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Epistemology of the Cartesian Image

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A thesis submitted in partial fulfillment of the requirements for the degree in Master of Arts

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by

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Abstract:

This study is an examination of the epistemological history of the image. Its first strands are to be found in the Christian concept of profanity, in the difference of the world to the divine. The highest form of intelligibility profanity could have, second only to theology, was mathematics. Derived from the problems surrounding this concept are the techniques of inquiry that eventually resulted in the development of analytic geometry by Descartes. The latter marked a new sensibility regarding the physical universe and its constitution, one that is coterminous with the development of exact procedures in science. Being that exactitude regards the specificity of observed material as paramount, one of the results of the above series of processes was method of reasoning that allowed earthly ephemera, mental and material, to be recorded. The image is but one product of this history.

Keywords: knowledge, mathematics, mechanics, consciousness, perception, Scholastic, Descartes, Boethius, Aquinas, modernity

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Quod vitae sectabor iter? – What way in life shall I follow?

Introduction

It is in the history of theology that current scientific problems may be found in nascent form. Indeed, the specific range of difficulties begins with the definition of the scope and limit of human thought. Nicholas of Cusa sets it out in this way:

> The difference between the divine mind and our own is similar to that between making and seeing. The divine mind creates through thinking, our own imitates through thinking or intellectual vision. The divine mind is creative power, our own is imitative power.[1]

The status of the human activity is defined by this specific limitation on creative power. What man can construct he must do so with his hands; what he may think bears the mark of a specific distance: the quality of an experience without creation. Only God incarnates with His thought the world. Divine thought is the existence which man encounters and defines for himself, as much as he is able.

Descartes provides the following answer. It is, again, set in religious terms: human creative power is not necessarily inconsequential or imitative – the purely human power of thought, arising when the will outstrips the rationality of the understanding,[2] is the creation of *images*.

It is in this way that the most important determination of this crucial element lies in the historical connections demonstrated by a theory of knowledge – by epistemology. For images become the first analytic instance of the attempt to capture knowledge into a temporal and contigent entity. And therefore this is also the foundation of a modern

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[1] Cited in: (124) Shestov, Lev. *Athens and Jerusalem*. Trans. Bernard Martin. Athens: Ohio University Press, 1966. Print.

[2] (114) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

project, one that is given the name "psychology" by later writer, but which stood, in the first place, for the desire to recover experiences of the human past.

Where, as in the medieval period, no concept of the image exists – the ancient concept of the image, *εἶδος*, being inadequate to terms framed above – epistemology responds by constructing a situation of intelligibility, drawing together such moments that anticipate its genesis. The major portion of this study will therefore concern itself precisely with this effort. The philosophical investigation therefore commences with, in chapter one, an examination of the mode of knowledge and the tradition of thought that Descartes had available to him. This was the Aristotelian, Scholastic tradition. The latter's focus on the determining the essential qualities of existence or being meant that, in the tradition of the Christian West, there could be no history of individual thought, and no device for recording it. Knowledge reflected existing truth, and the half-finished and insufficient efforts made towards capturing it were to be discounted. This general attitude towards intellectual labour determined not so much the validity of the various and sometimes conflicting judgments found in various texts, but, rather and instead, defined what was considered valuable enough to write down, to record for posterity, and in what form. Evident in the Cartesian writings is a nearly total departure of philosophical form from its canonical examples. With the *Discourse* and the *Meditations* philosophy now encompassed a new rhetoric: the first-person narrative and its critique of social conventions and *doxa*, the mathematical equation, the demonstration through experiment, and the proof by observation.

Contemporary scholarship on the history of science also positions the Cartesian moment as a pivotal one. The emphasis within the Cartesian philosophy on the principles

of mathematics was the basis for a general rather than a special knowledge, and itself is one of the first instances of systematization, of an approach totalizing the entire range of what is and what can be known. However, the inherent qualities of mathematics alone cannot account for this development. In its medieval form, the study of mathematics was as rigorously schematized and divided as were all other forms of knowledge. In the schools, mathematics was taught as part of the *artes liberales* in the form of the *quadirivium*. The calculations performed in this art extended to explanations of the movements of celestial bodies, but these results were not used to demonstrate the principles of natural philosophy; rather, such calculations were a means of ethical and spiritual instruction, a way of understanding man's position in the cosmos.

The cosmological structure itself was regarded in the following way. The basic division, taken over from Aristotle, set the termagant sublunary sphere against the larger, stable sphere of the heavens. These represented in turn the kind of knowledge obtainable for inhabitants. For the Christian, those dwelling on the tellurian earth, being among its creatures and objects, have no ability to encounter heavenly phenomena. Proper knowledge reflects this, and all essentially determined qualities – multiplied into the divisions that organized the world into its genera – point upwards to the scene of their permanence, the cyclicity of the heavens. Profane, human life, in having a soul, is partly material and partly divine. This endows it, first, with the capacity to understand something of divinity, the life of angels, and Law; second, this gives human life the inalienable capacity for spiritual upbuilding, the increase of itself from the situation of its birth into the perfection of its role. Such qualities describe in combination the uppermost limit of human endeavour. In this schema, mathematical demonstrations of harmonious

motion were a guide for one seeking to understand the essence of the good life from such materials as were available in confusing matter of profanity. Every item that passes and eventually decays provides the counteraction to the stable, dependable progressions of mathematical deduction, and mathematics itself, through a reference to theology, provides reasons as to why this is the case.

By the twelfth century the *artes mechanicae*, which were composed of a technical literature on such practical topics as agriculture and the artisanal crafts in general, were incorporated into the Scholastic classifications of knowledge.[3] Applied mathematical study in this field was called the *scientia media*.[4] It is the mechanical paradigm that became the basis for the Cartesian philosophy, for in its full form this paradigm became the general "doctrine of the motions of material bodies."[5] This holds, however, only "if one bears in mind that the science called mechanics had emancipated itself in the seventeenth century from its origin in the study of machines, and had developed into an independent branch of mathematical physics dealing with the motion of material objects and finding in the theory of machines one of its numerous applications."[6] Indeed, it is in the seventeenth century that the difference between ancient and classical science emerged as well: "'substantial' thinking, which inquired about the true nature of things, had to be exchanged for 'functional' thinking, which wanted to ascertain the behaviour of things in their interdependence."[7]

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[3] (247-8) White, Lynn Jr. "Cultural Climates and Technological Advance in the Middle Ages". *Medieval Religion and Technology: Collected Essays*. Los Angeles: University of California Press, 1986. 217-54. Print.
[4] (231-4) Weisheipl, James A. "Classification of Sciences in Medieval Thought." *Nature and Motion in the Middle Ages*. Ed. William E. Carroll. Washington, D.C.: Catholic University of America Press, 1985. Print.
[5] (499) Dijksterhuis, E.J. *The Mechanization of the World Picture*. Trans. C. Dikshoorn. Oxford: Clarendon Press, 1961. Print.
[6] (498) Ibid.
[7] (501) Ibid.

"Functional thinking" in the Cartesian schema featured new means for distinguishing the multitude of worldly physical events, and a correlative method for typifying and setting apart mental occurrences as well. The result was the creation of a philosophical outlook able to appreciate and regard the mode of regular, routine happenings and experiences. It defined how one could intervene into such mundane processes directly, through the use of machines, to change as was needed their natural tropism and character to the maximal degree possible. Customary, traditional, and habitual actions were thus no less subject to its scope than purely mechanical, physical processes. Yet all of the above remained delimited by religious sensibility; indeed the entire spectrum of possible interventions was determined by the concept of the profane.

Positioned thusly, bodily material corruption, decay, and profanity all follow a single path, which is the fall back into the most basic – to the collection of elements. Through this definition of the field of matter the mechanical paradigm obtained a new significance. Within it, mathematical relationships now had the role of accounting for all of the precise modes of transformation that matter revealed. This was the foundation of a mode of intelligibility occupying itself with what eventually became fully articulated in the scientific terms as in the need for a criterion of exactitude. One of its conceptual products was the *fact*, and this development is central to chapter two of this work, which concerns how such precision led to the formation of the modern concept of mind, and what effects this had on perception as one of its processes.

This leads, in chapter three, to the congress of all of the above in the central interpretive effort, which will proceed by reframing many of the modern, secular concepts in terms of their religious significance. From this it can be gathered how

religious concepts were the context for the definition and propagation of exact science and mathematics, and how, in fact, the reasons for their parting during the Age of the Enlightenment do not lie in "any conflict or incompatibility between natural philosophy and theology."[8]

[8] (23) Gaukroger, Stephen. *The Emergence of a Scientific Culture: Science and the Shaping of Modernity, 1210-1685*. Oxford: Clarendon Press, 2006. Print.

Chapter 1: Mechanics

1.1

Of the early Christian philosophers, the most influential is Boethius. His position in this regard is unique: he stands at the very end of Roman culture, heir to the ancient Greek tradition and its philosophy, but is also a devout Christian. Lorenzo Valla has therefore praised him with title "last of the Romans, first of the Scholastics."[9] In honour of his influence, Luca Obertello called the period of the Middle Ages the "Boethian Universe."[10] Boethius' translations of Aristotle into Latin constituted the few readings of that kind available in Europe until the twelfth century and the Arabic transmission of Greek texts; those of his works that survived passed on to later schools their basic vocabulary for logic and argumentation.[11] His *De Institutione Arithmetica* was instrumental in systematizing a portion of the liberal arts into the *quadrivium*, a didactic order of progression for mathematical knowledge. Indeed wherever themes of learning are pictured in the iconography and allegorical portraits of the Middle Ages, Boethius is a canonical figure.[12] His scholarly influence must be underscored, for his treatises and

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[9] Cited in: (125) Goris, M. and L.W. Nauta. "The Study of Boethius' *Consolatio* in the Low Countries around 1500". *Northern Humanism in European Context, 1469-1625*. Ed. F. Akkerman et al. Leiden: Brill, 1999. 109-30. Print.

[10] cf. Obertello, Luca. "L'universo boeziano". *Boezio e dintorni: Ricerche sulla cultura altomedievale*. Florence: Nardini Editore, 1989. 41-66. Print. Cited in: (172) Nash-Marshall, Siobhan. "Boethius's Influence on Theology and Metaphysics to *c.*1500". *A Companion to Boethius in the Middle Ages*. Ed. Noel Harold Kaylor Jr. & Philip Edward Phillips. Leiden: Brill, 2012. 163-92. Print.

[11] (172-4) Ibid.

[12] (14,22) Masi, Michael. *Boethian Number Theory*. Amsterdam: Rodopi, 1983. Print.

commentaries were worked with well into the sixteenth century.[13, 14] Even where his name is not mentioned, the organization of knowledge offered in later tracts can be traced to his sensibilities. The subtlety of difference in the progression of topics from the simplest upwards had a moral purpose: learning must take place such that the content of the knowledge obtained would lead, if followed correctly, to knowledge of God.

Consequently, central to the Boethian schema is a determination of categorical status, the key to Boethius' overall cosmology. Status refers to an object's proper station in the created world. All such situations can be set against each other in a universal order of knowledge, each categorical designation being itself universal. This order is called "music" by Boethius. Its study is indicated by the *quadrivium*; stepwise, the disciplines are: arithmetic, music, geometry, and astronomy. The knowledge of one discipline necessarily requires progression the next, just as the highest takes up and expresses all that was articulated in the preceding. In this way musical terminology is given a metaphorical expansion: from arithmetic it acquires "the dimension of harmony"; in geometry it is "extended to plane surfaces and solid figures"; all of these find their "widest applications" in astronomy, defining "the order of the universe and … the supreme model of concord, the music of spheres."[15]

Built along certain mathematical relationships, the musical scale forms only when the numerical intervals between one note and another are precisely defined. The strictness

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[13] (185-8) White, Allison. "Boethius in the Medieval Quadrivium". *Boethius: His Life, Thoughts and Influence*. Ed. Margaret Gibson. Oxford: Basil Blackwell, 1981. 162-205. Print.
[14] (81) Masi, Michael. "The Influence of Boethius' *De Arithmetica* on Late Medieval Mathematics" . *Boethius and the Liberal Arts: A Collection of Essays*. Ed. Michael Masi. Berne: Peter Lang, 1981. 81-96. Print.
[15] (12) Masi, Michael. *Boethian Number Theory*. Amsterdam: Rodopi, 1983. Print.

of this arrangement symbolizes the relationships occurring between all things.[16] Knowledge and maintenance of these relationships is sacred. Therefore, in this understanding of the world, the notion of composition is rightly accorded the highest importance: being itself is understood to be composite in nature. Boethius writes in a commentary on the Trinity that no less than the Being of God Himself must be considered composite as well.[17] Each item of the world thus bears a supreme relationship to all others: "All things obey their ancient law / and all perform their proper tasks; / All things thou holdest in strict bounds."[18] Natural affinities occur throughout this order. They organize its action into tightly-bound series, which form in turn the striae of categorical relationships. For Boethius, what ultimately makes such bonds intelligible is mathematics, or the method of their measurement and ratiocination.

Architectural designs of cathedrals from the following centuries set their dimensions in accordance with the Boethian ratios.[19] In an analysis of the structure and history of Gothic cathedrals, Otto von Simson has reiterated this point, referencing the fundamental medieval connection between mathematics and music.[20] Furthermore, twelfth-century texts attributed to Thierry de Chartres, which include long commentaries on Boethius' works, attempted with use of mathematics to "explain the workings of God in all of creation": the Trinity represented, in "the equality of three persons," the same

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[16] (9) Boethius, Anicius Manlius Severinus. *Fundamentals of Music*. Trans. Calvin M. Bower. Ed. Claude V. Palisca. New Haven: Yale University Press, 1989. Print.
[17] (7) Boethius, Anicius Manlius Severinus. "The Trinity is One God not Three Gods". *The Theological Tractates and the Consolation of Philosophy*. Trans. H.F. Stewart and F.K. Rand. Cambridge: Harvard University Press, 1968. 2-127. Print.
[18] (47) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.
[19] (34-7) Masi, Michael. *Boethian Number Theory*. Amsterdam: Rodopi, 1983. Print.
[20] (21-4) Von Simson, Otto Georg. "Measure and Light". *The Gothic Cathedral*. New York: Harper & Row, 1962. 21-60. Print.

order of proportion which is expressed by an equilateral triangle; likewise, "the square of the sides unfolds the ineffable relationship between the Father and the Son."[21]

The reference to mathematics here is primarily geometrical. Regular geometrical figures articulate their internal stability through constructions following strict ratios. Completeness and regularity indicate rectitude, a calculable harmony. Incompleteness indicates a deformed construction. Not only solid figures carry this sense; the mathematically-defined transformations of such figures in functions like division, rotation, reflection, and so on, indicate the same properties. Similarly, the ornamentation of cathedrals through sequenced lattices, fretwork, and filigree in repeating designs of different scale can be derived from this sensibility as well.

This complexity carries into what is seen of the world, for ornament is derived when a basic form is made subject to elaboration. Thus the rising and setting of the sun, the changing of the seasons, the growth of crops and their harvest, the course of a life as it is lived, and how it comes to die – all come to indicate an essential tendentiousness: "For nothing keeps the order it received / Except its rising to its fall it bend / And make itself a circle without end."[22] In this cyclicity of exchange between life and death a fine geometrical complex is evoked: in birth, for instance, life is reconstituted from worldly matter.[23] It is recomposed, undergoing a re-genesis. Carried in all such finery is an apotheosis that is defined in advance, as in the line of sight which follows the rigid angles of a Gothic tower to its peak. Hence Georges Poulet's brilliant description of how this sensibility made known what can be only seen as an evolving order:

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[21] (33) Masi, Michael. *Boethian Number Theory*. Amsterdam: Rodopi, 1983. Print.
[22] (82) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.
[23] (142) Ibid.

> Even in his body the Christian of the Middle Ages felt a continuous orientation toward a spiritual perfection. Time had a direction. Time finally carried the Christian toward God. … There was not one duration only. There were durations, ranked one above another, and not only in the universality of the exterior world but within himself, in his own nature, in his own human existence… To his existence as a fallen creature, grace superadded an existence of regeneration.[24]

Witnessed in the constitution of life through birth are features that accord to certain basic elemental components. In the course of time these are subject to maturation and senescence. Eventually, after passing, they are recomposed, and resolve into the dynamic order of animate life.[25] This pattern, again, has its schematisms – it falls into categories, universal indications. Terrestrial life itself proceeds into a great set of types, mineral, vegetable, and animal. The latter designates the order of an increasingly complex harmony, and therefore an increasing nearness to divinity. One who seeks guidance through the observation of the natural world would understand the latter to indicate an ethical order as well as an order of existence. The inversion of this order is also meaningful: it indicates an order of punishment. Men who debase themselves through sin fall downwards through the ranked categories and undergo metamorphosis – in other words, they shed their humanity and become animal: "That they used to be human is shown by the human appearance of their body which still remains. So it was by falling into wickedness that they also lost their human nature."[26] The highest creature, man, still manifests qualities of the lower life forms: he is taken to animal passions, and vegetal states. Mineral compositions invoke for him a state of natural repose. His bodily

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[24] (6-7) Poulet, Georges. "Introduction". *Studies in Human Time*. Trans. Elliot Coleman. Baltimore: Johns Hopkins Press, 1956. 3-38. Print.
[25] (105-6) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.
[26] (125) Ibid.

conditions in total thus indicate an ascendency of position that finds its end in God. This allows him a view of the world beneath him that becomes the nearly unparalleled basis for intellectual vision. Only that of God's remains higher. Man can thus "impose names on the things about us which are what they are chiefly by the proper constitution of their nature"; in the created world man alone can have consciousness of the nature of things other than himself – "Thus it happens that for each of the things man's mind grasps he can fashion a name."[27] The act of naming for God must be understood, on the contrary, as fashioning creation itself.

