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Enigmas of Science and Wisdom from Plato to Derrida

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The 2000 Winifred E. Weter Faculty Award Lecture

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Scientia et Sapientia:

Enigmas of Science and Wisdom from Plato to Derrida

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Weter Faculty Award for Meritorious Scholarship Lecture
Seattle Pacific University
Seattle, Washington
April 13, 2000

For James H. Crichton

Profoundest thanks also to:

All the students in USCH 4910 since its beginning in 1996
All the students ever in ENG 4685
Cogitans, and especially Suzanne Lazicki, for bearing with drafts

Science exists only to the extent to which there lives a passion for its beauty, a beauty believed to be universal and eternal.

-- Michael Polanyi

If, instead of looking at Christianity from the point of view of this scientific world, we look at the scientific world from the point of view of the Christian revelation, we can see that the validity of the inductive method is both real and limited.

-- Lesslie Newbigin

There is a "taste in universes...."

-- C. S. Lewis

The Problem and the Challenge

All of us in this room tonight wish to understand the current situation of the Western church, conditioned as it has been by three centuries in a culture dominated by science, and beleaguered also by several centuries of the cultural "scientism" that misunderstands and inflates the nature of science – misunderstandings about which any member of our science faculty would be happy to enlighten us. Given the legacy of bitter and divisive warfare between science and religion which began during the Copernican Revolution, the task of understanding ourselves anew, as Newbigin and others urge us to do,[1] within a longer historical view and a widening cross-cultural context, is surely basic to the Scholarship of Wisdom we seek to nurture at Seattle Pacific University. Tonight, my contribution to that endeavor will be in the form of a kind of Lenten meditation on the meanings of the words science and wisdom in Western history.

Together, we will take a journey through successive cultures in the West, in order to contemplate the robust nature of intellectual and spiritual inquiry among the Greeks, Romans, and later medieval Europeans prior to the scientific revolution. We will focus

together on radical shifts of meaning which occurred with these terms in the course of the Copernican Revolution, and the new meanings which became standard in the Enlightenment, meanings whose underlying oppositions have marked the intellectual and cultural formation of everyone in this room. Finally, we will consider together the "second" scientific revolution: the revolution within science itself and throughout the world of thought that has been achieved during the past 100 years. This revolution, as brilliant as the first one, represents a turn in the West, or perhaps a re-turn, which could contribute substantially to the self-opening of Western Christians and Western culture to the mutuality of dialogue and growth both within and across cultural boundaries.

To anticipate myself, and to describe this turn in one sentence, in a phrasing that is descriptive of fields as diverse as physics, linguistics, and psychology, let us call it the recourse to alternative models, but a recourse taken not on the level of the given evidence, but on an underlying level of deep structure which organizes and constitutes the evidence. The theoretical brilliance with which twentieth-century disciplines have discovered and developed this resource amounts to the epistemological dismantling of the fortress mentality of Modernity. I believe it will prove the essential intellectual contribution of the twentieth century to the history of thought. This progress in theoretical understanding has also made the insights and intellectual resources of the premodern West, and of other cultures and traditions, freshly available and relevant to us today, as Umberto Eco, for example, has pointed out.[2] Rich worlds are opening to us in our post-Modern setting, and dynamic re-integrations will be possible for the new generation we teach, and for all of us who seek nourishing and deeply integrative Christian worldviews to inform our lives of inquiry and service.

Before we begin our journey, let me say that as a teacher and scholar, I am wholly fascinated by the succession of cultures and worldviews in Western history. You could say that I am obsessed with them, as semiotic systems of great beauty and cogency -- and especially I am enthralled by how profoundly different each world is, and by the enormous effort of the historical imagination we must make when we seek to enter a worldview and grasp it as a whole, to dwell within it. In my graduate work as a Renaissance and Seventeenth-Century scholar, it was important for me to have knowledge of the classical languages, literatures, and philosophy that so deeply affected the poets and writers of my period. At the same time, my period was also the hinge between the medieval world and the modern, and one had constantly to bear that in mind. Finally, I was privileged to find in my doctoral program, courses and teachers who shared my passionate interest in linguistics, whereby I was trained in semiotics, structuralism, and poststructuralism. Without the richly paradoxical discourses and the meticulous methodology of poststructuralism, I could not have hoped to engage the aspects of medieval and Renaissance civilization that intrigued me as a scholar and nourished me as a Christian.

In these latter disciplines and in the theoretical transformations of physics and many other fields of study, I see a way of access to a forgotten wisdom. It is a wisdom that may be new to Modernity, but it abides very near to many other peoples. It could help restore us to our common humanity and our fundamental kinship with pre-technological peoples and ways of life, and with our own roots in the premodern past. True, I think we all may need some time . . . time to catch up, as a culture, with the compelling thought-work of the past century, and especially time to re-orient ourselves

away from the devastating wars of survival that have raged back and forth amongst us in the names of science and of faith. But there is now an intensely exciting and encouraging new space opening for thought and spirituality, for cutting-edge dialogue and exchange between inquirers in the sciences and in theology and in the many human disciplines too long in the shadow of positivism. This contemporary setting of upheaval and transition from Modern to postmodern can be "a city to dwell in" for us all, and especially, it has proved so for me -- as a person who has found in the cosmos of Saint Augustine or in the cosmos of Aristotle, or Aquinas, as in the Hebraic cosmos of the Holy Scriptures, a world in which I can be deeply at home, as I could not be at home in the dismissively rationalistic world of scientific naturalism I grew up in during the 1950s.

The Greek Cosmos, Science, and Wisdom:

There is only one place for me to start, in speaking of the thought-world of the Greeks. My students already know where that is. We begin with the Flux Diagram – a diagram I inherited many years ago as a graduate student from James Craig LaDrière at Harvard University. The diagram is not a map of geographical or physical locations; it is a map of Greek ontology, of what is -- and therefore of what can be studied "scientifically." The Greek word we translate as "science" was episteme, and for the Greeks an episteme was any formal, theoretical discipline, addressed by definition only to a subject matter possessing sufficient intelligible organization to provide a basis for such study. Accordingly, the Greeks took the common name for the subject matter and added an -ike or later a -logy to that root, to indicate the science that studied that kind of thing. Thus "biology" means the –logy or "study" of bios: "life" or "living entities." Mathemat-ike, "mathematics," was the Greek –ike of numbers. When the epistemes

themselves in their formal organization were taken as the object of study and the nature of episteme as episteme was being considered (the ike of ikes or the -logy of logies, so to speak), then one was engaging in "epistemology," the study of formal knowing per se. As you will see on the Flux Diagram, the various Greek epistemes are represented by little tree structures, because taxonomy and classification were such important parts of Greek disciplines (as in Aristotle's work in biology).

[Flux Diagram]

The Flux Diagram begins with "the Flux": the curvy lines at the bottom of the map represent empirical existence, into which human beings are born as into an ever-flowing stream of unstable and shifting temporal and material conditions. According to the Greeks, some of us never lift our heads above this river of empirical and sensory existence, in order to observe any of its intelligibility, but instead we spend our days hectically submerged within it, leading the lives typical of slaves, of the very young, and, for the most part, of women, since all of these kinds of people worked away at the repetitive physical tasks necessary to sustain species life.[3] Unlike we Moderns, Greek thinkers never consented to consider this empirical world as the real, except in a limited sense, and they emphatically did not regard matter per se as capable of being the object of scientific study.

The real objects of the sciences could not be identified simply with what is materially and temporally manifest in the empirical world, because the early Greek philosophers observed that so much of what surrounds us in the sensory world, both the "stuff" or material itself and the events, is demonstrably haphazard, accidental, or contingent: it does not possess that vital dimension of intrinsic coherence which would

make it the basis for a field of scientific study and formulation. When the Greeks looked, therefore, at what was intelligibly structured in the world around them, they saw that while all physical things change, each kind of thing retains its identity, for the human observer, as a certain intelligible structure throughout all of its dynamic unfoldings and in spite of any contingencies that may befall it. A shattered olive tree, stunted by lightning, while it is a physical part of the empirical world, does not possess, as an object of formalization, the dimension of intrinsic intelligibility and dynamic internal cogency which is certainly exhibited by the olive tree itself, taken as a species of plant life and located formally within its genus and its higher taxonomical classifications.

At the time of Plato and Aristotle, therefore, the Athenian "Greek on the street" assumed that the various sciences differed from one another in terms of the degrees of formal regularity observable in their objects of study. The numerical sciences such as mathematics and geometry, but also astronomy and music, displayed higher degrees of "necessity" than the verbal and human sciences such as history, rhetoric, or political theory. However, all of these sciences possessed a strong theoretical component; hence, they were all legitimate and valued epistemes. In the case of other disciplines, ones that involved larger elements of application than of theory, these were usually called technes, and the term episteme reserved for the theoretical disciplines. Even here, however, the applied disciplines, from medicine to shoemaking, were regarded as legitimate and valuable ways of knowing, involving formalizations appropriate to the subject matters they concerned.

