisible. Pierre Hadot notes how the notion "secrets of nature" presupposes an opposition between the visible and invisible, based on the maxim of Heraclitus "nature has a tendency to conceal herself."[153] By echoing Heraclitus' maxim, Hippocrates already presumes an agonistic relationship between *technē* and *physis*. Von Staden enumerates four features of the language used in *On the Art*.[154] First, Hippocrates uses the language of violence, force, and compulsion. Second, the means of nature and forcible constraint are discoveries of the *technē*. Third, language is drawn from the juridical realm, where the *technē* is the prosecutor and *physis* is the reluctant witness subject to physical force. In the ancient world, slaves were routinely tortured in public courts to extract evidence.[155] Fourth, semiotics is fundamental to the agonistic relationship between *technē* and *physis*. The signs produced by violence against nature provide valuable informants to the hidden facts of the body. Thus, knowledge of *technē* wields a violent power over the invisible interior of the body.

As Hadot and Jouanna both point out,[156] the judicial language towards nature anticipates Francis Bacon's own violent approach to nature by 2000 years. Bacon similarly uses the language of violence, constraint, and torture as he describes his

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[152] Ibid. Translation modified.
[153] Hadot, *The Veil of Isis*, 33.
[154] von Staden, "*Physis* and *Technē* in Greek Medicine," 30–31.
[155] G. E. R. Lloyd, *Greek Science after Aristotle* (New York: Norton, 1973), 77.
[156] Jouanna, *Hippocrates*, 347; Hadot, *The Veil of Isis*, 93–94.

modern experimental method: "The secrets of nature are better revealed under the torture of experiments than when they follow their natural course."[157] Such a judicial model, for both Hippocrates and Bacon, supposes that human reason (recall "sight of the mind") ultimately exerts power over nature. What makes Hippocrates decidedly Baconian is not only the method of knowing but also the motivation of knowing, which is the motivation for all of medicine: therapeutic efficacy to relieve the human condition.[158] *On the Art* defines the *technē* of medicine as the pursuit of "totally removing the sufferings of the sick or alleviating the violent effects of their diseases."[159]

To be fair to Hippocrates, he is proto-Baconian, not a full-blooded Baconian, because he qualifies the violence the *technē* can exert against nature, since the compulsion must be "without injury." Yet, medicine's continued drive to make visible what is invisible and to unveil the hiddenness of nature for the sake of healing pushes the limits of what is acceptable in this evolving agonistic relationship between *technē* and *physis.* With the concept of the physical body firmly established, the human body became an object of study. Holmes focuses on the notion of the "sight of the mind" as the lynchpin for the progression to anatomical dissection:

> So crucial is this idea of mental seeing to the learned Greek medical tradition that even when, in third-century BC Alexandria, physicians become better acquainted with the anatomical body through systematic human dissection, they often end up treating it as another surface concealing even smaller parts visible only to reason.[160]

Indeed, as a response to the problem of nature concealing her secrets, the second century BCE Alexandrian physicians Herophilus and Erasistratus pioneered human dissection and vivisection as novel ways of knowing the body.

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[157] Bacon, *The New Organon*, 81. Translation modified.
[158] For more on the "Baconian project," see Gerald P. McKenny, *To Relieve the Human Condition: Bioethics, Technology, and the Body* (Albany, N.Y.: State University of New York Press, 1997).
[159] Hippocrates, *On the Art* 3.
[160] Holmes, *The Symptom and the Subject*, 17.

Yet, anatomical dissection is a decidedly Western phenomenon as the other major medical traditions such as the Egyptian, Ayurvedic, and Chinese all flourished for thousands of years without inspecting corpses for medical purposes.[161] As I have been arguing, Hippocratic epistemology as seen in *On the Sacred Disease, On Ancient Medicine,* and *On the Art* conceives the "anatomical rationality," which follows a logical progression to anatomical dissection as a way of knowing the body. Or to put it differently, Shigehisa Kuriyama calls this anomalous move to anatomical dissection the "anatomical urge" of Western medicine: "The fundamental puzzle of anatomy concerns the crystallization of a particular way of peering into the body, the birth of a certain visual style."[162] In chapter 2, we shall turn to Aristotle and Herophilus, the two major pioneers in systematic anatomical dissection who gave birth to the anatomical rationality.

[161] Shigehisa Kuriyama, *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine* (New York: Zone Books, 1999), 118.
[162] Ibid., 118, 120.

CHAPTER 2
THE BIRTH OF THE ANATOMICAL RATIONALITY: THE DIVINE (MEDICAL) GAZE OF ARISTOTLE AND HEROPHILUS

As for health and disease it is the business not only of the physician but also of the natural philosopher to discuss their causes up to a point. But the way in which these two classes of inquirers differ and consider different problems must not escape us, since the facts prove that up to a point their activities have the same scope; for those physicians who have subtle and inquiring minds have something to say about natural science, and claim to derive their principles therefrom, and the most accomplished of those who deal with natural science tend to conclude with medical principles.
– Aristotle[163]

Aristotle's philosophy was rooted in nature, especially living nature, and the characteristics of natural beings which called above all for explanation, and offered the greatest challenge to the philosopher, was that they moved about, changed, were born and died.
– W. K. D. Guthrie[164]

They, then, who profess a reasoned theory of medicine propound as requisites, first, a knowledge of hidden causes involving diseases, next, of evident causes, after these of natural actions also, and lastly of the internal parts. […] *Hence it becomes necessary to lay open the bodies of the dead and to scrutinize their viscera and intestines. They hold that Herophilus and Erasistratus did this in the best way by far, when they laid open men whilst alive – criminals received out of prison from the kings – and whilst these were still breathing, observed parts which beforehand nature had concealed.*
– Celsus[165]

Anatomical Way of Seeing What Nature Has Hidden

[163] Aristotle, *On Respiration* 27(21), 480b23-30. Aristotle, *On the Soul; Parva Naturalia; On Breath*, trans. W. S. Hett, Loeb Classical Library (Cambridge, Mass: Harvard University Press, 1957). Hereafter, translations will be taken from the Oxford edition unless otherwise indicated, cited as work, book, chapter, Bekker number, Oxford, and page number from the Oxford edition. Aristotle, *The Complete Works of Aristotle: The Revised Oxford Translation*, ed. Jonathan Barnes, 2 vols., Bollingen Series LXXI.2 (Princeton: Princeton University Press, 1984). Cf. Aristotle, *Sense and Sensibilia* 1, 436a17-436b2: "But it behooves the natural scientist to obtain also a clear view of the first principles of health and disease, inasmuch as neither health nor disease can exist in lifeless things. Indeed we may say of most physical inquirers, and of those physicians who study their art more philosophically, that while the former complete their works with a disquisition on medicine, the latter start from a consideration of nature."
[164] W. K. C. Guthrie, *A History of Greek Philosophy: Volume 6, Aristotle: An Encounter* (Cambridge; New York: Cambridge University Press, 1990), 243.
[165] Celsus, *De Medicina*, trans. William George Spencer, Loeb Classical Library (Cambridge, Mass.: Harvard University Press, 1935), proem. 13, 23–24.

Aristotle the Stagirite and Herophilus of Chalcedon are universally acclaimed to be the pioneers in systematic dissection. While they share the same methodology of manual anatomical dissection, they differ in purpose and objects of study. Aristotle lived 384-322 BCE as the personal tutor to Alexander the Great, while Herophilus lived about two generations thereafter in 330/320–260/250 BCE, studying in Ptolemaic Alexandria. Aristotle is the first to have a generalized method of inquiry into nature and the first to integrate anatomical dissection as a systematic part of his natural philosophical research program.[166] Indeed, his so-called "biological" works comprise over 25% of the surviving corpus.[167] As we shall see, Aristotle practiced anatomical dissection of animals to engage in a philosophical study of the soul.[168] While it was not the intention of the Stagirite to advance medical knowledge through dissection, as the opening epigraph testifies, the study of natural philosophy ends in medical principles, and thus his anatomical explorations had medical import. In contrast, Herophilus went beyond Aristotle and advanced the anatomical dissection program by extending it to humans and in increased detail,[169] not for the purpose of philosophical knowledge of nature for its own sake as in the case for Aristotle, but to promote medical knowledge of the body for the sake of the *technē*.[170] Herophilus has

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[166] G. E. R. Lloyd, "Empirical Research in Aristotle's Biology," in *Philosophical Issues in Aristotle's Biology*, ed. Allan Gotthelf and James G. Lennox (Cambridge; New York: Cambridge University Press, 1987), 62; G. E. R. Lloyd, *Magic, Reason, and Experience: Studies in the Origin and Development of Greek Science* (Cambridge: Cambridge University Press, 1979), 162–163.

[167] Allan Gotthelf and James G. Lennox, eds., *Philosophical Issues in Aristotle's Biology* (Cambridge; New York: Cambridge University Press, 1987), 5.

[168] Based on internal and external evidence from Aristotle's corpus, it is clear that he personally engaged in anatomical dissection. Ancient testimony by Diogenes Laertius lists the lost works *Dissections* (Diogenes Laertius, *Lives of Eminent Philosophers*, trans. Robert Drew Hicks, Loeb Classical Library (Cambridge, Mass.: Harvard University Press, 1925), 5.25.15–16. Aristotle refers to *Dissections* twenty-eight times in his "biological" works and had first hand experience of animal dissection and vivisection (e.g. *History of Animals* I.17, 496a9-12; III.13, 519a26-29; *On Respiration* 9(3), 471b21-22; 23(17).479a2-8; *Progression of Animals* 8.708b5-9).

[169] Lloyd, *Magic, Reason, and Experience*, 163.

[170] Unfortunately, none of Herophilus' works are extant. Galen remains the main ancient source for our knowledge of Herophilus' writings. Herophilus wrote at least eight books, which were highly regarded and influential as late as second century CE. Heinrich von Staden, *Herophilus: The Art of Medicine in*

been both praised and reviled for his dissective pursuits. By some, Herophilus has been hailed as the "father of scientific anatomy" and the most superior dissector in antiquity, not to be matched until the Renaissance.[171] By others, he has been called a murderer for pioneering human vivisection on condemned criminals.[172]

While Aristotle and Herophilus may have differed in their respective goals of theoretical, philosophical knowledge vs. practical, medical knowledge, they ultimately shared the same aim for practicing the method of anatomical dissection – to unveil what nature has hidden. Notice that this follows the logical progression of the seeds of the anatomical rationality that were planted by Hippocrates. In part because he did not engage in anatomical dissection, Hippocrates desired to know the invisible parts of the body through the visible signs of symptoms, made evident through the sight of the mind, for the sake of knowing disease. In the name of good health, the body must be coerced to reveal her secrets. Such language echoes the Heraclitian maxim, "Nature tends to conceal herself." For Aristotle, anatomical dissection is one of the means of uncovering the formal causes of nature in particular living animals; for Herophilus dissection reveals the hidden parts of the body and makes it open for ocular demonstration.

In his profound and insightful *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine,* Shigehisa Kuriyama compares the ancient medical traditions of Greece and China. We shall spend some time looking at Kuriyama's comparative study to frame Aristotle's and Herophilus' own anatomical projects by showing how their anatomical practices directly shaped their anatomical rationalities and vice versa. As we mentioned in the previous chapter, anatomical

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Early Alexandria: Edition, Translation and Essays (Cambridge; New York: Cambridge University Press, 1989), 67–68. All of the fragments and testimonies of Herophilus are collected in this work.

[171] von Staden, *Herophilus*, 138, 140–141.

[172] See epigraph by Celsus. See also Tertullian, *Quinti Septimi Florentis Tertulliani De Anima*, ed. J. H. Waszink, Supplements to Vigiliae Christianae, v. 100 (Leiden; Boston: Brill, 2010), 10.4, p. 13.

dissection is peculiar to the Western medical tradition and should be seen as the exception, not the norm, at least historically. Kuriyama argues two interrelated points: (1) conceptions of the body are based on the way senses are used as much as ways of thinking, and (2) differing ways of touching and seeing the body are intertwined with different ways of being bodies.[173] In other words, as I have been arguing, ways of knowing (the body) are bound up with ways of being (a body).

Kuriyama argues that anatomical dissection inaugurated a new perception of the body in ancient Greece. This radical shift in seeing, touching, and knowing the body can be exemplified by comparing the notion of the pulse of ancient Chinese medicine with that of ancient Greek medicine after the rise of the anatomical rationality. It was evident to ancient Greek and Chinese physicians that animals with a pulse are alive and those without a pulse are dead. In this way, the pulse is the "language of life."[174] However, because of differences in seeing and touching, and thereby differences in ways of knowing, the Greeks and Chinese had different languages for characterizing the body and the pulse. As Kuriyama remarks in a sort of aphorism, "Greek and Chinese doctors *knew* the body differently because they *felt* it differently."[175]

To us moderns (especially Western moderns), it may appear self-evident not only that living animals have a pulse, but that the pulse can be attributed to an artery connected to a beating heart. It is self-evident to us that a beating heart is the source of life, or to use Aristotelian language, the "principle of motion."[176] Kuriyama notes that the Hippocratic corpus is silent on pulse taking and seems to have no notion of

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[173] Shigehisa Kuriyama, *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine* (New York: Zone Books, 1999), 12–13.
[174] Ibid., 20.
[175] Ibid., 55.
[176] Aristotle, *Generation of Animals* II.6, 742b35-36.

"pulse," observing that inquiry into the pulse is not an inevitable intuition.[177] The modern mind might think that the Hippocratic physicians simply needed to re-tune their perception to be able to feel the pulse. Yet, for ancient Chinese physicians, connecting the pulse to the heart was not at all self-evident because the pulse was felt differently. What did they feel when palpating the wrist? Instead of the apparently self-evident phenomenon of the pulsing artery, the Chinese physicians grasped a more complex bodily reality. Accounting for differences in position and depth, they palpated six different pulses called *mo* under the index, middle, and ring fingers on each wrist for a total of twelve different "pulses" called *Qiemo* sites that correspond to functions of varying organs elsewhere in the body.[178] For the Chinese doctors, the language of life is the *mo* based on location.

The Greek medical tradition during and immediately after Hippocrates had not yet differentiated between the notions of "pulse" (*sphygmos*) and "palpitations" (*palmos*) for they "both named abnormal movements in the blood vessels and elsewhere, and the difference between them was frequently unclear."[179] What we regard as the "pulse" today – the concrete, rhythmic bounding of the artery that is seen and felt along both wrists – had not yet crystallized in the medical imagination. *Sphygmos* and *palmos* were used interchangeably in the Hippocratic corpus to describe observable occurrences not only in the blood vessels but also the head, abdomen, and womb. Divorcing *sphygmos* from *palmos* became the crucial step to making the study of pulses into its own field of medical inquiry. Kuriyama argues that this divorce is made possible by the new paradigm of anatomical dissection, thereby inaugurating a new perception of the body. He points out that Aristotle is the first to

[177] Kuriyama, *The Expressiveness of the Body*, 23.
[178] Ibid., 25–27.
[179] Ibid., 29.

move towards *sphygmos* as a regular physiological phenomenon.[180] Based on his extensive experience with systematic dissection of animals, Aristotle can claim with confidence: "All the vessels (*phlebes*) throb (*sphuzousin*), and do so simultaneously with each other, owing to their connection with the heart."[181] He also distinguishes between the pulse and palpitation.[182]

While Aristotle does not employ the pulse or its connection to the heart for medical ends nor does his notion of "pulse" correspond to our modern notion of pulse since he did not distinguish between veins and arteries, his use of anatomical dissection to generate the pulse idea becomes a seminal moment in the history of medical knowledge: Aristotle's anatomical inquiry gives birth to the anatomical rationality as a way of knowing the body and shapes the medical imagination. The anatomical rationality becomes the condition of possibility for the invention of the pulse as a new object of study, which further intensifies the body as an object of study.

Kuriyama then goes on to observe provocatively that Herophilus is both the founder of pulse study and the first to dissect humans. Through systematic dissection of humans, Herophilus was able to distinguish between veins, arteries and the heart, nerves, and muscles. As Rufus of Ephesus attests:

> For, [Herophilus] says, pulse occurs only in the arteries and the heart whereas palpitation and spasm and tremor occur in muscles as well as nerves. And the pulse, he says, is born with a living being and dies with it, whereas these other motions do not. […] The pulse at all times attends us involuntarily and exists naturally.[183]

The pulse is attributed to the arteries and is related to the source of life. However, anatomical dissection is not able to demonstrate that the actual connection between

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[180] Ibid., 29–31.
[181] Aristotle, *On Respiration* 26(20), 480a10-11, Oxford, 762. Translation slightly modified.
[182] Aristotle, *On Respiration* 26(20), 479b16-480a15.
[183] von Staden, *Herophilus*, 326–327.

the pulse and heart is the tubular artery because the artery is seen while the pulse is felt. Instead, the artery is "seen" through inference by the "sight of the mind" (recall the Hippocratic work *On the Art* originated this phrase) as a dilating and contracting artery with dynamic motions. In this way, what is seen converges with what is felt, framed by the new imagination generated by anatomical dissection as a method of study.[184] While the medical tradition prior to Aristotle and Herophilus was unclear and ignorant of the "pulse" as we know it today, anatomical dissection was able to unveil what nature had concealed, to make visible what had been invisible.

This extended comparative exploration of the evolution of pulse study encapsulates in a microcosm the beginnings of the anatomical rationality. As a way of *knowing* the body, manual dissection requires a way of *being* a body towards another body – that is, cutting, manipulating, and separating with violent yet domesticated instruments that had been previously employed in warfare. Yet, anatomical dissection as a way of knowing also requires the kind of imagination to see with the mind's eye to make sense of what is being touched. Both anatomical practice and anatomical vision work in reciprocal causality to give birth to the anatomical rationality. Let us now look in depth at Aristotle and Herophilus each in turn to see more fully how their thought gives birth to the anatomical rationality.

Aristotle's Desire to Dissect: Anticipating the Modern Scientific Imagination

Western medicine is caught in a perpetual struggle between reductionism and humanism, between the scientific mentality and bedside manner. In the age of technological efficiency and efficacy, the pendulum always seems to swing in favor of reductionism and the scientific mentality. Is it because medicine is primarily a

[184] Kuriyama, *The Expressiveness of the Body*, 31–35.

"science" and secondarily an "art"? Philosophers and historians of science have argued that one of the key moments in the development of modern science is the day that Aristotelian science fell. When formal and final causation became divorced from material and efficient causation, nature became inert, devoid of purpose, reducible to matter in motion, and then opened to manipulation and measurement as part of the Baconian project – to master nature and to relieve the human condition.[185] Following the birth of modern science comes the birth of modern medicine with the wedding of pathological anatomy and clinical medicine, as Foucault famously argued.[186] Human bodies, then, are reducible to matter in motion defined by the dead body as epistemologically normative.[187]

I challenge this reading that modern medicine came with the turn to modern science in the overturning of Aristotelian fourfold causation. On the contrary, Aristotle himself demonstrates elements of modern science through the unnatural manipulation of nature with the advent of systematic anatomical dissection. It is precisely because he seeks to know the formal cause of each living thing in the animal kingdom – that is, the soul – through quasi-experimental practices of dissection and vivisection. Ultimately, Aristotle desires to dissect in order to know the final cause of all things, who is God, and thereby inaugurates a divine gaze of dissection. As a result, the violent practice of anatomical dissection is seen as a noble, rational practice that remains to the present day and functions as an integral tool in the formation of the way physicians think and see. The divine gaze of dissection is one of the key

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[185] See Edwin A. Burtt, *The Metaphysical Foundations of Modern Science* (Mineola, N.Y.: Dover Publications, 2003); Simon Oliver, *Philosophy, God and Motion* (London: Routledge, 2005); Gerald P. McKenny, *To Relieve the Human Condition: Bioethics, Technology, and the Body* (Albany, N.Y.: State University of New York Press, 1997).
[186] Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception*, trans. A. M. Sheridan Smith (New York: Vintage, 1994).
[187] Jeffrey P. Bishop, *The Anticipatory Corpse: Medicine, Power, and the Care of the Dying* (Notre Dame, Ind.: University of Notre Dame Press, 2011).

foundations for the medical gaze of the secular physician-priest who wields power over life and death.

Anatomical dissection requires exquisitely attuned sight and touch in order to gain knowledge of the body. Yet it also requires a desire to know to overcome the initial repulsiveness of dissection. We shall see the relationship between sight, touch, and knowledge in Aristotle's natural philosophy, which describes the phenomenology of anatomical dissection. Aristotle famously begins the *Metaphysics* with the following:

> All men by nature desire to know. An indication of this is the delight we take in our senses; for even apart from their usefulness they are loved for themselves; and above all others the sense of sight. For not only with a view to action, but even when we are not going to anything, we prefer sight to almost everything else. The reason is that this, most of all the senses, makes us know and brings to light many differences between things.[188]

This passage is pregnant with the logic of the anatomical rationality. In contrast to the current post-Kantian context that separates reason from feeling, Aristotle strikingly claims that humans have an intrinsic desire for knowledge for its own sake. Such a desire is confirmed by the delight experienced with the senses, with the sight above all others. Later, Aristotle states that such knowledge, as the object of our desire, is the knowledge of first causes and principles of things, which is wisdom.[189] As we shall see, Aristotle pursued the study of animals to discern their cause which is the soul. But in order to do so, he thought it necessary to dissect animals to reveal their hidden causes. This is the "anatomical urge," which we shall call Aristotle's *desire to dissect* for the sake of knowledge.

Another important dimension from the opening of the *Metaphysics* is the connection that Aristotle makes between sight and knowledge. Classical Greek has

[188] Aristotle, *Metaphysics* I.1, 980a22-28, Oxford, 1552.
[189] Aristotle, *Metaphysics* I.1, 981b29-1.2.982a5.

several words that relate cognition to the experience of sight. In the *Nicomachean Ethics* Aristotle regards the intellect, *nous*, to be the highest faculty and contemplation, *theōria*, to be the highest activity.[190] Bruno Snell discusses the etymologies of *noos/nous* and *theōria* and their Homeric roots. In Homeric usage, the eye serves as the analogical model for the absorption of experiences. The more that is seen, the more that is known. *Noos* is a kind of mental eye with clear vision.[191] The root of *theōrein* (the verb form of *theōria*) is the noun *theōros*, which originally meant "to be a spectator" but it came to mean "to look on," "to contemplate." The usage of *theōria* "represents an intensification of the normal and essential function of the eyes. The stress lies on the fact that the eye apprehends an object."[192] Staying true to these Greek linguistic roots, in *De anima* Aristotle goes so far to say that cognition actually necessitates sight because the faculty of thinking thinks in images as if they were contents of perception, which sounds similar to the Homeric root of *nous*.[193] Aristotle's desire to know chiefly with sight is already an intensification of the Hippocratic "vision of the mind" without dismissing the importance of sense perception. This is why Aristotle regards sight to be the most highly developed sense.[194] Aristotle follows and advances the "hegemony of vision"[195] in the Western philosophical tradition, which has its roots in the Hippocratic tradition of the "mind's eye."

However, elsewhere Aristotle regards the sense of touch as the primary sense, belonging to all animals, not just humans.[196] Touch is necessary for life because it is

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[190] Aristotle, *Nicomachean Ethics* X.8, 1177b30-31; X.8, 1178b7-8.
[191] Bruno Snell, *The Discovery of the Mind: The Greek Origins of European Thought*, trans. Thomas G. Rosenmeyer (New York: Harper, 1960), 13, 18.
[192] Ibid., 4.
[193] Aristotle, *De Anima* III.7, 431a15-431b9.
[194] Aristotle, *De Anima* III.3, 429a3-4.
[195] Cf. David Michael Levin, ed., *Modernity and the Hegemony of Vision* (Berkeley: University of California Press, 1993).
[196] Aristotle, *De Anima* III.2, 413b4.

necessary for sensation. Touch is "the essential mark of being an animal" for "without touch it is impossible for an animal to be."[197] Since all animals by definition are embodied and tangible, if animals with the power of locomotion did not have the sense of touch, then they would lack the ability to detect discrete boundaries in their environments and would crash into things. Unlike the senses of sight, hearing, and smell, which apprehend through a medium, the sense of touch engages in immediate contact with an object because the animal's flesh *is* the medium. Or as Aristotle says it another way, the *body* is the medium of touch.[198] Since touch is the primary sense for animals, and animals have flesh as the perceptive medium, all other parts of the body exist for the sake of sense of touch.[199] While touch is necessary for the animal's existence, excess of touch is fatal. Aristotle observes that an excess of sensible quality destroys the organ of sense. Since touch is the only sense required for existence, excess intensity of tangible qualities such as heat, cold, or hardness destroys not merely the organ of touch but the animal itself. Thus, the loss of touch leads to the death of the animal.[200]

The primacy of touch heightens Aristotle's account of embodied knowing and shows how bodily contact contributes to knowledge in general and knowledge of nature in particular. Without the senses, it is impossible to learn or understand anything.[201] In other words, without the body, there can be no knowledge. Among the faculties of the soul, Aristotle regards touch as the most elementary and indispensable sense because "without touch it is impossible to have any other sense."[202] What can be touched are the tangibles, which are the distinctive qualities of the body *qua* body,

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[197] Aristotle, *De Anima* III.13, 435b16-18, Oxford, 692.
[198] Aristotle, *De Anima* III.11, 423a2ff.
[199] Aristotle, *Parts of Animals* II.8, 653b30-31.
[200] Aristotle, *De Anima* III.13, 435b4-19.
[201] Aristotle, *De Anima* III.8, 432a7-9.
[202] Aristotle, *De Anima* III.13, 435a13-14, Oxford, 691.

such as the contrasting characteristics of hot-cold, dry-moist.[203] In *On Generation and Corruption*, Aristotle describes the principles of perceptible bodies that undergo change and their underlying matter as composed of the Empedoclean doctrine of the four elements in terms of the tangible contraries hot-cold and dry-moist: "Thus as principles we have *firstly* that which is potentially perceptible body, *secondly* the contrarieties (I mean, e.g., heat and cold), and *thirdly* Fire, Water, and the like."[204] Aristotle goes on to deduce that since the principle of perceptible bodies is tangibility, and tangibility is perceived by touch, then "not all the contrarieties constitute forms and principles of body, but only those which correspond to touch. For it is in accordance with a contrariety – a contrariety, moreover, of *tangible* qualities – that the primary bodies are differentiated."[205] While the other senses detect the qualities that are accidental to bodies, such as color and taste, the sense of touch can detect the tangible qualities of bodies at their elemental level precisely because they are embodied. For Aristotle, touch becomes the queen of the senses in acquiring knowledge of changing natural bodies, which is vital for the anatomist.[206]

There is also a reciprocal dimension to the sense of touch. For the senses of sight, hearing, and smell, sensation is "a kind of being moved upon and acted upon."[207] But in the case of touch, sensation is both active and passive. In *On Generation and Corruption*, Aristotle discusses touch in the more general context of action, passion, and touch in nature. When two things touch, they engage in a "reciprocal touching" that can impart motion one to the other. Aristotle states as a rule that if A touches B, then B touches A. This means that in practical experience, active

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[203] Aristotle, *De Anima* III.11, 423b27-29; III.13, 435a22-25.
[204] Aristotle, *On Generation and Corruption* II.1, 329a33-35, Oxford, 539.
[205] Aristotle, *On Generation and Corruption* II.2, 329b7-12, Oxford, 539.
[206] Christopher E. Cosans, "Aristotle's Anatomical Philosophy of Nature," *Biology and Philosophy* 13, no. 3 (1998): 311–39.
[207] Aristotle, *De Anima* II.5, 416b33, trans. Hett, 95.

touching of something entails being touched in return.[208] Likewise, with the human sense of touch, when we directly touch an object, that same object touches us back. Thus, with the sense of touch there is an active and passive dimension. To borrow from the grammatical domain, touch is a kind of "middle voice" in that it is simultaneously active *and* passive.[209]

Yet Aristotle addresses an important difference between the senses of sight and hearing and the sense of touch. With the former, visual and audible things act passively through the medium on the organs of sense, whereas with touch tangible things are perceived through the medium of the flesh and simultaneously as the medium because we *are* flesh.[210] So for the sense of touch, what is the organ of touch? For sight, it is the eye, for hearing the ear. Aristotle concludes that the organ of sensation in the sense of touch is not the flesh but is rather "internal"[211] as the "common sense."[212] In a way, the common sense is the sense of sensing, or a perceiving of perception. Perception proves one's existence: "It is impossible that a person should, while perceiving himself or anything else in a continuous time, be at any instant unaware of his own existence."[213] As Heller-Roazen puts it, *sentio ergo sum*, "I perceive, therefore I am."[214] The body as the medium of touch is the condition of possibility of awareness that proves for Aristotle that there is a spiritual, psychic

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[208] Aristotle, *On Generation and Corruption* I.6, 322b24ff.
[209] Cf. Merleau-Ponty's observation that when one's right hand is placed on one's left hand, then a chiasm is formed such that one is both touched and touching simultaneously. Maurice Merleau-Ponty, *The Visible and the Invisible*, trans. Claude Lefort (Evanston, Ill.: Northwestern University Press, 1968).
[210] Aristotle, *De Anima* II.11, 423a21-423b16.
[211] Aristotle, *De Anima* II.11, 423b24.
[212] Aristotle, *De Anima* III.I, 425a28.
[213] Aristotle, *Sense and Sensibilia*, 7, 448a26-27, Oxford, 711.
[214] Daniel Heller-Roazen, *The Inner Touch: Archaeology of a Sensation* (New York: Zone Books, 2007), 57–64.

interior to the body that allows it to be the body. The soul touches the world through the body. In other words, touching *proves* the soul.[215]

Now imagine Aristotle engaging in the practice of anatomical dissection. As a scientific investigator he actively touches animals and imparts "motion" in these animals by cutting, manipulating, and separating the animals. These dead (and sometimes living) animals touch in return such that Aristotle is now the passive object being touched. While in the act of dissecting animals, Aristotle is certainly being touched by bones, muscles, and entrails, yet there is also an emotive way in which he is touched. To illustrate that it is possible to touch something without being touched in return, Aristotle gives the telling example of how a grieving man is able to touch us but we do not touch the grieving man.[216] Notice the use of Aristotle's language. He expands the use of touch beyond the physical to include the psychical. The grief of the man in his example is able to touch and move the soul of another man. In his paean to the study of nature, Aristotle admits that to study the innards of animals and humans is a difficult task, "for it is not possible without *considerable disgust* to look upon the blood, flesh, bones, blood-vessels, and suchlike parts of which the human body is constructed."[217] If looking upon inner parts of animals provokes disgust, then *a fortiori* touching causes disgust all the more since it is flesh touching flesh. Thus, dissected animals can "touch" the anatomist in both physical and psychical ways.

But for all of the importance Aristotle grants to the sense of touch, sight still takes intellectual primacy over touch. If touch is the queen of the senses, then surely sight is the king. For, as we saw above, sight entails not only physical sensation but also cognition and contemplation (*nous* and *theōria*). The sense of touch allows the anatomist to perceive the tangible qualities of the bodies of animals and thus

[215] John Milbank and Catherine Pickstock, *Truth in Aquinas* (London: Routledge, 2001), 73.
[216] Aristotle, *On Generation and Corruption* I.6, 323a33-34.
[217] Aristotle, *Parts of Animals* I.5, 645a27-31, Oxford, 1004.

discriminate among the differences. Touch also allows for the manipulation of the instruments required to perform dissections. In the same way that Aristotle regards humans as having the most delicate sense of touch for the sake of making speech as a rational animal,[218] this finest sense of touch is instrumental to human rationality. Yet the sense of sight provides the faculty of intellect the images as a kind of perceptual content to allow the mind to discern the cause of the animal, which for Aristotle is the form of the animal that explains the "why" of the thing.[219] As the touching hands physically divide the animal to examine its parts, the eyes and the intellect begin to see the body in an anatomical way. Thus, both sight and touch work in a dynamic fashion to shape a new revolutionary anatomical gaze. The how of anatomical dissection transforms what is seen of the body, and what is seen shapes what is thought. This transformation via anatomical dissection is especially true for the contemporary formation of physicians-in-training in the anatomy lab. Indeed, the Foucauldian medical gaze is essentially a dissective gaze.

Yet, as Aristotle tells us from the opening of the *Metaphysics*, sight drives the desire to know. Anatomical vision drives the desire to dissect. Thought coupled with desire produces motion, and in the case of anatomy, humans are moved to dissect, to "open up a few corpses,"[220] for the sake of knowledge. *Peri zōiōn moriōn*, which is traditionally translated as *Parts of Animals* based on the Latin nomenclature *De Partibus Animalium*, should be more appropriately translated as *Inquiry into the Causes of Animals*. It sets out Aristotle's method to investigate the "why" of animals. To grasp the "why" of things is not mere apprehension of a body of knowledge but is

[218] Aristotle, *Parts of Animals* II.16, 660a12-14.
[219] Aristotle, *Physics* II.3, 194b20.
[220] Xavier Bichat, *Anatomie générale, appliquée à la physiologie et à la médecine.* (Paris: Brosson, 1801), xcix, quoted in Michel Foucault, *The Birth of the Clinic: An Archaeology of Medical Perception*, trans. A. M. Sheridan Smith (New York: Vintage, 1994), 146.

an understanding (*epistēmē*) of the "why" of that knowledge.[221] And, for Aristotle, to understand the causes of things is divine.[222] With the prospect of discerning the causes of animals, Aristotle displays an enthusiasm for detailed examination of animals through anatomical dissection:

> Having already treated of the celestial world, as far as our conjectures could reach, we proceed to treat animals, without omitting, to the best of our ability, any member of the kingdom, however ignoble. For if some have no graces to charm the sense, yet nature, which fashioned them, gives amazing pleasure in their study to all who can trace links of causation, and are inclined to philosophy. Indeed, it would be strange if mimic representations of them were attractive, because they disclose the mimetic skill of the painter or sculptor, and the original realities themselves were not more interesting, to all at any rate who have eyes to discern the causes. We therefore must not recoil with childish aversion from the examination of the humbler animals. Every realm of nature is marvelous: and as Heraclitus, when the strangers who came to visit him found him warming himself at the furnace in the kitchen and hesitated to go in, is reported to have bidden them not to be afraid to enter, as even in that kitchen divinities were present, so we should venture on the study of every kind of animal without distaste; for each and all will reveal to us something natural and something beautiful. Absence of haphazard and conduciveness of everything to an end are to be found in nature's works in the highest degree, and the end for which those works are put together and produced is a form of the beautiful.
>
> If any person thinks the examination of the rest of the animal kingdom an unworthy task, he must hold in like disesteem the study of man. For no one can look at the elements of the human frame – blood, flesh, bones, vessels, and the like – without much repugnance. Moreover, when any one of the parts or structures, be it which it may, is under discussion, it must not be supposed that it is its material composition to which attention is being directed or which is the object of the discussion, but rather the total form. Similarly, the true object of architecture is not bricks, mortar, or timber, but the house; and so the principal object of natural philosophy is not the material elements, but their composition, and the totality of the substance, independently of which they have no existence.[223]

This passage is rich and pregnant with several points that illuminate the desire to dissect that we have been discussing. First, Aristotle calls for the study of every animal, even the most "humble" and "ignoble" among us. Studying all animals in nature will reveal their causes, thereby stoking delight and inclining towards

[221] M. F. Burnyeat, "Aristotle on Understanding Knowledge," in *Aristotle on Science: The "Posterior Analytics,"* ed. Enrico Berti, Studia Aristotelica 9 (Padova: Editrice Antenore, 1981), 97–139.
[222] Aristotle, *Metaphysics* I.2, 982b28-983a11.
[223] Aristotle, *Parts of Animals* I.5, 645a4-37, Oxford, 1004.

philosophy. Second, to discern the causes and access this delight, one must have eyes to "see." It appears that Aristotle intends both physical and mental vision because he encourages against immature repulsion of studying animals and discerning causes, which requires "seeing" the forms in the mind. Third, it is clear that Aristotle's concern is not merely the external observation of locomotion, nutrition, sensation, and generation but also internal examination via dissection when he talks about the various elements of human composition such as blood, flesh, bones, and vessels. In order to discern the cause of animals, one must examine the parts of animals.

Finally, he declares that the study of animals is a source of delight, beauty, and divinity, especially by alluding to Heraclitus' kitchen. By seeing and touching animals in a rational way, one can "see" the invisible causes of animals and is reciprocally "touched" by the animal in passive receptivity through the evocation of delight. By understanding the causes of animals, one can witness divinity and discern the highest end to which all things in nature aim – the form of the beautiful (*kalon*). Elsewhere in the *Metaphysics*, Aristotle speaks of the unmoved mover as being the *kalon*, which is both the object of desire and object of thought.[224] *Kalon* is typically translated as the "good," but the "beautiful" would fit especially in light of the convertibility of the transcendentals. In a serious way, one could say that for Aristotle the dissection of the lowliest of animals is a divine activity. In short, the desire to dissect is a spiritual desire. Or to put it in theological language as a play on Henri de Lubac's view of nature and grace, the anatomical gaze is a natural desire for the supernatural through unnatural means.[225]

Aristotle's Anatomical Project

[224] Aristotle, *Metaphysics* XII.7, 1072a26-28.
[225] Henri de Lubac, *The Mystery of the Supernatural*, trans. Rosemary Sheed, Milestones in Catholic Theology (New York: Crossroad, 1998).

Now that we have established Aristotle's desire to dissect, let us look more closely at his anatomical project. We have seen that the goal of dissection is to discern the cause of animals. Andrew Cunningham, a historian of anatomy, characterizes all different anatomical projects throughout history in the following way: "Anatomy is a *practical and empirical* pursuit, aimed at acquiring *theoretical* knowledge." He argues that *De Anima* is the theoretical starting point for Aristotle's anatomical project.[226] At the beginning of *De Anima*, Aristotle honors understanding of the soul as the most noble because it most advances our understanding of nature, since the soul is the principle of animal life. Because the affections of the soul are enmattered, study of the soul falls under the study of nature.[227] The beginning of the *Parts of Animals* speaks about inquiry into nature (*peri physeōs*), which is an investigation into the causes of nature, hence the title of the work, *Inquiry into the Causes of Animals*. Since the soul is the form of the living thing, and form is the essence of the animal nature, then inquiry into nature must treat the soul rather than matter,[228] for the body exists in some way for the sake of the soul.[229] But to study the attributes of the soul, Aristotle must investigate the body since the soul only has attributes as they are embodied in living animals. In this sense, the living animal is the "soul-in-action."[230] This is why Cunningham can say, "The study of animals – the empirical study of the soul in action, through anatomy – was not therefore something marginal or tangential to Aristotle's philosophy, but lay at its very center."[231]

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[226] Andrew Cunningham, "Aristotle's Animal Books: Ethology, Biology, Anatomy, or Philosophy?," *Philosophical Topics*, 1999, 17–41, quote on p. 26.
[227] Aristotle, *De Anima* I.1, 402a1-9, 403a24-29.
[228] Aristotle, *Parts of Animals* I.1, 641a17-33.
[229] Aristotle, *Parts of Animals* I.5, 645b19-20.
[230] Cunningham, "Aristotle's Animal Books: Ethology, Biology, Anatomy, or Philosophy?," 37.
[231] Andrew Cunningham, *The Anatomical Renaissance: The Resurrection of the Anatomical Projects of the Ancients* (Aldershot: Scolar Press, 1997), 20. Lloyd argues that psychology provides the framework for the zoology and that psychology influences his interpretation of biology. Of note, Lloyd does not mention anatomy. G. E. R. Lloyd, "Aspects of the Relationship between Aristotle's Psychology and

As we have been seeing, the purpose of anatomical dissection is to discern the cause of animals, which is the soul. Of course, for Aristotle, this is not the modern Cartesian soul that has a substance separate from the body. Rather, the Aristotelian soul is the form of the body, wherein every living organism is a composite of form and matter that compose the living thing's nature. Form and matter are interdependent to one another and thus are inseparable. The form of the organism is its internal principle of change to grow into maturity as the full realization of that form and is what makes the organism a natural kind.[232] The form of the organism is both that which is directing the process and the end or final cause – "that for the sake of which" – toward which the process of change is directed. In other words, the form is both the means and the end of the organism.[233] In this sense, formal cause and final cause are one. Thus, form is a basic force in nature that is the internal principle of motion and change in every living organism.

Anatomical dissection is a key method to discovering the forms of animals. But how is this so? For Aristotle, form defines the animal, not matter. The parts and structure of the organism comprises what is visible and tangible, but this is only indicative of the matter of the organism, not the form. So how does an extensive study of the details of the external and internal flesh of the animal lead to discerning the forms? Aristotle gives his famous formula for epistemology and philosophy of science,[234] which is his method of induction: start inquiry with what is familiar and immediately knowable to us and then proceed to what is knowable in the order of

His Zoology," ed. Martha C. Nussbaum and Amélie Oksenberg Rorty (Oxford: Clarendon Press, 1991), 147–67.

[232] Aristotle, *De Anima* II.1, 412a6ff.

[233] Aristotle, *Physics* II.2, 194a28-31.

[234] Any attempt to strictly separate Aristotle's epistemology from his philosophy of science is guilty of imposing modern philosophical concerns onto an ancient conception that knew no such divisions. See Burnyeat, "Aristotle on Understanding Knowledge"; Pierre Pellegrin, "Logical Difference and Biological Difference: The Unity of Aristotle's Thought," in *Philosophical Issues in Aristotle's Biology*, ed. Allan Gotthelf and James G. Lennox (Cambridge; New York: Cambridge University Press, 1987), 313–38.

nature.[235] Yet, the order of nature is ontologically prior to the order of our knowledge of it. Thus, the order of perception is inversely related to the order of nature. Aristotle then explicitly applies this principle to the study of animals. The order of development of the parts of animals is inverse to their order of nature.[236] To put it differently, in terms of essence, the order of nature is first and the order of development is second, while in terms of our perception, the order of development is first on the way to understanding the order of nature. As we have already seen, the cause of the animal is the form of the animal. So for Aristotle, close study of animals will eventually yield discernment of the cause.

However, one could object with the counter-example that Democritus also engaged in close study of animals (recall the Hippocratic story of Democritus surrounded by dissected animals) but attributed their form and structure to material necessity alone.[237] From a modern scientific perspective, does not invoking formal and final causality complicate the picture of explanation when material necessity is sufficient? Aristotle remarks that Democritus is correct in saying that the material configuration of various animals constitutes the essence of those animals. Yet, Aristotle points out that while a dead body has the configuration of a living body, it is not a man. And the hand on a dead man is not properly a hand because it cannot perform its function.[238] While the materials of the body are necessary for the animal to be a living thing, it is not living on account of those materials alone. In other words, material cause is necessary but not sufficient to be a living animal. Thus, Aristotle does not think that material necessity adequately explains the *why* of the animals in their particular configurations. If form is a force within nature, then the

[235] Aristotle, *Physics* I.1, 184a16-17. Cf. Aristotle, *Posterior Analytics* I.2, 72a4-5, Oxford, 116: "What is most universal is further away, and the particulars are nearest."
[236] Aristotle, *Parts of Animals* II.1, 646a25-27.
[237] Aristotle, *Generation of Animals* V.8, 789b3-15.
[238] Aristotle, *Parts of Animals* I.1, 640b30-35.

development and generation of the organism cannot be attributed to necessary processes that occur in the matter. Rather, the form of the body explains "that for the sake of which" the body exists, that is, the final cause. Thus, for Aristotle there is material necessity and final cause. But he has a third mode of causation called hypothetical necessity, which is crucial to his anatomical project.

As Jonathan Lear explains, "hypothetical necessity is a necessity that flows backward from the achieved end to the process directed toward that end or to the structure of the parts that constitute that end."[239] To illustrate hypothetical necessity, Aristotle uses the example of a saw. In order for the saw to cut wood, it must have material capable of cutting wood, iron, and be shaped a certain way to achieve the effect of cutting wood.[240] Aristotle appeals to the notion that art imitates nature, such that everything that is generated in nature is a similar process to making an artifact.[241] So in the same way that one hypothesizes what the necessary conditions would be for a saw to function as a thing that cuts wood, one hypothesizes what parts and configurations are necessary for the organism to actualize its nature as a living animal. If the natural processes are truly for the sake of an end, then one should be able to reason backward from the achieved end to the process that directed towards the end and to explain the manifested structure in the end. Hypothetical necessity requires, then, an understanding of the final cause, which is the fully achieved form of living animals. Only by grasping the final achieved form can one reason backward and discern why it had to be achieved in this particular way.

The proper method to study animals is to begin with the various phenomena presented by each group of animals and then proceed to state the causes of those

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[239] Jonathan Lear, *Aristotle: The Desire to Understand* (Cambridge; New York: Cambridge University Press, 1988), 43. Lear's exposition of Aristotle's philosophy of biology is lucid and excellent. See Ibid., 43–54.
[240] Aristotle, *Physics* II.9, 200a10-13.
[241] Aristotle, *Parts of Animals* I.1.639b25-640a1.

phenomena, for those phenomena are not for their own sake but for the sake of the animal's cause.[242] Aristotle uses man as the paradigmatic example for the study of animals:

> The fittest mode, then, of treatment is to say, a man has such and such parts, because the essence of man is such and such, and because they are necessary conditions of his existence, or, if we cannot quite say this then the next thing to it, namely, that it is either quite impossible for a man to exist without them or, at any rate, that it is good that they should be there. And this follows: because man is such and such the process of his development is necessarily such as it is; and therefore this part is formed first, that next; and after a like fashion should we explain the generation of all other works of nature.[243]

By studying man, one explains the nature of animals by analogical reasoning. The animal phenomena are the actions of the soul including nutrition, generation, sensation, thinking, and movement. This requires observation of their development and the activities characteristic to their animal kind. But this is not sufficient. One must also study the external and internal structures of the animals that are used for such actions, which requires their dissection, inspection, and manipulation. In this way, hypothetical necessity as a mode of explanation for living organisms actually necessitates anatomical dissection.

Another important dimension for Aristotle' anatomical project is that there is a hierarchy of form and matter. The matter of animals is their parts, which entail three degrees of composition. The first order are the elements, such as earth, air, water, and fire, which, as we saw above, are perceived by touch through the tangible qualities of hot-cold and wet-dry. The second order is the homogeneous parts such as bone, flesh, and blood, while the third order is the heterogenous parts, such as face, hand, and heart.[244] The second and third orders of composition each have a *logos*, or principle of

[242] Aristotle, *Parts of Animals* I.1, 640a13-19.
[243] Aristotle, *Parts of Animals* I.1, 640a33-640b4, Oxford, 996.
[244] Aristotle, *Parts of Animals* II.1, 646a13-24.

organization.[245] No part of the body is separate in itself nor can it be understood as a part unless it is considered in relation to the whole living organism in which it is functioning.[246] For example, by studying the heart, which is a heterogenous part of the animal with its own organizing principle, one can understand why the heart must be as it is to perform its function for the sake of the living animal. By anatomical dissection, Aristotle demonstrates that the heart is the origin of blood vessels, the receptacle for blood, and the principle of motion: "It is from dissections (*anatomōn*) and from observations on the process of development that the truth of these statements [regarding the centrality of the heart] receives its clearest demonstration."[247] As Lear comments, "to put it paradoxically, there is a way to study matter while all along studying form."[248] By studying the principles of organization at each level of matter in the animal, one can discern the form of the animal as a whole by virtue of each level being a concrete realization of form. Since each part of the animal manifests the form of the animal, and the form of the animal is the soul, anatomical dissection down to the parts and organs of the animal is necessary to discern the soul of the animal. Thus, for Aristotle, not only is there a spiritual desire to dissect, but also there is an epistemological necessity to dissect, "the logic of anatomy."[249]

How did Aristotle carry out anatomical dissections? As Christopher Cosans points out, Aristotle did not merely cut open animals but actively engaged in manipulating parts and pulling apart structures.[250] For example, he is able to

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[245] Aristotle, *Parts of Animals* I.1, 642a20-24.
[246] Aristotle, *Parts of Animals* II.9, 654a33ff.
[247] Aristotle, *Parts of Animals* III.4, 665b32-666b1, quote from 666a10-11; *Generation of Animals* II.6.742b17-37, especially 742b35 where the heart is the regarded the "principle of motion." Cf. *Parts of Animals* IV.5.680a4 where Aristotle speaks of anatomical diagrams as "ocular demonstration."
[248] Lear, *Aristotle*, 46.
[249] Cosans, "Aristotle's Anatomical Philosophy of Nature," 312–19.
[250] Ibid., 316.

differentiate the cerebellum from the brain since the former differs in form by both touch and vision.[251] In describing the gizzards of birds, Aristotle states that there is a strong skin that can be pulled away from the fleshy part.[252] He even describes how the work of anatomical dissection can alter one's perception of the organs. Aristotle notes how the position of the heart may change due to dissection[253] and how one may be deceived in thinking that the lungs have no blood naturally when in reality the blood has escaped from the lungs after they have been removed during dissection.[254]

Aristotle also engaged in anatomical experimentation. He went beyond passively observing dissected animals and actively altered their natural state by controlling experience in order to "see" the invisible causes and to uncover what is hidden in nature. Cosans cites three examples to illustrate the progressive stages of the unnatural conditions that Aristotle creates: (1) the special preparation of specimens for dissection, notably the emaciation and strangulation of animals to study the vascular system,[255] (2) the vivisection of a chameleon,[256] and (3) the cutting out of the heart in a tortoise to see the effect on the rest of the animal.[257] Paradoxically, the goal of Aristotle's anatomical experimentation is to discover the causes of nature, but in order to do so, he must study them by unnatural means. Or, to put it more provocatively, in order to satisfy the desire to know the cause of animals in nature to

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[251] Aristotle, *History of Animals* I.16, 494b31-32.
[252] Aristotle, *History of Animals* II.18, 508b33.
[253] Aristotle, *History of Animals* I.17, 496a10-11.
[254] Aristotle, *History of Animals* I.17, 496b3-6.
[255] Aristotle, *History of Animals* II.2-4. See especially II.3, 513a13-15, Oxford, 814-815: "If any one is keenly interested in the matter, he will get an adequate grasp of it only if he studies strangled animals which have been previously emaciated."
[256] Aristotle, *History of Animals* II.11, 503b22-26, Oxford, 800: "After being cut open along its entire length it continues to breathe for a considerable time; a very slight motion goes on in the region of the heart, and, while contraction is especially manifested in the neighborhood of the ribs, a similar motion is more or less discernable over the whole body."
[257] Cosans, "Aristotle's Anatomical Philosophy of Nature," 320–28. Aristotle, *On Respiration* 23(17), 479a2-7, Oxford, 760: "But some of these animals have potentially many sources of life, though in actuality they possess only one. This is why some insects live when divided, and why, even among sanguineous animals, all whose vitality is not intense live for a long time after the heart has been removed. Tortoises, for example, do so and make movements with their feet, so long as the shell is left, a fact to be explained by the natural inferiority of their constitution, as it is in insects also."

glimpse the beautiful and divine, Aristotle must subject nature to an unnatural state so that nature will reveal her secrets. Whereas for Hippocrates the *technē* coerces nature for the sake of health, for Aristotle the desire to dissect twists nature for the sake of divine knowledge.

Aristotle's Logical Dissection

In this last section on Aristotle, we shall explore his language of anatomy and how it may uncover a mental anatomical rationality. As we shall see in Avicenna, the anatomical rationality manifests precisely as logical, mental dissection that attempts to uncover the nature of being itself. Owen Barfield makes a provocative suggestion, relating Aristotle's analytical method with systematic dissection:

> The analytic method of thought led naturally in Alexandria to the actual dissection of bodies, living and dead. Aristotle himself is still regarded as the founder of comparative anatomy (cutting up). And it was he who first used this word in its medical sense.[258]

"Naturally" is the key word here that uncovers Barfield's attitude toward analysis. He is saying that if one has an analytic mindset, then it follows to dissect bodies physically. In other words, logical dissection leads to anatomical dissection. But could the inverse be true? Does anatomical dissection naturally lead to logical dissection?

In a recent book that addresses the notion of "analysis" in Aristotle's *Prior* and *Posterior Analytics*, Patrick Byrne challenges the paradigm that "analysis" is reductive in nature. He notes that the etymology of "analysis," *analuein*, comes from the ancient Greek term *analutos* meaning "soluble." The word *analuein* itself derives from the verb *luein*, "to loose," and the prefix *ana*, "up." Thus one can envision that "analysis" is a "loosing up" in the sense of dissolving a solid into a liquid solution. Byrne grants that it is typical for us moderns to equate "analysis" with taking a whole

[258] Owen Barfield, *History in English Words*, New ed. (London: Faber, 1954), 112.

into its atomic parts. He points to Francis Bacon as the inaugurator of this modern way of thinking that equates "analysis" with "decomposition," which Byrne calls the "Baconian way of thinking."[259] He quotes Bacon from the *Novum Organum*: "What the sciences need is a form of induction which *takes experience apart and analyzes it*, and forms necessary conclusions on the basis of appropriate exclusions and rejections."[260] Byrne claims that analysis as "loosing up" does not necessarily entail "decomposing" a whole living animal into its non-living parts and contends that doing so reads a reductionistic interpretation into Aristotle's work.[261] He goes on to defend a novel interpretation of "analysis" as "loosing up" meaning "to solve" as knowledge of form, not matter, and repudiates the notion that "analysis" is reductive. However, Byrne does not address the fact that Aristotle inaugurated systematic anatomical dissection. Bacon also states:

> For we are laying the foundations in the human understanding of a true model of the world, as it is and not as any man's own reason tells him it is. But this can be done only by performing a most careful *dissection* and *anatomy* of the world.[262]

Based on the two quotes from Bacon, we can see that his notion of analysis is a metaphorical anatomy and cutting up of nature. Could it be that Aristotle's physical dissection of animals affected his notion of analysis and thus logical division?

Aristotle uses two different words for the physical cutting-up or dividing of the animal: *anatemnō,* "to cut up," and *diaireō*, "to divide." In every instance of the use of *anatemnō* (or one of its variants) in Aristotle's corpus, it clearly refers to the dissection of an animal[263] or to his lost work, "Dissections" (also translated as

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[259] Patrick H. Byrne, *Analysis and Science in Aristotle* (Albany, NY: State University of New York Press, 1997), 1–2.
[260] Francis Bacon, *The New Organon*, ed. Lisa Jardine and Michael Silverthorne (Cambridge: Cambridge University Press, 2000), 17. Emphasis added.
[261] Byrne, *Analysis and Science in Aristotle*, 3.
[262] Bacon, *The New Organon*, §124, p. 96. Emphasis added.
[263] E.g. Aristotle, *Parts of Animals* III.4, 666a10; IV.2, 677a10.

"Anatomies") and their accompanying diagrams.[264] However, the use of *diaireō* tells a more ambiguous story as it means both logical and physical "division."[265]

Throughout the *Analytics*, Aristotle discusses "division" in the context of prolonged explications about his logical method. Aristotle argues against his opponents that the method of binary divisions (*diaireō*) does not result in deduction to the essence of a thing.[266] Instead, logical division is useful in deducing *what* a thing is, not *why* the thing is. In other words, division helps with the definition of the thing but does not explain its cause. Yet, Aristotle's method of division for establishing definitions is, in a sense, dissective down to atomic, definitional parts in the "hunt for principles of what a thing is"[267]:

> When you are dealing with some whole, you should divide the genus into what is atomic in species – the primitives (e.g. number into triplet and pair); then in this way attempt to get definitions of these (e.g. of straight line and circle and right angle); and after that, grasping what the genus is (e.g. whether it is a quantity or a quality), consider the proper affections through the first common items.
>
> For what holds for what is compounded from the atoms will be clear from the definitions and what is simple are principles of everything, and what holds belongs in themselves to the simples alone, and to the other things in virtue of them.[268]

Aristotle goes on to argue that once one comes to a thing which no longer has differentia, then one arrives at a definition of the thing, and thus arrives at "the account of its substance."[269] In this way, then, logical division can uncover the nature of a thing. However, Byrne would counter that the only way to make sense of the atomic definitions through the method of division is to have a "preconceptual grasp of

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[264] E.g. Aristotle, *History of Animals* I.17, 497a31-32; III.1, 509b22-23; III.1, 511a12-13; IV.4, 530a31; VI.10, 565a13; VI.11, 566a15; *Parts of Animals* II.3, 650a31; III.5, 668b30-31; III.14, 674a16-17; IV.5, 680a2; IV.8, 684b5; IV.10, 689a19-20; IV.13, 696b15-16; *Generation of Animals* I.11, 719a10-11.
[265] For example, *De Anima* I.5.411b19-20 speaks of plants and animals that go on living when "divided" (*diairoumena*) into segments. See also *History of Animals* I.17.496a11-12 where Aristotle discusses how the position of the heart can change under "dissection" (*diairoumenōn*).
[266] Aristotle, *Posterior Analytics* II.5, 91b13-92a5.
[267] Aristotle, *Posterior Analytics* II.13, 96a22, Oxford, 159.
[268] Aristotle, *Posterior Analytics* II.13, 96b15-24, Oxford, 159-160.
[269] Aristotle, *Posterior Analytics* II.13, 97a18-20, Oxford, 160.

the wholeness of what-it-is." One must have a sense of the whole in order to make a sense of its parts. Furthermore, Byrne claims that, for Aristotle, there are other "sources of images" that exceed the method of division and are more pervasive in actual scientific thought in moving to a preconceptual understanding of principles of demonstration.[270]

What other sources of images are there? Aristotle himself speaks of anatomical dissections. *Posterior Analytics* II.14 begins this way:

> In order to grasp problems, one should excerpt both the *anatomies* (*anatomas*) and the *divisions* (*diaireseis*); and in this way, laying down the genus common to all the subject-matter, one should excerpt (if e.g. animals are under consideration) whatever belongs to every animal; and having got this, again excerpt whatever follows every case of the first of the remaining terms (e.g. if it is bird, whatever follows every bird), and always excerpt in this way whatever follows the nearest term.[271]

Ancient and modern commentators disagree on how to interpret this passage. They can be divided into two camps. On the one hand, "anatomies" or "dissections" are taken in a logical sense, either for formulating problems[272] or as part of a method for solving problems.[273] Interestingly, an English translation of Thomas Aquinas' commentary on this passage translates *anatomas* as "analyses," implying that

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[270] Byrne, *Analysis and Science in Aristotle*, 145–146.

[271] Aristotle, *Posterior Analytics* II.14, 98a1-7, Oxford, 162. Emphasis added.

[272] Ross follows the Renaissance Aristotelian Jacopo Zabarella in thinking that this chapter gives advice not on the solution to problems but rather on the proper formulation of problems, specifically to think of the subject matter in terms of genera and species. Thus, for Ross "anatomies" (or "dissections") refers not to literal dissections but to a common genus, which is a logical, taxonomical category. He thinks that *anatomas* probably means "logical division" since there is "no real distinction between *anatomas* and *diaireseis*." Ross' underlying assumptions are that *Posterior Analytics* is a "purely logical treatise" and that this chapter describes a "purely logical procedure," and so cannot possibly be referring to physical anatomical dissections. Ross observes that Aristotle uses *tomē*, "to cut," as the root of *anatomē*, to mean logical division (*Metaphysics* VII.12, 1038a28). W. D. Ross, *Aristotle's Prior and Posterior Analytics* (New York: Garland Pub, 1980), 662–664.

According to Lampe's *Patristic Greek Lexicon*, *tomē* means cutting and can be used as "division, dissection, metaphysical separation, as theological term, used by orthodox to emphasize materialism of heretical conceptions of God, particularly Trinity and Christology." G. W. H. Lampe, *A Patristic Greek Lexicon* (Oxford: Clarendon Press, 1961), 1395–1396. As we shall see later, the Nestorian heresy performs a metaphysical dissection of the two natures of Christ.

[273] "The method consists in the construction (by division) of a tree of the genus and species of the subject under study, and in the assembly (by reference to the anatomies) of all those predicates holding universally of the genus or of its species. With this machinery our problems can be solved demonstratively." Jonathan Barnes, *Aristotle's Posterior Analytics*, 2nd ed, Clarendon Aristotle Series (Oxford; New York: Clarendon Press; Oxford University Press, 1994), 250.

dissections can be logical in nature.[274] In my view, the logical camp errs by artificially separating the logical and biological works, differentiating Aristotle's epistemology from his philosophy of science. Framing the passage in this way necessitates a logical meaning for *anatomas*. On the other hand, "anatomies" or "dissections" can be understood in the literal sense of anatomical dissections. I favor the anatomical camp since there is continuity between Aristotle's epistemology and philosophy of science, and dissection is necessary for Aristotle's philosophical project, as I have already shown. The ancient commentator Philoponus regards *anatomas* as referring to actual dissections that will uncover the cause, when logical division is insufficient:

> With an eye towards getting a grip on causes, the middle terms through which the problems are demonstrated, one must pick out these [causes] from the 'the dissections and the divisions'. For if the cause is clear, one must pick it out from the divisions. But if the causes are concealed, one must pick them out from the dissections. For when there is a dissection of human beings, you find the bile in them mixed a very little bit with the other humours: blood, phlegm, and yellow bile. But if you dissect an ox you will discover that it has four intestines.[275]

There are two things to note. First, Philoponus regards dissections and divisions as parallel procedures for discerning causes. Second, anatomical dissection is the procedure for uncovering causes concealed from the eye (note the echo of Heraclitus' maxim: nature tends to conceal herself). So for Philoponus, anatomical dissection is indispensable for understanding causes, and he attributes this to Aristotle. As a variation on this theme, James Lennox, a modern commentator who has attempted to reconcile Aristotle's biological works with his logical works, thinks that *anatomas* refers to the lost work *Dissections*, particularly to the anatomical diagrams contained

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[274] Thomas Aquinas, *Commentary on the Posterior Analytics of Aristotle*, trans. Fabian R. Larcher (Albany, NY: Magi Books, 1970), accessed August 30, 2016, http://dhspriory.org/thomas/PostAnalytica.htm.