In naming an object there is an acknowledgment of its belonging to the world of things and creatures, and thus some apprehension of its end and purpose. Thus the condition of a given objects reveals the stage of its progression in its cycle. That created objects are discovered in their fallen form in the profane is thus forms no obstacle to the understanding. The flux of the material world itself, again, is meaningful, and is called by Boethius *musica mundana*.[28] It stands for the procession the of profane, in which is seen degeneration, decay, corrosion, and decomposition, but also upbuilding, constitution, construction, and gain. This procession, by going through the extremes of both diminution and increase, of which the first and last instances are creation and destruction, culminates in the formation of the categories. Evidently far from being static, an order

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[27] (159) Boethius, Anicius Manlius Severinus. "*In Categorias Aristotelis Commentaria*". *Opera Omnia*. Ed. J.P. Migne. Paris: Apud Garnier Fratres, 1847. 159-292. Print. Cited in: (43) McInerny, Ralph. *Boethius and Aquinas*. Washington D.C.: The Catholic University of America Press, 1990. Print.
[28] (42) Masi, Michael. *Boethian Number Theory*. Amsterdam: Rodopi, 1983. Print.

organized in this manner must be considered "plastic to excess in the hands of its Creator".[29]

In the true world of God, all would stay together in immobility. In an immense, eternal mandala, each object would agree in permanent, determined concord with the order of God, being known by Him.[30] Hugh Fraser Stewart thus writes that "Boethius gives the name of God to that something without which the created world could not hold together, nor be set in motion."[31] And, as such, there is a countermovement in the profane world to the constitution of harmonies. This second movement is the action of Fate, which in combination with Fortune stands for the conglomerates of circumstances occurring between categorical designations.[32] In the voice of a personified Philosophy, Boethius gives this instruction: "You are wrong if you think Fortune has changed towards you. Change is her normal behaviour, her true nature. In the very act of changing she has preserved her own particular kind of constancy towards you. She was exactly the same when she was flattering you, as when she was luring you with enticements of false happiness."[33] What befalls man as the content of his earthly condition must be understood as resulting from "the lapses due to human behavior."[34] All such violations, though, result from the fact of God's endowment of man with will: "All things thou holdest in strict bounds – / To human acts alone denied / Thy fit control as Lord of all. Why else does

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[29] (376) Gilson, Étienne. *The Spirit of Medieval Philosophy*. Trans. A.H.C. Downes. London: Sheed & Ward, 1950. Print.
[30] (164) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.
[31] (86) Stewart, Hugh Fraser. *Boethius: An Essay*. Edinburgh: William Blackwood and Sons, 1891. Print.
[32] (242) Chadwick, Henry. *Boethius: The Consolations of Music, Logic, Theology and Philosophy*. Oxford: Clarendon Press, 1981. Print.
[33] (55) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.
[34] (41) Masi, Michael. *Boethian Number Theory*. Amsterdam: Rodopi, 1983. Print.

slippery Fortune change / So much, and punishment more fit / For crime oppress the innocent?"[35] Human will is thus unique in its power to defy God. Its products, the artefacts of human labour, take on this quality as well. All other natural objects follow His order, no matter their force or potency. Those things shaped and changed by man reveal something of his nature, something of how he affects the world around him. Nevertheless, in having such power the capacities of human will remain ineffectual. Fate exerts on man a force proportional to the distance a given action strays from the divine. Its feat is to keep one intimate, situated within the world. "Whatever moves any distance from the primary intelligence becomes enmeshed in ever stronger chains of Fate, and everything is freer from Fate the closer it seeks the center of things."[36]

The wicked body is thus most firmly subject to the movements of Fate. Such bodies therefore see the most changes. Their positions are the most volatile, as is shown through the ancient theme of metamorphosis. The constitutional transformation of men into animals forms only one example. Metamorphosis generally proceeds by articulating the shift from one categorical position to another. This transitional action, however, is not uncontrolled. The decay it reveals remains intelligible. Boethius' decrease from a valued public servant of the Roman aristocracy to a prisoner began the writing of his *Consolation*, and its key theme was the reconciliation of wilful action, worldly circumstance, and divine order. With great tenacity Boethius proceeded to deal with these problems. In his in dialogue with Philosophy he states in careful terms the reasons and evidence leading to his imprisonment. Whatever corruption is found therein, he hopes to

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[35] (47) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.
[36] (136) Ibid.

show, is not his own.[37] He thus sets out to record the injustice done to him. Despair at his condition compels him to do so. Yet far from being the record of a complaint, the *Consolation* is, in the words of Antonio Donato, "a lucid analysis of the failure of his philosophical, social and political ideals – a failure which leaves Boethius without any instrument to understand the human world and its dynamics."[38] Therefore doubt, about his rectitude, his morality, the value of his deeds and knowledge, begins the cycle of his reasoning. Doubt sets into motion the appearance of Philosophy. If She is able to make clear to him the reasons for such lapses, then his failure cannot be so absolute.

As much as possible, if one strove to stay true to the sensibilities articulated in the Boethian schema, the goal of moral action was to establish permanence. Such action would seek to repeat, as closely as possible, the order of divinity. Boethius gives it in the maxim that "the same peace that rules the heavens should rule the earth."[39] During this period the practice of constructing cathedrals was considered to be one of the highest moral accomplishments of man. It must be emphasized that a cathedral was, in miniature, the intimacy of the world itself, now crafted by human powers alone. It was a moral reproduction of the work of God. The enclosure of the changing environs into formal mathematical relationships stood in accord with the imperatives of divinity. Erwin Panofsky has it that both the intellectual artefacts, the knowledge of ratios and proportions, and the materials of construction, in their arrangement into canonical shapes,

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[37] (41-6) Ibid.
[38] (28-9) Donato, Antonio. *Boethius*' Consolation of Philosophy *as a Product of Late Antiquity*. Sydney: Bloomsbury, 2013. Print.
[39] (49) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.

made the cathedral legible. It became essentially a form of writing allowing initiates to understand the mysteries of worldly existence:

> A man imbued with the scholastic habit would look upon the mode of architectural presentation just as he looked upon the mode of literary presentation, from the point of view of *manifestatio*. He would have taken it for granted that the primary purpose of the many elements that compose a cathedral was to ensure stability, just as he took it for granted that the primary purpose of the many elements that constitute a *Summa* was to ensure validity.
>
> But he would not have been satisfied had not the membrification of the edifice permitted him to re-experience the very processes of cogitation. To him, the panoply of shafts, ribs, buttresses, tracery, pinnacles, and crockets was a self-analysis and self-explication of architecture much as the customary apparatus of parts, distinctions, questions, and articles was, to him, a self-analysis and self-explication of reason. … The Scholastic mind demanded a maximum of explicitness. It accepted and insisted upon a gratuitous clarification of function through form.[40]

Such functions as could be identified in the works and efforts of the Scholastics were to be found first in the countenance of nature itself, and its forms accorded to the same means of intelligibility used to define artificial constructions. It is therefore appropriate that Goethe has termed cathedrals "frozen music."[41]

The basis for the composition of both substantial, material forms and their combination into ideas within the intellect was the same. Both denoted a creative power, divine in the case of God, profane for that of humans. The influence of the fundamental postulates that produced such propositions resounded so greatly that even in the Renaissance Thomas Aquinas cited Boethius as an authority – an *auctoritas*, the principle that "authorities were to be trusted and invoked both in one's discovery and defense of

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[40] (58-60) Panofsky, Erwin. *Gothic Architecture and Scholasticism*. New York: Meridian Books, 1957. Print. Cited in: (113) McLuhan, Marshall. *The Gutenberg Galaxy: The Making of Typographic Man*. Toronto: University of Toronto Press, 2002. Print.

[41] Cited in: (33) Masi, Michael. *Boethian Number Theory*. Amsterdam: Rodopi, 1983. Print

truths"[42] – on this matter: "he says that *οὐσία* [being] signifies the composite."[43] Indeed, the ability to define meaningful compositions became the basis for Aquinas' *Summa Theologiae*. Aquinas' work, combining all the necessary items of knowledge required for a complete Christian theology, is subject to the following conjecture by Frances Yates, in that "the abstract *Summa* might be corporealized in memory into something like a Gothic cathedral full of images."[44]

1.2

Between Boethius and Descartes passes an entire millennium. In that time what was articulated by the former was consolidated into the system of education and political power of the Catholic Church. During the same period mathematics, one the bases of the Boethian schema, attained a much higher level of complexity. In the form of water- and wind-powered windmills the first common automata populated the landscape between the eleventh and thirteenth centuries.[45] The result was the "invention of new power-driven machinery for industrial purposes"; this led in turn to new measuring devices for the purpose of "refinement of empirical techniques."[46] The quadrant, the first technical device aiding in calculations for accurate long-distance projectile flight (this marking, in

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[42] (172) Nash-Marshall, Siobhan. "Boethius's Influence on Theology and Metaphysics to *c.*1500". *A Companion to Boethius in the Middle Ages*. Ed. Noel Harold Kaylor Jr. & Philip Edward Phillips. Leiden: Brill, 2012. 163-92. Print.
[43] (31) Aquinas, Thomas. *On Being and Essence*. Trans. Armand Maurer. Toronto: The Pontifical Institute of Medieval Studies, 1950. Print.
[44] (90) Yates, Frances A. *The Art of Memory*. London: Pimlico, 2010. Print.
[45] (84-9) White, Lynn Jr. *Medieval Technology and Social Change*. London: Oxford University Press, 1974. Print.
[46] (17) Crombie, A.C. "Empiricism and Rationalism in Twelfth-Century Science". *Robert Grosseteste and the Origins of Experimental Science 1100-1700*. Oxford: Clarendon Press, 1953. 16-43. Print.

fact, the beginning of the field of ballistics), was developed soon afterwards, in the first third of the sixteenth century, by Niccolò Tartaglia, for the purpose of aiming cannon-fire.[47] Events previously explainable in the form of logical demonstrations of affinity, e.g., in the natural tendency of a flying object to land, gained an increased explanatory depth wherever their mathematical formulation was accomplished.[48] Descartes was thus situated in the midst of a period where mechanical explanation became the standard for explanation in general. Henceforth "explanation" itself meant the ability to replicate an occurrence or action using a mechanical model.[49, 50] The automatons designed by Jacques de Vaucanson and Christiaan Huygens, and the text of Julien Offrey de La Mettrie, *Man a Machine*, stand as examples of this paradigm. La Mettrie, for example, defines man in the following way: "The human body is a machine which winds its own springs. It is the living image of perpetual movement."[51] To grasp in one's hands a particular, discrete object was also to hold a particular mechanical entity, deconstructable into parts able to be replicated, substituted, replaced, and ultimately reproduced by other means.

Descartes' philosophical writings are particularly important because they show two things: the simplification of Boethius' categories and those of the Scholastics in general into two spheres – mind and body – and the fact that the tone of his writings is for the most part critical. Descartes inaugurated a tradition of critical philosophy by establishing the basis for abandoning traditional concepts. Telling is his writing of a

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[47] (114-5) Reid, William. *A History of Arms*. New York: Barnes & Noble, 1997. Print.
[48] (458) Gaukroger, Stephen. *The Emergence of a Scientific Culture: Science and the Shaping of Modernity, 1210-1685*. Oxford: Clarendon Press, 2006. Print.
[49] (4) Chomsky, Noam. "Mysteries of Nature: How Deeply Hidden?". *Chomsky Notebook*. Ed. Jean Bricmont and Julie Franck. New York: Columbia University Press, 2010. 3-33. Print.
[50] cf. (497) Dijksterhuis, E.J. *The Mechanization of the World Picture*. Trans. C. Dikshoorn. Oxford: Clarendon Press, 1961. Print.
[51] (32) La Mettrie, Julien Offray de. "Man a Machine". *Man a Machine and Man a Plant*. Trans. Richard A. Watson and Maya Rybalka. Indianapolis: Hackett Publishing Company, 1994. Print. 18-76.

textbook, *Principles of Philosophy*, meant to replace the Aristotelian texts used in the curriculums of his period, the fact that his published works appear in both French and Latin, and that the dissemination of the latter in his lifetime proceeded in a manner not limited to the schools.

Descartes' works obtained their meaning from the above considerations. In his travels he came upon many towns and villages. He remarked on the haphazard arrangement of their buildings and homes, how much energy has to be expended to overcome the incessant troubles set into this confusion; yet, he would ask, how much more would be possible in the course of a life if its constructions accorded to a rational plan? For if planning was good, not fortuitously, but by occasion of will, then it must accord to a set of principles which could be set down and repeated by any student desiring to learn them. For such principles to be relevant to the specific concerns of the town, they must be as meticulous in detail as they are grand in scale. This anecdote opens the expository section of Descartes' *Discourse on Method*.[52] Outlined through this example are the principles of knowledge explained in abstract afterwards. The *Discourse* itself prefaces the treatises entitled *Optics*, *Meteorology*, and *Geometry*.

Lynn White Jr. has stated that a precursor exists for Descartes' *Discourse*, in the 1558 text *De Methodo, hoc est, de Recta Investigandarum Tradendarumque Scientiarum Ratione* [*On the Method, that is, of the Correct Way of Studying and Teaching the Sciences*], written by the theologian and engineer Jacopo Aconcio on the subject of

[52] (11-3) Descartes, René. *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. Print.

fortification and "the application of mathematics to its problems."[53] Yates has made a similar claim. She states that Descartes' text was only one of the "numerous 'methods' circulating in the early seventeenth century."[54] She draws attention to a now-unknown text entitled *De la Méthode*, published in 1632, five years before Descartes' own *Discourse de la Méthode* was published. Citing numerous other treatises, prominent among them being the works of Francis Bacon, Yates shows "how little surprise would have been aroused by the title … of the book published by Descartes."[55] Paul Olscampe, in the introduction to his translation of the *Discourse*, writes that "at the time the three scientific treatises [i.e., the *Optics*, *Meteorology*, and *Geometry*] proved to be more interesting to the intellectual public, and the introduction was ignored. Ironically, history has completely reversed this sequence: today the *Discourse* is studied, and the works in science are not only ignored but virtually forgotten."[56] The probable reason for this difference in interest is that the *Discourse* provides in abstract all the lengthy concrete developments of the scientific procedure, those expressed in both the essays and the published works of other authors, the novelty of which can be appreciated by a modern reader only through extensive study. The aspect of this compressive reduction of attention is important, as in the course of such developments knowledge itself became the product of exact method rather than being represented immanently by the objects of the world. Henceforth what was expressible as truth was itself conceived of in terms of exactitude and precision. This type of legible specificity allows single elements to branch

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[53] (151) White, Lynn Jr. "Jacopo Aconcio as an Engineer". *Medieval Religion and Technology: Collected Essays*. Los Angeles: University of California Press, 1986. 149-74. Print.
[54] (356) Yates, Frances A. *The Art of Memory*. London: Pimlico, 2010. Print.
[55] (356) Ibid.
[56] (ix) Olscamp, Paul. "Introduction". *Discourse on Method, Optics, Geometry, and Meteorology*. Indianapolis: Hackett Publishing Company, 2001. ix-xxxiv. Print.

out and disperse their significance generally. It gestures both to the process of disaffection, the loss of interest and neglect that any single element may undergo through time as its immediate impact fades, but also makes clear that such elements can be recovered, if only in a ruined form, ruin itself being an index of the state of their preservation, of how much has been discarded, and how much current apprehension disabuses. In this context the fame of Descartes' *Discourse* should be understood in two ways, one historical, one methodological: it is a text of high density, whose themes can be directed just as easily to ancient developments as to modern ones; and, generally, when something is declared to have significance, this means that through it much else can be discovered.

The relationships expressed by exactness, however, cannot be limited to effects on scientific or historical procedures: divine powers creation, because they are total, must be understood as nominating a level of exactitude that man can only imitate in the artificial circumstances of machinic action. Yet the dynamism of machines is only the complex development of a more original form with a much longer history: this counterpart is found in what may be called resting-structures – buildings. Here Yates' work provides another valuable architectural correspondence, this time to the above-mentioned anecdote of city planning by Descartes. She writes that Tommaso Campanella's utopia, *City of the Sun*, written in 1602, had at the heart of its city "a round central Sun temple, painted with images of the stars"; this temple was "surrounded by the concentric circles of the walls of the city on which the whole world of creation and of man and his activities"; such images were "dependent on the central causal images" –

stars, depicted in the temple's interior.[57] "The children of the Sun City were instructed by the Solarian priests who took them round the City to look at the pictures, whereby they learned all the alphabets of all languages and everything else through the images on the walls."[58] This was because the City of the Sun itself "could be used as an occult memory system through which everything could be quickly learned, using the world 'as a book' and as 'local memory'."[59] Descartes himself developed a similar technique, in which can be seen the outline of his philosophical works:

> On reading through Schenkel's profitable trifles [in the book *De arte memoria*] I thought of an easy way of making myself master of all I discovered through imagination. This would be done through the reduction of things to their causes. Since all can be reduced to one it is obviously not necessary to remember all the sciences. When one understands the causes all vanished images can easily be found again.[60]

Descartes conceives of a "corporeal memory" different from the "intellectual memory" within.[61] Where intellectual memory would be limited to and constructed from what an individual experienced over a lifetime, corporeal memory, being incarnated in material objects, would situate within itself all obtainable knowledge. Set in corporeal memory, such knowledge would be recoverable even if it was forgotten by man. Indeed the fundamental assumption of a corporealized memory is that man will forget.

The plan Descartes hypothesizes in the *Discourse* can be read in the above light, for it would incarnate not only the fundamental knowledge of materiality, which can in all probability be derived from any situation, but also the layout of rationality that he

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[57] (363) Yates, Frances A. *The Art of Memory*. London: Pimlico, 2010. Print.
[58] (363) Ibid.
[59] (363) Ibid.
[60] (230) Descartes, René. "*Cogitationes privatae* (1619-21)". *Œuvres, Volume X*. Ed. Charles Adam and Paul Tannery. Paris: Léopold Cerf, 1908. 213-48. Print. Cited in: (359-60) Ibid.
[61] (360) Ibid.

proposes. Thus the plan of the city streets would form a mnemonic device separate from individual uses. It would become impersonal, accessible regardless if its author dies or passes into obscurity.

Here, the effects of forgetting relates entirely to the function of doubt in Descartes' *Meditations*. When Descartes engaged in doubt "in order to free his mind of all prejudices," he did so to "find at length the firm and certain truth on which all knowledge rests."[62] The acquisition of true ideas at the end would enable him to recall everything that he brushed aside: although now, all that would be set in a different light, being "clear and distinct" – connected up in a series of exact, plottable relationships.

It becomes plain that for Descartes an idea, if constructed along rational principles, is a kind of mnemotechnology. It orders and orients a set of pertinent aspects such that they can be recalled. A memory operative on the basis of a rational plan is expansive, voluminous – for rationality itself articulates in compressed, general statement the multitude of elements comprising it. Descartes' plan thus presents in its very form a moral injunction, for if an idea is corporeally set not only into a treatise, but into the outline of a town as into the environment itself, it would construct a knowledge not limited to doctrine. The content of rationality would not be limited to its bearers; it would instead be announced constantly by the disposition of this region of the world itself. It is a short leap from this position to the idea that all of the world can be organized in this way, that this small, localized region of order can be multiplied until its processes cover all of creation. This entirely synthetic, artificial field, built by humans, would display all of the markings of rationality. Moreover, in this form, rationality would be an expansion

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[62] (11) Spinoza, Benedictus De. "The Principles of Philosophy Demonstrated by the Method of Geometry". *The Principles of Descartes Philosophy*. Trans. Halbert Hains Britan. La Salle: Open Court, 1974. 11-55. Print.

of the same principles that once led to the construction of cathedrals, although it would now encompass in its full form the outermost limits of the profane world.

1.3

In surveying the field of notions available to him – Scholastic, Aristotelian notions – Descartes uses the following metaphor: "When we are destroying an old dwelling we usually keep the remains in order to use in rebuilding; so, in destroying all those of my opinions that I judged to be ill-founded, I made various observations, and acquired many experiences, which have since served me in establishing certain beliefs."[63] Among these beliefs would be the picture of a corpuscular universe. Its precise statement can be found in Descartes' *Meteorology*, a text dealing generally with physics:

> I do not conceive the small particles of terrestrial bodies as atoms or indivisible particles; rather, judging them all to be made of the same material, I believe that each one could be redivided in an infinity of ways, and that they differ among themselves only as pebbles of many different shapes would differ, had they been cut from the same rock. … It seems to me that my explanations ought to be approved all the more because I shall make them depend on fewer things.[64]

The corpuscular picture of the world was due to the medieval system of organized knowledge. The specific, highly particular pertinence of knowledge to categorical items involved a picture of such complexity that it informed the later reconceptualization of the world into entirely workable mechanical entities. Just as Aristotle set the elemental substances of the Greek pre-Socratics into a generative system of four elements in

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[63] (25) Descartes, René. *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. Print.
[64] (268) Descartes, René. "Meteorology". *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. 261-361. Print.

opposition to a fifth, an immutable one,[65] so the multitude of medieval categories, if aggregated into a single image, articulated the world through an organized topology. Considered in this way, the Scholastic understanding is opened to general historical critique. It becomes clear why the corpuscular worldview was such a commonly expressed notion throughout the late Renaissance and Baroque periods: the longer the Scholastic doctrine maintained itself through the institution of harsh punishments and religious conflicts, the more the complexity it proposed became subject to question in entirety, especially for those having to bear the force of its injunctions in daily life. The attempt to comprehend all of its subtleties at once required a different sensibility than the one delving into its mysteries. Rather than in the traditional concepts the of latter, cutting across the whole of Being horizontally and arraying sets of parallel categories, Descartes conceives of a mass of regionalized, interacting corpuscles, the fluxions of creation. He concludes that there is only a single substance, entirely continuous, which modulates and differentiates itself into what is witnessed of the space of extant objects. The mode of perception holding to this universe, though self-same in total, takes on a similarly fragmented character, given that it is accomplished by singularities called minds or souls. These are capable of apprehending only some of its aspects at any one time, and must be conceived of as thoroughly flexible in their constitution.