Of the theoretical disciplines, the highest of all was philosophia, and it was not even designated by an "ike" ending, but by the addition of "love" to the root sophia,

"truth," or "Wisdom." What was philo-sophia, but the ardent love and pursuit of truth, or of the "wisdom" that the contemplation of truth infuses. And among the various branches of philosophy, the arche or pre-eminent one was metaphysics, called "First Philosophy" by Aristotle because it was the study of first principles, the formalization of the essential nature of the Really Real, and it included, of course, scientific considerations of the divine realm beyond the moon, the celestial heavens and their perfectly balanced and harmonious substance, ether, which caused each great sphere to assume the formal motion of a circle, the most numerically proportionate and symmetrically beautiful of all geometric forms. (Appropriately, therefore, the term "rational" derives from ratio.)

So, the Greek sciences looked to understand the formal principles that constituted the underlying natures of various kinds of things: to understand the intelligibility of intelligible things by observation and discussion and analysis. And they did so with constant reference to geometry and mathematics, for they held with the Pythagoreans that the entire universe was composed of numbers -- and not just any numbers, but the most "musical" of numbers, the beautifully proportioned and harmonious ratios of prime integers.[4] Whenever the Greeks looked up -- from the earth on which they dwelt, querulously and garrulously in their city-states -- into the heavens that circled ceaselessly above them, at those celestial spheres and the glowing stars fixed in them, they observed with awe and wonder the most perfect exemplifications of the Really Real, in its ethereal substance, as that substance actualized itself fully in the perfectly harmonious circular motions of the stars and the sun and the other heavenly bodies.[5]

For the Greeks, as for the medieval Christians who would inherit this from them, the divine realm beyond the moon was separated from the mundane world below the

moon, as perfection is separated from that which falls short of perfection. Nonetheless, there was no division in the awakened mind's ardent search for the intelligibility of the intelligible, as it was observable both in the transcendent reality of the celestial heavens and, at the same time, immanent, in some way or another, in the mundane world below the moon. (My equivocation here -- "in some way or another" -- accedes to the rather dramatic differences between Plato and Aristotle, but it is important to remember that their differences worked themselves out within a context of larger ontological agreement.)

As the various classical Greek sciences developed, then, under the banner of the famous dictum, "from mythos to logos," the historians and philosophers of Athens sought to engage and formulate the "logos" of each subject matter by formulating the logikoi of that discipline: that is, the "what-could-be-said-about" that kind of thing. The logikoi then would constitute the emerging body of each science and their "logic" would determine the "logic" of the science, its discovery procedures, its methodology, and its conclusions.[6] I particularly wish to emphasize again the disciplinary pluralism inherent in this Greek pursuit of knowledge – the assumption that the sciences would differ from one another according to the formal natures of their objects of inquiry. It was no disservice to an esteemed science such as historia, for example, that it sought the intelligible principles that could be grasped by assembling in narrative succession the persons and events in the lives of peoples and cities, even though such principles would not admit of the high degree of formal necessity and precision of application that attached to a more highly axiomatic discipline such as geometry.

In fact, the "rationality" and "logic" of a given science, its formal and theoretical dynamic as a discipline, were taken so pluralistically by the Greeks that it was understood that the practitioners of each Greek science would operate heuristically and demonstrably in ways determined by their experience with the logos of that science, as they worked out analytically the logikoi of that field of inquiry. The guilds would think rationally in different manners appropriate to their subject matters, and so they would constitute and construe evidence -- and the validity of evidence -- differently from one another. In so doing, all the Greek sciences would be animated by the keen spirit of critical inquiry we rightly associate with classical Athens. Yet it was also a multi-layered and multi-dimensional rationality, a broad and flexible set of rationalities. And, not least, it was always a rationality inseparable from a passionate devotion to the significance of the intelligible, both as the metaphysical substance of the Real, and as the mediative structure of its intelligibility to the humans beings who dwelt in the cosmos and sought, from within their human communities, to know and contemplate its order.

For the Greeks, always, the search for knowledge was provoked by the powerful emotion called wonder, which Aristotle pointed out in his Metaphysics as the origin of all philosophy -- that is, the origin of all science -- because wonder is the only entirely appropriate, natural, and spontaneous human response to the largeness and mystery of the greater-than-we which surrounds us and of which we are a part. Above all, wonder (and ultimately the contemplative adoration toward which the sciences led the human mind) is the only appropriate response to the glimpses of the intelligibility of the cosmos, which manifests itself in all things, including human nature. The Greek word for the structuring principles of nature was phusis – and we derive the word "physics" from the

root of phusis and the ike which indicates it is a formal field of study: phus-ike. And phusis, or "nature," was fascinatingly graspable in human nature, too, as Aristotle assumed when he argued that poietike is more scientific (more philosophical) even than history, because it replicates the formal structure of a part of human nature in the medium of rhythm, song, and word which constituted the great Greek tragedies written and staged for contemplation by the Athenian public every year in an event of crucial importance in the civic life of Athens.[7]

As the Greeks dwelt together in their settlements and their city-states, then, in the characteristically Greek associations that as early as Homer (and before) exhibited the features we call the polis, these were the conditioning factors of Athenian thought. The buildings humans build -- the word polis originally referred to the structures of habitation humans erected for themselves to dwell in -- provided places in which civic life comes into being, a richly differentiated human world including arts and letters and sciences, and in this civic world dwell living creatures whose communal culture is a special dimension of individuation for each participant. Within this "sheltering," citizens of the polis undergo a formation that constitutes a new freedom and "is" (internalized as) their identity as citizens – as it is constituted out of their interactions with one another, the speakings together and proposals of actions and modifications of proposals and re-evaluation of past actions and speeches which is the communal memory and "space of appearance" opened between them.[8] That a rich form of human identity and freedom, that genuine human individuality, is conferred only by the contingencies of this interdependence between the particular participants in this dwelling together and this speaking together and this knowing together – and that all of this takes place "beneath the

starry vault of the heavens" and at "rest" upon the firm surface of the earth which grounds this sheltering of human lives[9] -- that these are the conditioning factors of all Greek thought has been impressed deeply upon me by pondering the work of twentieth-century Aristotle scholars Hannah Arendt and Martin Heidegger, and through the writings of the interpreter of Heidegger and Husserl in France, the recently-deceased Jewish theist, Emmanuel Levinas. The immense importance of these contexts for Greek science and intellectual inquiry will become even more evident later in our journey.[10]

Let me dwell for one moment on the Greek word, logos. Logos, because it means "word," can also mean "speech," the discussing of definitions and propositions, and it can be translated as "idea," in the sense that we often say that words convey ideas, even as it means "the speaking of an idea," in the sense that words are words. Speakings "formulate" knowledge in the same way that mathematical formulas do; they render it graspable and negotiable within the guild or polis for further learning and application. Therefore, words, because they do convey formulations, are the mediators of human knowledge -- and they are themselves the mediations, containing as they do within their very structure the intelligibility of the ideas exchanged between humans in their common worlds, as well as the deep structures that sustain and organize those ideas. Human languages, like human theoretic disciplines, are double-leveled structures. While Aristotle achieved a proto-structuralist account of this double-structure in the Poetics, these complexities in the constitution and function of words remain for the most part implicit rather than explicit in Greek philosophy. They help to explain, however, why the immanence-transcendence problematic is so rich in these philosophical texts. It is not for

nothing that the Gospel of John will apply this term logos to Christ as the Light of God coming into the world, making intelligible the intelligibility of human darkness.

If we always remember that the Greeks located intellectual inquiry within the civic life of the polis, as the natural activity of humans seeking to satisfy their innate curiosity, wonder, and desire for participation in the really real, then we begin to see the rich ramifications of the use of the word logos to refer to the formal coherence of an intellectual discipline, and the use of the derived term logikoi, or the things-which-can-be-said, to designate the tenets of a discipline.[11] Even when the science was most purely theoretical, rather than applied, I want to insist that the knowledge Greek science offered was knowledge as graspable by humans and for humans, who remained, along with their knowledge, humanly located beneath the heavens, upon the firm earth, and dwelling together in their specific civic worlds.

We have looked at Greek "science"; now we need to look more specifically at Greek "wisdom." The Greeks recognized two "wisdoms," a greater and a lesser, and both were incomparably esteemed by the early critical thinkers of Greece. The first wisdom was of course the sophia we have mentioned already: the wisdom the philosopher loves and pursues and ultimately desires to participate in through contemplation. This is what we might call the "cosmic" wisdom of the Greeks, and it was certainly the object of their metaphysics. Aquinas succinctly observed that metaphysics was the "theology" of the Greeks, and long before it became the cornerstone of medieval Christian thought and worship, the immanence and transcendence of this indwelling source and substance of all intelligibility was a well-established problematic in Greek philosophy. This cosmic wisdom of ancient Greece comes down to us today

through the Eastern Orthodox Church in the iconography of Hagia Sophia, or Holy Wisdom, who is this ancient cosmic wisdom depicted as a woman, because in the scriptures the cosmic wisdom of Proverbs 8 (she who "calleth from the housetops") is a woman. Hagia Sophia is that biblical "wisdom" who "played before the throne of God before the foundation of the world," and "in whom is God's pleasure"; she it is who "delights in the habitations of the sons of men." In the medieval tradition, as we shall see shortly, this cosmic wisdom is also identified with Christ, as the indwelling word or substance of the cosmos ("by whom the world was made"), and Christ himself will be depicted as the Music of that cosmic vibrancy "in whom we live and move and have our being," the Person whose dynamic formal indwelling is what holds everything in the universe together in its intrinsic constitution.