[275] John Philoponus, *Philoponus: On Aristotle Posterior Analytics 2*, trans. Owen Goldin, Ancient Commentators on Aristotle (London: Duckworth, 2009), 114. The authorship of this commentary is disputed but bears no substantial relevance to my argument here.

therein.[276] Lennox regards this chapter as part of a whole unit in *Posterior Analytics* II.14-17 that provides evidence for the process of moving from perceptual experience to discerning causal relationships.[277] Thus, anatomical dissections play a crucial role in revealing causes.

Posterior Analytics II.14 helps us answer why "division," *diaireō*, can be used both logically and physically. I contend that this double use of *diaireō* represents how the anatomical rationality takes on both physical and mental dimensions. Anatomical dissection plays a crucial role in Aristotle's method for uncovering the causes of living things. In the words of Philoponus, actual dissection uncovers the causes that are hidden from sight. As Byrne points out, Aristotle's method requires other "sources of images" for his analysis of nature. Anatomical dissection provides this source of images for the intellect to cognize and to contemplate. As I have already suggested, anatomical dissection is a manual practice of reciprocal touching. Not only are the images of dissected animals received by the sight of the mind, but also the experience of dissection actually "touches" the affections of the soul (recall the example of how the grieving man "touches" us). Could it be that touching the affections in the practice of dissection colored Aristotle's "preconceptual understanding" of the method of knowing? Could it be that the anatomical images in the sight of the mind shape how the mind proceeds with its desire to know? Put differently, could seeing dissected animals shape the mind to "see" nature and its causes in a dissective way? Admittedly, such questions speculate to a degree on Aristotle's personal psychology. But my own personal experience as a physician-in-training affirms these speculations.

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[276] Lennox's interpretation is based on evidence internal to the chapter. He observes that unlike the other chapters of the *Posterior Analytics*, all of the examples cited are zoological, with the second and third examples requiring detailed knowledge of animals that can only be acquired through anatomical dissections. James G. Lennox, "Aristotle's Posterior Analytics and the Aristotelian Problemata," in *The Aristotelian Problemata Physica: Philosophical and Scientific Investigations*, ed. Robert Mayhew (Leiden; Boston: Brill, 2015), 46 n.22.
[277] Ibid., 58.

I have dissected a cadaver, studied the parts of humans, and now practice clinical medicine. Consequently, I have been trained to think dissectively first and about the whole person secondarily. In this way, anatomical dissection and logical dissection do not differ in kind but only in application. As we shall see with Avicenna, the anatomical rationality takes on a more explicit logical form such that there is an anatomy of being.

I should highlight, however, that Aristotle's thought is not intrinsically reductionistic in the same way that modern science tends to be. As I have been showing through explicating Aristotle's natural philosophy, Aristotle indeed does have a teleological, holistic view of the human person as composite of soul and body that seeks to contemplate the divine. But it is precisely because of Aristotle's teleological holism, I suggest, that makes Aristotle's anatomical project fraught with a philosophical tension. Aristotle's goal in philosophy is to know the final causes of things and the ultimately final cause, the unmoved mover, which will bring about a kind of deification. Yet, the method of anatomical dissection and vivisection, which entails subjecting animals to unnatural conditions and inflicting incredible pain and suffering, exposes an internal dissonance between beholding the cause of nature and the violent means required to attain contemplation. As I shall show, this tension continues to play out in the ongoing development of the anatomical rationality, manifesting itself in modern medicine and modern philosophy.

Herophilus' Anatomical Rationality: Dissecting Humans

In contrast to Aristotle's grand desire to know the cause of *everything*, Herophilus sought to know the hidden causes of health and disease for the sake of the medical *technē*. While Aristotle valued contemplation above all, Herophilus held

health to be a kind of transcendental for human flourishing.[278] Regarding his philosophy of medicine, Herophilus held to a tripartite division of the *technē*: knowledge of things concerning health, knowledge of things concerning disease, and knowledge of neutral things. This "ordering urge" was part of the zeitgeist in relating whole to parts.[279] Crucially, this tripartite division presupposed knowledge of "hidden causes," indicative of the Rationalist school of medicine and opposed by the Empiricist school.[280] The Rationalists (also called Dogmatists) wed observation with reasoning using the "mind's eye" to discern invisible causes while the Empiricists hold to observation alone. Celsus, the second century Roman philosopher, placed Herophilus squarely within the Rationalist camp.[281]

It is evident that Aristotle's method influenced Herophilus' epistemology based on circumstantial and philosophical reasons. As von Staden points out, the Peripatetic presence was the only significant philosophical element in Alexandria. Furthermore, Aristotle's views, particularly his biology, might have been well known in scientific medical circles by the early third century BCE.[282] Accordingly, Herophilus followed Aristotle's epistemological method. In a manner similar to Aristotle's biological works, he used the word *phainomena* in the perceptual sense of observing phenomena. For Herophilus, like Aristotle before him, sense perception is first in knowledge: "Let the appearances be described first if they are not primary."[283] Also echoing Aristotle, reasoning plays a crucial role since observation alone,

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[278] Per Sextus Empiricus: "Herophilus says in his *Regimen* that, in the absence of health, wisdom cannot be displayed, science is non-evident, strength not exerted in contest, wealth useless, and rational speech powerless." Von Staden, *Herophilus*, 407.
[279] Ibid., 89.
[280] Ibid., 101.
[281] Celsus, *De Medicina*, proem. 14–15.
[282] Von Staden, *Herophilus*, 118.
[283] Ibid., 125.

including anatomical dissection, is insufficient for knowledge because function must be considered. According to Galen's testimony:

> For Herophilus does not consider anatomical descriptions fit to produce any general preconception for the purpose of [formulating] doctrines, just on the basis of saying 'this part has its natural origins in that one', as some people of poor repute do. For [Herophilus thinks] the faculties that control us are discovered on the basis of other things that become apparent, not simply on the basis of the act of looking at the parts.[284]

However, despite Aristotle's influence on Herophilus, it is also evident that the latter differed from the former. In contrast to Aristotle's overtly philosophical project, Herophilus' project was a decidedly medical one. Perhaps because he was interested in outcomes of health and disease, Herophilus was more skeptical of one's ability to discern hidden causes as actual knowledge. Instead, one can only hypothesize and suppose hidden causes, not know them with certainty.[285] But in order to practice the *technē*, physicians *must* hypothesize about causes: the "perfect physician" is "he who is capable of knowing the possible from the impossible."[286] To use anachronistic language, Herophilus is much more of a pragmatist than Aristotle. Yet despite this pragmatism, discerning causes as merely reasonable belief rather than knowledge intensifies the anatomical rationality as it desires greater certainty and so dissects down even further into the depths to reveal what is hidden.

Now that we have briefly glimpsed Herophilus' thought in continuity and discontinuity with Aristotle, let us turn to Herophilus' anatomical project. We have seen that Aristotle's philosophy necessarily led him to dissect animals in a logical and systematic fashion in order to know their causes. Yet, Aristotle never dissected humans. In fact, it appears that human dissection never even crossed his mind: "For the fact is that the inner parts of man are to a very great extent unknown, and the

[284] Ibid., 129–130.
[285] Ibid., 130, 136.
[286] Ibid., 126.

consequence is that we must have recourse to an examination of the inner parts of other animals whose nature in any way resembles that of man."[287] So why did Herophilus inaugurate human dissection at Alexandria? For Ludwig Edelstein, this is "the decisive question in the history of anatomy."[288] While this is a vexing question indeed for historians of medicine, Heinrich von Staden provides a multi-faceted answer, outlining the cultural taboos against human dissection, examining factors for overcoming the taboo, and speculating on why the practice of human dissection quickly died out after it began.[289]

Von Staden identifies cultural constraints to human dissection in ancient Greek culture. First, human corpses were considered a significant source of religious and civic pollution for anyone who came into contact with them, according to many ancient Greek sacred laws. He provides several examples of how the corpse exerted power as a source of individual and collective pollution in daily Greek life. Second, Greek tradition held to the inviolability of the skin, whether dead or alive, human or animal, except as a means of controlling a crisis. The intact, bodily skin functioned as a symbol of wholeness and cohesion and a sign of communal integrity. The skin also acted as an external symbol of order and orderliness of the person such that the skin was a visible representation of the order of the hidden interior, both physically and morally. Committing violence against the skin is to commit symbolic violence against the moral condition of the person. Thus, human dissection would entail individual and corporate pollution as well as performing violence against the integrity of the community and the morality of the person.

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[287] Aristotle, *History of Animals* I.16, 494b21-24, Oxford, 788.
[288] Ludwig Edelstein, *Ancient Medicine: Selected Papers of Ludwig Edelstein*, ed. Owsei Temkin and C. Lilian Temkin, trans. C. Lilian Edelstein (Baltimore: Johns Hopkins University Press, 1967), 292.
[289] Heinrich von Staden, "The Discovery of the Body: Human Dissection and Its Cultural Contexts in Ancient Greece," *The Yale Journal of Biology and Medicine* 65, no. 3 (1992): 223–41.

Given these cultural taboos, von Staden addresses the thornier problem of how Herophilus overcame these taboos to begin human dissection. He enumerates several factors in Ptolemaic Alexandria that make the conditions ripe for this new practice. First, the early Ptolemies provided generous patronage to scientists such as Herophilus. Such patronage may have included cadavers for dissection, possibly even living criminals if Celsus is to be believed. Second, the early Ptolemies also sought to make Alexandria a renowned center of literary and scientific learning. Many scholars went to Alexandria by royal invitation and placed a high value on scientific innovation and experimentation. In this intellectual milieu, systematic human dissection became possible. Third, in Alexandria Greek values were not necessarily considered more superior. The Ptolemies themselves could have openly violated Greek cultural taboos, thereby providing a cultural precedent for scientists to violate taboos. The final two factors are more general and beyond Alexandria itself. Fourth, there was a "philosophical secularization" regarding the body and the corpse. As we have seen in Aristotle's philosophy, the dead body is no longer a human in essence but in name only. In other words, the corpse is only material and is no longer the person. Fifth, human desecration was not uncommon in the ancient world. The ancients regularly tortured slaves in public law courts for the purpose of extracting testimony.[290] Thus, human dissection and vivisection was not impossible for the ancient imagination. These five factors converged in the exceptional circumstances of Alexandria to allow for the inauguration of human dissection.

Now that we have seen the obstacles to human dissection and the reasons for overcoming them, let us look more closely at the anatomical rationality of Herophilus. As we have already seen, Herophilus' anatomical project continued and extended

[290] G. E. R. Lloyd, *Greek Science after Aristotle* (New York: Norton, 1973), 77.

Aristotle's project to reveal the invisible causes of the body. Once the taboos against and barriers to human dissection were overcome, the logic of anatomy that Aristotle initiated necessarily results in human dissection, especially if, in Herophilus' case, it is for the sake of knowing disease and health. As Celsus testifies, human dissection and vivisection were means for relieving human suffering, thus serving as a utilitarian justification: "Nor is it, as most people say, cruel that in the execution [and vivisection] of criminals, and but a few of them, we should seek remedies for innocent people of all future ages."[291] Indeed, while Herophilus was competent in the medical *technē*, he sought even greater knowledge only acquired through human dissection, as Galen testifies:

> For he [Herophilus] was not only competent in other branches of the *technē*, but he attained the highest degree of accuracy in things which become known by dissection and he obtained the greater part of his new knowledge not, like the majority [of physicians], from irrational animals but from human beings themselves.[292]

In other words, the knowledge and thereby the power of the *technē* could be advanced only by human dissection.

Crucially, Herophilus' project to dissect humans was driven by the Rationalist school of medicine's supposition that function can be inferred from anatomical structure, which the Empiricist school denies. As Cunningham points out, the Rationalist school is a tradition that descends from Aristotle:

> This is the tradition which springs from Aristotle, and which takes it as axiomatic that we can gain reliable knowledge of the *function* the different parts of the body fulfill in health and disease from an investigation of their *structure* – by cutting bodies up, either dead (dissection) or alive (vivisection).[293]

[291] Celsus, *De Medicina*, proem. 26.
[292] von Staden, *Herophilus*, 219–220.
[293] Cunningham, *The Anatomical Renaissance*, 24.

For the Rationalists, human dissection and vivisection open bodies to reveal what nature had concealed beforehand.[294] Indeed, anatomy is an instrument in the search for what is hidden,[295] particularly the constitution of humans and the causes of disease. In other words, anatomy plays a central role in the Rationalist medical epistemology. If we recall from the Hippocratic work *On the Art*, symptoms functioned as signs for the sight of the mind to "see" the invisible realm of the body underneath the skin. Yet, as Galen points out, in order to interpret these external signs rightly, one requires knowledge of the inner parts, their natural state, and an overarching physical theory to understand the function of the parts. But the only way to attain this knowledge is a "method of considerable power to recognize something which escapes perception" that can grasp "matters concerning the parts hidden in the depth of the body."[296] In other words, in order to exercise the Hippocratic mind's eye to "see" beyond the symptom, one needs to see the hidden depths of the body through anatomical knowledge, which can be acquired only through dissection.

The Empiricist school of medicine objected to human dissection on epistemological and moral grounds. It grants that evident causes, which are known by experience, are necessary for the practice of medicine. But the Empiricists vigorously deny that one should inquire into obscure causes because "nature cannot be comprehended."[297] For the opponents of the Rationalist school, knowledge of hidden causes is impossible. Furthermore, they assert that opening the body to dissection fundamentally changes the body through an unnatural exposure to light and the death of the body. For these epistemological reasons, human dissection should be not pursued. The Empiricists object on moral grounds because if nature cannot be

[294] Celsus, *De Medicina*, proem. 23–24.
[295] Galen, *On the Sects for Beginners*, V.10.
[296] Galen, *On the Sects for Beginners*, IX.24-25. Translation from Galen, *Three Treatises on the Nature of Science*, trans. Richard Walzer and Michael Frede (Indianapolis, Ind.: Hackett Pub. Co., 1985).
[297] Celsus, *De Medicina*, proem. 27. "*quoniam non conprehensibilis natura sit*."

comprehended even by dissection, then human vivisection is cruel, violent, murderous, and nasty.[298] Thus, the controversy over human dissection between the Rationalist school and the Empiricist school boils down to radical differences on epistemology: whether nature can be comprehended and whether hidden causes can be known.[299] Von Staden speculates that the Empiricist school may have played a direct role in the rapid decline of human dissection. Soon after the death of Herophilus, the Empiricist school of medical thought rose rapidly in prominence in Alexandria. Because the Empiricists objected to dissection on methodological, epistemological, and clinical grounds, their new influence in the marketplace of ideas combined with the traditional religious and moral objections to form a powerful force against the practice of human dissection.[300]

Coupling an Aristotelian-inspired epistemology that seeks to reveal what nature has hidden with a pragmatic desire to advance medical knowledge and to relieve suffering, Herophilus found it necessary to engage in systematic human dissection, despite what his opponents call a violent practice that had to overcome the cultural taboos of corpse pollution and the sanctity of the skin. In order to heal the body, Herophilus commits violence against the body. His method shows that the *technē* commits violence against nature for the sake of the *technē.* In this way, Herophilus continues and advances the Hippocratic, proto-Baconian project of doing violence against nature to relieve the human condition. Herophilus goes beyond Hippocrates in the depths that the sight of the mind will go. Whereas Hippocrates used medical techniques to elicit symptoms from the body that allow the mind's eye to "see" in the body without harming the body, Herophilus cut up the skin to

[298] Ibid., proem. 40–44.
[299] Lloyd, *Greek Science after Aristotle*, 89.
[300] von Staden, "The Discovery of the Body: Human Dissection and Its Cultural Contexts in Ancient Greece," 234–237.

overcome the barrier between the visible and the invisible so that nature would give up her secrets. Yet, as we have seen with his skeptical streak, even the invisible inner parts of the body made visible by the light of anatomical dissection still requires the sight of the mind to reason about invisible causes of disease and health. In short, the human body always has hidden, invisible causes that escape the sense of sight, requiring deeper dissection to the smaller parts that comprise the structure and function of the body. Thus, the anatomical rationality, to which Aristotle gave birth and Herophilus nurtured, desires to know but continues to fall short when the invisible causes evade its gaze. As we shall see in the next chapter, Galen, as both physician and philosopher, employs an anatomical rationality to answer more metaphysical questions about human nature and then transposes it into a more theological key.

CHAPTER 3
MATURING THE ANATOMICAL RATIONALITY: GALEN'S ANATOMICAL THEOLOGY

> *In every case the body is adapted to the character and faculties of the soul.* […] *Now to man – for he is an intelligent animal and, alone of all creatures on earth, godlike – in place of any and every defensive weapon, she gave hands, instruments necessary for every art and useful in peace no less than in war.* […] *But, being also a peaceful and social animal, with his hands he writes laws for himself, raises altars and statues to the gods, builds ships, makes flutes, lyres, knives, fire-tongs, and all the other instruments of the arts, and in his writings leaves behinds him commentaries on the theories of them. Even now, thanks to writings set down by the hand, it is yet possible for you to hold converse with Plato, Aristotle, Hippocrates, and the other Ancients.*
> – Galen[301]

> *Galen said most wisely that the knowledge of anatomy is the beginning of theology, and the path to the knowledge of God.*
> – Philip Melanchthon[302]

A Deeper Desire to Dissect

Galen (129–ca. 216 CE) is widely regarded as the greatest anatomist and physician after Hippocrates in antiquity.[303] Born and educated in Pergamum, he began his public medical career in Asia Minor as physician to the Gladiators. He later achieved prominence to become one of the court physicians to the family of Emperor Marcus Aurelius in Rome. Galen was aware of his place in the history of anatomy, often invoking the tradition of anatomists before him. While he did not dissect humans, he dissected animals using an experimental method and wrote numerous anatomical works and anatomy instruction manuals.[304] Galen intensified the medical and anatomical tradition he received. He advanced Hippocrates' proto-Baconianism and Aristotle's anatomical project for the sake of practical, medical knowledge and

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[301] Galen, *On the Usefulness of the Parts of the Body*, trans. Margaret Tallmadge May (Ithaca: Cornell University Press, 1968), 68–69.
[302] Philip Melanchthon, *On the Life of Galen* in *Orations on Philosophy and Education*, ed. Sachiko Kusukawa, trans. Christine F. Salazar, Cambridge Texts in the History of Philosophy (Cambridge: Cambridge University Press, 1999), 218.
[303] For the most comprehensive biography of Galen to date, see Susan P. Mattern, *The Prince of Medicine: Galen in the Roman Empire* (New York: Oxford University Press, 2013).
[304] After Galen, systematic anatomical dissection ended for reasons that remain unclear.

liturgical, theological knowledge through the violent means of inflicting pain and suffering on the animals that he dissected and vivisected.

Galen provides first-hand accounts of his experiments in anatomical dissection and vivisection in horrifying detail. We find that Galen's anatomical method holds a full-blooded, experimental character.[305] Echoing Aristotle's anatomical experiments, Galen as experimental anatomist alters and manipulates the nature of the body for the sake of wisdom, thereby revealing anatomy's theoretical bent.[306] While he infrequently dissected human bodies, Galen presupposed analogical reasoning from animals to humans, such that anatomical findings in an ape, for example, would apply similarly to the human anatomy. In a particularly chilling example, Galen tells how anatomists "by constantly dissecting bodies of exposed infants" were persuaded that humans have the same bodily structure as apes.[307] Such empirical evidence vindicates analogical reasoning from animals to humans.[308]

Galen narrates the proper preparation of animals for dissection and vivisection with self-conscious awareness that he was performing experiments: "The method of experiment is as follows…."[309] For example, he tells how he prepared an ape to maximize the yield of dissection. Galen has the ape drowned to avoid crushing the neck and then personally skins the ape to avoid damaging the underlying organs.[310]

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[305] However, Galen may not have been a great experimentalist. J. S. Wilkie, "Introduction" in Galen, *Galen on Respiration and the Arteries*, trans. David J. Furley and J. S. Wilkie (Princeton, N.J.: Princeton University Press, 1984), 47–57. Heinrich von Staden argues that the experimental method likely started in the third century BCE "Experiment and Experience in Hellenistic Medicine," *Bulletin of the Institute of Classical Studies* 22, no. 1 (1975): 178–99.
[306] Christopher E. Cosans, "The Experimental Foundations of Galen's Teleology," *Studies in History and Philosophy of Science Part A* 29, no. 1 (1998): 64–65.
[307] Galen, *On Anatomical Procedures: Translation of the Surviving Books with Introduction and Notes*, trans. Charles Joseph Singer, Publications of the Wellcome Historical Medical Museum 7 (London: Oxford University Press, 1956), 77.
[308] Of course, because Galen based most of his anatomical discoveries on animal dissection, he did make mistakes in human anatomy. Galen's almost exclusive use of animals provided the context for Vesalius' own discoveries of anatomy based on human dissection that overturned aspects of Galenic orthodoxy.
[309] Galen, *On Anatomical Procedures*, 1956, 199f.
[310] Ibid., 8.

However, Galen also relayed specific instructions on preparing animals for vivisection, down to type of instrument, size of animal, and environmental location. See the experience of Galen in his description of preparation for vivisection of heart and lungs, accounting for contingencies that he has likely faced previously:

> Use a young animal so that you do not need large knives. It must be on its back, on a board of the kind that you see I have quantities at hand, both large and small, so that one may always be found to fit the animal. This board should have holes bored in it through which a thin cord or even a rope will easily pass. An assistant should be instructed, when the animal is on its back on the board, to pass cords round it, one round each limb and the ends of the cords through the holes below and tied together there. If the animal has long hair about the breastbone, that should be removed.[311]

Galen goes on to describe the specific kind of incisions to make and what difficulties one may face in the vivisection such as massive hemorrhage. But given his extraordinary experience, he explains how to deal with the possibility in clear directives that even advises on how to hold the sternum with the thumb and index finger to stop the bleeding. At the end of the vivisection experiment, the heart is exposed while the animal is still alive. The goal of the experiment is "to preserve all its functions unimpaired, as in fact they are, so that you can see the animal breathing and uttering cries and, if loosed from its bonds, running as before."[312] The sheer detail in the instructions for vivisection indicates the large number of vivisection experiments Galen performed personally.[313]

In another notable series of vivisection experiments, Galen demonstrates vast knowledge of the structure and function of the spinal cord. By transecting the spinal cord at various levels, he demonstrates the predictable deficits based on the location

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[311] Ibid., 190.
[312] Ibid., 192.
[313] Galen describes numerous other vivisection experiments. He removes the heart from the thorax to demonstrate that the animal can still function, even if for a short time, disproving the theory that the heart is the source of the nerves. Ibid., 184. Galen destroys and manipulates organs in living animals to prove the brain is the controlling center. Galen, *On the Doctrines of Hippocrates and Plato*, trans. Phillip De Lacy, Corpus Medicorum Graecorum 4 (Berlin: Akademie-Verlag, 1978), 127.

of the injury. Severing the spinal cord at a higher level results in paralysis of the diaphragm responsible for breathing, such that the animal suffers the inability to take a deep breath, resulting in the strong impulse to utter a cry, whereas spinal cord injury at lower levels causes paralysis in all the extremities or only the lower extremities. He then conducts further experiments by severing the nerves of the intercostal muscles but keeping the spinal cord intact and observing how the animal breathes. In all of these vivisection experiments, he inflicts suffering on the animal through loss of vital function by paralysis.[314] The desire to dissect for the sake of wisdom leads Galen's hands to spill a mass of blood and to cause unspeakable suffering. Ironically, while Galen sought to improve health, his medical epistemology led him to violence and death. Only through pain could Galen's anatomical rationality bring healing knowledge. Furthermore, it cannot be emphasized enough how Galen's anatomical method was not necessarily inevitable, as we have already seen with other non-Western medical traditions.

Galen was brutal to his experimental subjects. In a recent biography of Galen, Susan Mattern characterizes Galen has a cold-hearted anatomist in his treatment of animals for the sake of spectacle:

> For the most part, Galen was ruthless. He drowned animals, starved them, inflicted unimaginable suffering by vivisecting them, without hesitation or apparent remorse; the pain, and the animal's screams, were part of the show. He might slaughter one animal after another, a whole herd of them, to prove a point; and he often emphasizes the need for bold and merciless strokes.[315]

From Galen's own words, Mattern paints a fair picture. For example, in his description of vivisecting the brain, Galen advises selecting a pig or a goat for vivisection for the reasons of empathy and efficacy. On the one hand, in cutting the

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[314] Galen, *On Anatomical Procedures*, 1956, 211–12; Galen, *On Anatomical Procedures: The Later Books*, ed. M. C. Lyons and Bernard Towers, trans. W. L. H. Duckworth (Cambridge: Cambridge University Press, 1962), 20–26.
[315] Mattern, *The Prince of Medicine*, 154.

head of a pig or goat, "you avoid seeing the unpleasing expression of the ape when it is being vivisected." On the other hand, "the animal on which the dissection takes place should cry out with a really loud voice, a thing one does not find with apes."[316] Remarkably, Galen expresses discomfort in witnessing the face of a suffering ape but voices no remorse at the shrieks of a mutilated pig. On the contrary, loud screaming enhances the theatrical effect of public vivisection, particularly when demonstrating how severing the recurrent laryngeal nerve will silence the voice of the animal, such that the "spectators are astonished."[317] Galen exhorts the trainee to overcome his personal feelings of animal cruelty in order to engage in dispassionate anatomical method: "every cut that you impose should travel in a straight line…and the cut should *without pity or compassion* penetrate into the deep tissues in order that with a single stroke you may lay free and uncover the skull of the animal."[318] In this revealing passage, Galen gives this exhortation to set aside pity and compassion, immediately after stating that the same subject of brain vivisection was addressed in the preceding work *On the Usefulness of the Parts*, which is his more philosophical and theological work, calling anatomy a source of "perfect theology." In short, for Galen, killing and maiming animals is necessary violence when pursuing divine knowledge.

Indeed, Galen believes the fundamental good of anatomical knowledge justifies vivisection.[319] While dissecting the dead body can reveal the structure,

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[316] Galen, *On Anatomical Procedures*, 1962, 15. Elsewhere, Galen echoes the unpleasant expressions on the face of vivisected animals: "For in all animals which have a larynx, the activity of the nerves and the muscles is one and the same, but the loathsomeness of the expression in vivisection is not the same for all animals." Ibid., 85.
[317] Galen, *On Anatomical Procedures*, 1956, 209. For more on the performance aspect of Galen's public vivisections, see Maud Gleason, "Shock and Awe: The Performance Dimension of Galen's Anatomy Demonstrations," in *Galen and the World of Knowledge*, ed. Christopher Gill, Tim Whitmarsh, and John Wilkins, Greek Culture in the Roman World (New York: Cambridge University Press, 2009), 85–114.
[318] Galen, *On Anatomical Procedures*, 1962, 15. Emphasis added.
[319] Cosans, "The Experimental Foundations of Galen's Teleology," 70.

vivisection of the living body can reveal the function of the parts in the context of the living whole.[320] Galen admits that vivisection can be loathsome but he regards the practice as necessary for knowledge of the body.[321] In Galen's Hippocratic philosophy of medicine, knowledge of the body is necessary for the medical *technē.* Moreover, Galen views anatomical method as the way for training the self and searching for truth,[322] not only for medicine but also for philosophy and theology. The bloody sacrifice of countless animals at the hands of meticulous vivisections reveals knowledge of God as divine Creator. Without Galen intending to do so, the anatomical experiments function as parodies of the Eucharist, such that the divine knowledge acquired through material manipulation comes through sacrificial death. In Galen's case, it is not a sacrificial lamb, but rather a sacrificial pig, goat, or ape. Yet for all of the animal cruelty that Galen inflicts through vivisection, Galen demonstrates the practical payoff of anatomical knowledge and technical proficiency by saving human life. He recounts a story of how he saved the life of a slave by surgically removing the infected sternum from his chest[323] "without making what is technically termed a 'perforation'." Because Galen had sufficient anatomical experience, he attests that he was the only one with the courage to surgically remove the bone without killing the slave in the process. Such results "prove to men of sense the usefulness of this work of mine."[324] While Galen did not practice human vivisection, he inflicted pain and suffering on animals and justified it by appealing to the life-saving medical *technē*. Such a justification echoes in a modified way what Celsus recounts regarding Herophilus' practice of human vivisection: "Nor is it, as

[320] Galen, *On Anatomical Procedures*, 1956, 226.
[321] Cf. Galen, *On Anatomical Procedures*, 1962, 85–86.
[322] Ibid., 23.
[323] The modern diagnosis is likely osteomyelitis, which is a bone infection typically treated with antibiotics or surgical resection plus antibiotics, depending on the severity.
[324] Galen, *On Anatomical Procedures*, 1956, 192–93.

most people say, cruel that in the execution of criminals, and but a few of them, we should seek remedies for innocent people of all future ages."[325]

Prince of Medicine, Lover of Wisdom

While the Western tradition remembers Galen as a physician and anatomist, he regarded himself as a philosopher-physician. He authored works as diverse as logic, grammar, rhetoric, moral philosophy, medicine, anatomy, physiology, therapeutics, prognosis, scientific methodology, and commentaries on various philosophical and medical schools.[326] Because he became a major authority on medicine, his works survived in various locations throughout Europe and in Arabic translations. His works were collected in the Renaissance, becoming the reigning medical orthodoxy.[327] With Galen as the standard, Vesalius could then come along with the publication of *De Fabrica Corporis Humani* that overthrew much of Galenic anatomical orthodoxy, while at the same time being indebted to Galenic anatomical methodology.[328] What is less known is that Galen's works on logic also contributed to the development of the Western tradition. Avicenna, who influenced Western philosophy and medicine in his own right, learned hypothetical, propositional logic from Galen and went beyond Aristotelian method,[329] thereby contributing to his own original development of a logicized ontology, which we shall see in chapter 6. Even

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[325] Celsus, *De Medicina*, trans. William George Spencer, Loeb Classical Library (Cambridge, Mass.: Harvard University Press, 1935), prooem. 26.
[326] Modern editions of the Galenic corpus comprise about 150 works. His writings constitute one-eighth of all extant classical Greek literature.
[327] In the sixteenth century, Paracelsus famously burned the books of Galen and Avicenna because they represented the academic medical establishment: "I tell you, one hair on my neck knows more than all of you authors, and my shoe-buckles contain more wisdom than both Galen and Avicenna." Quoted in Roy Porter, *The Greatest Benefit to Mankind: A Medical History of Humanity from Antiquity to the Present* (London: Fontana, 1999), 202.
[328] See Andreas Vesalius, *The Fabric of the Human Body: An Annotated Translation of the 1543 and 1555 Editions of "De Humani Corporis Fabrica Libri Septem,"* trans. D. H. Garrison and M. H. Hast (Basel: Karger, 2014).
[329] Lenn Evan Goodman, *Avicenna* (London: Routledge, 1992), 34, 188.

Galen's medical work contributed to Western philosophy. His remarks on analysis and synthesis in the prologue to his *Art of Medicine*[330] received extensive comment from medieval and Renaissance scholars and influenced the formation of methods of analysis, resolution, and composition which played an important role in early modern science and philosophy.[331]

Galen self-identified as a philosophical eclectic, drawing on Platonism, the Peripatetics, and Stoicism, but he did not slavishly follow any one of these schools of thought. He held to a strong antidogmatism and remained silent on a number of central philosophical questions because of his own view on the limitations of reason and knowledge.[332] Despite his lack of slavishness, he always looked to the ancient writers for philosophical guidance to overcome the philosophical and medical sects (*haireseis*) of his day, as a kind of second century *ressourcement*. He explicitly turned to Hippocrates and Plato as his philosophical North Stars, although he did not hesitate to criticize them, remaining true to his eclectic independence. He was also deeply influenced by Aristotle and the Peripatetics.[333] Galen considered Plato the best of the

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[330] Galen, "The Art of Medicine," in *Selected Works*, trans. P. N. Singer (Oxford; New York: Oxford University Press, 1997), 345–96.

[331] John Herman Randall, Jr., "The Development of Scientific Method in the School of Padua," *Journal of the History of Ideas* 1, no. 2 (1940): 177–206; Andrew Wear, "Galen in the Renaissance," in *Galen: Problems and Prospects*, ed. Vivian Nutton (London: Wellcome Institute for the History of Medicine, 1981), 229–63.

[332] Some historians of philosophy regard Galen's eclecticism as a philosophical weakness, but Michael Frede judges his eclecticism precisely to be the reason for his originality that sets him apart from his philosophical contemporaries. See Michael Frede, "On Galen's Epistemology," in *Galen: Problems and Prospects*, ed. Vivian Nutton (London: Wellcome Institute for the History of Medicine, 1981), 65–86.

This eclecticism is reflected in his philosophical education directed by his father who exhorted him not to "rashly declare yourself the adherent of any one sect." Galen tells us that at the age of fifteen, he began attending lectures in his home city of Pergamum. He learned from a Stoic pupil of Philopator, a Platonist pupil of Gaius, a pupil of Aspasius the Peripatetic, and an Epicurean. Galen, "The Diagnosis and Treatment of the Affections and Errors Peculiar to Each Person's Soul," in *Psychological Writings*, trans. P. N. Singer (Cambridge: Cambridge University Press, 2013), 237–331, pp. 272-273.

His early medical education was also eclectic as he learned from an Empiricist, a Pneumatist, and another who identified with neither. Throughout his medical career, he remained independent of any sect, although, as we shall see below, he can be considered a qualified Rationalist. For a detailed account of Galen's philosophical and medical training, see Mattern, *The Prince of Medicine*, 36–80.

[333] Galen wrote commentaries on Aristotle's and Theophrastus' logic, particularly the *Posterior Analytics*. Galen, "My Own Books," in *Selected Works*, trans. P. N. Singer (Oxford; New York: Oxford

philosophers[334] and Hippocrates the best of the physicians. But Galen judged Hippocrates to be superior to Plato for three reasons: the latter made medical errors, relied on useless speculation, and his most important teachings were derived from Hippocrates, namely the doctrine of the four humors and the Hippocratic method of division,[335] the latter of which Galen considered to be the way to truth.[336] Galen also considered Hippocrates the pre-eminent philosopher of nature who discovered the elements of nature and the method of proof.[337] Although we saw in Chapter 1 that Hippocrates did not engage in anatomical dissection, Galen authored a work (no longer extant) entitled *Anatomy of Hippocrates* to explain that Hippocrates was familiar with the science of dissection.[338] In the aptly named *On the Doctrines of Plato and Hippocrates*, Galen remarks that Plato and Hippocrates were in fundamental agreement on all major points of medicine and philosophy.[339]

University Press, 1997), 19. Galen admits that his work on functional teleology, *The Usefulness of the Parts of the Body*, is similar to Aristotle's *Partibus Animalium* (*PA*). Ibid., 9. Paul Moraux has shown that, out of all of Aristotle's work, Galen owes his greatest debt to *PA*, judging that Galen was the greatest interpreter of *PA* in late antiquity. After Galen, Michael of Ephesus in the twelfth century was the next to write a commentary on *PA*. Paul Moraux, "Galen and Aristotle's *De partibus animalium*," in *Aristotle on Nature and Living Things*, ed. Allan Gotthelf, trans. Anthony Preus (Pittsburgh, Pa.: Mathesis Publications, 1985), 327–44. Philip van der Eijk has shown Galen's Aristotelianized reading of Plato in the areas of natural philosophy, elementary psychology, and physiological psychology. Philip J. van der Eijk, "'Aristotle! What a Thing for You to Say!' Galen's Engagement with Aristotle and Aristotelians," in *Galen and the World of Knowledge*, ed. Christopher Gill, Tim Whitmarsh, and John Wilkins (Cambridge: Cambridge University Press, 2009), 261–81.

[334] Galen mentions twelve Platonic dialogues by name and wrote several works on Plato's philosophy, including commentaries and summaries. Galen, "My Own Books", p. 21. For Galen's philosophical debt to Plato, see the classic Phillip De Lacy, "Galen's Platonism," *American Journal of Philology*, 1972, 27–39. For a recent view that challenges that Galen was a middle Platonist, see Riccardo Chiaradonna, "Galen and Middle Platonism," in *Galen and the World of Knowledge*, ed. Christopher Gill, Tim Whitmarsh, and John Wilkins (Cambridge: Cambridge University Press, 2009), 243–60.

[335] De Lacy, "Galen's Platonism," 33. Galen quotes all of *Phaedrus* 270 C–D regarding Hippocratic method of the body to show how Plato applies the same method to the soul. Galen, *Method of Medicine*, trans. Ian Johnston and G. H. R. Horsley, Loeb Classical Library (Cambridge, Mass.; London, England: Harvard University Press, 2011), 23.

[336] R. J. Hankinson, "Galen's Anatomical Procedures," in *Aufstieg Und Niedergang Der Römischen Welt: Geschichte Und Kultur Roms Im Spiegel Der Neueren Forschung II*, ed. Wolfgang Haase and Hildegard Temporini, vol. 37.2 (Berlin; New York: Walter de Gruyter, 1994), 1834–55, p. 1836 n.9.

[337] Galen, *On the Elements According to Hippocrates*, trans. Phillip De Lacy, Corpus Medicorum Graecorum, V 1,2 (Berlin: Akademie Verlag, 1996), 135.

[338] Richard Walzer, *Galen on Jews and Christians* (London: Oxford University Press, 1949), 18.

[339] Galen, *On the Doctrines of Hippocrates and Plato*, 65. It should be noted that Galen's Hippocrates does not necessarily come into accord with the Hippocratic Corpus.

During Galen's era, there were two parallel philosophical traditions: the general philosophical tradition carried by the schools of philosophy and a long tradition of physician-philosophers who thought of themselves as physicians engaged in questions ordinarily addressed by philosophers such as natural philosophy, the nature of the human body, the soul, and epistemological questions regarding the nature and method of the medical art. Galen should be placed squarely in both traditions.[340] Galen thought of himself as both a philosopher and a physician, for both of these disciplines are the "greatest and most beautiful field of human endeavor, that is, the knowledge provided by philosophy and medicine."[341] Or as Galen put it simply, "all true doctors must also be philosophers."[342] Recall from chapter 1 the close relationship between philosophy and medicine in terms of reciprocal development and historiography. Véronique Boudon-Millot shows an intimate connection between *bios* and *methodos* in Galen, i.e. between his life and method, his autobiographical works and his detailed works on methodology.[343] She points out that the core of *methodos* is *hodos*, meaning the "path" or the "way."[344] In this sense, there is a reciprocal causality between a way of life and a way of knowing. Boudon-Millot goes on to argue that philosophy, no less than medicine, was a way of life for Galen, akin to Pierre Hadot's notion of philosophy as a way of life.[345] For Galen, medical practice entailed philosophical practice, encapsulated by the tripartite realms of logic, physics, and ethics. Through the combination of rational discourse, knowledge of

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[340] Frede, "On Galen's Epistemology," 65–66.
[341] Galen, "My Own Books," 3.
[342] Galen, "The Best Doctor Is Also a Philosopher," in *Selected Works*, trans. P. N. Singer (Oxford: Oxford University Press, 1997), 33.
[343] Véronique Boudon-Millot, "Galen's Bios and Methodos: From Ways of Life to Path of Knowledge," in *Galen and the World of Knowledge*, ed. Christopher Gill, Tim Whitmarsh, and John Wilkins (Cambridge: Cambridge University Press, 2009), 175–89.
[344] Cf. Heidegger's insight that *hodos* is a way of disclosing truth. See Chapter 1, n. 98.
[345] Pierre Hadot, *Philosophy as a Way of Life: Spiritual Exercises from Socrates to Foucault*, trans. Arnold I. Davidson (Malden, Mass.: Blackwell, 1995); Pierre Hadot, *What Is Ancient Philosophy?*, trans. Michael Chase (Cambridge, Mass.: Belknap Press of Harvard University Press, 2002).

nature, and development of virtue, the philosopher-physician can grow in wisdom, which is the goal of life.

As we shall see, Galen engaged in anatomical dissection like a philosophical practice. Anatomy was, in a sense, a way of life, even a way of religious life. Galen took the received anatomical rationality from Hippocrates, Aristotle, and Herophilus and transposed it into a theological key. For Galen, anatomy has theoretical and practical ends: epistemic, teleological, and empirical,[346] as well as theological and liturgical ends. He made a positive contribution to philosophy, articulating an epistemology grounded upon both reason and experience, epitomized by anatomical knowledge.[347] Crucially, Galen used anatomical dissection as a kind of logical demonstration on the way to divine knowledge. In this way, anatomical dissection went beyond scientific knowledge into the theological. For Galen, there is no artificial separation between scientific and theological inquiry. He judged anatomical dissection and the intricate knowledge of the divine construction of animals as a source of "perfect theology," providing unassailable evidence of a personal, benevolent Creator.[348] In short, Galen viewed the liturgical practice of anatomical dissection as a perfect natural theology, surpassing even the competing Greek mystery cult religions.

In this chapter, we shall explore the practical dimensions of Galen's anatomical rationality by looking at his philosophy of medicine as medical *technē* and medical epistemology, epitomized by the method of anatomical dissection. We shall then consider how the practical dimensions directly inform the theoretical dimensions of his anatomical rationality as the means to observing the teleology of nature,

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[346] Julius Rocca, "Anatomy," in *The Cambridge Companion to Galen*, ed. R. J. Hankinson (Cambridge: Cambridge University Press, 2008), 242–62, p. 242.
[347] Michael Frede, "Introduction," in *Three Treatises on the Nature of Science* (Indianapolis, Ind.: Hackett Pub. Co., 1985), ix–xxxiv, xix.
[348] Galen, *Galen on the Usefulness of the Parts of the Body*, 730–31.

investigating the nature of the soul, and ultimately entering into the mysteries of the divine. By providing the way to make visible what is invisible, Galen's anatomical rationality provides a totalizing way of life that spans the practical in the service of healing to the theoretical in the service of liturgical worship of God. The cruel irony in Galen's anatomical rationality is that methodological violence is necessary to disclose metaphysical and theological truth.

Medical Epistemology to Philosophy of Knowledge, and Back Again

In order to unpack Galen's anatomical theology, we shall look first at his philosophy of medicine and medical epistemology as they provide the basis for his unique role of anatomy in philosophy, resulting in the maturation of the anatomical rationality. By "maturation," I mean that the anatomical rationality becomes more precise in its practices and more intensified in its aim to uncover metaphysical truths about humans and the divine.

For Galen, the goal of the medical *technē* is health.[349] Galen holds that health is a proper functioning according to nature, which is considered normal.[350] Moreover, proper functioning defines what a good constitution entails: "the constitution [of a body] has the ground of cause in relation to function."[351] In contrast, disease is damaged function, which is contrary to nature.[352] As we shall see, teleology is *the* crucial dimension in Galen's anatomical philosophy, which informs his medical epistemology.

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[349] Galen, "On the Sects for Beginners," in *Three Treatises on the Nature of Science*, trans. Michael Frede (Indianapolis; Cambridge: Hackett Pub. Co., 1985), 3.
[350] Galen, *Method of Medicine*, 67, 101.
[351] Ibid., 109.
[352] Ibid., 123. "For unless we take discernable impairment of function as our criterion for distinguishing illness from health, and instead consider the exact qualitative condition in each case, we shall have to adopt the doctrine that one is always in a pathological state, since there is no one whose functions are all in an optimal state." Galen, "The Art of Medicine," 380.

As a faithful follower of Hippocrates, Galen assumes the humoral theory of bodily constitutions, yet he also innovates beyond Hippocrates. A body is considered healthy, not merely when the humors are balanced (although Galen does think this, particular with regard to the soul[353]), but also when it has a good mixture and proportion.[354] Because a healthy body is defined in this way, for Galen it is necessary to know the nature of the body in order to cure it and to know the elements of the body to discover disease.[355] With this view, Galen thinks he is merely following Hippocrates: "Hippocrates set great store by accurate knowledge of the body, as the starting-point for the whole science of medicine," which means specifically "the substance, formation, construction, size, and relationship to its neighbors of each part of the body – indeed its position too."[356] In other words, knowledge of the body requires knowing the proper mixtures of the body as well as spatial relationships between the parts of the body, all of which can be known through anatomical dissection.

As we saw above, Galen thinks that all doctors should be philosophers. This is because the medical *technē* requires all three parts of philosophy: logic, physics (i.e., natural philosophy), ethics. The physician "must be practiced in logical theory in order to discover the nature of the body, the differences between diseases, and the indications as to treatment; he must despise money and cultivate temperance in order to stay the course."[357] Always the rhetorical apologist for the primacy of the medical *technē*, Galen boldly proclaims that not only is medicine the best of the arts but it is

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[353] Galen, "Character Traits," in *Galen: Psychological Writings*, trans. Daniel Davies (New York: Cambridge University Press, 2013), 139.
[354] Galen, "The Art of Medicine," 347.
[355] Galen, *Method of Medicine*, 29, 135.
[356] Galen, "The Best Doctor Is Also a Philosopher," 30.
[357] Ibid., 33.

also a divine art.[358] Anatomical dissection plays a central role in the medical *technē* as a crucial step in Galen's logical demonstrative theory to discern the nature and function of the body. In short, anatomical knowledge is fundamental to his medical epistemology.

Rationalist and Empiricist Schools

But how did Galen employ anatomy in his epistemology? To answer this question, it will be helpful to review the major "schools" of medicine during Galen's time.[359] Galen's own epistemology is determined by debates between the Rationalists and the Empiricists,[360] which ultimately are about the nature of medical knowledge.[361] The fundamental difference between the Rationalists and the Empiricists lies in how they approach the nonmanifest.[362] The former thinks that the nonmanifest can be known by inferring the invisible from the visible, while the latter thinks that the invisible is unknowable by definition. We shall first look more closely at the Rationalist school, turn to the Empiricist school, and then see how Galen develops his own method that carves a middle way with anatomical dissection playing a key role in his philosophy. Such exposition is important to understand not only Galen's medical epistemology but also his religious epistemology and theological anatomy.

For the Rationalists, in their inquiries regarding the discovery of things that are not manifest, they employ anatomy and logical theory.[363] Anatomy underscores the importance of sense perception and manual manipulation as an instrument to find

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[358] Galen, "An Exhortation to Study the Arts," in *Selected Works*, trans. P. N. Singer (Oxford: Oxford University Press, 1997), 52, 43.
[359] The Methodist school was also a major sect at the time, but Galen is so dismissive of the view that we shall not spend any further time examining it. See Galen, "On the Sects for Beginners," 10–13; Galen, *Method of Medicine*, 3–121. See discussion in chapter 2 regarding Herophilus' Rationalism.
[360] Frede, "On Galen's Epistemology," 72.
[361] Frede, "Introduction," ix.
[362] Galen, "On the Sects for Beginners," 10.
[363] Ibid., 9.

the hidden. Logical theory employs indicative signs to infer from visible states of affairs such as revealed by anatomy to invisible natures.[364] The fundamental principle for the Rationalists is that reason can "see" invisible causes and natures. Logic is needed to discern what clearly follows in a chain of inferences.[365] Reason is also able to seek the antecedent causes. Galen gives the example of examining an animal bite. Based on the characteristics of the bite, its natural history, and resultant symptoms, through reasoning one can infer the antecedent cause, such as whether the wound came from a mad dog or a venomous snake. One can then choose the appropriate treatment based on medical reasoning.[366] Anatomy makes visible what has been invisible underneath the skin, but it still requires the invisible *logos* of reason to "see" the visible in a particular way. Through the trained, anatomical sight of the mind, one can see the body in an anatomical way. Anatomy highlights the importance the Rationalists place on the necessity of studying the nature of the body by means of reason. Anatomy is an instrument to see natural parts and the natural state in the hidden parts of the body. Through anatomy and reason, one can construct a physical theory to account for the function and use of each part of the body.[367] For the Rationalists, their view can be summarized by a single word: "analogismos," which is the conclusion based on logical reasoning that points to invisible things.[368] This is opposed to the "epilogism" of the Empiricists, which is the conclusion that points only to visible things, as we shall see shortly.

While Galen does not disagree with any of these points *in principle*, he does criticize the Rationalists of his day who hold too closely to logical inference,

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[364] Frede, "On Galen's Epistemology," 80.
[365] Galen, "On the Sects for Beginners," 17.
[366] Ibid., 7.
[367] Ibid., 5, 17.
[368] Galen, "On Medical Experience," in *Three Treatises on the Nature of Science*, trans. Richard Walzer (Indianapolis, Ind.: Hackett Pub. Co., 1985), 89.

particularly with regard to anatomy. As Christopher Cosans has cogently argued, Galen judges that Rationalist anatomy is too aloof from the actual, lived body and thus mechanical and reductionistic, privileging an objective account of the physician over against the subjective experience of the patient.[369] For example, Galen attacks Erasistratus[370] for veering too far into Rationalist mechanistic explanations,[371] particularly the importance of spatial arrangement to the body's nature, reducing physiology to the mechanical functions of ever-smaller vessels (veins, arteries, nerves).[372] Here is Galen's account of Erasistratus: "The larger vessels, according to [Erasistratus], repeatedly split up into channels of lesser size but greater number, extending throughout the body – for there is no place where the end of a vessel is not situated – finally forming such minute terminations that by the closing of the mouths at their ends the blood is prevented from escaping and is retained inside them."[373] Based on the observation that progressively smaller and more numerous vessels branch off larger vessels, Erasistratus infers that invisible branches continue to come into the system, for in the body "there is no place where the end of a vessel is not

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[369] Christopher E. Cosans, "Galen's Critique of Rationalist and Empiricist Anatomy," *Journal of the History of Biology* 30, no. 1 (1997): 35–54.

[370] Erasistratus was also an Alexandrian physician-anatomist who inaugurated human dissection alongside Herophilus.

[371] "Mechanistic explanation" does not necessarily entail atomism or the mechanistic philosophy of the seventeenth century. Rather than a dichotomy of teleological versus mechanistic explanations of nature, Sylvia Berryman argues that there should be three possible explanations of nature which takes into account not only the origin but also the function of design, whether it be purely mechanical or if it allows for intrinsic basic powers of qualitative change not reducible to structural arrangement: (1) atomists who "take rearrangement of unchanging smallest parts to be the only real change, and reject all forms of teleological explanation in favour of contact-action of smallest parts"; (2) teleologists who "take qualitatively different powers to be explanatorily basic and indispensible; structural rearrangements of parts are inadequate to the phenomena, which requires organs to have actively selective powers in order to ensure their own proper functions"; and (3) mechanists who "take the development of complex artifacts to show that a complex can be constructed so that a sequence of necessary physical interactions can regularly perform a given function" such that "the apparently unique functioning of organisms is not in fact different in kind from that of inanimate things, and that structural rearrangement of parts can explain organic functions without positing explanatorily basic powers." Sylvia Berryman, "Galen and the Mechanical Philosophy," *Apeiron* 35, no. 3 (2002): 235–54, quote on pp. 251-252. As we shall see below, Galen stands firmly in the teleologist camp, in some ways exceeding Aristotle's teleology.

[372] Galen, *On Anatomical Procedures*, 1956, 199; Galen, *Method of Medicine*, 167.

[373] Galen, "On Venesection against Erasistratus," in *Galen on Bloodletting*, trans. Peter Brain (Cambridge; New York: Cambridge University Press, 1986), 19.

situated." Based on this mechanistic account, Erasistratus theorizes that fever and inflammation are caused by excess of blood causing movement of blood and pneuma to other vessels. In the case of a patient with fever and inflammation, he reasons that there is an excess of blood. Thus, the treatment is preventing the patient from making new blood, which, based on the common medical wisdom of the day, is to stop the patient from eating.[374]

In contrast, Galen opposes such abstract, scientific reasoning of bodily mechanisms and instead follows the perception of the sick patient. If the patient is hungry, then Galen the physician allows the patient to eat. For Galen, the Rationalists allow their trust in reasoning to invisible bodily mechanisms to trump the subjective experience of the patient. Recall from our discussion of the Hippocratic work *On Ancient Medicine* in chapter 1 the phrase "feeling of the body" on whether this is an objective or subjective genitive. To use modern language, it is clear that Galen rejects an overly theoretical account of medical epistemology that privileges the objective and disregards the subjective. If reason is independent from observation, then there is discordance between what reason demands and the observed phenomena.[375] Galen questions the validity of the logical inference if it does not correspond to what is manifest.

Indeed, Galen places utmost importance on observation as a way to temper theory. How does Galen view the Empiricist school? In Galen's understanding, the Empiricists hold to three major tenets. First, Empiricism is based solely on experience. It begins with what is evident to the senses, and then with repeated evidences, memory of experiences is formed.[376] Medical knowledge is then based on

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[374] Ibid., 20.
[375] Galen, "On Medical Experience," 74.
[376] Galen, "An Outline of Empiricism," in *Three Treatises on the Nature of Science*, trans. Michael Frede (Indianapolis, Ind.: Hackett Pub. Co., 1985), 33.

one's own perception [*autopsia*] of these accumulated memories.[377] Second, the Empiricists are opposed to anatomy,[378] arguing that it does not make discoveries[379] and thus the knowledge gained from anatomy is redundant.[380] Galen remarks that the Empiricists lack of dissection is blameworthy and results in ignorance.[381] In Galen's view, anatomy, while the most empirical of the sciences, still aims at theoretical knowledge.[382] Third, the Empiricists display an ignorance of logical speculation.[383] In principle, there is no visible sign of the invisible, because the latter is nonmanifest by its very nature.[384] In other words, Empiricists regard logical speculation as worthless because it does not acquire true knowledge.

While the Empiricists eschew rational inference independent of observation, they are not irrational. They categorize experience into three different kinds.[385] The first kind of experience is "incidental," which is occasioned by spontaneous chance. The second kind is "extemporary," which is experience that is sought out deliberately or given by dreams. The third kind of experience is "imitative," which is a repetition of extemporaneous experiences.[386] When one observes that a particular treatment is beneficial or harmful for a particular disease and tries it again, this is an imitative experience. When the imitative experience is observed several times repeatedly, then it is considered a "theorem." When there is an accumulation of theorems, this is called by the Empiricists "one's own perception" (*autopsia*). Through this *autopsia*, the

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[377] Ibid., 24.
[378] Galen, *On Anatomical Procedures*, 1956, 35; Galen, *On the Usefulness of the Parts of the Body*, 309.
[379] Galen, "On the Sects for Beginners," 9.
[380] Hankinson, "Galen's Anatomical Procedures," 1842.
[381] Galen, *Galen on the Usefulness of the Parts of the Body*, 329.
[382] Cf. "Anatomy is a *practical and empirical* pursuit, aimed at acquiring *theoretical* knowledge." Andrew Cunningham, "Aristotle's Animal Books: Ethology, Biology, Anatomy, or Philosophy?," *Philosophical Topics*, 1999, 17–41.
[383] Galen, *Galen on the Usefulness of the Parts of the Body*, 309.
[384] Galen, "On the Sects for Beginners," 9.
[385] Ibid., 4.
[386] Galen, "An Outline of Empiricism," 24.

Empiricists practice the medical *technē*. Note that in these three experiences, medical knowledge can be obtained only through the evident and the manifest in what is called "epilogism": medical conclusions only point to visible things.

As we have already seen, Galen regards logical theory, anatomy, and knowing the natures of things to be necessary for medicine. In short, reason is required for medicine. Consequently, he does not regard the Empiricists as practicing the true medical *technē* because empirical experience alone lacks the character of a *technē* in its rejection of logic.[387] However, much like his stance towards the Rationalist school, he positively evaluates the Empiricists for its merits. For Galen, the Empiricists understand the limitations of experimental science (evidenced by the reductionistic example of Erasistratus above) to reveal truth and thus regard practical experience to be of prime importance.[388] Mohan Matthen elegantly summarizes the major difference between Rationalist and Empiricist medicine this way: Rationalists are concerned with reality, not appearances, whereas Empiricists are concerned with appearances, not reality.[389] Galen would agree with Matthen since he sees the limitations of each school.

Galen rejects the Rationalists and the Empiricists in their most extreme formulations: mechanistic reductionism on the one hand and ignorance of logical theory on the other. Instead, he innovates a third way that weds the theoretical insight of the Rationalists and the basic experience of the Empiricists in what Christopher Cosans calls "critical realism"[390] or what Michael Frede calls a qualified Rationalism.[391] Galen sees the vital importance in inferring from the visible to the

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[387] Galen, "On the Sects for Beginners," 8.
[388] Cosans, "Galen's Critique of Rationalist and Empiricist Anatomy."
[389] Mohan Matthen, "Empiricism and Ontology in Ancient Medicine," *Apeiron* 21, no. 2 (1988): 99–122, especially p. 119.
[390] Cosans, "Galen's Critique of Rationalist and Empiricist Anatomy."
[391] Frede, "On Galen's Epistemology," 73.

invisible, but without overriding practical experience. Anatomical dissection physically reveals the invisible parts of the body as visible but this requires the invisible *logos* of reason in order to see the visible. In medical training, Galen stresses the importance of mastering the practical aspects of medicine first before moving on to philosophical topics such as the nature of man. Now that we have seen how Galen draws on insights from both the Rationalists and the Empiricists, we shall look more closely at Galen's epistemology.

Anatomical Epistemology

Galen's epistemology places equal primacy on the twin sources of reason (*logos*) and experience (*peira*), both of which are fundamental and self-evident.[392] On the one hand, reason entails demonstration[393] (*apodeixis*), which is knowledge modeled after the certainty provided by geometrical proof. Through this logical method of inference, one can see beyond the visible to the invisible.[394] As Hankinson points out, this movement from the visible to the invisible places Galen squarely in the Hippocratic tradition, as we saw in the work *On the Art*: "For what eludes the sight of the eyes is captured by the *sight of the mind* [*gnomēs*]."[395] On the other hand, experience entails empirical evidence, whereby sense perception is the first-step in knowledge of physical things.[396] Anatomical dissection is the epitome of knowledge

[392] Galen, *Method of Medicine*, 47; Galen, "On Medical Experience," 49; Galen, *On the Doctrines of Hippocrates and Plato*, 543–45. See R. J. Hankinson, "Epistemology," in *The Cambridge Companion to Galen* (Cambridge: Cambridge University Press, 2008), 157–83 for further discussion.
[393] Galen's work *On Demonstration* is a fifteen volume treatise on logic that is no longer extant. Galen, "My Own Books," 19.
[394] Galen, "On Medical Experience," 62.
[395] Hankinson, "Galen's Anatomical Procedures," 1845 n.40. Interestingly, Galen did not write a commentary on *On the Art*, probably because he did not consider the work to be genuinely Hippocratic.
[396] Echoing Aristotle's discussion of *On Generation and Corruption* (II.1, 329a30-35; II.2, 329b7-12) of the sense of touch in discerning the elements, Galen states: "On the basis of the distinction between actuality and potential, we stated that we should first discuss what is actually hot, cold, dry, and wet, before proceeding to what is potentially so. The identification of the former is something accessible to everyone, since our sense of touch is naturally able to make these distinctions, teaching us that fire is

via sense perception. As we shall see, Galen employs anatomical dissection as a confirmatory step to prove his own theory about the brain as the controlling center of the body, over against Aristotle and the Stoic view of the heart as controlling center. In this capacity, anatomical dissection functions as an empirical premise in a demonstrative proof. Thus, if a theory does not accord with the phenomena revealed by sense perception, then the theory must be rejected.[397]

Based on this two-fold epistemological foundation of reason and experience, Galen applies the tools of medical epistemology: physics, logic, and anatomy. We shall address each one in turn. Physics is what Galen considers to be natural philosophy, grounded in the theory of the four elements, which he attributes to Hippocrates: "As for the bodies in this world, since I refuse all claim to knowledge of celestial bodies, I showed that Hippocrates was the first to declare that they were created from a mixture of fire, earth, water and air."[398] Galen takes the doctrine of the four elements as an axiom of natural philosophy: "I declare that I know for certain that all our bodies come from a mixing together of the four elements."[399] Galen follows Aristotle's notion that natural philosophy has to do with the first principles of bodies that come into being and pass away. He also follows Aristotle's logical division of the sciences, regarding medicine as a handmaiden of natural philosophy.[400] Galen holds to a five-fold view of causality in natural philosophy, which he attributes to Plato. To the final, efficient, material, and formal causes, Galen adds the instrumental cause. Of the five causes, Galen regards the final ("that for the sake of

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hot and ice cold. If someone has a conception of hot and cold derived from some other source, I should be glad to know of it. It is a very strange kind of wisdom – one might rather, in all honesty, a stupidity – when people claim some other criterion of perceptible fact prior to that of perception." Galen, "Mixtures," in *Selected Works*, trans. P. N. Singer (Oxford: Oxford University Press, 1997), 238.