Here, Descartes' combination of geometry and algebra into algebro-geometric formulae (termed "analytic geometry") was of prime importance.[66] Mathematics gained in its powers of explanation due to this formal invention. When set in combination with

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[65] (Book 1, 270a-b; 401-3) Aristotle. "*De Caelo* (On the Heavens)". *The Basic Works of Aristotle*. Ed. Richard McKeon. Trans. J.L. Stocks. New York: Random House, 1968. 396-466. Print.
[66] (196-99) Dantzig, Tobias. *Number: The Language of Science*. London: Collier-Macmillan, 1967. Print.

algebra, geometry achieved an enhanced capacity for speculative representation: gained was the ability to represent any quantity, any number of points along a line, and any number of dimensions using a notational system.[67] One result of such practices of notation is the Cartesian coordinate system, where any of the above could be graphically rendered. Potentially any object could thus be described in great detail using a sufficient number of variables and sufficiently complex formulae. A formal system of notation and its script were thus arrived at.

The worldly decay previously explainable in terms of a lapse from a categorical designation received in analytic geometry a form of notation. The Cartesian reduction of "complex and obscure propositions step by step to simpler ones" is a form of analytic decay; the reconstruction of these same propositions, the attempt to "advance by same gradual process from the intuitive understanding of the very simplest to knowledge of all the rest," is the reverse of decay – i.e. gain or upbuilding, analytic synthesis.[68] Complex material organizations thereby gained as ready a form of expression as regular, rectilinear geometrical figures. Analysis in the Cartesian style, because it is ratiocinated by mathematics, is a technical, measurable decay, the decomposition of any given topic into those parts from which it can be reconstructed or reengineered. When Descartes defines an art of memory by way of reducing things to their causes for later reconstitution, he does so through a mechanical expression: memory thus becomes the ability to reconstruct analyzed components into meaningful ideas. Such meaning as could be obtained would represent the remembered situation as a conglomerate of significant circumstances. This

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[67] (178-9) Descartes, René. "Geometry". *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. 175-259. Print.
[68] (19) Descartes, René. *Rules for the Direction of the Mind*. Trans. Laurence J. Lafleur. Indianapolis: Bobbs-Merrill Educational Publishing, 1971. Print.

again entails that memory is not specifically an individual faculty, as its main characteristic is the retention of knowledge. A combinatory memory, apprehending parts and sections of significance, answering in its entirety to the notational system of analytic geometry, would allow for the combination of knowledges gained at different times and places.

This affects particularly how matter is to be understood, for the material of the world must accord in its very constitution to combinatory efforts. The chief characteristic of matter thus becomes its corruptibility into intelligible pieces. Its informational decomposition follows from its analysis, done such that the capacity for reconstitution is preserved. Analysis, as a technique of reduction, "shows that all propositions can be arranged in such a series, not indeed insofar as they are referred to particular classes of entities, as philosophers divide them into categories, but for purposes of investigation."[69] The categories themselves become unbounded in Descartes – their harmony is not given, and any purported harmony is subject solely to the bounds of the investigation at hand: "all things [must be noticed] in the sense in which they are pertinent to our purposes… we do not consider their natures in isolation"; rather, "we compare them to each other in order to deduce some from others"; finally, the importance of any single point in the investigation "may be said to be either absolute or relative."[70] The absolute is "that which is the simplest"; the relative is that which "can be traced back to the absolute, and deduced from it by some chain of reasoning. But, in addition, it involves in its conception certain other things which I call 'relations', such as whatever is said to be dependent,

[69] (20) Ibid.
[70] (20) Ibid.

resultant, compound, particular, multiple, unequal, dissimilar, oblique, and the like".[71] Descartes, however, provides this caveat, that all of the above must be reduced to the absolute or the simplest: "We are warned in this rule that all these things should be distinguished."[72]

Positioned in this way, Cartesian propositions cannot be understood as pertaining to a substantial, categorical designation, but announce at best a generic applicability dependent on either an identity or a close similarity with their constitutive circumstances. Said more simply, all propositions must be understood solely in the sense of their particular bearing on the matter at hand – in other words they must be understood *exactly*. This must be said again in another way to demonstrate the change in the notion of nature it orchestrates: for Descartes, any propositional statement has validity only insofar as it is held to be the result of a unique conflagration of events or circumstances. In consequence, all states of affairs in the world that can be witnessed on an entirely tenuous stability, i.e., all such states become *experimental* in orientation to each other. As experiment itself, the material world becomes frenetic, charged, and evolving; analysis apprehends this flow by arresting and abstracting from it those significant features allowing its reproduction, whether in memory, mathematical models, or mechanical constructions.

The combination of the notions of mental and material analysis with their theological position provides the background for contemplating creative effects. It also articulates the canonical Christian difference to the divine: God created this field of

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[71] (20-1) Ibid.
[72] (21) Ibid.

synthesis and animates it – but we can only imitate this supreme act of creation.[73] We cannot truly "create" because our exactitude is limited: we take, mould and apprehend only a few pieces of the world, noting only some of the resultant effects, which dissipate with time; and we therefore come to know that our corruptibility is our permanent experience.

Thus, in and of itself, any knowledge gained through experimental procedures is still isolated, esoteric. It does not have the radiant expansiveness of God's knowledge. Descartes was therefore among those philosophers of the enlightenment concluding that a universal language was needed to guarantee the transmission of the knowledge gained in each individual endeavour.[74] Such a language, featuring a single written signage, would be tantamount to the reproduction of the world itself. Statements in the form of laws and formulae would be statements revealing something of the world's condition. For Descartes, the totality of such statements would form *mathesis universalis* – universal, generalizable learning.[75] Such generally pertinacious statements would have to be self-evident as to their validity. They must be the equivalent of the world's statement of itself, if mediated by an artificial language. This apodictic, factual language need not represent absolute particularity, the uniqueness of the fact, but, rather, the mode of its reproduction. Any facts it names would thus be generally receivable, understandable by anyone. Such a language could in fact be subject to a much freer sort of manipulation than the ancient, dead languages of Latin or Greek; if actualized and put into practise, it would become the

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[73] (45) Descartes, René. *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. Print.
[74] (364-70). Yates, Frances A. *The Art of Memory*. London: Pimlico, 2010. Print.
[75] (17) Descartes, René. *Rules for the Direction of the Mind*. Trans. Laurence J. Lafleur. Indianapolis: Bobbs-Merrill Educational Publishing, 1971. Print.

basis for the unification of scholarly community. Historically understood, Descartes' invention of analytic geometry and its definition in the above respect become the first step towards what is later called "the mathematization of science."[76, 77]

The apodictic characteristic of factuality, its self-evidence, is the guarantee of future citations. This is deeply tied to the logical proposition of self-identity, which in the case of factuality is to do with the certainty of prediction and futurity; this is because its expression as "$A = A$" indicates not only the object in question itself, as an awareness of the evidence it presents, but also "$A = A = A = A = A = \ldots$". Every fact is thus posited in awareness of its future uses. It is presented such that it can be incorporated, again and again, into different arrangements and constructions. The reproducibility of the fact rearticulates the notion of eternity in a very different way from that expressed in the medieval worldview. Eternity had in the medieval categories a mode of representation: the breakdown and reconstitution of categories set out a circular motion. But with the advent of the apodictic statement, the profane moment itself became repeatable, a moment which was previously irredeemably fleeting, expressible only in its subsumption into a category. What became newly eternal was the reference to the unique, that which would happen only a single time, but could be called up as needed without limit.

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[76] (500-1) Dijksterhuis, E.J. *The Mechanization of the World Picture*. Trans. C. Dikshoorn. Oxford: Clarendon Press, 1961. Print.
[77] cf. (126) Dantzig, Tobias. *Aspects of Science*. New York: The Macmillan Company, 1937. Print.

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In the form of fact, the reduction of things to their simplest expression, the simplest also becomes the most general. That is, simple items are the most generally demonstrable, and, following that, the most generally accessible. The implications of this move, according to J.L. Beck, "lead us to the recognition of at least two clear and distinct ideas, two self-evident data, complete and 'concrete', … namely, *cogitatio* and *extensio*… they are the logical basis of explanation for a series of other ideas, less complete, and accordingly less 'concrete', linked by necessary connections in a network of interconnected ideas." [78] Beck furthermore quotes Jean Laporte's *Le Rationalism de Descartes*, in which is stated that the ideas of mind and body are "assemblages, themselves interwoven into other larger assemblages."[79] The simplest natures are those forming the composites out of which other things are constructed. These constructions accord to certain deducible orders or arrangements, which change status according to the nature of the investigation. Descartes for instance writes that "in the word 'idea' there is an equivocation. For it can be taken materially, as an operation of my intellect… or it can be taken objectively for the body which is represented by this operation, even though it is not supposed to exist outside my understanding."[80]

The inconsistency of Descartes' language in the quoted statement is in part due to his operations of reduction. Reduction cannot produce finite correspondences (between

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[78] (96-7) Beck, L.J. "The Nature of Inference". *The Method of Descartes*. Oxford: Clarendon Press, 1952. 83-99. Print.
[79] (114) Laporte, Jean. *Le Rationalisme de Descartes*. Paris: Presses Universitaires de France, 1945. Print. Cited in: (97) Ibid.
[80] (68) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

mental and material articles, a given idea to a given object) in its examination of a certain compound. This is because any given item or term is reducible to both systems; any item or term can be understood as both a material and a mental construction. Different significances and bearings will be highlighted depending on the case, the matter at hand, for what is clear and distinct for Descartes is that there is not only the material of the world, but its intelligibility in knowledge as well. Therefore, what emerges from the operations of reduction is the necessary shift from one system to another during the course of explanation. Mathematics, as Descartes writes, "treats only of very simple and general things without concerning themselves as to whether they occur in nature or not."[81] But it can do this only insofar as it is part of the understanding of a thinking person; mathematical knowledge is bound to the context of human affairs, being self-evident only insofar as this dependence remains part of the assumed conceptual background.

To put the above another way, purely philological descriptions attempting to categorize all entities into two classes, mental or material, fail for the reason that no term, if it is to be understood through Cartesian principles, can reflect only a single characterizable belonging. Mechanical action is inconceivable without its mathematical formulation; likewise, physical decay is equally inconceivable without analytic mentation. When the Cartesian system is called a "dualism" this must not be understood as outlining two incompatible regions. The subsumption of all the various uses of a term into a single meaning, disjunctively positioning it on either the mental or the material side, is actually made towards the formulation of a new category, and is done in the

[81] (78) Ibid.

manner of a Boethius. Descartes posits instead two encompassing semantic systems – the mental and the material; *both are total*. Every term isolated from the world is actually a compound from which can be deduced even simpler, broader, and more finite articles: "From this point of view we divide real things into those which have simple essences and those which are complex or composite. No essences can belong to the simple class unless they are either spiritual or corporeal or both."[82] The 'class of the simple' is the finest orientation, the furthest decomposition, to which any term or item can be taken.

Again, where a term is localized, so is the particular mode of its conceptualization. It must always be understood in terms of its specific area of significance or pertinence. Descartes' declared interests can be read in this light. He desired to create a "practical philosophy" instead of the "speculative one taught in schools."[83] His qualification corresponds to two understandings of the term "philosophy". Where the traditional philosopher gained knowledge, he did so for the purpose of edification, whether of self or community; he did not act to establish new practises but to repeat those which were already morally proven and therefore deserved veneration. The practitioner of this new philosophy must know "the force and action of fire, water, air, the stars, the heavens, and all other bodies which surround us, as distinctly as we know the different skills of our artisans"; this knowledge can be used to make an "infinity of devices," "for all the purposes to which [natural entities] are suited"; by so doing we would "make ourselves the masters and possessors, as it were, of nature," for we would

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[82] (34) Descartes, René. *Rules for the Direction of the Mind*. Trans. Laurence J. Lafleur. Indianapolis: Bobbs-Merrill Educational Publishing, 1971. Print.
[83] (50) Descartes, René. *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. Print.

know how each thing works and how to make it.[84] This implies a new imperative: both the continual action of critique, which corresponds to the refinement of the exactitude of knowledge, and a constructive work that is as variegated as possible.

Descartes' philosophical goal was to set down not only accurate descriptions of phenomena but to also relate what effects should be manifested by the mechanical techniques aiming at their reproduction. A correct hypothesis of natural phenomenon would make it possible to reproduce the observed functions once more – indeed such reproduction should in mechanical circumstances be able to proceed without end. Accuracy itself thus becomes a philosophical criterion of intelligibility. Mechanical models became highly important, acting as both proof of reproducibility of the physical world and of the validity of the principles defining physical construction itself. Through such efforts was established a mode of speculation, of theory, sensitive to quanta: by adjustment of certain measured parameters technical devices could be constructed featuring a potentially limitless modification of force and power, operative over any set distance or scale. Regarding the field of medicine, for example, Descartes describes his optimism for its curative powers: "All that we know is practically nothing compared to what remains to be learned; we could be freed from innumerable ailments, of mind and body alike, and perhaps even from the infirmities of old age, if we had adequate knowledge of their causes and of all the remedies which nature has provided for us."[85] This optimism was a trait common to the Enlightenment philosophers, and was

[84] (50) Ibid.
[85] (50-51; translation modified) Ibid.

aggressively pursued by them into the foundation of new medical institutions.[86] The intricacy of the mathematical paradigm insinuated the need to lift the traditional prohibition against cutting into bodies and examining them for the physical signs of disease or injury, done "in order to know what was the source, the origin … of the particular malady which was responsible for their deaths."[87] It situated the body into a mechanical field, it being an entity no different from others. In this context, Anthony Levi has written that, "The obstacles to achieving scientific truth [in medicine] … were example and custom, which obscured the '*lumière naturelle*', and rendered us less susceptible to the voice of reason."[88]

The principles of mechanics, actualized in the new practical philosophy, establish complete unification of the physical realm. Material entities themselves are workable for the reason that all are constituted of the same profane material then composed into substantial, differentiated bodies with certain magnitudes. These natural entities are, in themselves, mechanical processes. Such processes in total form a great complexity, and hold to an assortment of stabilities and tensions, set in decaying equilibriums, which constitute particular physical objects. Down far enough on the scale of objects, at the molecular or atomic level (or in Descartes' language, the corpuscular level), differences are expressed only in density, distance between parts, and the organization of processes. No substantially different entities emerge in this ultimate mode of positioning. Thus for Descartes, Luce Irigaray writes, "matter, although indefinitely extendable and divisible –

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[86] (380, 384) Gay, Peter. "Enlightenment as Medicine". *Age of Enlightenment: Studies Presented to Theodore Besterman*. Ed. W.H. Barber et al. Edinburgh, Oliver and Boyd, 1967. 375-86. Print.
[87] (31) Foucault, Michel. "Human Nature: Justice vs. Power". *The Chomsky-Foucault Debate on Human Nature*. New York: The New Press, 2006. 1-67. Print.
[88] (245) Levi, Anthony. "Medicine and Morals". *French Moralists: The Theory of the Passions 1585 to 1649*. Oxford: Clarendon Press, 1964. 234-56. Print.

into innumerable but contiguous parts, so that continuity is not forfeited – is, as a whole, all of a piece."[89] Matter thus gains a unified mode of expression. Such unity Descartes defines as follows: "By 'unity' I understand that common measure or unit which we have previously said should be equally participated in by all things which are compared to each other."[90] Linked up to the image of a comprehensive physicality is the image of its ratiocination, in the series of regulated abstractions which make it up.

For Descartes this opens the possibility of representing completely, systematically, all encounters with the physical world – again, by means of mathematical articulation. If such coherence is possible, then engaging in mathematics would ensure, likewise, a general ideational unity across the entire field of philosophical endeavour. In consequence the entire range of what could be thought had to be held up to scrutiny: for if an idea could not be reliably correlated (in the mode of *representation*, something that will be discussed in later chapters) to a physical occurrence, subjected to a rigorous unity with others, then it was necessarily deemed a mental fabrication. In the words of Descartes, "We can only err when the things which we believe to be real are in some manner composed by ourselves."[91]

Set out by Descartes was the outline of a domain of purely mental constructions, images, accessible only to humans: its contents were the collected results of uncorrelated, dissonant thought. The great import of these images, however, is expressible only in an examination of their epistemological basis, through a reference to human perception. In

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[89] (188) Irigaray, Luce. "…and if, taking the eye of a man recently dead…". *Speculum of the Other Woman*. Trans. Gillian C. Gill. Ithaca: Cornell University Press, 1974. 180-90. Print.
[90] (76) Descartes, René. *Rules for the Direction of the Mind*. Trans. Laurence J. Lafleur. Indianapolis: Bobbs-Merrill Educational Publishing, 1971. Print.
[91] (54) Ibid.

gaining their meaning from the context of human affairs, such images express a knowledge bound to the latter, a knowledge that passes as its subjects, its knowers, do. The characteristics of this limitation must be made clear in order for us to understand what the sphere of images consists of, and how, if physical unity is conceivable in the transformational basis provided by mechanics, there must be a unity of thinking as well.

Chapter 2: Perception

2.1

Kamran Ahmed has shown that Descartes' formulations necessitate a particular rigour, one set down as a moral instruction.[92] Ahmed calls that rigour *ascesis*, for it bears a relationship to knowledge which can only be called critical.[93] Articulated here is the great significance of one of the most central Cartesian motifs, the passing of judgment on those who fail to reflect on their received knowledge. This theme embodies a refusal of the Scholastic notion of the *auctoritas*. This ascetic rigour is the basis for Descartes' attempt to combine various knowledges into a rational system. If what is learned from another answers to certain principles, it will gain accommodation; in this way "mankind would combine the lives and work of many people, and would go much further than any individual could go by himself."[94] The exposition of this rigour would serve to oppose the critique portraying Cartesian notions as entirely passive, as in the relationship of reception between subject and world, and, parallel to that, the non-dynamic understanding of the processes of nature which allows them to be shaped towards human ends. Horkheimer in particular is guilty of this view in the essay "Traditional and Critical Theory,"[95] If one appears passive in a situation where one should be active, it is because some strong measure of force is set against one, and all of one's energy is taken up in

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[92] (27-30) Ahmed, Kamran. *Descartes' Askēsis: Observation and Observance in the* Meditations on First Philosophy. Thesis at University of Western Ontario. 2012. Print.
[93] (32) Ibid.
[94] (46) Descartes, René. "Discourse on Method". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 1-59. Print.
[95] (200, 231-2) Horkheimer, Max. "Traditional and Critical Theory". *Critical Theory: Selected Essays*. Trans. Matthew J. O'Connell et al. Toronto: Herder and Herder, 1972. 188-243. Print.

merely standing still. Yet Horkheimer is right when he asserts that such asceticism, taken up in the relationship to knowledge as such, has culminated historically in the attitudes witnessed in the figure of the scientist.