The second Greek term frequently translated as wisdom is phronesis. Phronesis was the "practical wisdom" so dearly beloved by Aristotle (and later on, by Aquinas and Dante). This was the "prudential" wisdom that accommodated formal truth to the complexities of the human situation in the mundane world. Accordingly, this wisdom is an aspect of personal agency, a skill: it is the human virtue demonstrated whenever one uses skill and insight in the application of principles to the specific, always ambiguous contingencies of personal and civic life.

Phronesis was thought to be a characteristic of the kinds of persons educated and developed and cultivated in the shelter of leisure, the leisure to undertake education. Our modern word "school" is related to the Greek root in the name of Hector, whose shield held back the Greeks from Troy: schooling was something possible only when the battering forces of biological necessity could be "held back" and a place of leisure

created, in which some at least in Athenian society could engage in this work and action of human persons in the dimension of their plurality.[12]

These persons, the citizens of the polis, ideally would learn to ponder and negotiate the contradictions between the various ways of knowing and the various competing "goods" any polis has always in view. They would use their cultivation, as Thucydides portrayed Pericles as saying in his oration to the citizens of Athens,[13] to develop their contributions to decision-making not out of self-interest only, but in terms of many competing goals, and they would above all use thought, balance, and discretion in applying knowledge to the exigencies of the current situation. As everywhere in Greek thought, so too here in the science of human character, the good was thought to be a matter of harmony and proportion among a number of complicated elements. In the sciences of ethics and politics, as in the other Greek disciplines and endeavors, an active sense of the pluralism of the ways of knowing and the emphatic location of every human endeavor beneath the heavens, within the specifically human and communal polis-world, were vigorously evident in this robust early era of Western thought.

Roman Translations of Greek Philosophical Terms

In the liberal education of its citizens, the Roman civilization relied much upon the Greeks. As Roman schools of Greek philosophy translated Greek treatises into Latin, the term techne was rendered by the term ars, and episteme became scientia. These translations of course have given rise to our terminology of "the arts and sciences." The Seven Liberal Arts of the late Roman (and later medieval Christian) curriculum demonstrated the Greek influence: it was constituted by three verbal arts -- the "Trivium" or "three ways" of knowing -- ars grammatica, ars rhetorica, and ars logica,

followed in due course by the higher numerical sciences: geometry, arithmetic, music, and astronomy.

In terms of sophia, or cosmic wisdom, the Roman period translated the term as sapientia, and Roman arts and letters introduced the figure of Lady Sapientia, who presided over human affairs along with a number of other Roman personifications of philosophical concepts such as Natura, or Dame Nature as the medievals liked to call her, and Fortuna, the fickle Goddess portrayed in medieval times with her famous "Wheel of Fortune."

The Medieval Period: Sapientia and Scientia

Latin continued, of course, as the language of learning and religion throughout the millennium of medieval civilization, and by the time of the high medieval golden age of the twelfth and thirteenth centuries, associated with Thomas Aquinas and Scholasticism, with chivalry and courtly love, and with the Gothic style of architecture throughout Europe, Lady Sapientia had become far more than an effective Latin figure of speech. While she still presided over the arts and sciences at the rise of the medieval universities, she had become deeply identified with the famous topos of Truth, on her high hill, as the ultimate object of human longing, and also with the Divine Compassion, as seen in the medieval exemplar of God's love for fallen mortals, the Virgin Mary. Most of all, Sapientia was identified with the second person of the Trinity.

As the Christian concept of Sapientia developed in richness, sapience came to be differentiated from, and even opposed to, scientia. It was Saint Augustine, in the fourth century, who first established the tension that remained for the rest of the medieval period, and continued through the Reformation and Counter-Reformation. In brief, for

Augustine, "wisdom" was the knowledge and worship of God; "science" was an inferior knowledge of created things. Here are the comments of Eugene F. Rice Jr., who traces the motivations of Augustine's "invidious comparison" to:

> ...his revolutionary need to confront classical scientia with the radically different idea of Christian sapientia. To say, finally, that man has an innate notion and love of wisdom is to say that the human soul was created in the image of the Trinity and that its inborn sapiential ideas are activated by the rays of divine illumination. For to remember, know and love God is the triple function of the soul, "and this is wisdom." If, on the contrary, men remember, know, and love themselves and creatural goods, they are fools. Let them, then, simply worship God and hold this piety for wisdom. Restated, therefore, in its true meaning ...wisdom is Christ himself, the Word of God, the Second Person of the Trinity and the light of lights "which illuminates every man."
>
> As Word [wisdom] is equated with the Logos, the totality of ideas in the intelligible world. By extension it is identified with the Law and the written Revelation of Scripture. As an image of the Trinity in the soul and an innate idea and love of Wisdom, it is immanent in the soul and is thus the source of human knowledge and wisdom. This is that "certain ineffable and incomprehensible light" by which man participates in Wisdom. For knowledge and love of God is no self-achieved perfection, but a gift of grace. One becomes wise not by any natural light but by an illuminated participation in the divine light. Omnis sapientia a Domino Deo est. It is a gift of the Holy Spirit, desursum descendens, as St. James said, and an illumination through faith to a knowledge and love of God.... Christian wisdom is the only true wisdom. (12-13)

When Aquinas in the thirteenth century re-integrated the entire Augustinian worldview with a new and richer understanding of Aristotelean thought, and Dante instantiated this vast Thomistic plan in the landscapes of his great Christian masterpiece, The Divine Comedy, both still agreed with Augustine that "Christian wisdom is the only true wisdom." But they also believed that the light of natural reason, which after all had been originally the gift of God also, agreed for the most part with Christian revelation, and therefore they proclaimed that in the large area where the two overlapped, the ancients had indeed been led by their various sciences to profound and useful knowledge

and insights, and so could contemporary Christian inquirers. The human sciences were not inimical to the wisdom of faith.

What is most important to note here, however, for my purposes, is the way all of these medieval thinkers assumed that whatever knowledge the human sciences or the Bible provided to humans, it was a knowledge of realities which were nonetheless to an important degree intrinsically inscrutable to the mortal human mind. The issues and questions the pilgrim Dante insistently raises to Virgil on his Lenten journey through hell and purgation -- and to which Virgil brings the manifold illumination of the natural light of reason -- were not to be fully resolved by Virgil, and Virgil knows it. Dante's Virgil has an ultra-mundane awareness: he is no longer a mortal man in an earthly setting, and he knows that the very things he teaches his pupil, through his mastery of the human sciences, have their secret hearts within a greater mystery. Even when the heavenly messenger Beatrice takes over for Virgil and brings Dante beyond this mundane world on his pilgrimage to Grace, Dante is able to sustain the ultimate vision of God at the end of his journey only for an instant before he awakens from his heavenly dream vision and is plunged back down into the earthly realm, where mortals dwell with one another in a mediated communion below the moon.

Bacon, Descartes, and the Rise of Science

One of the most baffling and difficult questions we may ask ourselves about the history of the West is the question of the new tone and attitude that enter the discussion of knowledge and inquiry into truth in the seventeenth century. This is the century of my own training and specialization in English literature, and I vividly remember a master-teacher telling a scholarly conference that the way to teach college students is to set a

question before them, an immensely significant critical question, and to let them know that the question is not solved. The example he had in mind was precisely this one: what was happening in the transition from the medieval Europe of the early sixteenth century to the Age of Reason and the Enlightenment, which were firmly entrenched by the opening of the eighteenth century? How to account for such a cataclysmic shift in assumptions and outlook? The precise nature of those changes? And their consequences? Sometimes I feel that I have spent my entire life as a teacher and scholar on this one problem: struggling and groping to understand and formulate and convey how profound was the deep-structural shift from the way that premodern thinkers dwelt in their cosmos to the way we have learned to live in the universe of the Modern West.

The two primary spokespersons for the bold new way of thinking taking shape in the seventeenth century were Francis Bacon and René Descartes. While they were not the scientists and astronomers (Copernicus, Kepler, Gallileo, and Newton) who worked out the heliocentric solar system, elliptical orbits, and the fundamental laws of motion -- yet they were brilliant natural philosophers, writers, and theorists. Their powerful distillations of the essence of the new methodology and their visions of its enormous potential caught the imagination of Europe and became classic statements of the new rationalism and the new scientific naturalism. In the work of these two advocates for science we see vividly the radical transformations that were occurring in the meaning of the term "science," in its construal as a formal discipline, and in its status vis-à-vis other disciplines, during the scientific revolution.