[397] Frede, "On Galen's Epistemology," 82.

[398] Galen, *On My Own Opinions*, trans. Vivian Nutton, Corpus Medicorum Graecorum, V 3,2 (Berlin: Akademie Verlag, 1999), 63.

[399] Ibid., 117.

[400] Galen, *On the Elements According to Hippocrates*, 93–95.

which a thing is formed") and efficient ("that by which a thing is formed") causes to be the most important, due in particular to his strong teleology and piety towards the Demiurge, which Galen calls both feminine Nature and masculine Creator in his work on philosophical anatomy, *On the Usefulness of the Parts*.[401]

For Galen, as a facet of medical epistemology, logic has a two-fold purpose: the method of division[402] and demonstration. As he shows in *Method of Medicine*, logical division is important for classifying diseases into genuses and their proper differentiae. In order to treat disease appropriately, one must understand the nature of these diseases. Galen cites Aristotle and Plato as the archetypes in this method of division, which is subsequently required for the rational method of medicine.[403] The rational method of medicine also employs demonstration, which is indebted to the scientific method of Aristotle and Theophrastus in *Posterior Analytics*.[404] Demonstration is akin to geometrical proof, which proceeds from undemonstrable axioms. Such axiomatic propositions include: the nonexistence of anything without a cause; everything comes from some existing thing; nothing comes from something that does not exist at all; nothing is destroyed to what is completely nonexistent; and it is necessary for everything to be either confirmed or denied.[405] While Galen presents these axioms in the context of explaining his method of medicine and thus for practical ends, as we shall see, such axioms play vital metaphysical roles in Galen's cosmology and anatomical theology. Yet demonstration also has an empirical

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[401] Galen, *On the Usefulness of the Parts of the Body*, 308, 311.
[402] Recall from chapter 2 that Aristotle uses the words *anatemnō,* "to cut up" and *diaireō,* "to divide" to refer to the physical dissection of animals, while *diaireō* is further used to refer to logical dissection. Galen uses both *temnō* (the root of *ana-temnō,* meaning "to cut") and *diaireō* for logical division.
[403] Galen, *Method of Medicine*, 39–45.
[404] Galen, *On the Doctrines of Hippocrates and Plato*, 105. Galen wrote eleven books of notes on *Posterior Analytics* for his own purposes. Galen, "My Own Books," 19.
[405] Galen, *Method of Medicine*, 59.

component that requires perception: "the origins of every demonstration are the things clearly apparent to sensation and reason."[406]

Anatomical dissection becomes the key tool in medical epistemology because it involves intense empirical observation that is structured by theoretical reasoning. Anatomical knowledge weds together reason and experience, the twin sources of knowledge. Galen makes it clear that anatomy without theory is not only useless but wrong-headed: "Those who set about dissection in the wrong spirit introduce such errors not only into the actual process, but into the theory of Nature. It necessarily follows that just as the uses of parts really observed in dissection are marvelous, so if they be wrongly observed, it is impossible to give a [consistent] account of their action."[407] In other words, anatomical dissection without appropriate theory can result in false observation, consequently corrupting natural philosophy and concealing the true function of the parts of the body, resulting in ignorance rather than knowledge of the body. But with a proper natural philosophy that is guided by logic, anatomical dissection verifies empirically what has been inferred by reason and reveals new phenomena that had been hidden in the body.[408]

However, for Galen the relationship between observing and theorizing cuts both ways. By uncovering the hiddenness of the body, anatomical dissection allows Galen to think anatomically, which then allows for further inferences from the visible to the invisible. For example, Galen intentionally trained his mind's eye by practicing feeling the pulse to "see" the body anatomically.[409] By anticipating how the body functions based on this anatomical way of seeing, Galen notes that anatomy is helpful for diagnosis:

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[406] Ibid., 63.
[407] Galen, *On Anatomical Procedures*, 1956, 235.
[408] Ibid., 207.
[409] R. J. Hankinson, "Galen's Anatomy of the Soul," *Phronesis* 36, no. 2 (1991): 197–233.

> It is therefore obvious that in cases which are not soluble by sense perception, a knowledge of anatomical facts, and the discovery of activities and purposes, are of great value in diagnosis. Those who wish to be diagnosticians of the kinds of bodily defect outlined just now must first train themselves in anatomy, and in the discovery of activities and purposes.[410]

Anatomy allows one to think physiologically by inferring the inner workings of the body that remain hidden to the eye. Following this theme of unveiling the hiddenness of nature, Galen thinks that anatomy can address metaphysical questions that have plagued physicians and philosophers alike, notably the location of the controlling center of the body. Aristotle and the Stoics considered the heart to be the controlling center, whereas Galen thinks it is the brain. To resolve this philosophical problem, Galen asks the question rhetorically: "Now where will proof of this be found? Where else but from dissections?"[411] Crucially, it is important to note the significance of what Galen is proposing here. He is suggesting that the method of anatomical dissection uncovers to ocular and mental demonstration what would have otherwise remained hidden. Pierluigi Donini highlights the significance of Galen's anatomical method to in the context of philosophical psychology:

> The attempt to provide a scientific demonstration of the truth of [Platonic] tripartition [of the soul] and of the distribution of the three parts among the corresponding organs is in fact Galen's principal undertaking in *On the Doctrines of Hippocrates and Plato*, and much more important than the actual content of the psychological theory he upholds is the method with which it is established. [...] Thus dissection can make evident to the senses what would otherwise remain hidden both to them and to the mind.[412]

In short, for Galen anatomical dissection as a method of knowing reveals the truth of nature. Or to put it more provocatively, anatomy *is* revelation. As we shall see later on in Galen's anatomical theology, revelation via anatomical method is precisely what he thinks to be certain knowledge.

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[410] Galen, "The Art of Medicine," 368.
[411] Galen, *On the Doctrines of Hippocrates and Plato*, 111.
[412] Pierluigi Donini, "Psychology," in *The Cambridge Companion to Galen*, ed. R. J. Hankinson (Cambridge: Cambridge University Press, 2008), 189–91.

In Praise of Practical Reason

For all of the importance that Galen the philosopher places on the insights from the Rationalist and Empiricist schools as well as the logical method from Plato, Aristotle, and Hippocrates, Galen still thinks like a physician and leverages his philosophical learning for primarily practical ends. To put it differently, the practicality of medical knowledge inflects Galen's philosophizing. If philosophical learning cannot be applied practically, then it is superfluous and useless. Hankinson comments, "logical theory for its own sake is a pointless waste of time. Logic matters only insofar as it delivers useful demonstrative results."[413] Furthermore, speculative metaphysics, which Galen calls "speculative philosophy," is not necessary for medical knowledge and moral philosophy, since it is "not essential for the health of the body or the moral wellbeing of the soul."[414] While Galen is certain that nature is composed of the four elements and things comprise mixtures of elements, he is agnostic about the nature of the universe (generated or eternal), the nature of the soul (mortal or immortal), and the nature of God (bodily or incorporeal or substance of divine attributes).[415] Utilizing his method of demonstration based on reason and experience, Galen is convinced that practical philosophy can provide all that is needed for medicine, moral philosophy, ethics, even politics. However, Galen does not include divine providence under the guise of speculative philosophy but rather practical philosophy:

> But such inquiries as these [pursued by speculative philosophy] contribute nothing to managing one's own household well or caring properly for the public interest or acting with justice and friendliness toward kinsmen, citizens, and foreigners. But some who hold that the end (of philosophy) is practical have arrived at the investigation of these matters by a gradual passage from

[413] Hankinson, "Epistemology," 158.
[414] Galen, *On My Own Opinions*, 115–17.
[415] Ibid., 57–59.

> useful inquiries, supposing that they were passing to inquires of a similar kind. The truth is that while it is useless to ask whether the universe had a beginning or not, *this is not the case with an inquiry about divine providence*. It is better for all of us to examine the statement that there is something in the universe superior to men in power and wisdom; but it is not necessary to consider the question what sort of substance they do have, whether they are entirely bodiless or whether they too have bodies, as we do. These matters and many others are completely useless for those virtues and actions that we call ethical and political, and no less for the cure of the soul's ills.[416]

Divine providence holds practical import for Galen, as it influences notions of justice, public life, and personal conduct. As we shall see later, Galen regards anatomical dissection as the way to demonstrate the providence of the benevolent Creator, allowing for personal transformation in a kind of liturgical mystery.

In keeping with the practicality of philosophical knowledge, Galen regards medicine as the "greatest art, which is that relating to the soul of man."[417] Galenic medicine's ability to know the "soul of man" echoes the Delphic maxim "know thyself," which Galen highly esteemed in his own moral philosophy.[418] For Galen, since anatomy is the key to medical knowledge, and medicine allows one to know the soul, then anatomical dissection reveals knowledge about the soul. In short, Galen's anatomical method discloses knowledge of God's providence and aspects of the human soul. As we shall see, Galen's psychology and theology are interrelated with one another, both of which are informed by anatomical dissection. Let us now explore more closely Galen's anatomical rationality.

Galen's Anatomical Rationality: Philosophy and Theology With a Scalpel

In his manual of anatomical dissection, *On Anatomical Procedures*, Galen notes four uses of anatomical study: (1) love of knowledge for its own sake, (2)

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[416] Galen, *On the Doctrines of Hippocrates and Plato*, 589. Emphasis added.
[417] Galen, *Method of Medicine*, 63.
[418] E.g. Galen, "Character Traits," 170; Galen, "The Diagnosis and Treatment of the Affections and Errors Peculiar to Each Person's Soul," 241, 268.

demonstration of the teleology of Nature, (3) investigation of mental and physical functions, and (4) surgical practice.[419] His four uses run along a spectrum from theoretical to practical. On the one hand, given his practical bent, Galen regards the third and fourth to be most necessary for the diagnosis and treatment of diseases. Yet, on the other hand, he exalts anatomical knowledge for its ability to demonstrate philosophically the truth about nature, in what Christopher Cosans calls "philosophy with a scapel."[420] Galen inaugurates a new way of practicing philosophy and theology through the method of anatomical dissection, which grounds philosophical understanding. As illustrated by the work *On the Usefulness of the Parts*, the highest achievement of anatomical method is demonstrating the Creator's purpose and design of nature. Cosans comments, "Galen takes the epistemological stance through the *Anatomical Procedures* and *Usefulness of the Parts* that one can directly perceive nature's purpose by touching, seeing, and even tasting the body in anatomical manipulations."[421] This two-fold purpose of anatomy – medical knowledge and reverence for Nature's teleology – drives Galen's desire to dissect, which is the hunger for knowledge to conduct, at times, brutal anatomical experiments on animals to understand the structure and function of the body.

The philosophical scalpel of anatomical dissection can reveal answers to both medical and metaphysical questions. For example, Galen tells the story of a patient with numbness in his little fingers who had been seen by physicians from the Methodist school. To the dismay of Galen, these physicians had been focusing only on the fingers, attributing the condition to chance. Instead, Galen resolves to determine the antecedent cause through medical reasoning. He takes a history of the patient's illness and discovers that the patient had fallen out of a carriage and severely

[419] Galen, *On Anatomical Procedures*, 1956, 33–34.
[420] Cosans, "The Experimental Foundations of Galen's Teleology," 75.
[421] Ibid., 79.

injured his back. Galen reasons anatomically that the patient had sustained a nerve root injury resulting in numbness to the nerve distributed to the little fingers. He obtained this anatomical knowledge based on multiple, prior dissection experiments on animals. Galen determined that the numbness was due to the antecedent cause of a disease at the nerve root of the spinal cord.[422] Anatomical dissection also answers metaphysical questions that have plagued physicians and philosophers alike. As we shall see in greater detail below, Galen uses anatomical method to determine the location of the rational soul,[423] the nature of the fetus,[424] and even theological knowledge of the Creator, as a kind of "theology with a scalpel." In this way, anatomical knowledge is sacred knowledge, as a kind of liturgically enacted, natural theology.[425]

Guided by rational precepts, Galen engaged in frequent anatomical dissection and vivisection. He is at pains to emphasize the importance of first-hand experience with anatomical dissection in order to know the body. Galen underwent rigorous training of his hands, sight, and mind in order to think anatomically. In his practical manual of anatomy, *On Anatomical Procedures*, Galen not only provides textual instruction on how to perform dissections and vivisections and what to look for in the body, but he also gives practical advice on the importance of manual manipulation and visualization: "Make it rather your serious endeavor not only to acquire accurate book-knowledge…but also to examine assiduously with your own eyes" with "ocular demonstration."[426] Galen emphasizes that words cannot adequately formulate the image of the body part and so requires seeing and touching the body for oneself.[427]

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[422] Galen, *On Anatomical Procedures*, 1956, 61–62.
[423] Galen, *On the Doctrines of Hippocrates and Plato*.
[424] Galen, *On Anatomical Procedures*, 1962, 122.
[425] Cf. Cosans, "The Experimental Foundations of Galen's Teleology," 78–79.
[426] Galen, *On Anatomical Procedures*, 1956, 3.
[427] Ibid., 180; Galen, *On the Usefulness of the Parts of the Body*, 563–64.

Taking a cue from medical Empiricist teaching, Galen regards repetition of dissection experiences and training of the senses as necessary for training the mental eye to understand what is seen in anatomy.[428] Training of the physical eyes and hands allows for training of the mental eye of anatomical thinking. The modern anatomy lab uses the same rationale in the training of physicians today. Through habitual practice in anatomical dissection, anatomical thinking becomes a kind of second nature of the mind. This is why Galen first encourages frequent observation "at leisure" of preferably human bodies and of apes if humans are unavailable. Then the trainee practices dissection on apes so that he will be prepared when luck brings a human for dissection.[429] In relating mental sight and touch, Galen notes the importance of training the hands in dissection in various methods of manual touch. Hankinson points out in a telling passage in *De Dignoscendis Pulsibus* VIII 786-802 on Galen's methodology that touch can be trained such that truths can become self-evident: "Galen describes how he trained his own faculty of touch so that he became able to detect the faint trace of the arterial systole; but crucially once he had done this, it was to him *enargos phainomenon*. And hence it is possible for a truth to be self-evident in this way even if few (indeed, in the limiting case, none) appreciate it as such."[430] Using touch to train the mind to discern a self-evident truth is akin to Aristotle's practice of anatomical dissection informing his logical dissection, such that the body trains the soul. As another dimension of the sense of touch, Galen encourages the tasting of various tissues so that one can train the sense of taste to contrast heart

[428] Galen, *On Anatomical Procedures*, 1956, 4.
[429] Ibid., 76–77.
[430] Hankinson, "Galen's Anatomy of the Soul", quote on p. 211.

muscle from skeletal muscle as well as to contrast bone marrow from brain and spinal cord material.[431]

Training in order to perform anatomical dissections is so important for Galen that he suggests an ordered program of study. In terms of anatomical order, he suggests starting with the bones of a man or ape (preferably both) and then dissecting the muscles, because it trains one to understand that the bones and muscles are the foundations for the rest of the body. He then recommends dissecting the arteries, veins, and nerves, because familiarity with these are the gateway to dissecting the inward parts of the body, with resultant knowledge of the viscera, fat, glands, and organs, each of which should be examined separately. Galen exhorts: "Such should be the order of your training."[432] He also gives a practical three-step order of procedure for self-training to become manually proficient and to gain anatomical knowledge. First, dissect the structures of study from parts obtained from the butcher. Second, dissect these structures in an animal cadaver. Third, manipulate and experiment with the structures in a living animal, that is, vivisection.[433] In this process, the trainee procures the material which underscores the importance of *autopsia*, "one's own perception" (recall the discussion of the medical Empiricists), practices repetition of dissection on the cadaver to observe the structures and spatial arrangements of the parts of the body, and then actively subjects the living animal to, at times, brutal anatomical experiments that include precise, calculated injuries in order to understand the functions of the parts and their usefulness. This training process for the novice

[431] Galen, *On Anatomical Procedures*, 1956, 182–83; Galen, *On Anatomical Procedures*, 1962, 223–24. Cf. Aristotle's discussion of taste in *De anima* II.9, 421a19-27 where he considers taste as a form of touch and as more highly refined in humans compared to other animals precisely because humans are the most intelligent. In other words, a greater sense of touch and taste comes with greater intelligence. Thomas Aquinas agrees in his commentary on Aristotle's *De anima*. Greater sense of touch comes with more wisdom, such that "those who have a good sense of touch have a loftier soul and an acuter mind." Thomas Aquinas, *A Commentary on Aristotle's De Anima*, trans. Robert Pasnau (New Haven, Conn.: Yale University Press, 1999), 250–51.
[432] Galen, *On Anatomical Procedures*, 1956, 5.
[433] Cosans, "The Experimental Foundations of Galen's Teleology," 65.

anatomist not only makes possible active participation in obtaining anatomical knowledge of the body for the sake of medicine but he also acts like a catechumen in Galen's anatomical theology that leads to knowledge of God. Galen's "Training in Anatomy"[434] forms the anatomist to discover medical and theological knowledge.

Anatomical Dissection as Demonstration of Teleology

The most significant role that anatomical dissection plays in Galen's philosophizing is to demonstrate teleology of nature as it is epitomized by the human body. Galen holds three fundamental precepts regarding teleology. First, he adopts a statement from Hippocrates as axiomatic, which Galen places almost on par with revelation, "as if it were the voice of God"[435]: "Taken as a whole, all the parts in sympathy, but taken severally, the parts in each cooperate for its effect."[436] In other words, parts work together in accordance for the sake of the whole. Galen takes this proposition as a controlling methodological concept for discovering usefulness. He extends this axiom to all of Nature, calling usefulness its first principle.[437] Second, Galen thinks he is also following the Aristotelian axiom, "Nature never makes anything superfluous or in vain."[438] Thus, he adopts such corollaries as "nothing happens without a cause" and that Nature's workmanship makes it impossible that anything would be of no use to us. In other words, whatever that is created has a useful purpose. Third, following this logic of usefulness and parts working for the sake of the whole, Galen teaches that the outward appearance and activities of the living animal corresponds to its internal structure. He "convinced himself" that a

[434] This is a play on Søren Kierkegaard, *Training in Christianity*, trans. Walter Lowrie (Princeton; London: Princeton University Press; H. Milford, Oxford University Press, 1944).
[435] Galen, *On the Usefulness of the Parts of the Body*, 78.
[436] Hippocrates, *Nutriment* XXIII, LCL 1, quoted in ibid., 76.
[437] Ibid., 530.
[438] E.g. *Parts of Animals* III.1.661b24.

single Mind created all living things, and thus that the body of the animal has a structure akin to the character and powers of the soul.[439]

Based on these three principles, Galen is convinced that anatomy reveals the teleology of Nature and of the human body. Teleology manifests itself through the function of the part and thus guides anatomical dissection. For example, knowing the action of a particular muscle trains the eyes to see the muscles as fibers and thus prevents one from cutting across the fibers which would cause dysfunction and disability, particularly in a surgical setting.[440] In keeping with this theme, Galen also advises the study of the nerves of each muscle, especially those with an important function. In Galen's anatomical pedagogy, one must pay close attention to use and function in order to dissect properly. As Kuriyama observes, even seeing muscles in this way is a uniquely Western phenomenon, as compared to Chinese medical illustrations of the body which seem blind to muscularity.[441] By anatomical dissection of the body, Galen's eyes have been trained to *see* muscles as units of functionality.

Galen's Demiurge is the key actor in his teleological theory. The Demiurge, following Plato's *Timaeus*, is named both Nature and Creator to the effect that this is a personal, intelligent being, and not some sort of heuristic to understand purpose in nature. For Galen, the Demiurge is a divine artisan who creates all things in a manner like human artifice: "the manner of construction of the living creature is like that of the external objects that men fabricate, putting together different substances into one [whole]. They fasten them together, making that which they form out of them."[442] The Demiurge has three aims in constructing the parts of the animal: for the sake of life, for better life, and for the continuance of the species. Galen reasons that immortality

[439] Galen, *On Anatomical Procedures*, 1956, 148–49.
[440] Ibid., 6.
[441] Shigehisa Kuriyama, *The Expressiveness of the Body and the Divergence of Greek and Chinese Medicine* (New York: Zone Books, 1999), 111.
[442] Galen, *On Anatomical Procedures*, 1956, 58.

is impossible for living animals because they are composed of arteries, veins, nerves, bones, and flesh – material, heterogeneous compounds that are corruptible. Instead, he attributes wisdom to Nature for finding a surrogate immortality for her workmanship. Reproduction allows for the permanence of the species: "for [Nature] has discovered a wonderful art whereby, when an animal dies, she may always put a new one in its place…[E]very kind of living creature may avoid destruction and persist, safe and deathless forever."[443] The Demiurge has given living animals two aids for this immortality of their natural kind: instruments for conception coupled with the faculty of pleasure during sexual intercourse. For all living animals, including both humans and animals without the rational faculty, the "passionate pleasure" with the use of the parts for reproduction is "without reason," functioning merely as an instrumental "incitement to preserve and maintain race."[444] For Galen, then, sexual desire is not part of the rational faculty but only a bestial necessity as part of Nature's wisdom to maintain the species.

Galen espouses a strong, all-encompassing teleology that surpasses even Aristotle's teleology, which is limited. As Hankinson puts it, Galen thinks that the nature the Demiurge has created is the "best of all possible worlds."[445] The *locus classicus* that illustrates the difference between Galen's and Aristotle's teleology is their respective views on the gallbladder. For Aristotle, not every part of the body has a final cause but rather functions by necessity:

> When the bile is present [in the gallbladder] in the region of the liver it is a residue and *not for the sake of anything*; just as is the case with the excretions of the stomach and intestines. For though even the residua are occasionally used by nature for some useful purpose, yet we must *not in all cases expect to*

[443] Galen, *On the Usefulness of the Parts of the Body*, 621. This echoes Aristotle's notion that living animals attain immortality through reproduction of the species in perpetuity (*De Anima* II.4, 415a25-b7).
[444] Ibid., 621–22.
[445] R. J. Hankinson, "Galen and the Best of All Possible Worlds," *The Classical Quarterly* 39, no. 1 (1989): 206–27.

> *find such a final cause*; for granted the existence of this or that constituent, with such and such properties, many results must ensure as *necessary consequences* of these properties.[446]

In the context of this passage, Aristotle is discussing the observation that some animals have gallbladders and some do not. He concludes that bile in the gallbladder does not serve a purpose for the sake of anything but rather functions by necessary consequence, similarly to the excretions in the stomach and intestines. So while Aristotle repeatedly proclaims the dictum "Nature does nothing in vain," he does not apply it to explain every anatomical instance. In contrast, Galen follows Aristotle's dictum like a mathematical axiom. In his conception of food digestion, Galen explains that there are three kinds of organs: (1) organs that receive, digest, and distribute food to the body; (2) organs that receive the waste products; and (3) organs that eliminate the waste products. He groups the gallbladder in the second kind, functioning as a kind of filter for the food, separating the pure nutrients from the waste products.[447] He even attributes the location near the liver and its relative size to intentional designs for optimal functioning.[448] Here we see two levels of teleological explanation. The first level is the final cause of the existence of the gallbladder itself. The second level provides a reason for why the organ is placed where it is and used the way it is for the express purpose of improved efficiency of functioning. Indeed, for Galen, the human body could not be created any better than it is: "None of those formed for the sake of life itself or for a better life could possibly have been constructed more excellently if they were different from what they actually are."[449] We should note here, however, that Galen's teleology does not address the problem of evil or theodicy. So while Galen holds a strong teleology for natural philosophy, his cosmology is limited in the

[446] Aristotle, *Parts of Animals* IV.2, 677a14-19, Oxford, 1056. Emphasis added.
[447] Galen, *On Anatomical Procedures*, 1956, 150–51.
[448] Galen, *On the Usefulness of the Parts of the Body*, 260–63.
[449] Ibid., 621.

moral dimension.[450] This becomes an important point when we look later at Galen's moral psychology as it pertains to practical philosophy and his proto-biopolitics.

Galen's strong teleology is fundamentally functional and practical. Functionality and usefulness determines the measure of what the best construction of the body is: "Now clearly the best construction is that in which all the parts [of the instruments] contribute services sufficient for the actions of the instruments of the whole."[451] The part's action in the context of the whole determines its usefulness. Through anatomical study, particularly vivisection, one can observe the specific action of each body part. Only then can one understand the part's usefulness, which for Galen is practically synonymous with function.[452]

Galen's view that functionality is Nature's prime directive is best illustrated by his aesthetic theory. The beauty or excellence of a given part of the body is primarily judged by the part's function. He gives the example of how to discover the proper form of the eye or nose and advises that one finds it by correlating structure and function. He goes on to give a revealing conclusion: "In fact, this is your standard, measure, and criterion of proper form and true beauty, since true beauty is nothing but excellence of construction, and in obedience to Hippocrates you will judge that excellence from actions, not from whiteness, softness, or other such qualities, which are indications of a beauty meretricious and false, not natural and

[450] Hankinson notes that Galen's Demiurge is not omnipotent nor omnicompetent. The Creator is bound by material necessity and makes mistakes in creation, giving the example of those born with six fingers although having five fingers is still best. Because of these limitations, Galen does not advance a logically or conceptually best of all possible worlds in the Leibnizian sense. Because Galen's teleological theory is not hampered by "Judaeo-Christian Problem of Evil arguments," Hankinson regards the theory to be superior to a theory that presupposes the perfection of the Judeo-Christian God. Hankinson, "Galen and the Best of All Possible Worlds," 225. Clearly Hankinson seeks explanatory power for a scientific epistemology but his own position artificially separates the moral and epistemological domains, making for a fractured, not unified, reality.

[451] Galen, *On the Usefulness of the Parts of the Body*, 78–79.

[452] Galen appears to equate "usefulness" with physiological function in the context of the whole body: "The usefulness of the nerves, then, would lie in conveying the faculty of sensation and motion from its source to the several parts; that of the arteries is to maintain the natural heat and nourish the psychic pneuma; and the veins were formed to produce the blood and also to convey it to all the parts." Ibid., 89.

true."[453] In other words, beauty primarily has to do with excellent construction as determined by function. In this sense, Galen holds a utilitarian aesthetic theory.

However, he also holds a lower level view of beauty. He acknowledges that some parts of the body do not have functions in themselves but are for adornment: "Nature out of her abundance ornaments all the members, especially in man. In many parts there is manifest ornamentation, though at times this is obscured by the brilliance of their usefulness."[454] He cites the ears, the foreskin of the penis, and the flesh of the buttocks as examples of adornment that do not have an obvious function in themselves. Instead, adornment has the general use of manifesting the nature of humans as social, cultured, and civilized over against animals. Although the eyes are more beautiful in physical form than the aforementioned parts, their beauty is disregarded because their usefulness is so greatly admired.[455] Finally, Galen views certain parts of the body as having usefulness as well as beauty of form. He gives the example of facial hair:

> The hair of the beard not only protects the cheeks but also serves to ornament them; for a man seems more stately, especially as he grows older, if he has everywhere a good covering of hair. This is also the reason why Nature has left the so-called cheekbones and the nose smooth and bare of hair; for so [if they were hairy] the whole countenance would become savage and bestial, by no means suitable for a civilized, social animal. […] Nature makes for the body a form appropriate to the character of the soul.[456]

A beard protecting the cheeks fulfills the primary criterion of beauty as usefulness while they also work to adorn the cheeks, thereby fulfilling the secondary beauty of physical form. However, in a telling philosophical statement about the relationship between nature and culture, Galen marvels at the how Nature kept the nose and cheekbones free of hair in order to make humans appear civilized rather than savage.

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[453] Ibid., 79.
[454] Ibid., 529.
[455] Ibid., 530.
[456] Ibid., 530–31.

The significance needs to be underscored. Galen is saying that the Creator designed Nature with humans as civilized, that is, to be in a state of culture. The function and usefulness of humans are to live in society through the use of varied *technai*. In short, the state of nature for humans is the state of culture. In this way, Galen blurs the distinction between nature and culture. Precisely for this reason Galen calls humans the epitome of all animals: "[man] is an intelligent animal and, alone of all creatures on earth, godlike" and "is the most perfect of all animals."[457] Like the divine artisan, humans have the capacity for *poēsis*, for the arts, for *technē.* Humans are the epitome of creation because they have the greatest capacity for diverse function.

Anatomy of the Soul

Technē *of the soul, Dissection of the Body*

Let us now look more closely at Galen's psychological theory since it intensifies what we have already seen in his epistemology, anatomical rationality, and metaphysics. We have seen that for Galen the anatomical method is the proper way to philosophize about nature, to disclose metaphysical truths about the human body, to demonstrate the teleology of nature, and to reveal truths about God. For Galen, man sits atop the hierarchy of the Demiurge's creation. As we have seen, the structure and function of the body corresponds to the soul of the animal. The usefulness of all of the parts of the body are related to the soul, "for the body is the instrument of the soul" and "the body is adapted to the character and faculties of the soul."[458] This is especially true for man, whose structural uniqueness is due to his intelligence.[459]

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[457] Ibid., 68, 630.
[458] Ibid., 67–68. However, we will later see that Galen also holds that the capacities of the soul are dependent on the mixtures of the body.
[459] Cf. Ibid., 154, 160, where Galen discusses the uniqueness of standing upright and using the hands as correlating to man's intelligence.

Galen makes this clear in his extended meditation on the wonders of the hand as the instrument of the rational soul:

> Now to man – for he is an intelligent animal and, alone of all creatures on earth, godlike – in place of any and every defensive weapon, she gave hands, instruments necessary for every art and useful in peace no less than in war. […] But, being also a peaceful and social animal, with his hands he writes laws for himself, raises altars and statues to the gods, builds ships, makes flutes, lyres, knives, fire-tongs, and all the other instruments of the arts, and in his writings leaves behinds him commentaries on the theories of them. Even now, thanks to writings set down by the hand, it is yet possible for you to hold converse with Plato, Aristotle, Hippocrates, and the other Ancients.[460]

Because man is an intelligent animal, Nature gives him hands as instruments for war and peace, arts and culture, noting developments in politics, music, and religion. The notion that the hand is an instrument of the intelligent soul is certainly not original to Galen, as he acknowledges his agreement with Aristotle: "Aristotle was right when he said that the hand is, as it were, an instrument for instruments, and we might rightly say in imitation of him that reason is, as it were, an art for arts."[461] Just as the hand is the instrument for further instruments, the soul's reason is the art for further arts. Unlike the other animals, which have Demiurge-given, natural instruments for protection and natural instincts to fly, crawl, etc., the man's body is naked of weapons and the man's soul is lacking in skills. Man's hands fashion instruments of attack and protection while man's reason equip the soul with the arts, that is, *technē.* In short, man's soul necessarily entails *technē*. Or to put it differently, *technē* constitutes the *physis* of man.

Where Galen goes beyond Aristotle on this relation between the soul and *technē* is the importance that the former places on writing. Through the soul's

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[460] Ibid., 68–69.

[461] Ibid., 71. Galen is probably thinking of *Parts of Animals* IV.10.687a19-23: "For the most intelligent of animals is the one who would put the most organs to good use; and the hand is not to be looked on as one organ but as many; for it is, as it were, an instrument for further instruments. This instrument, therefore, – the hand – of all instruments the most variously serviceable, has been given by nature to man, the animal of all animals the most capable of acquiring the most varied arts."

capacity for *technē*, man develops the ability to write, which allows for conversing with the Ancients, such as Galen's favorite philosophers Plato, Aristotle, and Hippocrates. In *On Anatomical Procedures*, Galen explains why he writes an anatomical manual in the first place. He laments how the medical *technē* had expanded beyond the Asclepiads, resulting in less childhood training in medicine and anatomy, and a subsequent decline in the *technē* from generation to generation. Writing such a practical manual acts to "preserve knowledge."[462] In other words, writing allows for sustaining a cultural and technical memory. Bernard Stiegler, in his groundbreaking trilogy, *Technics and Time*, argues that the received tradition of Western philosophy has suppressed the role of technics in the history of philosophy and consequently situates human *physis* prior to *technē*, thereby establishing a dichotomy between human nature and technics, that is, between nature and culture. In a highly original thesis, he argues that technics, which he defines as organized inorganic matter, is essentially a form of memory that is inaugurated by writing. This technical memory is constitutive of human temporality and thus constitutive of the human as such. Thus, there is no longer a dichotomy between human *physis* and *technē* but rather a blurring of the two. In other words, *technē* makes human *physis*, not the other way around.[463]

If we adopt Stiegler's thesis, one could say that for Galen, *technē*, which he already regards to be a capacity of the soul, constitutes the soul. In this way, human *technē* shares an unstable relationship with human *physis*, since the former defines the latter. Thus, Galen unwittingly blurs the distinction between *technē* and *physis.* This results in an astonishing implication: if anatomical dissection is the methodological

[462] Galen, *On Anatomical Procedures*, 1956, 31.
[463] Bernard Stiegler, *Technics and Time, 1: The Fault of Epimetheus*, trans. Richard Beardsworth and George Collins (Stanford, Calif.: Stanford University Press, 1998). Notably, Stiegler quotes Galen's meditation on the hand as the instrument of instruments that is able to write commentaries on, and to converse with, the Ancients. Ibid., 82.

key to the medical *technē* which is the most noble philosophical pursuit that grows wisdom, and if *technē* is what constitutes human *physis*, then anatomical dissection in some way constitutes human *physis*. As I argued in the last chapter on Aristotle's relationship between sight and cognition, anatomical dissection as a way of knowing the body becomes a way of knowing rationally. The *technē* of anatomical dissection becomes the epistemological paradigm for reason, man's art of arts, in the soul of man.

Since human artifice is the analogy by which to understand how the Demiurge works, and humans are the most god-like animals, it is not surprising to find that Galen attributes skill and *technē* to the activity of Nature.[464] As Jacque Jouanna has shown, Galen cites Hippocrates for this notion; however, the art of nature is not a Hippocratic doctrine, but rather a Galenic innovation. Galen thinks he is reconstructing the art of nature notion from the logic of Hippocrates' thought, but upon closer examination of the Hippocratic corpus, there is a discrepancy on the relationship between *physis* and *technē.* For Hippocrates, the art of nature is never discussed; rather, only the art of the physician is discussed. *Physis* and *technē* are never confused and can even be agonistic, as I have already shown.[465] The language of human activities is not yet transferred to nature. Thus, Galen distorts Hippocrates' understanding of *physis* and *technē* and instead understands divine Nature (*physis*) as having the characteristic of *technē.* In this way, Galen advances a kind of univocal reasoning between the *technē* of Nature and the *technē* of man.

Galen confidently asserts that the body is an instrument of the soul. In a different work, *The Capacities of the Soul Depend on the Mixtures of the Body,* Galen argues that the soul is subservient to the body. (We shall look more closely at his

[464] Cf. Galen, *On the Usefulness of the Parts of the Body*, 723.
[465] See the section on proto-Baconianism in chapter 1.

argument later.) However, he pleads agnosticism about the nature of the soul. Galen chides philosophers for speculating on such matters that cannot be resolved. He proclaims that he does not know whether the soul is corporeal or incorporeal and whether the soul, particularly the rational part, is mortal or immortal.[466] He does not think that physicians or philosophers have the ability to demonstrate certain knowledge about the nature of the rational soul. However, Galen does think that it is *theoretically* possible to prove scientifically the soul's essence. In a telling passage, he notes that excessive coldness can destroy all psychic functions, and then writes: "For if…the soul is a form of a homogeneous body, we will have the demonstration proceeding from its actual substance, which is the most scientifically reliable kind."[467] Hankinson comments on this passage: "*If* it can be established that the soul really is as the Aristotelians say it is [that is, dependent on the body], *then* one can have a proper, scientific demonstration, starting from a spelling out of the essence of the thing."[468] While Galen thinks it is possible to determine the soul's essence, he does not make a firm commitment either way.

However, Galen does employ anatomical dissection to elucidate his philosophical psychology, as a kind of anatomical psychology. For Galen, anatomy not only provides the knowledge of the usefulness of the parts of the body, but also it provides the knowledge of the soul that is responsible for action.[469] To this end, Galen turns to anatomical dissection as the definitive empirical and logical instrument to address two things: (1) the Platonic tripartite soul of the rational, spirited, and

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[466] Galen, *On My Own Opinions*, 59–61; Galen, "The Construction of the Embryo," in *Selected Works*, trans. P. N. Singer (Oxford: Oxford University Press, 1997), 200; Galen, *On the Doctrines of Hippocrates and Plato*, 599.
[467] Galen, "The Capacities of the Soul Depend on the Mixtures of the Body," in *Galen: Psychological Writings*, trans. P. N. Singer (New York: Cambridge University Press, 2013), 389.
[468] R. J. Hankinson, "Body and Soul in Galen," in *Common to Body and Soul* (Berlin: Walter de Gruyter, 2006), 232–58, especially p. 252.
[469] Galen, *On the Usefulness of the Parts of the Body*, 732.

desiderative parts mapped onto the brain, heart, and liver respectively, and (2) the question of the location of the controlling center of the body, comprising perception and volitional movement.[470] Galen notes that philosophers and physicians alike have pursued this question,[471] notably Aristotle and the Stoics who hold that the heart is the controlling center. What is remarkable about Galen's approach is that he thinks that it is scientifically demonstrable to determine the location of the soul as the controlling center of the body by the method of logical reasoning and empirical verification through anatomical dissection. As Galen charges, his opponents fail in their attempts to prove that the heart is the center because they err in their dissections and what they see in dissections.[472]

How does Galen apply his anatomical demonstration to this question? A lengthy passage from *On the Doctrines of Plato and Hippocrates* clearly illustrates Galen's method of demonstration:

> But what premises ought one seek as appropriate and proper to the problem at hand? […] The main point was that the appropriate and proper premises must be found in the very essence of the matter under investigation. So in these (discussions) in which Chrysippus reflects on the governing part of the soul, we should first state the definition of the essence of the thing we are investigating, and then use it as a standard and guide in all the particulars.
>
> The governing part (of the soul), as they too would have it, is the source of sensation and conation. Therefore the demonstration that the heart contains in itself the governing part must not proceed from any other premise than that it initiates every voluntary motion in the rest of the body, and every sensation is carried back to it. *Now where will the proof of this be found? Where else but from dissections?* For if this (organ) dispatches the power of sensation and movement to all the individual members, then necessarily some vessel must grow out from it to perform this service for them. So it has become evident from the method of scientific proof that it would be more useful to dissect animals and observe closely what and how many kinds of structures grow out from the heart and spread to the other parts of the animal; and, these very structures being of such and such kinds and so many in number, (to observe) that this one transmits sensation or movement or both, that one some other

[470] Galen, *On the Doctrines of Hippocrates and Plato*, 367–69, 67.
[471] Ibid., 151–53.
[472] Ibid., 151.

> thing, and thus to reach the point where one understands which powers in the body have the heart as their source.[473]

Demonstrative proof comes from dissections. Thus, for Galen, proper anatomical dissection makes evident what was previously hidden from the senses and from the mind. He refers to observations, particularly anatomical experiments, which prove with empirical clarity that the vessels that derive from the heart have nothing to do with perception and volitional movement. Instead, he shows that perception and volitional movement are assigned to nerves carried from the brain, thus proving the brain is the controlling center.[474] The demonstration for Galen fundamentally boils down to a single syllogism. Both of the premises are "found in the very essence of the matter under investigation," which he lays out earlier on in the work: (1) "Where the beginning of the nerves is, there is also the governing part of the soul" which Galen claims to be universally agreed upon by physicians and philosophers, and (2) "The beginning of the nerves is in the brain."[475] By proving (2) through anatomical dissection, Galen concludes that (3) the brain is the governing part of the soul. Pierluigi Donini judges this to be a remarkable scientific achievement: "In its combination of direct observation, experimental tests and logically rigorous argumentation, one might well say that from a modern standpoint this is one of the finest results obtained by Greek science."[476] In this case, Galen's anatomical rationality proves fruitful to answer a medical yet metaphysical question: what is the location of the faculties of perception and volition in the soul? Yet, it must be said that this "fine result" could only be obtained through the brutality of repeated vivisection of animals by the hand of the *technē* of anatomical dissection. In an ironic twist, the *technē* of the soul (which is the soul's *physis* as we saw above) uses the

[473] Ibid., 109–11. Emphasis added.
[474] For details of these vivisection experiments, see Ibid., 123–27, 149–51.
[475] Ibid., 67.
[476] Donini, "Psychology", quote on p. 191.

technē of anatomical dissection to investigate the *physis* of the soul. Unlike the agonistic relationship between *physis* and *technē* in Hippocrates, *technē* is *physis* in Galen. In other words, Galen's anatomical rationality is *technē* all the way down.

Medicalizing the Soul

While Galen pleads agnosticism on the substance of the soul, his philosophical psychology tends toward a physicalist direction, casting doubt on the existence of the soul separate from the body, although he does not make a firm commitment. In the work *The Capacities of the Soul Depend on the Mixtures of the Body*, Galen attempts to show that all three parts of the soul, including the rational, are subject to mixtures and thus open to observation by the medical *technē*. His method of inquiry into the character of the soul follows his epistemology of reason and experience that weds the Aristotelian methodology (starting with phenomena and then reasoning to causes) with empirical verification that is driven by his persistent need for anatomical investigation.[477] In *On My Own Opinions,* he remarks that sensation and generation of the soul depends upon some mixture of the body. He observes that the soul always co-exists with the body and thus "it is impossible that the soul should come from one thing and the sensible body from another, because the essence of the soul does not exist (independently) by itself but is found in conjunction with the appearance, I mean the form, of the body."[478] In following the necessary embodiment of the soul, Galen observes that both nature and nurture influence the temperament of the soul. On the one hand, he points out that there are observed differences in infants which

[477] R. J. Hankinson, "Actions and Passions: Affection, Emotion and Moral Self-Management in Galen's Philosophical Psychology," in *Passions & Perceptions: Studies in Hellenistic Philosophy of Mind*, ed. Jacques Brunschwig and Martha C. Nussbaum (Cambridge; New York: Cambridge University Press, 1993), 184–222, especially p. 186.
[478] Galen, *On My Own Opinions*, 77–79. See also Galen, "The Capacities of the Soul Depend on the Mixtures of the Body," 388, 390.

demonstrate their differences in substance: "it is evident that children differ from each other in the substances of their souls to precisely the same extent that they differ in their activities and affections; and if in this respect, then also in their capacities."[479] This is what Hankinson calls the "cradle argument," whereby "children have certain features by nature, and their characters are not entirely determined by environmental influence."[480] On the other hand, he also observes that regimen in diet and exercise, environmental climate, and even nationality shape intellect and virtue, citing Plato and Hippocrates.[481]

In stark language, Galen goes so far to say that "the soul is slave to the mixtures of the body,"[482] which highlights his physicalist tendency. This means that the actions and the affections of the soul depend on the body. He regards as axiomatic Hippocrates' theory that four elements constitute all physical entities and the resultant theory that four humors constitute bodies, including brains. Galen argues that the rational soul is slave to the body as evidenced by disruptions in the balance of hot and cold, wet and dry. Excessive heat or coolness, as seen in severe fever or hemlock ingestion, results in death. Excessive yellow bile causes derangement while build up of black bile results in melancholy. Galen observes that wine when taken in moderation not only helps with physiological functioning in the lower parts of the soul, but also makes the souls more gentle and brave.[483] In other words, the soul's intellect and character depend on the bodily mixtures. That the rational soul is subject

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[479] Galen, "The Capacities of the Soul Depend on the Mixtures of the Body," 375–76.
[480] Hankinson, "Body and Soul in Galen", especially p. 244 n.34.
[481] Galen, "The Capacities of the Soul Depend on the Mixtures of the Body," 374–75, 396–400.
[482] Ibid., 384. Galen cites Hippocrates' *Airs, Waters, Places* as the first to teach that all three parts of the soul, including the rational, is dependent on mixtures. Ibid., 398–99.
[483] Galen, "The Capacities of the Soul Depend on the Mixtures of the Body," 382–86. Jouanna points out that Galen's physiology of intelligence has a striking similarity to Hippocrates' as seen in *Sacred Disease*, although Galen himself does not mention this. Jacques Jouanna, "Does Galen Have a Medical Programme for Intellectuals and the Faculties of the Intellect?," in *Galen and the World of Knowledge*, ed. Christopher Gill, Tim Whitmarsh, and John Wilkins (New York: Cambridge University Press, 2009), 190–205.

to the mixtures of the body, which are subsequently influenced by natural constitution and regimen alike, is a bold and radical claim, in contrast to the Plato, his revered philosophical master.

The significance of Galen's view is that it opens the space for medicine to broaden its power and to medicalize the intellect and even virtue. Galen himself says as much in his debate with other philosophers:

> So, then, let those who are unhappy with the notion that nourishment has the power to make some more self-controlled, some more undisciplined, some more restrained, some more unrestrained, as well as brave, timid, gentle, kind, quarrelsome and argumentative – let them now have some self-control, and come to me to learn what they should eat and drink. They will derive the greatest benefit with regard to the philosophy related to their characters; and in addition to this they will make progress in the capacities of their rational souls, too, becoming more intelligent, with regard to virtue, and having better memories. In addition to nourishment and drink, I shall also teach them about winds, mixtures of the ambient air, and even about which countries are to be chosen and which avoided.[484]

There are several things to highlight in this passage. First, he is self-consciously bringing medicine into the arena of moral philosophy by way of prescribing dietary regimen. Medicine not only diagnoses mental illness but also treats it. Galen anticipates the *Diagnostic and Statistical Manual,* which catalogues and characterizes every psychiatric disease, by 1800 years. Second, through proper regimen, medicine can prescribe the means to treat intellectual and moral deviancy as well as to promote intellectual and moral enhancement. Third, the last sentence with regard to climate and countries echoes the ethnography of Hippocrates' *Airs, Waters, Places*, which also contributes to the idea that mixtures of the body shape intellect and virtue. Even the intellect and virtue of the fetus fall under medicine's purview. In *On the Doctrines of Hippocrates and Plato*, Galen argues that the mixtures originate from the mother's blood. So proper regimen must be prescribed to the pregnant mother: "Thus from the

[484] Galen, "The Capacities of the Soul Depend on the Mixtures of the Body," 401–2.

start one should mold a human being with an eye to what is best, with forethought first of all for the very seed, then for the regimen that the pregnant mother will follow in food and drink, exercise and rest, sleep and waking, desire and anger, and the like."[485] Galen advances a totalizing view of medicine that manages every detail from cradle to grave to ensure maximal intelligence and morals. In effect, the physician not the philosopher is responsible for shaping the soul.

Galen's totalizing view of medicine extends to a proto-biopolitics of the deviant. He notes that while it is universal to favor those who are good and to reject those who are bad, it is generally not asked whether goodness or badness are innate. He advocates the elimination of the hopelessly wicked who are immune to remediation by medicine or philosophy:

> We destroy scorpions, poisonous spiders and vipers, which have become as they are not by their own agency but by that of nature. […] And so it is reasonable that we hate those men who are wicked, without stopping to consider the cause which makes them so; and, conversely, we accept and love those who are good, whether they have become so from their nature, or from education and teaching, or from choice and training. And indeed, *we put to death the incurably wicked*, quite reasonably, on three grounds: to prevent them harming us while they live; to provoke in those similar to them the fear of punishment for their wrongdoings; and, thirdly, that death is actually preferable for these people themselves, whose souls are so ruined that the vice they have is incurable, so that they cannot be educated even by the Muses themselves, let alone improved by Socrates or Pythagoras.[486]

Note the language Galen uses. These wicked men are incurable, which implies that vice can be cured. The moral and philosophical authority of the physicians sanctions the killing of moral deviants. Donini comments: "The prescriptions of the doctor, informed by an understanding of the social usefulness of certain behaviors, become the only possible criterion of reference."[487] Galen's solution is ultimately a medical intervention with a biopolitical force that eliminates from the body politic incurable

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[485] Galen, *On the Doctrines of Hippocrates and Plato*, 323.
[486] Galen, "The Capacities of the Soul Depend on the Mixtures of the Body," 405–6.
[487] Donini, "Psychology," 202.

deviants. With regard to the justification for killing these incurably wicked souls, Galen's first two reasons are in accord with the rationale for capital punishment today – safety and public deterrence. However, the third reason is astonishing: these men are so wicked that death is actually preferable for them. Their nature alone without regard to cause makes them fit for eradication. Life, in this hopeless case, is not worth living. In a way, what Galen is saying is that being incurably wicked is a life worse than death. His medical solution is euthanasia for terminal wickedness.

Anatomy: The Beginning and End of Moral Psychology

How does this square with Galen's moral psychology? Is it merely reducible to what can be demonstrated by anatomization or shaped by medical regimen? Assuming that one's soul is not irredeemably evil, to what does the virtuous soul aim? As we have seen, through anatomical dissection Galen demonstratively proved that the brain is the controlling center of the body and thus the power of volitional action. In this way, anatomical knowledge is the way to knowledge of the soul that is responsible for action. Since moral philosophy is grounded upon the philosophy of action, one could say that for Galen, anatomy is the beginning of moral philosophy. His moral psychological works *Character Traits* and *The Diagnosis and Treatment of the Affections and Errors Peculiar to Each Person's Soul* are particularly pertinent as they pertain to the soul's relationship to the good, beauty, and truth. Following his philosophy of medicine, Galen views health as a balance, both in body and in soul: "Nothing that is unbalanced is in its true state of health." He then moves beyond to characterize the soul in terms of virtue ethics: love, wisdom, beauty, and the good. For Galen, a healthy soul that balances the three parts of the soul is a beautiful soul:

"Just as the balance of the members produces bodily beauty, so the balance of the souls in a person activates the beauty that pertains to the soul."[488]

He argues that the rational soul (the nature of which is unknown according to Galen) loves beauty and hungers for truth.[489] As a basis of his ethics, the beautiful and the good are set in opposition to ugliness and evil, such that love of the beautiful is love of the good, following along Platonic and Aristotelian lines: "The things that are desirable are the good and the beautiful, and those that should be avoided are the evil and the ugly."[490] The beautiful becomes a powerful motivator for the virtuous soul which ultimately comes from the love of God: "love of the beautiful exists naturally in some people, and…the love of beautiful actions that is in those who love the beautiful comes from the love of God in those who prefer it."[491] Galen regards seeking the beautiful over pleasure as an imitation of God, whereas seeking pleasure alone is beastly.[492] In a similar manner, the rational soul's love for the good derives from God's love for the good: "As for the love of the good, when we consider that God loves the good, and that the soul by means of which people imitate God is the rational soul, we see that love of the good in people belongs to the rational soul."[493] Moreover, the healthy soul comes about through demonstrative knowledge: "The rational soul becomes strong by means of the demonstrative sciences, and ought to learn them step by step."[494] Elsewhere, Galen regards training in the method of demonstration, using the paradigm of mathematical-geometrical analysis, as necessary for investigating the goal of life and answering the most important

[488] Galen, "Character Traits," 148.
[489] Ibid., 141.
[490] Ibid., 149.
[491] Ibid., 147–48.
[492] Ibid., 158–59.
[493] Ibid., 168.
[494] Ibid., 161.

questions.[495] In this way, the healthy, virtuous, and beautiful soul is one that seeks the beautiful, the good, and the true. Galen summarizes these virtuous ends with wisdom as the highest of the virtues, especially as practiced by philosophers who seek wisdom as a way of life:

> The philosopher, that is the lover of wisdom, is more virtuous [still], because of the virtue of wisdom. Everyone who is skilled in an art is called "wise" in that art. When people call someone "wise" absolutely they mean that he is learned in divine matters, that is to say the movements of the heavens and the natural actions of the universe, of animals and of plants. Complete wisdom belongs only to God, who is exalted; he is the absolute "wise one." For this reason a person is called a philosopher, that is, a lover of wisdom.[496]

In other words, Galen equates the virtue of wisdom with knowledge of divine things, particularly knowledge of the heavenly motions and the terrestrial motions. He is not novel with this notion, as his contemporaries held a similar view – contemplation of the visible allows for ascent to the divine. As we shall see in the next section, this divine knowledge is no clearer than in his anatomical theology. Indeed, Galen's moral psychology begins and ends with anatomy.

Anatomical Theology

In this final section we shall explore how Galen integrates anatomy into his theology, far closer than Hippocrates or Aristotle. In particular, we shall look at Galen's doctrine of God, his view of faith and reason, his natural theology, and finally how anatomical dissection is a liturgical knowledge of God.

Hankinson observes that "Galen's theology is very of piece with his psychology,"[497] meaning that Galen declared agnosticism on the substance both of the soul and of God. But as we saw with Galen's purported metaphysical skepticism

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[495] Galen, "The Diagnosis and Treatment of the Affections and Errors Peculiar to Each Person's Soul," 285–86, 304.
[496] Galen, "Character Traits," 168.
[497] R. J. Hankinson, "Medicine and the Science of Soul," *Canadian Bulletin of Medical History* 26 (2009): 129–54, quote on p. 133.

about the substance of the soul, he had strong, empirically justified positions about the nature of the soul, tending toward a physicalist position, casting doubt on the existence of the soul separate from the body. In a similar fashion, Galen guards himself against metaphysical speculation on the nature of God, such as whether God is embodied or bodiless or the character of God's divine attributes, because of the inability to acquire certain knowledge of God's nature by logical demonstration.[498] However, in the same way that Galen speaks confidently about the actions, affections, location, and powers of the soul through empirical observation, he declares that God is the divine artisan because purpose can be seen throughout creation, especially in humans who are the pinnacle. Because of the purpose found all the way down in creation, Galen speaks in a rather pious and reverent tone about the Demiurge through anatomical knowledge. Michael Frede thinks that Galen's hesitancy to write theoretical philosophy about God is due to religious reverence rather than positivist skepticism, "as if they were hidden from us, some kind of mystery," suggesting that there is "the inscrutability of nature's or the Demiurge's ways, of the impropriety of daring to inquire into things which it is not for human beings to know."[499] Hear the awe in Galen's tone regarding the mystery of God's creation, anatomical discovery, and the wisdom and power of God:

> There are the things, then, that our Creator wished to be made, and since they have been made, do not attempt or venture to find out how it is done. For how could you reasonably bring yourself to inquire how things were made, the existence of which you would not have discovered if you had not been taught by dissection? It is enough for you to have made as great a discovery as this, that every part has been constructed to be what its usefulness requires, and if you undertake to investigate how a part has been made such as it is, you will stand convicted of not realizing your own weakness or the power of the Creator.[500]

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[498] Galen, *On My Own Opinions*, 57–59.
[499] Michael Frede, "Galen's Theology," in *Galien et La Philosophie: Huit Exposés Suivis de Discussions*, ed. Jonathan Barnes (Genève: Fondation Hardt, 2003), 78–79.
[500] Galen, *On the Usefulness of the Parts of the Body*, 658.

In his call for humility before God, Galen manifests his own pious reverence toward the Creator of all things, especially the human body.

However, Galen does not stop at silence in the face of the unspeakable wisdom of the Creator. He is no apophatic theologian. If we look at Galen's works on anatomy, we find that he makes several positive assertions about the characteristics of God, particularly in his interactions with Judeo-Christian doctrines of God.[501] The Demiurge exercises providence that is restricted. Galen explicitly rejects Moses' teaching of creation *ex nihilo* and thus God's omnipotence in favor of the Platonic Demiurge whose creative power remains constrained by material and natural necessity:

> And this is the point at which my teaching and that of Plato and the other Greeks who have treated correctly of natural principles differs from that of Moses. For him it suffices for God to have willed material and to be arranged and straightway it was arranged, because Moses believed everything to be possible to God, even if he should wish to make a horse or beef out of ashes. We, however, do not feel this to be true, saying rather that some things are naturally impossible and that God does not attempt these at all but chooses from among the possible what is best to be done.[502]

One of the "natural principles" that Galen mentions is the axiom *ex nihilo nihil fit*, out of nothing comes nothing. This is why he rejects creation *ex nihilo*. God cannot do what is by nature impossible. Moreover, Galen interprets the doctrine of God's omnipotence as an irrational abuse of power with results that have no purpose, as evidenced by his absurd example of making meat out of ashes. With the Demiurge guided by material and natural necessity and the axiom that Nature does nothing in vain, Galen can confidently affirm that every single detail of creation has a providential purpose, even the usefulness of the seemingly insignificant eyelashes.[503]

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[501] For texts that Galen refers to Jews and Christians, along with discussion, see the dated but still valuable Walzer, *Galen on Jews and Christians*.
[502] Galen, *On the Usefulness of the Parts of the Body*, 533.
[503] Ibid., 532–33. For the explicit language of providence, see e.g. Ibid., 96.

Galen thinks God is personal and benevolent. In *On My Own Opinions*, an autobiographical work in which Galen writes candidly about his own thought, he marvels at the benevolent care that God exercises in his power and providence for the sake of creatures. Galen says he personally experienced God's healing from illness. He puts this kind of personal care on par with an example of those who were about to suffer a shipwreck but God gave them a sign, they believed, and they were saved and rescued.[504] In his discussion of anatomy as works of nature, Galen specifically attributes to God "wisdom, power, and goodness." He goes so far to say that ordering everything in nature in the best possible way according to God's will, as revealed by anatomy, is "proof of perfect goodness" and "proof of his invincible power."[505]

But perhaps the most important dimension of Galen's doctrine of God is his understanding of the relationship of faith and reason. As we have seen, Galen's epistemology is founded upon the twin sources of reason and experience, which both work together for certain, demonstrative knowledge. As Richard Walzer shows, Galen explicitly refuses divine revelation since it cannot substitute for demonstration and logical proof.[506] In a lost work that attacks Aristotle's theology in the *Metaphysics* entitled *Concerning the Prime Unmoved Mover*,[507] Galen also attacks the faulty relationship between faith and reason of Jews and Christians: "If I had in mind people who taught their pupils in the same way as the followers of Moses and Christ teach theirs – for they order them to accept everything on faith – I should not have given you a definition."[508] Galen criticizes Jews and Christians for learning everything on authority alone as prescribed by their masters Moses and Christ, without critically evaluating their truth or validity through logical demonstration. This is not surprising

[504] Galen, *On My Own Opinions*, 59.
[505] Galen, *On the Usefulness of the Parts of the Body*, 189.
[506] Walzer, *Galen on Jews and Christians*, 18–37.
[507] This work only survives as a fragment in Arabic.
[508] Galen, quoted in Walzer, *Galen on Jews and Christians*, 48–49.

for Galen since, as a philosophical eclectic, he refuses to identify with a specific sect of medicine or philosophy but rather elects to examine critically everything for himself.

Thus, Galen understands the Demiurge to be wise, good, skillful, powerful, benevolent, and personal. For a self-avowed agnostic about the substance of God, Galen is still able to affirm quite a lot. Galen thinks of all of these characteristics are evident for those with the eyes to see and an open mind.[509] Galen's strong teleology of the best of all possible worlds dovetails with his doctrine of God as wise Creator, or to put it in contemporary terms, an intelligent designer.[510] In this way, Galen's theology is a form of natural theology in general and anatomical theology in particular. Frede insightfully points out that the logic of Galen's design argument assumes two possibilities: either the world we live in is a world of atoms governed by chance that formed a world like ours or the world we live in was formed by an agent of immense power and wisdom.[511] Anatomical dissection is the chief method by which the hidden things are unveiled so that one can then closely observe the structure, function, and purpose of all living things. Such anatomical knowledge is the "source of a perfect theology" because it reveals the beauty of the microcosm and macrocosm of the Creator's art (*technē*), reflected in harmony and order.[512] Dissection of all kinds of animals including humans reveals evidence and provides certain truths from which to get answers about God. In step with Galen's demonstrative method, anatomical dissection collects evident facts that allow one to make inferences about

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[509] Cf. Galen, *On the Usefulness of the Parts of the Body*, 729, 731.
[510] For a representative work from one of the leading contemporary proponents of the Intelligent Design movement, see William A Dembski, *Intelligent Design: The Bridge between Science & Theology* (Downers Grove, Ill.: InterVarsity Press, 1999).
[511] Frede, "Galen's Theology," 109–10.
[512] Galen, *On the Usefulness of the Parts of the Body*, 189, 191, 731. Beauty as order echoes Galen's view of the beautiful soul that is perfectly balanced.

God.[513] From the observable facts, one can then make an indirect inference from the power and wisdom that has been revealed in the perfect design of animals, to a wise and powerful Creator.

For all of his "faith" in demonstrative knowledge through rigorous logical reasoning and empirical observation, Galen approaches the knowledge of God through anatomical dissection as a kind of liturgical knowledge. In the context of discussing the anatomy of the leg, Galen breaks out into the praise of God when he says that he is "composing as a true hymn of praise to our Creator." Over against religious practices of the day, he regards the knowledge of God's wisdom, power, and goodness revealed by anatomical dissection as showing more reverence to God than the religious rituals of animal sacrifice and burning incense. Ironically, however, as we saw from the numerous vivisections that Galen performed personally, he practiced his own form of animal sacrifices as liturgical rituals. Not only is anatomical dissection more reverent, but also Galen feels compelled to share this knowledge with others. Indeed, by exhorting others to perform anatomical dissections, which will unveil knowledge of God, Galen functions as an evangelist leading others to the truth.[514] And by training them how to dissect properly, Galen is a priest that is forming catechumens in his anatomical theology. Leading others to the truth through anatomical dissection is almost like a religious duty for Galen, for he considers false knowledge about the body to be "true sacrilege," not the failure to make offerings and burn incense.[515]

His priestly role in this anatomical religion comes to the forefront particularly when he discusses the mysteries of nature. The earlier metaphor of catechumen is not foreign to Galen for he uses the language of initiation into mysterious, sacred liturgy:

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[513] Galen, *On Anatomical Procedures*, 1956, 149; Frede, "Galen's Theology," 107–8.
[514] Galen, *Galen on the Usefulness of the Parts of the Body*, 189.
[515] Ibid., 191.

