

University of Nevada, Reno

**The Birth of 'Nature':  
A Critical Taxonomy of Meanings for a Troubled Time**

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

by

Jared N. Ress

Dr. Thomas J. Nickles/Thesis Advisor

December, 2012

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We recommend that the thesis  
prepared under our supervision by

**JARED N. RESS**

entitled

**The Birth Of 'Nature':  
A Critical Taxonomy Of Meanings For A Troubled Time**

be accepted in partial fulfillment of the  
requirements for the degree of

**MASTER OF ARTS**

Thomas J. Nickles, Ph. D., Advisor

Christopher T. Williams, Ph. D., Committee Member

Scott Slovic, Ph. D., Graduate School Representative

Marsha H. Read, Ph. D., Dean, Graduate School

December, 2012

## **Abstract**

Talk of various crises has filled the air during the beginning stages of the 21st century, to the point that it seems an appropriate time to reassess the modern outlook and the direction of modern civilization. This essay is an attempt at contributing to the philosophical groundwork that could ultimately produce new ways of thinking about how civilized life should be and how to address our problems. One way in which the abstract realm of philosophy intersects with concrete practical issues is in the discourse through which we convince one another to adopt policies, undertake projects, and other such things. ‘Nature’ is a particularly important term within such discourse, primarily because so many of our crises have to do with our relation to the natural environment. It also relates in less obvious ways to the other end of the spectrum of crises, economic problems, especially insofar as these are involved in dilemmas of priority with environmental problems. Moreover, it represents a crucial concept for broader discussions of the aims and evaluation of civilization. Unfortunately, despite this very crucial role, ‘nature’ happens to be a very complicated term with much deep philosophical content and many different senses. These characteristics, along with the ubiquity of its use render it a deceptively easy to understand term. Confusions between its different meanings and casual treatment of the difficult philosophical issues it can imply often render discourse and, indeed, the thinking behind it, vague and ineffectual. By retracing the etymology of ‘nature’, considering philosophical trends concurrent with some of the changes it has undergone, and analyzing some of the philosophically loaded terms and concepts in lexicographers’ definitions, this essay will attempt to create a sort of taxonomy of different meanings of ‘nature’ that will help to avoid such confusions and facilitate clearer and more deeply thoughtful discourse regarding our most dire problems.

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## Introduction

Here, at the dawn of the 21st century, we find ourselves reeling in the aftermath of the modern era's boldly relentless pursuit of change for the better. Perhaps the most notable effect of that pursuit has been the explosion of our population, which roughly doubled during the early modern period, reaching 1 billion around the turn of the 19th century, and which has since grown seven-fold.<sup>1</sup> Were that the whole of the story, then an increased interest in change would have been paired with a power to effect it 14 times greater than existed in pre-modern history. Instead, our now much larger population has also, through modern technological innovations, become more cooperative, individually potent, far-flung, mobile, and, most importantly, consumptive. Due to these factors, in the past two centuries or thereabouts, our capacity and tendency to alter our world and ourselves has increased inestimably, even to the point that accidentally bringing about our own destruction seems now to be a real possibility. This possibility alone, if it is highly improbable, is no damnation of modern "progress" or "development", but the ubiquitous talk of crisis that seems to characterize the day calls that probability into serious question.<sup>2</sup> Such talk is an indicative part of an overall sense of things going wrong. It seems we may be on the verge, or perhaps have already arrived at, a new era, set apart by a prevailing doubt concerning the modern push "forward". Words like 'forward', 'progress', and 'development' seem now to require quotation marks, as the times are increasingly begging the question of where we are headed, rather than how

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<sup>1</sup> "Historical Estimates of World Population." *Census.gov*. United States Census Bureau, 28 Aug. 2012. Web. 23 Nov. 2012.

<sup>2</sup> See Appendix.

most quickly to get there and beyond. Undoubtedly much has been changed by modernization, but the time has come to seriously consider the philosophical question of which changes have, in fact, been for the better.