Both Bacon and Descartes again and again describe the philosophy of nature they advocate as something bold and new. Bacon declares in his Great Instauration that "the

state of knowledge is not prosperous nor greatly advancing, and . . . a way must be opened for the human understanding entirely different from any hitherto known . . . that the mind may exercise over the nature of things the authority which properly belongs to it" (7). Bacon's words here are worthy of meticulous attention. Earlier Western thinkers had looked back to those who preceded them for guidance: Plato and Aristotle, for instance, had carefully sifted the proposals of each of the Presocratic philosophers. The Romans had based their philosophical and theoretical positions in large measure upon the schools and traditions deriving from Greece. In Christian Europe between AD 400 and 1500, every educational and cultural movement assumed that truth was a legacy stored up by the wisest persons of the past and passed down in manuscripts through the centuries. All of these periods had eagerly sought knowledge and truth of various kinds -- I would like to affirm with Aristotle that every human being desires to know -- but the way the human knower was positioned relative to what was to be known was vastly different. This means that the very constitution of the knower as a knower -- what my discipline calls "the subject position" of the human speaker -- was vastly different, as we shall see, from the new position and identity conferred upon the scientific knower in the elegant discourses of Bacon or Descartes.

When Bacon or Descartes urges his novel methods as leading to a powerful new kind of knowledge, three salient features at once emerge. Both writers insist upon a degree of certitude beyond what had been sought in the West prior to the scientific revolution. They desire, in fact, what they call absolute certitude, and a new meaning for the word absolute enters Western history during the Age of Reason, as well as a new meaning for the word universal.[14] Secondly, the certitude of the new knowledge is based

upon the method, and this method works in such a way as to detach the knower from the natural world and invest that knower with a superiority to it undreamt in the thought-worlds of previous Western cultures. Thirdly, the truth which the new method delivers to the mind of the knower displays a definitiveness that radically displaces previous knowledge, rendering old truths "false" in contrast to its own distinct trueness. Here, for the first time in Western intellectual history, dialogue and dialectic are dis-placed as the characteristics of rational inquiry, and binary oppositions replace the previous pluralism of the disciplines.

When Bacon identifies and denounces the Idols of the Tribe, the Marketplace, and the Theatre, he means all previous philosophies and worldviews, along with all of the linguistic concepts and conventions shaping the minds of any speech-community. In fact, the tabula rasa of the seventeenth-century mind is curiously without these prior developmental attributes and furnishings. Descartes tells us in his Meditations how eagerly he has awaited the time when he might undertake the project of disabusing himself of all of the assumptions with which his mind is stocked, in order to see if he might found a new philosophy upon an utterly indubitable foundation. In this way, Descartes becomes the father of Modern rationalism, while Bacon places all his apples in the empiricist basket of induction, based on the massive collection of "natural histories" for which he pleads in his New Organon. The two agree, however, that no human faculty – neither the senses nor the reason -- will lead men to indubitable truth unless they employ the "restraint" and "correction" of their erring tendencies by a new method. The hallmark of this new method is that it delivers straight into the human mind a vision of things that comes from an unconditioned vantage point – from a point in the heavens, so

to speak, situated above and apart from the common civic world of the human community.[15]

That "universal" (in this new sense) and "eternal" formulations, requiring no translations or accommodations for human understanding or application, could be held in the human mind was I believe the most revolutionary aspect of the entire revolutionary transition from medieval to Modern. I cannot emphasize too strongly the originality of the idea that an absolute perspective might be commanded through reason. (This is a new reason: not the epistemology of the Greeks or medievals.) That a single human subject, as an isolate, might grasp within his inward mentality or subjectivity, changeless and universal formulas that are the truth itself, as even God would see it -- this was something that had never been thought before by a Western mind. Prior to this, a truth independent of any relationship and unconditioned by any context was precisely what human beings by definition did not possess -- and they did not seek to possess it. They sought human understanding, by nature conditioned and relational and pluralistic. Even Christian dogma prior to the scientific revolution was an experiential paradoxy of truths held in balance with one another and qualifying and defining one another, not a self-consistent argument. What human knowers longed for was the light to see any part of the light, and to be connected with the intelligible through its human intelligibility. Faith itself, the highest medieval way of knowing, did not deliver to the human mind anything like an absolute formulation of its divine object, or at least not until this period in history.

By the eighteenth century all scientists and Western culture at large believed that the new method automatically levered the human subject from the vagaries of the terrestrial condition into the eternal and universal plane of what was now called truth;

scientific reasoning could place the astronomer on the sun, from whence to lay out the general laws of planetary motions against the ethereal flow of "universal space and time," the eternal unchanging time and space Newton laid out in his Principia as the cosmic graph paper of the new mechanistic universe. If premodern minds had asked, what is the subject matter of this universal truth, they would have been baffled by the triviality of the answer: the physical and material, per se.

Lest you think, however, that I overstate the case for a radical shift in the subject-position and identity of the human subject who knows scientifically in the early Modern era, let me read this description of the cultural project of the seventeenth century by the translator and editor of Descartes' Discourse on Method and his Meditations, F. E. Sutcliffe:

> What characterizes men of the generation of Descartes is above all the will to dominate, to control events, to eliminate chance and the irrational. This attitude is present in every field: the political, the military, the scientific. But how can one control phenomena if one cannot foresee the way in which phenomena will behave? For Machiavelli chance still controlled over half of events, leaving us the control of the remainder. The elimination of chance becomes an indispensable condition of man's supremacy. So in the domination of physics. By identifying matter with spatial extension and by explaining the difference between one thing and another by recourse to the idea of movement communicated once and for all by God in a quantity which was constant, Descartes creates the conditions in which man will be able to foresee. All things are reduced to identity by defining them by the one characteristic attribute which they have in common, namely, extension; strict causality becomes assured by the immutability of God's action in a homogenous world. In this way modern scientific experiment becomes a possibility: the laws which govern the physical world and which will continue to govern it to the end of all time may be discovered and used by man for his own ends. . . . the profound significance of Cartesianism is precisely to give such a definition of the object of physics as to found the possibility of a science of laws reached through experiment. (21-2)

My poststructuralist methodology (which provides a kind of quantum mechanics for the analysis of linguistic interactions) shows that when the object of the discourse of

knowing changes, and the method of knowing changes, the subject-who-knows is re-constituted accordingly, because these entities are mutually self-sustaining.[16] They function as interdependent factors in the total field, the unfolding process of a semiotic situation. Therefore, we perceive here that the subject-position assumed by the Cartesian ego is radically different from the epistemological postures of the premodern knower.[17]

In order to place within the human mind this extraordinary degree of control and predictive power, human inquiry had to be redirected and limited to an object of study capable of exact observation and measurement, matter: the putative new substance of the natural world called matter and characterized by extension, which is quantifiable, and by motion, which could also be measured, as through Gallileo's splendid strategy of the inclined plane. These measurements, as we know, yielded astounding mathematical equations when analyzed, especially via the powerful new Cartesian coordinate system and the calculus. Even the human body suddenly became "that natural part of man characterized by extension" and now the body belonged strictly to the realm of nature, and nature was strictly matter, while the human mind surveyed and ruled the body and nature, and alone among all things, communed with God and eternal truth. Thus the mind of man assumed that "domination over the nature of things which properly belongs to it," just as Bacon had said it could.

Bacon was also prophetically laying out the rules of engagement for the great wars of science and religion when he contradicted the established Aristotelean scheme of the sciences and announced that men live in three kingdoms: the spiritual kingdom, ruled by Sacred Theology, where the salvation of men's souls is in view; the political kingdom, ruled by divinely-installed rulers, where the good of the Commonwealth is in view: and

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the kingdom of nature, ruled by the mind of man, where the manifold benefits accruing to men are in view. Scientific law, now identical with the content of the scientific mind rather than an outworking of divine mind in all things, rules the inert matter of the universe. How different from the divine sophia, beckoning to human devotion and a rational awakening of mortal men, through their wonder and desire to know, but also transcendent beyond all merely human communities, fixed in their finite places upon the earth.

Furthermore, the medieval university had been so named, uni-versity, because it brought the diverse faculties of many ways of knowing together in one place, and not because it attempted a comprehensive "universal" truth, as we tend to assume since the eighteenth century. That latter goal for scholarship was first announced by Bacon, and what he said was that in order to achieve it, the sciences must relinquish their previously independent axiomatic bases. Science as a whole must be reduced to one set of fundamental axioms and must employ one methodology and seek one goal: the goal of unceasing new discoveries to advance the prosperity of the human race. Accordingly, he subordinated the independent science of mathematics to natural philosophy, so that it could lend to the monolithic new science the desired axiomatic precision. At the same time, Bacon removed the honored ancient science of ethics to the limbo of the kingdom of Sacred Theology. With similar dispatch, he transferred the sometimes-courageous discipline of political science to the kingdom of political authority. These were not "liberal" moves, with reference to "the liberal arts."