> I want you now to pay me closer attention than you would if you were being initiated into the mysteries of Eleusis or Samothrace or some other *sacred rite* and were wholly absorbed in the acts and words of the hierophants. You should consider that this mystery is in no way inferior to those and no less able to show forth the wisdom, foresight, and power of the Creator of animals, and in particular you should realize that I was the very first to discover this *mystery which I now practice*. Certainly no other anatomist has known about any of these nerves or about the things of which I have spoken earlier in the construction of the larynx, and this is the reason why they have erred so greatly in determining actions and have not told a tenth of the utilities of the parts. Accordingly, even if you have not done so before, fix your mind now on holier things, make yourself a listener worthy of what is to be said, and follow closely my discourse as it explains the *wonderful mysteries of Nature*.[516]

It is important to note four things. First, Galen is at pains to show that anatomical knowledge is no less effective than religious rituals for revealing knowledge of God. Second, he considers anatomical knowledge to be a mystery that is practiced. Third, the mystery has to do with the larynx, which he later reveals to be the recurrent laryngeal nerve, which previous anatomists have missed. Galen proclaims that he is the one who discovered it. Fourth, Galen leads others in fixing their minds on holier things by explaining mysteries of nature manifested as the recurrent laryngeal nerve. Galen the priest shepherds his followers into the temple of the body where the evidence of God can be found.

As Galen explains, the recurrent laryngeal nerve, which descends from the brain in the left side of the neck, wraps around the arch of the aorta, and then ascends to innervate the larynx for producing the voice. He knows this because of vivisection experiments that demonstrate the silencing of an animal after severing this nerve. Because Nature does nothing in vain, Galen reasons that this is evidence of perfect design because by wrapping around the aorta in the thorax, the nerve is extra protected by surrounding structures and ligaments thereby protecting the ability to

[516] Ibid., 367. Emphasis added.

phonate.[517] Galen remains speechless before the immense wisdom and power of the Creator:

> I confess myself unable to praise as they deserve the wisdom and power of the One who has created animals. Greater not only than commendation but even than hymns of praise are works such as these; before we see them, we are convinced they are impossible, but when we have seen them, we realize that our understanding was deficient, especially when with very little trouble and by the use of only one little instrument their Creator has produced such an absolutely perfect, flawless work as we can see in the turning-post for these nerves.[518]

Not only does he think that his anatomical theology can compete with the religious rituals, but in fact Galen thinks the former surpasses the latter. He invites all religious men to partake in anatomical knowledge because the proofs of Nature are clearer than the proofs of pagan mysteries: "I think that all men of whatever nation or degree who honor the gods should be initiated into this work, which is by no means like the mysteries of Eleusis and Samothrace.[519] For feeble are the proofs that these give of what they strive to teach, but the proofs of Nature are plain to be seen in all animals."[520] Essentially, Galen argues that anatomical theology is accessible to all men because it is plainly evident and is, in a sense, a more democratic religion.

Galen ends his work of anatomical philosophy and theology, *On the Usefulness of the Parts*, with a telling passage that shows the liturgical character of his anatomical theology. He entitles the last book of this work "Epode." In the last lines of the work, he explains what he means by "Epode." He compares his anatomical work to religious, poetic chants that use the language of liturgy:

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[517] Galen, *On Anatomical Procedures*, 1962, 81–82; Galen, *Galen on the Usefulness of the Parts of the Body*, 370.
[518] Galen, *Galen on the Usefulness of the Parts of the Body*, 370.
[519] Eleusis and Samothrace were the names and locations of two prominent classical Greek mystery cults. Eleusis was a cult of Demeter and Kore, located near Athens; Samothrace was a cult of the Great Gods on the island of Samothrace in the northern Aegean Sea. Initiation into these mystery cults provided for extraordinary experience through ritual practices that allowed for a better afterlife. See Robert Parker, *On Greek Religion* (Ithaca: Cornell University Press, 2011), 250–55.
[520] Galen, *Galen on the Usefulness of the Parts of the Body*, 731.

> This book like a good epode sets forth these many and great advantages of the work I have now completed. By "epode" I do not mean the magician who uses enchantments; for we know that the melic poets, called lyric by some, have not only a strophe and an antistrophe but a third song as well, an epode which they sued to chant standing before the altars and, as they say, singing hymns of praise to the gods. And so, likening this book to such an epode, I have given it that name.[521]

By invoking altars and hymns, epode, at least the way Galen uses it, can be likened to a pagan Eucharistic celebration. In this sense, Galen's anatomical theology is akin to a pagan liturgy of the Eucharist: in the breaking of the sacrificial animal, divine truth is revealed. Thus, in the end for Galen, anatomical dissection is a liturgical knowledge, but inflected by an immanent, rationalist mood.

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We have seen in this chapter that Galen matures the anatomical rationality. He receives the twin strands of the anatomical rationality from Aristotle's anatomical philosophy that sought to investigate the causes of living animals as a divine knowledge and from Herophilus' medical anatomy for the purpose of advancing the medical *technē.* However, by coupling these dual goals with a deep reverence for the Demiurge that he receives from Plato, Galen transposes the anatomical rationality into a new theological key, surpassing the divine aims of Aristotle. For Galen, the method of anatomical dissection alone is the source of knowledge of a natural theology that discloses unspeakable mysteries, giving evidence of the Creator's wise power that makes living things adorned with beautiful usefulness down to the smallest details.

However, while one may admire Galen for suspending metaphysical skepticism about the nature of God, the nature of the soul, or the temporal nature of the universe (finite or eternal) in order to remain true to his pursuit of practical philosophy and religious devotion, his lack of deeper metaphysical commitments

[521] Ibid., 733.

haunts his anatomical theology. Because Galen rejects creation *ex nihilo* out of hand, by implication he has no other metaphysical recourse but to place God as one being (while exceedingly great) among a chain of beings. Although he does not delve into the language of metaphysics or ontology, he does speak of the Creator being restricted to material and natural necessity. Galen's god is not all-powerful nor all-wise because he remains constrained by categories that can be quantified theoretically by human measure. While Galen speaks of mystery, through human reasoning, one can, in theory, exhaustively know all of the mechanisms of a living thing's usefulness, which results in evacuating the thing of its mystery. Recall that Galen considers it theoretically possible to demonstrate scientifically the essence of the soul. If one follows Galen's logic of anatomy, both physical and mental anatomical dissection are the means to plumb the depths of what is hidden and bring it to light, making visible what had been previously invisible. To dissect the body and the soul into its parts in the context of the whole, uncovering the usefulness of each, is to know the nature of the body and the soul. Through such an anatomical method the mystery of nature is revealed. However, Galen does not stop to consider the wonder of existence itself: why is there anything at all? Such a consideration, ultimately prompted by creation *ex nihilo*, would show Galen that mystery pervades all living things no matter how deep one dissects.

Moreover, Galen's philosophical zeal for knowledge of the usefulness of things combined with the pious impulse to enter into the mysteries effectively compels him to make anatomical dissection a second nature, as if to brand himself with *technē*, and to exhort others to the do same as a religious duty. While Galen may have had a high view of the soul's ability to grow in wisdom as evidenced by the view of "philosophy as a way of life," the key to his anatomical philosophy and theology is

the methodology employed – the *hodos,* the "way" of anatomical dissection. If one then couples this dissective spirit with Galen's view that the essence of man and Nature is *technē*, then Galen's anatomical theology provides the impetus for unveiling *physis* as the mysteries of God by violent means and even altering *physis* for the sake of usefulness, which is essentially *technē*. The irony of Galen's desire to dissect is that while anatomy aspires to reveal beauty, mystery, and divine knowledge within nature, the anatomical method to get there can be unnatural and violent. In short, unnaturally brutal *technē* is necessary to reveal the beauty and wonder of nature.

This anatomical theology that reveals knowledge of God's wisdom and power through anatomical dissection and vivisection is a kind of pagan liturgy of the Eucharist. Something (or someone) has to die for the truth of mystery to be revealed. Rather than the God-man sacrificing Himself for the salvation of the world, Galen's anatomical liturgy sacrifices animals, often times subjecting them to uncomfortable suffering, to reveal the marvelous work of the Creator. Through the material, habitual, and ritualistic practice of anatomical dissection, one can peer into the divine mysteries. This sounds strikingly similar to the concept of Neoplatonic theurgy, whereby the divine mysteries are known through material practices, systematically pioneered by Iamblicus (ca. 245 – ca. 325 CE) who post-dates Galen.[522] However, despite the language of mystery, Galen is still a rationalist because his anatomical method rests upon scientific demonstration and assumes that what cannot be demonstrated cannot be known. In the next chapter, we transition from the rationalist anatomical theology of Galen to the logical theological anatomy of Nestorius. Instead of dissecting animals to disclose the design of the Creator, Nestorius metaphysically dissects the God-man, dividing the divine from the human.

[522] For a good introduction to Iamblichus and theurgic Neoplatonism, see Gregory Shaw, *Theurgy and the Soul: The Neoplatonism of Iamblichus*, 2nd ed. (Kettering, OH: Angelico Press/Sophia Perennis, 2015).

CHAPTER 4

THEOLOGIZING THE ANATOMICAL RATIONALITY: DISSECTING THE TWO NATURES OF CHRIST

> *The idea of a supernature added to nature…is a Western one; it is the result of that malady of analysis and separation characteristic of the Western mind.*
> – Yves Congar[523]

> *Logical intelligence – that of* homo faber *rather than that of* homo sapiens *– begins by separating, "defining", isolating objects in order afterward to connect them again artificially; and it is no less certain that its desire for analytical clarity makes it impatient of any idea of mystery . . . a condition of science which carries with it its own penalty.*
> – Henri de Lubac[524]

From Anatomical Theology to Theological Anatomy

In the last chapter, we saw how Galen developed an anatomical theology, which, at its core, sought to uncover the invisible cause of nature and to make it visible both to physical and mental vision. Medical reasons for anatomical dissection gave way to theological ones. After Galen arose the Nestorian controversy, which addressed how the invisible and the visible related to one another in the God-man, Jesus Christ, who is fully divine and fully human. The cosmological Christology in Colossians 1:15 speaks of Christ as the "image of the invisible God" in whom all things were created, both visible and invisible.

Cyril of Alexandria, the chief theological opponent of Nestorius, described the Incarnation as "the invisible one…made visible in the flesh."[525] Cyril followed the tradition of the Alexandrian "school" (as opposed to the Antiochene "school") which sought to expound the essential paradox of the eternal invisible God communicated to

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[523] Yves Congar, *Irenikon* (1951), 309-310, quoted in Henri de Lubac, *A Brief Catechesis on Nature and Grace*, trans. Richard Arnandez (San Francisco: Ignatius Press, 1984), 36.
[524] Henri de Lubac, *Catholicism: Christ and the Common Destiny of Man*, trans. Lancelot C. Sheppard and Elizabeth Englund (San Francisco: Ignatius Press, 1988), 308.
[525] Cyril of Alexandria, *On the Unity of Christ*, trans. John Anthony McGuckin (Crestwood, NY: St. Vladimir's Seminary Press, 1995), 61.

the visible world, mediated by the image of the Logos.[526] A key theological presupposition was the union of the two natures with the Logos as the subject who lived a human life. While Cyril defended the Incarnation as a paradox dictated by the biblical narrative of the divine economy, Nestorius, as an inheritor of the Antiochene theological tradition, instead employed a conceptual apparatus to protect the doctrine of divine impassibility whose key theological supposition was the separate, parallel realities of the divine and human natures. For the sake of logical and semantic precision, Nestorius necessitated the use of mental dissection that divided the divine and human natures of Christ from one another. For Nestorius to understand the relation between the two natures, he wielded a mental scalpel to compartmentalize the natures of Jesus Christ into the divine and human parts. Nestorius often used the word *diairesis* to describe the division of the natures of Christ. Crucially, *diairesis* is the same word that Aristotle and Galen used to describe physical and logical dissection. Thus, Nestorius dissected the person of Christ into two completely separate natures. Consequently, Cyril charged Nestorius with heresy for positing two sons. Shortly after Cyril's death in 444 CE, the Council of Chalcedon in 451 CE condemned Nestorianism as heresy precisely because it divided the two natures of Christ.[527] Through this dissective approach to the two natures, Nestorianism further intensified the metaphysical and theological dimensions of the anatomical rationality. Whereas Galen developed an anatomical theology, Nestorianism innovated a theological anatomy. To understand the God-man, Nestorianism dissected God from man. To put it differently, Nestorianism understood the whole of Christ by dissecting the two

[526] John Anthony McGuckin, *St. Cyril of Alexandria: The Christological Controversy: Its History, Theology, and Texts* (Crestwood, NY: St. Vladimir's Seminary Press, 2004), 176–77.
[527] I shall not address the thorny question of whether Nestorius was a Nestorian, that is, if he actually taught heresy over the course of his career or if he in fact was orthodox. For a narrative summary of the evidence, see Frances M. Young and Andrew Teal, *From Nicaea to Chalcedon: A Guide to the Literature and Its Background*, 2nd ed. (Grand Rapids, Mich.: Baker Academic, 2010), 288–98. Also see the bibliography on Antiochene Christology in McGuckin, *St. Cyril of Alexandria*, 416–18.

natures into parallel parts.[528] Nestorius rejected the paradox of the Incarnation, which Chalcedon ultimately upheld.

As part of his defense of the paradox of the Incarnation, Cyril made the distinction between the difference (*diaphora*) vs. the division (*diairesis*) of the two natures. Maximus the Confessor followed Cyril's distinction as he developed his own original Chalcedonian metaphysics. Maximus continued and expanded upon the difference/division distinction of Cyril such that *diaphora* is a creational good as an essential aspect of a creaturely ontology, whereas *diairesis* is an evil that separates God from man as a result of the Fall. The Incarnation affirms difference in union and overcomes the division of the Fall through the theandric unity of the divine and human natures in a mode that is fundamentally mysterious, incomprehensible, and paradoxical.

Because Maximus held that Christ the Logos is the One through whom all creation holds together, Christ's unity in difference of the two natures is the key to understanding the relationship between nature and the supernatural, between creation and God. Henri de Lubac elucidates the principle that "union differentiates."[529] He

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[528] Hans Urs von Balthasar laments how modern biblical scholars often employ an anatomical rationality to the study of Scripture such that the whole of the text is murdered for the "scientific" investigation of the parts of the text in order to know it: "Does it not make one suspicious when Biblical philology's first move in its search for an 'understanding' of its texts is to dissect their form into sources, psychological motivations, and the sociological effects of milieu, even before the form has been really contemplated and read for its meaning as form? For we can be sure of one thing: we can never again recapture the living totality of form once it has been dissected and sawed into pieces, no matter how informative the conclusions which this anatomy may bring to light. Anatomy can be practiced only on a dead body, since it is opposed to the movement of life and seeks to pass from the whole to its parts and elements. It is not impossible that certain relations within the canonical form itself may occasionally call for and justify such a procedure. But one should first ask whether such attempts to work back 'scientifically' to real or alleged sources are not most useful when they once again demonstrate the indivisibility of the definitively expressed Word." *The Glory of the Lord: A Theological Aesthetics, Vol. 1: Seeing the Form*, trans. Erasmo Leiva-Merikakis, 2nd ed. (Ignatius Press, 2009), 31. I thank Karen Kilby for directing me to this passage.

[529] Lubac, *Catholicism*, 330–31. "Unity is in no way confusion, any more than distinction is separation. For does not distinction imply a certain connection, and by one of the most living bonds, that of a mutual attraction? True union does not tend to dissolve into one another the beings that it brings together, but to bring them to completion by means of one another. The Whole, therefore, is 'not the antipodes, but the very pole of Personality.' 'Distinguish in order to unite', it has been said, and the

notes that the Incarnation is the paradigm for the relationship between nature and the supernatural:

> Since in Jesus Christ the Transcendent made itself (partially) immanent, since God's gift has been implanted in the depths of man's nature – for the two elements which we deal with here, nature and the supernatural, have not become an intermixture or confusion but have been joined in intimate union in dependence on and in the image of the two natures in Christ.[530]

As we shall see, Maximus' Christological metaphysical vision has no place for division but a central role for difference through the paradigmatic mediation of Christ's person in whom the two natures are differentiated precisely because of unity. Creation retains its plurality of differences through union with God.

In this chapter, we shall see two different approaches to the paradox of the Incarnation and the relationship between the divine and human natures of Christ. Whereas the Alexandrians interpreted philosophy in light of Scripture, the Antiochians interpreted Scripture in light of philosophy.[531] On the one hand, Cyril as an Alexandrian stuck with a reading of the biblical narrative that defended the paradox and mystery of the Incarnation, the Word made flesh, while Nestorius as an Antiochian resorted to philosophical dissection of the two natures, resulting in a parallelism of the divine and the human, on the other. For Nestorius, philosophical concepts illuminated the hiddenness of the Scriptures and brought them into visibility by way of theological anatomy. We shall then follow the continuity from Cyril to Maximus and see how the latter developed a Chalcedonian metaphysics "without confusion" (*asugchutōs*) and "without division" (*adiairetōs*)[532] that overcame the anatomical rationality in favor of a rationality completed in the mystery of Christ.

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advice is excellent, but on the ontological plane the complementary formula, unite in order to distinguish, is just as inevitable. […] Union differentiates. Solidarity binds together."

[530] Lubac, *A Brief Catechesis on Nature and Grace*, 85.

[531] John J. O'Keefe, "Kenosis or Impassibility: Cyril of Alexandria and Theodoret of Cyrus on the Problem of Divine Pathos," *Studia Patristica* 32 (1997): 358–65.

[532] *Asugchutōs* and *adiairetōs* are adverbs taken directly from the Chalcedonian *Definitio fidei*.

Nestorian Controversy, Christological Dissection

The Nestorian controversy began over Mary's title as the *theotokos*, "God bearer," but ultimately boiled down to "confessional titles and precise rules of exegesis."[533] *Theotokos* had been a traditional title for Mary but became the boundary line that circumscribed each side of the debate. The controversy unfolded with the *theotokos* as a marker of orthodoxy. Nestorius denied the *theotokos,* while Cyril of Alexandria vigorously defended it. Although someone with a modern perspective may think such a debate quibbles over semantics, the way each side argued revealed much deeper disagreements over the relationship between visible and invisible, nature and grace, unity and difference, divine and human, and, most important for our purposes, over ways of theological knowing. The Cyrilline Alexandrian approach affirmed the paradoxical mystery of the Incarnation that emphasizes the union of the two natures, while the Nestorian Antiochene approach sought linguistic precision to defend divine impassibility. As a result, Nestorianism employed as an axiom the division between divine and human, Creator and created.[534] Let us look more closely at the texts of the controversy.[535]

Nestorius' Theological Anatomy

In 429/430 CE Nestorius preached his first sermon against the *theotokos.* As the archbishop of Constantinople, he was asked to settle a theological dispute, namely on the validity of the veneration of Mary as Mother of God. Following the Antiochene presupposition of the complete separateness of the divine and human natures, he

[533] McGuckin, *St. Cyril of Alexandria*, 154.
[534] Young and Teal, *From Nicaea to Chalcedon*, 296.
[535] Most of Nestorius' writings are no longer extant as they were burned after Nestorius was declared heretical.

posited that Mary is either *theotokos* (God bearer) or *anthrōpotokos* (human bearer). Nestorius then asked rhetorically as a challenge to the *theotokos* title, "Does God have a mother?" He commented further, "A Greek without reproach introducing mothers for the gods! Is Paul a liar when he says of the deity of Christ, 'without father, without mother, without genealogy' [Heb. 7:3]? Mary, my friend, did not give birth to the Godhead (for 'what is born of the flesh is flesh [John 3:6]). A creature did not produce him who is uncreatable."[536] For Nestorius, the *theotokos* title implied that Mary, the creature, has produced through childbearing the Creator, who by definition has no beginning. Instead, Mary gave birth to the human being of Jesus, "the instrument of the Godhead." The Holy Spirit formed out of Mary "a temple for God the Logos, a temple in which he dwelt."[537] And when Christ died, "that which was buried in the tomb was not in itself God. If that were the case, we should manifestly be worshipers of a human being and worshipers of the dead."[538]

However, Nestorius attempted to hold to the orthodox presupposition about the Incarnation that Christ is fully God and fully human. Rather than posit a union of the two natures at the metaphysical level, which would be in danger of falling into Apollonarianism,[539] Nestorius assumed a union of honor that relate the two natures, for he made clear that Christ is at once God and man. Jesus Christ is God because He is worshipped as such: "I revere the one who is borne because of the one who carries him, and I worship the one I see because of the one who is hidden. God is undivided from the one who appears, and therefore I do not divide the honor of that which is not divided. *I divide the natures, but I unite the worship.*"[540] The two natures are divided,

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[536] Nestorius, "First Sermon against the Theotokos," in *The Christological Controversy*, trans. Richard A. Norris, Jr. (Philadelphia: Fortress Press, 1980), 124.
[537] Ibid., 125.
[538] Ibid., 130.
[539] This is the heretical view that Jesus had a divine mind, not a human mind.
[540] Nestorius, "First Sermon against the Theotokos," 130. Emphasis added.

but they are united in the "dignity of the association or conjunction."[541] What are the implications of Nestorius' view? While the two natures are united by honor and conjunction, they do not communicate nor reciprocate with one another. Nestorius' Christ results in a parallelism of natures that never relate on a deeper metaphysical level, all for the sake of linguistic precision.

In narrating the events surrounding this sermon, John McGuckin points out that Nestorius demanded semantic precision, signaled by the repeated use of "strictly speaking." In a letter in the wake of this sermon, Nestorius provided commentary on what he thought to be at the heart of the theological dispute over the *theotokos*. He declared that both *theotokos* and *anthrōpotokos* were inaccurate "strictly speaking." On the one hand, *theotokos* fails to note that Mary is not the mother of God but rather the mother of the man worshipped as divine and therefore ascribed as God. On the other hand, *anthrōpotokos* accounts for the fact that Mary is the mother of this man but implies that he is merely a man, which denies the deity of Christ. In his reply to Cyril's second letter, Nestorius instead opted for the title of *Christotokos*, "Christ bearer," since, in his view, this was a more biblical title and affirmed that Christ is both God and man.[542] McGuckin notes how "strictly speaking" plays a central role in Nestorius' methodology: "Throughout all his work Nestorius stressed the need for semantic exactness in this difficult theological area, to such an extent that *the approach became the hallmark of his style.*"[543] In other words, the controversy over *theotokos*, which started as an issue over titles, became an issue of methodology and analytical style.

The monks of Egypt who opposed Nestorius' so-called solution concluded that denying the *theotokos* resulted in denying that Jesus Christ is God. They accused

[541] Ibid., 131.
[542] McGuckin, *St. Cyril of Alexandria*, 366.
[543] Ibid., 28. Emphasis added.

Nestorius of teaching that Jesus Christ is a mere man in the vein of the ancient heresy of Paul of Samosata.[544] In a mocking, pedantic manner, the monks employed the "strictly speaking" language against Nestorius as a syllogism: "If Mary is not, strictly speaking, the Mother of God, then her son is not, strictly speaking, God."[545] The syllogism became a rallying cry in the theological battle against Nestorius in the ensuing, unfolding controversy. Thus, for the opponents of Nestorius, *theotokos* was the badge of orthodoxy: if Mary is not *theotokos*, then Jesus is not God. In the eyes of the monks who defended the *theotokos* title, Nestorius' quest for linguistic precision resulted in heresy. When Cyril entered the debate, he charged Nestorius with teaching a "two sons" Christology, based on the implication that strictly separated natures must have two separate existences.

In response to a letter from Cyril, Nestorius praised Cyril for dividing the natures: "I applaud the fact you make a division between the natures according to Godhead and manhood, admitting their conjunction in one persona."[546] Yet, later in the letter, Nestorius charged Cyril with contradiction and incomprehensibility. On the one hand, Cyril denied that God the Word needed a second generation from a woman, but on the other hand, he spoke of God the Word being born of Mary. Nestorius interpreted this equivocation as a corruption and destruction of the divine attributes, for the eternal and impassible Godhead is now passible and newly created. While Nestorius misunderstood Cyril by not accounting for the distinction that the latter makes between division and difference of the two natures (as we shall see later), the important point is that Nestorius created for himself a false dilemma when it came to

[544] This is "a form of Adoptionism whereby the Logos visited a human person, Jesus, to 'indwell him' with divine inspiration. The deity was quite distinct from his human person, the man Jesus. It was a case of two subjects alongside another (*allos kai allos*). The doctrine was condemned at the Synod of Antioch in 268, and Paul's name was associated with all similar schemes thereafter." Ibid., 28–29 n. 67.
[545] Quoted in ibid., 28.
[546] Ibid., 366.

the *how* of the Incarnation: either the union of the two natures results in an essential change of the natures to create a third blended nature or the two natures must be strictly divided. To avoid heresy with the former, Nestorius opted for the latter driven by his philosophical methodology. His theological imaginary does not allow for paradox or mystery to account for the how of the unity of the different natures in the Incarnation. To protect his Antiochene theological presuppositions, namely divine impassibility and the strict division of the two natures, Nestorius resorted to semantic precision. As a result, he dissected the metaphysical body of Christ in two as a kind of theological vivisection. He was condemned for heresy at the Council of Ephesus in 431 CE.

Cyril of Alexandria's Christological Vision

Cyril, the patriarch of Alexandria, was foremost a biblical exegete before he ever entered into the theological fray with Nestorius. Because he followed the Alexandrian theological sensibility, Cyril's theological agenda greatly contrasted with Nestorius' theological presuppositions. He countered Nestorius' metaphysical dissection with the unity of Christ's person.[547] Instead of starting from the concepts of divine impassibility and the division between the divine and the human, Cyril started primarily with what he understood to be the biblical testimony of the economy of the Incarnation wedded to the Alexandrian emphasis on the unity of Christ. His Christological vision was three-fold. First, Cyril defended the economy of the Incarnation. In addressing the question of "why the Incarnation?" he answered with the economy of salvation. In other words, the salvation of the human race is the motivation for the Incarnation. But what does he mean by economy of salvation? A

[547] For a profound treatment of the integral duality of the Christ's person over against the separation of Nestorian separation, see Aaron Riches, *Ecce Homo: On the Divine Unity of Christ* (Grand Rapids, Mich.: Eerdmans, 2016).

key theological presupposition for Cyril was that salvation entailed deification – a transformation of humanity as an act of ontological re-creation and restoration from what was lost in the Fall, occurring in a salvific exchange between God and man. This is best summarized by the patristic dictum of Athanasius: "God became man (*enanthropoēsis*) that man might become god (*theopoiēsis*)."[548] As Frances Young comments, "The union of the spiritual and material worlds in the incarnation was at the heart of Cyril's metaphysical assumptions. He was wedded to the Alexandrian tradition of *theopoiēsis,* of deification realized by the saving initiative of God himself."[549] This is why Cyril would have nothing to do with a strict division of the two natures, for a mere conjunction of natures (as in Nestorius' account) cannot deify.[550] Thus, in the economy of the Incarnation, Christology, salvation, and deification all cohere.[551]

Second, Cyril presupposed the theological validity of the *communicatio idiomatum*.[552] As the metaphysical basis for the exchange between God and man in deification, the *communicatio idiomatum* entails the exchange of attributes between the divine and human natures of Christ without changing either one. So central was this doctrine to Cyril's Christological vision that Thomas Weinandy goes so far as to call the *communicatio idiomatum* "the hermeneutical key for unlocking Cyril's Christology."[553] Cyril grounded his defense of the *communicatio idiomatum* on the Nicene Creed, which proclaimed that the Son who was *homoousion* with the Father was the same Son who became incarnate of the Virgin Mary. Because of the

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[548] Athanasius, *De Incarnatione* 54.3, PG 25, 192B.
[549] Young and Teal, *From Nicaea to Chalcedon*, 319.
[550] Cyril of Alexandria, *On the Unity of Christ*, 73.
[551] McGuckin, *St. Cyril of Alexandria*, 184–88.
[552] The "communication of idioms" is the doctrine "that in view of the unity of Christ's Person, His human and divine attributes, experiences, etc. might properly be interchanged." J. N. D. Kelly, *Early Christian Doctrines*, Rev. ed. (San Francisco: Prince Press, 2003), 143.
[553] Thomas G. Weinandy, "Cyril and the Mystery of the Incarnation," in *The Theology of St. Cyril of Alexandria: A Critical Appreciation* (London; New York: T & T Clark, 2003), 23–54, quote on p. 31.

communicatio idiomatum, Jesus is one reality, not two as is implied by the strict division of natures, and is the same as the Son of God. Third, deification and Eucharist were intertwined with one another. Because of the unity of the Logos and the flesh as well as the *communicatio idiomatum*, the fleshly body of Christ takes on the divine energy (*energeia*) by which all things are given life, making the Eucharist a life-giving sacrament because it is the very flesh of God. By partaking in the very flesh of God that is filled with the divine energy, one becomes transformed and deified.[554] In short, Nestorian division of the two natures makes the Eucharist devoid of life and ineffectual for one's salvation. The common thread running through Cyril's theological approach is the constant affirmation of mystery.

Long before Cyril entered into the controversy with Nestorius over the *theotokos* and the two natures of Christ, he worked on biblical studies and exposition. As Frances Young points out, "Cyril would probably have been remembered as a biblical commentator, if it had not been for the Christological controversy."[555] All of the key metaphysical and theological aspects of his Christological position can be found in his biblical commentaries prior to the Nestorian controversy. In the commentary on Isaiah, one can glimpse Cyril's Alexandrian, neo-Platonic metaphysics that assumed two different levels of meaning: the intelligible realm that can be accessed through the mind and the sensible realm that is perceived by the senses, both of which are unified in the created realm, manifested in man who is both spiritual and material and epitomized by Christ who mediates this dual reality.[556] Commenting on Isaiah 6:1, "I saw the Lord of hosts sitting upon a throne high and lifted up; and the house was full of his glory," Cyril does not interpret the divine throne to be lifted up in a physical sense. Rather, following the neo-Platonic

[554] McGuckin, *St. Cyril of Alexandria*, 39.
[555] Young and Teal, *From Nicaea to Chalcedon*, 304.
[556] Ibid., 307.

framework, he understands this to mean that "the glory of God's rule is regarded as transcending every intelligible nature."[557] Cyril is saying here that God's glory transcends creation and surpasses what the created intellect can comprehend. In other words, God is uncreated, incomprehensible, and invisible. Further, he comments on Isaiah 6:3, "'Holy, holy, holy is the Lord of hosts; the whole earth is full of his glory.'" Although Isaiah does not mention nor make an allusion about Christ, Cyril reads this as a Christological text. In keeping with the more allegorical hermeneutic of the Alexandrian school, he interprets the holy seraphim proclaiming "the whole earth is full of his glory" as an "announcing in advance the mystery of the dispensation that has been brought about by Christ. […] When the only-begotten Word of God became man, the whole earth was filled with his glory."[558] For Cyril, Isaiah 6 is a distinctly Christological text that proclaims that in the Incarnation the earth is filled with God's glory. When the Word became flesh, the glory of God became visible and manifest in the material order. In the Incarnation the invisible, transcendent glory of God is made visible in the flesh. Thus, for Cyril Isaiah 6:1-3 highlights the transcendence and immanence and the invisible and visible of God's glory epitomized in the Incarnation. Cyril looked for the mystery of the economy of the Incarnation wherever it may be found, even if stretching the limits of allegorical interpretation.

Although often neglected, Cyril's commentary on John summed up his theology, linked his Christology and exegesis, and provided the ground for his defense against Nestorius.[559] In the commentary Cyril further developed incarnational distinctions, concepts, and language that clarified his theology and Christological vision. In the Incarnation, humanity is drawn up into divine life. Norman Russell

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[557] Cyril of Alexandria, "Commentary on Isaiah," in *Cyril of Alexandria*, trans. Norman Russell (London: Routledge, 2000), 74. PG 70, 173AB.
[558] Ibid., 76. PG 70, 176AB.
[559] Weinandy, "Cyril and the Mystery of the Incarnation"; Young and Teal, *From Nicaea to Chalcedon*, 310.

articulates this succinctly: "At the Incarnation the eternal Word united himself with human nature in a way that implied not simply a moral union on the one hand, or any change in the Word in the other, but a drawing up of humanity into the divine life itself."[560] Through Christ humans are raised above nature through grace:

> We, therefore, ascend to a dignity that transcends our nature on account of Christ, but we shall not also be sons of God ourselves in exactly the same way as he is, only in relation to him through grace by imitation. […] What he is by nature and in reality we who have attained these things become in a relative sense, for we have acquired this blessing by grace rather than by natural status.[561]

In other words, humans retain their human nature but transcend it through the grace of Christ. But how is this grace conferred? A key text that shaped Cyril's Christology is the mysterious yet pregnant verse, "the Word became flesh" (John 1:14). Cyril understood the Fall of man to consist in the loss of grace that is given to the soul for immortality, resulting in death for the flesh is alone. What is required for life and immortality is for "the fallen body [to be] united in an ineffable manner with the Word that endows all things with life."[562] A vital dimension to the Incarnation is the full humanity of Christ to effect salvation through the healing of fallen humanity, using a physician-patient analogy:

> That, in my opinion, is the most probable reason why the holy Evangelist, indicating the whole living being by the part affected, says that the Word of God became flesh. It is so that we might see side by side the wound together with the remedy, the patient together with they physician, that which had sunk towards death together with him who raised it up towards life, that which had been overcome by corruption together with him who drove out corruption, that which had been mastered by death together with him who was superior to death, that which was bereft of life together with him who is the provider of life. […] He really did become flesh, that is to say, a human being.[563]

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[560] Norman Russell, *Cyril of Alexandria*, Early Church Fathers (London: Routledge, 2000), 97.
[561] Cyril of Alexandria, "Commentary on John," in *Cyril of Alexandria*, trans. Norman Russell (London: Routledge, 2000), 101.
[562] Ibid., 105.
[563] Ibid., 105–6.

However, lest one thinks that the Word becoming flesh is merely an instrumental act for the giving of grace to fallen humanity, Cyril makes it clear that Christ's own humanity was in need of sanctification, further commenting on John 1:14: "And it was necessary that when the flesh had become [Christ's] own flesh it should partake of his own immortality." Because of the union of the divine and the human natures in the Incarnation, there is a transformation of the human nature due to its participatory relation with the divine nature. Cyril uses the analogy of the transformative effect of fire upon fire upon wood:

> Considering that fire has the power to transfer to wood the physical quality of the energy naturally present within it and all but transform into itself whatever it comes to be by participation, it would be quite absurd if we did not take it for granted that the Word of God who transcends all things could make this own proper good, which is life, operative in the flesh.[564]

In other words, through the union of the divine and human natures, the Word of God becoming flesh transforms the flesh to have divine life operative within it. Christ's flesh, by virtue of the Incarnation, is a life-giving flesh.

Furthermore, Cyril employs an Adam-Christ typology to ensure that the life-giving flesh of Christ indwells all of humanity. Commenting on John 1:14b, "And dwelt in us (*en hēmin*),"[565] Cyril regards this phrase of John the Theologian to be a deep mystery. Because all of humanity is in Christ, Christ is in all of humanity:

> For we were all in Christ. The common element of humanity is summed up in his person, which is also why he was called the last Adam: he enriched our common nature with everything conducive to joy and glory just as the first Adam impoverished it with everything bringing corruption and gloom. This is precisely why the Word dwelt in all of us by dwelling in a single human being, so that through that one being who was 'designated Son of God in power according to the Spirit of holiness' (Rom. 1:4) the whole of humanity might be raised up to his status so that the verse, 'I said, you are gods and all of you sons of the Most High (Ps. 82:6) might through applying to one of us come to apply to us all. Therefore 'in Christ' that which is enslaved is

[564] Ibid., 105.
[565] Norman Russell translates the Greek *en hēmin* as "in us," rather than the typical "among us" because "Cyril wishes to bring out the reciprocal meanings of the Pauline phrases 'in Christ' and 'in us.'" Russell, *Cyril of Alexandria*, 230 n. 27.

> liberated in a real sense and ascends to a mystical union with him who put on the form of a servant, while 'in us' it is liberated by an imitation of the union of the One through our kinship according to the flesh.[566]

By invoking the language of first Adam and last Adam, Cyril highlights the importance of the biblical narrative of Fall and Redemption to understand the Incarnation. While in Adam, all of humanity was condemned to corruption and death, whereas in Christ all of common humanity is endowed with joy and glory. Without using the language, Cyril adapts the *exitus* and *reditus* model of neo-Platonism for the purposes of the descent of the Word made flesh and the ascent of humanity made god through union with the Word made flesh. But this reciprocal relationship between "in Christ" and "in us" does not result in a mere return to the original state in the first Adam in the garden of Eden. Rather, the ascent in the last Adam leads to an advance beyond the first Adam: "In Christ as the first-fruits human nature was restored to newness of life. And in him we have gained also that which transcends nature. That is also why he was called a second Adam in the divine Scriptures (cf. 1 Cor. 15:45)."[567] Cyril's Adam-Christ typology provides the exegetical key for deification, the *communicatio idiomatum*, and the efficacy of the Eucharist.

This three-way relationship is clear in Cyril's discussion of John 6, which is the first attempt to interpret this text in Eucharistic terms.[568] Commenting on John 6:35, "He who comes to me shall not hunger and he who believes in me shall never thirst," Cyril explains that Christ promises nothing less than "the eucharistic reception of the holy flesh and blood, which restores man wholly to incorruption."[569] He

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[566] Cyril of Alexandria, "Commentary on John," 106–7.
[567] Ibid., 120. Cf. the comment from Robert Wilken: "In Christ mankind has a new beginning, but this beginning is not a simple return to the first creation, for the second Adam far surpasses the first and opens to men a new way which was not known before." Robert L. Wilken, "Exegesis and the History of Theology: Reflections on the Adam-Christ Typology in Cyril of Alexandria," *Church History* 35, no. 2 (1966): 139–56, quote on p. 151.
[568] Russell, *Cyril of Alexandria*, 230 n. 29.
[569] Cyril of Alexandria, "Commentary on John," 110.

clarifies that the holy flesh is "the holy body of Christ" which gives life and incorruption to those who receive it, "when it is mingled with our bodies."[570] Receiving the Eucharist into one's body is receiving the holy body of Christ who gives life. This is not simply any ordinary body, but rather the body of Him who is "Life by nature" that has within itself "the entire power of the Word that is united with it, and is endowed with his qualities, or rather is filled with his energy, through which all things are given and maintained in being."[571] In other words, the body of Christ that is received in the Eucharist holds intrinsic divine energy and power to impart life by virtue of its unity with the Word. The *communicatio idiomatum* is implied here, accounting for how the divine energy can be attributed to the flesh of Christ.

The direct consequence of the divine energy in the holy flesh that mingles with our bodies in receiving the Eucharist is deification. Cyril charges baptized communicants that partaking of the Eucharist is partaking of the divine nature: "Let us approach the divine and heavenly grace, and go up to the holy partaking of Christ. For that is precisely the way in which we shall overcome the deceits of the devil, and having become partakers of the divine nature (2 Pet. 1:4), shall ascend to life and incorruption."[572] Not only is the flesh of Christ life-giving because of the union with the divine Word, but also the flesh of those who partake of the Eucharist is in union

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[570] Ibid.
[571] Ibid., 111.
[572] Ibid. Cf. "It was not otherwise possible for man, being of a nature which perishes, to escape death, unless he recovered that ancient grace, and partook once more of God who holds all things together in being and preserves them in life through the Son in the Spirit. Therefore his Only-begotten Word has become a partaker of flesh and blood (Heb. 2:14), that is, he has become man, though being Life by nature, and begotten of the life that is by nature, that is, of God the Father, so that, having united himself with the flesh which perishes according to the law of its own nature…he might restore it to his own Life and render it through himself a partaker of God the Father…And he wears our nature, refashioning it to his own Life. And he himself is also in us, for we have all become partakers of him, and have him in ourselves through the Spirit. For this reason we have become 'partakers of the divine nature' (2 Pet. 1:4), and are reckoned as sons, and so too we have in ourselves the Father himself through the Son." Cyril of Alexandria, *In Jo.* 14:20. Quoted in Weinandy, "Cyril and the Mystery of the Incarnation," 24–25.

with the flesh of Christ: "And if the flesh of the Saviour became life-giving, seeing that it was united with that which is Life by nature, i.e. the Word that is from God, when we taste of it we have that life within ourselves, since we too are united with the flesh of the Saviour *in the same way* that flesh is united with the Word that dwells within it."[573] "In the same way" is emphasized to underscore that the union of the two natures of Christ is the same as the union of Christ's flesh with humanity's flesh. The holy flesh of the Eucharist transforms humanity's flesh into immortality: "And if by the touch alone of his holy flesh he gives life to that which has decayed, how shall we not profit more richly from the life-giving Eucharist when we taste it? For it will certainly transform those who partake of it and endow them with its own proper good, that is, immortality."[574] In the same way that the divine nature transforms the human nature of Christ, Christ's holy flesh transforms humanity's flesh in a divine way. In short, through union with Christ's body, humanity's flesh is deified.

While he remains certain that the Eucharist confers divine energy through its union with Christ's human flesh, which then unites with our human flesh to give life for salvation, Cyril regards the mode of union between the divine and human natures as beyond human understanding. "The Word was united with his own flesh in a transcendent manner that is beyond human understanding." He goes on to say how the holy flesh drives out corruption and death because of its divine energy. "Therefore he who eats the holy flesh of Christ has eternal life."[575] Commenting on John 17:11, "Holy Father, keep them in thy name, which thou hast given me, that they may be one, even as we are one," Cyril goes further to address how this ineffable union of divine and human mediates the relation between Creator and created, glory and humility, and spiritual and material realms:

[573] Cyril of Alexandria, "Commentary on John," 115. Emphasis added.
[574] Ibid., 116.
[575] Ibid., 117.

> In every respect he upholds the blending of the two elements into a single reality, I mean the human element, which in our case possesses a humble status, and the divine element, which brings forth the highest of all glories. For this text represents a mingling of both, and as we were saying earlier in our commentary, the divine element neither soars wholly to the heights nor indeed does it detach itself completely from our level. For he is God who has become man, occupying, as it were, *a middle position by an ineffable and indescribable union*, since he has neither left the sphere of the truly divine nor has he entirely abandoned that of the human. For his ineffable generation from God the Father raises him up, in that he is Word and Only-begotten, to the divine essence and to the glory that naturally accompanies it, while his self-emptying draws him down somewhat to our world.[576]

This is an extraordinary passage because Cyril declares that Christ straddles both the divine and human realms, the transcendent and immanent worlds. In this way, Christ is described as a mediator between these ontologically distinct planes. While Cyril does not expand beyond this passage to comment on the deep metaphysical structures of reality, the ineffable union of the two realms in Christ anticipates Maximus the Confessor's notion that Christ is the mediator between all differences and his Chalcedonian metaphysics of unity in difference.

We have seen that even before the Christological debate with Nestorius, Cyril developed a robust Christology based on an Alexandrian biblical exegesis of the economy of the Incarnation that ties together mystery, the *communicatio idiomatum*, the unity of the two natures, Eucharist, and deification. Grounded in this theological and metaphysical framework, Cyril attacked Nestorius' Christology. Cyril ultimately won the day. His Christological vision became part of the definition of faith at Chalcedon and in subsequent Councils, which Maximus then inherited.

Countering Nestorian Dissection: Cyrilline Paradox and Mystery

What were Cyril's chief arguments in his debate with Nestorius? First, Cyril appealed to the economy of the mystery and the tradition. In defending the *theotokos*,

[576] Ibid., 125–26. Emphasis added.

he argued that this title for Mary was supported by the tradition and the economy revealed in the biblical narrative: "We have been taught to think this way by the holy Fathers" and "the mystery of the spiritual economy in Christ is proclaimed to us by the divine scriptures."[577] In demonstrating fidelity to the Fathers, Cyril sought "to introduce no innovation into orthodoxy."[578] In an analogous manner to Cyril reading Adam as the type and Christ as the antitype, i.e., the fulfillment of the type, he read Eve as the type and Mary as the antitype in the economy of fall and redemption.[579] Frances Young judges Cyril's approach to be the first development in "'patristic argument' in theology, the appeal to statements of the Fathers alongside scripture as a means of ascertaining the proper tradition of interpretation."[580] As we have seen, Nestorius rejects the *theotokos* to protect the divine impassibility of the Word through a conjunction of the two natures. If we look through Cyril's theological lenses of *communicatio idiomatum*, mere conjunction is ultimately a division of the natures which destroys the economy of salvation: "That the incorporeal Godhead became a body, that is flesh endowed with a rational soul; and that if we separate these things from one another then we entirely and indisputably destroy the system of the economy we understand in Christ."[581] Thus, for Cyril, Nestorius' rejection of *theotokos* was a rejection of the tradition that informed the interpretation of scripture and the destruction of the economy of the Incarnation.

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[577] Cyril of Alexandria, "Letter to the Monks of Egypt," in *St. Cyril of Alexandria: The Christological Controversy*, trans. John McGuckin (Crestwood, N.Y.: St. Vladimir's Seminary Press, 2004), 247–48.
[578] Cyril of Alexandria, "First Letter to Succensus (Ep. 45)," in *Cyril of Alexandria: Select Letters*, trans. Lionel R. Wickham (Oxford: Oxford University Press, 1983), 71.
[579] Frances Young, "Theotokos: Mary and the Pattern of Fall and Redemption in the Theology of Cyril of Alexandria," in *The Theology of St. Cyril of Alexandria: A Critical Appreciation* (London; New York: T & T Clark, 2003), 55–74.
[580] Young and Teal, *From Nicaea to Chalcedon*, 302–3.
[581] Cyril of Alexandria, "Scholia on the Incarnation of the Only Begotten," in *St. Cyril of Alexandria: The Christological Controversy*, trans. John McGuckin (Crestwood, N.Y.: St. Vladimir's Seminary Press, 2004), 302.

Cyril attacked Nestorius for dividing the Word and its various implications. Cyril charged Nestorius with dividing the one Jesus Christ into two sons after the union:

> In this way we shall confess one Christ and Lord, not "worshipping" a man "along with" the Word (in case the idea of division [*tomēs*] should be brought in through the use of the phrase "along with") but worshipping one and the same Christ because the Word's body is not dissociated from him; with it he presides jointly with the Father himself – not that there are two jointly presiding sons, but that there is one in union with his own flesh. Deny substantial union as a crass impossibility and we fall into talk of two sons, for we shall be forced to assert a distinction between the particular man honoured with the title "Son" on the one hand, and the Word from God, natural possessor of both the name and the reality of sonship, on the other. The one Lord Jesus Christ must not therefore be divided (*diaireteon*) into two sons.[582]

As we have already seen, this two sons implication is a variant form of the adoptionist heresy, declaring that Christ is merely a man. Not only is dividing the Word heresy but also it is contrary to biblical experience, for the Scriptures speak of one Son and Lord with a body that is capable of being touched and seen, not something alien to the Word of God. By dividing the Word, the invisible God has been separated from the visible Jesus. One can no longer affirm that "the intangible has become tangible, the invisible visible."[583] The metaphysical reciprocity of the visible and the invisible in the Incarnation has been rent asunder.

The Greek word for "divide" that Cyril typically used in reference to the Nestorian controversy is *diairesis.* Recall that Aristotle used *diairesis* to refer both to logical and physical dissection as an epistemological tool of understanding the object of knowledge, whether it be classifying attributes in differing objects or vivisecting animals to know their causes. Cyril in a single instance (see the block quotation above) used the word *tomē*, meaning "to cut," to refer to Nestorius' division of the

[582] Cyril of Alexandria, "Second Letter to Nestorius," in *Cyril of Alexandria: Select Letters*, trans. Lionel R. Wickham (Oxford: Oxford University Press, 1983), 8–9.
[583] Cyril of Alexandria, "An Explanation of the Twelve Chapters," in *St. Cyril of Alexandria: The Christological Controversy*, trans. John McGuckin (Crestwood, N.Y.: St. Vladimir's Seminary Press, 2004), 176–77.

Word and man. Recall that *anatomē* is the Greek for "to cut up." In this way, Nestorius cut the two natures from one another. Cyril exploited the linguistic apparatus at his disposal to underscore the radical dissection of Nestorius' Christological scheme. The implication is that Nestorius resorted to a metaphysical dissection of the two natures of Christ in order to understand Christ. Nestorius employed a logical dissection to maintain semantic precision and to protect the philosophical presupposition of divine impassibility. Nestorius attempted to clarify the mystery of the relation of the two natures by mental dissection and then make them discrete in reality. Nestorius did not want to be mired in mystery but rather rested in the certainty of dissection. Cyril's relentless attack highlights how Nestorius' dissection of Christ undermines the entire economy of the mystery of the Incarnation. Consequently, Nestorian dissective method murders the Christ of salvation.

In response to the disastrous consequences of dividing the Word, Cyril mobilized the resources of his Christological vision to emphasize the union of the two natures in the single subject of the Word. Cyril placed primacy on the united, single subject rather than two parallel natures to protect the dynamic economy of the Incarnation.[584] Rather than separating how one predicates the Word versus the man in Christ, Cyril showed how the Scriptures testify that "the Word born of God and the man born completely of the holy virgin come together in unity. We do not exclude him from the terms of the divinity because of the flesh, nor do we reduce him to the level of a simple man because of his likeness to us."[585] In direct objection to Nestorius, Cyril did not apply the name "Christ" in parallel to the divine and human natures as if there were two Christs: "Because we acknowledge that the Word has been substantially united with flesh it is one Son and Lord Jesus Christ we worship

[584] McGuckin, *St. Cyril of Alexandria*, 355 n. 6.
[585] Cyril of Alexandria, "Letter to the Monks of Egypt," 255.

without…applying the name 'Christ' in parallel fashion both to the Word of God on his own and to a second woman-born 'Christ.'"[586] While the two natures remain different and unchanged, "after the union, the duality has been abolished…since he is one Son."[587] In a telling piece of linguistic evidence, Cyril declared that "two natures exist *adiairetos* after the union."[588] Wickham translates *adiairetos* as "inseparably" but it could also be rendered "undivided" or "undissected." In this way, Cyril emphasized the mode of union as undissected while maintaining the difference of the two natures.

For Cyril, the mind can differentiate the two natures but there is no actual division of the natures. Cyril places a primacy on the concrete reality of the union with an abstract difference of natures. To illustrate the conceptual difference of the natures, but the union in concrete reality, he uses the analogy of how the body and soul relate to one another: "The one, unique Christ has no duality though he is conceptualized (*noetai*) as compounded in inseparable unity out of two differing elements in the way that a human being, for example, is seen to have no duality but to be one, consisting of the pair of elements, body and soul."[589] Thus, Christ can be conceptualized as two different elements but He is not twofold. In consideration of the mode of union in the Incarnation, Cyril notes that the two natures are conceivable

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[586] Cyril of Alexandria, "Third Letter to Nestorius (Ep. 17)," in *Cyril of Alexandria: Select Letters*, trans. Lionel R. Wickham (Oxford: Oxford University Press, 1983), 18–19.

[587] Cyril of Alexandria, "To Acacius of Melitene (Ep. 41)," in *Cyril of Alexandria: Select Letters*, trans. Lionel R. Wickham (Oxford: Oxford University Press, 1983), 48–49. Cf. Cyril of Alexandria, "Scholia on the Incarnation of the Only Begotten," 307. "He is one, therefore, who was true God before the incarnation, and even in the manhood remained what he was, and is, and shall be. And so the one Lord Jesus Christ must not be divided up, as if there was a distinct man and a distinct deity. No, we say that Jesus Christ is one and the same, even though we recognize the difference of natures and keep them unconfused with each other. So when sacred scripture says that all the 'fullness of the godhead dwelt bodily' (Coloss. 2.9) in Christ we do not, for this reason, conclude that the Word simply dwelt in the man as if in a different Christ; nor do we divide things that have been united to one another so as to conclude there are two sons."

[588] Cyril of Alexandria, "Second Letter to Succensus (Ep. 46)," in *Cyril of Alexandria: Select Letters*, trans. Lionel R. Wickham (Oxford: Oxford University Press, 1983), 92–93.

[589] Cyril of Alexandria, "Third Letter to Nestorius (Ep. 17)," 22–23. Translation modified. Wickham translates *noetai* as "seen." This translation decision reflects the Greek tradition of correlating sight with cognition.

by the mind's eye in a purely mental manner: "As the question of the manner of the Only-begotten's becoming man appears for *purely mental consideration by the mind's eye* (*to horan tois tēs psychēs*), our view is that there are two united natures but one Christ, Son and Lord, the Word of God become man incarnate."[590] This mental seeing of the two natures is further intensified with the language of making visible to the mind the difference of the natures: "And even though the flesh endowed with a rational soul was not consubstantial with the Word born from God the Father, with whom it was united (for we can make visible mentally [*ho men nous phantazetai*] the difference of natures in the things united), nonetheless we confess One Son and Christ and Lord, since the Word has become flesh."[591] For Cyril, the mind is able to make visible the differences of the natures, but this remains an abstraction, since the most important aspect of the Incarnation is the concrete unity of the Word becoming flesh. While the mind can make visible the difference, the physical eyes see the invisible God made visible in the tangible flesh that is united to the Word.

Cyril makes a key distinction between difference (*diaphora*) and division (*diairesis*). The former maintains the ontological distinctions between the divine and human natures of the Incarnation, while the latter violates the unity of the Incarnation. In a clear challenge to Nestorius' conception of union as honor and worship, Cyril utilizes the difference/division distinction for his oneness view: "It is, then, one thing to divide (*diairein*) the natures even after the union and to say a man has been connected with God only in equality of honour, and quite another thing to

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[590] Cyril of Alexandria, "First Letter to Succensus (Ep. 45)," 76–77. Recall that Hippocrates first pioneered the use of "mind's eye" in the work *On the Art* to relate the language of mental seeing and medical reasoning. Such mental seeing allows for "seeing" into the body. See chapter 1 for further discussion.

[591] Cyril of Alexandria, "Second Letter to Succensus," in *St. Cyril of Alexandria: The Christological Controversy*, trans. John McGuckin (Crestwood, N.Y.: St. Vladimir's Seminary Press, 2004), 360. Translation modified.

acknowledge a difference (*diaphoran*) of terms."[592] While there is a theoretical, intellectual difference between the natures, there is no division between the two, analogous to the nature of man as body and soul: "The point is that man results from two natures – body and soul, I mean – and intellectual perception (*theoria*) recognizes the difference (*diaphoran*); but we unite them and then get one nature of man. So, recognizing the difference (*diaphoran*) of natures is not dividing (*diatemnein*) the one Christ into two."[593] According to Liddell and Scott's Greek Lexicon, *diatemnō* can carry the meaning "to cut through, cut in between, to sever."[594] Thus, *diatemnō* can have a dissective connotation. Difference upholds the integrity of the natures while division cuts apart their relation. Seeing a difference in the natures with the mind does not entail a metaphysical division that renders Christ dissected in two. Indeed, Cyril attributes a positive connotation to difference but a negative one to division:

> The Word of God the Father, together with his flesh, is the one and only Lord and Son. That the difference (*diaphora*) between the humanity and the divinity or indeed the distance separating them is vast I too will concede. For these elements I have mentioned are clearly different (*diaphora*) in their mode of being and nothing like each other. But when the mystery of Christ is set before us, our discussion of the union does not ignore the difference (*diaphora*) but nevertheless puts the division (*diairesis*) aside, not because we are confusing the natures or mixing them together, but because the Word of God, having partaken of flesh and blood, is still thought of as a single Son and is called such.[595]

For Cyril, division necessarily does violence to the unity of Christ's person, similar to the way that death tears apart the soul from the body; difference acknowledges the ontological gulf between the divine and the human without undermining the oneness of Christ.

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[592] Cyril of Alexandria, "To Acacius of Melitene (Ep. 41)," 54–55.
[593] Cyril of Alexandria, "To Eulogius (Ep. 44)," in *Cyril of Alexandria: Select Letters*, trans. Lionel R. Wickham (Oxford: Oxford University Press, 1983), 62–65.
[594] Henry George Liddell and Robert Scott, *A Lexicon Abridged from Liddell and Scott's Greek-English Lexicon*, Abridged (Oxford: Clarendon Press, 1871), 167.
[595] Cyril of Alexandria, "Against Nestorius," in *Cyril of Alexandria*, trans. Norman Russell (London: Routledge, 2000), 150. Cf. "Yet in what pertains to his deity by nature he was not 'with us' because the distinction between Godhead and Manhood cannot be elided, for the great difference between the natures is vast indeed." Cyril of Alexandria, "Scholia on the Incarnation of the Only Begotten," 296.

While Nestorius turns to dissection of the natures to maintain linguistic, surgical precision, Cyril readily admits that the mode of union of the two natures in the Incarnation is paradoxical and mysterious. For the sake of keeping divinity and humanity neatly compartmentalized, Nestorius rejects the *theotokos*, while Cyril declares the mode of union to be incomprehensible for the sake of the mysterious economy of salvation: "the Word from God the Father united to himself in some *inscrutable and ineffable manner*, a body endowed with mental life and that he came forth, *man from woman*, become what we are, not by change of nature but in gracious fulfillment of God's plan."[596] Echoing neo-Platonic language, Cyril speaks of the manner of union as transcendent that exceeds human knowing: "the Word was united with flesh endowed with a rational soul in a manner that is transcendent and ineffable and known only to himself"[597] and "entirely beyond conception."[598] In a sense, knowing the mode of union is a form of apophatic theology. Only God himself can know how the natures are united. Because the manner of union surpasses human conception, it also exceeds the limits of language, for unity "transcends speech and understanding."[599] However, Cyril does not consider this limitation as something to hide but rather a thing to admire: "I will not deny that our verbal explanations are vanquished at this key point, but this does not mean that the mystery of Christ is incredible, rather that it is all the more wonderful. So far as it is superior to all speech and understanding, so is it all the more worthy of every admiration."[600] He realizes the philosophical impossibility of uniting the unlimited divine nature that fills the cosmos with the limits of a particular body: "It is difficult to comprehend or express how he could be in the particular and in the universal, indeed it is impossible to do

[596] Cyril of Alexandria, "First Letter to Succensus (Ep. 45)," 72–73.
[597] Cyril of Alexandria, "An Explanation of the Twelve Chapters," 179.
[598] Cyril of Alexandria, *On the Unity of Christ*, 77.
[599] Ibid., 83.
[600] Cyril of Alexandria, "Scholia on the Incarnation of the Only Begotten," 319–20.

so."[601] Indeed, the unity of the Incarnation presses upon a paradox of the universal and the particular, held together in the person of the Word made flesh.

Styles of Argumentation, Ways of Knowing

Now that we have seen the respective positions of Nestorius and Cyril on the significance of difference vs. division of the two natures of Christ in union, let us now directly compare the styles of argumentation, which reveal different ways of knowing. Nestorius sought logical-semantic precision by dividing the two natures in order to protect divine impassibility in his theological argumentation, while Cyril was willing to strain the limits of logic itself in defense of the single subjectivity of Christ in the mystery of the Incarnation. McGuckin says it well:

> Whereas Nestorius demanded logical exactitude in the theological exchange, Cyril preferred to defend an intuited principle of single subjectivity regardless of the strains his varied use of technical terms placed on his hearers or upon logic itself. Cyril always felt that the mysterious nature of the faith truly reflected the reality that discourse about the incarnation of God was not something that could be neatly packaged and wrapped up in a scholastic fashion; for his opponents this 'mystical' attitude in his theologizing was frequently dismissed as obscurantism.[602]

The major difference between the methods of Nestorius and Cyril is metaphysical, with linguistic abstraction on the one hand and concrete actuality on the other. Again, McGuckin comments:

> What seems to be at issue, however, is that [Nestorius] approaches the concept of subjectivity largely in semantic terms, as the grammatical subject of reference in discourse, whereas Cyril tended to understand the subject primarily as the initiator of actions, especially the spiritually dynamic action of redemptive restoration of communion.[603]

As an inheritor of the Antiochene school, Nestorius started with philosophical assumptions – namely divine impassibility and the strict separation of divine and

[601] Ibid., 320.
[602] McGuckin, *St. Cyril of Alexandria*, 143.
[603] Ibid., 159.

human natures – that dictated how one interprets the biblical witness regarding the Incarnation. Paradox is not be allowed because linguistic imprecision endangers divine impassibility.