Philosophy, therefore, at the present juncture, has a potential practical importance that has been exceptional in its long history. Much of philosophy has, instead, been approached as a leisure activity, aimed at the satisfaction of a deep but unnecessary curiosity, cultivated only when other more pressing concerns have been suitably addressed. Perhaps some of the early modern philosophy that was formative of the modern era was taken up in this vein, but it ended up greatly affecting peoples' everyday worldly affairs. In any event, the spirit of philosophy at that time was very much akin to that of today's "postmodernists". It was a spirit of dissatisfaction with long-standing tradition and desire to start again from new beginnings. The social philosophers of that period, who were explicitly interested in influencing actual practice with their ideas, saw such a beginning in their theoretical "state of nature". Wishing to formulate principles for the structuring of civilized society and function of government without assuming the necessity of the type of arrangements they lived in, they imagined the conditions that existed prior to any civilization and postulated the reasons why civilization would be preferable to those conditions and, hence, emerged. As a result, the modern conception of civilization and what is good about it involves, at a fundamental level, a contrast with nature. To rethink the ends toward which the modern outlook has seen our way of life "progressing" thus requires a clear conception of nature as a foil to civilization. Moreover, this turn to the concept of nature when one is interested in starting anew is entirely appropriate, considering that nature often refers to starting points. The natural

world, for example, predates humanity, and a person's nature is in effect at birth prior to any other influence. In fact, one of the most typical functions of the word, 'nature', is to represent the conditions in effect at the beginning of a process that act as constraints on the possible outcomes of that process. For example, the "laws of nature" dictate, roughly, that things will always fall downward, so that, while some object may or may not fall depending on the forces that end up acting on it, it certainly will never fall upward. An understanding of the concept of nature, therefore, would be a good candidate for the object of a study whose ultimate aim is to build up a conceptual framework from entirely new beginnings.

In addition to this kind of general relevance to the modern conception of civilization and its ends and, even more generally, to any study whose ultimate aim is to build up a conceptual framework from entirely new beginnings, the concept of nature relates in very direct ways to all of the particular aspects of the present state of crisis, and it is often invoked in discussions of them. In fact, without necessarily setting their sights on the very fundamentals of the modern outlook, many contemporary philosophers, many of whom, though far from all, label themselves "postmodern", have perceived a need to analyze our understanding of nature in response to our environmental problems, and a considerable and compelling body of literature has already been produced. Typically, the environmental problems that have largely motivated these discussions represent one of two categories into which the major problems of the day are divided, the other being economic problems. As the "environment" to which the designation "environmental problems" refers is usually understood to be the *natural* environment, the relevance of the concept of nature where they are concerned is obvious. The connection to the economic

side of our crises, however, and thereby to deeper questions about modernity generally, requires some explication. That explication will have mostly to do with the definition of our crisis.

One definitive assumption of the modern outlook has been that the process of modernization, or modern-style improvement, can be continuously sustained by means of continued application and refinement of technology. Thus, champions of the modern approach see Malthus's claim that population growth will necessarily outpace food production, because the former is a geometric growth and the latter an arithmetic one, as repudiated by the increased efficiency of food production that has complemented and, indeed, enabled population growth. As the modern era has been characterized by constant growth, and the predominant modern economic theories assume such growth, the typical modernist reaction to the economic aspects of our crisis is to see it as a problem of how to maintain that growth. Thus, a usual measure of the severity of our economic woes is the amount of growth in countries' Gross Domestic Product. This way of thinking relates to the central political concern of unemployment, as employing a growing number of people requires a growing number of things to do, or greater economic activity. That greater activity, in turn, to some extent requires either more consumers of its products, or greater consumptiveness on the part of a stabilized number of consumers. Overall, every crisis we now face has something to do with the availability of space, energy, and material, so that, if economic problems are problems for sustained growth, and the current availability of these three resources is constraining that growth, then the solution must involve increasing their availability, either by utilizing new sources, making our use of them more efficient, or both. On the basis of such

thinking, solutions like more aggressive fossil fuel extraction have been proffered for problems like unemployment and fuel prices.

On the other hand, one might be inclined, as many apparently are beginning to be, to see the problem as the inherent unsustainability of further growth. The concept of, or more accurately the particular word, sustainability has become most closely associated with critiques of the trajectory of modernization on environmental grounds. However, it fits equally well, and has in fact been widely used, in economic contexts, particularly in relation to the kind of debt-based financial dealings that led to the ongoing economic predicament. The debt assets whose devaluation initiated the crisis were largely based on loans made to people buying new homes with unrealistic expectations of those peoples' ability to eventually pay them back. Thus, the modernistic faith in constant growth of wealth and a constant need for things like new houses for more people was at the bottom of the whole fiasco. Perhaps such faith is justified, and American banks just became a little over-zealous and greedy in this case. Another possibility, however, is that constantly betting on future growth either has already or will eventually hit an insurmountable limit. Certainly, as far as some of the environmental problems are concerned, particularly the collapse of biodiversity, the limit beyond which expansion ceases to be wise has long since passed, which is why definition of our problems as symptomatic of an overall sustainability problem has been linked with prioritization of environmental issues. A political tension has resulted between those who are more concerned with economic problems and retain faith in the sustainability of growth, and those, many of whom are focused on environmental problems, who have lost that faith

and wish to rein in modern expansion. A recent analysis of opinion polls regarding climate change by the Philadelphia Inquirer illustrates this pattern rather well:

Before the financial crisis hit, Americans were pretty sure that the globe was warming, and that humans were causing it, and that it was kind of a big deal. As the economy slumped, Americans decided that climate change wasn't actually happening — and even if it was, it wasn't our fault. And now, after a flurry of wild weather — deadly tornados, floods, droughts, an uncommonly mild winter, and recent heat waves — we're back to believing that global warming is real. But we're still hesitant to take the blame.<sup>3</sup>

Another similarly illustrative example is the dispute over the merits of a proposed oil pipeline that would run from tar-sand pits in Alberta, Canada, across the American Midwest, to refineries in Texas, known as the Keystone XL pipeline, which attracted much attention in the context of the 2012 presidential election campaigns. This quotation from a New York Times column typifies the usual presentation of perspectives on the issue:

Obama recognizes that the devoted environmentalists who represent a critical portion of the Democratic party base need some motivation to turn out for him in the fall. But he also understands that centrist voters who support him on a range of other domestic and foreign policy matters could be lured away by a Republican opponent who either promises relief at the gas pump or who can lay blame at the White House doorstep for those higher prices. Even more complicated is the role of organized labor, which has poured immense amounts of support into Obama's re-election but also prioritizes the job-creation potential of the pipeline.<sup>4</sup>

The same column describes the incumbent as being “forced to navigate between two almost mutually exclusive political priorities”<sup>5</sup>, that is, between opposition to the pipeline on environmental grounds and support for it on economic grounds. His opponent, Mitt Romney, on the other hand, unequivocally vowed to build the pipeline if elected.

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<sup>3</sup>Oremus, Will. "Weather May Be Changing Public Opinion on Global Warming." *Philadelphia Inquirer*. Interstate General Media, L.L.C., 15 July 2012. Web. 20 Dec. 2012.

<sup>4</sup>Schnur, Dan. "The President, Gas Prices and the Pipeline." *The New York Times*. The New York Times Company, 9 Apr. 2012. Web. 20 Dec. 2012.

<sup>5</sup>*Ibid.*

To characterize this tension in terms of the division between economic and environmental priorities, however, is to miss the more important and genuine issue. In fact, for a number of reasons, the classification of the most profound problems facing modern society into separate, well-defined categories is necessarily a somewhat forced rhetorical convenience. This is true of the particular problems that have been outlined here, as well as the general split between economic and environmental problems. One key reason this is so is that the biggest problems, perhaps because they are so large in scope, tend to overlap with one another. Food production, for example, is influenced by water supply, fuel supply, climate, pollinator populations, and market forces. The food and fuel crises are essentially problems of the price of goods. These and the water crisis have to do with things necessary to industry and people's livelihoods. They might, therefore, seem to be economic problems. On the other hand, they all have to do with natural resources, are exacerbated by some environmental problems, and, in turn, contribute to others. For these and similar reasons, they appear to be parts or results of environmental problems. Economic and environmental problems are necessarily thus intertwined, because of the simple fact that, while most thought regarding economics is abstract, done in minds and on paper, real economic activity occurs in the same place as natural phenomena. They occupy the same world. The technological innovations that drive industry are bound by the laws of nature; the materials traded in marketplaces ultimately derive from naturally occurring materials; and natural events, like droughts or tornadoes, even if they are not the result of anthropogenic climate change significantly impact the production and movement of goods. For these sorts of reasons, some prominent figures have argued that the climate change and biodiversity crises are bigger

economic problems than the recession.<sup>6</sup> In other words, one cannot care only about the economy, because environmental problems are also economic problems. Further, even if this weren't true, the question of whether nature will allow the possibility of indefinite population and indefinite enhancements of quality of life in the modern vein, is a genuine issue, though the answer may be yes and the modernistic faith thereby justified. Thus, the question of whether modernity runs in some way against nature is as relevant to economic issues as it is to environmental ones.