Perhaps the most significant shift of all, however, the one on the level of the deep-structure of the Western thought-world, was the decisive marking of all previous ways of

knowing with a brand-new binary opposition between knowing based on scientific reasoning and experimental demonstration -- now designated by the new term objectivity -- and the fields with subject matters that could not readily be scrutinized by the scientific method, hence fields which, according to the new binary logic, were not even strictly rational. Right here, with Bacon, the deep-structure oppositions that would mark all the subsequent discourses of Modernity began.

I would like to focus for yet a little longer on the momentous time in Western history in which Bacon and Descartes examined the processes of human cognition in order to determine how one might achieve the truth of a universal and absolute vantage point, an Archimedean subject-position from which one could size up the earth from a standpoint of transcendence, outside of the prejudices and ignorance that condition knowing for the remainder of the human community. It seems to me that part of the impatience exhibited by Bacon or Descartes and others in the early Modern period with the traditional limitations of the human condition, even their tone of scorn adopted when referring to its situatedness and particularity, must have arisen from the shock waves following the demonstration that all previous human observations of celestial motion were misguided in their larger account of the phenomena.

For more than four thousand years Babylonian and Egyptian and European astronomers had made careful observations of the heavenly bodies, and they had all concluded that the heavens circled the earth, because it looks that way to us, resting as we do in our human cities here on the firm surface of the earth. The theory accorded with all of the evidence, even if circles within circles had to be added to account for planetary wobblings. Ironically, Kepler's recognition of elliptical orbits grew out of a fascination

with ideal neo-Pythagorean forms, and his heliocentric system failed to predict celestial movements as well as the Ptolemaic system, refined over thousands of years of observation.

John Donne was not reacting in 1612 to the relatively simple displacement of the earth from the center of the universe when he wrote his elegy on the death of cosmic wisdom called The Anatomy of the World – this displacement was after all merely a matter of physical geography. Donne was reacting in horror to a metaphysical displacement registered everywhere in the Europe of his time: the heresy that the starry heavens were not made of a better substance than earth and not immune to change and imperfection. Similarly, John Milton treats the gigantic controversy over the solar system quite playfully in Book 8 of Paradise Lost. But Milton did not treat playfully the way in which man lost paradise, a place he represents as an ontological display of the presence of divine intelligence and love, mediated to Adam and Eve through an utterly transparent medieval cosmos all around them. When at the end of the poem they leave this paradise and walk out onto the darkened plain of human history, it is the cosmic presence of Christ which they have lost, and this is the tragedy of Milton's account of the beginnings of the early-Modern journey. In metaphysical terms, the terms these writers experienced most intimately, the rise of science was putting man for the first time at the center of the universe, by re-locating the human mind to an Archimedean point outside the earth from which a God's-eye view could be taken, and in the process displacing genuine immanent-transcendence from the universe. The cosmic wisdom of the ancient Greeks and medieval Christians, after all, was not just an idea: it was an experience that connected them with the cosmos through wonder and contemplation.

Here is John Donne, in the haunting elegy he published in 1612, in which he takes stock of the death of sophia, with more than a nod to his old rival and kinsman, Francis Bacon:

> Shee, shee is dead; shee's dead; when thou knowst this,
> Thou knowst how poore a trifling thing man is.
> And learnst thus much by our Anatomee,
> The heart being perish'd, no part can be free.
> . . . . . .
> And new Philosophy cals all in doubt,
> The element of fire is quite put out;
> The Sunne is lost, and th'earth, and no mans wit
> Can well direct him, where to look for it.
> And freely men confesse, that this world's spent,
> When in the planets, and the Firmament
> They seeke so many new; they see by this
> Is crumbled out againe t'his Atomis.
> 'Tis all in pieces, all cohaerence gone;
> All just supply, and all Relation:
> Prince, Subject, Father, Sonne, are things forgot,
> For every man alone thinkes he hath got
> To be a Phoenix, and that there can be
> None of that kind, of which he is, but hee.
> This is the worlds condition now, and now
> She that should all parts to reunion bow,
> She that hath all Magnetique force alone,
> To draw, and fasten sundred parts in one;
> . . . . . .
> Shee, shee is dead; shee's dead: when thou knowst this,
> Thou knowst how lame a cripple this world is. (183-4, 205-22, 237-8)

When the supernova of 1572 was observed, and then several more in the first decade of the seventeenth century -- or when Gallileo's telescope revealed the flaws and wrinkles and irregularities of heavenly bodies, or even when Kepler was making the seemingly innocuous discovery that the motions of the planets must be in the shape of ellipses -- the entire metaphysical cogency of the premodern world seemed to dissolve in any one of these discoveries. This is why, even after Kepler's calculations, for example, Gallileo simply could not assimilate the idea of circular orbits, for it was incompatible

with theoretical assumptions basic to the European mind. If the heavenly bodies did not move according to the most perfect of motions and forms, this signaled for the first time in Western thought that a universe of brute fact and mere chance, an immoral or at least amoral universe, might be a rational possibility. It was in reaction against this that Christianity in the West followed the same path as science, by proclaiming new degrees of dogmatic certitude, on both Protestant and Catholic sides of the great rift in the Western church.[18]

(The rise of science brought along its own new myths and superstitions, which are still very much alive to the present day in Western education. I was taught in grade school -- and my son came home one day from school and told me that he had just been taught this -- that the men who sailed with Christopher Columbus into the New World were afraid that the ship would fall off the end of the earth. It doesn't matter that this legend is against all evidence. It doesn't matter that every church in Europe for a millennium before 1492 had depicted Christ the Pantokrater holding in his hands the round globe that was the entire cosmos, with the little marble of the earth in its interior (or even the baby Jesus on the lap of Mary, holding the world in his much littler, infant hands like a small golden ball). It is very difficult to see where this Modern legend could have originated, except in the desire of the Modern centuries to believe Western man had come of age, that we had ushered in the age of scientific truth and had brought an end to previous ages of mere superstition and credulity. There is also the element of anti-Catholic bigotry here, which certainly colored the progress of the Enlightenment in Protestant countries, so that the entire medieval period and its insights and integrations were the more easily dismissed.)

Bacon died alone and unrecognized in 1626, but forty years after his death, his earnest call for a vast collective endeavor of wise men to collect data for an inductive natural science was answered by the founding of the Royal Society. Thomas Spratt in his history noted that its purpose was to inject a new calm and deliberative wisdom, a grave and considered masculine spirit of objectivity and detachment, into public affairs.[19] The need to distance the public realm from the religious passions of the previous century was apparently clear to the English populace when they recalled the Kings, although Milton saw them as returning to servitude. A new bourgeois republic would arise, to be based upon science and its new concept of public reason. Randy Maddox pointed out, in his Walls Lecture last fall, the significant backlash during the Modern centuries against this elevation of the scientist and this hegemony of the new "objectivity," because it denigrated the traditional wisdom of the common man and the community. In communal life, one might claim a voice in the collective on the basis of common sense, experience, integrity of character, or personal insight. Therefore, the relegation of authority to the highly trained specialist, along with the increasing tendency to treat society as a mass material phenomena rather than in its dimension as a collectivity of particular persons, tended to set the common person against the scientific guild. No doubt, the inflated scientistic subject-position of the Archimedean point did not help to defuse the situation. The same stance tended to be adopted on all sides, however, as all of these factors played into the deep-seated conflict between science and the Western Church, a conflict that has tended only to stamp them both more deeply in the same cultural mold.[20]

Revolutions in Science and Wisdom in the Twentieth Century

All of us in this room tonight are deeply conditioned by the factors I have attempted to outline. The underlying oppositions that distinguish what we think of as objective and subjective, material and mental, facts and beliefs have structured the entire developmental process of our personal formations within Modern culture. Sympathetic and compelling accounts can be given for the widespread adoption during the Copernican era of these new polarities, and for the fruitfulness of these approaches. Yet it can also be said that once Modernity was well established, the deep splits introduced during the early Modern "critical" era were subjected to little direct critical attention, until the brilliant (re)turn on the level of theory in disciplines across the board during the twentieth century. Michael Polanyi, for example, in his passionate tribute to science, surveyed in exhaustive detail the uncritical nature of these assumptions when applied to the actual workings of the scientific community, and he also demonstrated the brilliant turn on the level of theory, in his mid-twentieth-century classic, Personal Knowledge: Towards a Post-Critical Philosophy.

While Polanyi's work in the history and philosophy of science is compelling reading, yet the dichotomies he abrogates are so deeply inscribed within our collective and individual thought-worlds that it is always difficult to re-imagine how to step back and re-engage familiar data with any alternative deep-structure model. Yet this is precisely what has emerged in the disciplines across the board in the twentieth century. Einstein's Special Theory of Relativity is a splendid case in point -- an alternative account of the old data on the level of a new underlying field theory -- and so are the gloriously contradictory models now embraced in quantum mechanics. Continental

structuralism introduced rigorous methodologies in the human sciences by applying new holistic models based on semiotic theory and linguistics, as did gestalt theory in psychology and perception, and many other field-theories and deep-structure theories produced new ways of interpreting history, economics, and the human subconscious early in the last century.