It has also been shown by Jacques Lacan that an understanding of *ascesis* is essential to Cartesian principles. Lacan articulates himself in the following manner: the effort required for asceticism is not simple; it is entangled in the philosophical position of the Sceptic, in the doubt directed against one's prejudices in thought and action; and the achievement of Descartes was to employ this scepticism until it reached apotheosis. In the *Meditations*, this was the moment when doubt turned into certainty, in the positing of the "I think": "the very fact that I know with certainty that I exist, and that absolutely nothing else belongs necessarily to my nature or essence except that I am a thinking being."[96] Lacan writes that, "certainty, for Descartes, is not a moment that one may regard as acquired, once it has been crossed. Each time and by each person it has to be repeated. It is an *ascesis*. It is a point of orientation that is particularly difficult to sustain in the incisiveness that it makes its value. It is, strictly speaking, the establishment of something separate."[97] Lacan made this emphatic position clear when he stated that a "living being" is "called to subjectivity."[98] That is, subjection is something that must be desired and strived for. It forms the basis for a certain type of experience, which can in no sense be easily arrived at; it is, in fact, the definition of a form of struggle.

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[96] (132) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[97] (224) Lacan, Jacques. "The Subject and the Other: Aphanisis". *The Seminar of Jacques Lacan: Book XI, The Four Fundamental Concepts of Psychoanalysis*. Ed. Jacques-Alain Miller. Trans. Alan Sheridan. New York: W.W. Norton & Company, 1978. 216-29. Print.
[98] (203) Lacan, Jacques. "The Subject and the Other: Alienation". *The Seminar of Jacques Lacan: Book XI, The Four Fundamental Concepts of Psychoanalysis*. Ed. Jacques-Alain Miller. Trans. Alan Sheridan. New York: W.W. Norton & Company, 1978. 203-15. Print.

In the "I think," Descartes nominated a domain by means of separation. This domain was that of the mental world – and here he developed philosophically a major difference from medieval Aristotelianism. For Boethius, one attains knowledge for the reason that one, as a person, a human, is already knowable, and set amongst other knowable things – all of which hang together in the mind of God. But for Descartes to show to the contrary that one cannot attain certainty unless one doubts, and does so continually as a means and definition of one's ethos, then it holds for the conditions of knowledge that if one does not doubt one cannot attain the correct conception of God either. God is thus no longer present; He intervenes only when the ascetic is on the brink of dissolution. In lived experience this is the threat of death, not only in the bodily sense but also the spiritual, for one who doubts in the Cartesian manner appears paralyzed, stayed as if in spiritual apoplexy. Yet it is only at this point, the most dire, when things are the most obscure and their status most inscrutable, that one becomes subject to God.

Thus for Descartes, fundamentally, the link to God is mediated through doubt, not positive knowledge. This is because all knowledge can have no surcease from irrelevance and inconclusiveness unless it becomes *certain knowledge*. For it to do so, knowledge must gain something of the divine attributes. But no objects extant in the profane realm may possess or take on such qualities as their own. And no knowledge manifests such qualities immanently. Certainty, as a divine quality, is attained only when what is known has passed on and is redeemed – that is, only after it has fallen into futility and is experienced as such, as useless and unintelligible, will it gain redemption and thereby become certain.

For Descartes certainty itself is gained by following his method. Once one becomes proficient in doing so – in a sense, when certainty itself is normalized and one understands oneself in terms of subjection – a different sense is gained: in a twist of language, perhaps making connection to the Marxist term, Lacan calls the generalized condition in which subjectivity is a norm of attainment "alienation." This is the condition of a social system composed of individuals possessing singularities called *minds*. The above is highly significant for modern developments, especially those in the domain of science. But it is just as important in describing the role then ascribed to perception, for everything that is perceived with certainty becomes involved in alienation as well. All articles of certain knowledge have a supreme pertinence: i.e., they are *exact*, and for this reason they are also disconnected, discontinuous. For their sense to be gained en masse, the principles of order defined by the Cartesian method must employed; these articles must be arranged into the convoluted nexus called "perception." As a consequence, perception itself cannot be considered a form of immediate experience – the only immediacy is that which is defined retroactively, in the relational proximity of organized articles to each other. This form of epistemology requires constant backwards glances, and constant effort on the part of its bearer. Indeed, the modern concept of "mind" is arrived at and realized through such ordeals.

Cartesian ascetic rigour therefore entails the development of certain perceptual capabilities which are considered inherent aspects of subjectivity. These manifest simultaneously a divine role, and a profane one. That one is given a body links one to the material world; Descartes' position, that one is endowed with a soul, means that one can

share in some of the Godly understanding of this world.[99] The understanding (*intellectus* or *entendement*) of the soul set into a profane body, taken by itself, is not finite; it is instead indefinite – it has no finite limits because it occurs as an exercise of repetition under different circumstances, set in different places and unique points of time. When set in combination with the compressive and mnemonic powers of mathematics, the reach of this understanding is of course greatly extended. But because it is bound asymptotically to the true understanding of God, total in its scope, the understanding can confer no certainty of its own. This infinite lapse is the proof of its profanity, but is also the basis for its abilities.

Linked to the understanding is another mental ability, the imagination (Latin: *imaginatio*; Greek: *φαντασία*; French: *imagination*): one imagines and one's images necessarily reflect "something" of the material world.[100] This "something," though, remains obscure. It can have no clear and distinct formulation – in this it cannot even be called an "idea."[101] According to Ann Scholl, this is because whatever Descartes calls an "idea" always represents *necessarily* a specific aspect of the physical world; but it is precisely the "image" which ruptures this strict mental order of representation. While it is not an idea, an image is still part of one's possible mental contents. In this role the imagination, as a recognizable mode of thought, becomes more crucial than the understanding itself: while the understanding is necessarily connected to the correct representation of corporeal substances, the imagination, unable to be based externally,

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[99] (107) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[100] (123) Scholl, Ann. *Descartes' Dreams: Imagination in the* Meditations. New York: Peter Lang Publishing, 2005. Print.
[101] (66) Ibid.

becomes linked fundamentally to the body of thinking person.[102] Even when it is so defined, however, the obscurity of the imagined objects remains unaltered – that is, it provides no proof of their existence; the reference to either sensorial or somatic conditions can provide no more clarity regarding the images created, giving as it does only another point of possible reference for their source. This does, however, "redeem imagination as a real power of thought," so that the images conceived cannot be counted as mere errors.[103]

Prior to the exercise of doubt, no phenomenal difference between ideas and images can be articulated. Both are perceived because one's awareness is limited to one's mental contents, the position that "ideas are the direct objects of our perception."[104] (John Deely does not distinguish between ideas and images as Scholl does – Scholl's text is in this instance highly unique; as a term of designation, the "idea" can stand, depending on context, for either an image or a proper Cartesian idea, something true of much of the scholarship on Descartes, Descartes' own inconsistent use of the term, and its translations.) To distinguish between these states requires the ascetic rigour that was described previously. In this moment is visible the foundation of depth psychology, or of the techniques of inquiry positing "intramental" or "psychological subjective determination."[105] It is telling that, since Descartes, one branch of psychology has studied thoughts having the form of images – or "picture-thinking" – and others rose to

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[102] (122) Ibid.
[103] (122) Ibid.
[104] (351) Deely, John. "Poinsot's Triumph (1632): The Success and Failure of the Latin Age". *Medieval Philosophy Redefined: The Development of Cenoscopic Science, AD354 to 1644*. Scranton: University of Scranton Press, 2010. 347-80. Print.
[105] (351) Ibid.

contest it, such as the Würzburg school, which posited in direct contrast a concept of abstract or "imageless thought."[106]

2.2

To be sure, for Christian mystics the path of asceticism and its physical hardships in fasting and prayer are well-known; but the asceticism Descartes takes up focuses one's energy on developing the understanding. Due to this emphasis the imagination may naturally suffer some form of atrophy. But even then the imagination can never be counted as completely severed. Even if, as a consequence of the Cartesian formulation, the understanding gains high privilege over the imagination, there remains the possibility that the imagined content, despite its obscurity, will be analyzed into simple ideas, that "a full accounting of sensory perception … can explain imagination."[107] Images will at that point be made clear and relatable to the exterior world, and thus be made practical, useful for mathematical pursuits.

In consequence, the precise ability of the imagination lies in its combinatory powers, through which it can conjure chimeras both fantastic and ordinary. This combinatory capacity of imagination Descartes avows, which means that neither it nor its products can be taken as entirely pejorative.[108] To determine the action of the imagination will require an overview of Cartesian perception. Referring to the mathematical concept

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[106] (3, 18) Johnson, Donald M. *The Psychology of Thought and Judgment*. New York: Harper, 1955. Print.
[107] (123) Scholl, Ann. *Descartes' Dreams: Imagination in the* Meditations. New York: Peter Lang Publishing, 2005. Print.
[108] (32-3) Descartes, René. *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. Print.

of magnitude, Harold H. Joachim states, that Descartes' "introduction of an assumed (fictitious) 'unit'" is "no more than a legitimate device for facilitating measurement";[109] this unit is, and this must be emphasized, arrived at through the action of the imagination – because magnitude, even if defined as the "sum of discrete and simple units (like the [geometrical] postulate of an infinite juxtaposition of points in a line)"[110] – is in no sense materially composed of units of measurement. Such units are only a means of ratiocination. A "meter" by itself refers to no set object, though it can represent many when conceived of as an example of algebraic sensibility: in algebra an abstract, though ordered reference (for instance, *x*) captures within its limits an infinity of variegated forms. What may be rationally composed in the mind through a combination of abstracted units will form an object of a different status. Such objects will be marked by a quality of abstraction – they will be *imaginary objects*. Only when the case is such that these measured objects bear a representational function towards the physical world, which they may have only if they are designated *ideas*, will they be bound to materiality through the understanding. Any imaginary objects resulting from this context – like diagrams, blueprints, or geometrical figures – will demonstrate the principles of mechanics. Yet their intramental[*] synthetic arrangement is still accomplished by the imagination.

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[109] (96) Joachim, Harold H. "The Cartesian Method". *Descartes' Rules for the Direction of the Mind*. Ed. Errol E. Harris. London: George Allen & Unwin, 1957. 62-99. Print.
[110] (96) Ibid.
[*] This begs the question about synthetic arrangements done with machines. That is, what is to be made of the status of produced objects, whether with the aid of computers or other devices? Ultimately, this relates to status of the production of works of art. Descartes states in the First Meditation that "For in truth painters, even when they use the greatest ingenuity … nevertheless cannot [give] wholly new shapes and natures, but only invent some particular mixture composed of parts of various animals [like the chimera or hippogriff]; or even if perhaps their imagination is sufficiently extravagant that they invent something so new that nothing like it has ever been seen, and so their work represents something purely imaginary and absolutely false, certainly at the very least the

If followed in this manner, the Cartesian method would allow distinction between images and ideas, even when referring to a doubled term like "unit." However, in attempting to distinguish between ideas and images, no immediate means of apprehending either one over the other presents itself. An article is apprehended obscurely at first, and only through analysis is it given pertinence. Its relational order, whether imagistic or ideal, as in the case discussed above, depends purely on the matter at hand and its pertinence to the goals of the investigation. The specifics of how this occurs happen through the innovation this method presents in the treatment of various arguments – arguments being an example of how relational orders are established.

Descartes' most characteristic description of his method is as a "simplification" of older explanations; Joachim, in a more modern and technical language, states instead that its action is pointedly "eliminating," subtractive.[111] Indeed, by reducing the materials of various proofs, whether of theology or natural philosophy, to a statement of their constituent objects, dropping from them even such expected formal components as the syllogism or the dialectic, the action of this method becomes fundamentally irruptive. It

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colors which they are composed must be real".[¶] This means that a computer, insofar as it is technical device not unlike the combination of canvas and paintbrush, or chisel and marble, is a mediate extension of the human body, and those objects it produces as visualizations or models, no matter their complexity, are involved in a host of "intramental" processes as well. The essay by Paolo Mancosu, "Visualization in Logic and Mathematics", is important here. He quotes from logicians Barwise and Etchemendy, who state that "not all valid reasoning is (or can be cast) in the form of a sequence of sentences from some language".[¶¶] Descartes' invention of analytic geometry can in fact be considered a type of device, where algebraic formulation is merely one method of articulating the relationships already expressed in figural form. [¶¶¶]

[¶] (77) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

[¶¶] Cited in: (24) "Visualization in Logic and Mathematics". *Visualization, Explanation and Reasoning Styles in Mathematics*. Ed. Paolo Mancosu, Klaus Frovin Jørgensen and Stig Andur Pedersen. Dordrecht: Springer, 2005. 13-30. Print.

[¶¶¶] (82) Mancosu, Paolo. "Descartes' *Géométrie*". *Philosophy of Mathematics and Mathematical Practise in the Seventeenth Century*. Oxford: Oxford University Press, 1996. 65-91. Print.

[111] (96) Ibid.

interrupts historical context such that it can be repeated, now in a possibly different manner. If the scale of this historical context is greatly reduced, holding its objects of note as the minutiae of human life, then the historicity of a certain proof may be simply its adherence to a certain doctrine, its vocabulary, and its repertoire of arguments, all of which accord to an established set of rhetorical forms.

It is at this level, which may be called either the ritualistic or traditional aspect of philosophy, that Descartes' interruption takes place. He thematizes the contents of a given argument as being composed of certain pieces, duly recurring only because of their repetition in set forms. Time itself is thematized here by a series of repetitions; if such repetition is understood according to an algebraic sensibility, then its products need not be exact. Repetition would gain an abstract character, and would thus be able to represent through its action a series of general types that stand for a great conglomerate of variations. Conscious of the above, Poulet writes that for Descartes "time itself is fragmented. There is no longer anything more than affective instants, each one experienced for itself along and lived in isolation."[112] Poulet then quotes from Descartes' Third Meditation: "All the time of my life … can be divided into an infinity of parts, no one of which in any fashion depends upon the others."[113] What follows from such disparity is that Descartes becomes twinned into each of his past moments; the "Descartes of the past" becomes a "half stranger … whose face, however, is somewhat

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[112] (105) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print. Cited in: (57) Poulet, Georges. "The Dream of Descartes". *Studies in Human Time*. Trans. Elliot Coleman. Baltimore: Johns Hopkins Press, 1956. 50-73. Print.
[113] (57) Ibid.

familiar."[114] This new temporal orientation increases the range of divisions that physical entities can undergo: it states that the relations of any given body are manifest in the set of conditions forming it at a particular moment. Therefore all of the moments of this body can be apprehended separately, being constructions arrived at independently of each other (this in fact becomes the case in their mechanical definition – their mechanical modelling would reproduce each in the order of separate models). The action establishing the latter can only be analytic: its reduction is of things to their finitude. The general term for the outcome of an analytic investigation is found in the creation of a finite article, isolated from others, one called the *fact*.

A collection of abstracted facts sets out a peculiar situation: where each is isolated from the other, it can be said that the relationships suggested by all of them in total lack significance, and that prior to their arrangement all the facts of a moment relate indistinctly to each other. The reductive action carrying them over to this state, sheering them of long-suited, long-established traditional significance, is analysis. What analysis eliminates or subtracts is only the series of relations implying the necessity of their continuance, the necessity of a particular relational order. In the critique of Scholastic categories, this would imply that a given category or definition, its harmony and fixed order of progression in logic and temporality, forms only a particular conflagration of items. Descartes himself sharply called the products of Scholastic thought "prejudices"[115] and "false opinions."[116] This is because analysis entails generally that each thing or event

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[114] (59) Ibid.
[115] (79-80) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[116] (5) Descartes, René. *Rules for the Direction of the Mind*. Trans. Laurence J. Lafleur. Indianapolis: Bobbs-Merrill Educational Publishing, 1971.

can be reconstituted in a wholly different manner, no inherent necessity binding the thing to its form. When Descartes writes that his method is concerned solely with those objects "which our mind seems capable of obtaining certain and indubitable knowledge,"[117] it is to show that all articles resulting from analysis become singularities of certainty. Indeed, what he calls a "clear and distinct idea" is merely another name for a fact. And so the isolation of component parts and the attempt to reconstruct their context, whether relating to an argument in philosophy or science, or the mechanical workings of a body, becomes here only a first movement. What follows is synthetic action, the establishment of new relationships, what Joachim calls "the adding of determinants."[118]

It must be mentioned that for Joachim the synthetic action is not of crucial importance. The reasons for this can be found in Descartes himself, for Joachim follows him closely, and in the former the eliminative action receives much more emphasis. Joachim thus most closely sets out the details of the intellectual movement from general ideational obscurity to specificity. It is in his interest to outline precisely how knowledge gains itself through the Cartesian method as the collection of particular elements. He thus states the following as a general description of the Cartesian method:

> [Descartes] applies … analysis … to the contents of various forms of experience, such as sense-perception, imagination and memory, as well as … mathematical, scientific and philosophical reasoning. He detects in all an abstractly common feature – something to be known by a pure, undifferentiated, always identical *vis cognoscens*.[119]

Vis cognoscens is the font of appearance itself, classically named either "intuition," the "veil of perception," or the "natural light of reason." John Schuster defines it as the

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[117] (5) Ibid.
[118] (96) Joachim, Harold H. "The Cartesian Method". *Descartes' Rules for the Direction of the Mind*. Ed. Errol E. Harris. London: George Allen & Unwin, 1957. 62-99. Print.
[119] (96) Ibid.

"unique and purely spiritual agency of the cognitive apparatus ... which carries out intuition and deduction."[120] In Scholl's language it would be rendered as a "phenomenally indistinct" perception, undifferentiated into ideas and images.[121] In this undifferentiated state it stands parallel to the basic material *substance* out of which are composed all corporeal bodies. From this undifferentiated state the *vis cognoscens* is redacted by each of the faculties of the mind into specific objects; Joachim thus continues his explanation in this way: "the *vis cognoscens* in imagination apprehends … at times a sense impression (*aesthema*), and at times a *phantasma* – a survival, or record, of similar impressions apprehended in the past."[122] In each case the action of the imagination is different and particular: it can be pinpointed, displayed, and schematized. This forms the basis for understanding its constructions and the mode of its synthetic action.