'Nature', then, is a word that represents a thing under threat by our activities, the world in which they occur, the constraints on possibility generally and more specifically on the solutions to our problems, and the starting point from which the society that produced those problems emerged and to which past philosophers have turned with the aim of reassessing our direction. Clearly, the concepts it represents are at the center of the most pressing issues of the day. It is also a thing, at least in all of these senses, that is exclusive of, or extraneous to, humanity, a thing with which we are in some kind of relationship. The controversy over the possibility of sustaining growth and other modern senses of progress or development illustrates that a lack of clarity regarding this relationship is a major part of what obscures the way out of our crisis for some or all of us. Understanding this relationship is complicated by the fact that other senses of 'nature' include, or are integral to, humanity. Take the concept of human nature, for example, another important concept for economic problems, factoring in on the demand, rather than the supply, side of the equations. Also, the popularity of Darwinian evolutionary theory has tended to promote the view of humans as natural phenomena, just

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<sup>6</sup> "Prince: 'Climate Crisis Worse Than Recession.'" *Sky News*. BSkyB, 12 Mar. 2009. Web. 20 Dec. 2012.

as other living beings are. This has led to discussions of optimal lifestyle choices based on the conditions under which our species evolved and which are, therefore, “natural”. Such ideas conflict with the notion of nature as something that is destroyed by human activity, or perhaps which humanity struggles to overcome in pursuit of modernistic freedom and comfort. It seems that ‘nature’ has become a rather equivocal word. Because it is crucial to the definition of our problems, and even employed as a standard for good solutions, addressing our crisis as a collective requires that the different meanings must be clearly distinguished from each other and explicated individually.

This is exactly the sort of task a philosopher is equipped to handle, for, in large part, philosophy is about the clarification of meanings. The stereotypical philosophical quandary is, after all, “What is the meaning of life?”. In Plato’s dialogues, Socrates was typically after a generalized definition of some important concept employed by his interlocutor. In the book that is the namesake of the entire field of philosophy called metaphysics, Aristotle investigated the meaning of the word ‘being’, which he noted was “said in many ways”, just as ‘nature’ is today.<sup>7</sup> Epistemologists ask what it means to know something, and, after answers to this question were used to establish the scientific method of inquiry, taking the line of thought away from what is now considered properly to belong within the philosophical category, philosophers continued their tradition by asking what ‘science’ means, thereby creating philosophy of science. Contemporary philosophy is most often designated as part of some such subset, a philosophy of something, such as philosophy of mind, wherein, again, deciding the meaning of

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<sup>7</sup> Aristotle. "Metaphysics." Trans. Jonathan Barnes. *The Complete Works of Aristotle*. Ed. Jonathan Barnes. Vol. 2. Princeton, NJ: Princeton University Press, 1984. 1584. Print. (Note: this translation does not render the Greek exactly as “said in many ways”, but this is the popular way of referring to Aristotle’s statement)

whatever the field is *of* is the primary goal. There is now even a field known as philosophy of language, wherein the meaning of ‘meaning’ itself is inquired after.

Enough other contemporary philosophers have recognized the timeliness of examining the meaning of ‘nature’ that a considerable body of literature now exists regarding it. Much of this work has been oriented not just to clarifying existing notions of nature, but to refining them, in the hopes that, equipped with a new and better concept of nature, we can begin to improve our situation. In 1995, for example, Steven Vogel, in his book, *Against Nature*, wrote that “environmental philosophy will require a *considerably* more sophisticated account of what it means when it speaks of ‘nature’ than has in general heretofore been forthcoming if it is to achieve any important results”, and proposed a concept of nature that “would stand for that which still needs to be deconstructed into the social practices that make it possible, a deconstruction oriented by the hope that humans could take responsibility for the world they inhabit instead of believing that world to be determined by external forces they are unable to control.”<sup>8</sup> Whether his criticism of environmental philosophy up to that point was valid or not, it is reasonably clear that many environmentalists appear not to see the meaning of ‘nature’ as problematic, such as E.O. Wilson, who, in his *In Search of Nature*, quite casually and pithily encapsulated it with the definition, “that part of the world we think of as eternal, beyond us, having no need of us, and yet is the cradle of our species.”<sup>9</sup> Vogel framed his view very much in contrast to “‘deep ecology’ and other anti-anthropocentric critiques of contemporary approaches to nature”, which he seemed to think were predominant in the

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<sup>8</sup> Vogel, Steven. *Against Nature: The Concept of Nature in Critical Theory*. Albany: State University of New York, 1996. 8-9. Print.