Nestorius' obsession with linguistic precision reveals his implicit metaphysical commitments. By insisting on the strict separation of the two natures, Nestorius cannot conceive of a mode of union that does not result in a mixing of the natures, thereby creating a *tertium quid*. This is why he insisted on an external conjunction of natures, or a union of honor, instead of an intrinsic metaphysical relationship of unity. Nestorius was too philosophically Greek in his approach, applying the anatomical rationality to Christ. As Hans Urs von Balthasar notes, Nestorius "was unable to recognize any other dimension of being than that of 'nature' or 'essence' – the dimension considered by ancient Greek philosophy. For the result of this one-dimensionality was the conclusion that all 'essence' possessed reality in itself, or was at least the key element, the structure, the law of some really existing thing."[604] A key consequence is that Nestorius' parallelism of intrinsic natures assumes a dualism of the divine and human: supernature on the one hand and *natura pura* on the other, such that the latter is autonomous, resulting in a two-tier metaphysics of nature and grace. Cyril, as a follower of the Alexandrian school, promoted mystery because the Scriptural testimony itself presents the Incarnation in a paradoxical manner. In the Incarnation, the two natures of Christ reciprocally relate such that the divine energy transforms – without change or alteration – the human flesh into a holy, life-giving flesh. The Incarnation, then, provides the metaphysical nexus for a closer interrelationship between Creator and created, grace and nature.

[604] Hans Urs von Balthasar, *Cosmic Liturgy: The Universe According to Maximus the Confessor*, trans. Brian E. Daley (San Francisco, Calif.: Ignatius Press, 2003), 2010.

Nestorius' theological style is logical, semantic, and abstract. Nestorius held two theological axioms as unassailable: (1) divine impassibility and (2) parallel natures of Christ. Doru Costache characterizes Nestorius' theological method as "a metaphysical anatomy of Christ" resulting in a dualistic two sons Christology. He summarizes Nestorius overly philosophical Christology in four aspects: (1) drawing a sharp "ontological gap" between divine and human, (2) primacy of classical metaphysics over divine economy and biblical narrative, (3) giving priority of the two natures over the single person, and (4) a lack of mystical perspective.[605] With these metaphysical assumptions in mind, Nestorius wielded linguistic precision as a tool of philosophical protection. Since words and language signify concepts and their relations in the mind,[606] and philosophy seeks clear concepts, Nestorius' theological method pursues conceptual clarity through propositional and linguistic precision. McGuckin judges Nestorius' method to innovate a scholastic paradigm with rationalist tendencies.[607] In short, for Nestorius, theological truth is reducible to conceptual classification. Dissect the theological doctrine into its conceptual parts and one has access to the truth. The mystery of the Incarnation is the prime object of Nestorian dissection.

Ironically, for all of his attempts at maintaining linguistic precision to separate the two natures, Nestorius never adequately accounts for the unity of Christ's person. J. N. D. Kelly summarizes Nestorius' deficiency: "The real problem, however, especially for one who set the independence and completeness of the natures so much in the foreground, was to explain what constituted His Person, the metaphysical

[605] Doru Costache, "Fifth Century Christology Between Soteriological and Metaphysical Concerns: Notes on the Nestorian Controversy," *Phronema* 21 (2006): 47–59.
[606] Cf. Augustine, *De Doctrina Christiana*, trans. R. P. H. Green (Oxford; New York: Clarendon Press, 1995), bk. II.
[607] McGuckin, *St. Cyril of Alexandria*, 92–93 n.152.

subject of His being, and this Nestorius's theory hardly touched."[608] While Nestorius denied holding to a two sons Christology for the entirety of his theological career, he never provided a sufficient account to convince his opponents that his logical-semantic position does not devolve into heresy by implication.

In direct contrast to Nestorius, Cyril's theological method is narratival, concrete, mysterious, and paradoxical. Richard Norris notes how Cyril's approach is narrative-based and traditional in his account of the Incarnation of the Word: "Each of [Cyril's Christological] passages…takes the form of a quasi-narrative account of the incarnation of the pre-existent divine Word."[609] Cyril's Christological position is grounded in the biblical narrative and defined by the overarching story of Fall and Redemption, as seen in his pre-controversy biblical exegesis and link to the approach of theology of the Church Fathers, such as Irenaeus. Frances Young notes how the pattern of Fall and Redemption mirrors Christ's descent and ascent, providing a narrative unity to Cyril's account, which is opposed to the "fragmenting analysis" of Nestorius.[610] This is why Cyril relentlessly defended the *theotokos* to maintain Mary's role in the story of Fall and Redemption. In this way, he protects the biblical narrative and the whole economy of salvation against the logical, semantic concerns of Nestorius.

Ultimately, mystery drives Cyril's Christological method. McGuckin summarizes the major contours of Cyril's Christology and theological approach as mysterious:

> We might sum up Cyril's predominant christological [sic] vision, then, as a 'mysterious' transformation of the human race according to the paradigm of the divine appropriation of a human nature in the incarnation. His precise

[608] Kelly, *Early Christian Doctrines*, 317.
[609] Richard A. Norris, "Christological Models in Cyril of Alexandria," *Studia Patristica* 13 (1975): 258.
[610] Young, "Theotokos: Mary and the Pattern of Fall and Redemption in the Theology of Cyril of Alexandria," 67.

> theological arguments time and again, appeal to the mysteriousness, or ineffability, or inconceivability, of the whole operation."[611]

Rather than primarily appeal to logical methods to explain the Incarnation, which falls either into Nestorian division or Eutychian fusion, Cyril regarded the mode of union in the Word made flesh to be an intrinsic mystery that is beyond human explanation and yet still true. Paradox is the best way of stating mysterious truths.[612] However, Cyril did not innovate the use of paradox but rather followed the Alexandrian Christological tradition, which routinely applied paradoxes to the discourse on the Incarnation, using phrases such as "swaddling bands of God"[613] to describe the infant Christ. At the heart of the overarching story of Fall and Redemption and of Christ's descent and ascent is the paradoxical mystery of the economy of salvation.

Yet, Cyril's appeal to paradox and mystery does not make him a theological obscurantist.[614] The mystery of the incarnation has redemptive and sacramental implications for the mystery of the Eucharist. Because of Cyril's theological commitment to the *communicatio idiomatum* and a Eucharistic reading of John 6, the invisible God is made visible in the Word made flesh at the Eucharistic celebration. Henry Chadwick notes the centrality of the Eucharist for Cyril and the invisible/visible dialectic: "The eucharist is central for the comprehension of Cyril's

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[611] McGuckin, *St. Cyril of Alexandria*, 188.

[612] For a defense of paradox in Christian theology from the perspective of analytic theology, see James Anderson, *Paradox in Christian Theology: An Analysis of Its Presence, Character, and Epistemic Status* (Milton, Keynes, U.K.; Waynesboro, Ga.: Paternoster, 2007). Anderson treats the Trinity and the Incarnation as paradigms of Christian paradoxes. He defines theological "mystery" in the following way: "A mystery is a metaphysical state of affairs the revelation of which appears implicitly contradictory to us on account of present limitations in our cognitive apparatus and thus resists systematic description in a perspicuously consistent manner" (245).

[613] McGuckin, *St. Cyril of Alexandria*, 64–65.

[614] To be sure, Cyril was not a fideist nor was he a mystic that eschewed philosophy *tout court*. He utilized logic to make his Christological claims. But it was not his *primary* method. Hans van Loon has surveyed Cyril's use of Aristotelian logic in *The Dyophysite Christology of Cyril of Alexandria* (Leiden; Boston: Brill, 2009), 61–122. Van Loon concludes that Cyril is first of all a biblical theologian and that he uses logic as a set of tools, not for building dogmatic systems. Ruth Siddals observes how Cyril explains the Word made flesh using the technical Aristotelian apparatus of subject and property, such that humanity becomes the property of the Word which "almost defies analysis." Ruth M. Siddals, "Logic and Christology in Cyril of Alexandria," *Journal of Theological Studies* 38, no. 2 (1987): 341–67.

religion. […] Christ comes among us all both visibly and invisibly: invisibly as God, visibly as being again in the body."[615] Furthermore, the body of Christ in the Eucharist is the holy flesh of the Word and is life-giving with divine energy. Cyril explains:

> There was no other way for the flesh to become life-giving, even though by its own nature it was subject to the necessity of corruption, except that it became the very flesh of the Word who gives life to all things. This is exactly how it accomplishes his own ends, working by his own life-giving power. […] We can see that this is his very own flesh since he is united to it unconfusedly and unchangeably and in a manner he alone knows.[616]
> Thus it is a holy and lifegiving thing, full of divine energy.[617]

The sacramental reality of the life-giving power of the Eucharist is a practical reason for Cyril to reject any division (*diairesis*) of the two natures. The metaphysical consequence of division is the loss of life-giving power of Christ's flesh. Chadwick comments: "To divide the natures is to separate the Lord's flesh from the source of its lifegiving potency."[618] A corollary of division of the flesh's loss of life-giving power is that eating the body of Christ in the Eucharist is reduced to cannibalism of a mere man without life-giving benefit.[619]

In sum, for Cyril theological truth is decided at the concrete level. It is no coincidence that Cyril's Christological vision can be found chiefly in his commentary on John, for it is in the Gospel of John that Jesus declares, "I am the way, the truth, and the life" (John 14:6). Jesus Christ is the truth, a concrete person as a single subject with a particular existence. The Word made flesh is the proof of paradox, an ineffable union of two ontologically distinct natures without confusion and without division that fulfills the biblical narrative of Fall and Redemption. Cyril makes the

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[615] Henry Chadwick, "Eucharist and Christology in the Nestorian Controversy," *Journal of Theological Studies* 2 (1951): 145–64, quote on p. 155.
[616] Cyril of Alexandria, *On the Unity of Christ*, 132–33.
[617] Ibid., 61.
[618] Chadwick, "Eucharist and Christology in the Nestorian Controversy," 156.
[619] Cyril of Alexandria, "Against Nestorius," 169.

crucial distinction between difference (*diaphora*) and division (*diairesis*). *Diaphora* affirms both the ontological difference between the two natures and the paradoxical, incomprehensible union that cannot be known by finite, human reason. One can understand the intrinsic relation between the divine and human natures only through their union. In the words of de Lubac, "union differentiates."[620] *Diairesis* on the other hand divides the two natures from one another so that there is no intrinsic relation between the two. The Nestorian method understands the union by breaking it down into its component parts with semantic precision manifesting a form of anatomical rationality. To know the truth of Christ is to know the truth of paradox, not by mental dissection but through receiving the broken flesh of Christ in the Eucharist.

Council of Chalcedon as Cyrilline

The Council of Chalcedon condemned Nestorius' Christology as heresy because it implied that the one born of the virgin Mary was a mere man. The *Definitio fidei* rejected Nestorianism because it attempted "to tear apart [*diaspan*] the mystery of the economy" into two sons. Chalcedon implies that Nestorius' theological method results in the dissection of Christ, thereby killing the One who saves in the economy of the Incarnation. Instead, the Council accepted Cyril's letters to Nestorius, which affirmed the unity of Christ while maintaining the divine and human natures using the famous four alpha privatives: "without confusion (*asugchutōs*), without change (*atreptōs*), without division (*adiairetōs*), without separation (*achōristōs*)."[621] The first

[620] See note 7.
[621] "So, following the saintly fathers, we all with one voice teach the confession of one and the same Son, our Lord Jesus Christ: the same perfect in divinity and perfect in humanity, the same truly God and truly man, of a rational soul and a body; consubstantial with the Father as regards his divinity, and the same consubstantial with us as regards his humanity; like us in all respects except for sin; begotten before the ages from the Father as regards his divinity, and in the last days the same for us and for our salvation from Mary, the virgin God-bearer, as regards his humanity; one and the same Christ, Son, Lord, only-begotten, acknowledged (*gnōrizomenon*) in two natures (*en dyo phusesin*) which undergo no confusion (*asugchutōs*), no change (*atreptōs*), no division (*adiairetōs*), no separation (*achōristōs*);

three of these adverbs come directly from Cyril's writings.[622] In this way, Cyrilline language becomes authoritative. However, Cyril and Nestorius disagreed over what preposition to use when relating the two natures in the union. Cyril favored "out of two natures" (*ek dyo physeon*), whereas Nestorius favored "in two natures" (*en dyo physesin*).[623] Leo's Tome, which played a role at Chalcedon, also used the phrase "in two natures." As the Chalcedonian definition declares, the One Lord Christ is acknowledged "in two natures" (*en dyo physesin*), which seems to indicate that the Antiochene position from Nestorius held some sway at the Council, implying that Chalcedon was in fact a compromise between Cyril and Nestorius.

In contrast to this compromise view of Chalcedon, the Council of Chalcedon is Cyrilline through and through. Thomas Weinandy states this bluntly: "To read the Chalcedonian Creed other than through the eyes of Cyril is to misread it."[624] Patrick Gray argues convincingly against early to mid-twentieth historiography that interprets Chalcedon as a compromise or a victory for Antiochene Christology and instead shows through painstaking assessment of the Acts of the Council of Chalcedon and the Neo-Chalcedonian sources that Chalcedon is essentially a Cyrilline council. Gray specifically addresses the "in two natures" formulation from Leo's Tome that Chalcedon adopts. The use of such language does not imply that Cyrilline Christology

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at no point was the difference between the natures taken away through the union, but rather the property of both natures taken away through the union, but rather the property of both natures is preserved and comes together into a single person and a single subsistent being; he is not parted or divided (*diairoumenon*) into two persons, but is one and the same only-begotten Son, God, Word, Lord Jesus Christ, just as the prophets taught from the beginning about him, and as the Lord Jesus Christ himself instructed us, and as the creed of the fathers handed it down to us." Norman P. Tanner, ed., *Decrees of the Ecumenical Councils* (London; Washington, DC: Sheed & Ward; Georgetown University Press, 1990), 86–87.

[622] The first two adverbs come from *Ep. 45*: "So we unite the Word from God the Father without merger, alteration (*asugchutōs atreptōs*) or change." Cyril of Alexandria, "First Letter to Succensus (Ep. 45)," 74–75. McGuckin calls the first letter to Succensus as "almost a first draft of the Christological solution" adopted at Chalcedon. McGuckin, *St. Cyril of Alexandria*, 124 n. 223. The third adverb comes from *Ep. 46*: "two natures exist inseparably (*adiairetōs*) after the union." Cyril of Alexandria, "Second Letter to Succensus (Ep. 46)," 92–93.

[623] McGuckin, *St. Cyril of Alexandria*, 135.

[624] Weinandy, "Cyril and the Mystery of the Incarnation," 43.

was abandoned in favor of an Antiochene one. Rather, the "in two natures" language reflects how the Cyrilline Chalcedonians viewed the formula as the only possible way to exclude Eutychianism. This solution maintains basic Cyrilline Christology while employing unCyrillian language.[625] Gray also shows that the Chalcedonian definition adds the qualifiers "without confusion" (*asugchutōs*) and "without division" (*adiairetōs*) and uses the verb *gnōrizomenon* (made known) to show that there is a distinction of natures only made in thought, not a division made into separate, concrete entities.[626]

But in the wake of Chalcedonian definition, how should it be read if it is to be definitive for orthodox Christian belief? Sarah Coakley addresses three views of reading the Chalcedonian definition: (1) the intent is linguistically regulatory rather ontological; (2) the language is metaphorical; and (3) the purpose is to define the personal identity of the God-man as literal and remove ambiguity.[627] She argues that each view ultimately fails on its own merits, but then she draws insights from each one for her own apophatic reading of Chalcedon. Coakley points out that the assembled bishops at Chalcedon themselves resisted the Emperor's call for greater precision in the definition. For the beginnings of her proposal, she looks to the genre of the Chalcedonian "definition" itself by turning to the multiple uses of "definition, " or *horos* in Greek. Based on Lampe's *Patristic Lexicon*, Coakley notes that *horos* can mean boundary, horizon, limit, standard, pattern, and (monastic) rule. Based on the semantic range for *horos*, she proposes that the Chalcedonian "definition" provides three dimensions: (1) a *boundary* of what can and what cannot be said about Christ's makeup, (2) an abstract *rule* of language to distinguish unity and duality in Christ, and

[625] Patrick T. R. Gray, *The Defense of Chalcedon in the East (451-553)* (Leiden: Brill, 1979), 13–14.
[626] Ibid., 14.
[627] Sarah Coakley, "What Does Chalcedon Solve and What Does It Not? Some Reflections on the Status and Meaning of the Chalcedonian 'Definition,'" in *The Incarnation*, ed. Stephen T. Davis, Daniel Kendall, and Gerald O'Collins (Oxford; New York: Oxford University Press, 2002), 143–63.

(3) a *horizon* of negatives by which a greater reality may be grasped.[628] She concludes that the Chalcedonian definition is an apophatic document, allowing for an expansion of metaphysical possibilities by defining metaphysical and linguistic boundaries. It is precisely out of this apophatic approach that Maximus the Confessor developed a Chalcedonian metaphysics of paradoxical unity and difference that overcomes the anatomical rationality manifested in the Nestorian metaphysical dissection of Christ.

Maximus the Confessor's Chalcedonian Metaphysics

When Maximus the Confessor was theologizing in the seventh century, the Second Council of Constantinople in 553 had adopted further condemnations of Nestorianism. The sentence against the "Three Chapters" declared that the followers of Theodore of Mopsuestia and Nestorius taught a heretical Christology that divided the natures and united them by conjunction:

> Those who follow Theodore and Nestorius, rejoicing in the division (*diairesei*), have brought in a union which is only by affection. The holy church of God, rejecting the wickedness of both sorts of heresy, states her belief in a union between the Word of God and human flesh which is by synthesis, that is by a union of subsistence. In the mystery of Christ the union of synthesis not only conserves without confusing the elements that come together but also allows no division (*diairesin*).[629]

Instead, orthodox Christology unified the two natures in synthesis "without confusion" and "without division." The mode of union was not specified. Constantinople II also decreed fourteen anathemas that appropriated much Cyrilline language and explicitly upheld the twelve chapters of Cyril over against Theodore. The distinction between difference and division played a key role. Note the Cyrilline language:

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[628] Ibid., 160–61.
[629] Tanner, *Decrees of the Ecumenical Councils*, 115.

> If anyone understands the two natures in the *mystery of Christ* in the sense of a *division* (*diairesei*) into parts, or if he expresses his belief in the plural natures in the same lord Jesus Christ, *God the Word made flesh*, but does not consider the *difference* (*diaphoran*) of those natures, of which he is composed, to be only in the onlooker's mind (*theōria*), a difference (*diaphoran*) which is not compromised by the union (for he is one from both and the two exist through the one) but uses the plurality to suggest that each nature is possessed separately and has a subsistence of its own: let him be anathema.[630]

Like we saw with Cyril above, there is an important metaphysical distinction between difference and division. *Diaphora* allows for the divine and human natures to be distinguished in the mind as an abstract distinction but in concrete reality the natures are united in the Word made flesh. The phrase "for he is one from both and the two exist through the one" implies the mutual reciprocity of unity and difference, of oneness and plurality with the Incarnation as the metaphysical paradigm. *Diairesis* on the other hand divides into parts the mystery of Christ which results in two separate subsistent natures. In other words, one could say that Christological *diairesis* is a metaphysical dissection tool that separates the whole Christ into its parts in concrete reality. In essence, Constantinople II anathematized the Nestorian division into parts and canonized Cyril's distinction between difference and division.

Chalcedonian Logic

Against this ecclesiastical background, Maximus assumed Chalcedonian and Cyrilline Christology to be true for his own cosmic Christological vision. Andrew Louth calls Maximus' vision a Chalcedonian logic: "[Maximus] makes the decisions of these [Ecumenical] councils a guide to the fundamental nature of reality and develops what we shall call a 'Chalcedonian logic' which he uses as a powerful tool of theological elucidation."[631] Torstein Tollefsen notes that Chalcedonian logic has

[630] Ibid., 117.
[631] Andrew Louth, "Introduction," in *Maximus the Confessor*, The Early Church Fathers (New York: Routledge, 1996), 22–23.

two important features: (1) "a set of concepts showing how to philosophize correctly about the Christian mystery"; (2) "a logic of being [that] denotes structures immanent in the way beings are distinguished and unified in reality."[632] Maximus specifically used the four adverbs from the Chalcedonian definition – no confusion (*asugchutōs*), no change (*atreptōs*), no division (*adiairetōs*), no separation (*achōristōs*) – as axiomatic for his understanding of the integrity of nature and its paradoxically necessary relation with the divine for its fulfillment on the one hand, without blurring the distinction between the divine and the natural and the Creator and the creature on the other. For Hans Urs von Balthasar, Maximus' "greatest achievement remains his choice of christological terminology as the cornerstone of his understanding of the world."[633] Indeed, Chalcedonian language, particularly *asugchutōs* ("without confusion") and *adiairetōs* ("without division"), figure prominently in Maximus' corpus.[634]

Following Cyril and the Councils of Chalcedon and Constantinople II, Maximus's Chalcedonian logic distinguishes difference (*diaphora*) and division (*diairesis*). Maximus' notion of *diaphora* does not entail *diairesis*; they are completely independent concepts.[635] Maximus explains:

> [I]t is altogether devout to confess two natures, dissimilar in essence, that have come together in an unspeakable union, and to hold the opinion that they have remained unconfused also after the union. To say that they remain unconfused does not introduce any division (*diairesis*) … but signifies that the difference has remained unchanged. For difference and division are not the same thing.[636]

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[632] Torstein Tollefsen, *The Christocentric Cosmology of St. Maximus the Confessor* (Oxford; New York: Oxford University Press, 2008), 201.
[633] von Balthasar, *Cosmic Liturgy*, 208.
[634] Louth, "Introduction," 50; Lars Thunberg, *Microcosm and Mediator: The Theological Anthropology of Maximus the Confessor*, 2nd ed (Chicago, Ill.: Open Court, 1995), 21.
[635] Tollefsen, *The Christocentric Cosmology of St. Maximus the Confessor*, 89.
[636] Maximus the Confessor, *Epistula* 12, PG 91, 469A. Quoted in Melchisedec Törönen, *Union and Distinction in the Thought of St. Maximus the Confessor* (Oxford; New York: Oxford University Press, 2007), 120.

Diaphora is positive because it affirms the diversity of created things as part of God's purpose and is constitutive of creation itself. The concept of *diaphora* unifies all created beings while maintaining their individual differentiation. The cosmological and metaphysical significance of *diaphora*, then, is that unity conditions difference, difference conditions unity, just as they do in Christ, thereby revealing a Christological creational ontology.[637] In contrast, *diairesis* is negative because it is non-constitutive of creation and is a result of the Fall. Just as *diairesis* of the two natures of Christ is a heretical dissection that separates, "that which is subject to *diairesis* is cut in pieces, and things are separated from one another by it."[638] Maximus uses the word *temnō*, "to cut," in a similar sense to *diairesis*.[639] In this way, Maximus draws on a similar lexical stock as Aristotle, who used *anatemnō,* "to cut up," and *diaireō*, "to divide" to refer to physical dissection. As a consequence of the Fall, *diairesis* causes a dissection of reality that necessitates a restoration to wholeness that unifies what has been divided. The fallen, divided state is what Tollefsen observes to be a nominalist reality because the relationship to every other thing is severed.[640] To summarize the distinction for Maximus, *diaphora* is an ontological, creational good, while *diairesis* is a moral, fallen evil.[641]

As a way to maintain the created *diaphora* without introducing fallen *diairesis*, Maximus innovates the *Logos/logoi* distinction. Since God created *ex nihilo* through the *Logos*, all visible and invisible created things have their own *logoi*, which are differentiated principles of individual created being that participate in the *Logos*.

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[637] Thunberg, *Microcosm and Mediator*, 53–55. Cf. Maximus the Confessor, *Ambiguum* 22, 1256D f. ET Maximus the Confessor, *On Difficulties in the Church Fathers: The Ambigua*, trans. Nicholas Constas (Cambridge, Mass.: Harvard University Press, 2014), 1:449.
[638] Thunberg, *Microcosm and Mediator*, 56. Thunberg cites Maximus the Confessor, *Epistula* 12, PG 91, 469B.
[639] Maximus the Confessor, *Ambiguum* 5, PG 91, 1048B.
[640] Tollefsen, *The Christocentric Cosmology of St. Maximus the Confessor*, 101.
[641] Cf. Thunberg, *Microcosm and Mediator*, 57.

In order to maintain the ontological difference between Creator and creature while simultaneously affirming their participatory relationship, Maximus employs Chalcedonian language:

> Who…would not fail to know the one Logos as many logoi, without division (*adiairetōs*) distinguished amid the differences (*diaphora*) of created things, owing to their specific individuality, which remains without confusion (*asugchuton*) both in themselves and with respect to one another? Moreoever, would he not also know that the many logoi are one Logos, seeing that all things are related to Him without being confused (*asugchutōs*) with Him, who is the essential and personally distinct Logos of God the Father, the origin and cause of all things?[642]

Remarkably, the *Logos* and the *logoi* are so interrelated yet distinct such that the one *Logos* is many *logoi* and the many *logoi* are one *Logos*. Patterned after Christ who paradoxically unites difference without division and without confusion,[643] the *logoi* are individually different yet united with *Logos* without division and without confusion.

In the spirit of Coakley's apophatic reading of the Chalcedonian definition, Chalcedon for Maximus provides the horizon to grasp the greater reality of the divine life in Christ. However, rather than dwell on the two *physeis* in the single *hypostasis* of Jesus Christ, Maximus takes the metaphysical relation between Christ's natures and person and applies it to all of created reality to make a Chalcedonian metaphysics. In von Balthasar's assessment, "the christological formula [of Chalcedon] expands, for Maximus, into a fundamental law of metaphysics" to attain "the highest level of theological synthesis – the union of God and the world in Christ."[644] Maximus writes:

> The law of him who willed this unity, the law that inheres in all things as unifying power and rule, is simply this: it does not permit the individual character of either part of the unity of a person to be banished into obscurity by the natural difference between them, nor does it allow the particularity that stamps each part to lead to an overemphasis of their difference and

[642] Maximus the Confessor, *Ambiguum* 7, PG 91, 1077C, trans. Constas, 1:94-95.
[643] Cf. Maximus the Confessor, *Ambiguum* 42, PG 91, 1320AC, trans. Constas, 2:131-133. Maximus explicitly calls the Incarnation a paradox (*paradoxoteron*).
[644] von Balthasar, *Cosmic Liturgy*, 70.

> individuality, to the detriment of the mysterious relationship naturally inherent in them that lovingly moves them toward unity. The heart of this relationship is that there is one universal presence of the cause of all that is, secretly and unrecognizably binding all things together, yet dwelling in each being in a different way; this presence holds the individual parts of the whole together, in itself and in each other, unconfused and undivided (*adiaireta*), and allows them, through this very relationship of creative unity, to live more for each other than for themselves.[645]

At the heart of Maximus' Chalcedonian metaphysics is the paradox "that unites creatures by distinguishing them and distinguishes them by uniting them – a paradox that can be found throughout the whole edifice of the universe – takes its origin in the most original relation of all things: their relation to God."[646]

For Maximus, one finds the apex of this Chalcedonian paradox in the Church, where it is the image that reflects the divine archetype. The various members of the Church in their mutual differences are gathered into one body with Christ as the head.[647] This unity in difference then extends to the cosmos where the Church is an image of the world in its invisible and visible essences:

> There is but one world and it is not divided (*diairesis*) by its parts. On the contrary, it encloses the differences of the parts (*diaphoran*) arising from their natural properties by their relationship to what is one and indivisible in itself. Moreover, it shows that both are the same thing with it and alternately with each other in an unconfused (*asugchutōs*) way and that the whole of one enters into the whole of the other, and both fill the same whole as parts fill a unit, and in this way the parts are uniformly and entirely filled as a whole.[648]

In this "cosmic liturgy," the different parts of the world are differentiated precisely by their relationship to the One who brings the world together in unity. The parts of the world are distinct in themselves (unconfused) yet only make sense in themselves when in relationship to the whole, in an almost interpenetrating fashion in which "the whole of one enters into the whole of the other." What mediates this paradox of unity

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[645] Maximus the Confessor, *Mystagogia* 7, PG 91, 685AB. Quoted in Ibid., 70.
[646] von Balthasar, *Cosmic Liturgy*, 69–70.
[647] Maximus the Confessor, *Mystagogia* 1, PG 91, 664D–668C. ET Maximus the Confessor, "The Church's Mystagogy," in *Maximus Confessor: Selected Writings*, trans. George C. Berthold, Classics of Western Spirituality (New York: Paulist Press, 1985), 186–88.
[648] Maximus the Confessor, *Mystagogia* 2, PG 91, 669B, trans. Berthold, 188-189.

in difference is a symbolic ontology whereby there is a unity of the visible and the invisible: "For the whole spiritual world seems mystically imprinted on the whole sensible world in symbolic forms."[649] In a gloss on Romans 1:20, Maximus presses this point further: "if we perceive what does not appear by means of what does, as the Scripture has it, then much more will visible things by understood by means of invisible by those who advance in spiritual contemplation."[650] The visible and the invisible realms are so intertwined that one who is spiritually attuned can perceive the invisible by way of the visible.

The pinnacle of Maximus' cosmology is the deification of humanity. Man was intended to reconcile all of the differences into a unity, but because of the Fall, these differences became divisions (*diairesies*). Christ as both God and man became the one through whom all divisions are reconciled, overcoming the division between God and man. For Maximus, since the essence in every virtue is Christ the *Logos*, humans as *logoi* who participate in the virtues ultimately participate in the *Logos* and become conformed into the likeness of God.[651] In this growth in virtue, there is a "reciprocal disposition" of hominization and divinization, which is "a power that divinizes man through his love for God, and humanizes God through His love for man. And by this beautiful exchange, it renders God man by reason of the divinization of man, and man God by reason of the Incarnation of God."[652] Maximus goes so far to say that God and man are "paradigms" (*paradeigmata*) of one another. Through this dual economy of hominization and divinization, man manifests the invisible God, while the *Logos* manifests the mystery of his enfleshment:

> God and man are paradigms of each other, so that as much as man, enabled by love, has divinized himself for God, to that same extent God is humanized for

[649] Maximus the Confessor, *Mystagogia* 2, PG 91, 669C, trans. Berthold, 189.
[650] Ibid.
[651] Maximus the Confessor, *Ambiguum* 7, PG 91, 1081C–1084A.
[652] Maximus the Confessor, *Ambiguum* 7, PG 91, 1084C, trans. Constas, 1:107.

> man by His love for mankind; and as much as man has manifested God who is invisible by nature through the virtues, to that same extent man is rapt by God in mind to the unknowable.[653]
>
> For the Logos of God (who is God) wills always and in all things to accomplish the mystery of His embodiment.[654]

The deification of man is not contained within human nature itself but is an unconditional gift of God.[655] Although human nature does not have the faculty to grasp that which transcends its nature, in the grace of divinization human nature finds its complete fulfillment.[656] However, human nature is not transgressed: "Man will remain wholly man in soul and body, owing to his nature, but will become wholly God in soul and body owing to the grace and the splendor of the blessed glory of God."[657] The rest, completion, and end of human nature is that which transcends human nature. This is the paradox of the natural desire for the supernatural.[658]

Crucially, Maximus regards humans as a microcosm, so that the fate of man mirrors the created world. The resurrection of deified humankind results in a transformation of the world into glory as a kind of resurrection of the cosmos:

> In the time of the expected universal consummation…the world, as man, will die to its life of appearances and rise again renewed of its oldness in the resurrection expected presently. At this time the man who is ourselves will rise with the world as a part with the whole and the small with the large, having obtained the power of not being subject to further corruption…for the unique divine power will manifest itself in all things in a vivid and active presence proportioned to each one.[659]

Thus, for Maximus, the deification of man results in the glorification of the world. The Chalcedonian metaphysics of Maximus maintains the integrity of created

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[653] Maximus the Confessor, *Ambiguum* 10, PG 91, 1113BC, trans. Constas, 1:165.
[654] Maximus the Confessor, *Ambiguum* 7, PG 91, 1084CD, trans. Constas, 1:107.
[655] Maximus the Confessor, *Ambiguum* 20, PG 91, 1237AB; *Ad Thal* 22.
[656] Maximus, *Ad Thalassium* 22. ET Maximus the Confessor, "Ad Thalassium 22," in *On the Cosmic Mystery of Jesus Christ*, trans. Paul M. Blowers and Robert L. Wilken (Crestwood, N.Y.: St. Vladimir's Seminary Press, 2003), 118.
[657] Maximus the Confessor, *Ambiguum* 7, PG 91, 1088C. trans. Constas, 1:113.
[658] Henri de Lubac, *The Mystery of the Supernatural*, trans. Rosemary Sheed, Milestones in Catholic Theology (New York: Crossroad, 1998).
[659] Maximus the Confessor, *Mystagogia* 7, PG 91, 1085C, trans. Berthold, 197.

differences but then transfigures them into the glorified unity, given and sustained by God through the *Logos* of God who accomplishes "the mystery of His embodiment."

Unity and Difference

The metaphysical importance of the mystery of the Incarnation and of Chalcedonian logic is the paradoxical relation between unity and difference, or as Thunberg puts it, the "Christological mystery of unity in diversity."[660] For Maximus, this paradoxical relation between unity and difference, wholes and parts is the "most general law of being":

> Every whole – especially every whole that is formed from the synthesis of various elements – even as it preserves its own individual identity in a consistent way, also continues to bear in itself the unmixed difference of the parts that make it up, including even the essential, authentic character and role of each member in its relation to the others. On the other hand, the parts – for all their undiminished continuity in their own natural role within the synthetic relationship – preserve the unitary identity of the whole, which gives them a hypostatic condition of complete indivisibility.[661]

In other words, wholes and parts mutually depend upon one another. Note the Chalcedonian language of unmixed difference and hypostatic indivisibility. Just as different, unmixed parts constitute the whole, the different parts are not autonomous but require the unity for their identity in an indivisible whole.

In this way, union without confusion allows for both natural and personal integrity. Törönen explains: "The greatness of the notion of 'union without confusion' lies in the fact that it can accommodate at once both unity and differentiation within one being. 'No' to confusion means 'yes' to difference, and hence to natural integrity; 'yes' to union means 'no' to separation, and hence 'yes' to personal integrity."[662] If one grants that the *telos* of humanity is deification, union without confusion holds

[660] Thunberg, *Microcosm and Mediator*, 36.
[661] Maximus the Confessor, *Epistula* 13, PG 91, 521C. Quoted in von Balthasar, *Cosmic Liturgy*, 67–68.
[662] Törönen, *Union and Distinction in the Thought of St. Maximus the Confessor*, 120.

crucial implications for theological anthropology, for it protects the ontological integrity of humanity and prevents the annihilation of human nature by divine grace. Indeed, grace does not destroy nature, but perfects it. Von Balthasar comments:

> [The function of Maximus' philosophy] is to prevent the creature, understood in its essential identity, from being overwhelmed and dazzled in this loving encounter with God, openly or implicitly, to such a degree that it is reduced merely to the level of an 'appearance'. By preserving the metaphysical rights of humanity – in the human nature of Christ and in the ordinary human person – Maximus provides the support for man's right to grace, as well.[663]

The paradox of the Incarnation is the key that protects the integrity of nature even as nature is completed by divine grace.

Within the hypostatic union of Christ, the divine and human natures reciprocally interpenetrate one another such that there is a new theandric unity in Christ that presupposes the *communicatio idiomatum* which was so vital for Cyril's theology. Maximus draws on Pseudo-Dionysius' fourth letter and Cyrilline Chalcedonianism to develop the concept of the new theandric energy.[664] Maximus comments on Pseudo-Dionysius' phrase "And in a manner beyond man, He does the things of man":

> according to a supreme union involving no change showing that the human energy is conjoined with the divine power, since the human nature, *united without confusion* (*asugchutōs*) to the divine nature, is completely penetrated (*perikechōrēke*) by it, with absolutely no part of it remaining separate from the divinity to which it was united, having been assumed according to hypostasis.[665]

Maximus relies upon the concept of *perichorēsis*, or mutual reciprocity and interpenetration.[666] As Thunberg points out, Maximus is the first to apply the term *perichorēsis* precisely to the *communicatio idiomatum* relationship between the two natures of Christ. *Perichorēsis* reflects reciprocity between the human and the divine

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[663] Ibid.; von Balthasar, *Cosmic Liturgy*, 55.
[664] Louth, "Introduction," 54–56.
[665] Maximus the Confessor, *Ambiguum* 5, PG 91, 1053B, trans. Constas, 1:45.
[666] G. W. H. Lampe, *A Patristic Greek Lexicon* (Oxford: Clarendon Press, 1961), 1077–78.

which underscores their unity.[667] In the disputation with Pyrrhus, Maximus directly relates *perichorēsis* and the *communicatio* relationship together with regard to the new theandric energy. The divine and human natures each have an energy (*energeia*) that is intrinsic to its respective nature, such that the divine and human are not confused, mixed, or changed. But in their union, the new theandric energy manifests an "ineffable manner of the interpenetration (*perichorēseōs*) of Christ's natures into each other, and that manner of life which was proper to His humanity which, being foreign and miraculous, is unintelligible (*paradoxon*) to natural beings; it indicates the mode of exchange of attributes proper to the ineffable union."[668] Christ's person manifests a qualitatively new mode of existence wherein divine and human energy coincide in a single identity.[669] The union excludes division (*diairesis*) but preserves the difference (*diaphoran*) of the divine and human energies.[670] Maximus underscores how the mode of this union into theandric energy is a paradox that is ungraspable by human comprehension.

The paradox of the new theandric energy is the very source of life that renews human nature because of its *communicatio idiomatum* with the divine nature. The Word made flesh lives out this theandric energy for the sake of human salvation, for "He renews our nature by means of things beyond nature."[671] Such a notion echoes Cyril of Alexandria's understanding of the *communicatio idiomatum* whereby Christ's flesh is the holy, life-giving flesh. Maximus cites Cyril's commentary on John which discusses the raising of Jairus' daughter (Luke 8:49-56) and the widow's son at Nain (Luke 7:11-15) to support the notion of theandric energy. Cyril comments that the

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[667] Thunberg, *Microcosm and Mediator*, 23–30.
[668] Maximus the Confessor, *Disputatio cum Pyrrho*, PG 91, 345D-348A. ET Maximus the Confessor, *The Disputation with Pyrrhus*, trans. Joseph P. Farrell (South Canaan, PA: St. Tikhon's Seminary Press, 1990), 67. Translation modified.
[669] Maximus the Confessor, *Ambiguum* 5, 1053B–1057A.
[670] Maximus the Confessor, *Ambiguum* 5, 1056CD.
[671] Maximus the Confessor, *Ambiguum* 5, 1057C, trans. Constas, 1:55.

Incarnate Christ acts at once divinely and humanly such that even the touch of Christ's holy flesh is life-giving to raise the sick and dead. As a gloss on Cyril's commentary, Maximus explains that the Word united with the flesh "might show that it is this flesh, to which properly belongs touch, voice and the rest, that has the ability to give life through its essential energy."[672] Through the touch of the holy flesh and the command of God, "the natural energies of Christ the God, who is composed of both, are perfectly preserved" and are "thoroughly united by their mutual coming together and interpenetration (*perichorēsis*), showing that the energy is one through the union of the Word himself to his holy flesh."[673] Christ's holy flesh gives life because of the divine energy, but because of the new theandric energy, He gives life through the human way of touch. In other words, the new theandric energy manifests Christ to perform divine things humanly and human things divinely: "Being God He worked wonders in a human way, for they were accomplished through naturally passible flesh. Being man He experienced the sufferings of human nature, but in a divine way, for they unfolded at the command of His sovereign will. Or rather, both were done in a theandric way, since He is God and man at the same time."[674]

Christological Cosmology

Union differentiates is the dominating aspect of Maximus' cosmology. The paradox of Christ's two different natures in union without confusion and without division extends to the ontology of creation. Thunberg explains:

> What differentiates in God's creation (e.g. the category of *genos*) also unites, and what unites (e.g. the created character of all that thus exists) also maintains its individuality. And it is this aspect of unity in diversity which, on the basis of the idea of a *creatio ex nihilo* and a gulf between God and his

[672] Maximus the Confessor, *Opuscula* 7, PG 91, 85D. ET Maximus the Confessor, "Opuscule 7," in *Maximus the Confessor*, trans. Andrew Louth (London; New York: Routledge, 1996), 189.
[673] Maximus the Confessor, *Opuscula* 7, PG 91, 85D–88A, trans. Louth, 189.
[674] Maximus the Confessor, *Ambiguum* 5, PG 91, 1060B, trans. Constas, 1:57.

> creation, at the same time combines his cosmology with his Christology in such a way that a unified vision of God's purpose and activity is gained.[675]

In other words, the Incarnation manifests the inseparability of God and creation. This inseparability is nowhere clearer than Maximus' extended meditation on the metaphysical significance of Christ's Transfiguration. Due to Maximus' Chalcedonian metaphysics, the Transfiguration takes on creational, cosmic, and scriptural significance. It addresses the relationship between nature and scripture, the visible and invisible, and the two natures of Christ. Maximus regards the "garments" of Christ in the Transfiguration to be the words of Holy Scripture and the external form of created things. Both contemplation of nature and the spiritual knowledge of Scripture are required for the knowledge of the Word because they "reciprocally teach the same things, and that neither is superior or inferior to the other" for they hold "equal value and equal dignity."[676] In Chalcedonian fashion, Maximus goes so far as to state that nature and Scripture engage in a "reciprocal interchange" such that the written and natural laws are identical to one another because they "simultaneously reveal and conceal the same Word: the one through written words and whatever is visible, and the other through ideas and whatever is hidden."[677] The visible "garments" of Christ – the words of scripture and the external appearances of creation – cover the invisible realities that Maximus calls the "fleshes" of the Word:

> So we too, then, having ascended the mountain of the divine Transfiguration, can behold the garments of the Word, by which I mean the words of Scripture and the visible elements of creation, shining and glorious in their reciprocal teachings about Him, and which through sublime contemplation are suitable for the divine Word; […] we shall know Him, who is Himself the Word and God, who is all things in everything; and we shall know that in His goodness He has made all things His own, so that all intelligible things are one body, and all sensible things are garments.[678]

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[675] Thunberg, *Microcosm and Mediator*, 63–64.
[676] Maximus the Confessor, *Ambiguum* 10, PG 91, 1128CD, trans. Constas, 1:195.
[677] Maximus the Confessor, *Ambiguum* 10, PG 91, 1129B, trans. Constas, 1:197.
[678] Maximus the Confessor, *Ambiguum* 10, PG 91. 1132CD, trans. Constas, 1:201-203.

Through spiritual contemplation of Christ, one can know that the *Logos* is in all created things as *logoi* which are the intelligible things,[679] whereas the external forms are the sensible things. In Christ all things visible and invisible hold together, as revealed in the Transfiguration.

The interplay of nature and scripture in the Transfiguration displays the dynamic relationship between apophatic and cataphatic theology to form a symbolic ontology. The divine Transfiguration indicates that the apophatic and the cataphatic are two general modes of theology. The former affirms divine transcendence through denial and silence, while the latter describes the divine by way of positive affirmations based on manifested effects. Together they form a symbolic ontology: "Through reverent understanding of created beings, this knowledge places before us the inner principles of both, teaching us that everything that transcends the senses is a symbol of the first way, whereas the symbol of the second is the sum of all the magnificent objects of sense perception."[680] Both the apophatic and cataphatic ways disclose symbols of the invisible and visible and the intelligible and sensible worlds to form a symbolic whole. Because of His invisible divine nature and His visible human nature, the mediator between and the source of the symbols of the visible and the invisible and the cataphatic and the apophatic is the Transfigured Lord Himself, who becomes

> a type and symbol of Himself presenting Himself symbolically by means of His own self,[681] and, through the manifestation of Himself, to lead all creation to Himself (though He is hidden and totally beyond all manifestation) and to provide human beings, in a human-loving fashion, with the visible divine

[679] Cf. Maximus: "The Logos 'becomes thick' in the sense that for our sake He ineffably concealed Himself in the logoi of beings, and is obliquely signified in proportion to each visible thing." *Ambiguum* 33, PG 91, 1285D, trans. Constas, 2:63.
[680] Maximus the Confessor, *Ambiguum* 10, PG 91, 1165C, trans. Constas, 1:267.
[681] Nicholas Constas glosses this phrase: "In taking on human nature, the incarnate Word becomes, like all human beings, an image of God, but by virtue of His divine nature, He is the archetype of that image, and so becomes an image of Himself." Maximus the Confessor, *On Difficulties in the Church Fathers: The Ambigua*, trans. Nicholas Constas, vol. 1 (Cambridge, Mass.: Harvard University Press, 2014), 488–89 n.55.

> actions of His flesh as signs of His invisible infinity, which is totally transcendent, and secretly hidden, which no being, in absolutely any way whatsoever, can capture in thought or language.[682]

In this particularly dense and perplexing mediation, Maximus intertwines the many themes we have been discussing: Christ and creation, invisibility and visibility, hiddenness and manifestation, and apophaticism and cataphaticism. The glorified, transfigured Christ is the symbolic key to the cosmos and its divine relation. "When the Word becomes flesh, He becomes the symbol itself, thereby closing the divide between symbol and symbolized."[683] To borrow language from semiotics, Christ is both the sign and the signified in Maximus' symbolic ontology.

Christ is also the mediator in the narrative of creation, fall, and redemption. Maximus reads a series of five divisions (*diareseis*) into created existence: (1) uncreated and created natures; (2) created nature is divided into intelligible and sensible; (3) sensible nature is divided into heaven and earth; (4) earth is divided into paradise and the inhabited world; and (5) man is divided into male and female.[684] At first glance, this may seem like an exception to the negative, non-creational dimension of *diairesis* that is distinguished from the good of creational *diaphora*. But on further examination, *diairesis*, even though creational in this instance, is negative because there remains confusion about the relation between God and creation: "they call 'division' (*diairesin*) the ignorance of what it is that distinguishes creation from God."[685] Furthermore, God designed man to mediate through himself all of the divided extremes by his parts because the universal extremes are contained within him. By achieving what he was called to do, man would "so bring to light the great mystery of the divine plan, realizing in God the union of the extremes which exist

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[682] Maximus the Confessor, *Ambiguum* 10, PG 91, 1165D, trans. Constas, 1:269.
[683] Joshua Lollar, *To See Into the Life of Things: The Contemplation of Nature in Maximus the Confessor and His Predecessors* (Turnhout: Brepols, 2013), 261.
[684] Maximus the Confessor, *Ambiguum* 41, PG 91, 1304D-1305B.
[685] Maximus the Confessor, *Ambiguum* 41, PG 91, 1305A, trans. Constas, 2:103.

among beings."[686] The divine plan was to have man act as the mediator to reconcile the divisions of creation.

However, with the fall, man "misused his natural, God-given capacity to unite what is divided, and, to the contrary, divided what was united."[687] In other words, rather perform the divine task of unifying what had been dissected apart, man instead abdicated his calling and dissected into parts that which was whole. Lest anyone think that dissection is a forced reading onto Maximus' text, his own language supports this view. He speaks of "the property of division that had cut (*temnousēs*) [sensible nature] in two."[688] The verb for "cut" is *temnō*, which is the root for anatomy, *anatemnō*, "to cut up." In response to man's failure to unite what is divided, God became man in a "paradox beyond nature" (*paradoxōs hyper physin*) to save man and unite through Himself "the natural fissures running through the general nature of the universe" in order to display that unified creation is "absolutely indivisible" (*adiaireton*).[689] Finally, the created and uncreated natures are united in the Incarnation, thereby completing the divine plan to unify all divisions. Through the recapitulation of the God-man, divisions (*diaireseis*) have been overcome to become differences (*diaphora*) in union. Thus, Christ overcomes the dissection that cut created existence to bring the cosmos into union with God. The five divisions become differences, which then become correspondences and ultimately a ladder to consummation in the Church's mystagogy.[690] The dissected reality in the beginning instead takes on a cruciform dimension in the end. The divisions that riddled created existence have become transfigured through the mediation of Christ's theandric unity into the "cosmic liturgy."

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[686] Maximus the Confessor, *Ambiguum* 41, PG 91, 1305B, trans. Constas, 2:105.
[687] Maximus the Confessor, *Ambiguum* 41, PG 91, 1308C, trans. Constas, 2:109.
[688] Maximus the Confessor, *Ambiguum* 41, PG 91, 1309C, trans. Constas, 2:113.
[689] Maximus the Confessor, *Ambiguum* 41, PG 91, 1308D, trans. Constas, 2:109.
[690] Louth, "Introduction," 74–77.

Christological Epistemology

In Maximus' account of creation and fall, the Incarnation overcomes the dissections of being and transforms them into a unity of differences. If this is true in the metaphysical sense, how does one come to *know* this to be true? Maximus' Chalcedonian logic and Christological cosmology give rise to a Christological epistemology, mediated by a spiritual perception. Frederick Aquino shows how Maximus develops the "spiritual senses" to form a Christological epistemology of perception, shaped by the process of deification.[691] The development of this Christological epistemology requires a redirection toward man's divine end. After the Fall, man abdicated his calling to unify the divisions of being and instead dissected what is unified. In recovering man's divine end, the self must purge the anatomical tendency to dissect reality and instead move towards a more holistic vision and way of life. The goal of this process is to find unity and wholeness that is recapitulated in the Incarnation – the Word made flesh who unifies differences, epitomized in the divine-human union in his own *hypostasis.* Through contemplative and virtuous practices, one engages in a "training in perception" which allows one to discern differences, such as between the intelligible and the sensible realms. With a trained perception, one can know that "the intellectual and the sensible form a profound

[691] Frederick Aquino uses the phrase "religious epistemology of perception." Frederick D. Aquino, "Maximus the Confessor," in *The Spiritual Senses: Perceiving God in Western Christianity*, ed. Paul L. Gavrilyuk and Sarah Coakley (Cambridge; New York: Cambridge University Press, 2012), 104–20. While I am indebted to Aquino's account of Maximus' epistemology of spiritual perception, "religious" in the modern context carries a connotation that is opposed to a "scientific" epistemology (although I do not wish to imply that Aquino falls into this modern dualism). As we have seen with Maximus' view on the reciprocal dependence of nature and scripture, Maximus makes no strict separation between science and religion as both are necessary for true knowledge of Christ, who is both creator and re-creator. This is why I prefer "Christological epistemology." For an insightful, historical treatment of the transformation of the relationship between religion and science from the pre-modern unified understanding to the modern dualistic understanding, see Peter Harrison, *The Territories of Science and Religion* (Chicago: The University of Chicago Press, 2015).

symbolic whole."[692] By perceiving that the symbolic whole is mediated by Christ as both symbol and the symbolized, one "sees" that created nature is not autonomous unto itself, humanity included, in the sense of a *natura pura*, but rather is divine and mysterious, such that there is an intertwining and an interpenetration of nature and the supernatural without confusion and without division. By having one's own perception spiritually attuned, one can see the world as a divine gift to be received, not an object to be dissected.

We can see this world-as-gift notion when Maximus speaks of the limits of human reason applied to created things. The inability of reason to know creation comprehensively discloses the mysteriousness of created existence. This claim is significant because, as we saw above, Maximus places a high value on contemplating nature especially since it is on par with scripture. He notes that reason cannot completely understand even the smallest things in creation: "Precise comprehension even of the most infinitesimal creatures is beyond the reach of our rational activity."[693] One understands only general qualities, not the unique, existent subject that lies beneath these qualities.[694] Maximus argues that in order to obtain complete knowledge of things, it is not sufficient merely to describe its characteristics, but rather it is necessary to indicate the source of their existence "if we wish to set forth completely and without remainder the object of our thoughts."[695] Von Balthasar explains: "In all finite knowledge there is always a 'remainder', which comes from the nonidentity of the subjective and objective poles and which remains, despite the identity of those two within the process of forming the sensible image or thought."[696] These insights that highlight the necessity of knowing the source of being of things as

[692] Aquino, "Maximus the Confessor," 108–9.
[693] Maximus the Confessor, *Ambiguum* 17, 1224D, trans. Constas, 1:383.
[694] Maximus the Confessor, *Ambiguum* 17, 1225A-1229A.
[695] Maximus the Confessor, *Ambiguum* 17, 1225C. trans. Constas, 1:387.
[696] von Balthasar, *Cosmic Liturgy*, 167.

well as the remainder in all finite knowledge anticipate both Heidegger and Adorno. For Heidegger, the fundamental question of metaphysics is "why are there beings at all instead of nothing?"[697] The very fact of existence drives Heidegger's call to remember Being rather than beings. The "remainder" echoes Adorno's succinct aphorism – "objects do not go into their concepts without leaving a remainder"[698] – underscoring the reality of nonidentity that existing objects always exceed their concepts. Such a remainder signifies that things are more than themselves, thereby disclosing a conceptually ungraspable mystery to created existence. For Maximus' Chalcedonian metaphysics, the mystery of creation signals its union with God in the Word made flesh, the One in whom the divine and the human, the eternal and the temporal, and the infinite and the finite are brought together in reciprocal unity without division and without confusion. In short, the mystery of the created world is the mystery of the Incarnation.[699]

For Maximus, there are two kinds of knowledge one can have of divine things. On the one hand, the philosophical contemplation of nature begins with "relative knowledge" that is rooted in reason and ideas but lacks active engagement. On the other hand, through actual experience in the practice of the virtues one can have "truly authentic knowledge" which "provides a total perception of the known object through a participation (*methexis*) by grace" and "deification." Maximus goes on to distinguish between "rational knowledge" (*logos*) of God, which corresponds to relative knowledge, and direct experience (*peira*) of God, which corresponds to truly authentic knowledge. However, he further states that the distinction between *logos* and *peira* can be recognized in other domains of knowledge as well, "since direct

[697] Martin Heidegger, *Introduction to Metaphysics*, trans. Gregory Fried and Richard Polt (New Haven, Conn.: Yale University Press, 2000), 1.
[698] Theodor W. Adorno, *Negative Dialectics*, trans. E. B. Ashton (New York: Seabury Press, 1973), 5.
[699] Cf. von Balthasar, *Cosmic Liturgy*, 235–36.

experience of a thing suspends rational knowledge of it." Instead, direct experience allows for "participation in the known object which manifests itself beyond all conceptualization."[700] As we saw above, rational knowledge (*logos*) always leaves a remainder because of nonidentity between objects and concepts. Direct experience (*peira*) is superior because there is a participation in the object that overcomes all conceptual mediation. For Maximus, to know a thing is to encounter a thing in its wholeness.

Compare Maximus' *logos* and *peira* schema with Galen's usage. Recall that Galen employs *logos* (reason) and *peira* (experience) as the twin foundations of knowledge. Applied to knowledge of the body, through *logos*, the knower is able "see" into the invisible parts of the body, while *peira* is gained through dissection of the whole of the body into its parts, making visible what was previously invisible. However, unlike Maximus' hierarchy of *peira* over *logos*, Galen's anatomical *logos* ultimately shapes the dissector's *peira* of the body. Whereas for Maximus *peira* of an object maintains the wholeness and unity of the thing, for Galen *peira* requires cutting a whole into its parts and then putting the parts together again into a whole that is fashioned by the gaze of the human *logos.* The goal of Galen's *logos* is to make visible to the mind's eye that was previously invisible. As we have seen previously with Galen's anatomical liturgy, Galen used anatomical dissection as a way to know the mysteries of God in the created order. What Galen does not realize is that his conceptual apparatus will always leave a remainder because what is encountered in dissection is always mediated by the concepts of the *logos*. Ironically, Galen's confidence in knowledge that rests upon the twin pillars of *logos* and *peira* through the practice of anatomical dissection does not deliver the rational demonstration that

[700] Maximus the Confessor, *Ad Thalassium* 60. ET Maximus the Confessor, "Ad Thalassium 60," in *On the Cosmic Mystery of Jesus Christ*, trans. Paul M. Blowers and Robert L. Wilken (Crestwood, N.Y.: St. Vladimir's Seminary Press, 2003), 126.

he desires. Instead, Galen's anatomical rationality is *irrational* precisely because it divides that which should be united, particularly in his anatomical liturgy.[701] Galen's knowledge of God is obscured because of the anatomical rationality that attempts to cut deeper and deeper in order to make visible the invisible, thereby murdering the mystery of existence. Maximus condemns the Greeks for being "murderers of the Word, worshiping creation rather than the creator, believing that there exists nothing beyond what can be seen, or nothing more magnificent than sensible objects."[702]

However, Maximus does not eschew rational knowledge and philosophy as a non-divine practice. Instead, he views philosophy as part of an integrated, divine life. Joshua Lollar argues that for Maximus the contemplation of nature as the created world is the key that unlocks philosophy as a practice in ethics, physics, and theology.[703] Lollar shows that Maximus views philosophy in continuity with theology. Maximus' contemplation of nature sounds like an anticipation of Aquinas' famous five ways: "Maximus defines the first three foci of contemplation – substance, motion, and distinction – as directed towards the knowledge of God and as the concepts that serve as guides to this knowledge. In this way, natural philosophy becomes the first step towards theology."[704] This contemplation of nature reveals that the multiplicity of creation is ineffably interconnected in an harmonious cosmos that draws the intellect toward the Creator Word who brings different parts into a unified whole.[705] However, such contemplation should not evoke images of an isolated thinking thing in the corner like Descartes in the *Meditations on First Philosophy.*

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[701] Maximus calls "unreason…the division of what is united." Maximus the Confessor, "Commentary on the Our Father," in *Maximus Confessor: Selected Writings*, trans. George C. Berthold (Mahwah, N.J.: Paulist Press, 1985), 103.
[702] Maximus the Confessor, *Ambiguum* 10, 1129C, trans. Constas, 197-199.
[703] Lollar, *To See into the Life of Things*, 203. Recall Pierre Hadot's view that philosophy is a way of life. Cf. Galen's view of philosophy and medicine as logic, physics, and ethics.
[704] Ibid., 235.
[705] Maximus the Confessor, *Ambiguum* 10, 1136D-1137A, trans. Constas, 1:211.

Rather, Maximus holds that the ethical life, manifested outwardly through bodily practice of virtues, epitomized by love,[706] is part and parcel with the philosophical life, such that "true philosophy is 'defined by praxis' in that any form of intellectual life that does not carry with it the fruits of upright ethical action is a false form of 'philosophy.'"[707] Because the essence of virtue is the Logos, the habitual practice of virtue is a participation in the Logos.[708] The ethical life gives the philosophical life an explicit Christological dimension. Because of Maximus' Chalcedonian logic and Christological cosmology, nature and virtue are so intertwined that they mirror one another, such that bodily senses symbolize spiritual senses of virtue. In this way, Maximus "considers the virtuous life to be the life precisely according to nature."[709] Thus, philosophical practice requires contemplation of nature in the context of embodied, virtuous practice. Knowing by *theōria* and knowing by *praxis* are two sides of the same philosophical coin. To know nature rightly entails being an integrated, embodied, virtuous knower.

Yet, the fulfillment of natural philosophy and contemplation of nature is beyond nature.[710] While Maximus affirms that all of philosophy is contained in nature itself in the study of created reality, the process of philosophical transformation through contemplation and the virtues leads one beyond nature.[711] The goal of the philosophical life is deification; thus, it starts through the contemplation of nature but then is fulfilled by transcending nature. However, transcending nature does not mean

[706] Maximus the Confessor, *Epistula* 2, 392D-408A. ET Maximus the Confessor, "Letter 2," in *Maximus the Confessor*, trans. Andrew Louth, The Early Church Fathers (New York: Routledge, 1996), 84–93.
[707] Lollar, *To See into the Life of Things*, 231.
[708] Maximus the Confessor, *Ambiguum* 7, 1081CD, trans. Constas, 1:103.
[709] Lollar, *To See into the Life of Things*, 242–43.
[710] Ibid., 244.
[711] Ibid., 252.

leaving the realm of nature for a supernatural realm, in a metaphysical dualism. Rather, nature and grace remain intertwined. Lollar comments:

> God the final object of thought and desire is not among things that can be thought. Thus, the goal of contemplating nature – all sensual and intellectual reality – is precisely to take leave of it in order to be united to God. This simultaneous "natural" and "supernatural" insistence in the thought of nature is precisely the milieu and definition of grace for Maximus. God grants to the human being a potentiality (*dynamis*) that does not spring from human substance (*ousia*) as a created physical and intellectual being, a potentiality to be united to that which it cannot think, know, or relate to.[712]

In other words, the final end of man's contemplation of nature is union with God. But human nature does not have the capacity to fulfill its own end; what is required is divine grace. Maximus' natural philosophy results in a paradox of the natural desire for the supernatural. Rather than grasping God (for God is not an object to be grasped), one "is grasped according to simple union, unconditioned and beyond all thought, on the basis of a certain unutterable and indefinable principle, which is known only to the One who grants this ineffable grace to the worthy."[713] The hard work of contemplation and virtue formation ends in apophatic union with God. Finite human nature is completed in infinite divine grace. Thus, no metaphysical dualism exists between philosophy and theology, faith and reason, and nature and grace.