At present, we have cogent and dynamic new vocabularies and methodologies for mediating the space between such intractable dilemmas of Modernity as environment versus heredity, determinism versus freedom, or realism versus anti-realism. These deadlocks in Modernism, like the contradictions in quantum mechanics between wave and particle models, have been negotiated by recourse to field-theories wherein the entities in question are re-constituted within a dynamics of exchange, as the products and producers of that exchange simultaneously, and it is an exchange wherein all entities including the observers are (always already) the provisional products of ongoing, undetermined, mysteriously open and mutually constitutive processes. The isolated and detached mind posited by classical science has been deconstructed by science itself, the humble servant of human truth, and the mathematics of physics now treats the processes of nature as processes in which mind and matter are not separable and from which the observer and indeed the processes of human inquiry itself cannot be detached, or excluded.[21]

We do need time, however, to catch up. In Western education, some of the effects of the Archimedean-point perspective have been particularly unfortunate. At the present time, an educational environment still based largely on the reductive assumptions of the Archimedean point is debilitating to young minds. It is frequently boring, and it is

demeaning. While Bacon, Descartes, and their contemporaries found their project of establishing absolute truth extremely exciting, that was probably mostly because it still needed to be done. Scientists and teachers of science today know that it still needs to be done, and that in the very nature of the case, it cannot be done. Precisely because science is more open-ended and indeterminate than once thought, however, the unanswered questions become even more thrilling and provocative. It is not exciting or provocative for young persons in the West to be schooled in an atmosphere which implies that the truths -- or better, the facts -- they need to know are out there in "the sources," that their personal histories, conversions, families, and communities of origin are irrelevant, that existential questions are not matters to be admitted in public education, and that, above all, in order to survive economically, they must score well on the SATs!

I heartily agree with Mary Catherine Bateson in her beautiful book about education, Peripheral Vision, that the American system is not likely to awaken young persons to their own most driving passions[22] or to connect them deeply with the reality of their situation: that they have only a few short years to ponder the pressing metaphysical and practical questions that confront them, before they will die. We need to admit to them that they are in an incomprehensibly complex and mysterious universe, and that if they are to lead satisfying lives, they must make meaning and significance together with their own generation, in the frighteningly dependent (and individuating) inter-dependence of genuine community.

As we prepare (with) them to be Christians and citizens in a global world, we must try to liberate them a little from the burden of the Archimedean point, and teach them to speak from their histories and their ways of knowing of the meaning to

themselves of the presence of Christ in their lives. Like all of us, together they may assume the humility of a much older subject-position, the biblical stance of the "question-prayer," and work out their deepest Christian convictions in listening to and participating in the on-going human conversation, as it exists at this particular moment in history in which God has placed them. We are all called, in every generation, to understand anew what the Gospel means, for ourselves within our cultural formation, and if we can do this together, then we can testify to that in humble conversation with those who share our specific historical situation.

When the opposed fortresses of science and religion were constructed, one of the greatest casualties was the loss of the cosmic wisdom of an address to the objects of our yearning for knowledge, made from a sense of connectedness with the greater-than-we. Most cultures and peoples have adopted this stance as they dwelt in their communities, aware that there were other human communities, habited upon the firm local grounding of the earth beneath them, and lifting their eyes in wonder to the sky and the earth around them. A spontaneous sense of wonder, a curiosity and reverence in the face of what cannot fully be known, a rooted sense of our location here on earth and beneath the heavens, our kinship with the animal peoples, and our needs for connectedness with the gods – these are the dimensions of our human being keenly felt, historically, by the peoples of the earth. We ally ourselves with them when we assume the subject-position of the psalmist, of Job before the whirlwind, of Augustine crying out to the One he must know because he already knows Him in his deepest heart. This position, the attitude of the "question-prayer" in a phrasing taken from Levinas, is exemplary of the dimensions

of our human identity that were not accommodated in the subject-position of the Archimedean point.

For this reason, as for many others, I welcome the advent of a postmodern West, a West in which these dimensions of our humanity are not relegated to a spurious childhood, vulgar irrationality, or the private sphere. I hope we will shape it into a West in which peoples and cultures having much to teach us about our humanity and about our faith are not viewed as primitive and unenlightened, or as pre-technological areas ripe for Westernization and commercial exploitation. And most difficult of all to negotiate, I hope it will be a West in which we can all talk publicly together about the compelling reasons -- some of them from the new cosmic wisdom in science itself -- to assume the position of wonder, and to seek in the Judaeo-Christian scriptural tradition news of One who reaches out to us in love through the indescribable strangeness of the condition in which we find ourselves, and even joins us in our mortal human journey.

Things are a lot more mysterious, even in nature, than classical Newtonian science ever predicted they would be. And we ourselves are not alien minds detachable from what is around us; we carry the singularity of the cosmic beginnings within us, in our smallest constituent parts, and those parts seem to vibrate to a cosmic music and know an inscription that is bafflingly non-local.[23] We find ourselves to be a complicated mass-energy configuration that required the entire cosmos and all of its history in order to be crafted, and within the cosmos we are cosmically constituted as the-cosmos-looking-back-on-itself. As we look, we cry out our reactions of transcendent spiritual hope and of deep moral outrage. What does this mean? That human beings seek the intelligibility of the intelligible, and react to it with adoring wonder and with close ethical scrutiny?

That we raise the question of the meaning of being? Are we then what Augustine named us: a telling "part of all that is made" that invokes an answer that must be an answer beyond the scope of any humanly intelligible answer? Precisely here, the scriptural God comes to our minds: we invoke You, Lord, You who are already known to us in the very constitution of our being, and yet distant from us in the disorder of our hearts. Science, along with the other disciplines of human knowing, teaches us our humanity, here, on this earth, where the four-fold meets.[24]

In my title, I promised that I would end this lecture with the science and wisdom of Jacques Derrida, the postmodern philosopher par excellence, and so I will. We cannot deny our history. Even as we seek to assume the biblical subject-position of the question-prayer, our formation as Moderns in the stance of the Archimedean point must in large part defeat our efforts. We will not be freed by a new theory from enigma and contradiction, nor move with easy grace from dualism to pluralism. "Now we see through a glass darkly," Paul reminded us in a passage about the pre-eminence of love, and the Greek word there does not mean mirror, but "enigma," whose root means "story." So this glass or enigma, the only way we have to see, turns out to be another face of the logos. "In the beginning was the Logos, and the Logos was God and was with God," and Christ is present and absent at once in our human logoi, in the riddling glimpses that mediate all our knowings and sayings. Only through loving relationships with the other in ourselves and in one another, in experiencing the tolerance and generosity of humans who hear us and criticize us and continue to love us, will we be enabled to assume in any part the stance we seek. Only in recallings of our humanity to the sober awareness of our intractable blindnesses,[25] something dialogue with other communities and views alone

can do for us, will we Western Christians lift our voices joyously with the world-wide church, reciting the words sung by all Lenten pilgrims as they travel together on the age-old way that leads to the foot of the Cross:

> O Lord, ruler of all . . . You made the heavens and the earth, with all their vast array. All things quake with fear at your presence; they tremble because of your power. . . . But in your great goodness, Lord, you have promised foregiveness to sinners. Therefore, we make this prayer toYou.
>
> **For your merciful promise is beyond all measure; it surpasses all that our minds can fathom.**
>
> -- A Song of Penitence, *Kyrie Pantokrator*, Canticle 14

Endnotes

[1] The challenge confronting the contemporary church in North America involves the sorts of longer historical perspectives and broader cultural contextualizations to which Lesslie Newbigin so vigorously calls us. In books such as Foolishness to the Greeks: The Gospel in Western Culture, Newbigin asks what would be involved if we were to confront ourselves, in our own Western culture, with the Gospel. Throughout his life as a cross-cultural missionary in India and elsewhere, Newbigin retained his vision of the day when all the peoples of the earth would meet together at the foot of the Cross of Christ. But Newbigin thought that the Western Christian church too needed to journey there, and could only do so by the difficult self-openings and voluntary relinquishments of genuine conversation with the rest of the global and historical church.

[2] See "Thomistic Methodology and Structuralist Methodology"(216-22) in the Conclusion of The Aesthetics of Thomas Aquinas.

[3] This idea of a life of slavery is in view when Arendt looks at runaway cycles of production and consumption and worries that the modern age is "a society of laborers which is about to be liberated from the fetters of labor, and this society does no longer know of those other higher and more meaningful activities for the sake of which this freedom would deserve to be won" (The Human Condition 5).