<sup>9</sup> Wilson, Edward O. *In Search of Nature*. Washington, D.C.: Island, 1996. IX. Print.

environmental philosophy at the time.<sup>10</sup> Kate Soper, interestingly, divided the predominant strains in philosophical treatments of nature from the same time into two categories, the “nature-sceptical” and the “nature-endorsing”, which closely mirror Vogel’s position and the one to which he contrasted himself, respectively, her book having been published the year before Vogel’s.<sup>11</sup> This suggests that the contrast that Soper described, “between discourses which direct us to the ‘nature’ that we are destroying...and...[those] focused on the ideological functions of the appeal to ‘nature’ and on the ways in which relations to the non-human world are always historically mediated and indeed ‘constructed’”, is a reasonable generalization of the better part of contemporary philosophical discussion of the meaning of ‘nature’.<sup>12</sup>

In characterization of her own work, however, Soper wrote that it was “not conceived as a historical account of the idea of nature...Nor...[as] defending a specific philosophy of nature or elaborating a theoretical position on the various debates which have been generated around around the concept...though it will bear on those debates...”.<sup>13</sup> Instead, she aimed at a resolution of a “communicational impasse between the two perspectives” that she laid out.<sup>14</sup> Like Soper’s work, this essay is aimed not at an ultimate theory of nature, such that could be used to build up an alternative to the modern outlook or a rectification of it, but rather at a clarification of language that will hopefully help to facilitate the discussion of such a theory and make the possibility of it reaching well developed and widely appealing perspectives more realistic. Although the ultimate

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<sup>10</sup> Vogel *op. cit.*

<sup>11</sup> Soper, Kate. *What Is Nature?: Culture, Politics, and the Non-human*. Oxford: Blackwell, 1998. Print.

<sup>12</sup> *Ibid.*, p. 3-4

<sup>13</sup> *Ibid.*, p. 2-3

<sup>14</sup> *Ibid.*, p. 7

practical impact of the conclusions to which this kind of approach might lead will depend upon further developments from the preliminary foundation they constitute, it is in line with the pragmatic orientation to action that motivated the choice of nature as a subject matter, because it could potentially be equally as useful to the development of multiple opposing views and provide them with some degree of common ground on which to build reconciliations or across which to move converts. Unlike Soper's work, however, this essay *will* implement a method of historical analysis. To explain the reasoning behind this method, which will rely heavily on lexicography and etymology, it will help to make some remarks regarding the sort of meaning sought and how it is a philosophical problem, for 'nature' is a word so common that it would seem most people already are well aware of its meaning, despite the sort of apparent confusions that have been mentioned. In fact, much, if not all, of philosophy faces a similar problem of clarity of purpose that stems from its questioning matters of which there is already some kind of conventional and, more importantly, working understanding.

One distinctly exemplary instance of this pattern can be found in Plato's account of the philosophical career of Socrates, who, while it is an unfortunately historically inaccurate and ethnocentric designation, is often called the "father of philosophy". The whole of Socrates's contribution to philosophy came from his own personal quest for wisdom, rather than one on behalf of society conducted by someone starting from an already fully adequate acquaintance with existing collective wisdom, and he proceeded, according to Plato, entirely by questioning experts who were thought already to know the things he sought. That these experts, again according to Plato's account, universally failed to demonstrate a very exact understanding of the ideas they regularly used as a

basis for action is one reason why one might see Socrates's work as a genesis of philosophy, or at least a good representation of it. For, this opens the possibility of a kind of understanding that is deeper than what is necessary in practice, but which still regards matters highly relevant, even essential, to practice. This is not to say that philosophy can only influence understanding and not practice, but, rather, that at least one of the primary means of influencing practice is through the refinement of existing beliefs and conceptions. Further, that ways of understanding can be well accepted and efficacious, yet still leave room for refinement, points to a fundamental premise of the sort of approach this essay will take, to wit, that many, perhaps most or even all, of our important beliefs and decisions are not thought through with perfectly logical rigor, if such a thing really exists, but are instead the product of a vague, partially intuitive process of, in a manner of speaking, "jumping to conclusions", checked primarily against how agreeable the experiences they tend to produce are. In other words, it seems to be seldom that a real-life decision of any gravity is made through a thought process that remotely resembles "All men are mortal; Socrates is a man; Therefore, Socrates is mortal."