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By looking closely at the Nestorian controversy with Cyril of Alexandria and the Chalcedonian logic of Maximus the Confessor, we find two competing ways of knowing. The Nestorian way of knowing follows the tradition of the anatomical rationality that we have been tracing since Hippocrates: to know a thing is to dissect it into its parts. In attempting to elucidate the relation of the two natures in Christ, Nestorius seeks to protect divine impassibility as a philosophical presupposition by

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[712] Ibid., 250.
[713] Maximus the Confessor, *Ambiguum* 15, 1220BC, trans. Constas, 1:373.

employing linguistic and semantic precision. In doing so, he dissects (*diairesis*) the two natures from one another so that their relation is a conjunction, not an intrinsic union. The human nature of Christ is completely separated from the divine nature. The visible has been ontologically cut from the invisible. Consequently, Nestorian humanity is now a *natura pura* that is fully knowable and fully immanent, made possible by a proto-scholastic, anatomical method of knowing. Without the *communicatio idiomatum*, Nestorianism murders the mystery of humanity.

Cyril of Alexandria abhors the dissection of the two natures for it obscures the way of knowing the mystery of Christ: "[The Nestorians] split up and completely divide his words and acts, attributing some things as proper solely to the Only Begotten, and others to a son who is different to him and born of a woman. In this way they have missed the straight and unerring way of knowing the mystery of Christ clearly."[714] Cyril affirms the epistemological necessity of paradox in affirming both the unity of the One Lord Jesus Christ and the differences of the two natures, acknowledging that the mystery of Christ exceeds the limits of language and human understanding. The invisible has ineffably and mysteriously become visible in the Word made flesh.

Maximus picks up on the mystery of Christ that he receives from Cyril and Chalcedon and extends it to the metaphysical level. The paradox of unity and difference in the hypostasis of Christ in two natures becomes a fundamental law of being. Maximus develops a Chalcedonian logic in which the relationships between Creator and creation, whole and part, unity and difference, supernatural and nature, and invisible and visible are defined by the intrinsic, reciprocal interpenetration of the divine and human natures in Christ without confusion and without division

[714] Cyril of Alexandria, *On the Unity of Christ*, 106.

(*adiairetō*). Differences (*diaphora*) are a creational good, unified by the mediation of the God-man. The purpose of humanity, and thus the significance of studying humanity, is only disclosed in relation to its divine end. Paradoxically, human nature to be truly human is not complete without the supernatural, union with God. To put it differently, to know the visible man one must know his invisible end. Thus, dissecting humans away from the divine relation obscures knowing the mystery of humans.

For the anatomical rationality, knowing human nature entails dissection into parts to make visible what is invisible. For the paradoxical knowing of Cyril and the Chalcedonian logic of Maximus, it is precisely the mysterious, invisible dimension of humans that makes humans truly knowable in their fullness. The *communicatio idiomatum* of Christ allows for the divine nature to interpenetrate human nature without confusion and without division. As J. G. Hamann said: "This *communicatio* of divine and human *idiomatum* is a fundamental law and the master-key of all our knowledge and of the whole visible economy."[715] Because the invisible God has been made visible in the Word made flesh, all of visible creation is only fully known through its invisible source. In short, anatomical dissection as an ultimate way of knowing obscures, while affirming paradox and mystery enlightens.

[715] Johann Georg Hamann, "The Last Will and Testament of the Knight of the Rose-Cross," in *Writings on Philosophy and Language*, trans. Kenneth Haynes (Cambridge; New York: Cambridge University Press, 2007), 99.

CHAPTER 5
DISSECTING THE SYMBOLIC ONTOLOGY: THE ICONOCLASTIC AND EUCHARISTIC CONTROVERSIES

> *That which was from the beginning, which we have heard, which we have seen with our eyes, which we looked upon and have touched with our hands, concerning the word of life – the life was made manifest, and we have seen it, and testify to it and proclaim to you the eternal life, which was with the Father and was made manifest to us.*
> – 1 John 1:1-2

> *Truly visible things are manifest images of invisible things.*
> – Denys the Areopagite[716]

> *He placed Himself in the order of signs.*
> – David Jones[717]

> *The incarnation changed everything and made everything more difficult to understand. This act of divine condescension demanded prodigies of spiritual cognition; it required people to "see" things in a new way. It forced a revaluation of the connection between seeing and knowing.*
> – Thomas F. X. Noble[718]

Paradox of the Visible and the Invisible

Maximus' Chalcedonian logic places the paradox of the Incarnation at the center of the relationship between God and creation, overcoming the dissection of uncreated from created, divine from human, and unity from difference. Because paradox lies at the heart of the created order, mystery envelops all of nature and its pinnacle – the human person. This chapter addresses the paradox of the visible and invisible, matter and spirit, and reality and symbol as seen in the iconoclastic controversy in the eighth and ninth centuries and the second Eucharistic controversy in the eleventh century and their implications for subsequent thought and practice.

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[716] Denys the Areopagite, *Ep.* 10, PG 3, 1117B.
[717] David Jones, "Art and Sacrament," ed. Harman Grisewood (London: Faber and Faber, 1959), 179.
[718] Thomas F. X. Noble, "The Vocabulary of Vision and Worship in the Early Carolingian Period," in *Seeing the Invisible in Late Antiquity and the Early Middle Ages*, ed. Giselle de Nie, Marco Mostert, and Karl Frederick Morrison (Turnhout: Brepols, 2005), 214.

As we have seen previously, sight and knowledge are interrelated and interwoven into the dialectic of the visible and the invisible. Jean-Luc Marion has argued that perspective entails a paradox. When one looks at the visible, it is precisely the invisible via a counter-appearance that makes the visible to be seen in its fullness beyond one's initial expectations, such that there is a paradox of the invisible in the visible. The paradigm of the paradox is the face of Christ wherein the unexpected enters into the visible: the invisible divinity dwells with the visible humanity. In the Incarnation, the invisible renders the visible real in the sense that if one could "see" the face of Christ only as human, then one would see wrongly. It is the invisible divinity that renders Christ's visible person real. "The paradox poses a visibility that belies the visible."[719] Yet, there is also the perspective that poses an invisible gaze that pierces through the visible. "The gaze instills the invisible in the visible, not indeed to render it less visible but, on the contrary, to render it *more* visible: instead of experiencing chaotically informed impressions, we see there the very visibility of things. Therefore it is the invisible, and it alone that renders the visible real."[720] In other words, it is precisely the invisible that constitutes the reality of the visible.

This is not to suggest that the visible is a void or an empty container waiting to be filled by some invisible content, but rather that all that is visible is not merely visible to the physical eye only, like a crude empiricism. While Marion's phenomenology of the gaze relies too much on intentionality and is too allergic to metaphysics, his insights on the paradox of the visible and invisible can apply equally to iconodule theology, the Eucharist, and the anatomical rationality, depending on the nature of one's gaze. On the one hand, anatomical dissection, the most empirical of the first medical epistemologies, is a deeply theoretical endeavor, driven by the

[719] Jean-Luc Marion, *The Crossing of the Visible*, trans. James K. A. Smith (Stanford, Calif.: Stanford University Press, 2004), 2.
[720] Ibid., 4.

invisible gaze of the mind's eye. The invisible gaze of the dissector pierces through the visible human body, re-constituting the separated parts of the body into his own image. On the other hand, orthodox Christian conceptions of iconodule theology and the Eucharist hold the visible and the invisible together because of the differentiating union of Christ, as we have seen in Maximus.

In this chapter, I shall show how the anatomical rationality applies both to the iconoclastic controversy and the Eucharistic controversy. In the iconoclastic controversy, the iconoclasts employ an essentially Nestorian logic to the question of the veneration of icons, resulting in the dissection of matter from spirit, thereby undermining the Incarnation who holds both together. Consequently, matter is no longer a vehicle for salvation or divine knowledge. In the Eucharistic controversy, the debate centers on the question of the Real Presence of Christ in the sacrament of the Eucharist. Because of the advent of dialectical reason into theological speculation (already anticipated by Nestorius' proto-scholastic desire for logical and semantic precision), reality and symbol, which had been held together in a sacramental synthesis of a symbolic realism, are dissected away from one another into a mutual opposition. The Eucharistic Real Presence becomes an intense locus of the supernatural and real, while the rest of the liturgy becomes merely natural and symbolic. Consequently, nature is de-sacramentalized into inert matter and the Eucharist becomes the paradigm of superior technology.

The Iconoclastic Controversy: Dissecting Matter from Spirit, Visible from Invisible

Plato is the father of both iconoclasm and iconophilia. On the one hand, the image of the divine can never attain the divine archetype, for any human artifact is an image of an image. On the other hand, representing the divine manifests man's desire

to contemplate divine beauty, so man's attempt to do so is praiseworthy.[721] Yet, Christ as the image of the invisible God (Col. 1:15) overcomes the Platonic dichotomy. From at least the time of the First Council of Nicaea (325), Christ has been designated as an "equal image" of the Father.[722] Christ as perfect image of the Father yet maintaining ontological equality with the Father ushered in a revolution on the metaphysical relation between visible and invisible: the possibility of a paradoxically perfect image of a prototype, a difference with perfect likeness, an image in which there is no reduction of being from the original source.[723]

In 726 the Byzantine emperor Leo III issued a ban on Christian religious imagery and its veneration, which started a policy of iconoclasm. It is said that Leo initially ordered the removal of the icon of Christ above the Chalke, which is the bronze gate at the entrance to the palace.[724] After the eruption of the iconoclastic controversy, the Second Council of Nicaea in 787 defined icons or images as any representation of Christ, the *theotokos*, or the saints in paintings, cloth weavings, or statues. Andrew Louth regards the heart of the controversy as a question of tradition: does the practice of icons in worship trace back to the apostles or is it an innovation?[725] However, while the question of tradition may have driven the ecclesiastical debate, the much deeper questions driving the controversy were metaphysical in nature. On the one hand, the iconoclastic position views the image as univocal, undergirded either by an exact identity or a dualism between matter and

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[721] Alain Besançon, *The Forbidden Image: An Intellectual History of Iconoclasm*, trans. Jane Marie Todd (Chicago: University of Chicago Press, 2000), 36–37; Gerhart B. Ladner, "The Concept of the Image in the Greek Fathers and the Byzantine Iconoclastic Controversy," *Dumbarton Oaks Papers* 7 (1953): 1–34.
[722] Rowan Williams, *Arius: Heresy and Tradition*, 2nd ed (London: SCM, 2001), 163–64.
[723] See Olivier Boulnois, *Au-Delà de L'image: Une Archéologie Du Visuel Au Moyen Âge, Ve-XVIe Siècle* (Paris: Seuil, 2008), 30–33.
[724] For a fuller historical narrative of the eighth century iconoclastic controversy, see Andrew Louth, *St. John Damascene: Tradition and Originality in Byzantine Theology* (Oxford; New York: Oxford University Press, 2002), 193–98.
[725] Ibid., 195.

spirit, visible and invisible. On the other hand, the iconodule position views the image as an analogous concept, undergirded by a participatory relationship that holds a high regard for matter as part of a multi-layered reality.[726] Let us look more closely at the iconoclastic and iconodule positions.

Iconoclastic Logic

The iconoclasts, while collectively rejecting the use of icons by definition, theologically provided either an exact representationalist or a quasi-Nestorian rationale. Constantine V, one of the chief iconoclastic voices in the eighth century, held such a representationalist view. He regarded the true image as one that reproduces the original exactly and without remainder.[727] The image must be consubstantial with what is depicted as a living reality, resulting in a complete identity between image and original. Consequently, Constantine V only regarded the Eucharist as the true image, for then Christ is substantially present. In this way, images patterned in the created world have no relation whatsoever to the "pure" image of Christ in the Eucharist. For the iconoclast, true images must have a one-to-one correspondence with its original, already anticipating an epistemology of exact representation that we find in the modern period.

On the other end of the iconoclastic spectrum is the quasi-Nestorian rationale that dissects matter from spirit. The iconoclastic council of Hieria in 754 held a deep contempt for matter, such that worship of images was a worship of lifeless, inanimate matter opposed to a devotion of worship in spirit and truth.[728] Representing Christ

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[726] See Christoph Schönborn, *God's Human Face: The Christ-Icon*, trans. Lothar Krauth (San Francisco: Ignatius Press, 1994), 194.
[727] Ibid., 152.
[728] Ibid., 151–52. See the text from Council of Hieria: "Condemned by everyone who attempts to capture the likeness of the saints with material colors in lifeless and mute icons – for such images are of no use. To fashion them is a nonsensical idea and a devilish invention, taking the place of depicting

through images from the material world degrades Christ since He should be contemplated in the noetic realm.[729] Such a scheme follows a dualistic Platonic structure that divides the world into the intelligible and the sensible realms with an unbridgeable gulf.[730] This results in a parallelism between the material and spiritual worlds but no intrinsic crossover or interpenetration.

While the two poles of iconoclasm diverged materially, they shared the same iconoclastic logic that is ultimately a Nestorian logic. The iconoclastic view maintains an ontological gap between Creator and creation that echoes the ontological gap held by Nestorius' view of the parallel relation between the divine and the human in Christ.[731] Rejecting veneration of icons implies that material is evil, despite the fact that the New Testament affirms that the invisible God has become visible in the Incarnation (cf. Col. 1:15).[732] What results is an extreme spiritualism that severs any intrinsic relation between the material and the spiritual.[733] In other words, iconoclasm not only dissects matter from spirit, but also undermines the reality that the Incarnation ennobles matter with grace because of Christ's life-giving flesh. Furthermore, iconoclasm attacks the Christological synthesis of the visible and invisible and the created and uncreated. The central point of the iconoclastic charge hits at the core of Christological orthodoxy that we have been tracing back to Cyril of

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in ourselves the virtues of the saints as told in the Writings, and thus becoming ourselves living icons and being prompted to a zeal similar to theirs." G. D. Mansi, ed., *Sacrorum conciliorum nova et amplissima collectio*, Edito novissima (Paris: H. Welter, 1901), v. 13, 345CD. Quoted in Schönborn, *God's Human Face*, 152. The iconoclasts held that icons were dead, lifeless images. Instead, the faithful become living icons through growth in virtue. For the Iconoclasts' ethical theory, see Milton V. Anastos, "The Ethical Theory of Images Formulated by the Iconoclasts in 754 and 815," *Dumbarton Oaks Papers* 8 (1954): 151–60. Maximus the Confessor also held that growth in virtue increased participation in the *Logos* thereby becoming more Christ-like. However, Maximus did not create a dualism between icons as pictures and becoming living icons. In Maximus' view, both are vital for proper worship.

[729] Theodore the Studite, *Antirrhetici,* I.7. ET Theodore the Studite, *Writings on Iconoclasm*, trans. Thomas Cattoi (New York: Newman Press, 2015), 50.

[730] Schönborn, *God's Human Face*, 161.

[731] Cf. Ambrosios Giakalis, *Images of the Divine: The Theology of Icons at the Seventh Ecumenical Council* (Leiden; New York: E.J. Brill, 1994), 68.

[732] Louth, *St. John Damascene*, 201–2.

[733] Giakalis, *Images of the Divine*, 101.

Alexandria: the synergistic unity of the differences of the created and uncreated spheres in the person of Christ. The iconoclastic logic is a Nestorian logic that seeks to divide what has been joined together – matter and spirit, visible and invisible, created and uncreated.

This Nestorian, iconoclastic logic attempts to obtain as much exhaustive knowledge as possible by turning away from the material world and looking solely by the "eye of the mind" of spiritual contemplation. This logic views the invisible as the truly real at the expense of the visible, which is shadowy and not indicative of anything real. Rather than illuminating or pointing, the material world obscures. Thus, the iconoclasts charge the iconodules of idolatry because true worship is "in spirit and in truth" without need for material mediation. Ironically, the iconoclasts are instead guilty of what Marion calls conceptual idolatry. In Marion's icon/idol distinction, the icon is a visible thing that is saturated by the invisible. The idol, on the other hand, divides the invisible into two parts: one part visible and the other the "*invisable*" – that is, the intentionality of the seer that reduces the object of gaze into the seer's own image that is unthought.[734] By viewing icons with disdain, iconoclasts fall into a conceptual idolatry that reduces God as wholly separate from material creation. The logic of iconoclasm that divides matter from spirit and visible from invisible results in an exact representationalism intended by the idolatrous gaze that seeks exhaustive knowledge. "Every pretension to absolute knowledge therefore belongs to the domain of the idol."[735] We shall see how this logic plays out in anatomical illustrations in the sixteenth century.

Ontological Participation: John of Damascus

[734] Jean-Luc Marion, *God Without Being: Hors-Texte*, trans. Thomas A. Carlson, Religion and Postmodernism (Chicago ; London: University of Chicago Press, 1991), 17–18.
[735] Ibid., 23.

The iconodule position holds that images are analogous, participatory, and doxological in relation to their originals. John of Damascus, the first systematic apologist for iconophilia, exercised a Chalcedonian logic,[736] following in the tradition of Denys the Areopagite and Maximus the Confessor. The Damascene defines an image as "a likeness and paradigm and expression of something, showing in itself what is depicted in the image" or "a likeness depicting an archetype, but having some difference from it."[737] Images "can be said in many voices,"[738] such that every image is not an image in the same way as every other image. Images have an analogical polyvalence; they relate to their prototypes with varying intensities of participation and mediation. John of Damascus names six different kinds of images: (1) the natural image of the Son to the Father; (2) the predeterminations within God of what it is to be;[739] (3) human kind as created according to the image of God; (4) that which uses bodily form to communicate the spiritual world; (5) Old Testament typology that anticipates the New Testament; and (6) that which recalls to memory (*anamnēsis*) past events either in written or pictorial form.[740] In these six modes of imaging there is "an evocation of the multitude of ways in which reality echoes reality…always mediating, always holding together in harmony."[741] Images of God are mediations of God, signs of the harmony of God with the world, particular communications, and modes of participation of created finitude in the source of being. In this way, images

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[736] Louth, *St. John Damascene*, 215.
[737] John of Damascus, *Contra imaginum calumniatores orationes tres*, III.16; I.9. Hereafter, cited as *De Imaginibus.* ET John of Damascus, *Three Treatises on the Divine Images*, trans. Andrew Louth (Crestwood, N.Y.: St. Vladimir's Seminary Press, 2003). Critical edition of Greek text in John of Damascus, *Contra imaginum calumniatores orationes tres*, ed. Bonifatius Kotter, vol. 3, Die Schriften des Johannes von Damaskos (Berlin; New York: Walter de Gruyter, 1975).
[738] Boulnois, *Au-Delà de L'image*, 12.
[739] The Damascene here cites Denys the Areopagite, *Divine Names* 5.8. ET Pseudo-Dionysius, *Pseudo-Dionysius: The Complete Works*, trans. Colm Luibhéid and Paul Rorem (New York: Paulist Press, 1987). Maximus the Confessor also cites Denys in *Ambiguum* 7, PG 91, 1085A for his own concept of the *logoi* of beings.
[740] John of Damascus, *De Imaginibus* I.9-13; III.18-23.
[741] Louth, *St. John Damascene*, 216.

mediate analogically in a participatory manner between the created and uncreated, and the visible and the invisible.

As embodied, sense-oriented, image-bearers, humans require images for the mediation of the invisible God through the visible. For the Damascene, the purpose of the image is to make visible what is invisible, precisely because humans are embodied creatures and do not have direct, unmediated knowledge of the invisible.[742] In this way, images play a key metaphysical role because images are necessary in material creation, for there is an "architectonic significance of the image in the created order."[743] In contrast to the dualistic Platonic view of the iconoclasts that dissects the sensible from the intelligible, John of Damascus regards sense perception as necessary for the knowledge of divine things.[744] Senses are necessary to convey an image of the Incarnate Word, with sight as the chief sense, to confer knowledge.[745] John cites Denys the Areopagite to support the metaphysical necessity of images for spiritual contemplation: in love for humans, the formless, incorporeal God uses forms, images, and symbols to manifest to our senses in order to ascend to divine contemplation.[746] Viewing the bodily and spiritual senses in continuity, John regards the bodily senses as anagogical to spiritual contemplation. Just as hearing the words with the ears can lead to spiritual understanding, through physical eyes one can ascend to spiritual knowledge.[747] God uses corporeal images to mediate knowledge of

[742] John of Damascus, *De Imaginibus* III.17, trans. Louth, 96.
[743] Christoph Schönborn, *God's Human Face: The Christ-Icon*, trans. Lothar Krauth (San Francisco: Ignatius Press, 1994), 196.
[744] John of Damascus, *Dialectica,* 1. ET John of Damascus, *Writings*, trans. Frederic H. Chase (Washington, D.C.: Catholic University of America Press, 1958), 9–10.
[745] John of Damascus, *De Imaginibus* I.17, trans. Louth, 31-32. Cf. Aristotle's intertwining of sight and cognition in chapter 2.
[746] John of Damascus, *De Imaginibus* I.30-33.
[747] John of Damascus, *De Imaginibus* III.12.

the incorporeal.[748] In short, without visible, corporeal images, one cannot know the invisible God.

Furthermore, the Damascene regards matter not merely as a visible, mediating shadow to an invisible reality, but rather as intrinsically good because of its central role in salvation in the divine economy of the Incarnation. Against the iconoclastic view, matter is not dishonorable because it originates from God. Put positively, as Christoph Schonbörn notes, through the Incarnation "matter is not at all an obstacle on the way to God, but becomes by its participation in Christ's mystery the medium through which salvation is accomplished."[749] John views matter as the vehicle of salvation, filled with divine energy:

> I do not venerate matter, I venerate the fashioner of matter, who became matter for my sake and accepted to dwell in matter and through matter worked my salvation, and I will not cease from reverencing matter, through which my salvation was worked. I do not reverence it as God…if the body of God has become God unchangeably through the hypostatic union, what gives anointing remains, and what was by nature flesh animated with a rational and intellectual soul is formed, it is not uncreated. Therefore I reverence the rest of matter and hold in respect that through which my salvation came, because it is filled with divine energy and grace.[750]

Elsewhere in a similar passage, John of Damascus regards the flesh of the Incarnation as matter and creaturely.[751] In the Incarnation, the uncreated creator of matter became united with created, creaturely matter but without confusion. Because of the hypostatic union and the doctrine of the *communicatio idiomatum*, the Word made flesh "unchangingly deified the flesh"[752] and filled matter with divine energy and grace, thereby ennobling all matter and worthy of receiving reverence.

John of Damascus shares remarkable resonances with the non-dualist theurgic Neoplatonism of Iamblichus, particularly with regard for the necessity of matter,

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[748] John of Damascus, *De Imaginibus* III.25.
[749] Schönborn, *God's Human Face*, 196.
[750] John of Damascus, *De Imaginibus* I.16, trans. Louth, 29.
[751] John of Damascus, *De Imaginibus* II.14.
[752] John of Damascus, *De Imaginibus* I.21, trans. Louth, 35.

symbols, and the visible in mediating the divine.[753] Iamblichus was a student of Porphyry, but rejected the latter's dualism of the intelligible and sensible realms, instead offering an account of divine action and knowledge that gives a primary role to matter (*hylē*) and embodied, ritual practice. Against an intellectual notion of divine knowing as theo-*logy*, which is a rational discourse *about* God, the-*urgy*, or divine work, views material practices as ways that humans can tap into divine power, thereby transforming man into divine status.[754] Anticipating the Damascene, Iamblichus regards matter (*hylē*) as a receptacle and vehicle of divine energy through ritual sacrifices for the purposes of deification.[755] Because matter (*hylē*) derives from the highest principle and the immaterial, which is at the highest level of the hierarchy of being, is present in the material, which is at the lowest level, matter (1) participates in the divine, (2) allows for reception of the divine, and (3) can perfectly represent the divine.[756] Since matter is ultimately derived from God, matter is endowed with life and is life-giving,[757] anticipating language of Cyril of Alexandria's notion that Christ's flesh is life-giving. In a vein of apophaticism, Iamblichus regards the intellect as necessary but insufficient for divine union. Rather, divine symbols that go beyond knowledge are required through which the divine power is actualized: "it is the accomplishment of acts not to be divulged and beyond all conception, and the power of the unutterable symbols, understood solely by the gods, which establishes theurgic

[753] It is unclear if John of Damascus directly studied Iamblichus' work. We do know that John was deeply indebted to Denys the Areopagite, who in turn was influenced by Proclus, also a theurgic Neoplatonist that succeeded Iamblichus. Louth notes that the Damascene holds a modified Platonism that requires sense perception for knowing transcendent realities. Louth, *St. John Damascene*, 45–46. See Gregory Shaw, *Theurgy and the Soul: The Neoplatonism of Iamblichus*, 2nd ed. (Kettering, OH: Angelico Press/Sophia Perennis, 2015), especially the foreword by John Milbank and Aaron Riches on the relationship between theurgic Neoplatonism and Christian liturgy.
[754] Shaw, *Theurgy and the Soul*, 5.
[755] Iamblichus, *De Mysteriis* V.12. See Iamblichus, *Iamblichus on The Mysteries*, trans. Emma C. Clarke (Atlanta, GA: Society of Biblical Literature, 2003) for Greek text and facing English translation.
[756] Iamblichus, *De Mysteriis* V.23.
[757] Iamblichus, *De Mysteriis* VIII.3.

union. […] The things which properly arouse the divine will are the actual divine symbols."[758] Through visible symbols from the gods, one can see the truth of the invisible forms.[759] In pagan theurgic Neoplatonism, symbols and ritual sacrifices form a pagan liturgy through which one encounters the invisible divine and effects deification.

For the Christian liturgical tradition, the real theurgic event is the Incarnation, the ultimate divine action, as seen in Denys the Areopagite.[760] For John of Damascus, the Word made flesh provides a clear sign that humans are superior to the angels precisely because of embodiment, not in spite of it. The human body entails eating the life-giving body and blood of Christ that is hypostatically united to the divine in the Eucharist, resulting in the participation of the divine nature, which angels cannot do.[761] For the Damascene, in the Incarnation, the God who is beyond form and the source of all being takes on a human form that can be represented in images.[762] The Incarnation makes the invisible God visible in the flesh as an act of divine condescension and thus able to be depicted.[763] Depicting the Incarnate Christ is not merely optional but necessary because the human intellect cannot go beyond the bodily.[764] Knowing and perceiving the invisible God requires sense perception and visible signs. Because Christ unifies the visible and the invisible through the hypostatic union of the two natures, the Incarnation mediates the ontological reality of signs and images, for "it is this intimate link between sign or sacrament or icon, the Incarnation, and the very possibility of human understanding that lies at the heart of

[758] Iamblichus, *De Mysteriis* II.11.
[759] Iamblichus, *De Mysteriis* VII.1.
[760] Andrew Louth, "Pagan Theurgy and Christian Sacramentalism in Denys the Areopagite," *Journal of Theological Studies*, 1986, 432–38.
[761] John of Damascus, *De Imaginibus* III.26.
[762] Cf. Louth, *St. John Damascene*, 213–14.
[763] John of Damascus, *De Imaginibus* I.4; cf. III.6.
[764] John of Damascus, *De Imaginibus* II.5; cf. III.2.

John's defense of icons."[765] The theurgical event of the Incarnation becomes the central axis around which all other images pivot.

Relational Participation: Theodore the Studite

Theodore the Studite, the great defender of icons in the second iconoclastic controversy in the ninth century, further intensified the Incarnational logic of icons. Whereas John of Damascus emphasized the necessity of the visible to see the invisible as well as the nobility of matter, Theodore's logic of the icon rests upon the central paradox of the Incarnation: "The One who is invisible becomes visible."[766] His theological method relies more on mystery and paradox and less on logic and systems, since the paradox of the Incarnation disrupts human philosophical categories.[767] A key concept in Theodore's debate with the iconoclasts is the notion of circumscribability, which attributes boundaries and limits to a thing, such as material bodies. Properly understood, the divine is uncircumscribable. In the iconoclasts' view, since Christ is God, then Christ cannot be represented, for representation and images entail boundaries and limits in space, which cannot be attributed to the divine. In response, the Studite appeals to the paradox of the Incarnation:

> one of the Trinity has come into human nature, becoming like us; and in this way, there came to be a mingling of what cannot be mingled, and a joining of what cannot be joined; in other words, [a union] of what is uncircumscribed with what is circumscribed, of what has boundaries with what is boundless, of what is limitless with what has limits, of what escapes form with what is comfortably subject to form. Truly, *this is a paradox*; for this reason Christ is depicted in images, and what is invisible is seen; he who in his proper divinity exists without circumscription accepts the natural circumscription of our body.[768]

[765] Louth, *St. John Damascene*, 218–19.
[766] Theodore the Studite, *Antirrheticus* I.2, PG 99, 332A.
[767] Cf. Schönborn, *God's Human Face*, 219; Thomas Cattoi, "Introduction," in *Theodore the Studite: Writings on Iconoclasm* (New York: Newman Press, 2015), 29.
[768] Theodore the Studite, *Antirrheticus* I.2, PG 99, 332A. ET Theodore the Studite, *Writings on Iconoclasm*, 46. Emphasis added.

Here Theodore further radicalizes Maximus' Chalcedonian logic by applying it to circumscribability. That Christ is both visible and invisible ultimately originates in St. Paul – Christ is the image of the invisible God – but Theodore extends the logic to Christ's concrete existence. By taking on human form, limit, and boundary, Christ's person is extended in space and thus can be represented and seen with the eyes.

The major contribution that the Studite makes to the iconoclastic debate is that only persons can be represented, not natures. The unity of Christ's person is the foundation for the theology of the icon.[769] Crucially, the *communicatio idiomatum* is located in the hypostasis of Christ, not the natures of Christ.[770] The properties of either the divine or the human nature are ascribed to the hypostasis without confusion and without division, not to the other nature as a communication of attributes. Circumscribability is a property of human nature that is not communicated to Christ's divine nature, but rather is ascribed to Christ's person. It follows that Christ's human nature cannot be represented but his particular human person can be. So while Christ assumed the whole human nature, He is seen in an individual manner.[771] Theodore notes: "when anyone is depicted, it is not the nature but the hypostasis that is depicted."[772] Human nature is a generality, but generalities only exist in particulars. If individual human members do not exist, then humanity does not exist. Thus Christ's human nature is assumed in an individual person.[773] Generalities are seen by the mind's eye while physical eyes see particulars.[774] Put differently, general principles such as human nature are invisible and uncircumscribable while individuals exhibit natural properties. If Christ is circumscribable, then He can be seen with the eyes and

[769] Schönborn, *God's Human Face*, 92–93.
[770] Cattoi, "Introduction," 30.
[771] Theodore the Studite, *Antirrheticus* I.4, PG 99, 332D.
[772] Theodore the Studite, *Antirrheticus* III.1.34, PG 99, 405A, trans. Cattoi, 98.
[773] Theodore the Studite, *Antirrheticus* III.1.15, PG 99, 396D-397A.
[774] Theodore the Studite, *Antirrheticus* III.1.16, PG 99, 397A; cf. II.45.

touched with the hands (cf. 1 John 1:1-2).[775] Thus, the two natures of Christ are inseparable without confusion and without division. To represent Christ in an icon is to affirm the concrete, particular existence of the Word made flesh, not abstract generalities. Otherwise, a iconoclastic logic holds that the truly real Christ is one that remains in the sphere of the invisible and the spiritual at the expense of the visible and the material.

Theodore draws out the theology of the icon through the relation between the image and the prototype as a hypostatic unity.[776] Prototype and image are one thing in hypostatic likeness but two things in terms of nature.[777] In this way, Christ is present in the icon by virtue of the name and relation, not their natures (*physis*).[778] The icon as image of Christ is made of paint and wood, thus the essence is composite and created while Christ himself as prototype is both divine and human. Although the material icon of Christ differs in essence from the person of Christ, they share identity through hypostatic unity. The divine dwells in the icon because of relational participation. Graham Ward explains the significance of Theodore's relational participation:

> For Theodore, developing a line of thought in Damascene, hypostasis is the very principle of individuation – that which distinguishes individual substance from species. All things only have individuality insofar as they subsist in Christ. What is phenomenologically received, then, in gazing upon the object is that hypostatic relation that both individuates the things [*sic*] itself and re-cognizes its Christic relation (*schesis*). There is not then a union of natures but a participatory relation (*schetike metalepsis*).[779]

The integral relation of the divine and the human are not two natures united in abstraction, but rather the relational participation of the natures in the image of Christ

[775] Theodore the Studite, *Antirrheticus* III.1.36, PG 99, 405D.
[776] Gerhart B. Ladner, "Origin and Significance of the Byzantine Iconoclastic Controversy," *Mediaeval Studies*, no. 2 (1940): 127–49.
[777] Theodore the Studite, *Antirrheticus* III.4.1, PG 99, 428C.
[778] Theodore the Studite, *Antirrheticus* I.11, PG 99, 341B.
[779] Graham Ward, "The Beauty of God," in John Milbank, Graham Ward, and Edith Wyschogrod, *Theological Perspectives on God and Beauty* (Harrisburg, PA: Trinity Press International, 2003), 48–49.

that shares hypostatic unity with the person of Christ. In this way, the human visible and the divine invisible are both present in the icon because of the Incarnation. Theodore exposes iconoclastic logic as a Nestorian logic in a new way: dissecting the image from the prototype dissects the participatory relation of human nature from their source, the person of Jesus Christ. Thus, the Nestorian logic of iconoclasm rejects ontological participation (as seen in John of Damascus) and relational participation, resulting in a dissection of visible from invisible, matter from spirit, and image from prototype.

Iconodule Logic: Seeing the Material World Rightly

John of Damascus and Theodore the Studite together exercise an iconodule logic that is ultimately rooted in the Chalcedonian logic that we saw previously with Maximus. Olivier Boulnois argues that icon theology can be traced back to Chalcedon:

> The overall justification of the icon goes back to the Council of Chalcedon (451): Christ is constituted by one "hypostasis" and two natures. What the icon depicts is the person, and not the nature...Christ, and not his divinity nor his humanity. What can be represented is neither his divine *nature* or human *nature*, but the unique *person* of Christ, "perpendicular" to these two dimensions and premised upon their union. *To deny that this hypostasis can be represented is to deny its incarnation.* Thus, in representing the person of Christ we attend to the communication of idioms divine and human in Christ, the invisible and visible. The *Acts* of Nicaea II are explicit: "he who venerates the image, venerates the person depicted therein."[780]

This bears repeating: to deny that Christ's person can be represented is to deny the Incarnation. Put positively, vision is necessarily transfigured by the Incarnation. As Kenneth Parry remarks with regard to the Damascene, "we find the relationship between the seen and the unseen has been transformed by the incarnation of

[780] Boulnois, *Au-Delà de L'image*, 202. Emphasis added.

Christ."[781] Iconodule logic transforms how objects are seen in three ways. First, iconodule theology provides a basis for the union of the gaze and material order. As we saw from the Damascene, there is an epistemological primacy to sight and materiality. A Chalcedonian phenomenology transforms how the intentionality of the gaze views the material and the spiritual, the visible and the invisible. Rather than requiring a binary lens of the visible *or* the invisible, a Chalcedonian lens allows one to see the invisible *in* and *through* the visible because the visible and the invisible share an intertwining[782] through an ontological and relational participation without confusion and without division. In this way, the concrete hypostasis of Christ results in an "extreme realism":[783] a Chalcedonian gaze sees the material world as it truly is – as a gift from God through Christ.

Second, iconodule logic transforms cosmic vision by maintaining a symbolic ontology. Iconodules maintain the distinction between nature and hypostasis, prototype and image, to allow for the "legitimacy of the imitative representation of reality."[784] Images are themselves in their material natures but also relationally participate in their prototype. As St. Paul declared, the invisible attributes of God can be clearly perceived in the things that have been made (Rom. 1:20). In this way, things of the material creation are images that participate in God, their prototype. However, the participation is not only relational but also ontological. The "extreme realism" that matter mediates the iconic participation in God reveals an ontology of suspending the material: "all there is *only* is because it is more than it is."[785]

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[781] Kenneth Parry, *Depicting the Word: Byzantine Iconophile Thought of the Eighth and Ninth Centuries* (Leiden; New York: E. J. Brill, 1996), 37.
[782] Cf. Maurice Merleau-Ponty's ontology of flesh in *The Visible and the Invisible*, trans. Claude Lefort (Evanston, Ill.: Northwestern University Press, 1968).
[783] Giakalis, *Images of the Divine*, 103.
[784] Ibid., 83–84.
[785] John Milbank, Catherine Pickstock, and Graham Ward, "Suspending the Material: The Turn of Radical Orthodoxy," in John Milbank, Catherine Pickstock, and Graham Ward, eds., *Radical Orthodoxy: A New Theology* (London: Routledge, 1999), 1–20, here at p. 4.

Everything is icon. The Incarnation mediates all images and their prototypes, for Christ is the image and prototype *par excellence.* Thus, seen through a Chalcedonian gaze, the material world is an echo chamber of images, symbols, and signs that ultimately resounds Jesus Christ, the one in whom a symbolic ontology holds together.

Third, iconodule logic transforms theological anthropology. A Chalcedonian gaze views the human person as inherently ineffable because humans are image-bearers, created in the image of God. As images, humans point beyond themselves and participate relationally and ontologically in their divine source. Because of this image-bearing status, humans cannot be known exhaustively or comprehensively through analysis, whether scientifically or philosophically. As Ambrosios Giakalis notes, there is a "supremely apophatic element of each person: the uniqueness, exclusiveness and incomprehensibility of its mode of existence which makes it 'incommunicable' and inaccessible to rational analysis and understanding."[786] Not only are humans image-bearers, but also image-makers, as "*homo symbolicus*."[787] Because man is modeled on Christ, who is the perfect image of God (cf. Col. 1:15) as well as the symbol and the symbolized, man is the microcosm of the living icon. As both image and image-maker, man is the communicative mediator between visible and invisible, matter and spirit. David Jones writes:

> A man can not only smell roses (some beasts may do that, for lavender is said to be appreciated in the Lion House) but he can and does and ought to pluck roses and he can predicate of roses such and such. He can make a *signum* of roses. He can make attar of roses. He can garland them and make anathemata of them. Which is, presumably, the *kind* of thing he is meant to do. Anyway, there's no one else can do it. Angels can't do it nor can the beasts. No wonder then that Theology regards the body as a unique good. Without body: without sacraments. Angels only: no sacrament. Beasts only: no sacrament. Man:

[786] Giakalis, *Images of the Divine*, 112.
[787] Ward, "The Beauty of God," 42.

> sacrament at every turn and all levels of the 'profane' and 'sacred', in the trivial and in the profound, no escape from sacrament.[788]

Icon is definitive for what it means to be human: icon, sacrament, and sign all converge on the human person. Jesus Christ, the archetypal human, epitomizes the iconic reality of human personhood: He is the One who is both the symbol and the symbolized.[789] To see humans as *homo symbolicus* affirms their ineffable, sacramental nature and escapes the dissective, anatomical gaze.

Theodulf of Orleans: Western Iconoclasm in the Liber Carolini

While the East witnessed the "triumph of orthodoxy" after the iconodule theology prevailed over iconoclasm with the death of Emperor Theophilus in 842, the iconodule triumph in the West was more ambiguous. The Carolingian Empire and the Frankish Church tended toward iconoclasm because of the efforts of Theodulf of Orleans, who wrote the *Libri Carolini*,[790] a polemical work against the iconodules, responding to the Second Council of Nicaea in 787. Theodulf's attitude toward images was meant to be a *via media*: on the one hand rejecting the icon theology of Nicaea II, while opposing the destruction of icons on the other. He affirmed the use of images for the purposes of decorative adornment but refused the use of images for spiritual worship. Theodulf's ambiguity towards icons was driven by a combination of philosophical and theological reasons and language barriers.[791] Theodulf restricted himself to the Latin fathers Ambrose, Augustine, and Gregory the Great. He showed no evidence of familiarity with the Greek fathers, who were key to the iconodule theology. More importantly, Theodulf interacted with a weak version of the

[788] Jones, "Art and Sacrament," 166–67.
[789] Maximus the Confessor, *Ambiguum* 10, PG 91, 1165D.
[790] See Ann Freeman with Paul Meyvaert, eds., *Opus Caroli regis contra synodum (Libri Carolini)* (Hannover: Hahnsche Buchhandlung, 1998).
[791] Stephen Gero, "The Libri Carolini and the Image Controversy," *Greek Orthodox Theological Review* 18 (1973): 7–34, particularly pp. 9-18.

proceedings of Nicaea II. It appears that he commented on extracts of a Latin translation and did not have access to complete quotations or its context. What is indisputable is that the Latin translation was flawed. Throughout, the Latin conflates Nicaea's distinction of worship ("*latreia*") and veneration ("*proskynēsis*"), translating both with the word *adoratio*, meaning worship. *Latreia* is reserved for God alone, while *proskynēsis* can be applied both to God and icons. Thus, Theodulf understood Nicaea as endorsing idolatry.

However, the polemical attack against Nicaea II cannot be merely attributed to a misunderstanding of language from Greek to Latin. Theodulf assumed metaphysical presuppositions that were fundamentally opposed to the Second Council of Nicaea in two ways. First, Theodulf opposes matter and spirit, echoing the iconoclastic dualism of the Council of Hieria in 754. Manufactured images are mere pieces of lifeless matter, completely unlike the persons they depict who have reason, sense, and life. Images have no spiritual use; their worth rests in the materials and the skills used in the production of the images.[792] While iconodule theology holds to an analogical relation between image and prototype, Theodulf's supposed *via media* view is philosophically iconoclastic, for it espouses an equivocal relation, resulting fundamentally in a dissection between the image and the imaged. Material signs, symbols, and images refer to other signs but not to spiritual things.[793] Because matter is divided from spirit, the material image cannot display a likeness to the immaterial,[794] manifesting a Nestorian logic. In this way, Theodulf's materialistic semiotics remains in the immanent, thereby murdering the intrinsic, transcendent, and divine meaning of the cosmos, anticipating the modern view that nature is inert.

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[792] Celia Chazelle, "Matter, Spirit, and Image in the *Libri Carolini*," *Recherches Augustiniennes et Patristiques* 21 (1986): 163–84, here at p. 165.
[793] Ibid., 183.
[794] Ibid., 172.

Second, Theodulf regards mental vision as superior to physical vision. He draws heavily on Augustine in two ways. (1) Augustine regards the image of God, which is the image of Christ, to reside principally in the soul and intellect, whereas the body is the image of the earthly man, Adam.[795] (2) Augustine distinguishes three kinds of vision: corporal, spiritual, and mental. Mental vision is superior because it requires no bodily or spiritual mediation. As Augustine makes clear, love can *only* be perceived by the mind at the exclusion of the body or the spirit:

> The third kind of vision, by which love is seen to be understood, concerns those things which have no images or likenesses which are not what they themselves actually are. […] But in so far as it is possible to perceive with the mind, this love is seen more clearly by one and less clearly by another. But if some bodily image is contemplated, then it is not love that is seen.[796]

Theodulf concludes from Augustine's visual epistemology that it is solely through the mental or "intellectual" faculty of seeing that one can contemplate incorporeal things such as love, God, and the human mind, and thus truly see. What is truly real is the incorporeal and intellectual. Thus, Theodulf's theology of vision abandons the realm of matter in favor of an inward turn to direct contemplation without mediation.[797] As a corollary, earthly material objects obstruct spirituality, since God is sought only with the mind's eye. As Theodulf declares, "God is to be sought not in visible things, not in manufactured things, but in the heart; he is to be beheld not with the eyes of the flesh but only with the eye of the mind."[798] Theodulf opposes spiritual contemplation to the material world. In short, visible signs are hindrances to invisible realities.

Two philosophical resonances should be highlighted. First, the lack of need for bodily mediation in true mental contemplation anticipates the epistemology of Avicenna (c. 980-1037), who viewed the blessed state of man as direct, intellectual

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[795] Ibid., 171.
[796] Augustine, *De genesi ad litteram*, 12, PL 34, 458-466, quoted in Noble, "The Vocabulary of Vision and Worship in the Early Carolingian Period," 219.
[797] Chazelle, "Matter, Spirit, and Image in the Libri Carolini," 175.
[798] *Libri Carolini* 4.2, quoted in Ibid., 176.

contemplation without need for the body. We shall further explore Avicenna in the next chapter. Second, recall that the first attestation of the "eye of the mind" occurs in Hippocrates' *On the Art*, which further develops the anatomical rationality. For Hippocrates and thereafter, the mind's eye becomes the organizing principle for how the physical eye sees the material world. Theodulf is no different. Theodulf's iconoclasm dissects matter from spirit with a Nestorian logic that makes two parallel realms with no intrinsic relation to one another.

However, Theodulf does not hold a complete separation between the material and spiritual. He does allow for the sanctification of material things so that the holy can be made immanent to humans, supremely in the Eucharist. In Theodulf's conception, the Eucharist is an external, invisible operation of the Spirit to make a locus of the holy on earth.[799] Such a view results in a magical view of nature, anticipating a technology of the Eucharist that is made effective by the consecratory formula, thereby creating a dualism between the natural and the supernatural, resulting in a de-sacramentalized nature. We shall see this development in the second Eucharistic controversy later in this chapter.

Theodulf consistently views the material as separate from the spiritual and eschews mediation of the divine through images. The visible is made inferior and dissected away from the invisible. True vision is mental vision without the need for bodily mediation, opening the door to rationalism. Indeed, John Milbank suggests that Theodulf of Orleans is "the ultimate villain of Western theology" who inaugurates a

> "rationalism" which refuses the need for mediation via the inscrutable "density" of the image and fails to see that it is this density which must stand between us and any direct perception of the ineffable deity. […] A certain

[799] Ibid., 181.

> refusal of our dependency on the concretely envisaged tended to oust the real in favor of the rational and to model the real on the basis of the rational.[800]

While Theodulf explicitly dissects the material realm from the spiritual realm such that visible images provide no access to the invisible, his view of the direct contemplation of God entails an intellectual comprehension of God, which then implies that one can know material things exhaustively. In other words, while material images are equivocally related to the spiritual, material images are univocal with what they represent in the material world. Because images have no intrinsic relation to the invisible, they can only signify only other visible things, which can then provoke the intellectual faculty to remember memories as mental representations. Recall that Constantine V's notion of the true image is one that reproduces the original exactly and without remainder. Theodulf's Nestorian logic of semi-iconoclasm results in rationalism that ultimately leads to an epistemology of representation.

Material signs as only pointing to other material signs is what Marion calls mimetic logic, which is essentially a variant of iconoclastic logic, refusing mediation between the visible and the invisible. In such a mimetic logic one can only compare the visible to the visible, without recourse to the invisible.[801] Marion traces this logic to Plato and Nietzsche, but for our purposes we shall focus on the latter. For Nietzschean mimetic logic, when the image is dissected from its prototype, the one who sees the image employs a gaze of will-to-power that determines the visible image by its own evaluation. This gaze sees the visible in its own image, resulting in a self-idolatry: "Man becomes obsessed by only ever being able to see the images modeled on himself; by virtue of seeing without being seen, he can see nothing but the mirror

[800] John Milbank, "The Grandeur of Reason and the Perversity of Rationalism: Radical Orthodoxy's First Decade," in John Milbank and Simon Oliver, eds., *The Radical Orthodoxy Reader* (Routledge, 2009), 381.
[801] Marion, *The Crossing of the Visible*, 75.

images of his own gaze."[802] These self-idolatrous images severed from their divine prototype become valued as actual reality in themselves. With the man as the mediator between immanent, actual images, "the image produces itself with an ever-increasing technical perfection."[803] This becomes especially true with the rise of anatomical illustrations in the sixteenth century.

Anatomical Iconoclasm: Representing the Idols

In 1543, Andreas Vesalius published *De humani corporis fabrica libri septem*,[804] marking a watershed moment in anatomical knowledge. Before Vesalius, classic anatomical texts from Galen dictated the interpretation of the body, whereas after Vesalius, the visually seen and manually manipulated human body dictated the interpretation of classical texts.[805] In other words, the text of the body took primacy over the text of the book. In the Preface to *Fabrica*, Vesalius calls anatomy the chief branch of natural philosophy and the foundation for medicine.[806] Medical knowledge

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[802] Ibid., 81.
[803] Ibid., 82.
[804] Hereafter, *Fabrica.*
[805] Andrea Carlino, *Books of the Body: Anatomical Ritual and Renaissance Learning*, trans. John Tedeschi and Anne C. Tedeschi (Chicago: University of Chicago Press, 1999).
[806] Benjamin Farrington, "The Preface of Andreas Vesalius to De Fabrica Corporis Humani 1543," *Proceedings of the Royal Society of Medicine* 25, no. 9 (1932): 1360. Richardson and Carman translate the same phrase "important part of natural philosophy." Andreas Vesalius, *On the Fabric of the Human Body: Book I, Bones and Cartilages*, trans. William Frank Richardson and John Burd Carman (San Francisco: Norman Publishing, 1998), l. Garrison and Hast translate the phrase "particular branch of natural philosophy." Andreas Vesalius, *The Fabric of the Human Body: An Annotated Translation of the 1543 and 1555 Editions of "De Humani Corporis Fabrica Libri Septem,"* trans. D. H. Garrison and M. H. Hast (Basel: Karger, 2014).

Despite the translation variations which regard anatomy as either the "chief branch of natural philosophy" or simply one branch of many, there are reasons internal to the Preface itself that support the translation "chief branch." At the end of the Preface, Vesalius remarks that the study of anatomy is the most pleasing of all natural philosophy since it enables one to "know thyself," verging on theology, with a direct appeal to the microcosm analogy: "Yet I surmise that out of the entire Apolline discipline of medicine, and indeed all natural philosophy, nothing could be produced more pleasing or welcome to your Majesty [Charles V] than research in which we recognize the body and the spirit, as well as a certain divinity that issues from a harmony of the two, and finally our own selves (which is the true study of mankind). […] So as it is inescapable that you are uniquely interested in the science of the universe, so you would sometimes be delighted to ponder the construction of the most perfect of all creatures, and take pleasure in considering the lodging place and instrument of the immortal soul — a

requires accurate knowledge of anatomy, which is only gained through visualization. Vesalius encourages all aspiring physicians to learn anatomy through first-hand dissection of the body. As an aid to this learning, the *Fabrica* provides illustrated representations of human anatomy. The *Fabrica* depicts the structure of the human body, while downplaying its function. In contrast, Galen's anatomy was both structural and functional because of its overarching teleology. Whether or not Vesalius intended to do so, the *Fabrica* effectively represents the human body in frozen, static terms, rather than in its functional activity. In a sense, knowledge of the human body is captured on the space of the page, frozen in time.

With the growth of anatomical knowledge, philosophical psychology also changed during this same period.[807] In the Renaissance, "psychology was seen both as the apex of natural philosophy and as a transition to the higher study of medicine,"[808] with Aristotle's *De anima* as central to the university curriculum. Yet, within both philosophy and medicine, anatomy and physiology began to replace demonstrative Aristotelian natural philosophy as explanatory for the organic soul (that is, the vegetative and animal souls functioning below the level of the rational soul). Rather than disputing the number, location, and functions of the various faculties of the soul, Renaissance philosophers utilized the anatomical knowledge of the day and attributed the faculties of the organic soul to different organs in the body.[809] Not surprisingly, a growing number of philosophers in this period described the organic soul as material,

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domicile which, because it admirably resembles the universe in many of its names, was fitly called a microcosm by the ancients" (trans. Garrison and Hast).

[807] The ideas for this paragraph are deeply indebted to Katharine Park and Eckhard Kessler, "The Concept of Psychology," in *The Cambridge History of Renaissance Philosophy* (Cambridge: Cambridge University Press, 1988), 455–63; Katharine Park, "The Organic Soul," in *The Cambridge History of Renaissance Philosophy* (Cambridge: Cambridge University Press, 1988), 464–84; Vivian Nutton, "The Anatomy of the Soul in Early Renaissance Medicine," in *The Human Embryo: Aristotle and the Arabic and European Traditions*, ed. G. R. Dunstan (Exeter, Devon: University of Exeter Press, 1990), 136–57.

[808] Park and Kessler, "The Concept of Psychology," 457.

[809] Park, "The Organic Soul," 478–79.

extended in space, and divisible.[810] In other words, the organic soul was becoming spatialized. Philosophical psychology employed an anatomical rationality to answer metaphysical questions.[811]

During the early sixteenth century, the moralistic maxim "know thyself," which was received from the ancient Greek tradition, took on an increasingly anatomical application. The anatomical use of the Delphic maxim exploded over the course of the sixteenth century, precisely during the time of Vesalius and Philip Melanchthon. As William Schupbach remarks, "'know thyself' was used as the catch-phrase of anatomy," evidenced by its use with anatomical illustrations.[812] Moreover, at public anatomy theaters anatomists placed a great deal of importance on "know thyself." Before opening up the corpse for dissection, the anatomist spoke of the dignity of man as the microcosm, the peak of creation. Created in God's image, the body of man is raised above the other animals with certain unique anatomical properties as evidence of divine craftsmanship. But in order to gain knowledge of these divine elements within oneself, it is necessary for man to "know himself," which is obtained only through anatomical dissection.[813] In other words, anatomy provides a dual knowledge of God and of oneself. Here we see the anatomical rationality and "know thyself" take on a new theological key.[814] After anatomical

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[810] Ibid., 483.

[811] Note the explicit language of Philip Melanchthon: "[T]here has been a great and foolish battle in the schools about the distinction of the faculties. Concerning the organic powers, it is clear that they are distinguished by their organs; for the soul produces different operations in different organs, just as different sounds are produced in different pipes. Thus if anyone wants to enquire into the faculties and actions of the soul, he must know the organs and parts of the body." Melanchthon, *Liber de anima,* quoted in ibid., 479.

[812] William Schupbach, *The Paradox of Rembrandt's "Anatomy of Dr. Tulp,"* Medical History, Supplement No. 2 (London: Wellcome Institute for the History of Medicine, 1982), 31–32.

[813] Some anatomical theaters, particularly those in Holland, were housed in chapels, sometimes taking place on former altars. See William S. Heckscher, *Rembrandt's Anatomy of Dr. Nicolaas Tulp: An Iconological Study* (New York: New York University Press, 1958), 29–34.

[814] Cf. Jean Riolan the Younger, French rival to William Harvey, who viewed dissection as "anatomical liturgy." See Roger K. French, *Dissection and Vivisection in the European Renaissance* (Brookfield, Vt.: Ashgate, 1999), 237.

dissection and an anatomical understanding of "know thyself" are dressed in terms of natural theology, anatomical rationality becomes knowledge of God.

Philip Melanchthon played a vital role in this narrative, because he moved the coupling of anatomical rationality and the "know thyself" maxim out of the anatomy theater and into the theology curriculum. Because he held a high view of the intimate interaction between soul and body, anatomy as knowledge of the body was instrumental for gaining knowledge of the workings of the soul. Furthermore, he thought that knowledge of anatomy was one of the clearest ways in discerning the divine wisdom with God as architect. Thus, all students in philosophy, theology, and medicine at the University of Wittenberg learned anatomy. Melanchthon invoked Galen's insight that anatomical knowledge is theological knowledge: "Galen said that the knowledge of anatomy is the beginning of theology, and the path to the knowledge of God."[815] In his 1540 commentary on Aristotle's *De anima* Melanchthon states:

> At this point truly you think yourself introduced into a temple and a kind of shrine; on this account you ought not to simply look at the material with particular reverence, but to take into consideration the plan and diligence of the Maker. For the scheme of the work bears witness that men do not exist by chance, but take their rise from some infinite Mind which has arranged its individual parts with astonishing care and destined them to certain goals and which has impressed knowledge and mind on it, which is the clearest mark of divinity.[816]

In no uncertain terms, Melanchthon declares the theological importance of anatomy: through anatomical knowledge, the body is a temple where one can visually see the

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[815] Philip Melanchthon, *On the Life of Galen* in Melanchthon, *Orations on Philosophy and Education*, ed. Sachiko Kusukawa, trans. Christine F. Salazar, Cambridge Texts in the History of Philosophy (Cambridge: Cambridge University Press, 1999), 218. Melanchthon is likely citing the following quote from Galen: "Then a work on the usefulness of the parts, which at first seemed to him a thing of scant importance, will be reckoned truly to be the source of a perfect theology, which is a thing far greater and far nobler than all of medicine." Galen, *On the Usefulness of the Parts of the Body*, 731.

[816] To the best of my knowledge, there is no modern edition of the *Commentarius*. Philipp Melanchthon, *Commentarius de anima* (Vitebergæ: Ex officina Petri Seitz, 1540), f. 44 v-45 r. Translation from Andrea Carlino, *Paper Bodies: A Catalogue of Anatomical Fugitive Sheets, 1538-1687*, trans. Noga Arikha, Medical History, Supplement No. 19 (London: Wellcome Institute for the History of Medicine, 1999), 104–13.

knowledge of God imprinted in its innermost, anatomical parts. In other words, the "clearest mark of divinity" is spatialized onto the anatomical body.

In the 1553 revised edition of his commentary on *De anima* Melanchthon assimilates Vesalius' *Fabrica,* including anatomical sheets to accompany the text. His language regarding the theological importance of anatomical knowledge becomes even stronger:

> looking at this wonderful variety of work and these designs of God from without and through a thick darkness, we are struck dumb and grieve that we cannot look at nature and discern causes. But then at last when we discern the "idea" of nature in the divine mind we shall look into that whole machine as if from the inside, and we shall understand the designs of the Maker and the causes of all the divine works. Now, through this incomplete consideration, we know that God is the Architect, and we should be inflamed with desire for that perfected wisdom.[817]

Two things should be highlighted. First, he describes the human body as a "machine." This manifests the philosophical shift during the Renaissance that attributes various faculties of the soul to different organs of the body. Melanchthon was not alone in calling the human body a machine, but he was the most theologically influential. Secondly, he echoes St. Paul's phrase about seeing in a mirror dimly, meaning that through anatomy we see imperfectly into God's mind as revealed through His divine works, epitomized in the human body. Anatomical knowledge enables direct knowledge of God as architect and the path toward divine "perfected wisdom." Elsewhere in the oration *On Anatomy*, he declares that true wisdom is "recognition of God and the contemplation of nature."[818] In this context Melanchthon appeals explicitly to "know thyself" which he interprets as an admonishment to examine both

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[817] Philipp Melanchthon, *Corpus Reformatorum: Philippi Melanthonis Opera Quae Supersunt Omnia*, ed. Carolus Gottlieb Bretschneider, vol. 13 (Halle: Halis Saxonum, 1846). Translation from Cunningham, *The Anatomical Renaissance*, 232. In several places throughout his writings on the soul and anatomy, Melanchthon describes the human body as a machine (*machina*). See Preface to the *Commentary on the Soul* (1540); Preface to the *Book on the Soul* (1553); *On Anatomy* (1550), in Melanchthon, *Orations on Philosophy and Education*, 145-146-156-161, respectively.
[818] Melanchthon, *On Anatomy* in Melanchthon, *Orations on Philosophy and Education*, 164–65.

the wonder that we have in ourselves as the pinnacle of nature and the sources of actions of life.

The dual knowledge of God and self through anatomy took on new form with the printing press and the subsequent explosion of anatomical fugitive sheets in the later sixteenth century by which knowledge becomes spatialized. Vesalius' *Fabrica* was copied and plagiarized into anatomical fugitive sheets for popular consumption.[819] Anatomical illustrations broadened their popularity because of its corresponding moralistic tone to "know thyself."[820] Knowledge of the person that was previously gained through dialogue either with oneself or with another person now can be captured on the space of paper, frozen in time. This cultural development, widely disseminated through the printing press, influences the paradigm for knowledge of the self, which can now be exactly represented in images completely and without remainder. By seeing the inner parts of the anatomized body, one can contemplate the divine power. Through anatomical illustrations, one can know oneself and know God.[821]

However, the knowledge of oneself and of God follows an iconoclastic logic. This is actually not knowledge of a person at all, but knowledge of human nature. Remember the insight from Theodore the Studite that only persons, not natures, can be represented. Natures are abstractions that are only actualized in particular hypostases. The iconoclasts made the error of thinking that human nature can be

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[819] Andrea Carlino, *Paper Bodies: A Catalogue of Anatomical Fugitive Sheets, 1538-1687*, trans. Noga Arikha, Medical History, Supplement No. 19 (London: Wellcome Institute for the History of Medicine, 1999), 46–73. Carlino defines anatomical fugitive sheet as "a printed, iconographical and textual genre of their own. Their main characteristic, common to them all throughout the centuries, is to show the human anatomy by means of a printed figure made out of flaps of paper one can lift up, and surrounded with a brief explanatory text." Ibid., 74.

[820] The moralistic text with *Nosce teipsum* (know thyself) was found in the preface of nearly all sixteenth century treatises on human anatomy, inscribed in frontispieces and illustrations, evidenced by varying anatomical fugitive sheets. For an example of a representative *Nosce teipsum* inscription, see the appendix in Carlino, *Paper Bodies*, 333.