[4] Consider the correlation of the numerical ratios constituting the Greek tonal scale with the proportionalities the Greeks thought they observed in the distances of each celestial sphere from one another, and other exemplary proportionalities in the sublunar realm as well (in the golden ratio of the golden rectangle upon which their temples were constructed, or in the golden spiral derived from those rectangles, which we observe today in the shell of the chambered nautilus or in shape of the spiral nebulae).

[5] Heidegger's "four-fold" is in view. A good place to derive a sense of this location of dasein in the world that opens upon the earth where men dwell world-fully below the realm of the gods is the relatively accessible essay "On the Origin of the Work of Art" collected in Essays on Poetry, Language, and Art.

[6] I have phrased this statement about the logikoi so that the word refers back syntactically both to the principles of cogency and to the formulation of the principles of cogency. The fact that this ambiguity, if it is one, which would have worried the critical epistemology of the seventeenth century, does not raise itself as a question for Aristotle is to me a compelling point to notice. I suggest that it shows that Aristotle did not live in a thought-world which supposed that an "absolute" formulation of the Really Real was possible or desirable. Hence, the co-dwelling of logikoi and logos need not be sharpened into an impasse. Human knowing and ways of knowing are precisely that, human ways of knowing what would otherwise remain unknown, except that they excite human wonder and are eagerly made to appear within the common world of the polis. To confuse human formulation and cosmic reality as science did, was hence to draw attention to the problematic relationship between them, whereas such confusion was scarcely thinkable to the Greeks. Human knowing happens both beneath the realm of transcendent truth and in connection with it through the immanence of the logos in the cosmos. Such an incarnational dynamic always exerted its presence and mediated the incipient dualism of the Greek outlook . Note that an incarnational dynamic requires a dualism of a sort along with the mediation and elision of that duality, so that any incarnational mediation such as logos is a thick field of problematic and paradoxy.

[7] See Books 7-9 of Aristotle's Poetics. This text is treated in my web lectures on the history of literary theory, available from my home-page.

[8] Heidegger and Habermas are in view here.

[9] See Levinas, "The Thinking of Being and the Question of the Other," Of God Who Comes to Mind, pp. 111-121.

[10] This is why Aristotle would say that, by nature, man is the political animal, the animal who achieves a richly individuated state of being through the interdependence and mutual reciprocity of civic life. Men delight to form associations and dwell together in a common world, said Aristotle, a world that is much denser than the physical and personal presence together of its members. The human polis has a dimension of plurality Aristotle thus contrasts with the association of animals in a herd that dwells in a natural setting rather than in the artifice of buildings it has made for itself.... The potency of the dwelling place is intriguing, since animals too individuate therein into denser plurality (wolves, primates) and often delight to associate with humans too in their human households (cats, dogs, and many other animal peoples). Note that the word "animal" derives from anima, the Latin word for "soul," and Genesis says that God breathed

souls (animae in Jerome's Vulgate translation) into all the living creatures, as well as into the first human beings. The Modern Western Church could read Genesis more attentively!

[11] We know that later Christian thought would engage deeply the paradoxy of the immanence and transcendence of the Logos, but we in the Anglo-American tradition do not hear as much about how in Greek philosophy the Logos is also a way of naming a principle that is both immanent and transcendent. A complex mediative dialectic may be view such as Heidegger senses in Aristotle. Poststructuralists, on the other hand, do speak compellingly of the metaphysics of logos in the entire Western tradition, whether in its Christian or pre-Christian eras. Yet the tendency here, as seen in Derridean deconstruction, is to engage logocentrism in Modern texts in its transcendent aspect as originary perfection marked by myths of closure, without attending to the paradoxy of immanence/transcendence in premodern texts which always already escapes totalizing reductions in ways which pre-figure the deconstructive critique itself.

[12]See Arendt on plurality

[13] The History of the Peloponnesian War

[14]See OED: the meaning of universal as that which is independent of any relationship to a qualifying factor (and hence needs no "accommodation" to the human condition) emerges only in the modern period. These new meanings of universal and absolute became a defining attribute of truth, so that truth is to be opposed to the contingent instead of to pride or self-deception or emptiness. These new truths of reason were visible only to reason and to the God of reason, but not to the huddled masses, who were becoming increasingly huddled during the population explosion of the eighteenth century. The "wisdom" of the Christian church in the eighteenth century is therefore evidenced in the practical piety of the Wesleyan movement, which left the exemplary realm of the new reason to science and the state, and chose instead to minister to men and women suffering under the working conditions of the newly urbanized and industrialized workforce.

[15] Hannah Arendt concluded that three founding events conditioned the advent of Modern life. One was the invention of the telescope, which delivered to men an instrumental way of achieving an Archimedean point outside the earth from which to see and reason, and the second factor was the loss of the common world as the rooted and situated mediator of human identity and meaning. These factors signal the conditions of "earth-alienation" and the "world-alienation" she describes in The Human Condition. Arendt's third event was the massive uprooting of populations from their traditional dwelling places within the networks of their extended family and community relationships, what she calls the "homelessness" of human existence in the Modern age.

[16] The reader might wish to see a polished account of quantum mechanics in the context of Christian theology: Quantum Theology. See also the writing of John Polkinghorne.

[17] There are many ways we can sympathetically account for this new demand for control and certitude in human knowing. Christendom had been rent apart by the Reformation and Counter-Reformation and the bloody wars of religion and politics that coincided with them. World exploration and the new observations of the heavens had challenged and would collapse the ancient and established picture of the cosmos to which the Christian church had integrated its theology and its visionary hopes for Grace. The family and parish structure of feudal agrarian life had shattered; enormous dislocations of peoples and populations was ushering in the "homelessness" Arendt points to as a major conditioning factor of life for people living in the West during the Modern centuries. Let us not forget the plague, which again ravaged Europe during the sixteenth and seventeenth centuries, or the paranoia over witchcraft that seems to have signaled and registered symptomatically the cataclysmic social and psychological upheaval of the times.

[18]It is well established the Catholic church would not have reacted to Gallileo with such hostility had not the Reformation been underway, for much greater speculative freedom characterized earlier periods of Western church history. Nor would Descartes and Bacon have needed to go to such lengths to carefully and cautiously proclaim that salvation was ruled strictly by sacred theology, and that their new methods were intended merely to promote human material well-being and not to challenge Christian orthodoxy, but for the political and religious upheavals of the times. But the effect was the same in all these cases. The laws of physics would rule in science with a certitude and determinacy that would be claimed as well for religious formulations and authority by Reformation and Counter-Reformation alike. Both papal infallibility and biblical inerrancy are Modern doctrines.

[19] Spratt's History of the Founding of the Royal Society, widely anthologized and reprinted.

[20] A clear discussion of this is Newbigin's analysis of biblical Fundamentalism as an Enlightenment phenomenon in chapter 2 of Foolishness to the Greeks.

[21] See John Haught in the chapter "Do We Belong Here" in Science and Religion: From Conflict to Conversation.

[22] Peripheral Visions explores the nature of the education Bateson received as a child on the field with her anthropologist parents Margaret Mead and George Bateson, and that of her own daughter, similarly raised by Bateson and her anthropologist husband in various cross-cultural contexts – and she contrasts this with the underlying messages of typical American K-12 schooling.

[23] See Bell, Speakable and Unspeakable in Quantum Mechanics.

[24] I would like to do a reading of Heidegger's introduction to Being and Time (which I invoke here), in terms of its manifold Augustinian confessionalism.

[25] This is the project of Jacques Derrida, whose self-critique always already exerts itself within the terms and gestures of his readings of the (not)other. I recommend the Spivak introduction to Of Grammatology, and the work of John Caputo and Merold Westphal as good introductions to Derrida. Also, The Gift of Death is a place to start in reading Derrida. You are warmly invited to consult and respond to the explanations and readings of Derrida in my literary theory web lectures, and my essay on Chesterton's Father Brown and Derrida in The Riddle of Joy: G. K. Chesterton and C. S. Lewis.