Perhaps it would be possible to remedy this by finding an ultimate source of undeniable truth and building up a wholly or even usefully comprehensive system therefrom, but the urgency of our state of crisis seems to call for something less ambitious. Instead, it seems appropriate to accept some confusing and vaguely understood matters as understood well enough, while focusing on others more likely to get at the heart of the matter. In this case, one instance of this technique is that the puzzling relationship between concepts like meaning, sense, and reference and many

other difficult issues that might obscure the very possibility of a word meaning anything, or, at least, of stating a word's meaning with any reasonable ease and clarity will, by and large, be ignored, while the meaning of 'nature', which might equally justifiably be taken to be acceptably well known already, will be questioned. Nonetheless, the working sense of meaning here employed requires some explication, so that the aim of this essay can be distinguished from what is already easily accessible in any dictionary. In fact, dictionary definitions will serve as much of the starting material, as they are useful condensations of enormous bodies of empirical evidence of how a word is used. However, as W.V.O. Quine so clearly and concisely pointed out in his *Two Dogmas of Empiricism*, "the 'definition' which is the lexicographer's report of an observed synonymy cannot be taken as the grounds of the synonymy."<sup>15</sup> In other words, a dictionary lacks an explanation of the equation between definiendum and definiens. Quine went on from there to argue that explanation in terms of "analyticity" is problematic, because that concept has never really been explained itself.<sup>16</sup> If one were to, therefore, reject the notion of analyticity, then, in large part, this essay could be characterized as a search for what, if not analyticity, *does* explain the definition of 'nature', and this would be a decently functional account. Interpreting the significance and validity of Quine's argument, however, is not quite so simple.

Quine conceived of meaning as precisely effable, that is, as an exact synonymy between two specific linguistic constructions.<sup>17</sup> This conception arose from his dissatisfaction with the vagueness of Kant's "notion of containment which is left at a

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<sup>15</sup> Quine, W.V.O. "Two Dogmas of Empiricism." *Philosophy of Science: The Central Issues*. By Martin Curd and J. A. Cover. New York: W.W. Norton &, 1998. 283. Print.

<sup>16</sup> *Ibid.*

<sup>17</sup> *Ibid.*, p. 282

metaphorical level”, and was arrived at through maneuvers involving the distinction between sense and reference, whose complications this essay was meant to avoid.<sup>18</sup> It also led him to an awkward relationship with the fact that, as he freely admitted, “[i]t is obvious that truth in general depends on both language and extralinguistic fact. The statement ‘Brutus killed Caesar’ would be false if the world had been different in certain ways, but it would also be false if the word ‘killed’ happened rather to have the sense of ‘begat’.”<sup>19</sup> In this essay, therefore, some vagueness about meaning will be tolerated. The operable conception of it that will be in play is as follows. Meaning begins as whatever initially warrants the creation of a word, such as the novelty of some type of object, or the apparent importance of an observation or pattern of them. Subsequently, this core meaning may evolve or stagnate. That evolution, if it occurs, can take any number of forms, from metamorphosis, to division into several meanings, to generalization, to becoming more complex, and so on. The initial perception that a word is called for is always the result of some kind of thought process that begins with some stimulus, and the same is true of any changes it undergoes along the way. According with the fallibilistic premise accepted here, such thought processes are likely to involve logical imperfections. These thought processes constitute the sort of explanation that is lacking in dictionary definitions. The exploration of the meaning of ‘nature’ undertaken here, then, will be an attempt to retrace these thought processes by identifying metaphorical references to observation and the dominant trends of thought concurrent with changes in the pattern of its use. Thus, it will essentially be an extrapolation on the etymology of ‘nature’.

Because these thought processes *are* “contained” in a single word, when one employs it,

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<sup>18</sup> *Ibid.*, p. 281

<sup>19</sup> *Ibid.*, p. 292

one may be implying more than one is fully aware of. Further, 'nature' has come to have so many meanings that some of their implications may clash. Making these thought processes more explicit can, therefore, potentially enable people to better evaluate the clarity and convincingness of their rhetoric, when using the word nature to discuss matters related to our state of crisis and serve as a preliminary step towards new ways of thinking about those problems, insofar as the concept of nature is relevant to them.