[821] Ibid., 104–13.

circumscribed, when in reality only concrete persons can be. But with anatomical illustrations, the converse is true. Pictures of the dissected human body only reveal humans in general, not particular persons. Vesalius' anatomical illustrations manufactured idealized images of "muscle men" in noble poses, not the particular likenesses of individual persons. Marion's mimetic logic rings true here: Vesalius' anatomical gaze resulted in illustrations made in his own idealized image. In this way, anatomical illustrations do not assist one to "know thyself" as a particular person but rather as a generic human nature that should fit the ideal human body, the source of which is a multitude of dissected corpses. Furthermore, seeing oneself merely as the product of a divine artisan through anatomical illustrations reduces the *imago Dei* to a technical object wholly reducible to parts, made by a divine technician. The *imago Dei* ceases to be an analogical image of its divine prototype because human nature can be known completely through univocal representation without remainder. Consequently, a mechanical *imago Dei* creates God in our own image: the supreme intelligent designer *qua* technician. Following an iconoclastic logic, then, to "know thyself" through anatomical illustrations is to engage in self-idolatry and become a "prisoner of the visible."[822]

In contrast to this self-knowledge splayed out frozen on the printed page, John of Damascus' theology of icon allows for self-knowledge to be traced back to its divine source through remembrance (*anamnēsis*). Icons are not inert, lifeless images like anatomical illustrations but rather divine gateways that recall and re-cognize the biblical and saintly narratives that shape the person portrayed in the icon. In other words, the icon is a living remembrance.[823] *Anamnēsis* directly relates the icon with the Eucharist through Jesus' institution at the Last Supper: "Do this in remembrance

[822] Marion, *The Crossing of the Visible*, 87.
[823] Schönborn, *God's Human Face*, 137.

(*anamnēsis*) of me" (Lk. 22:19). The symbolic ontology that icon theology maintains is fully realized in Maximus' Chalcedonian metaphysics. As we saw in the last chapter, for Maximus, the transfiguration of Christ discloses both the visibility and the invisibility of the Word made flesh. The face – the icon – of Jesus Christ is the nexus for the mediation of created and uncreated, God and man, and visible and invisible. The perichoresis of the human and divine natures in the person of Christ prefigures the perichoresis of image and prototype. As seen in Maximus' *Mystagogy*, through Christ the divine liturgy holds icon and Eucharist together in a symbolic reality. With Christ as both the symbol and symbolized, reality and symbol are unified in a sacramental synthesis. However, reality and symbol become dissected from one another in the second Eucharistic controversy of the eleventh century to which we shall turn next.

The Eucharistic Controversy: Dissecting Reality from Symbol

The ninth century in the Carolingian Empire witnessed the first sustained discussion of the Eucharist, initiated by Paschasius Radbertus (785-865) who argued for the Real Presence, maintaining that the body of Christ in the Mass is identical to the historical body of Christ. In response, Ratramnus (died c. 870) insisted on the spiritual presence of Christ. While the second Eucharistic controversy of the eleventh century raised the same doctrinal questions as the ninth century, the difficulty of the controversy revealed the insufficiency of only appealing to the Fathers, which Paschasius and Ratramnus had done. Instead, Berengar of Tours (c. 999-1088), who followed Ratramnus in arguing for a spiritual presence in the Eucharist, framed the debate in terms of logic, grammar, and dialectics. However, when the entire debate is framed as the real presence vs. the symbolic presence, or reality vs. symbol, already

there is a destruction of the sacramental synthesis. Mutual opposition is made possible by the precise scalpel of dialectics, thereby murdering a symbolic ontology, yielding nature as a dead corpse to be manipulated. Before turning to the details of the debate that erupts around Berengar of Tours, we shall look at the commonly held understanding of "body of Christ" prior to both Eucharistic controversies, since it provides the background for the subsequent dissection of the Eucharist.

Corpus Christi

Henri de Lubac explores the Eucharistic controversy by tracing a genealogy of the term *corpus mysticum* in the medieval period of the Western church.[824] He notes that there is a three-fold designation of the term *corpus Christi,* "body of Christ": (1) the *historical body* of Christ, born of the Virgin, lifted up on the cross; (2) the *eucharistic body* of Christ, present in the sacrament; and (3) the Church as the *ecclesial body* of Christ. De Lubac argues that in the patristic period the "caesura" between these three meanings came between the historical body and the latter two.[825] The Eucharist and the ecclesial body belong together, because eucharistic realism and ecclesial realism support and guarantee each other, while both of these bodies depend upon the historical body of Christ.[826] The term *corpus mysticum* refers to the Eucharistic body presented in the mystery of the Eucharist. It is mystical because it is the hidden reality of the Eucharist, referring back to the historical body and manifesting the Church as the body of Christ.[827] De Lubac shows that the Eucharistic mystery has three essential aspects: presence, memorial, and anticipation. Material,

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[824] Henri de Lubac, *Corpus Mysticum: The Eucharist and the Church in the Middle Ages: A Historical Survey*, ed. Laurence Paul Hemming and Susan Frank Parsons, trans. Gemma Simmonds (Notre Dame, Ind.: University of Notre Dame Press, 2007).
[825] Ibid., 256.
[826] Ibid., 251–52.
[827] Ibid., 88–89.

ritual appearances in the sacrament mystically signify the hidden reality of the body of Christ in the past, present, and future. The body of Christ is present precisely through the sacrament that symbolizes Christ's sacrifice. Reality and symbol form an intrinsic unity like two poles that exchange attributes in a kind of *communicatio idiomatum* the constitutes the mystery.[828]

De Lubac points out that the Greek *mysterion* corresponds to both the Latin words *mysterium* and *sacramentum*.[829] The ancient understanding of mystery is more of an action rather than a thing. However, this sense is lost in the Latin word *sacramentum*, which is a sign rather than an action revealing a hidden reality.[830] De Lubac suggests that the Carolingian Eucharistic controversy is the first evidence of the unraveling of this patristic concept of the body of Christ. Ultimately what happens is that the "caesura" moves from being between the historical meaning and the other two to separating the historical and Eucharistic meaning from the ecclesial, such that the ecclesial body becomes *corpus mysticum*, the "hidden body," while the Eucharistic body becomes *corpus verum*, the "true" body of Christ, identical with the historical body. The "real," sacramental, historical body of Christ in the Eucharist is set in opposition to the symbolic, mystical body of the Church.[831] In short, rather than held together in union, reality and symbol are set in mutual opposition.

Berengar of Tours and the Dialectical Dissection of the Body of Christ

[828] Ibid., 55–69.
[829] Ibid., 45.
[830] Ibid., 49–50.
[831] Ibid., 101–3.

Reality and symbol are set in opposition because of the dissective turn to dialectics initiated by Berengar of Tours and the resultant debate.[832] Berengar was part of a growing movement of professional teachers of the liberal arts in French schools in the early eleventh century, namely grammar and logic. He is considered one of the first new types of master that engaged in scholastic disputation.[833] He was trained in the liberal arts like his chief theological opponent, Lanfranc of Bec, learning grammar, dialectic, and logic from Donatus, Boethius, Porphyry, Aristotle, and Cicero.[834] However, while Berengar employed grammar and dialectic in theological debate, he primarily sought fidelity to patristic sources, particularly to Augustine.[835] Berengar appealed to Augustine in sacramentology over against Lanfranc's Aristotelian innovations that ultimately lead to the doctrine of transubstantiation. Berengar applied Augustine's semiotics to the Eucharist such that the symbolism of matter is a means to a higher spiritual truth. Thus, the reality of Christ's body is not present in the Eucharist.[836]

Because of the symbolic dimension of the Eucharist, in Berengar's view the sacrament requires interpretation with the aid of reason. Berengar defended his use of dialectic in theological argumentation by appealing to Augustine's own example. Whereas Augustine located the *imago Dei* in the mind with the faculty of reason,[837]

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[832] Most of Berengar's works are lost. The principal source of his ideas is found in his response to Lanfranc of Bec. For the single text that remains extant, see Berengar of Tours, *Rescriptum contra Lanfrannum*, ed. R. B. C. Huygens (Turnhout: Brepols, 1988).
[833] Charles Radding and Francis Newton, *Theology, Rhetoric, and Politics in the Eucharistic Controversy, 1078-1079: Alberic of Monte Cassino Against Berengar of Tours* (New York: Columbia University Press, 2003), 9–10.
[834] Henry Chadwick, "Symbol and Reality: Berengar and the Appeal to the Fathers," in *Auctoritas Und Ratio: Studien Zu Berengar von Tours*, ed. Peter F. Ganz, R. B. C. Huygens, and Friedrich Niewöhner (Wiesbaden: In Kommission bei Otto Harrassowitz, 1990), 25; Toivo J. Holopainen, *Dialectic and Theology in the Eleventh Century* (Leiden; New York: E.J. Brill, 1996), 3.
[835] Chadwick, "Symbol and Reality: Berengar and the Appeal to the Fathers," 35.
[836] Ibid., 26.
[837] Augustine, *De diversis quaestionibus octoginta tribus* 51. CCSL 44A, p. 79f. ET Augustine, *Responses to Miscellaneous Questions*, trans. Boniface Ramsey (Hyde Park, N.Y.: New City Press, 2008), 62–65.

Berengar took him one step further, regarding dialectic to be necessary in the daily renewal of the *imago Dei* and growth in wisdom:

> It is clearly the property of a great heart to have recourse to dialectic in all things, because to have recourse to dialectic is to have recourse to reason; and he who refuses this recourse, since it is in reason that he is made in the image of God, abandons his glory, and cannot be renewed from day to day in the image of God. The blessed Augustine deems dialectic worthy of such high definition that he says, "Dialectic is the art of arts, the discipline of disciplines. She knows how to learn, she knows how to teach, and she not only wishes to make men wise, she actually makes them so."[838]

Berengar honored his theological master Augustine by viewing dialectic as the "art of arts," the queen of the disciplines. Thus, for Berengar, *not* to use dialectic in theological and doctrinal debate is spiritually irresponsible and dishonoring to God. Indeed, Berengar's use of dialectic assumed metaphysical presuppositions. Eleventh century dialectic entailed twin theories of predication and categories that "contain a philosophical account of the basic structural features of reality."[839]

Berengar's dialectical method framed the entire Eucharistic controversy well into the twelfth century.[840] Berengar used dialectical theories of predication and categories as the ontological framework to critique Lanfranc's Aristotelian model, demonstrating a sophistication that surpassed his contemporaries.[841] Through the framework of dialectic, Berengar sought to "analyze" the content of faith, contributing to the subsequent development of theological method in the eleventh century in a scholastic direction.[842] Specifically, Berengar's definition of sacrament opposed *sacramentum* to *res*, the symbol to the real, which became the generally accepted terms of the debate. Although Berengar was condemned for rejecting the

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[838] Berengar of Tours, *Rescriptum contra Lanfrannum*, 85-86, I.1795-1800, quoted in Radding and Newton, *Theology, Rhetoric, and Politics in the Eucharistic Controversy, 1078-1079*, 13–14. Translation slightly modified.
[839] Holopainen, *Dialectic and Theology in the Eleventh Century*, 4.
[840] Radding and Newton, *Theology, Rhetoric, and Politics in the Eucharistic Controversy, 1078-1079*, 14.
[841] Holopainen, *Dialectic and Theology in the Eleventh Century*, 92.
[842] Ibid., 118.

Real Presence, his opponents accepted the opposition between symbol and reality, eventually developing the doctrine of transubstantiation.[843]

Berengar's core position in the Eucharistic controversy can be summarized in his own words: "the words themselves said in consecration of the bread prove that the matter of the bread does not depart from the sacrament."[844] If the bread and wine on the altar are sacraments, then by definition they cannot be the thing itself – Christ's body. His opponent Lanfranc of Bec argued that the substance of the bread and wine change into the substance of Christ's body while the accidents of the bread and wine remain the same, such that visible perception does not reflect the invisible reality. In response Berengar argued that it is impossible to change the substance but the accidents remain the same because accidents are dependent on the substance.[845] Instead, the body of Christ sits at the right hand of God the Father, not produced *de novo* at the consecration.[846] As Radding and Newton comment, "a substantial part of Berengar's argument rested on an analysis of natural processes and, by extension, of how to recognize when divine or miraculous events intervened to alter them."[847] Already we can see here a Nestorian logic that dissects the natural from the supernatural, thereby echoing the iconoclastic logic that dissects matter from spirit. Because Berengar set the terms of the debate, regardless of whether one sided with him or his opponents, the opposition between natural and supernatural, and reality and symbol remained.

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[843] Nicholas M. Haring, "Berengar's Definitions of Sacramentum and Their Influence on Mediaeval Sacramentology," *Mediaeval Studies*, no. 10 (1948): 109–46.
[844] R. B. C. Huygens, ed., *Serta Mediaevalia: Textus varii saeculorum X-XIII*, vol. 1 (Turnhout: Brepols, 2000), 148, quoted in Radding and Newton, *Theology, Rhetoric, and Politics in the Eucharistic Controversy, 1078-1079*, 11.
[845] Chadwick, "Symbol and Reality: Berengar and the Appeal to the Fathers," 32.
[846] Ibid., 32–33.
[847] Radding and Newton, *Theology, Rhetoric, and Politics in the Eucharistic Controversy, 1078-1079*, 13.

Lanfranc of Bec and the Murder of Symbolism

Lanfranc of Bec was the first to oppose Berengar of Tour's view of the Eucharist. However, in his direct engagement with Berengar,[848] Lanfranc did not completely represent Berengar's position, as he chose only about twenty fragments from Berengar's work to quote and then to refute. He specifically omitted the parts of Berengar's work that he found valuable.[849] Lanfranc quoted Berengar as saying that "the bread and wine placed on the altar are, after the consecration, only a sacrament and not the true Body and Blood of Christ."[850] Lanfranc showed that Berengar set the sacrament in opposition to the truth, and then condemned him for denying that the sacrament is the truth of Christ's body. In other words, the figure of sacrifice was contrasted with the truth of presence, and denial of the latter was denial of existence, which was heresy.[851] Lanfranc then accused Berengar of abandoning sacred authors and "taking refuge in dialectics,"[852] resulting in an opposition between the symbol of the sacrament and the reality of the Christ's body and blood.[853] In response, Lanfranc conflated sacrament and reality, visible and invisible into one thing: the historical body of Christ as a concrete existence in present time and space on the altar. The bread and wine are changed substantially into the body and blood of Christ's historical body. Essentially, Lanfranc reduced the sacramental mystery to a thing, not an action that reveals the hidden reality of memorial, presence, and anticipation of

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[848] Lanfranc of Bec, *De corpore et sanguine Domini adversus Berengarium Turonensem*, PL 150, 407-442. ET Lanfranc of Canterbury and Guitmund of Aversa, *On the Body and Blood of the Lord; On the Truth of the Body and Blood of Christ in the Eucharist*, trans. Mark G. Vaillancourt (Washington, D.C.: Catholic University of America Press, 2009).
[849] Radding and Newton, *Theology, Rhetoric, and Politics in the Eucharistic Controversy, 1078-1079*, 20–21.
[850] Lanfranc of Bec, *De corpore et sanguine Domini* 2, PL 150, 410D, trans. Vaillancourt, 33.
[851] Cf. Henry Chadwick, "EGO BERENGARIUS," *Journal of Theological Studies* 40, no. 2 (1989): 414–45, here at p. 426.
[852] Lanfranc of Bec, *De corpore et sanguine Domini* 6, PL 150, 416D, trans. Vaillancourt, 43. Ironically, scholars have charged Lanfranc with the innovations of bringing dialectic to bear on theological issues. For example, see Radding and Newton, *Theology, Rhetoric, and Politics in the Eucharistic Controversy, 1078-1079*, 9.
[853] Lanfranc of Bec, *De corpore et sanguine Domini* 8, 14, 20, PL 150, 418D, 424A, 436A.

Christ's body as sacrifice and the Church, as intrinsically related. Instead, the mystery was rooted in the effect of consecration itself – transubstantiation. He cited Augustine who said that "mystery" came from the word that means "secret": "For what is more secret than to see the appearance of bread and wine, to taste the flavor, to sense the touch, and nevertheless to believe that by God's wondrous work true flesh is eaten and true blood is drunk?"[854] Mystery in this sense is an effect in a causal scheme set in motion by the consecration resulting in a disjunction between the visible accidents of bread and wine and the invisible substance of the Christ's body and blood. This follows the same iconoclastic logic of Constantine V who univocally equated the Eucharistic body with the historical body as the "true image." Consequently, ecclesial symbolism has no role in the Eucharist. Gone is the anagogical dimension of signs and symbols of the divine liturgy that elevate and effect the Church, which is also the "real presence" of the body of Christ. If Berengar is guilty of dissecting symbol from reality while maintaining the distinction, then Lanfranc murders symbol altogether.

In the wake of the Eucharistic controversy between Berengar of Tours and Lanfranc of Bec, several consequences take effect. First, the shift in the "caesura" of the three meanings of the body of Christ as described by de Lubac is complete: the reciprocal causality of the Eucharistic body and the ecclesial body and their mutual dependence on the historical body no longer has any force. Instead, the effective causality of the Eucharistic body changed *into* the historical body takes precedence and is opposed to the ecclesial body and its corresponding liturgy, which is merely symbolic and not true or real. Second, there is a new turn to scholasticism in Western theology. Berengar's doctrine is characterized by its rationalistic methodology, driven

[854] Lanfranc of Bec, *De corpore et sanguine Domini* 17, PL 150, 428C, trans. Vaillancourt, 64.

by a "spirit…of rationalism and dialectic," inaugurating a way of doing theology.[855] As de Lubac laments, "Berengarian rationalism was a landmark in the direction of progress. Historians of theology have no hesitation in recognizing it. They generally place Berengar at the head of the initiators of modern theology, before Anselm and Abelard."[856]

Third, reality is dissected from symbol. The terms of the debate erect a dialectical antithesis between the two. As de Lubac points out, the declaration that Berengar had to sign in the face of condemnation – "the bread and wine after the consecration are not only the sacrament but also the true body and blood" – already signals the opposition between symbol and reality, for the ecclesial symbolism of the sacrament disappears altogether.[857] When the Eucharistic mystery is reduced from an action to a thing, Eucharistic realism via transubstantiation results in a change from a dynamic understanding of the Eucharist to a static one[858] because the locations of the meanings of reality and symbol become inverted. The symbol used to be the Eucharistic ritual, for it was an action of remembrance (*anamnēsis*) that figures and effects the "real presence" of the Church as the body of Christ by memorializing Christ's sacrifice and anticipating the Church triumphant.[859] After the dialectical turn, the reality of the Eucharist is the sacramental body itself and the symbolic is left behind as not real. Reducing the Eucharistic body to a dialectic of substance and accidents corresponds to a dialectic between reality and sign.[860] Consequently, Christ's presence cannot possibly be seen through the symbolism of the Church. De Lubac explains:

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[855] Lubac, *Corpus Mysticum*, 225.
[856] Ibid., 227.
[857] Ibid., 222.
[858] Ibid., 164.
[859] Ibid., 204.
[860] Ibid., 229.

> The ultimate reality of the sacrament, what was once upon a time its reality and truth *par excellence*, was thus expelled from the sacrament itself. The symbolism became extrinsic: from now on it could be ignored without damaging the integrity of the sacrament. From the moment when it became the *mystical body*, the ecclesial body was already detaching itself from the Eucharist.

Thus, the dissection of symbol and reality results in the murder of the sacramental synthesis, causing new oppositions between visible and invisible, sensible and spiritual, and Christ and Church. De Lubac writes:

> Now our new dialecticians were only capable of dissociating a reality that was believed to have been united for ever by those geniuses of ontological symbolism, the Fathers of the Church. At the hands of Berengar, the sacramental synthesis disintegrated, as once the Trinitarian and Christological synthesis had done at the hands of the Arians and their successors. On the one hand, there was a real body – whether earthly or heavenly – which could only be understood *sensibly*; on the other, there was a spiritual body, which no longer had real corporality nor, to be frank, any objective existence. […] All the symbolic inclusions were transformed, in his understanding, into dialectical antitheses. Thus he constantly separated what tradition unified.[861]

Berengarian dialectical methodology is essentially a Nestorian logic that seeks to know the nature of the body of Christ in the Eucharist by way of *diairesis*, by metaphysical division, rather than keeping polar differences together in union. Berengar inaugurates a new mentality of analysis that applies the anatomical, Nestorian rationality to the realm of symbol and reality, resulting in a new way of thinking that kills symbolism and the symbolic ontology.[862]

Technology of the Eucharist

In the symbolic ontology of the Church Fathers, everything is sacrament. "Everything sensible was a sacrament, not so much requiring organization or justification, as open to being transcended."[863] Alexander Schmemann proclaims this sacramental synthesis on the cosmic level. Understood in the de Lubacian three-fold

[861] Ibid., 226.
[862] Ibid., 228.
[863] Ibid., 235.

meanings of the body of Christ, Schmemann regards the Eucharist as hyperrealist, for the liturgy of the Eucharist is the entrance into the presence of Christ which is "an entrance into a fourth dimension which allows us to see the ultimate reality of life" and "see more deeply into the reality of the world."[864] In Schmemann's cosmic vision, the liturgy of the Eucharist discloses that the entire cosmos is an epiphany of God, revealing the true reality of nature as creation.[865] In contrast to a sacramental world, the secular world is only material, reduced to mere nature, opposed to spirit and intrinsic meaning.[866]

For Schmemann, this sacramental ontology entails a cosmic symbolism. Rather than opposing the symbolic from the real in the sacrament, symbolism is determinative for the Eucharist and the world. Essence of the symbol is for symbol and reality to fulfill each other reciprocally: "the essence of the symbol lies in the fact that in it the dichotomy between reality and symbolism (as *unreality*) is overcome: reality is experienced above all as the *fulfillment* of the symbol, and the symbol is comprehended as the fulfillment of reality."[867] Maximus the Confessor calls the body and blood of Christ in the Eucharist symbols (*symbola*), images (*apeikonismata*), and mysteries (*mysteria*). "'Symbolical' here is not only not opposed to 'real,' but embodies it as its very expression and mode of manifestation."[868] Because of the Eucharist's revelatory action, the world is also revealed to be symbolic as part of its very essence: "the world is symbolical…in virtue of its being created by God; to be 'symbolical' belongs thus to its ontology, the symbol being not only the way to perceive and understand reality, a means of cognition, but also a means of

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[864] Alexander Schmemann, *For the Life of the World: Sacraments and Orthodoxy*, 2nd rev. and expanded ed (Crestwood, N.Y.: St. Vladimir's Seminary Press, 1973), 27.
[865] Ibid., 120; Alexander Schmemann, *The Eucharist: Sacrament of the Kingdom*, trans. Paul Kachur (Crestwood, NY: St. Vladimir's Seminary Press, 1988), 33.
[866] Schmemann, *For the Life of the World*, 18.
[867] Schmemann, *The Eucharist: Sacrament of the Kingdom*, 39–40.
[868] Schmemann, *For the Life of the World*, 139.

participation."[869] In other words, the symbolic ontology is not merely something to be known exhaustively in a rationalistic sense but rather to be experienced with the embodied senses of perception. As we saw with Maximus' *Mystagogy*, the epitome of this symbolic ontology is the Church who manifests "the fulfillment of the invisible in the visible, the heavenly in the earthly, the spiritual in the material."[870]

Schmemann draws on de Lubac's reading of the dialectical turn in the Eucharist controversy leading to the opposition between reality and symbol. Berengar of Tours heralded the collapse of "symbolic realism" by opposing the real and the symbolic in questioning the "real presence" in the Eucharist.[871] In Schmemann's view, the "original sin" of post-patristic theology is the dialectical turn, which consists in "the reduction of the concept of knowledge to rational or discursive knowledge or, in other terms, in the separation of knowledge from 'mysterion.'"[872] In other words, the Berengarian dialectical method dissects rational knowledge from participatory, embodied knowledge, mediated through visible, sensible symbols. In this way, symbols are understood *through* a rationalistic, discursive framework. Symbols can provide knowledge *about* the reality but it can never disclose knowledge of the real itself.[873]

Schmemann traces the origins of secularism – the world as *natura pura* and rationally autonomous – to the dissection of symbol from reality and the resultant devaluation of the symbol. A Nestorian dualism between the natural and the supernatural ensues: "The downfall of Christian symbolism led to the dichotomy of the 'natural' and the 'supernatural' as the only framework of Christian thought and experience. […] The world ceases to be the 'natural' sacrament of God, and the

[869] Ibid.
[870] Schmemann, *The Eucharist: Sacrament of the Kingdom*, 35.
[871] Schmemann, *For the Life of the World*, 128.
[872] Ibid., 141.
[873] Ibid., 142.

supernatural sacrament to have any 'continuity' with the world."[874] Now that the world is mere nature through the devaluation of the symbol, the sign, *signum*, of the sacrament of the Eucharist is no longer a symbol but a cause. Whereas the patristic tradition viewed causality of the sacrament in terms of the sanctifying effect it produces in those who partake the Eucharist, which is indivisible from the symbolism that is rooted in it, the causality of the Eucharist after the dialectical turn is radically altered: "The causality linking the institution to 'signum' to 'res' is viewed as extrinsic and formal, not as *intrinsic* and revealing. Rather than revealing through fulfillment, it guarantees the reality of the sacrament's *effect*."[875] This effective causation view of the Eucharist, as we saw with Lanfranc, completely identifies sign with reality and annihilates the sign as fulfillment. Without fulfillment, ontology is flattened and destroys intrinsic layers of being and meaning. It anticipates modern science's dissection of effective causation away from formal and final causation, resulting in inert matter. Nature is mere material and no longer creation. Schmemann connects this new view of Eucharistic causation with a discontinuity between nature and the supernatural: "If this new understanding of causality – as an extrinsic and formal guarantee – breaks the ontological continuity between the sign and the 'res,' it also rejects, *de facto*, all continuity between 'institution' and the normal order of things. It is indeed *discontinuity* that is now being stressed and affirmed."[876] In this way, the Eucharist as effective causation results in a kind of "magical" power over nature. Paradoxically, when the Eucharist becomes the supremely real over against

[874] Ibid., 139.
[875] Ibid., 144.
[876] Ibid. Schmemann cites Dom Vonier as representative of western sacramental theology's move to divide the natural from the supernatural: "The world of the sacraments is a new world, created by God entirely apart from the natural and even from the spiritual world…. Neither in heaven nor on earth is there anything like the sacraments…. They have their own form of existence, their own psychology, their own grace…. We must understand that the idea of the sacraments is something entirely sui generis." Anscar Vonier, *A Key to the Doctrine of the Eucharist* (New York: Benziger Brothers, 1925), 41–43, quoted in Schmemann, *The Eucharist: Sacrament of the Kingdom*, 32.

nature, theology as the realm of the supernatural divorces itself from nature, resulting in nature as the secular, autonomous world.

Based on this extrinsic, effective causation model of the Eucharist, Schmemann analyzes the consecratory formula of the Eucharist. He argues that the scholastic theology of the sacraments perversely transformed the Eucharist into a kind of technology:

> The sacrament was reduced to two "acts," two "moments": the change of the Eucharistic gifts into the body and blood of Christ and the communion itself. Its definitions consisted in answering the questions of *how*, i.e., on account of what "causality," and *when*, i.e., at what moment, did the change occur. In other words, our school theology determined for each sacrament a *consecratory formula*, inherent to the given sacrament and at the same time both necessary and sufficient for its accomplishment.[877]

The language Schmemann uses to characterize the consecratory formula sounds like modern science and technology, which ask: what conditions are required for an intervention to produce a desired effect? Because of this technological way of thinking, the consecratory formula dissects the eucharist from liturgy, reality from symbol, resulting in a liturgical reductionism.[878] What is truly real is the substantial change of the bread and wine into the body and blood of Christ. Since the whole focus is the consecratory formula everything else in the liturgy is superfluous. The consecratory formula of the Eucharist becomes the paradigm for a technological model of effectiveness.

Giorgio Agamben picks up on this view of the Eucharist as the paradigmatic model of modern effectiveness, tracing Christian liturgy as the origin of modern duty. His genealogy assumes that the doctrine of transubstantation is the monolithic model of the Eucharist for Christian liturgy. Agamben does not interact with the pre-Berengarian view of the Eucharist that holds reality and symbol in ontological unity.

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[877] Schmemann, *The Eucharist: Sacrament of the Kingdom*, 28.
[878] Ibid., 29–31.

Precisely because of this assumption, his reading of Christian liturgy as the model of modern effectiveness is powerful because it follows how an effective causation view of the Eucharist results in a technology of the Eucharist and ultimately a view of effective, technological action in general.

Through creative readings of the Letter to the Hebrews, the epistle of Clement to the Corinthians, and the papal encyclical *Mediator Dei* (1947), Agamben regards the Christian liturgy as the "mystery of effectiveness" that is "the most radical attempt to think a praxis that would be absolutely and wholly effective."[879] For Agamben, the mystery of the liturgy is actually not so mysterious because it is wholly effective. On his reading, he sees a polarity in the Christian liturgy. From the letter to the Hebrews, he notes that Christ's sacrifice as high priest is the once-for-all salvific act, but when it becomes the model of liturgical worship, the Church engages in a paradox of repeating the unrepeatable act, which is the central mystery. He then highlights how Clement's letter to the Corinthians directly contradicts the letter to the Hebrews by replacing the priesthood of Christ with the Levitical priesthood, which institutes a connection between the Levitical priesthood and apostolic succession. Such a connection allows for the ecclesiastical hierarchy to be considered a "liturgy," which is the ministry of the Church. Taken together, they form two sides of a polarity within Christian liturgy between the mystery and the ministry: on the one hand liturgy is the effective soteriological act of the sacrament *ex opere operato*; on the other hand liturgy is the priest's service to the community.[880] Thus, there is a distinction between

[879] Giorgio Agamben, *Opus Dei: An Archaeology of Duty*, trans. Adam Kotsko (Stanford, Calif.: Stanford University Press, 2013), xii.

[880] Ibid., 8–19. We already see this polarity in Lanfranc of Bec. On the one hand, Lanfranc reduces mystery to a thing, rather than an action, ultimately reduced to a mystery of effectiveness in transubstantiation, which is the first pole of the liturgy. On the other hand, liturgy is related to priestly ministry: "We believe, therefore, that the earthly substances, which on the table of the Lord are divinely sanctified by the priestly ministry, are ineffably, incomprehensibly, miraculously converted by

the objective effectiveness of the sacramental act and the subject who concretely administers it, both of which define the liturgical practice of the Church. Agamben traces the source of this distinction to the controversies over the validity of baptism in the third and fourth centuries (Cyprian and the Donatists, respectively), such that the moral unworthiness of the priest performing the baptismal act cannot invalidate the effectiveness of sacrament.[881]

Based on this paradigm of the liturgy, the ethical connection between the intention of the subject of the action is separated from the effectiveness of the action. The priest becomes a mere instrument in the effectiveness of the sacrament, epitomized by "the performativity of Christ's words that is at the center of the Eucharistic liturgy,"[882] which is the consecratory formula. In this way, the priest as instrument of sacramental effectiveness becomes the paradigm for modern duty ethics: "the moral or physical characteristics of the agent are indifferent to the validity and effectiveness of his or her action."[883] The priest as wholly effective sacramental instrument also transforms the sacrament into a "superior technology." Agamben argues:

> The "instrumental" character of the sacraments, which they have in common with technologies and *artes* – Aquinas defines them as *instrumentum Dei*[884] – allows one to consider them as the paradigm of superior technology, a *technologia sacra*, at whose center stands the most specialized action of the instrumental cause and the inexorable efficacy of the *opus operatum*.[885]
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> Modern technology does not derive only from the dream of the alchemists and magicians but also and more probably from that peculiar "magical" operation that is the absolute, perfect instrumental efficacy of the sacramental liturgy.[886]

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the workings of heavenly power into the essence of the Lord's body." Lanfranc of Bec, *De corpore et sanguine Domini*, PL 150, 430BC, trans. Vallaincourt, 66.
[881] Ibid., 21.
[882] Ibid., 48.
[883] Ibid., 54.
[884] Thomas Aquinas, *Summa Contra Gentiles* IV.56.
[885] Giorgio Agamben, *The Use of Bodies*, trans. Adam Kotsko (Stanford, Calif.: Stanford University Press, 2016), 76.
[886] Ibid., 77.

The Eucharist based on effective and instrumental causation is the technology of technologies – the "sacred technology" – that creates an absolute, perfect, "magical" power over nature.

Furthermore, Agamben extends this liturgical paradigm to ontology as well. Christian liturgy as effectiveness transforms the ontology of being into effectiveness.[887] A being that is fully actualized is a being that is wholly effective. In Agamben's liturgical paradigm, a being's moral character bears no importance. He then connects Heidegger's onto-theology and critique of technology with the paradigm of Christian liturgy. Agamben roots Heidegger's metaphysics of technology in the ontology of being as effectiveness, such that human beings as fundamentally effective are able to secure dominion over the world through techniques.[888] In other words, liturgy as the paradigm of effectiveness is the paradigm of modern technology.

We have already seen how the effective, instrumental causation view of the consecratory formula results in a liturgical reductionism – the exaltation of the consecratory formula to produce *sui generis* what is truly real, the body and blood of Christ, while the symbolism in the rest of the liturgy is not real and thus can be discarded. When the consecratory formula is seen as the paradigm of modern effectiveness and superior technology, a technological reductionism appears: reality is the wholly effective to produce a desired end. Everything else is merely instrumental towards the effective end, including the actor herself. Applying this paradigm of the wholly effective consecratory formula to the anatomical rationality, we find that dissection becomes a wholly effective way to know the body in the realm of medicine (as we saw with Aristotle and Galen) and to know the metaphysical body of Christ (as we saw with Nestorius, the iconoclasts, and the Eucharistic controversy). In other

[887] Agamben, *Opus Dei*, 55–57.
[888] Ibid., 61.

words, anatomical dissection as a way of knowing becomes a technology of knowledge, thereby fulfilling the medical *technē* as the paradigm of violence against nature in order to control nature. Such a technology of knowledge is precisely what Francis Bacon envisioned: to know and control nature, one must perform a dissection of nature.

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We have seen in this chapter how the anatomical rationality applied to the iconoclastic and Eucharistic controversies results in a multitude of dissections. The iconoclastic position and the efficient causation view of the Eucharist together destroy the symbolic ontology of the Church Fathers, epitomized in the cosmic liturgy of Maximus the Confessor. Iconoclastic logic is essentially a Nestorian logic that divides visible from invisible, matter from spirit, and image from prototype. There is no longer an intrinsic, analogical relationship between each of these coupled polarities but rather they are divorced from one another, resulting in a univocal relation between visibles, as a kind of mimetic logic. Anatomical illustrations are spatialized instructive aids to "know thyself"; they manifest the development of a disembodied epistemology of representation and an idolatry of self-images. Whereas icons of saints are living remembrances of God's actions, anatomical illustrations meant to "know thyself" are dead representations of humanity's self-idealization. The representation of the visible, anatomical body is a manifestation of the dissective gaze that murders the relation between the *imago Dei* and its divine source of being. Instead, the anatomical illustration of the human body is merely another image of the mechanical product of a powerful craftsman.

The Eucharistic controversy dissects reality from symbol and supernatural from natural. Dialectic dictates the terms of the debate and thereby transforms the

nature of the controversy. The dialectical scalpel attempts to clarify the supposed obscurities of the body of Christ. After Berengar of Tours, the terms of the debate become a mutual opposition of reality vs. symbol, such that the symbolic ontology is effectively murdered. Reality and symbol, held together as a sacramental synthesis, are rent asunder. What God joined together, man has separated. Consequently, natural and supernatural are no longer intrinsically related in a Chalcedonian logic but rather held in discontinuity, such that the supernatural act of transubstantiation is more real than the natural. This "magical" power of the wholly effective Eucharist over nature then becomes the supreme paradigm for modern technology. In the next chapter, we will see how Avicenna intensifies the mental scalpel of reason by employing logical dissection as the superior way of knowing that dissects ontology itself.

CHAPTER 6
THE DISEMBODIED ANATOMICAL RATIONALITY: AVICENNA'S *ANATOMIA ENTIS* AND THE DE-HUMANIZATION OF MAN

> *There is in the very nature of everything that at one time or another can become two a disposition toward divisibility which cannot separate from it.*
> – Avicenna[889]

> *The word 'analysis' has come to suggest cutting up, or taking to pieces. To accept this spatial model is to imply that problems, concepts, propositions, can be taken to pieces like a machine, or dissected like an organism. It has indeed been suggested that what 'analytic' philosophers do is rather like a dissection of a horse. The main implication of this assumption…is that such analysis is then uniquely determined, since a successful dissection will be one which has reached parts which cannot be dissected further, the list of these parts for any object being given and not depending on how the cutting is done, or where it began.*
> – Ernest Gellner[890]

In the last chapter, we saw how the iconoclastic and Eucharistic controversies within the Christian tradition employed ways of knowing that resulted in myriad dissections. Avicenna (c. 980-1037), the Persian Islamic polymath who has been called the Prince of Physicians as well as an innovator in the history of philosophy, intensifies and radicalizes the strictly logical way of knowing. Avicenna's thought culminates the medical and philosophical dissective tendencies that we have already seen in Aristotle, Herophilus, Galen, and Nestorius, which I have been calling the anatomical rationality. Whereas Aristotle and Galen engaged in physical anatomical dissection of animal and human bodies, they left room for the semantic range of anatomy, *anatomē*, "to cut up," to be applied to logical dissection through division and categorization. It is precisely through this latter logical anatomy that Avicenna subjects every field of inquiry to a rational analysis and organizes it into a

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[889] Avicenna, *The Metaphysics of The Healing* (*Kitāb al-shifā'*) II.3. ET Avicenna, *The Metaphysics of The Healing: A Parallel English-Arabic Text*, trans. Michael E. Marmura (Provo, Utah: Brigham Young University Press, 2005).
[890] Ernest Gellner, "Analysis and Ontology," *The Philosophical Quarterly* 1, no. 5 (1951): 408–15, here at p. 408.

comprehensive system. In his view of metaphysics, he subjects all of existence to logical examination, including God who, in Avicenna's terminology, is the "Necessary Existent." In other words, Avicenna's way of knowing all of existence is through employing what I call the *anatomia entis*. Through this anatomy of being, all of reality is "patient" to the anatomical rationality which attempts to reveal what is hidden by way of ocular demonstration of the mind's eye using the mental scalpel of logical dissection. Avicenna completes what Aristotle, Galen, and Nestorius inaugurated. We see this in Avicenna's complex system of thought that relates logic, metaphysics, and psychology, resulting in a rationalist epistemology that ultimately discards the need for the sensible world and the body. In this chapter, I shall outline the main elements of Avicenna's thought that compose his *anatomia entis*. Through an examination of his logic, metaphysics, and psychology, we shall see how Avicenna logically and metaphysically completes the anatomical rationality that we have been following since Hippocrates.

Background of Avicenna's Thought

Avicenna influenced the Latin speaking West in both medicine and philosophy. His *Canon of Medicine*,[891] a multivolume encyclopedia of medical learning that synthesized Galen and Aristotle, was used as a medical textbook in the European universities as late as 1650.[892] Avicenna synthesized the psychological doctrines of Aristotle and Galen, fusing the form/matter composition of human bodies from the former with the doctrine of temperaments, mixtures, and brain faculties of

[891] To my knowledge, no critical edition of the Arabic text exists. For an English translation, see Avicenna, *The Canon of Medicine*, trans. O. Cameron Gruner, vol. 1 (Birmingham, Ala.: The Classics of Medicine Library, 1984).
[892] For more details on the influence of Avicenna on Renaissance medical education, see Nancy G. Siraisi, *Avicenna in Renaissance Italy: The Canon and Medical Teaching in Italian Universities after 1500* (Princeton, N.J.: Princeton University Press, 1987).

the latter. While Avicenna followed the Islamic discouragement of human anatomical dissection,[893] he relied upon Galen's observations from anatomical dissection on the parts of the brain, which Avicenna then correlated to the faculties of the soul. Avicenna thus employed the spirit of anatomical dissection to ground his psychology on the anatomy of the body. Yet, as we shall see, Avicenna's psychology ultimately discarded the body in favor of the self-subsistent soul. *The Canon of Medicine* reflected the encyclopedic model of medical learning in late antiquity, which tended to summarize all knowledge and "to organize it by dividing and sub-dividing."[894]

While Avicenna's influence on medical practice and education endured well into the Renaissance, his transformation of anatomical rationality into a logical dissection came through his work in metaphysics. To better understand how Avicenna arrived at his mental dissective rationality, let us look briefly at the intellectual milieu in which his philosophical development occurs. Through the coupling of the burgeoning Greco-Arabic translation movement beginning in the second half of the eighth century and the view that deeper knowledge of the philosophical curriculum is a cultural good, the Arabic culture in which Avicenna was born gradually developed a rationalist view, culminating in the rebirth of Greek philosophy in the person of al-Kindi in the ninth century.[895] Avicenna inherited the philosophical tradition from late antiquity that espoused an encyclopedic model of all knowledge. Alexandrian scholars in late antiquity classified all of Aristotle's works according to corresponding fields of study, resulting in a "classification of all the sciences, and hence of all

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[893] For a detailed discussion of the Islamic attitude toward human dissection in the medieval period, see Emilie Savage-Smith, "Attitudes Toward Dissection in Medieval Islam," *Journal of the History of Medicine and Allied Sciences* 50, no. 1 (1995): 67–110.
[894] Peter E. Pormann, "Avicenna on Medical Practice, Epistemology, and the Physiology of the Inner Senses," in *Interpreting Avicenna: Critical Essays*, ed. Peter Adamson (Cambridge; New York: Cambridge University Press, 2013), 94.
[895] Dimitri Gutas, *Avicenna and the Aristotelian Tradition: Introduction to Reading Avicenna's Philosophical Works*, Second, revised, and enlarged edition (Boston: Brill, 2014), 359–60.

human knowledge" which "reflected ontological reality as well."[896] Every domain of knowledge had its place such that every realm of existence had a logical category reflecting the metaphysical structures of reality.

Accordingly, Avicenna was schooled in a rationalistic, scientific curriculum. The origin and framework for the classification of the sciences came from the edition by Andronicus of Rhodes in the first century BCE who arranged Aristotle's extant writings, forming the basis of our editions today. In late antiquity this organization of the Aristotelian sciences (*Organon*, *Physics*, *Metaphysics*, etc.) was used for pedagogical purposes in instruction as a reflection of all knowledge. However, this classification of the sciences became normative as a reflection of ontological reality; the sciences were classified in this way because the universe was thought to be ordered in such a way. This classificatory scheme was adopted in the Arabic philosophical tradition and developed in particular by al-Farabi in the tenth century. Consequently, "Avicenna was schooled…in this curriculum with this understanding of knowledge and its correpondence to, or explication of, reality. In this tradition, doing philosophy meant being what we today call a scientist: the rational and logically verifiable understanding of the universe and its operation."[897] Avicenna internalized the Aristotelian philosophical curriculum to such a degree that he affirmed that a logical structure and method could explain all of reality.

Avicenna developed a logicized metaphysics such that all of reality is reducible to reason and the intelligible world. As Dimitri Gutas argues, for Avicenna the task of philosophy is the acquisition of the intelligible forms that compose the structures of reality in their totality.[898] Following the received Neoplatonic Aristotelian tradition, Avicenna's division of the sciences derives from Porphyry's

[896] Ibid., 169.
[897] Ibid., 363–64.
[898] Ibid., 249.

Isagoge. The *Isagoge* utilizes division (*diairesis*) for logical discourse, but Avicenna furthers the metaphysical significance by ontologizing these divisions. Essentially, Avicenna takes the *diairesis* that characterizes Nestorius' Christological dissection and expands it to the categorical dissection of all reality. Avicenna then adopts the logic of Aristotle's *Posterior Analytics* as the key dissective methodology such that all of reality can be mentally dissected for the sake of making known the unknown and making visible the invisible to the mind's eye. Jonathan Barnes comments that Aristotle would have systematized all of knowledge according to the *Posterior Analytics*: "In a perfect Aristotelian world, the material gathered in the corpus [of his writings] will be systematically presented; and the logical structure of the system will follow the pattern of the *Posterior Analytics*."[899] Avicenna fulfills Aristotle's vision for the systemization of all knowledge.

For Avicenna, metaphysics is the study of existents *qua* existents, or being *qua* being.[900] In the *anatomia entis* of Avicenna's logicized metaphysics, existence itself becomes the field of dissection and logic is the mental scalpel. Included as an object of study in the field of dissection is God. Avicenna subsumes all of existence under a modal metaphysics that separates existents into categories of necessary and contingent, reflecting a basic ontological structure of the world that is inherently modal.[901] Avicenna trusts the powers of logical dissection and modal metaphysics to prove the existence of God, which ultimately places God on the table of mental dissection as an object that is "patient" to the scalpel of logic.

By exalting the mind's eye to "see" the unknown from the known through the precision of the mental scalpel of logic, Avicenna regards truth as necessarily

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[899] Aristotle, *Posterior Analytics*, trans. Jonathan Barnes (Oxford; New York: Clarendon Press; Oxford University Press, 1994), xii.
[900] Translation of "existents *qua* existents" is based on the Arabic text, whereas "being *qua* being" is based on the Latin translation.
[901] Jon McGinnis, *Avicenna* (Oxford: Oxford University Press, 2010), 28.

intelligible and immaterial. As a consequence of his logicized metaphysics, he dispels the need for the body or the material. Not surprisingly, this is why Avicenna calls his massive, encyclopedic work of philosophy *The Healing*, for it reflects his belief that philosophy is medicine and salvation for the soul. "It was with this notion of comprehensiveness in mind that he called it the *Shifā'* or *Healing*, a cure for the ignorance of the Soul. For it was only through understanding, and the remedying of its deficiency in this respect, that the human soul could regain its true home."[902] As we shall see later, this reveals his view of salvation that does not require the body, since the soul's perfection is disembodied.

Avicenna revolutionized metaphysics in the history of philosophy. Lenn Goodman judges Avicenna's influence to be on par with Kant and Hegel.[903] His influence can be felt all throughout medieval philosophy in chiefly two ways: (1) onto-theology and (2) modal metaphysics. Avicenna was the first in the history of philosophy to work out metaphysics as a system, which can be regarded as an onto-theology, even if not exactly the same formulation as Heidegger.[904] Medieval scholastics acknowledge Avicenna as the first to conceptualize "being *qua* being" as the first object of metaphysics, and thus is the first formulation of onto-theology in the Latin world.[905] Avicenna also made the first attempt at a modal metaphysics in the Western tradition, with the *Metaphysics* of *The Healing* "rightly hailed as initiating a new phase in the history of Western ontology."[906]

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[902] Lenn Evan Goodman, *Avicenna* (London: Routledge, 1992), 31.
[903] Ibid., 14.
[904] "Onto-theology" as applied to Avicenna is appropriate only insofar that God is included under metaphysics as the study of being *qua* being.
[905] Jules L. Janssens, "Ibn Sina, and His Heritage in the Islamic World and in the Latin West," in *Ibn Sina and His Influence on the Arabic and Latin World* (Aldershot, Hampshire, Great Britain; Burlington, VT: Ashgate, 2006), 7.
[906] Taneli Kukkonen, "Dividing Being: Before and After Avicenna," in *Categories of Being: Essays on Metaphysics and Logic*, ed. Leila Haaparanta and Heikki J. Koskinen (New York: Oxford University Press, 2012), 37.

As I have already suggested, Avicenna's exaltation of logic into metaphysics essentially continues and intensifies the philosophical currents that preceded him, particularly the thinkers we have been studying thus far: Hippocrates, Aristotle, Galen, and Nestorius. First, Avicenna intensifies Hippocrates' logic of the mind's eye. Recall that Hippocrates pioneers the use of "mind's eye" in relation to the use of reason to "see" the hidden, invisible parts of the body. Avicenna's logical, metaphysical dissection uncovers the invisible parts of reality to the visibility of the mind by moving from the known to the unknown. The mind's eye can then "see" the invisible parts of reality. Second, Avicenna completes the thrust of Aristotle's attempts at systematization by ontologizing the logic of the *Posterior Analytics*, utilizing logic and division as mental dissection. Third, recall that Galen's twin pillars of demonstration (*apodeixis*) are reason (*logos*) and experience (*peira*), with anatomical dissection as the paradigmatic practice. Likewise, Avicenna seeks demonstration for all things (including God) but he drops experience as a pillar. By dropping the empirical dimension, Avicenna intensifies Galen's epistemology by subjecting all of reality to dissection. Fourth, Avicenna's logical dissective methodology fulfills the metaphysical consequences of Nestorian division. Avicenna dissects the sensible from the intelligible, as seen in his isolation of physics from metaphysics. He dissects matter from spirit, as seen in his disembodied eschatology. Avicenna dissects the visible from the invisible, as seen in his psychology, which is characterized by abstraction into intelligibles. Finally, Avicenna provides the metaphysical conditions to perpetuate the dissection and destruction of the sacramental synthesis in the wake of the iconoclastic and Eucharistic debates of the Christian tradition. Let us now turn to Avicenna's logic.

Logic as Ontologized Logic

According to his biographer al-Juzjani, Avicenna dictated most of the *Physics* and *Metaphysics* during a period of twenty days without referring to other writings, while for the writing of the *Logic* he consulted the books of others. The section of *The Healing* on logic is divided into sections that generally correlate to Aristotle's *Organon.* Only the first part, the introduction that parallels Porphyry's *Isagoge*, was translated into Latin in the medieval period and is the part where Avicenna directly addresses the question of the subject matter of logic.[907] As we shall see, the subject matter of logic is both a tool and a part of philosophy, particularly metaphysics, such that logic takes on ontological status.

In Avicenna's development of the anatomical rationality, logic is a movement from the known to the unknown. Abdelhamid Sabra defines Avicenna's logic this way: "it is an inquiry into concepts, and into their properties, insofar as they can be made to lead to knowledge of the unknown."[908] Logic is the mental scalpel and primary dissection tool that makes visible the invisible. It is only through mental concepts that one can acquire knowledge of things, moving from the known to the unknown. Avicenna notes:

> If we wish to investigate things and gain knowledge of them we must conceive them; thus they necessarily acquire certain states that come to be in conception: we must therefore consider those states which belong to them in conception, *especially as we seek by thought to arrive at things unknown from those that are known.* Now things can be unknown or known only in relation to a mind; and it is as concepts that they acquire what they do acquire in order that we move from what is known to what is unknown regarding them, without however losing what belongs to him in themselves; we ought, therefore, to have knowledge of these states and of their quantity and quality and of how they may be examined in this new circumstance.[909]

[907] Abdelhamid I. Sabra, "Avicenna On the Subject Matter of Logic," *The Journal of Philosophy*, 1980, 746–64; Michael E. Marmura, "Avicenna on the Division of the Sciences in the Isagoge of His Shifa'," *Journal for the History of Arabic Science* 4, no. 2 (1980): 239–51.
[908] Sabra, "Avicenna On the Subject Matter of Logic," 752.
[909] Avicenna, *al-Madkhal* 15:9-17, quoted in ibid. Emphasis added.

Logical inquiry is the kind of investigation that can gain knowledge of external things or mental things as such, but such an inquiry can only be carried out by means of mental states. It is not concerned with anything outside the mind since what is known or unknown is such only in relation to a mind. In this way, for Avicenna, knowledge of any thing is purely rational and conceptual.

Avicenna calls logic a "canonical tool" for acquiring knowledge of the unknown from the known. Logic is the key dissection instrument for making visible the invisible:

> Logic is intended to give the human being a canonical tool which, if attended to, preserves him from error in his thought. I mean by "thought" here that which a human being has, at the point of resolving, to move from things present in his mind – conceptions or assents (whether scientific, based on opinion, or postulated and already admitted) – to things not present in it.[910]

Shams Inati comments on the meaning of "canonical tool": "Logic is a tool for determining the exactness of the sciences by means of alerting one to the principles one needs for acquiring the unknown from the known. And it is canonical in the sense that its principles are universal standards against which the conformity of the sciences to them is measured."[911] Much like a surgical scalpel, logic is the tool of scientific precision that allows for revealing what is hidden. Furthermore, logic is the universal measuring stick by which all other sciences are compared. If logic is the universal standard for all knowledge, then it is does not take much imagination to see how logic for Avicenna takes on metaphysical importance. The scalpel of syllogistic logic reveals all of reality, including religious life and beliefs.[912] Even symbols are reducible to philosophical concepts because, as Gutas notes, there are "strict one-to-

[910] Avicenna, *Remarks and Admonitions: Part One: Logic*, trans. Shams Constantine Inati (Toronto, Ont.: Pontifical Institute of Mediaeval Studies, 1984), 47.
[911] Ibid., 47 n. 1.
[912] Gutas, *Avicenna and the Aristotelian Tradition*, 368.

one correspondences between philosophical concepts and symbols."[913] For Avicenna, nothing – God and symbols included – can escape the gaze of mental dissection.

Avicenna makes it clear that knowledge of composite things requires knowledge of their single elements that compose the thing, thereby manifesting the logical dissective rationality. To know the composite thing requires breaking it down to its single concepts:

> Every inquiry that has as its object the order of things so as to move from them to other things or, indeed, that has as its object any composition, requires one to know the single elements of which the order and the composition consist, although not in every respect but [only] in that respect by virtue of which the order and the composition consist of them validly. That is why the logician needs to pay attention to certain states of single concepts, and then move from them to pay attention to the states of composition.[914]

Through the practice of mental cutting, one can know the thing itself. As we have seen with physical anatomical dissection, whereby one knows the body by way of slicing it into smaller pieces, knowing the object of logical inquiry requires slicing it into its conceptual parts. Logical analysis entails mental anatomization.

In Avicenna's conception, the clarity of logic is the ideal of certain knowledge. Logic is the mental instrument that obtains apodictic knowledge precisely because it corresponds to the structures of reality, as evidenced by logic as the standard for judging the validity of the various sciences:

> Once we mention the book's [*Demonstration*] purpose which is to bestow the methods productive of assent that is certain and conception that is true, the benefit of the book becomes clear. It is to arrive at the cognitions that are certain and conceptions that are true, nay necessary for us when we engage in using this instrument, that is logic, and begin to weigh with its scales the theoretical and practical sciences.[915]

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[913] Ibid., 341.
[914] Avicenna, *Remarks and Admonitions: Part One: Logic*, 48.
[915] Avicenna, *Demonstration* of the *Shifā',* quoted in Michael E. Marmura, "The Fortuna of the Posterior Analytics in the Arabic Middle Ages," in *Knowledge and the Sciences in Medieval Philosophy*, ed. Simo Knuuttila, Reijo Työrinoja, and Sten Ebbesen, vol. 1 (Helsinki: Yliopistopaino, 1990), 92.

The *Demonstration* is the part of the *The Healing* that builds upon the systematic, logical ideal of Aristotle's *Posterior Analytics.* Michael Marmura comments on this passage that the *Posterior Analytics* for Avicenna was a work of logic meant to obtain certain knowledge: "Scientific demonstration, in the best sense, does not only ascertain the facts but gives reasons for them. The ideal hence is the demonstration of the reasoned fact, where both the middle term and its referent in reality are the cause of the conclusion and its referent in reality. The premises of demonstration are universal, necessary and eternal."[916] For Avicenna, not only is logic the tool to achieve epistemological certitude as the movement from the known to the unknown but also logic reflects the structure of reality since the premises of logical demonstration are universal, necessary and eternal. Then, by knowing the middle term of the syllogism, one can then know certain conclusions and thus obtain certain knowledge of what was previously unknown. As we shall see, this is the exact process that Avicenna proves the existence of God by proof from contingency through a priori reasoning without any need for sense perception. The world is not known through experiencing it but through syllogistic reasoning starting with the premise of God's existence. Only then the existence of the world can be inferred.[917]

In addition to Aristotelian logic, Stoic logic via Galen plays a major role in shaping Avicenna's logic in two ways. First, Stoic logic was necessary for Avicenna in extending logic into an ontological inquiry. As Lenn Goodman points out, Stoic logic broadened the category of "the something" beyond the category of being into the binary of being and non-being. In this way, "being" can be a real predicate and thus subject to logical syllogisms.[918] Second, Stoic logic introduced a hypothetical

[916] Ibid., 92–93.
[917] Ibid., 91.
[918] Goodman, *Avicenna*, 70.

methodology.[919] Avicenna attacked Galen and the Stoics for keeping logic in the realm of words only, while Avicenna defended the Aristotelian tradition that logic is concerned with facts of reality. However, although Avicenna called Galen "a weak logician," Avicenna learned conditional propositions and the hypothetical syllogism from Galen, not from Aristotle.[920]

Consequently, Avicenna synthesized Galenic and Aristotelian logic to create the logical dissective rationality. Aristotle and Galen gave birth to and matured the anatomical rationality arising out of the medical mindset, as I have already shown. But Avicenna's work in synthesizing Galen's and Aristotle's logic produces the tool to dissect all thought. Avicenna, through the medical and philosophical influences of Galen and Aristotle, transforms the physical anatomical rationality into a mental, logical one. Goodman comments:

> [Avicenna] goes further, using his Galenic background to take over for Aristotelian philosophy the hypothetical syllogism. He makes a point, as he does so, of revitalizing the predicative terms as well as the syntactic operators of that syllogism, a hallmark of his approach to logic…. The effect is to corral the achievement of the Stoics but reinstate the dependence of all reasoning on the recognition of classes, their properties, and essential or accidental relations.[921]

Avicenna uses Galen to enhance Aristotelian logic in the form of the hypothetical syllogism. With this innovation in logical methodology, Avicenna is able to apply the categories of necessity and contingency to being itself, thereby transforming logical dissection into a dissection of being itself. "Avicenna's modal syllogistic is an instrument designed to take propositions with a specific metaphysical application and

[919] Ibid., 33.
[920] Avicenna, *The Propositional Logic of Avicenna: A Translation from Al-Shifa: Al-Qiyas with Introduction, Commentary and Glossary*, trans. Nabil Shehaby (Dordrecht: D. Reidel, 1973), 6.
[921] Goodman, *Avicenna*, 196.

deduce further such propositions from them."[922] Ontology entails logical dissection; logic entails dissection of being. As a result, the *anatomia entis* is born.

For Avicenna, the primary task of logic is ordering the intellect's two acts of conceptualization and assent, which are the building blocks of logic and thus of knowledge acquisition:

> All cognition and knowledge is either conceptualization (*taṣawwur*) or assent (*taṣdīq*). Conceptualization is knowledge that comes first and is acquired by means of definition […]. Assent comes about only by means of syllogism […]. Both syllogism and definition are made and composed of intelligible notions.
>
> A syllogism has parts that one assents to and others that are conceptualized; a definition [only] has parts that are conceptualized. This does not proceed ad infinitum, in such a way that knowledge is obtained form these parts by acquiring other parts in an endless process. Rather, matters come to a stop at things that are assented to and [things that are] conceptualized without mediation.[923]

Conceptualization defines the objects of inquiry while assent manipulates these definitions in the form of syllogisms. This schema applies universally to all disciplines, so Avicenna's theory of scientific demonstration covers principles both for the objects of conceptualization and the objects of assent. Avicenna applies the "finite structure of *scientia* to the order of concepts as well. […] Just as propositions must be reduced to first indemonstrable principles, so too in the order of *imaginatio* there must be primary notions."[924] We shall see later in the section on Avicenna's metaphysics how being itself is a primary concept. Such a schema results in onto-theology.

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[922] Tony Street, "Avicenna on the Syllogism," in *Interpreting Avicenna: Critical Essays*, ed. Peter Adamson (Cambridge; New York: Cambridge University Press, 2013), 58–59.
[923] Avicenna, *Kitab al-Najāt*, quoted in Riccardo Strobing, "Principles of Scientific Knowledge and the Psychology of (Their) Intellection in Avicenna's *Kitāb al-Burhān*," in *Raison et Démonstration: Les Commentaires Médiévaux Sur Les Seconds Analytiques*, ed. Joël Biard (Turnhout, Belgium: Brepols, 2015), 34.
[924] Jan A. Aertsen, "Avicenna's Doctrine of the Primary Notions and Its Impact on Medieval Philosophy," in *Islamic Thought in the Middle Ages: Studies in Text, Transmission and Translation, in Honour of Hans Daiber*, ed. Wim Raven and Anna Akasoy (Leiden: Brill, 2008), 24.

Logic also plays a central role in Avicenna's psychology. Riccardo Strobing shows that principle acquisition as described in Avicenna's work on logic, *Burhan*, becomes a model for the psychology of intellection, covering all states of cognition from sense perception to the highest levels of abstraction.[925] In *Burhan*, Avicenna describes the steps of abstraction:

> The faculty that procures us the first [principles of] knowledge [sc. the intellect] (1) contemplates these objects of the internal senses, (2) discriminates what is similar and what is different, (3) strips every form of what is accidental to it, and (4) abstracts what is essential. As a result, what comes about first in that [faculty] is the (5) conceptualization of simples; then (6) those simples are combined with one another and separated from one another, with the assistance of a faculty called cogitative, in such a way that (7.1) some combinations involving those notions emerge clearly to [the intellect] and happen to be such that [the intellect] knows them without being taught and immediately […] like [the principle] that the whole is greater than the part, (7.2) while for many of them, [the intellect] acquires the judgment about their composition and division from the senses by way of experience.[926]

Note the words that Avicenna uses to describe the process of intellection. The mental faculty contemplates (recall that contemplation, *theoria*, is mental seeing), discriminates, strips, abstracts, separates, and divides. We encountered similar verbs in previous chapters in describing the anatomical rationality. For Avicenna, objects of knowledge are ultimately mental objects "patient" to the gaze of logical manipulation. In this way, exercise of the intellect and the soul's acquisition of knowledge entail logic all the way down. Excluded is any kind of knowledge that entails mystery or embodiment, a clear antithesis to Chalcedonian logic. We shall see this antithesis further when we look at Avicenna's psychology that eschews the need for the body.