In general the relationship between perception and the world must be thought as a form of analytic decay. The act of sense-perception redacts the world into the font of the *vis cognoscens*, the complex which is then converted in its entirety into the many distinct forms of mental processes. Insofar as an immediate awareness of the mind's workings can be defined as consciousness, Poulet has said of the *phantasma* that their collection by the imagination into dream-scenery is given over to a "secondary consciousness."[123] As the action of the mind is analytic as a whole, its particularity dependant on which faculty or combination of faculties is in play, any reference to a total consciousness aware of all

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[120] (314) Schuster, John. *Descartes-Agonistes: Physico-mathematics, Method & Corpuscular-Mechanism 1618-33*. Dordrecht: Springer Science+Business Media, 2013. Print.
[121] (68) Scholl, Ann. *Descartes' Dreams: Imagination in the* Meditations. New York: Peter Lang Publishing, 2005. Print.
[122] (97) Joachim, Harold H. "The Cartesian Method". *Descartes' Rules for the Direction of the Mind*. Ed. Errol E. Harris. London: George Allen & Unwin, 1957. 62-99. Print.
[123] (59) Poulet, Georges. "The Dream of Descartes". *Studies in Human Time*. Trans. Elliot Coleman. Baltimore: Johns Hopkins Press, 1956. 50-73. Print. Cited in: (243) McLuhan, Marshall. *The Gutenberg Galaxy: The Making of Typographic Man*. Toronto: University of Toronto Press, 2002. Print.

the mind's processes, the character of the indivisible "whole mind,"[124] is merely a shorthand way for defining the regular complex of divisions and recognitions it stages. Further examination of the details of consciousness would underline how it accords to certain tropisms. These include separate instances of conscious recognition for each sensorial process, as a retroactive glance on what has been experienced – but this example would pertain only to the understanding, and in fact would be only the barest demonstration of its workings. As Spinoza writes, "when [Descartes] said *cogito* these modes of thought were all implied, viz., to doubt, to understand, to affirm, to deny, to wish, to be unwilling, to imagine, and to feel."[125] (Here he quotes without citation Descartes' description of the *res cogitans* from the Second Meditation.[126]) Each of these mental activities would form a small part of the total experience: sense-experience having a particularity just as evident as the experience of doubting, or the experience of wishing, although sense-experience is always connected to the representation of the physical world. It is thus demonstrable that for consciousness in general, given the specific subject matter of focus and the means by which it is related to others, there are different and highly-particular forms of consciousness involved. If the latter claim is rephrased in deductive terms, consciousness would designate simply one line of analysis or reasoning followed by the mind among others, activated upon concentrating on specific objects. Consciousness itself must be understood as having historical bases, set patterns of development. For example, the action of the imagination as a whole is defined by

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[124] (139) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[125] (15) Spinoza, Benedictus De. "The Principles of Philosophy Demonstrated by the Method of Geometry". *The Principles of Descartes Philosophy*. Trans. Halbert Hains Britan. La Salle: Open Court, 1974. 11-55. Print.
[126] (85) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

Joachim as "the visualization of certain shapes and figures in the bodily organ of imagination (*phantasia*)".[127] This highly abstracted mode of consciousness would be pertinent to Descartes and others like him. But this mode would appear entirely differently, in process and contents, for someone with the sensibility of a Boethius.

The term "organ" for Joachim is not without its ambiguities. What he calls an "organ" would by others be called a faculty. For him it is important to demonstrate that all perceptions can be oriented to biology. He thus consistently superimposes mental actions in a spatial manner onto the organ of the brain itself in an attempt to bridge the specificity of mental acts to an equivalent specificity of physiological ones. But he is not alone in this: Schuster's presentation of Cartesian perception features a Scholastic and Aristotelian term, *loci*, which is meant to demonstrate regions of coincidence between physical and mental actions in brain structures.[128] The historical use of this term has close connections with the ancient art of memory; in this context Yates has found that *loci* designate the location of a mental image in a precise conceptual schema.[129] This schema organizes its *loci* in a set order such that the images stored there can be recalled at will. She points to the similarity of its use in Aristotle's *Topics*, where "loci" correspond to the contents of a logical argument, both formally, in terms of the structure of argumentation, as well as categorically, assuring that the chosen terms of the argument relate to each other.[130] In Schuster's use, *loci* are meant to articulate the connection between sensorial processes and their mental correlates. In an expanded and more detailed form, the

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[127] (96) Joachim, Harold H. "The Cartesian Method". *Descartes' Rules for the Direction of the Mind*. Ed. Errol E. Harris. London: George Allen & Unwin, 1957. 62-99. Print.
[128] (314) Schuster, John. *Descartes-Agonistes: Physico-mathematics, Method & Corpuscular-Mechanism 1618-33*. Dordrecht: Springer Science+Business Media, 2013. Print.
[129] (18-20) Yates, Frances A. *The Art of Memory*. London: Pimlico, 2010. Print.
[130] (45-7) Ibid.

discovery and interlacement of various *loci* in the brain would mean that each mental activity, doubting, wishing, and so on, will have some physiological, and therefore ultimately purely physical, correlate. In the end, this would imply that all mental processes are reducible to mechanical operations – something that Descartes vehemently denies at many points throughout his works. This cannot, however, be treated as a mistake of reception, as in the works of Descartes himself can be found evidence for both Schuster's and Joachim's position: in the *Passions of the Soul*, Descartes locates the infamous pineal gland as the seat of interaction between mental and physical processes[131] – but in doing so he must be understood as falling into a Scholastic mode of reasoning.

The consequences of this lapse are to be found in modern scholarship. Joachim, for instance, consistently misconstrues of the status of images. He states as a critique of Descartes that

> imagination (*phantasia*), which is a '*vera pars corporis*' [a true part of the body], … [produces] shapes and figures [which] are copies of the shapes of outer bodies. In apprehending a visual idea of a spatial figure, therefore, the *vis cognoscens* is, apparently, apprehending the shapes and mutual relations of parts of the bodily organ of imagination, and, as this is an exact reproduction in miniature of things in the external world, we can (apparently) be confident that we are apprehending true models of external things.[132]

His assessment that imaginary objects proceed in strictly visual terms is incorrect. Imaginary objects, being based on the senses, can be rendered by any of the senses: tactile sensations, auditory or olfactory ones, those of taste, and purely somatic sensations (i.e., those relating the body's internal functions), must be conjurable, able to be recalled

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[131] (§31-35;36-8) Descartes, René. *The Passions of the Soul*. Trans. Stephen Voss. Indianapolis: Hackett Publishing Company, 1989. Print.
[132] (98) Joachim, Harold H. "The Cartesian Method". *Descartes' Rules for the Direction of the Mind*. Ed. Errol E. Harris. London: George Allen & Unwin, 1957. 62-99. Print.

as in memory. Nor is it imperative that the imagination construct only the surface of things, as though following perspectival limitation. This error, again, has its source in Descartes himself, in the rhetorical or aesthetic features of his argument – his most powerful examples are stated in visual terms. There exist few counterexamples in his main texts, and they present only a marginal importance to the overall argument. Descartes' earlier scientific treatise entitled *The World* is slightly clearer in this respect, referring in its opening to sensations of touch, sound, and light and their representations in the mind, formed "in our imagination".[133] And in the *Meditations*, various sensations other than those of sight are rendered by dreams: "Will it be said that these appearances are false and that I am sleeping? Let it be so; yet at the very least it is certain that it seems to me that I see light, hear noises, and feel heat."[134] Joachim's reference to "shapes and figures" is thus symptomatic; he means to highlight the incorporeal nature of imaginary objects, implying their lack of completion, detail, or participation in substance (he in fact takes his language from the Second Meditation[135]). For him, as for Descartes, the concept of exact mental reproduction of physical objects is unsatisfactory, and must be replaced by a schema of formal representation; this Joachim has difficulty qualifying, however.

From the above it can be seen that Joachim's criteria of assessment are derived from mathematics. He does not conceive the following distinction – that the action of the imagination, as a *pars corporis*, need not be *exact*, but only verable, true. Imaginary exactitude is needed, again, only if mental processes concentrate on problems of a

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[133] (3) Descartes, René. "Treatise on Light". *The World and Other Writings*. Trans. and Ed. Stephen Gaukroger. Cambridge: Cambridge University Press, 1998. 3-75. Print.
[134] (86) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[135] (85) Ibid.

mechanical nature. The mental articles of notation used for composition become ratiocinated abstractions like units. Again, units as *ideas* are a very precise form of representation of the physical world. Yet even here the disjunction at the heart of representation, the difference between the represented object and its representation, is final.

Only for a medieval scholastic like Boethius would the objects of the world appear in the same way for God; that is, if objects are apprehended correctly, which means apportioning for them their categorical designation, then such objects are certain. This is because for Boethius divine thought holds all existent things aloft in mind and knowledge – divine thought is the *incarnation*, a continuous *genesis* or creation of the physical world. Thus the profane status of objects in Boethian schema show only their distance from divinity, but not a difference of indicated through a different kind of knowledge. Boethius in fact organizes his cosmology on the basis of concentric circles, featuring the sphere of the earth at the center, around which are ringed the planets, moon, and stars.[136] For Descartes, on the other hand, profane objects must be redeemed by God before they can be known with certainty – but this knowledge is never present its actuality. It cannot be found in the object itself. Such redemption as can take place in the profane sphere is exclusively retroactive. God may know, but man cannot. Man's certainty, and thus the kind of knowledge he may possess, is otherwise.

Deely writes that at the time of Descartes' education, his Jesuit teachers were concerned with this precise problem. While at school Descartes studied the works of Pedro da Fonseca, who in his 1564 text *Institutionum Dialecticarum* writes that "To

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[136] (9,73) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.

signify is nothing else than to represent something to a cognizing power. But since everything that represents something is a sign of the thing which it represents, it happens that whatever signifies something is its sign."[137] Thus, a representation appears to a "cognizing power" while that which represents is only a "sign." Deely distinguishes between the two thusly: there are "formal *representations* and instrumental *significations*," the latter of which can be comprised only of "the class of sense perceptible objects … called *signs*."[138] If signs are reoriented from a true, divine mode of understanding, towards a profane one – then the mind of man can serve to receive instruction from signs as well, whatever fragmented form this may take in the profane world. It must be said that the form of this instruction for Descartes, because it is fragmented, necessitates the distinction between ideas and images.

Joachim also notes a final problem, purely epistemological in nature. He defines it this way: one can in no way distinguish between ideas and images generally unless one knows in advance what such things are. Therefore,

> No meaning whatever can be attached to this description of sense-perception and spatial imagination [that of exact reproduction of the world], except on the assumption that the percipient knows the external causes of his imaginations (i.e. the shapes and interrelations of parts of outer bodies) independently of sense-perception and imagination. But Descartes says that the *vis cognoscens* alone can know, and that it apprehends only its own ideas or changes in the bodily organ; and again he speaks of imagining as a function in which we use the intellect, not in its purity, but assisted by the forms depicted in the *phantasia*."[139]

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[137] Cited in: (350) Deely, John. "Poinsot's Triumph (1632): The Success and Failure of the Latin Age". *Medieval Philosophy Redefined: The Development of Cenoscopic Science, AD354 to 1644*. Scranton: University of Scranton Press, 2010. 347-80. Print.
[138] (351; emphasis original) Ibid.
[139] (98) Joachim, Harold H. "The Cartesian Method". *Descartes' Rules for the Direction of the Mind*. Ed. Errol E. Harris. London: George Allen & Unwin, 1957. 62-99. Print.

At the center of Joachim's critique is the problem of prediction. What he discovers at the conclusion of his argument is that the ability to draw facts from the mass presented by the *vis cognoscens* consists entirely in foreknowledge of the experience itself. That is, to have *certain knowledge*, to be able to distinguish between *images* and *ideas*, representations of the world and imaginary constructions that appear *exactly* like the world, one must know in advance of one's experience what is to happen. The impossibility of this requirement means for Joachim that the entire analytic strand he followed, and the analytic procedure itself, becomes irrelevant. Chronologically speaking, if one occupied a redeemed and linear timestream, Joachim's assessment would be correct. Occupying the moment of redemption means that one would understand all events and processes in their total bearing on each other. Analysis would thus be entirely pointless – in fact it could not exist – as in this case the exact specificity and connection of each thing to every other would be known. But the sphere that is occupied by humans is that of the profane, and its time, matter, and inhabitants all accord to it; for them such perfect knowledge is impossible – something Descartes was distinctly aware of.

With the new exactitude expressed in the Cartesian philosophy, the roles of both man and God change. The role of nature itself becomes redefined. Again, this is because the lapse from a categorical definition gained a form of measurement: lapse in material terms means decay, ruin, breakdown; lapse in the terms of mind, of understanding, means uncertainty and impermanence of observation. God, for Descartes, can take hold of any single worldly particle, and through His perfect understanding view the whole of its connections to all others. For him these connections are infinite, which means they reach to the very bounds of the physical universe and articulate all other events as well.

Here, returning to Joachim's final problem, it can be said that the terms of human life in the profane sphere are not given by the impossibility of certain knowledge. Certain knowledge in total is of course unapproachable, and only God possesses it, but human life can apprehend, grasp something of what can be known. The ability to do so lies in analysis – for analysis defines the mode of mechanical decay witnessed by nature, and produces for us those iotas of specific knowledge which can be arranged in concepts to confer some form of intelligibility. Analysis, as it is presented here, can be regarded as the enunciation or, indeed, the name of *the partial relationship itself*. It is this partial relationship that becomes the key to matter at hand. In engaging in analysis, one enumerates and describes a series of relationships in a manner displaying through their fragmentation the possibility of knowing things in part-way separation. Analysis thus becomes the stage of modern philosophical contemplation: the space it opens between things can be filled with such elaborations that, at least in the interim, need not be related to their wholeness in God. Such wholeness would eradicate them, as is seen in the disappearance of things into their categorical definition. Where decay, as the profane slippage of things, arises as the object of focus it highlights a deep-set interest to preserve the significance of things which can exist only momentarily in specific arrangements. It is precisely through the interest of this mode of thought, religious in origin, that images gain any traction at all, and become valued highly enough to be recorded.

2.3

Above all, this must be vehemently stated: perception in its Cartesian mode is the product of a mode of explanation. Consciousness itself, in the modern, Cartesian notion of mind, is a conceptual reordering of distinct facts, of that which is already known, into what is called "immediate awareness." This, however, always occurs *retroactively*. The notion of a truly immediate experience belongs to Boethius; for Descartes there are no immediate features of experience other than their connection to each other within the schema of temporality. Thus the establishment of facts is a mode of establishing a highly specific permanence in piecemeal terms: facts belonging to the past demonstrate their connection to all that has already been experienced; facts of the present demonstrate their pertinence to the matter at hand, the object of investigation; facts of the future, what is *to be*, are those confirming what has already been established. There is no question in this case that future facts will contradict present ones, for all facts are instances of *certain knowledge*, and they can be organized into the temporal order called on by "perception" only when they become so. Facts which enter into contradiction are simply irrelevant to the situation at hand – indeed, the very definition of falsity becomes the irrelevance of its objects. Whenever Descartes invokes falsity, for instance in the "falsity" of artistic creations in the First Meditation,[140] this is not a repetition of the Platonic hierarchy; rather, it is a designation of a kind of knowledge – the knowledge of mental things, images. Artistic creation is "false" only in the sense of the irrelevance of its products to the order evinced by physical principles.

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[140] (77) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

The definition of fact as a clear and distinct perception, facts themselves being singular determinations of the moments of perception, will make the above proposition clear. Spinoza defines it in this way: "to understand everything clearly and distinctly, [Descartes'] principal rule was to examine separately all the simple ideas from which all others are composed. For when he clearly and distinctly understood these simple ideas, he was enabled to understand in the same thorough way all others into which they entered as component parts."[141] Facts of a certain matter must then be understood in terms of their pertinence, their participation in some event or object – the *certainty* of facts means that this participation or relationship has been pinpointed. Indeed, the apodictic quality of facts, their self-evidence, is based on such a relation. Their isolation without a corresponding order renders them meaningless, insignificant, uncertain. Only when a mode of pertinence is finally established do those uncertain facts become certain representations – for instance, when their significance is oriented to physical events, such facts become known as clear and distinct *ideas*.

Thus the status of perception, isolated into a term, changes entirely depending on the particularity of the investigation and what is at stake in it. This has consequences which radiate throughout the field of pertinence. Only in the domain of mental experience, in the mind, does the invocation of perception imply either awareness or consciousness. Conceived of mechanically, human perception has no special status among the processes of stimulus-and-response found in other objects. If perception is understood to be purely physical, relevant only to immediate or sensorial bodily awareness, then it must be understood merely as the necessity of some form of response.

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[141] (11-2) Spinoza, Benedictus De. "The Principles of Philosophy Demonstrated by the Method of Geometry". *The Principles of Descartes Philosophy*. Trans. Halbert Hains Britan. La Salle: Open Court, 1974. 11-55. Print.

Accordingly it must hold that any and all physical entities can be attributed with "bodily perception" as a name for the mode of their reaction to stimuli, since the explanation of the latter in terms of mechanical abrasion or the distribution of energetic charges in the form of heat or light effectively covers all phenomena of the natural world. In a line of reasoning appropriate to the above, Slavoj Žižek has written that "Descartes, who asserted the *cogito* as the starting point of philosophy, simultaneously reduced all reality, life included, to *res extensa*, the field of matter obeying mechanical laws. In this precise sense, the thought of modern subjectivity is not a 'humanism' but, from the very outset, 'antihumanist'."[142] And Friedrich Engels, in his *Dialectics of Nature*, has given this definition of the subject: "What we call a *subject* is only an object considered as the centre of particular relations."[143] The concept of mind becomes irrelevant when the semantic pertinence of perception is so severely restricted to the physical realm; *mind* forms no part of the explanation, becoming thus a sort of alien addition to the latter paradigm. Taken in this way as a specific natural process, perception must therefore be interpreted only through sets of mechanical modulations. In bodily terms this would be the description of behavioural responses generated by the "disposition of organs," as Descartes calls it, and it would be sufficient as means of explanation for anything deemed involved in perception.[144] This is also why Descartes states that mechanical responses in automatons cannot be interpreted as resulting from the understanding: "For while reason

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[142] (164) Žižek, Slavoj. *The Parallax View*. Cambridge: The MIT Press, 2006. Print.
[143] Cited in: (28) Sartre, Jean-Paul. *Critique of Dialectical Reason, Volume 1: Theory of Practical Ensembles*. Trans. Alan Sheridan-Smith. Ed. Jonathan Rée. London: NLB, 1978. Print.
[144] (41-2) Descartes, René . "Discourse on Method". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 1-59. Print.

is a universal instrument which can be used in all sorts of situations, the organs [of automatons] have to be arranged in a particular way for each particular action."[145]

Cartesian "reason" has in all cases a dual meaning: it is the reason of the world, the semantics of relation between physical processes, represented in *ideas*; and it is the reason of ordered and organized knowledge, the methodical ordering of mental processes, capable in the human realm of critique, upheaval and reform, represented in *images*. Any line of deduction which Descartes follows takes on one of the two above statuses (i.e., any line of reasoning must be deemed either "mental" or "material" in its pertinence, any form of explanation is foremost a definition of a particular order of representation). Cartesian reason is not Aristotelian logic, the logic of topics, which can stand firmly on its own, having and maintaining a certain procedural validity. When Descartes writes that the "mind, or soul of man"[146] must be able to free itself of all "prejudice and … from its attachment to the senses,"[147] that, indeed, "it is the mind which sees, not the eye,"[148] this must be taken as a basic definition of separation of the mind from the body. The "prejudice" he refers to is, in part, the Thomist and Aristotelian doctrine which relates "sense perception as the basis for knowledge".[149, 150] In the latter doctrine, knowledge and materiality are inextricably linked – this becomes the basis for the categorical definition of the world, for everything that can be known depends on what is present, what exists in

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[145] (42) Ibid.
[146] (72) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[147] (64) Ibid.
[148] (108) Descartes, René. "Optics". *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. 63-173. Print.
[149] (42) Gaukroger, Stephen. *Descartes' System of Natural Philosophy*. Cambridge: Cambridge University Press, 2002. Print.
[150] cf. (89-90) Descartes, René. "Optics". *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. 63-173. Print

the world, not what can be constructed or thought. Inquiry is limited to discovering which features are essential, and which accidental, and it is to be done through logical argumentation. Anything constructed by man would not change, in the Scholastic view, the essential properties either of the material of construction or the constructed thing, as "any behaviour which can be said to be due to the body itself is due to the essential properties it has."[151] The proof of this lies in that, by eventually passing away, the constructed item would return to its original constitution, all of its shaped features and arrangements being thus accidental. Neither would anything thought by man acquire true importance (as his thoughts, too, will pass) unless it illustrated some basic principle by which the essential and the accidental could be distinguished. In this strict conception of the role of logic, nothing more needs to be done other than to provide clarification, for "logic or dialectic is included above all because it is the method by which the basic principles of the various *scientae* are discovered."[152] *Scientia* in the medieval sense would designate a mode of appropriate classification.[153] As Boethius has written, "It is the nature of [every]thing to perform the office proper to it. It does not become mixed up in the operations of contrary things and actually repels opposites."[154] But as contradiction or contrariness is multiple in its distribution among the categories, it becomes of utmost importance to distinguish the particularities of every item of investigation. This results in an expansive and encyclopaedic listing of the qualities of things, and the work of logic

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[151] (53) Gaukroger, Stephen. *Descartes' System of Natural Philosophy*. Cambridge: Cambridge University Press, 2002. Print.
[152] (53) Ibid.
[153] (455) Livesey, Stephen J. "Scientia". *Medieval Science, Technology, and Medicine: An Encyclopedia*. Ed. Thomas Glick, Steven J. Livesey, and Faith Wallis. New York: Routledge, 2005. 455-8. Print.
[154] (71) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.

thereby becomes enormously difficult, perhaps not in particular instances, but in total, where the requirement is that of compilation.