## The Etymological Exploration

The Oxford English Dictionary (OED) traces the ancestry of the English word ‘nature’ most immediately to the Old French ‘nature’, and ultimately to the Latin ‘natura’, which, in turn, is derived from the past participle of ‘nasci’, “to be born”.<sup>20</sup> Dictionary.com, a good indicator of contemporary common vernacular in English brings up two primary dictionary entries, the first from dictionary.com itself and the second from Harper Collins. The first meaning listed in the dictionary.com entry, and hence the most common by their account, is “the material world, especially as surrounding humankind and existing independently of human activities”.<sup>21</sup> This closely mirrors the contemporary French understanding of ‘nature’, as given in the Dictionnaire de L’Académie Française (DAF), whose first of two classes of definitions refers to “That which, in reality, appears as given, as independent of the will or action of humans”.<sup>22</sup> The Collins dictionary lists this sense second, after “the fundamental qualities of a person or thing; identity or essential character”.<sup>23</sup> Between these two very familiar meanings of ‘nature’, one can find already a fundamental opposition, as the one refers to a totality which comprises individual entities, while the other refers to what distinguishes these entities as individual. Thus, on the one hand, it refers to what a lot of things have in common, while, on the other, it refers to what distinguishes things. This sort of opposition is a potential source of confusion, if the different senses of ‘nature’, because

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<sup>20</sup> "nature, n.". *OED Online*. Oxford University Press, September 2012. Web. 3 December 2012

<sup>21</sup> “nature”. *Dictionary.com*. Dictionary.com, LLC, 2012. Web. 3 December 2012

<sup>22</sup> “nature”. *Dictionnaire de L’Académie Française, neuvième édition, Version Informatisée*. ATILF/Académie Française. Web. 3 December 2012

Note: All French materials translated by author.

<sup>23</sup> dictionary.com *op. cit.*

of their shared name, are thought to be more unified than they really are. Distinguishing such opposing senses from one another is, therefore, of great potential importance, as is a recognition of the ways in which such senses are nonetheless related, which can give guidance as to the ways and contexts in which they might be confused. Toward this latter end, a great deal of progress can be made by asking the question: what do these meanings have to do with birth, that is, with babies, screaming mothers, sex, and so on?

The DAF claims that ‘nature’ in French has retained the very same meaning as had ‘natura’ in Latin.<sup>24</sup> “Birth”, however, is not one of their definitions, while it is the first listed in Lewis and Short’s Latin dictionary, wherein it is also marked as the literal meaning.<sup>25</sup> From the amount of quotations and elaborations on the different senses in Lewis and Short, it seems that something like the modern French and English usage of ‘nature’ was predominant in Latin, but these senses are listed as transferred meanings.<sup>26</sup> Understanding this transference, then, seems crucial to understanding the conception of ‘nature’.

Similarly to the case of ‘nature’ and ‘natura’, the DAF asserts that the modern French ‘naitre’ is equivalent to the Latin ‘nasci’, from which ‘natura’ derives.<sup>27</sup> First among the DAF’s definitions of ‘naitre’ is “to come into the world”.<sup>28</sup> Clearly, this is much like being born, but more general and abstract, meaning something more like “beginning to exist” than “emerging from one’s mother’s womb”. This abstract, generalized sense of “being born” is attested as a common transferred meaning of ‘nasci’

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<sup>24</sup> DAF *op. cit.*

<sup>25</sup> Lewis, Charlton, Ph.D., and Short Charles, LL.D. "Natura." *A Latin Dictionary*. 1878. *Perseus Digital Library*. Tufts University. Web. 4 Dec. 2012.

<sup>26</sup> *ibid.*

<sup>27</sup> “naitre” in DAF *op. cit.*

<sup>28</sup> *ibid.*

in Lewis and Short.<sup>29</sup> ‘Natura’ is derived from the past participle of this word and the suffix -ure, which, among other things, indicates a product, or result of a process.<sup>30</sup> Thus, from the transference of “being born” to “coming into the world” or “beginning to exist”, ‘natura’ seems to indicate “the result of having come into the world/begun to exist”, “that which has come into the world/begun to exist”, “that which is in the world/exists”, or just “existence/the world”. This begins to resemble the dictionary.com definition, “the material world”. But whence ‘material’, as well as other lofty terms and concepts, like ‘reality’, ‘given’, and independence from humanity?