Metaphysics as Logicized Ontology

[925] Strobing, "Principles of Scientific Knowledge and the Psychology of (Their) Intellection in Avicenna's *Kitāb al-Burhān*," 35.
[926] Avicenna, *Burhan* IV.10, quoted in Ibid., 38.

Avicenna pioneered original developments in the history of metaphysics in multiple ways. Amos Bertolacci argues that Avicenna's chief metaphysical contributions are twofold: (1) connecting metaphysics as a science to the *Posterior Analytics*, and (2) clarifying the distinction between the subject matter and the goal of metaphysics.[927] We explored the first contribution in the previous section on logic. Avicenna transforms the *Posterior Analytics* into a way of knowing with certainty the structure and nature of reality through logical demonstration. For the second contribution, Avicenna attempts to synthesize the received metaphysical tradition, particularly on the relationship between ontology and theology in Aristotle's *Metaphysics*. We see this debate between Avicenna's Arabic philosophical predecessors, al-Kindi and al-Farabi. Al-Kindi viewed metaphysics as the divine science of Islamic theology. Metaphysics is theology with God, the unmoved mover in Aristotle's metaphysics, as the object of study. Al-Farabi viewed metaphysics as the science of absolute being. Metaphysics is first philosophy, studying being as such.[928] By his own admission, Avicenna did not understand Aristotle's *Metaphysics*, despite having read it forty times and knowing it by heart, but then he was illuminated after reading al-Farabi's explanation of the *Metaphysics*.[929] Avicenna synthesized these two positions: he agreed with al-Farabi that metaphysics is the study of being *qua* being, but also included the study of God as part of metaphysics since God is the necessary existent, thereby appropriating al-Kindi's theological view of metaphysics.

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[927] Amos Bertolacci, *The Reception of Aristotle's* Metaphysics *in Avicenna's* Kitāb Al-Šifā'*: A Milestone of Western Metaphysical Thought* (Leiden; Boston: Brill, 2006), 115.
[928] Gutas, *Avicenna and the Aristotelian Tradition*, 271–83.
[929] Avicenna and `Abd al-Wahid Juzjani, *The Life of Ibn Sina: A Critical Edition and Annotated Translation*, trans. William E. Gohlman (Albany, N.Y.: State University of New York Press, 1974), 33–35. For an English translation of al-Farabi's *The Aims of Aristotle's* Metaphysics, see al-Farabi, "The Aims of Aristotle's Metaphysics," in *Classical Arabic Philosophy: An Anthology of Sources* (Indianapolis; Cambridge: Hackett Pub. Co., 2007), 78–81.

In other words, the subject matter of metaphysics is the study of being *qua* being, but the goal is the study of God and first causes.

What is the nature of metaphysics? For Avicenna, the sciences have three epistemological elements: subject, first principles, and objects of inquiry.[930] Avicenna's *Metaphysics*, as the queen of the sciences, is structured according to this threefold schema. *Metaphysics* I.1-4 addresses the subject matter of metaphysics, I.5-8 the first principles, and II-X the objects of inquiry, which covers the "division of being per se."[931] Specifically, the objects of inquiry are the categories of substance and accident, the accidents of being (which include prior and posterior, universal and particular, cause and effect, and one and many), and the divine necessary existence itself. Thus, Avicenna's conception of metaphysics is totalizing for it covers every category of thought, including God. Nothing escapes the dissective gaze of Avicenna's logicized ontology.

As the highest of the sciences, metaphysics uses demonstrative methods to provide certain knowledge about the nature of existence.[932] The focus of metaphysics is theoretical knowledge, which is propositional knowledge and prior to practical knowledge. Theoretical knowledge is then further divided into natural, mathematical, and divine knowledge. But metaphysics investigates the causes and the First Cause of these divisions as first philosophy, so ultimately metaphysical knowledge pertains to that which is separable from matter.[933] The demonstrative method proves the nature of existence through modal syllogism "that existence is in need of a first principle that

[930] Avicenna, *Metaphysics* I.1.
[931] Daniel D. De Haan, "The Doctrine of the Analogy of Being in Avicenna's Metaphysics of the Healing," *The Review of Metaphysics* 69, no. 2 (2015): 263.
[932] Avicenna, *Metaphysics* I.3; Gutas, *Avicenna and the Aristotelian Tradition*, 52.
[933] Avicenna, *Metaphysics* I.1.

exists necessarily, because existence is either contingent in itself or necessary in itself, and contingent existence ultimately derives from the necessary."[934]

In Avicenna's view, metaphysics as first philosophy and theology is "absolute wisdom."[935] However, because of Avicenna's logical metaphysics, wisdom is tantamount to representational and propositional knowledge. As such, metaphysics is superior to dialectic and sophistry because it desires the truth, which is reducible to concepts and syllogisms and thus excludes the sensible realm. Through metaphysics, one can prove the existence of God and thereby attain knowledge of God with respect to His existence and with respect to His attributes.[936] As wisdom, the benefit of metaphysics is the soul's perfection and happiness.[937] In this way, metaphysics as a demonstrative science provides salvation to the soul. Crucially, for Avicenna, knowledge of God comes through reason, not revelation.

Avicenna defines metaphysics as the science of "the existent inasmuch as it is an existent"[938] or being *qua* being. He further states that this investigation into the division of existents is not connected to the idea concerning matter. As it uses the method of logic, all metaphysical investigation excludes the sensible realm. Modal metaphysics relates the existent with all the divisions of logical categories in which first causes and God have their place.[939] Significantly, Avicenna makes it clear that metaphysics is the queen of the sciences, and all other sciences are subalternate to metaphysics, which means that what is true in metaphysics is also true in the subordinate sciences such as physics.[940] Metaphysics, as the science of immaterial things, frames all other sciences. The implication is that the immaterial is most

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[934] Gutas, *Avicenna and the Aristotelian Tradition*, 351.
[935] Avicenna, *Metaphysics* I.1.
[936] Ibid.
[937] Avicenna, *Metaphysics* I.2-3.
[938] Avicenna, *Metaphysics* I.2, trans. Marmura, 9.
[939] Avicenna, *Metaphysics* I.2, I.4.
[940] Avicenna, *Remarks and Admonitions: Part One: Logic*, 154.

important, leaving the visible, material realm with only secondary importance. Indeed, since Avicenna's philosophy has no place for the Incarnation, the invisible is dissected away from the visible.

As I have already indicated, theology for Avicenna is subsumed under metaphysics. While God is not the subject matter of metaphysics, metaphysics does concern God's existence. Thus, in a way, God is subsumed as a particular under the general science of metaphysics.[941] As Bertolacci points out, God is "a particular type of existent, i.e. the Necessary Existent."[942] God as a particular object of inquiry in metaphysics is actually an object of logical dissection since metaphysics "is necessarily divided into parts."[943] When God is placed on the dissection table of the mind's eye, His existence and nature can be proven through rational demonstration and the analysis of logical categories of existence without the need for sense data.[944] As Goodman observes, God is not known empirically, but known rationally and immediately, disclosing a strong rationalism.[945] In this way, anatomical dissection for Avicenna is purely mental.

We can now see how Avicenna ontologizes logic. Adrian Pabst calls this a "meta-logical ontology."[946] Logic provides the foundation for metaphysics. In the section of logic based on Porphyry's *Isagoge*, Avicenna introduces logical analyses and distinctions that provide the ground for his metaphysics.[947] In this "ontologization" of logic, the "domains of logic and metaphysics are apparently

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[941] Avicenna, *Metaphysics* I.1.
[942] Bertolacci, *The Reception of Aristotle's* Metaphysics *in Avicenna's* Kitāb Al-Šifā'*: A Milestone of Western Metaphysical Thought*, 126.
[943] Avicenna, *Metaphysics* I.2, trans. Marmura, 11.
[944] Avicenna, *Metaphysics* VIII.1.
[945] Goodman, *Avicenna*, 123.
[946] Adrian Pabst, *Metaphysics: The Creation of Hierarchy* (Grand Rapids, Mich.; Cambridge, U.K.: W. B. Eerdmans, 2012), 162.
[947] Marmura, "Avicenna on the Division of the Sciences in the *Isagoge* of His *Shifā'*."

conflated."[948] Avicenna takes the doctrine of the categories that were originally found in Aristotle's *Organon* and transmutes them into entirely metaphysical ones.[949] On the relation between logic and metaphysics, logic clarifies the essence of categories and universals, while metaphysics investigates their existence thus providing their ultimate explanation.[950] Thus, as Bertolacci summarizes, the "ontologization" of logic "is compatible with a conception of logic as universal tool for knowledge, coextensive with philosophy understood as general ontology, and therefore partially overlapping with metaphysics understood as the science of being *qua* being."[951]

Metaphysics is a demonstrative science that encompasses all reality, including divine matters.[952] Building on the demonstrative method of Aristotle's *Posterior Analytics*, Avicenna completes Aristotle by integrating demonstration and metaphysics, wedding "perfection in method" with "perfection in content."[953] Eschewing dialectic and sophistry as uncertain and unreliable, Avicenna relies upon apodictic premises and applies them to metaphysics. In this way, demonstrative syllogism is the only scientific procedure because truth about reality is certain. Bertolacci summarizes Avicenna's procedure for making the method of metaphysics reliant upon demonstration rather than dialectic:

> On the one hand, he clarifies the status and limits of metaphysics as an apodictic science, reworks its content in syllogistic form, and pays the required attention to the degree of truth and certainty of the propositions serving as premises; on the other hand, he complements the apodictic method with "analytical" procedures, like proofs by division, terminological distinctions and classifications.[954]

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[948] Amos Bertolacci, "The 'Ontologization' of Logic: Metaphysical Themes in Avicenna's Reworking of the Organon," in *Methods and Methodologies: Aristotelian Logic East and West, 500-1500*, ed. Margaret Cameron and John Marenbon (Leiden: Brill, 2011), 29–30.
[949] Ibid., 37.
[950] Ibid., 34–35.
[951] Ibid., 51.
[952] Bertolacci, *The Reception of Aristotle's Metaphysics in Avicenna's Kitāb Al-Šifā': A Milestone of Western Metaphysical Thought*, 216 n.8.
[953] Ibid., 219–20.
[954] Ibid., 262.

In other words, logical premises and syllogisms are the foundation for apodictic knowledge, while logical dissection (recall from chapter 2 that Aristotelian analysis is akin to dissection) complements this foundation. Through a process of logical divisions, metaphysics as the study of being *qua* being dissects the "existent" into its analytic parts, yielding a literal anatomy of being.[955] For Avicenna, ontology – the nature of reality – is logic all the way down.

In *Metaphysics* I.5, Avicenna names primary concepts of the mind, which, by definition, cannot be demonstrated: existent, thing, necessary.[956] From these primary notions Avicenna makes two philosophical innovations: (1) the essence/existence distinction and (2) modal metaphysics of necessity and contingency. Existence is a basic idea and the precondition for applying all other concepts, not an accident among other accidents. As Fazlur Rahman notes, "Existence is not, indeed, a most general idea in the sense that it is obtained from abstraction. It is not the highest genus under which we subsume all the categories, but is an immediate and primary idea which renders the application of the categories to reality possible."[957] The essence of a thing is what makes it a particular kind of thing. Necessity implies that there are some existents that are not necessary, and thus contingent. From these three primary notions of existent, thing, and necessity arise the foundational concepts for Avicenna's metaphysics.

Let us look more closely at the essence/existence distinction. The distinction provides the epistemological foundation for Avicenna's metaphysics and logic. Bertolacci comments, "The most important metaphysical doctrine by Avicenna, namely the distinction between essence and existence, is the theoretical tool by means

[955] Cf. Ibid., 158.
[956] *Metaphysics* I.5 is the most frequently cited Avicennian passage by medieval scholastics.
[957] Fazlur Rahman, "Essence and Existence in Avicenna," *Mediaeval and Renaissance Studies* 4, no. 4 (1958): 1–16, here at p. 4.

of which metaphysics elucidates the principles of the subject-matter of logic (categories) and this subject-matter itself (universals), thus providing the epistemological foundation for this discipline."[958] In *Metaphysics* I.5, Avicenna distinguishes between "proper existence" and "affirmative existence." The former corresponds to essence, which is the reality that defines what a "thing" is. The latter corresponds to existence, which can either mean mental existence or concrete existence. It is important to point out that for Avicenna, existence in the mind holds equal ontological importance as extramental existence, further showing the dissection of immaterial from material, mind from matter.

This material/immaterial division is further shown by Avicenna's doctrine of essence. On the one hand, conceptually essence is indifferent to the mode of existence. One can hold the essence in one's mind without regard for whether it actually exists or not. On the other hand, existence is necessarily concomitant either concretely or mentally because when a thing does not have existence, it does not have an essence to define it.[959] Then what takes priority? Essence or existence? Bertolacci explains this polarity by arguing from Avicenna's text that essence is both prior *and* posterior to existence: essence is prior to existence epistemologically in particular terms, while existence is prior to essence ontologically in general terms since "existent" has greater extension than "thing."[960] While this explanation may demonstrate fidelity to the text, Avicenna's logicized ontology gives priority to epistemology, for the aim of metaphysics is certain knowledge of existence through logical demonstration. As Robert Wisnovsky argues, what grounds Avicenna's

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[958] Bertolacci, *The Reception of Aristotle's Metaphysics in Avicenna's Kitāb Al-Šifā': A Milestone of Western Metaphysical Thought*, 279.
[959] Avicenna, *Metaphysics* I.5.
[960] Amos Bertolacci, "The Distinction of Essence and Existence in Avicenna's Metaphysics: The Text and Its Context," in *Islamic Philosophy, Science, Culture, and Religion: Studies in Honor of Dimitri Gutas*, ed. Felicitas Meta Maria Opwis and David C. Reisman (Leiden: Brill, 2012), 257–88.

ontology is the logical primacy of a thing's essence over against a thing's existence: "Even if we permit Avicenna to deny having advocated an ontological scheme…in which 'thing' is extensionally broader than existent, 'thing' will at least be seen now to enjoy a logical priority over existent, that is, viewed as more basic than existent."[961] In this way, Avicenna's doctrine of essence forces him to make ontology ultimately about abstract essences, only accessible by logical dissection, thereby devaluing the integrity of the existence of things in themselves.

Consequently, for Avicenna, divisions into essences define all things.[962] In order to know things conceptually, one must logically dissect them into their respective essences without regard for the thing's existential integrity. In this way, the essence of a thing is epistemologically prior to a thing's existence. Moreover, essence can be dissected from a body. Avicenna defines the body as a substance with a corporeal form, since corporeal matter necessarily entails a corporeal form. Specifically, a body is defined as a single continuous substance composed of divisible parts, since bodies, by nature, are divisible.[963] This is a change from Aristotle's doctrine of form and matter. In the case of a human, for example, the soul is the form or essence of the human while the body is the matter. In Avicenna's conception, the human has at least two primary forms: the immaterial soul of the human form and the corporeal form of the body. The corporeal form entails division.[964] Thus, the human body, which is properly only a body as it is defined by the corporeal form, not the human form, entails its ability to be divided and dissected. As Abraham Stone comments on Avicenna's corporeal form, the continuity of a body is defined precisely

[961] Robert Wisnovsky, "Avicenna and the Avicennian Tradition," in *The Cambridge Companion to Arabic Philosophy*, ed. Peter Adamson and Richard C. Taylor (Cambridge; New York: Cambridge University Press, 2005), 109.
[962] Avicenna, *Metaphysics* II.1.
[963] Avicenna, *Metaphysics* II.2.
[964] Avicenna, *Metaphysics* II.3.

by divisibility. In this way, corporeality is a kind of substantial "divisibility-in-unity." Thus, corporeality defines bodies as corruptible because potentially divided.[965] In stark terms, Avicenna declares that everything tends toward divisibility: "In brief, there is in the very *nature of everything* that at one time or another can become two a *disposition toward divisibility* which cannot separate from it."[966] In other words, the nature of the human body is necessarily pre-disposed to dissection. Therefore, the Avicenna's logical gaze over ontology dissects all the way down, human bodies included.

Crucially, God is subject to the logical gaze. Although Avicenna explicitly states that God, which he calls the Necessary Existent, is necessarily indivisible because He is simple, the logical method that Avicenna uses to demonstrate the existence and attributes of God entails a surgically precise dissection of existence. Avicenna's novel proof for God's existence is the proof from contingency. Avicenna explicitly rejects the proof from motion because it depends too much on the world of change and matter: "We have a way of proving the First Principle, not through inference from sensible things, but through universal, rational premises."[967] Rather than basing a proof for God's existence on experience and observation of the physical world, which is unreliable and untrustworthy, Avicenna opts for the primacy of logic to reveal eternal truths. The proof from contingency for God's existence is essentially a metaphysical proof rather than a proof from physics.[968] Marmura summarizes the proof from contingency elegantly:

> Avicenna is concerned with (a) proving the existence of God through an *analysis of existence* and (b) showing the manner in which the world proceeds

[965] Abraham D. Stone, "Simplicius and Avicenna on the Essential Corporeity of Material Substance," in *Aspects of Avicenna*, ed. Robert Wisnovsky (Princeton, N.J.: Markus Wiener Pub., 2001), 102–6.
[966] Avicenna, *Metaphysics* II.3, trans. Marmura, 61. Emphasis added.
[967] Avicenna, *Metaphysics* I.3, trans. Marmura, 16.
[968] Michael E. Marmura, "Avicenna's Proof from Contingency for God's Existence in the *Metaphysics* of the *Shifā'*," *Mediaeval Studies*, no. 42 (1980): 337–52, here at p. 339.

> from Him through a consideration of the nature of the Godhead. […] Broadly speaking, the form or structure of the proof…can be summarized as follows. An existent is in itself either necessary or only contingent. If in itself necessary, then this is what we are seeking, God. If in itself only contingent, then we will demonstrate that such a contingent (if it exists) requires the existent that is necessary in itself. In either case, then, there must be an existent that is necessary in itself, the one God. We note that the argument proves the existence of God, not of the contingent world. (For the existence of the contingent is hypothesized.) Proving the existence of the world is an argument from the cause to effect – as Avicenna himself explicitly states – and involves Avicenna's emanative scheme and the argument that the world proceeds as the necessary consequence of divine knowledge.[969]

There are three important points to observe. First, note how Marmura uses the language of "analysis of existence." Following our discussion of Aristotle's use of logical analysis as mental dissection, Avicenna's proof from contingency is essentially a logical dissection of existence. Consequently, God becomes subsumed under the notion of existence as an object of dissection. Not even God can escape the dissective gaze of Avicenna. Second, creation of the world as a necessary consequence of divine knowledge imposes a restriction on Avicenna's God, resulting in a quasi-panentheism. The key insight is that Avicenna's logical, dissective methodology – that is, rational demonstration from cause to effect through modal categories applied to existence – results in a deterministic view of God and onto-theology in which being becomes the primary, controlling concept. Third, the nature of the proof is a priori based on Avicenna's assertion that existent and necessary are primary notions of the intellect and it is on these that the proof from contingency rest. As we shall see in the next section on psychology, Avicenna proposes the famous Flying Man thought experiment which reasons that one can know one's own existence a priori and thus the concept of existence, from which one then reasons to

[969] Ibid., 340–41. Emphasis added.

the proof for God's existence.[970] In the final analysis, for Avicenna, to know how to dissect existence a priori is ultimately to know God.

The proof from contingency highlights the dissection of metaphysics from physics that Avicenna's logical methodology entails. The divine existence falls completely outside the realm of physics, such that God is wholly other from material creation.[971] As Simon Oliver argues, Avicenna's proof for God's existence excludes physics because metaphysics excludes motion, with the result that there is an isolation of God from creation and theology from physics. There are three ways that Avicenna's methodology results in the dissection between physics and metaphysics. (1) Physics can only know God who is beyond matter and motion, such that metaphysics is the exclusive science that proves God, by subsuming God under the category of *ens commune*. By implication, God becomes an object among other objects. (2) This univocity of being[972] results in God being wholly other who is

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[970] Ibid., 341f.

[971] Janssens, "Ibn Sina, and His Heritage in the Islamic World and in the Latin West," 4.

[972] Avicenna states explicitly in *Metaphysics* I.5 that being or existence is not a genus. There is much scholarly debate about whether Avicenna espoused analogy of being or univocity of being, but the confusion appears to rest upon terminological differences. Avicenna does hold to a kind of analogy of being, but it differs from Aquinas' doctrine of *analogia entis* which does not include God under metaphysics since God is not a part of *ens commune*. For recent studies that support an Avicennian doctrine of analogy of being, see Alexander Treiger, "Avicenna's Notion of Transcendental Modulation of Existence (Taškīk Al-Wugūd, Analogia Entis) and Its Greek and Arabic Sources," in *Islamic Philosophy, Science, Culture, and Religion: Studies in Honor of Dimitri Gutas*, ed. Felicitas Meta Maria Opwis and David C. Reisman (Leiden: Brill, 2012), 327–63; De Haan, "The Doctrine of the Analogy of Being in Avicenna's Metaphysics of the Healing." For studies that support an Avicennian doctrine of univocity of being, see Stephen D. Dumont, "Scotus's Doctrine of Univocity and the Medieval Tradition of Metaphysics," in *Was Ist Philosophie Im Mittelalter?*, ed. Jan Aertsen and Andreas Speer, Miscellanea Mediaevalia 26 (New York: Walter de Gruyter, 1998), 193–212; Stephen F. Brown, "Avicenna and the Unity of the Concept of Being," *Franciscan Studies* 25 (1965): 117–50.

However, even Treiger and De Haan, who support the view of Avicennian analogy of being, acknowledge that Avicenna does regard being as univocal on the abstract level, but not to the same degree as John Duns Scotus who regards being as a logical genus. Etienne Gilson charges that the spirit of Avicenna is a non-generic univocity of being: "The spirit of Avicennianism, and especially of Avicennian metaphysics, demands that simple metaphysical analogy is bypassed. Although 'being' is not a genus common in a real *generic* way to all beings, there must be a certain meaning according to which all which is is in the same sense and in the same way. The being of substance is not that of accident, but by the very fact that there is no concept prior to the concept of being, you must admit that both substance and accident fall under this common concept and that from a certain viewpoint the term 'being' is applied to them in the same sense." Etienne Gilson, "Avicenne et le point de départ de Duns Scot," *Archives d'Histoire doctrinale et littéraire du Moyen Age* 2 (1927): 89–149, here at pp. 110-111.

buffered from the vagaries of matter and motion. (3) Motion becomes restricted to nature, material, and physics.[973] Avicenna's *anatomia entis*, which places God on the mental dissection table, finally dissects God from the material world. The isolation of physics from metaphysics and of creation from God, by implication, leads to the dissection of medicine from theology. The divine, who has nothing to do with the realm of the senses and of bodies, must, by logical dissection, be divorced from medicine, which is epitomized by anatomy. Therefore, ironically, the dissective rationality that Avicenna inherits from medical epistemology becomes the means by which that medicine is dissected from theology and God.

We have already seen some indications of how Avicenna's psychology plays a role in his logic and metaphysics. Let us now turn to his doctrine of the soul and intellection to see how his logical ontology dissects soul from body.

Psychology as De-humanizing

In Avicenna's systematic thought, psychology is the central axis upon which the metaphysical and the medical pivot. Robert Hall remarks provocatively, "Helping to structure and support a very large of Ibn Sina's philosophy [i.e., metaphysics] and science [i.e., medicine], psychological theory is really the spine of the system."[974] Psychology touches on a broad range of topics, from cosmology to physiology, from epistemology to eschatology. In other words, to comprehend Avicenna's system of thought one must study the centrality of the soul.

With regard to what it is to be human, Avicenna holds a substance dualist view. He deviates from Aristotle, who held that the soul is the form of the body and

[973] Simon Oliver, *Philosophy, God and Motion* (London: Routledge, 2005), 138–40.
[974] Robert E. Hall, "Intellect, Soul and Body in Ibn Sina: Systematic Synthesis and Development of the Aristotelian, Neoplatonic and Galenic Theories," in *Interpreting Avicenna: Science and Philosophy in Medieval Islam*, ed. Jon McGinnis and David C. Reisman (Leiden: Brill, 2004), 63.

that the soul cannot exist without the body. Rather, Avicenna regards the soul as the perfection, not only the form, of the body, thereby allowing for the existence of the soul independent of the body.[975] The body is instrumental to the soul; the body exists to perfect the soul.[976] When the human individuates, soul and body come into existence together, but the soul can exist as a separate substance from the body.[977] As we saw earlier, for Avicenna bodies in general and thus human bodies in particular have a corporeal form. Humans have both a psychic form and a corporeal form, thus making for a plurality of forms and in turn a plurality of substances. Plurality of forms allows for the dissection of corporeal, human bodies into ever-smaller parts, since it is the nature of bodies to be divided.

It should be noted that Avicenna is writing during the early eleventh century, anticipating Cartesian substance dualism by six hundred years. In Therese-Anne Druart's judgment, while Descartes is considered the bogeyman of modern substance dualism, Avicenna appears to be far more dualistic.[978] The reason is that, for Avicenna, humans are already pre-disposed to division of body and soul. The Avicennian soul has two opposing functions, one that is embodied looking toward the downward plane of the sensible world and one that is disembodied looking toward the upward plane of the intelligible world.[979] In this way, the human is not a unity but rather in conflict causing a "divisive tension."[980] This dissective tension strikes at the heart of what it means to be human: the self to be self does not necessarily need to be

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[975] Avicenna, *The Psychology of The Healing* I.1. ET Jon McGinnis and David C. Reisman, eds., *Classical Arabic Philosophy: An Anthology of Sources* (Indianapolis, Ind.: Hackett, 2007), 178.
[976] Avicenna, *The Book of Salvation (Kitāb al-Najāt)* II.6.6. ET Avicenna, *Avicenna's Psychology: An English Translation of Kitāb Al-Najāt, Book II, Chapter VI, with Historico-Philosophical Notes and Textual Improvements on the Cairo Edition*, trans. Fazlur Rahman (London: Oxford University Press, 1952), 37.
[977] Avicenna, *Metaphysics* IV.2; III.1.
[978] Therese-Anne Druart, "The Soul and Body Problem: Avicenna and Descartes," in *Arabic Philosophy and the West: Continuity and Interaction* (Washington, D.C.: Center for Contemporary Arab Studies, Georgetown University, 1988), 27–49.
[979] Avicenna, *Salvation* II.6.4, II.6.10.
[980] Druart, "The Soul and Body Problem: Avicenna and Descartes," 41.

human. On the one hand, for Avicenna to be human requires both body and soul,[981] yet on the other hand, the rational soul is the essence of the personal self in the blessed state, as the body is merely instrumental to the soul like a hammer is to the hand on the way to purification.[982] Since disembodied existence of the individual soul, the "I," is the blessed state, Avicenna dissects the self of soul from body. To be the personal, subjective, rational "I," one need not be human. Therefore, in Avicenna's conception, we can be ourselves but not fully human, leading to a literally de-humanizing view of the person.

We can see that Avicenna identifies the personal self with the rational soul in his famous Flying Man thought experiment. The occasion for the Flying Man is Avicenna's attempt to refute the *mutakullimūn*, the Islamic doctrinal theologians, who viewed the body of the human as the "I."[983] The Flying Man argument goes like this: imagine a man, newly created in an instant, who appears in a void such that no parts of his body are touching each other and he cannot feel the air, completely deprived of all sensation. While he cannot feel his own body, nevertheless, he has certain awareness of the existence of his own self without asserting its own extensionality. Thus, concludes Avicenna, the bodily members are like clothes to the self. He calls the "I" that which aims to know about himself as self without corporeality.[984] Marmura has shown that there are three versions of the Flying Man in Avicenna's corpus. Collectively, Avicenna draws three implications: (1) one knows that the self is an immaterial reality; (2) the soul is the binding entity for the faculties of the soul,

[981] Avicenna, *Metaphysics* III.2.
[982] Gutas, *Avicenna and the Aristotelian Tradition*, 70.
[983] Michael E. Marmura, "Avicenna's 'Flying Man' in Context," *Monist* 69 (1986): 383–95, here at p. 384.
[984] Avicenna, *The Psychology of The Healing* V.7.

akin to the *sensus communis* as the glue for the five senses, and (3) self-knowledge is the most primary of human cognitions.[985]

The key point to the Flying Man is that in the absence of sense perception one can be self-aware of one's self-existence. In this way, knowledge of self-existence is a priori. For Avicenna, this self-awareness is the most basic certain knowledge.[986] Framed as a kind of proto-*cogito*, this indubitability of self-existence can be formulated as "I exist, therefore I am." Dimitri Gutas argues that this basic, certain knowledge of self-existence is the foundation for an Avicennian "rationalist empiricism" which ensures knowledge of existence in general, formulated as "I exist, therefore there is existence." Gutas explains:

> That empiricism, and especially empiricism of the self, was essential to Avicenna's philosophical edifice can be gauged from the fact that he based it on the absolutely primary and irreducible empirical fact of existence. We simply know that there is existence and that we exist, absolutely: not by acknowledging the fact at the end of the syllogism, not by forming a concept by identifying species and specific differences, and not by any sense, either external or internal; we simply know that there is existence: as stated in five simple words by Avicenna, *lā šakka anna hunā wujūdan* ("no doubt, there is existence"). This irreducible empirical fact is the basis for his argument for the existence of God – we exist, but contingently, therefore we may not have existed; but we do exist; therefore there must be a necessary existent that causes existence to exist – and for the existence of our immaterial and substantial rational souls – the flying man argument whereby we simply know that we exist apart from our body or any other external element. And from these two positions flows everything else.
>
> Avicenna's rationalist empiricism is the main reason why he strove in his philosophy on the one hand to perfect and fine-tune logical method and on the other to study the human soul and cognitive processes at an almost unprecedented level of sophistication and precision.[987]

In other words, for Avicenna, the Flying Man thought experiment and the proof from contingency for God's existence via logical dissection are two sides of the same ontological coin. As we saw in Avicenna's *Metaphysics*, existence is a primary

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[985] Marmura, "Avicenna's 'Flying Man' in Context," 387, 389, 391.
[986] Deborah L. Black, "Certitude, Justification, and the Principles of Knowledge in Avicenna's Epistemology," in *Interpreting Avicenna: Critical Essays*, ed. Peter Adamson (Cambridge; New York: Cambridge University Press, 2013), 139.
[987] Gutas, *Avicenna and the Aristotelian Tradition*, 375–76.

concept that acts as a precondition for all other thought. Because one is certain of her own self-existence, existence in general is known certainly by implication. Moreover, through logical dissection, one deduces that one's own existence and existence in general is not necessary in itself but contingent on the necessary existent, God. The radical implication of Avicenna's psychology is that the material, corporeal world of motion and change is not necessary to know God or to know the self. All knowledge is accessible through logical dissection and a disembodied self-awareness. Thus, one could say that Avicenna's rationalist empiricism paradoxically does not require any empiricism because even awareness of self-existence eschews sense perception.

Another dimension of Avicenna's epistemology that further dissects the intelligible from the material is his doctrine of the Active Intellect, which effectively brackets out the material body. For Avicenna, the human theoretical faculty moves from potentiality to actuality (in Aristotelian terms) through the illumination of a substance whose nature is to produce light.[988] As part of his Neoplatonic cosmological hierarchy of being, Avicenna posits the Active Intellect as this light-producing substance, which is a created, heavenly entity that possesses all of the actual forms and impresses them onto the potential intellect of the rational soul independent of materiality. Human intellectual perception is the reception of actual forms from the Active Intellect through the processes of sensation, abstraction, and activities of the faculties of the brain.[989] This is a radical break from Aristotle's theory of intellection, which is the abstraction of the universal, intelligible form from the particular, material, existent thing. Whereas for Aristotle knowledge of the thing entails abstraction of the form from the thing itself, for Avicenna knowledge of the thing

[988] Avicenna, *Salvation* II.6.16.
[989] For a helpful, brief summary of Avicenna's doctrine of the Active Intellect, see McGinnis, *Avicenna*, 130–37. For a more detailed treatment, see Herbert A. Davidson, *Alfarabi, Avicenna, and Averroes, on Intellect: Their Cosmologies, Theories of the Active Intellect, and Theories of Human Intellect* (Oxford; New York: Oxford University Press, 1992), 74–126.

does entail abstraction of the form through sensation and use of mental faculties; however, the ontological source of knowledge is the not the existent thing but the Active Intellect. The human mind acquires knowledge of the intelligible form only, not the existing thing itself.[990] In other words, emanation from the Active Intellect is the ontological basis of his epistemology, while abstraction is the epistemological basis.[991] In this way, Avicenna's epistemology does not require materiality or even extramental existence. Knowledge consists in the influences of intelligibles as accidents in our souls, which precludes embodied knowledge.[992] Thus, the body and materiality are radically de-valued, resulting in a disembodied epistemology.

For Avicenna, knowledge for the rational soul is highly logical. As Gutas points out, both human theoretical knowledge via abstraction and transcendental knowledge via emanation from the Active Intellect are structured syllogistically, thereby removing mystery from reality:

> The establishment of the syllogistic structure of both all human theoretical knowledge and transcendent knowledge as thought by the celestial intellects enabled Avicenna to unify and integrate the different levels of its acquisition by the human intellect within a single explanatory model and accordingly de-mystify concepts like inspiration, enthusiasm, "mystical" vision, and revelation.[993]

Thus, human intellection and knowledge are reducible to discursive reasoning by logical dissection and distill revelation and the mystical down to syllogisms. Even the senses are merely tools for the intellect to discern universals that are formed into propositional statements.[994] In this way, the bodily senses have no intrinsic value in themselves and instead are instrumental handmaidens to the immaterial, rational soul that carries a disposition toward discerning the middle term of a syllogism. This

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[990] Avicenna, *Metaphysics* III.8.
[991] Dimitri Gutas, "Intuition and Thinking: The Evolving Structure of Avicenna's Epistemology," in *Aspects of Avicenna*, ed. Robert Wisnovsky (Princeton, N.J.: Markus Wiener Pub., 2001), 1–38.
[992] Avicenna, *Metaphysics* III.8.
[993] Gutas, *Avicenna and the Aristotelian Tradition*, 372.
[994] Avicenna, *Demonstration* III.5.

disposition is so strong that the intellect can have direct vision of the intelligible thing by correctly intuiting the middle term, leaving out the possibility for a knowledge that does not entail discursive reasoning such as mystical knowledge.[995]

Avicenna even naturalizes prophecy as a kind of superior natural knowledge, taking it out of the realm of divine revelation, such that prophecy is reduced to a correct intuition of the middle term: "Correct intuition is a divine effluence and an intellective contact taking place without any act of acquisition at all. Some people may reach a stage [of consummate correct intuition] that they have almost no need of Thinking in most of what they learn, and possess the sacred faculty of the soul."[996] The "some people" to whom Avicenna refers are prophets. Note that prophets in Avicenna's conception are not mouthpieces of divine revelation but instead are rationalists who are perpetually correct about the middle terms of syllogisms without need of any acquisition or mediation. Prophecy is a logical, direct contact with the intelligible world. Thus, for Avicenna, all knowledge is rationalist, logical, and disembodied.

Avicenna's Eschatology: Necrophilia and Discarding the Body

Avicenna's disembodied, rationalist epistemology and psychology comes into sharpest relief in his eschatology. As I have already shown, Avicenna is a substance dualist; the rational soul is immaterial and constitutes the personal self, while the body is an instrument of the soul. In the state of bliss, the perfected rational soul does not need the body and reflects like a mirror the forms of all things. Avicenna explains:

> The bliss [of the rational soul] comes about when its substance is rendered perfect, and this is accomplished when it is purified through knowledge of God and works for God. Its purification through works for God consists of (a)

[995] Gutas, *Avicenna and the Aristotelian Tradition*, 344–45.
[996] Avicenna, *Discussions*, trans. Ibid., 187. Translation slightly modified.

> its being purged of vile and wicked qualities of character, (b) its being far removed from blameworthy attributes and evil and offensive habits by following reason and religious law, and (c) its being adorned with good habits, praiseworthy qualities of character, and excellent and pleasing traits by following reason and religious law.
>
> Its purification through knowledge of God consists of its attainment a disposition of its own, by means of which it is ready to call all the intelligible to presence whenever it wishes without needing to acquire them, and thus to have all the intelligible present in it in actuality, or in a potentiality that is as close to actuality as possible. The soul then becomes like a polished mirror upon which are reflected the forms of things as they are in themselves without any distortion, and whenever it stands face to face with them having been purified through knowledge, there ensures [an automatic] practicing of the theoretical philosophical sciences.[997]

Avicenna goes on further to clarify that the purification of the soul requires the works of the body. But when the body has sufficiently performed the instrumental works of purification, the soul discards the body. Consequently, the perfected rational soul, which is the perfected person, becomes actualized as a perfect reflection of the forms. This, for Avicenna, is true, direct knowledge of God and knowledge of all things. The language of having the intelligibles present in actuality approaches the kind of knowledge only God has. In this way, pure knowledge is, for Avicenna, a kind of quasi-deification. Paradoxically, perfected human existence requires that one can no longer be human because the body is discarded.

Furthermore, Avicenna regards corporeality to be a hindrance to knowledge through reception of the forms from the Active Intellect:

> Since the celestial bodies are totally devoid of the opposites, they are receptive to the divine effluence; human beings, on the other hand, no matter how balanced their temperaments may be, are not free from defects [due to the involvement with] the opposites. As long as the rational soul is associated with the human body, no corporeal entity can be completely ready to receive the divine effluence or have perfectly revealed to it all the intelligibles.[998]

While Avicenna does not declare the human body to be evil as such, the body is certainly a stumbling block for true and complete knowledge, divine or otherwise.

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[997] Avicenna, *On the Rational Soul* 6-7, trans. Ibid., 71.
[998] Avicenna, *On the Rational Soul*, trans. Ibid., 73.

Moreover, the external senses hinder direct "vision" of the intelligibles. Such direct "vision" or experience of the intelligible entail an enduring engagement with an object of knowledge through mental manipulation of syllogisms until "the human intellect is not obstructed by the internal or external senses and has acquired a certain familiarity or 'intimacy' with its object."[999] Only then will the rational soul have perfected knowledge that approaches God's knowledge. Avicenna's epistemology makes a radical claim. In order to know a thing as that thing, one must bracket out sense perception and an encounter with the object in its wholeness as a composite of form and matter and, instead, think of the object through logical dissection. To know deeply is to cut deeply with logic. One could say that Avicenna's eschatology entails a kind of rationalist, quasi, auto-deification.

The key dimension in Avicenna's disembodied eschatology is his view that human death is necessary and ideal for the blessed state, manifesting a kind of necrophilia. He shows this in three steps. First, he regards death as part of the "natural universal course":

> Next, you know that what lies outside the natural particular course frequently does not lie outside the natural universal course; for even if death is not what is intended with respect to the particular nature that is in Zayn, it is in certain ways what is intended with respect to the universal nature. One of these ways is that [death] frees the soul from the body for the sake of flourishing among the blessed, which is [the soul's] aim and for which the body was created, and should [the soul] fail to achieve that, it is not because of the nature, but owing to evil choice. Another [way that death is something that the universal nature intends] is that other people deserve a share in existence just like this individual; for if the former ones did not die, there would not be space and food to go around for the latter ones. Also, those latter ones – namely, the ones deserving a share of something like this existence – have something [almost] owed them on the part of matter's potential, [since] they no more deserve perpetual nonexistence than the former deserve never to die. So this and others are certain things intended by the universal nature.[1000]

[999] Ibid., 372.
[1000] Avicenna, *The Physics of The Healing* I.7. ET Avicenna, *The Physics of The Healing: A Parallel English-Arabic Text*, trans. Jon McGinnis (Provo, Utah: Brigham Young University Press, 2009), 53.

Astonishingly, Avicenna paints the picture of a natural universe that is corrected by a Malthusian logic, whereby death is a "natural" course due to scarce resources from overpopulation, as those people who are in potential existence deserve actual existence. He states bluntly that this is merely the natural course of the cosmos. Second, Avicenna regards the death of individuals as a necessary event of the universe even if it confers no direct benefit to the individual:

> Now, death, dissolution, deterioration, and all of that, even if it is not some beneficial end in relation to the body of Zayn, is a necessary end with respect to the order of the universe. We already alluded to that earlier, and your own knowledge about the state of the soul will draw your attention to the necessary end with respect to death, as well as the necessary ends with respect to frailty.[1001]

Recall that Avicenna's proof from contingency relies upon the categories of necessity and contingency, demonstrating that the necessary existent is God. Although the universe is not necessary in itself but rather contingent upon God the necessary existent, the contingent universe does follow necessary consequences that flow like a logical deduction from the necessary existent. Remarkably, death – including human death – is necessary to the order of the universe. In the same way that God is necessary in itself, human death is necessary for the functioning of the universe. Third, the final cause – the teleology – of human-ness is the disembodied perfected soul that requires death: "When the question concerns the matter and its preparedness – as, for example, in saying, 'Why is the human body mortal? – one might give the final cause as an answer and so say, 'It was made such in order that the soul, once perfected, could free itself from the body.'"[1002] In other words, the human, who is composed of the dual substances of soul and body, must separate herself to become the perfected soul that sheds the body through the necessary event of death.

[1001] Avicenna, *Physics* I.14, trans. McGinnis, 99-100.
[1002] Avicenna, *Physics* I.15, trans. McGinnis, 105.

Paradoxically, in the eschaton of the blessed state, the perfected person – identified as the rational soul that had partially constituted the human – is no longer human because she no longer has need of a human body.

As we have seen, Avicenna's psychology entails a logical, disembodied epistemology that is grounded upon the immaterial soul as the personal self. By shedding the body, the soul is free for perfection. The perfection of the soul results in a perfected, direct, logical intellection of all intelligibles. In this way, Avicenna's philosophical anthropology, which champions logical dissection as the key to knowledge of all things, entails dissection all the way down. In the process of auto-deification, the human – soul and body – undergoes a procedure of auto-dissection and auto-vivisection: in order to be perfected, the human must die and be cut into rational soul and corrupted body, such that the human is discarded. All that is left is the soul. Quite literally, Avicenna's eschatology is de-humanizing. The fulfillment of Avicenna's anatomical rationality is death, disembodied souls, and lifeless corpses.

* * *

In this chapter, we have seen how Avicenna develops the *anatomia entis*, an intensification and radicalization of the anatomical rationality that was planted by Hippocrates, born by Aristotle, nurtured by Galen, and theologized by Nestorius. Through a complex, interrelated system of thought, logic, metaphysics, and psychology, knowledge of all things, including God, is reducible to logical dissection. The dissective intentionality toward the body that ancient Greek medicine inaugurated is transformed theologically by the metaphysical dissection of Christ's two natures, and then fully systematized by Avicenna such that true knowledge is only accessible by placing all of existence on the dissection table. Yet, when all things are subject to mental dissection, nothing can escape the dissective gaze, including the human

dissector. In the act of logical cutting, the human self is dissected into soul and body, the latter of which becomes unnecessary and prohibitive. The true human knower is the perfected rational soul that is not even human because the body has been discarded. The culmination of the anatomical rationality is de-humanization. In Avicenna's *anatomia entis*, humans join God on the table of mental dissection. Nothing and no one escapes Avicenna's dissective gaze.

Avicenna's *anatomia entis* contrasts sharply with Maximus' Chalcedonian logic. It is precisely because of the Incarnation that the integrity of the human can be preserved. Because the Incarnation mediates all differences into a unity, the human can be most fully human through union with the divine in the process of deification. By becoming more like God (while maintaining human-ness), one becomes more human. It is not by dissection but by mystery and paradox that the integrity of the human is preserved.

EPILOGUE

> *If the unexamined life was not worth living, was the unlived life worth examining?*
> – Paul Kalanithi[1003]

> *In question is the whole of man; it is not in thought alone then that we must seek him out. It is into action that we shall have to transport the center of philosophy, because there is also to be found the center of life.*
> – Maurice Blondel[1004]

In this thesis, I have traced the process of development of the anatomical rationality, which starts with the physical dissection of bodies in order to know the body, transforms with the metaphysical dissection of Christ and the sacramental cosmos in order to know the God-man and the efficacy of the sacraments, and culminates in the logical dissection of being in order to know reality, such that nothing is excluded from the dissective gaze.

The logic of the anatomical rationality is to know an object of inquiry by cutting it up into smaller parts, but the desire of the anatomical rationality is to unveil what has been hidden from sight, to make visible what is invisible. To recapitulate, I have shown that Hippocrates was instrumental in transforming Greek philosophy by introducing the concept of the body and the presence of a hidden, invisible realm in the body. The gaze of the medical *technē* "sees" and knows the inside of the body, thereby exercising an antagonistic relationship with nature to relieve the human condition, anticipating the Baconian project. I then showed how Aristotle pioneered systematic anatomical dissection as a central practice in his philosophical project in order to "see" the invisible causes of animals and ultimately to acquire divine knowledge. The physical dissection of animals, I argued, also shaped Aristotle's

[1003] Paul Kalanithi, *When Breath Becomes Air* (New York: Random House, 2016), 31.
[1004] Maurice Blondel, *Action (1893): Essay on a Critique of Life and a Science of Practice*, trans. Oliva Blanchette (Notre Dame, Ind.: University of Notre Dame Press, 1984), 13.

practice of logical dissection in his philosophy, thereby giving birth to the anatomical rationality. I then showed how Galen built upon Hippocrates, Aristotle, and Herophilus to intensify and grow the anatomical rationality by attempting to answer metaphysical questions such as the nature of the soul and the teleology of nature through the methodology of anatomical dissection. The hidden nature of the soul and hidden design of nature could be fully unveiled through violent dissection. Galen then transposed the anatomical rationality into a theological key when he regarded anatomical dissection as a kind of superior liturgical practice that disclosed divine mysteries.

I then turned to the theological anatomy of Nestorius who metaphysically dissected the person of Christ. We saw how Nestorius, eschewing paradox and favoring linguistic precision, dissected the two natures of Christ in order to protect the divine impassibility. Nestorius could not tolerate that the invisible God was known through the visible flesh. Consequently, through Nestorian dissection, the natures became parallel to one another such that dualisms proliferated. The Cyrilline response defended the unity of Christ as the God-man by making an apology for paradox and mystery that holds the visible and invisible together, acknowledging that the human intellect cannot comprehend the mode of union of the two natures. I then showed how Maximus the Confessor expanded upon this Chalcedonian logic to develop a Chalcedonian metaphysics which holds paradox and mystery at the heart of creation as a symbolic ontology of visible and invisible because Christ is the One through whom all things cohere. But in the wake of this sacramental synthesis of visible and invisible, I showed how it then collapsed because of developments within Christian theology. Through the iconoclastic and Eucharistic controversies, I argued that

Nestorian logic destroyed the symbolic ontology by creating new metaphysical dualisms that survive today.

Finally, Avicenna completed the logical progression of the anatomical rationality, I argued, by making it fully disembodied. He transformed the desire to uncover what is hidden from sight into a purely mental practice of dissection. Ironically, Avicenna took anatomical dissection, which began with bodily dissection, and left the body behind. He surpassed Aristotle's logical dissection by ontologizing it and subjecting all of being to mental dissection in the *anatomia entis.* In this way, ultimately nothing (including God and man) is hidden from the dissective gaze that wields the mental scalpel and reduces being to concepts that can be further dissected *ad infinitum*. The logic of the anatomical rationality dictates that the farther down we can cut to make visible what has been invisible, to unveil what is hidden, the more we can know ourselves and know nature so that it can be controlled. But with Avicenna's completion of the anatomical rationality, we saw that a dissective intentionality toward existence results both in an auto-dissection that cuts away our humanity from ourselves and in the murder of the mystery of existence. The anatomical rationality began as a medical way of knowing the body in ancient Greece but became a way of knowing being in general in philosophy.

After this genealogy that I have traced from Hippocrates to Avicenna, more work needs to be done in at least four ways. First, the anatomical rationality needs to be further traced from Avicenna to John Duns Scotus in the development of the univocity of being which fundamentally flattens out ontology such that God becomes one ontic thing among other ontic things, and then to the subsequent rise of nominalism at the hands of William of Ockham which provides the model of God, and correlatively man, as absolutely powerful as well as the turn to efficient

causality.[1005] Second, from the medical perspective, the question of the resurrection of human anatomical dissection in the Christian Latin West in the thirteenth century will need to be investigated. I hypothesize that the developments in medieval philosophy (univocity of being and nominalism) are intimately connected to the rise of anatomical dissection in medieval medicine. Third, these medieval developments will then need to be traced to the Renaissance and the early modern period. Francis Bacon identified anatomical dissection as the proper model for investigating nature,[1006] while René Descartes personally dissected animals for eleven years.[1007] Fourth, the liturgical dimensions of anatomical dissection, particularly in its formative, effective, and theological aspects, need to be explored. The sixteenth century has been called a "culture of dissection,"[1008] implying that anatomical dissection permeated the Renaissance social imaginary. I suspect that the anatomical imagination lead directly to modern scientific approaches that inform medicine today. These further investigations will need to be reserved for a later book.

* * *

To bring our discussion of the anatomical rationality full circle, we return to modern medicine. The logic of the anatomical rationality, I submit, drives developments in modern medicine. A paradigmatic example of the anatomical rationality in modern medicine is "personalized medicine" in genomics, particularly in cancer genetics and therapeutics. This entails finding therapies that target specific mutations in the patient's particular cancer cells with the goal of decreasing toxicity

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[1005] Amos Funkenstein, *Theology and the Scientific Imagination from the Middle Ages to the Seventeenth Century* (Princeton, N.J.: Princeton University Press, 1986).
[1006] Francis Bacon, *The New Organon*, ed. Lisa Jardine and Michael Silverthorne (Cambridge: Cambridge University Press, 2000).
[1007] Rene Descartes, *The Philosophical Writings of Descartes: The Correspondence*, trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch, vol. 3 (Cambridge University Press, 1991), 134.
[1008] Jonathan Sawday, *The Body Emblazoned: Dissection and the Human Body in Renaissance Culture* (London: Routledge, 1995), 3.

associated with older, non-targeted chemotherapies. Because of the anatomical rationality, "knowing" the patient in personalized medicine means employing the dissective gaze on the patient as a collection of material DNA, not learning about the wholeness of the person with a narrative of hopes and fears. An oncologist can "know" the patient's cancer and not know the patient as a person. In this way, "personalized medicine" could be renamed as "de-personalized medicine" (or should it be de-humanized medicine?).[1009] There has been a shift to change the name from "personalized medicine" to "precision medicine," which reveals the anatomical rationality implied in genomic medicine, such that what is targeted is statistical, population-based data that better characterizes the disease, not the person.[1010] "Precision medicine" implies the exactness of surgical dissection.

Another paradigmatic example is the field of neuroscience and its desire to uncover the mystery of the mind. The BRAIN Initiative of the National Institutes of Health seeks to uncover the inner workings of the human brain, which "remains one of the greatest mysteries in science and one of the greatest challenges in medicine" in order to "develop effective ways of helping people suffering from these devastating conditions"[1011] through the collaboration of various scientists. The brain, as the modern surrogate of the mind, is a hidden mystery that needs to be revealed. While the stated purpose is the treatment of neurological and psychiatric diseases of the brain, the unveiling of the nature of the mind is the drive for the BRAIN Initiative.

[1009] Even a recent critique of "personalized medicine" as being a species of "de-personalized medicine" falls prey to the anatomical rationality by reducing the patient to a collection of clinical, social, and environmental data points and molecular and genomic information. No mention is made of the patient as *person*. Ralph I. Horwitz et al., "(De)Personalized Medicine," *Science* 339, no. 6124 (2013): 1155–56.

[1010] Eric Juengst et al., "From 'Personalized' to 'Precision' Medicine: The Ethical and Social Implications of Rhetorical Reform in Genomic Medicine," *Hastings Center Report* 46, no. 5 (2016): 21–33.

[1011] "The BRAIN Initiative," National Institutes of Health, U. S. Department of Health & Human Services, last modified November 5, 2015, accessed September 29, 2016, https://www.braininitiative.nih.gov/about/index.htm.

Such a pursuit only leads to further dissection until the dissective gaze reveals all of the mysteries of the mind.

I am not opposed to developments in medical technology, if the anatomical rationality can be tamed and employed for localized, specific aims, such as curing disease, relieving pain, or comforting those who suffer. Indeed, developments in "personalized medicine" that can cure certain cancers and improved treatments for conditions such as Alzheimer's dementia would be welcome, for I am a palliative care physician who often comforts those afflicted with these diseases. However, my concern is that the anatomical rationality always takes priority in modern medicine at the expense of particular persons with particular concerns that are at odds with the dissective gaze.

A final chilling example is the biopsychosocialspiritual model of medicine described by Jeffrey Bishop.[1012] Because medicine's goal is to master efficient causes in the motion of the body to relieve the human condition, even religion and spirituality can be instrumentalized as merely a tool of medicine for psychological coping, not a necessary dimension of fulfilling humanity's divine *telos*. Modern medicine conceptualizes, operationalizes, and defines religion and spirituality, thereby reducing them to mere utility.[1013] The anatomical rationality turns religion and spirituality into generic things that are dissected away from the divine and controlled by the dissective gaze.

Can nothing escape the dissective gaze? I suggest that the way to overcome the totalizing character of the anatomical rationality is turning to the mysterious and

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[1012] Jeffrey P. Bishop, *The Anticipatory Corpse: Medicine, Power, and the Care of the Dying* (Notre Dame, Ind.: University of Notre Dame Press, 2011).

[1013] Devan Stahl performs a clever thought experiment, subjecting various theologians from the Christian tradition to spiritual assessment tools that measure religious coping. She shows that such theologians would be spiritual failures if measured by the tools of modern medicine and generic chaplaincy. Devan Stahl, "On Poor Religious Coping: Spiritually Assessing Christianity's Great Theologians," *Christian Bioethics* 19, no. 3 (2013): 299–312.

paradoxical nature of knowledge, epitomized in the Incarnation of Christ. God became man in a mysterious and paradoxical way that cannot be further elucidated through dissective reasoning. In the union of the human and the divine without confusion and without division, all things hold together: creation and Creator, nature and the supernatural, matter and spirit, visible and invisible, symbol and symbolized, and revealed and hidden. Since Christ is the archetypal man, knowing man ultimately requires knowing through the lens of a Chalcedonian rationality, not a dissective one. As Jesus Christ himself said, "I am the way, and the truth, and the life" (John 14:6). Truth is not an abstract concept that is revealed through the method of dissection, but rather is an embodied, enfleshed divine-human person whose true identity was revealed through Christ's death and resurrection and the breaking of bread on the road to Emmaus (Luke 24:13-35). Truth is personal and inherently mysterious.

Any attempt to define humanity in general or a human person in particular is to exercise the anatomical rationality via the *anatomia entis*, that is, subjecting the human to exhaustive dissection and conceptualization resulting in the elimination of man. Jean-Luc Marion argues that the objectification of man leads to the abolition of man:

> The abolition of man begins with his objectification, which itself consists in being able (believing oneself able) to define him without admitting the *who* within him. Defining man by a concept does not always or immediately lead to killing him, but it does fill the first condition required to have done with all that which (all of he [emphasis] who, *quis*, *quisqui*) does *not* fit this definition.[1014]

Marion goes on further to argue that knowing man is a paradox. The very act of defining man is to lose man, but to know man is to resist definition: "Man distinguishes himself from all the other beings in that he is defined by his very

[1014] Jean-Luc Marion, *Negative Certainties*, trans. Stephen E. Lewis (Chicago; London: University of Chicago Press, 2015), 27.

resistance to every *definition* – even a definition by finitude. He is distinguished by the fact that he loses his identity if he identifies it – in a word, he loses himself if he finds himself."[1015] Indeed, Marion praises paradox as necessary for knowing man in his fullness: "The paradox does not prohibit the knowledge of phenomena, but on the contrary defines the figure that phenomena must take in order to manifest themselves, when they contradict the conditions that finitude cannot not impose upon them. A way of thinking is measured precisely according to the paradoxes that it endures, and that it calls for."[1016]

As I have already suggested, a way of thinking is a way of being. What is the proper way to think and to be towards other humans? Robert Spaemann provides a helpful approach. He reflects on the mystery that human persons are. Spaemann, like Marion, resists defining personhood based on a collection of properties. Instead, he presupposes that a human being is "someone," not "something," and treats her as such from the start: "there is no graduated transition from a 'something' to 'someone'. It is only because we treat human beings from the start as someone, not as something, that the majority of human beings actually develop the properties that then justify the way we have treated them."[1017] Human persons deserve to be welcomed into the human community, not dissected into properties and predicates. Such a starting point actively resists the dissective gaze of modern medicine and philosophy. Spaemann gives the example of how to be with the severely disabled. While having a mode of existence that differs markedly from the able-bodied, the severely disabled are persons in a full sense because they are human beings with inherent mystery: "Their existence is the acid test of our humanity. [The severely disabled] are human beings, and human

[1015] Ibid., 41.
[1016] Ibid., 207.
[1017] Robert Spaemann, *Persons: The Difference Between "Someone" and "Something,"* trans. Oliver O'Donovan (Oxford; New York: Oxford University Press, 2006), 242.

beings are a kind of creature whose nature it is to 'have', not simply to 'be', its nature. The human being, the being that 'has' its mode of existence, is *ipso facto* a mystery, never merely the sum of its predicates."[1018] Spaemann goes on to make a case for why the severely disabled are needed members of the human community; he argues that they give more to the community than they receive. The meditation is profound and deserves to be quoted in full:

> In fact, however, [the severely disabled] give more than they get. They receive help at the level of sustaining life. But for the hale and hearty portion of mankind giving this help is of fundamental importance. It brings to light the deepest meaning of a community of persons. Love or recognition directed to a human being is not, as we have seen, directed merely to personal properties, though it is the personal properties that allow us to grasp that a person is there. Friendship and erotic love develop mainly in response to the beloved's individual personal properties. A disabled person may lack such properties, and it is by lacking them that they constitute the paradigm for a human community of recognizing selves, rather than simply valuing useful or attractive properties. They evoke the best in human beings; they evoke the true ground of human self-respect. So what they give to humanity in this way by the demands they make upon it is more than what they receive.[1019]

To know the person *qua* human being is to recognize the other as part of the human community and to receive what the person offers as a gift.

But what are the metaphysical dimensions of the mysteriousness of truth and human persons? The answer is the Incarnation of Christ, but this must be fleshed out more concretely. Hans Urs von Balthasar in the first volume of the *Theo-Logic* argues that truth is inherently mysterious because it is a transcendental of being, which is itself mysterious. Being is always more than itself because it participates in God, the giver of being and thus of truth, goodness, and beauty. In this way, no definition can capture the mystery of being because such knowledge of any object – human or otherwise – is inherently creaturely:

[1018] Ibid., 243.
[1019] Ibid., 244.

> Neither goodness nor beauty nor truth is exhausted by any de-finition; the multi-dimensional reality of the transcendentals can never be flattened out by any kind of reduction, and there is no way to capture the mystery either of their existence or of their essence in a formula. Of course, the ultimate ground of the mysterious character inherent in the knowable is disclosed only when we recognize that every possible object of knowledge is creaturely, in other words, that its ultimate truth lies hidden in the mind of the Creator, who alone can speak the eternal name of things.[1020]

Von Balthasar goes on to argue that truth is also relational because it is an unveiling, which presupposes a subject who encounters the unveiling and an object that is being unveiled. Because of truth's relationality, truth is intrinsically ethical in how the subject and object treat one another in a reciprocal exchange of giving and receiving. Otherwise, to force the object into universal categories imposed by the knowing subject is to swallow up the particularity of the object. Dissection via analysis of a living person destroys her, for the truth of the living person requires part of her to remain invisible.[1021] This is the insight of the Incarnation. To know Christ as the God-man is to "see" the invisible *through* the visible.

Perhaps the key to overcoming the anatomical rationality does not rest in "seeing" at all. Perhaps it rests on another sense: hearing. Hearing requires a greater receptivity than what seeing demands, thereby ceding control. In *Sense and Sensibilia*, Aristotle makes the stunning claim that, while sight is superior for the primary needs of life, the sense of hearing is superior for developing thought and growth of intelligence because it requires listening for the symbolic sounds of language.[1022] Listening is a practice of pure openness toward the other and thus does justice to the truth of the other.[1023] To maintain the wholeness and integrity of the other, perhaps we must begin with listening to the Word of God, the *Logos* of God,

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[1020] Hans Urs von Balthasar, *Theo-Logic: Theological Logical Theory, Vol. 1: Truth of the World*, trans. Adrian J. Walker (San Francisco: Ignatius Press, 2001), 17.
[1021] Ibid., 37–38, 81–82, 118.
[1022] Aristotle, *Sense and Sensibilia* 1, 437a1-15.
[1023] Balthasar, *Theo-Logic*, 113.

the divine speech who became man to dwell among us. Listening makes possible a reciprocal exchange of *dialogue* with the other, which is literally *dia-logos*, through the *Logos.* Only then can we better listen to the truth of the other, thereby growing in knowledge of the other, as we are already known (cf. Gal. 4:9).

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