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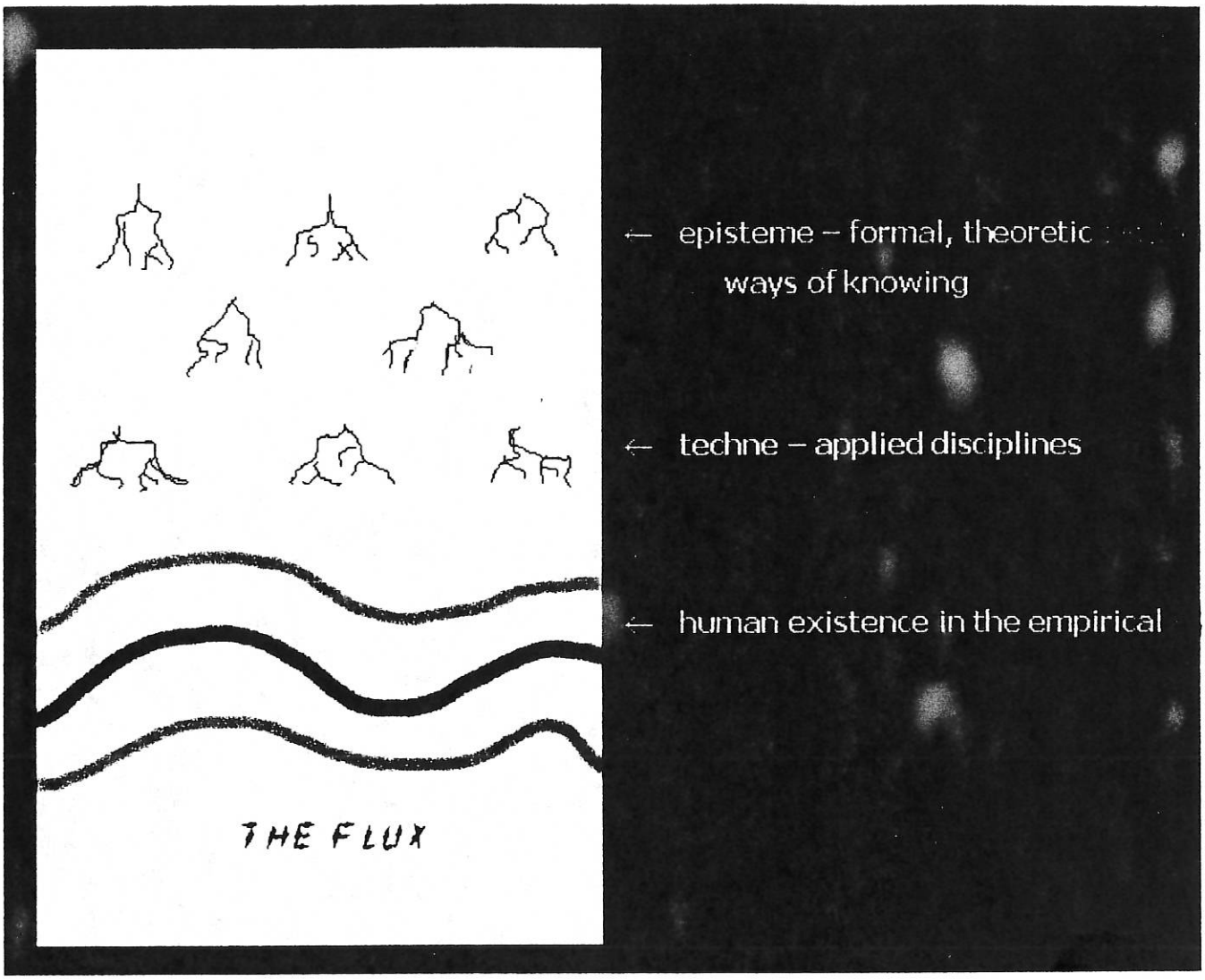
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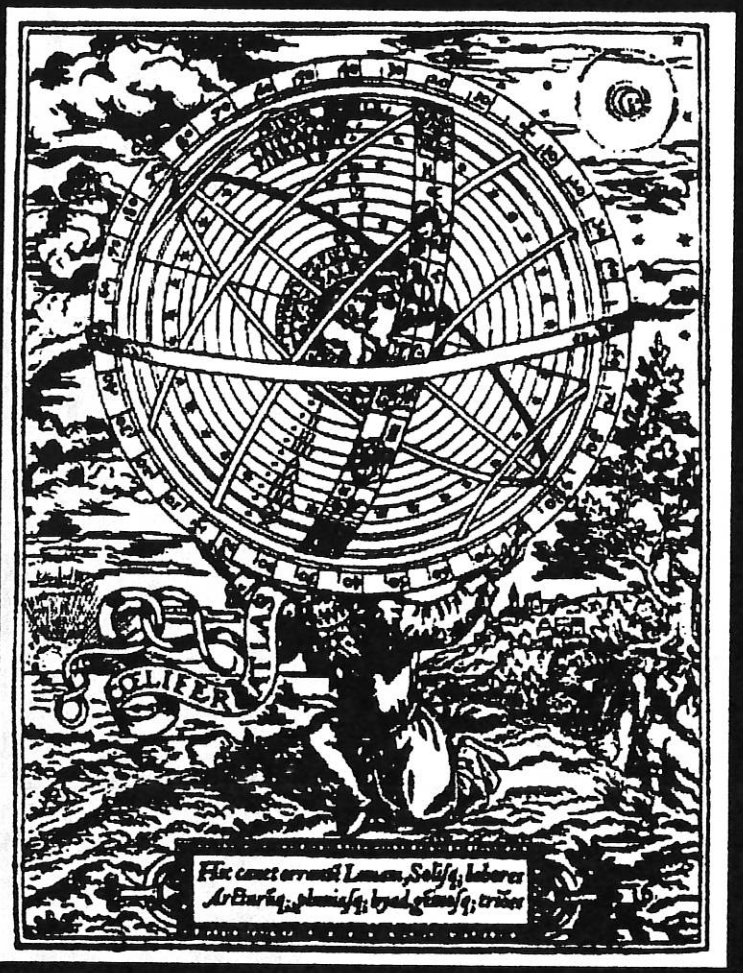
← techne – applied disciplines
← human existence in the empirical
THE FLUX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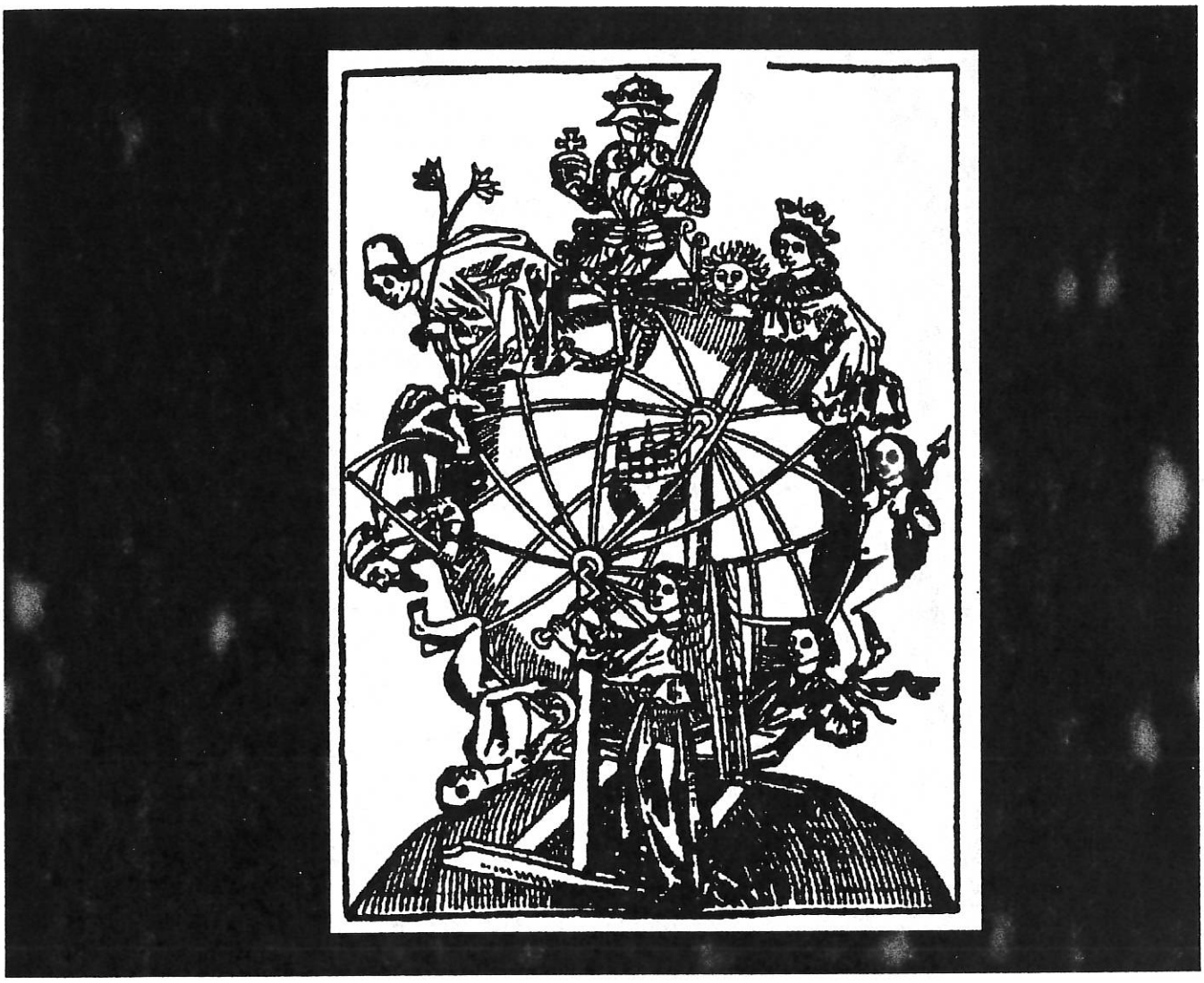


Deus
Celum
Homo
Planta
Sensibile
Ens