Descartes' work could perhaps receive a name which Leibniz accorded to his own philosophy – it was the attempt to formulate a *scientia generalis*. In contrast to the medievals, where Descartes attempts at a consistent explanation of a general reason he arrives at his method and at mathematics, which gain their sense both as representations of the world at large and as the means for simplification in mnemonic or informational compression. And where he mentions the necessity of maintaining the order of causes and effects it must be remembered that these are nominated depending on what is at stake, what set of relations is being investigated, and what phenomenon is the object of focus.[155] In result, each investigation has a general bearing on all others, the specific connections of which would be made more distinct only as far as this would be needed for its purpose.

The effects of Cartesian reason in general are to establish spheres of relevance which correspond to a type of explanation. Noam Chomsky therefore states apropos the explanatory powers of scientific reasoning in general that they need not ever be confined to a strict definition (in Scholastic terms, a *metaphysical* definition) of the physical world:

> We can… be fairly sure that there will be a physical explanation for the phenomena in question, if they can be explained at all, for an uninteresting terminological reason, namely that the concept of 'physical explanation' will no doubt de extended to incorporate whatever is discovered in this domain, exactly as it was extended to accommodate gravitational and electromagnetic force, massless particles, and numerous other entities and

[155] (19) Descartes, René. *Rules for the Direction of the Mind*. Trans. Laurence J. Lafleur. Indianapolis: Bobbs-Merrill Educational Publishing, 1971.

> processes that would have offended the common sense of earlier generations.[156]

Chomsky's final sentence is made in reference to the long series of scientific discoveries made in the last several centuries. The Cartesian "rules of mechanics, which are the same as the rules of nature,"[157] thus find an ever-expanding meaning, changing as the course of investigation requires it. Refinement of the processes of mechanics in this way opens up their proliferation vastly. Expanding the conception of the physical universe, its constituents, the modality of its processes, is done to expand, likewise, the scene of possible human enterprise, the available materials of construction, the methods or devices of realization, and the set of concrete, mechanically-definable physical steps demonstrating how this can be done.

2.4

An important consequence follows. Once the system of nature is defined by following the semantics entailed by physical connection to their end, this does not prevent, however, this system from being reoriented. The history of critique Chomsky alluded to is to be located precisely in the shift of the source of representation from the idea of the physical world to the reasons for its imaginary construction. To articulate this shift would necessitate a change of the mode of explanation as well. To reiterate, explanation within the mechanical paradigm of physics means the ability to reproduce a

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[156] (97) Chomsky, Noam. *Language and Mind*. New York: Harcourt Brace Jovanovich, 1972. Print. Cited in: Williams, Raymond. "Problems of Materialism". *Culture and Materialism: Selected Essays*. New York: Verso, 2005. 113-35. Print.

[157] (40) Descartes, René . "Discourse on Method". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 1-59. Print.

certain occurrence within a working mechanical model.[158] It is the simulation of a situation. When it is said here that mechanics cannot simulate images, this means that it cannot produce them outright. Purely imaginary, mental constructions are produced by the action of the imagination; its materials, though drawn ultimately from the physical world, are composed in such a way that they become chimeras. Such images are not visual: their attributes could be called either *philosophical* or *aesthetic*, insofar as philosophy can be said to stand for the orderly exposition of the workings of the mind through concepts, and aesthetic activity for the representation of the latter in various artefacts. Thus the analysis of images proceeds philosophically, and, in the terms of the previous discussion, this means that the investigation and explanation of the artefacts or products of mental construction becomes possible.

The first important implication is that any relationship of representation to the physical world, when referring to the specific reasons of its construction, can bear the status of image; the second is that every mental construction will designate a specific historicity as to how it was formed. The long history of critique, which indeed constitutes the history of science, is formed from a series of images that have undergone rigorous inquiry into their reasons. It is also in the history of science that the criterion of exactitude becomes the greatest impetus for examining the specificity and implications of the range of arguments given. This necessitates that there can in no way be pinpointed, as a law or rule defining functions, something so essential that the discovery of something else later on, even if this is a minor thing, does not impact it. It thus becomes of the

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[158] (4) Chomsky, Noam. "Mysteries of Nature: How Deeply Hidden?". *Chomsky Notebook*. Ed. Jean Bricmont and Julie Franck. New York: Columbia University Press, 2010. 3-33. Print.

highest importance to relate minor problems to wide-reaching general postulates, as even a small empirical discrepancy could lead potentially to their invalidation.

But there is another implication, this time reflecting on the status of the thinker, philosopher, or scientist as the origin and source of images. In Descartes' texts there are moments where the narrative speaker cannot be considered a physico-historical entity, but must be instead treated as a conceptual one: a purely constructed, fictional entity (becoming thus *philosophico*-historical). Indeed such moments are common – and the most eminently important of them is the following, in which Descartes could be said to speak with the voice of the concept (the voice of the *I*):

> I am, I exist – that is certain… but what thing am I? I have already given the answer: a thing which thinks. And what more? … I am not this assemblage of members which is called a human body; I am not a rarefied and penetrating air spread throughout all these members; I am not a wind, a flame, a breath, a vapour, or anything at all that I can imagine or picture to myself… [So] what is a thinking being? It is a being which doubts, which understands, which conceives, which affirms, which denies, which wills, which rejects, which imagines also, and which perceives. It is certainly not a trivial matter if all of these things belong to my nature.[159]

The treatment of the abilities of the thinking being (*res cogitans*) as a "trivial matter" would be most usefully oriented to the Scholastic "prejudice" of "attachment to the senses." For in the latter doctrine, the abilities of the mind would be assumed inherent – and thus Descartes' point, a methodological one, that these abilities have the most powerful significance when they are abstracted and reordered into their own domain would be missed. If the sentences cited above are taken as the representative discourse of the *I*, then this would seem to limit its rhetorical strand to an abstract mode of development, something that would be in keeping with the history of philosophy. For

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[159] (84-5) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

instance, all of the concrete features of the *I*, those connecting it to the body, are listed above only in negation. Other examples reveal the same kind of rhetorical flourish: "In the last few days I have become so accustomed to ignoring my senses, and I have so carefully noticed that we know very little with certainty about corporeal things…"[160] Or: "Would it be that I have formerly considered many things true and certain which I later recognized as false? But I had not clearly or distinctly known any of those things…"[161] This is a very circumspect and even vague form of definition, but it is one which allows the *I* to say something about itself. It is, again, a negation of concrete features – all such features being part of the mechanical mode of explanation.

Yet, there is nothing in the Cartesian schema which would limit it to an abstract discourse. In fact, the major portion of the Fifth Discourse of the *Discourse on Method* is taken up with a rigorously analytic and mechanical description of the workings of the human heart;[162] elsewhere – in the "Treatise on Man" and the essay entitled "The Description of the Human Body and All Its Functions" – Descartes increases both the scope and explanatory depth of his purely anatomical investigations.[163] As rigorously scientific as such texts are, they nonetheless contain many phrases which would be of immense interest to a philosopher if these are taken not as annotations of empirical interest but as the definition of a series of images of the body and its workings. "The Description of the Human Body" begins thus: "There is no more fruitful occupation than to try to know oneself. And the benefit that one expects from this knowledge does not

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[160] (108) Ibid.
[161] (125) Ibid.
[162] (34-41) Descartes, René . "Discourse on Method". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 1-59. Print.
[163] (182-4) Gaukroger, Stephen. *Descartes' System of Natural Philosophy*. Cambridge: Cambridge University Press, 2002. Print.

just extend to morals, as many may initially suppose, but also to medicine in particular."[164] "Knowledge" is not in this case what Descartes would call speculative; rather, it is practical. But this does not, again, prevent its philosophical or speculative examination. Where practical knowledge is limited to mechanical explanation, in the exposition of the *I*'s capabilities, of desiring, willing, and so on, it would take place as the concatenation of physical and somatic processes – and the *I* would thus be called a "body." But in the sentences quoted in the previous paragraph from the *Meditations*, the *I* has no modality other than reason by which it can develop. In this way the *I* of Descartes, as a reasonable construction, would take on the name "mind" or "soul". Both cases make clear that the *I* is impersonal: it is in this precise sense the image of a person. Where the *I* is an idea it will always refer to a specific physico-historical entity.

When the *I* perceives in its being as *mind*, it does so through a clear and distinct enumeration of reasons, which fall into a certain arrangement. Such reasons are for the mind the list of its determinant moments of perception. (In the mechanical mode, as was said previously, this changes into the listing and ordering of observed material facts.) Reasons, not bound here to apodictic statement or mathematical formulation, can appear as a series of images. Thus the qualities of the scene of the dream, the fictive landscape, can be resuscitated in the field which has extirpated itself of them: this means that the imaginative mode of thought can conceive of an everyday occurrence, normally purged of philosophical significance, lacking a philosophical mode of articulation, in entirely philosophical terms; in fact, the very mode of description of a routine event or mundane object gains in this way a heightened and unforeseen significance. Such significance can

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[164] (170) Descartes, René. "Description of the Human Body". *The World and Other Writings*. Trans. and Ed. Stephen Gaukroger. Cambridge: Cambridge University Press, 1998. 170-205. Print.

be called *uncanny*.[165, 166] Descartes demonstrates as much when he sets himself to examine the following:

> How many times has it occurred that the quiet of the night made me dream of my usual habits: that I was here clothed in a dressing gown, and sitting by the fire, although I was in fact lying undressed in bed! It seems apparent to me now, that I am not looking at this paper with my eyes closed, that this head that I shake is not drugged with sleep, that it is with design and deliberate intent that I stretch out this hand and perceive it.[167]

This scene is written in part for its very lucidity, for it would not present anything questionable in another mode of representation. Yet in Descartes' philosophical text its qualities are made flamboyantly deceitful. Its very ordinariness demands interrogation. Even what he relates of the judgments leading him to distinguish dreaming from waking life must be questioned. This has been done by Ludwig Wittgenstein at the end of his philosophical investigations in *On Certainty*, with the following thought-experiment:

> If I am [drugged] and if the drug has taken away my consciousness, then I am not now really talking and thinking. I cannot [therefore] seriously suppose that I am at this moment dreaming. Someone who, dreaming, says that "I am dreaming," even if he speaks audibly in doing so, is no more right than if he said in his dream that "it is raining," while it was in fact raining. Even if his dream were actually connected with the noise of the rain.[168]

The difference between reality and dream, and the supposed paradox if one asks if one's physico-historical surroundings are, in fact, dream-surroundings, means that one must say to oneself in the manner of Descartes: I now dream, I am a dream – I, a dream-I, am

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[165] cf. Freud, Sigmund. "The Uncanny". *The Standard Edition of the Complete Psychological Works of Sigmund Freud, Volume XVII (1917-1919): An Infantile Neurosis and Other Works*. Ed. and Trans. James Strachey et al. London: Hogarth Press, 1955. 217-56. Print.
[166] cf. Pfaller, Robert. "The Familiar Unknown, the Uncanny, the Comic: The Aesthetic Effects of the Thought Experiment". *Lacan: The Silent Partners*. Ed. Slavoj Žižek. London: Verso, 2006. 198-221. Print.
[167] (76) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[168] (§676; 89e-90e) Wittgenstein, Ludwig. *On Certainty*. Ed. G.E.M. Anscombe and G.H. von Wright. Trans. Denis Paul and G.E.M. Anscombe. Hoboken: Blackwell Publishing, 2011. Print.

sitting in a dream-chair, asking dream-questions about dream-topics; perhaps I am also reading a dream-book, coming up with dream-thoughts and dream-reasons; perhaps in response I feel excitement or fear, perhaps foreboding or confusion, or exuberance. Yet it remains surely clear that these are all dream-affects, dream-feelings, my experiences of dream. And rightly speaking, in keeping with the above mode of discourse, I cannot know if I will ever return to wakefulness, or indeed if there is any – for, as Descartes states, "Even if I am asleep, all that appears evident to my mind is absolutely true."[169]

[169] (125) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

Chapter 3: Doubt

3.1

Paul Ricoeur has said that "the philosopher trained in the school of Descartes knows that things are doubtful, that they are not such as they appear."[170] But what does this mean for Descartes? What is the precise function of doubt? And, by extension, what is the function of doubtful things like dreams and apparitions, which appear for him? The central proof for Descartes, expressed in numerous places, is a variation on this claim:

> From the fact that God is not a deceiver, it necessarily follows that in this matter [sense-perception, memory, understanding] I am not deceived. But because the exigencies of action frequently oblige us to make decisions and do not always allow us the leisure to examine these things with sufficient care, we must admit that human life is very often subject to error in particular matters; and we must in the end recognize the infirmity and weakness of our nature.[171]

Doubt therefore has a function which can even be rigorously defined: it is the reflection on the nature of limitation in man and world. A meditation on doubt allows one to see where it lies and what uses it can be put to.

But there is another question: when Descartes states that God is not a deceiver, what does he mean? Perhaps the reason that he did not elaborate further is in the letter of dedication opening his *Meditations*, which was addressed to the "Deans and Doctors of the Sacred Faculty of Theology in Paris";[172] or perhaps it can be found in the meaning of

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[170] (33) Ricoeur, Paul. *Freud and Philosophy: An Essay on Interpretation*. Trans. Denis Savage. New Haven: Yale University Press, 1970. Print.
[171] (143) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[172] (61) Ibid.

the fact that the audience he addressed in his *Discourse* was the general public.[173] Seen like this, it is probable that in both texts it was enough to state one sentence – "God is not a deceiver" – for a sufficiently full meaning to be evoked. This historical issue can therefore be expressed more completely in a reference to the doctrine of the Scholastics than to Descartes' Third Meditation, which concentrates on the issue of the existence of God.

God's status as good, beneficent, not deceitful, is linked with the ancient problem of determining the divine qualities, foremost among them being goodness, perfection, and justice. According to Siobhan Nash-Marshall, Boethius' reflections in the *Consolation* are directed to a claim about goodness that proves difficult to accept if it is thought that such qualities are realized in their true form only in God. For Boethius, "contingent beings attain their perfection through Providence"; this means that they "become perfect when they actualize their natures completely."[174] For the meaning of this statement to emerge it should be read in conjunction with another, by Thomas Aquinas, found in a commentary on Boethius and the notion of the Good. Aquinas writes the following, which may be regarded as expressing the above in a dual mode, both as a metaphysical definition and an ethical injunction:

> For it has been said that God is the very essence of goodness, and everything according to the perfection of its proper nature is called good. … But in God is found every notion of goodness, and therefore he is not only good but just. But not all species of goodness are found in all, but different kinds in different kinds. So it is not necessary that the species which is justice should derive to all beings through goodness is. Hence

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[173] (56) Descartes, René . "Discourse on Method". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 1-59. Print.
[174] (277-8) Nash-Marshall, Siobhan. *Participation and the Good: A Study in Boethian Metaphysics*. New York: The Crossroad Publishing Company, 2000. Print.

> some beings are just while others have another species of goodness, yet all are good insofar as they are derived from the First Good."[175]

The premise that some things are good, that they have accomplished goodness in themselves, does not also entail that their relation to other things is good as well. For this to happen, for both things and their relations to others to be good, there must be justice, something defining their manner of being in the world, their distribution. Hence, things may be good but not just. Justice requires that a precise arrangement of things take place, one expressing both a relationship to the divine and to everything surrounding them. The perfection of contingent beings for Boethius is a combination of their goodness, the consummation of their placement in the world in a consciousness or awareness of position, with their justice, their duty to carry out the role proper to them. If accomplished this would set them in accordance with everything else and with God.

The above applies to humans more than to any other worldly object or creature. Nature for Boethius is composite, formed from a multitude of pieces – if not for God, its course would be chaotic and tumultuous, lawless. Perfection in the course of human life means its predictability, the ability to know events, to derive justice from some actions and not from others, to correlate the beneficial with the proper, and the unjust, the evil, with the harmful. To know this and act by it would be to acquire unity with other perfect things. Thus: "When man actualizes his nature, as such, he becomes like God."[176] Human knowledge, if it were to have only a single purpose in this existence, would allow each person to gain that proper role and guide him to pursue it to perfection. This is the

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[175] (162) Aquinas, Thomas. "How are Things Good? Exposition of *On the Hebdomads* of Boethius". *Selected Writings*. Ed. Ralph McInerny. New York: Penguin, 1998. 143-62. Print.
[176] (284) Nash-Marshall, Siobhan. *Participation and the Good: A Study in Boethian Metaphysics*. New York: The Crossroad Publishing Company, 2000. Print.

meaning of the medieval *scientae*, which sanctified the virtues of the methods codified in the liberal and mechanical arts by connecting each to its cosmological significance. Édouard Jeauneau, reviewing the history of the school of Chartres, famous for its architecture, has concluded that "*mathematica*," which in its practical, applied form is called the *scientia media*, "is, therefore, the necessary propadeutic … for the study of theology"; in it, the *quadrivium* must be taken as the bridge between the profane, confused "world of the senses and the intelligible universe: all those who aspire to theological knowledge must pass through it."[177]

Descartes' reference to God is in no sense naïve. It is done, from our perspective, as a gesture to all of the above, but from his as a necessity. In evidence is the fact that from the outset the Scholastics regarded the mathematical edifice only insofar as it found its end in theology, and that all constructive efforts in the arts were a mode of contemplation of the divine. On the other hand, the Cartesian emphasis on a "practical philosophy" displaced the above to the degree that all constructive activities came to manifest something different, what could be called an element of silence. This silence is that of an intent, concentrated observation –indeed it is a form of reverence. All such activities will call themselves to God regardless or whether the theological element receives foregrounding or not. But they must not be done in ignorance of this fact, which means that in order for there to be a general silence of such magnitude a special criterion has to be put into play. In mathematics this is the requirement that mechanical articulation itself is accorded the highest purity in order for its works to be most perfectly achieved. Here Galileo's dictum can be invoked: "*Il libro della natura è scritto in lingua*

[177] (72) Jeauneau, Édouard. *Rethinking the School of Chartres*. Trans. Claude Paul Desmarais. Toronto: University of Toronto Press, 2009. Print.

mathematica. [The book of nature is written in mathematical language.]"[178] Thus mathematics itself, because it is written and not intoned, shares in this reverence inherently. The clearest articulations the latter produces are therefore those most suitable for realizing their earthly good, which lies in the connection of the natural world to God. This is in fact the intensification of the relationship Jeauneau had already located in the sensibilities of the school of Chartres, that "in the tripartite division of speculative philosophy, *mathematica* occupies a middle ground between physics and theology."[179] Descartes' own criterion of a "clear and distinct" understanding meant that the ability to see worldly things in terms of their distribution must be cultivated to the utmost in order for it to carry properly into mechanical and mathematical efforts. Indeed, the exactitude of his philosophical undertaking entails that mathematics itself can never transcend the ground of theology, no matter how deep its articulations reach. The methodological statement Descartes made about mathematical procedure, that "there is no place where the consequences do not have an exact connection with and dependence upon their antecedents,"[180] acquires here an entirely theological meaning. For the philosopher inquiring into the existence of God and the good it is imperative to follow mathematics; if this is done correctly, then it will lead both to a clear apportioning of the contents of knowledge and to a knowledge of God.

But what is entirely different about Descartes' inquiry is the distinct emphasis it places on knowledge. Knowledge is important, not only in its full structure, open in its

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[178] Cited in: (499) Dijksterhuis, E.J. *The Mechanization of the World Picture*. Trans. C. Dikshoorn. Oxford: Clarendon Press, 1961. Print.

[179] (72) Ibid.

[180] (63) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

entirety only to God, but also in the aspect describing how its classification can proceed just as well even when dealing only with the range of what a single person can know. It is thus not simply a question of what can be known in total, a question regarding the limits of knowledge and what constitutes them, but what can be known by man. This again is due to the status of representation, how it changes when linked up to an increasing exactitude. Categorical knowledge, expressed in *scientae*, if true, was a demonstration of the knowledge of God, but only in its essential terms, not the accidental ones which radiate into particular instances and give it its specific inflections. Insofar as the various *scientae* were discovered by the Scholastics through the use of logic, this being the one area where formal innovation was accorded the highest value, logic as a method demonstrated a means of conferring harmonious or proper arrangements upon knowledge. Its role in ensuring correct understanding thus made its successes instances of intelligibility of divine justice. The collection of such knowledge into an entire, encyclopaedic order could perhaps be understood as the *summa* or totality of human understanding – yet there is still the problem of human error. In logic cases of error are determined by their distribution into the fallacies. Contradiction, however, is still very much particular to its happening, even if done in the context of a logical order. This gives the onus of responsibility for determining the content of error to the experiencing person, or man in general, he who is the bearer of the particular instance. Still, "whatever the importance of the results obtained, if we regard them from the point of view of our own human knowledge, it is well not to forget their extreme poverty in comparison with the infinite object which they would seem to make us know."[181] Error, or the justified form

[181] (120) Gilson, Étienne. "The Attributes of God". *The Christian Philosophy of St. Thomas Aquinas*. Trans. L.K.

of doubt, is not only a faulty step in a logical sequence, but also a condition of representation. Error in human terms represents the far greater portion of truth to which it belongs, of which it is a small example, and its meaning lies not so much the imperative seeking to purge it as in the environment it stands for: the profane world, the *environment of error*.

Such issues are from the outset addressed to perception. This relates the qualities of intellectual vision, the bare portion of which is eyesight, to the achievements of the analytic gaze. To quote Boethius, "The divine gaze looks down on all things without disturbing their nature."[182] By contrast, the analytic gaze is disruptive. In order to render the world intelligible it must grab only a piece, and hold tightly to it. Here the Christian concept of the mercy of God is crucial – and it should be understood impersonally. Mercy refers to the whole of nature, to the preservation of existing things. God is merciful because He *does not disturb anything*: He influences neither the course of human will nor provokes the occurrence of some event or happening.[**] In the light of His gaze, things unfold as they should. The action effected by human will must therefore be understood as a form of interference, a change in the order of things. The immediately realizable

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Shook. New York: Random House, 1956. 96-129. Print.

[182] (166) Boethius, Anicius Manlius Severinus. *The Consolation of Philosophy*. Trans. V.E. Watts. London: Penguin Books, 1969. Print.

[**] This brings up the question of miracles. Yet miracles even as late as the Baroque period did not only refer to what would be called today "supernatural" occurrences. The miracle demonstrated, in its meaning as *mystery* (from the Greek *mysterion*, translated into the Vulgate Latin as *sacramentum*), as sacrament, what can be witnessed of the world in its daily occasions. The performance of mystery plays, which featured Gospel scenes like that of the Nativity, symbolized this relationship in compressed form. The miracle of the Virgin Birth announced not only the coming of Christ but the event of creation itself, and all that was played out afterwards in demonstration of the life of Christ counted as a compilation of all the durations witnessed and endured by the living – among them pain, betrayal, and redemption.

consequence is that such action can in no sense reveal what effects it will have in advance.

In an analysis of the concept of Cartesian certainty Leonard G. Miller has stated, appropriately to the above, that "the criterion of clear and distinct ideas requires metaphysical support."[183] That is, certainty itself is found on the far end of analysis, after doubt and belief in God. Here the specificity of human acts links itself to that of observation and perception. Cartesian certainty itself can be defined in this way: by the specificity of what you observe you can rest assured that a dream is a dream and the physical is the physical. This, however, is not an empirical criterion: only when things are put in relation, the minimum relation being that between event and actor (or in impersonal terms: the effect and its cause), do they gain significance – they become certain things. The reason one can rest assured that such piecemeal observations are good is because God protects – He lets the effects play out and the situation develop. The ultimate sense of every action dissipates into the effects it produces on its surroundings – the protection of God ensures that it does so. But this also means that the ultimate sense, when the question is one of certainty, is the one which is least important. This is because the ultimate sense of things is always articulated by theology: the answer to the apocryphal "What does it mean?" regarding a certain event will be given its cosmological sense there.

God's knowledge of the things of the world is total. The human gaze intervenes, abstracts, and incorporates precisely because it cannot *know* in the same manner as God,

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[183] (49) Miller, Leonard G. "Descartes, Mathematics, and God". *Meta-Meditations: Studies in Descartes*. Ed. Alexander Sesonke and Noel Fleming. Belmont: Wadsworth Publishing Company, 1965. 37-49. Print.

who is "Pure Intellect," totally aware, totally present to Himself.[184] With this concept of God, we are left with an unlimited exactitude we must represent, and which we accomplish by recourse to profane means only. Profanity in its Cartesian sense is the experience of fragmentation, of partial and unrelated things. Apprehending the outline of this experience is already a premeditation on its final state: certainty – or, in other words, the exactitude or specificity of what was experienced. Human interference, which is simply another name for the experience of the world, can thus be understood through the tropisms it generates, the characterological effects of its disruption. Two forms of interim explanation are observed: the physical and the mental, i.e., the list of worldly effects and the effects on knowledge in its transformation into human knowledge. For there is not only worldly experience, the objective experience of things, but that region of it which is human experience; and there is not only the whole range of what can be known, but that partial form that can be known by man, which is shaped through and with his character.

3.2

This type of certainty allows Descartes to get his bearings even in a dream-state. The preceding articulation of the historical context is here of the highest importance, for it allows some comprehension of why the following episode could happen: before Descartes formulated his philosophy outright, he had a series of portentous dreams of which both Gregor Sebba and John R. Cole have said, on separate occasions and in

[184] (120) Gilson, Étienne. "The Attributes of God". *The Christian Philosophy of St. Thomas Aquinas*. Trans. L.K. Shook. New York: Random House, 1956. 96-129. Print.

separate works, contain the whole of his philosophical edifice, though in an tightly folded, allegorical form.

Descartes had three successive dreams on the same night, each one related to and elaborating on the dream-material of the last. These he recorded in a notebook, of which there is no extant copy. There are, though, two principle sources for what is known: a meagre synopsis by Count Alexandre Foucher de Careil of an extensive annotated synopsis by Leibniz, itself lost, and Adrien Baillet's version of the event, which is most likely a translation from Latin into French of the relevant section of Descartes' notebook, found in Baillet's biography *La Vie de Monsieur Des-Cartes*. Translations into English and more details about these documents and the surrounding issues can be found in Cole's monograph on the matter.[185]

A small section of the final dream will be covered here. In this dream Descartes comes to and finds on his table a book "without having any idea who had put it there": "He was curious to read some of it, and, opening the book, he chanced upon this verse: What way in life shall I follow? [*Quod vitae sectabor iter*?]; just then he noticed a man whom he did not know. This unknown man gave him a piece of poetry that began with these words: 'Yes and No.' "[186] The dream continues for some length, but the most crucial part is the following: "It is a remarkable thing that, wondering whether what he had seen was a dream or vision, he not only decided that it was a dream while he was still asleep but also interpreted it before he was fully awake." [187, 188]

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[185] (19-32) Cole, John R. "The Surviving Evidence on Descartes's Lost Little Notebook". *The Olympian Dreams and Youthful Rebellion of René Descartes*. Urbana: University of Illinois Press, 1992. 19-58. Print.
[186] (35) Ibid.
[187] (36) Ibid.

The position of both Sebba and Cole is that we cannot assume that at this moment the range of articulations that constitute Descartes' philosophical system were fully developed, and that the dream is their transcription. Philosophy, far from being obtainable in a moment of insight, or being the description of a mode of contemplation, requires articulation, and it does so through what are very traditional, indeed rhetorical, forms of organization. Its theoretical architecture constantly produces references to its beginnings – as an enterprise it does not allow itself to forget this. This being said, the contents of Descartes' dreams are not prevented from being interpretable and having much relevance to his later works. The means by which such interpretation proceeds, though, are taken from the forms that Descartes himself later articulated in his published works: the concepts of certainty, doubt, God, and the division between mind and body. The philosophical relevance of the doubt the dream poses, especially in the moment quoted above, is given by Sebba here, as the crux of his and Descartes' interpretation:

> For underneath the doubt: am I awake or am I dreaming? lies the doubt: am I, or am I not? But the dreamer is aware of the fact that he is doubting. Ergo: *Dubito, cogito*. *Cogito, sum*. Whichever way I decide, the question no longer matters. I am, I think: let me go on with the task at hand. And so he goes on to interpret the dream 'in his sleep'.[189]

It is imperative to show that even in the most doubtful situations interpretation is still possible. Descartes himself poses the outlines of the problem not from the position of one who knows, but of one who is placed in a condition of permanent or, rather, *persistent* doubt. This is the extreme end of the concept of doubt. The importance of the extremity

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[188] cf. (32) Sebba, Gregor. *The Dream of Descartes*. Ed. Richard A. Watson. Carbondale: Southern Illinois University Press, 1987. Print.
[189] (32-3) Ibid.

relates through its marginal position to all other extreme phenomenon, which in the context of mental life are its aberrations (in the mechanistic perspective dreams may be included among them, as Descartes himself states in numerous places[190, 191, 192]). In a general commentary on what constitutes an extreme phenomenon, Jean Baudrillard has written that "the special status of extreme phenomenon … [is] understood as an anomalous turn of events. All extreme phenomenon are consistent both with respect to each other and with respect to the whole that they constitute. This means it is useless to appeal to some supposed rationality of the system against that system's outgrowths."[193] Indeed Descartes takes this very position as his own when he expands the concept of doubt towards having a total relevance to any perceptible object. But this totality itself is, in a very precise sense, inconsistent with itself. From the beginning of his presentation, what turns against doubt is the aspect of a firm relationship. Such relationships cannot be precluded or foreclosed: instead they are minimally established, their items always haloed by doubt. Said in another way, any sort of linkage between things indicates a mode of their continuity, their cohesive belonging to the same space of intelligibility, even if this space is one whose very condition is doubt. This means that doubtful things, having this similarity of belonging, may be linked up to one another. This opens the range of connections that can be set between all things, and indeed it forms the very experience of doubt, when orders of representation no longer have particular consistency, and images

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[190] (76) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[191] (29-30) Descartes, René . "Discourse on Method". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 1-59. Print.
[192] (108) Descartes, René. "Optics". *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. 63-173. Print
[193] (67-8) Baudrillard, Jean. "Prophylaxis and Virulence". *The Transparency of Evil*. Trans. James Benedict. London: Verso, 1993. 60-70. Print.

and ideas are interlaced randomly. Therefore, in answer to this, Descartes stages in the conclusion to the Sixth Meditation what could be called the *catharsis of continuity* – the surety that events can be apprehended as they are, understood, and collated with the rest of the material of one's life:

> Indeed, if someone were to appear before me quite suddenly and then disappear in the same manner when I was awake, as do the images that I "see" while sleeping, so that I couldn't tell where he had come from or where he was going to, it wouldn't be unreasonable for me to conclude that this wasn't a true man, but a spectre or phantom conjured up in my own brain, like those that I imagine when I sleep.
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> But when I perceive the things of which I become aware distinctly with respect to the place from whence they come and the place in which they are and with respect to the time when they make their appearance, and when I can integrate this awareness within the continuity of the rest of my life, there being no interruptions, I can be completely certain that I perceive them in waking life and not in sleep. Therefore, I ought not to doubt the truth of these things in any way at all, my senses, my memory, and my critical reason being in perfect accord.[194]

From within the greatest situation of doubt, you say that your situation is false – that it is irrelevant to your true situation. You make every effort to regain the truth. This means exposing the doubtfulness of things before you, the false immediacy of your perceptive experience. Descartes' qualification of this effort lies in his reference to man's infirmity, which follows directly after the quoted paragraphs and in fact concludes the text of the *Meditations*. What stands as its final note is that certainty itself, in the ultimate sense of word, can of course be established by categorical judgment if the total course of events is known. Such certainty can be called *divine certainty*. Yet this knowledge would not reside with man: his environment is filled from within by incomplete continuities, the meagre gestures of knowledge that he has established for himself. And, while such

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[194] Cited in: (175) Cole, John R. *The Olympian Dreams and Youthful Rebellion of René Descartes*. Urbana: University of Illinois Press, 1992. Print.

continuities may be established, they will always find their end in doubt. But there is also this: the manner by which these continuities are recognized, their mode of connection itself, has its tropisms, and thus they can be understood, again and again, in a piecemeal manner, by their patterning. The latter may be called *profane certainty*.

The fundamental effect of profane certainty is to limit the reach of explorable or definable causation. One result of this limitation is the famous Enlightenment axiom, the Principle of Sufficient Reason. While it received its name from Leibniz, who read and critiqued vigorously the works of Descartes, the Principle is also stated shortly by Spinoza in his *Principles of Descartes' Philosophy*. The axiom reads: "Nothing exists of which we may not ask, what is the cause (or reason) of its existence."[195] Within the sensibility of Cartesian exactitude, such causes or reasons that can be found are inviolably bound to an intermediate explanation, a "sufficient reason". The function is similar to that of mathematics in its suspension between physics and theology: it demonstrates that, in effect, the fundamental mechanics determining action are in place, and explanation need not repeat or even invoke them as its beginning or end. The entire causal network need not be explained – the First Cause, the originary one, is still God, but we are cut from it. In this situation sufficiency itself is correlative to profane certainty.

With this type of emphasis the role of God becomes almost purely epistemological. God does not intercede into profane mechanics, apportioning them anew such that the doubter's perceptions become "clear and distinct" (this is in fact a refutation of the principle of divine intervention as an explanation for physical events); rather, the

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[195] (30) Spinoza, Benedictus De. "The Principles of Philosophy Demonstrated by the Method of Geometry". *The Principles of Descartes' Philosophy*. Trans. Halbert Hains Britan. La Salle: Open Court, 1974. 11-55. Print.

status of God's action is different: He redefines the moment of past doubt. He draws clearly and precisely the order of classification things should follow and distributes the items accordingly.

It must be said here that Descartes' dreams could happen as they did only if the formative experience is not to be found in full form in his thoughts, which would then be private and unguessable, but rather only in how his thoughts, whatever they were, gathered together and expressed such pieces as were available to him. Philosophically this of course links Descartes to the doctrine of the Scholastics, but his dream-interpretation is linked to something else, the ancient tradition of dream interpretation. In fact, one of his most crucial distinctions, that between ideas and images, can be found in this history. A.C. Spearing writes in his treatise on the dream-poetry of the medieval period that there are two kinds of dreams, those which relate to the future, and those that are regarded as useless.[196] This distinction derives from Macrobius' fifth-century commentary on the conclusion of Cicero's *De Re Publica*, the *Somnium Scipionis* [*Dream of Scipio*]. The *De Re Publica* itself was "written as a Latin equivalent of Plato's *Republic*": "Just as Plato closed his work with a vision, the vision of judgment seen by Er when he apparently on the point of death, so Cicero concluded his work with the dream of Scipio. This conclusion was the only part of the *De Re Publica* known in the Middle Ages."[197] Macrobius himself "distinguishes five types altogether: two insignificant and three significant"; respectively, these are: the nightmare (*insomnium*) and the apparition

[196] (9) Spearing, A.C. "Macrobius on Scipio's Dream". *Medieval Dream-Poetry*. Cambridge: Cambridge University Press, 1976. 8-10. Print.
[197] (8) Ibid.

(*phantasma* or *visum*), and the enigmatic dream (*somnium*), the prophetic vision (*visio*), and the oracular dream (*oraculum*).[198]

While Descartes does not retain the above vocabulary for his distinctions (except for some uncanny resonances – it would be of great interest, for instance, to compare both the *visum* and *visio* to the *vis cognoscens*), the above do roughly correspond to Descartes' division of mental events into ideas and images. This brings about a general point about the role of dreams as objects of doubt. Insignificant dream-visions are readily dismissed because their pertinence to waking-life is considered so low as to have no practical effects; i.e., the doubtfulness of insignificant dreams is warranted – but the reverse is true for the matter of portentous or oracular dreams. In the announcement of one's fate, the portentous dream always relates the future. Its effect is to pull apprehension away from the present moment – for its truth shows the latter's tenuousness. The present is in this way unhinged: its fulcrum becomes more surely grounded in the material of the distant not-yet, the future, the path to which is in any case indeterminate. The basic assumption of empiricism, that events of the immediate moment will most meaningfully relate what has happened and what is to happen, loses its grounding in this situation.

In a more modern language the dream-function could be described this way: the dream is that which reveals a normative experience. But for Descartes this function is not limited to the dream: it is generalized into the doubtful object, that which reveals itself in the tenuousness of immediate things in both waking- and dream-life. Through this a final

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[198] (9-10) Ibid.

note can be made regarding the Cartesian difference between ideas and images, and a closing note on Scholastic perception as Descartes presents it.

3.3

The "dualism" of Descartes must not be conceived as operative in a single mode; if it is, then the effect is aporia, a paralysis of narrative or reason which ends either in naïve faith or its opposite, the same thing in another guise, an uncritical reason. Both are unacceptable for Descartes. His dualism is the line of division not only between mind and body, but also God and man, man and world, and, in its final mode, man and himself. In the selection of a single article all of these are named. The function of doubt is to ensure the one means of crossover that can be experienced between these divisions.

The significance of this crossover relates the effort of classifying knowledge to its transformation and change over time. Descartes opened his First Meditation with the declaration. "I shall first attack the principles upon which all my former opinions were founded."[199] These bygone opinions are all those "which I had previously accepted among my beliefs," and his attack, whose battering ram and arbalet is doubt, will enable him to "start again from the very beginning."[200] From the outset he desires to confront not only what he carries as his immediate knowledge, what he calls his opinions, but their foundations – a temporal object. To find these foundations he does not engage in the mode of argumentation of empirical history, the gathering and citation of material

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[199] (76) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.
[200] (75) Ibid.

sources, but in reasoning. Posing the problem this way does not allow it to be resolved by a reference to one or another example. The whole of it must somehow be addressed at once.

After this very oblique allusion to the texts of his teachers, the ancient texts with which he was taught, he arrives at this problem: How is it that, from being the man I once was, I came to be the man that I am? And being this man that I am now, how can I become what I am to be – and what powers do I have to make this come about? In itself the question of continuity, in its guises as return, recovery and progression, has been posed. With this thought, he indeed returned to the beginnings of philosophy. The answer to the question, "*What was I*?" is the Aristotelian *τόδε τί* [a certain something]. Descartes understands this "certain something" to be a concatenation of things, historical things, the combination of his opinions, knowledge (received or otherwise), customs, and so on. This begs the question of continuity, how something became what it was by its passage through time. This same question was addressed by Aristotle in his *Metaphysics*,[201] in it is posed the problem of *essence*, "the being of what it was" [*τὸ τί ἦν εἶναι*].

Classically this entire phrase – *τὸ τί ἦν εἶναι* – is rendered in the single word "essence". More literally translated, it becomes "What the being of the thing was found to be";[202] more literally still, it is "the 'to be what [it] was'". The exegesis of this problematic phrase proceeds in this way: the thing itself (*τὸ*; the definite article is used substantively here) resides in the past (it *was*; *τί ἦν*) – yet to call it up for present means that this past thing gains potency (it is '*to be*'; *εἶναι*). In being called, its quality of

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[201] (Book 7, 1029b; 786-7) Aristotle. "*Metaphysica* (Metaphysics)". *The Basic Works of Aristotle*. Ed. Richard McKeon. Trans. W.D. Ross. New York: Random House, 1968. 681-926. Print.
[202] (79; footnote 2) Taylor, A.E. *Aristotle on his Predecessors: Being the First Book of his Metaphysics*. Chicago: Open Court Publishing Company, 1910. Print.

"pastness", the fact that it *was*, cannot be changed, for if this happens it would gain "is-ness", or present-being, and thus contradict its terms of articulation (this would be like having one's past self appear before one in substantial physical form). It thus remains that if this thing is called to the present, its moment in the past becomes future-bound – it is 'to be' with reference to our time, to which it is called – and thus when it appears it is unavoidably, and cannot be otherwise than, insubstantial. It is a past thing made to have present form. If the above development is rephrased in a rather elliptical way, then to answer the question "What was it, what was that thing? What was its essence?" means to call up for an instant, like an apparition, the thing that once was. As Walter Benjamin has written, "The true picture of history *flits by*."[203] That is, by addressing this question to himself and then proceeding to answer it through reasoning alone Descartes calls up what can only be, in his terms, an image of himself. This he later generalizes into the concept of the *I*.

Against the loss of foundations, whose origin and construction lie in the distant past, doubt allows a tenuous form of recovery. Doubt allows that some connection may be obtained even if we do not understand its precise form. It does the same in a preparatory form when confronting the question of God – i.e., it *prepares one to believe* by appealing to the question of knowledge, for between the few fragments man can know and the connections to all else there is the idea of redemption, the restitution of knowledge to where it is lacking. That is, doubt allows the idea – but only momentarily, for it will be dismissed as an image when it is questioned critically – that man can know just as God knows, totally, and be totally conscious of every relationship: "Perhaps all the

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[203] (255; emphasis added) Benjamin, Walter. "Theses on the Philosophy of History". *Illuminations*. Trans. Harry Zohn. Ed. Hannah Arendt. New York: Schoken Books, 1968. 253-64. Print.

perfections which I attribute to God are somehow potentially in me... Experience shows, in fact, that my knowledge increases and improves little by little, and I see nothing to prevent its increasing thus, more and more, to infinity…"[204]

This apprehension passes upon philosophical examination, but a trace of it remains in the doubt that there is not *some* connection between one thing and another, even if what lies between seems an abyss of total disjunction. Such doubt is especially pertinent when it merely regards a thing that once existed and flourished in the profane world as things do now, prior to their dissolution and recollection before the gaze of God. The articulation of this connection would prove to be of utmost importance, especially when its subject-matter is so very limited – the question of how the self became what it was.

Nevertheless, in the moment between its upsurge and its resolution into doubt, this fleeting image has a duration. What is nominated as either image or idea in the profane world is a momentary occurrence, a passing mental construction – a thing of concatenation set in some certain moment. Through this it is demonstrated that mental experience itself has duration, whether it concerns the items of reason, such as logical deduction or analysis, or in fantastic vision. Mental and physical experience both pass in a cascade: they have thus lost their Scholastic cyclicity.

Descartes' invention of the concept of the *I* thus has a special meaning in the context of perception: this particular concept allows the expression of an image that is bound to a certain moment. Like the moment of foundation itself, such an image is eventually lost – as when thoughts are forgotten, a person dies, or an era passes. The

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[204] (103) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

images home in the latter are not expressible, they cannot be called except in the form of a doubtful thing gesturing to its fuller presence in the past. But this can be initiated only through what has survived of them.

What results is that the ancient question of essence, so completely integral to the Scholastic worldview, becomes modeled in the terms of analytic apprehension. As a consequence of this Cartesian postulate, there can be no exact form of apprehension as such. One cannot know even oneself with the same exactitude that God knows one, and especially when the question is one of the self, that which is most eminently entangled in the problem of identity through time, this limit becomes most clear: for the self changes, but one can only nominate and elect some of its moments. The momentariness, the dynamic, temporal quality of the Aristotelian essence, which it has by its reference to the passing "accidental qualities" of location and composition, allows this new Cartesian reading. As the continuous transformation of the self cannot be apprehended in its whole course, a second transformation is made to happen. It does so through the action of doubt, and this becomes the conversion of the idea into its image.

All experiences can undergo the same conversion, from ideas to images. Indeed the nomination of every historical experience begins with its idea. For Descartes the question began with his body, the artefact of his own survival through time. The foundations that led to him being as he was, such as they are, gain a point of minimal access. These are usually assumed, in the case of objective qualities, to be entirely inaccessible, lost in configuration, or, in the case of subjective qualities, they are entirely private, and again entirely inaccessible. In both of these instances, the rightful representations of the world or some physical thing, whether subject or object, *ideas*,

things which indeed are missed when they have passed, and which reside only in the past to be known only by God, are made manifest through doubt as *images*.

There are, however, specific conditions for this transformation, and they lie in the specific qualities of the Cartesian image. By contrast, the Scholastic image does not entail these conditions, for its imagined things, by their capture and hold in the categories, have no temporal reference, but only a reference to presence. From the *Optics* can be cited Descartes' fullest and most consistent critique of the latter view:

> It is necessary to be aware of assuming that in order to sense, the mind needs to perceive certain images transmitted by the objects to the brain, as our philosophers commonly suppose; or, at least, the nature of these images must be conceived otherwise than as they do. For, inasmuch as [the philosophers] do not consider anything about these images except that they must resemble the objects they represent, it is impossible for them to show us how they can be formed by these objects, received by the external sense organs, and transmitted by the nerves to the brain. And they have had no other reason for positing them except that, observing that pictures can easily stimulate our minds to conceive the object painted there, it seemed to them that in the same way, the mind should be stimulated by little pictures which form in our head to conceive of those objects that touch our senses; instead, we should consider that there are many other things besides pictures which can stimulate our thought, such as, for example, signs and words, which do not in any way resemble the things which they signify. And if, in order to depart as little as possible from currently accepted beliefs, we prefer to avow that the objects which we perceive truly transmit their images to the inside of our brain, we must at least observe that there are no *images that must resemble in every respect the object they represent – for otherwise there would be no distinction between the object and its image* – but that it is sufficient for them to resemble the objects in but a few ways, and *even that their perfection frequently depends on their not resembling them as much as they might*.[205]

This lengthy, dense quotation formulates this series of claims, which must be retained in order to show how later, modern efforts derived their reasoning and their specific set of problems:

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[205] (89-90; emphasis added) Descartes, René. "Optics". *Discourse on Method, Optics, Geometry, and Meteorology*. Trans. Paul Olscamp. Indianapolis: Hackett Publishing Company, 2001. 63-173. Print

(1) The truth of the image does not reside in its mimetic or *imitative* qualities. There can be no form of apprehension exact enough to warrant this criterion. As has been said previously, this is because the image has a representational function only. It cannot be critiqued on empirical or observational grounds alone. Therefore,

(2) the "imperfection" of images is a rational requirement, a criterion of *inexactitude*. In the *Meditations*, Descartes states that when he conceives something by imagining it, "I confusedly picture some figure to myself," and that, generally, "the ideas I received through the senses were much more vivid, more detailed, and in their own way more distinct than any of those which I could picture to myself with conscious purpose while meditating."[206] The reasons for this can be found in mathematics: the inexact quality of the image allows it to relate generally to a host of objects instead of to a single one. That is, the image need not be derived from a single encounter with some object. (This does not, however, prevent a single encounter from being fractured into its moments, that supposedly singular object becoming in this way many, which thus preserves both the representational function and the criterion of inexactness).

(3) Where a mimetic model of perception shows that there is an increase in imperfection as verisimilitude decreases, a representational model, to the contrary, reveals that the greater the imperfection, which extends even to brutal cut or disjunction, the greater the representational function becomes.

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[206] (127; 129) Descartes, René. "The Meditations Concerning First Philosophy". *Discourse on Method and Meditations*. Trans. Lawrence J. Lafleur. Toronto: Prentice Hall, 1997. 60-143. Print.

Indeed if perception is modeled on mimetic principles, for the knowledge obtained by it to be considered true, it must be no different from its object. For Scholastics such knowledge necessarily demonstrated its divine qualities. Yet the aspect of Cartesian philosophy is gained precisely when a distinction is made between the idea and an image, between the thing as it is in the world and how that thing appears in human knowledge. The detailed observations it pursues in support of a mathematical model derive precisely from the Scholastic projects of classification – but it does so from the perspective of man in the world. This knowledge of man is necessarily analytic, which means that it apprehends not only partial objects, but also their progression into a further state of decay and dilapidation – something that results in a new form of knowledge, a new mode of presentation. This is the aspect of representation, where no article has a neutral form but immediately gestures towards those things with which it has even the barest connection.

The truly dualistic world was that of the Scholastics, found in the difference between the physical life of man – physicality itself understood as severed from the spiritual life of angels – and that of God in heaven. Indeed this world was not merely dualistic but entirely distributed in more or less numerous parallel strands, defined differently throughout the Middle Ages. The name "dualism" itself refers to its historical beginnings in this doctrine. The logical problem of contradiction, the duality represented by an uncanny revelation that logic itself could be made to fail, was for the Scholastics an entirely concrete demonstration of their life-world – i.e., any contradictions that exist are to be located in the form of the First, between God and man, from which all others derive by continuous genesis. The single most important aspect highlighted by this view is this

brutal disjunction itself, which shot through the entire field of things – all of them were fractured, but, for this exact reason, knowable by man. The articulations of this difference were wrought by Boethius, through the Greek philosophy, and by those who followed him, especially Aquinas, who himself coined the philosophical use of one of the most basic modern terms, *factum*, by taking it from popular speech and using it to indicate the bare existence of a thing in the world.

The representation of these worldly bodies does not, and indeed cannot, proceed in an imitative or mimetic way. This is because in the profane world it is through things other than themselves that such bodies are found. This relationship necessarily expresses a "religious dialectic of content," which Benjamin describes in this way:

> Any person, any object, any relationship can mean absolutely anything else. With this possibility a destructive, but just verdict is passed on the profane world: it is characterized as a world in which the detail is of no great importance. But it will be unmistakably apparent … that all of the things which are used to signify derive, from the very fact of their pointing to something else, a power which makes them appear no longer commensurable with profane things, which raises them onto a higher plane, and which can, indeed, sanctify them.[207]

This dialectic expresses the thing and the division which forces the knowledge of it to reside elsewhere. The fact that the thing can only be known by something other than itself reveals that, in itself, it is insignificant. The connections that can be made from it to others and vice versa follow from what is an essentially religious history. Things, as signs – the consummation of the Scholastic *manifestatio*, which directs their being towards God – gain their sanctity when they are understood through the import of their total bearing, in redemption, their inescapable connection with all other things. But as

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[207] (175) Benjamin, Walter. *The Origins of the German Tragic Drama*. Trans. John Osborne. London: NLB, 1977. Print.

redemption is available only to God, it becomes on the human side the power of representation.

Indeed representation itself, as a form of knowledge, is correlative to the development of functional concepts such as exactitude and inexactitude. Analysis itself is precisely the establishment of representation between disjunct, isolated items, and representation in its bare form is simply the index of an unnamed and inessential, indeed inexact, connection that persists despite all circumstances. This is its general epistemological function, which Descartes capitalized and made rigorous, first in mathematics through analytic geometry, and then in philosophy, in the distinction between the idea and the image.

Descartes' specific move is to abridge the general function of representation, which points everything towards all else, to have only a regional bearing. Ideas, by representing the physical world, gain their full meaning in the total knowledge of the divine; but images do so only when related specifically to the history of the human endeavour which formed and made them.

Conclusion

If one follows the Cartesian view, there is no division between matter and meaning – indeed physics follows its own meanings. These are located in the series of relationships that make up the semantics of physical interaction. The concept of physical unity is given in the capacity of any object to transform into anything else by way of combination. There are of course restrictions as to how this takes place, but these are situational and normative. A 'normative' situation in the field of physics should be understood as describing an agglomeration of natural tropisms, tendencies or pathways of material development. The intelligibility of these tendencies is rendered by transformational geometry as it is expressed in mathematics. And these can be influenced, interfered with, by the interventions of the systems of mechanical technology. Indeed, machines can do so because their processes are understood as being continuous with their environment. Machines are only a specific host of 'natural' tropisms set into artificial circumstances. In this way the intelligibility of the field of physics is guaranteed, and its products would be treated as universal.

But the correlate to the above, the concept of ideational or mental unity, is far more difficult to articulate. What would it mean that one notion can be transformed into another, or influenced by another? By what means can something like mechanical synthesis take place for mental experiences? The superimposition of various images onto each other seems like nothing other than a form of compilation, the component parts having in this case no necessary or essential relationship to each other.

The Cartesian move here is to show that anything that is thought is of necessity related to its situation in the world and therefore has an ideational or notional specificity. This specificity can be explored, made intelligible, by investigating its particulars. This need not imply a specifically historical investigation, as in philosophy it can be just as easily accomplished by inquiring into the reasons given for the formulation and representation of one idea over another. These reasons themselves are historical. This gives the sense in which historical context becomes linked up to these formulations. This also provides focal points of transformation – for the difference between one formulation and another lies in a difference of conditions, of reasons given. In this way there also is a unity of thought.

Neither physical nor ideational unity, however, is without doubt. In Descartes' hands doubt is an analytic tool – it begins with the problems of composition, temporality, and classification, which derived their immediate positions from the works of the Scholastics. Whenever Descartes invokes God it is to gesture towards an ultimate space of location. Divine knowledge holds to specificity of each thing perfectly, such that even if it is unknown or confusing to the human mind, it is never so for Him. Faith in God translates to a faith in the absolute particularity and specificity of each event and occurrence. The difference between dream- or imagistic-perception and 'reality', meaning in most instances physical perception or sensation, is given in this way. At least in the Cartesian system this difference cannot be made clear by way of an empirical criterion.

What follows is that in science, whenever a course of historical investigation refers to the simplification that one method arrives at over another, this has a precise very

meaning. It is not the decrease in the complexity of calculation that is so valuable; rather, simplification is the definition of a partial relationship, of a means of analysis – in other words, it is a reference of the investigation to the criterion of exactitude, and a definition of its significance. The terms "significance" or "pertinence" as they have been used throughout this essay designate the presence of precise relational strands. This in itself is only a small refinement of the Cartesian terminology of "clarity" and "distinctness". Where Descartes uses these terms they mean in all cases the relationship of a certain event or occurrence has to its observer. The philosophical capacity that he implies as being so valuable lies in the ability to apportion significance where it is needed, which means to show the essential relationship between the point of observation and what can be concluded from it. What is produced as the result of interpretation, as knowledge, is a much a product of that labour as it is of the world. Its validity cannot be escaped from. The thing to do is to understand such efforts, as what they *are* will be given in the range of their import and significance. The mode of validity itself will be illuminated in this manner.

This brings the paper to its end and to its final point. Essentially determined knowledge in the Scholastic schema, following Aristotle, has an infinite validity. It confronts the moment of the singular and unique only to refract it, through great effort, into the highest axiomatic principles. By Descartes' time this philosophical project was already ancient. The Cartesian oeuvre in general must to read with an eye towards how insufficient this edifice became. In the Scholastic logic of categories, the core interpretive apparatus found in Christian philosophy, the concern was precisely with how to apprehend an infinite knowledge from within a condition of finitude. Consciousness of

this finitude was a first step – and yet for the Scholastics to know something meant to know its totality: how it came to be created, how it passed its natural life on earth, and how it died. In this way its essence could be rendered clearly, for a categorical proposition with universal validity, would, after selecting an object of reference, hold true for all instances of that object that are found, no matter its state, nascent or decaying.

In the relationship of the particular to the universal, the universal being an abstract quantitative determination corresponding to infinity, this meant that no particular instance could have validity unless its qualities gained categorical statement – unless they could be seen in the guise of their infinity. Knowledge, in the schema of the Scholastics, certain knowledge, is essentially divine – and man strives to discover it.

In the Cartesian philosophy a correlate was posited to the above, a profane certainty. Descartes arrived at this concept by addressing the question of doubtfulness from the side of man's gaze onto the world as it is. The reference to the particular in the Cartesian schema was given through the exact description of circumstances, as much as was possible.

Cartesian doubt posits the possibility, indeed the capacity, however tenuous, that all surviving objects, indicated by ideas, provide when investigated the quality of an imagistic experience which is directly historical. Indeed, it is the quality of this experience, which can be judged, determined, and went through again by means of philosophical articulation, that is most firmly at stake in modern epistemology – for the discourse of rationality as of Descartes has meant only that a consistent order of explanation should be maintained. The description of philosophical systems as indexes of

historical experience articulates the possibility of a phenomenology of images – i.e., a philosophical rather than an empirical psychology.

Given in the concept of the image is a means of recording particular and fleeting experiences of thought. Its positioning in the context of the Cartesian philosophy this allows it to be analyzed, placed into a schema, and, hence, repeated. In itself, the image is a concreticized instance of doubt, and the attributes of the latter are maintained and then inflected onto the type of knowledge this record represents. The theme of doubt, which is perhaps at the heart of the discourses surrounding knowledge and its objects, has a functional significance that is inflected onto modern efforts.

Through doubt one is allowed to see that much of the range of what has been known and experienced has been lost, for if the situation were reserved, perfect knowledge would imply total experience and would preclude doubt. Doubt occurs because Descartes concerns himself with knowledge of evanescent, not infinite things, limited by their nature. The resulting knowledge is equally limited, and thus becomes indicative of a new type of knowledge rather than, as it was traditionally, an acknowledgement of deficiency before unlimited, total knowledge – that of God. Doubt thus stands in for an environmental condition in which there are present only partly-known and tenuous things; yet their natural state is far from static incompletion, as their fragmentation extends to what is known of them over time. As Aristotle has said, "All natural bodies which change their properties we see to be subject without exception to diminution and increase."[208] This includes their diminution into nothingness, and the instance of their first increase – creation. All such things when apprehended in the

[208] (Book 1, 270a; 401) Aristotle. "*De Caelo* (On the Heavens)". *The Basic Works of Aristotle*. Ed. Richard McKeon. Trans. J.L. Stocks. New York: Random House, 1968. 396-466. Print.

profane world are to be positioned as ephemera; they are surviving things, and they are known in their Cartesian sense as *ideas*. Yet, ideas themselves, in the terms of an epistemology concerned with their historical origin, are emblematically called by Descartes *images*.

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