‘Material’ parallels a term from the second Collins definition alluded to earlier. That definition reads, “the whole system of the existence, arrangement, forces, and events of all physical life that are not controlled by man.”<sup>31</sup> The parallel to ‘material’ here is ‘physical’. Both of these words, in turn, involve a certain kind of Greek/Latin parallel. The influence of Ancient Greek on Latin produced a number of what might metaphorically be called instances of “convergent evolution”, wherein words with separate ancestries, which have come to have similar meanings, continue to develop along the same lines, their equivalence enduring numerous changes. Thus, ‘material’ traces distantly to a Latin word for ‘wood’, and it’s abstraction to something like “that out of which something might be built” and then much further toward the likes of ‘reality’, ‘substance’, and ‘existence’, is based on use of the Ancient Greek word for ‘wood’,

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<sup>29</sup> Lewis *op. cit.*

<sup>30</sup> “-ure” at dictionary.com *op. cit.*

<sup>31</sup> dictionary.com *op. cit.*

‘hule’, by Greek philosophers like Aristotle to mean such things.<sup>32</sup> Similarly, ‘physical’ stems from the Ancient Greek ‘phusis’, whose development, though it had a separate origin, strongly parallels that of the Latin ‘natura’, even to the point that ‘natura’ and, subsequently, ‘nature’ have widely been used to translate ‘phusis’.<sup>33</sup>

‘Phusis’ is traced to the Proto-Indo-European(PIE) root ‘bheu’, whose primary senses are “to be, to grow, and to dwell”.<sup>34</sup> The first of these senses would seem to suggest a very direct course to the “existence/the world” sense toward which ‘natura’ tended. In fact, however, it appears that it was the second sense, “to grow”, or at least a commingling of this sense with “to be”, that was more relevant to the development of ‘phusis’. To see this clearly, one must press one step beyond ‘phusis’ to ‘phuein’, the verb from which the noun form comes. ‘Phuein’ seems to have had many subtly nuanced contextual meanings, but themes within them and their relation to the IE root, ‘bheu’, are obvious. In Liddell-Scott-Jones (LSJ), it is attested to have meanings such as to “put forth shoots” and to “grow, wax, spring up or forth, esp. of the vegetable world”, which are clearly tied to the growth of plants.<sup>35</sup> In fact, the Greek word for “plant”, ‘phuton’, comes from the same PIE root.<sup>36</sup> Other uses of ‘phuein’ include descriptions of the growth of hair, horns, beards, and populations.<sup>37</sup> The first meaning listed in LSJ,

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<sup>32</sup> “Material (adj.)” & “matter (n.)”. *Online Etymology Dictionary*. Douglas Harper, Historian. Web. 16 Dec. 2012.; I am also in debt to Professor Deborah Achtenberg, Ph.D., for pointing out Aristotle’s unprecedented innovativeness in using the word for “wood” this way.

<sup>33</sup> “physical” & “physic” in *Ibid*.

<sup>34</sup> *Ibid*.

Shipley, Joseph T. "Bheu." *The Origins of English Words: A Discursive Dictionary of Indo-European Roots*. Baltimore: Johns Hopkins UP, 1984. 38. Print.

<sup>35</sup> Liddell, Henry George, and Robert Scott. "φύω." *A Greek-English Lexicon*. Ed. Sir Henry Stuart Jones and Roderick McKenzie. 1940. *Perseus Digital Library*. Tufts University. Web. 4 Dec. 2012.

<sup>36</sup> OnED *op. cit*.

Shipley *op. cit*.

<sup>37</sup> Liddell. *op. cit*.

however, is “bring forth, produce, put forth”.<sup>38</sup> Thus, it appears that the impression of one thing growing out of another, as in that of a leaf from a branch, a shoot from the ground, a beard from a chin, etc. was abstracted to causation of origination, production. This, in turn, seems to have evolved into both “beget, engender” and “to be begotten or born”, thereby making the parallel between ‘nasci’ and ‘phuein’, as well as that between ‘natura’ and ‘phusis’ very close indeed.<sup>39</sup>

It is no surprise, then, that the word, ‘physical’, should pop up in definitions of ‘nature’, but, while it often comes close, ‘physical’ is no longer quite synonymous with ‘nature’ or ‘natural’, despite the long history of their ancestors having been. As has been mentioned, in contemporary English, ‘physical’ resembles ‘material’ much more closely than it does ‘nature’. Thus, the question of how ‘material’ came to be so prominent in definitions of ‘nature’ is echoed by the question of how ‘material’ became a closer match to ‘physical’ than ‘nature’ or ‘natural’. The key to answering this second question is to be found at the point of intersection between the otherwise parallel developments of the “phusis/natura concept” in Ancient Greek and Latin. ‘Physica’, a Latin word for “natural science, natural philosophy, physics”, is the most important point (as far as the development of English is concerned) at which the Greek ‘phusis’ made its way into Latin in spite of the traditional alternative, ‘natura’. The Online Etymological Dictionary(OnED) links ‘physica’ to ‘physike episteme’, defined as “knowledge of nature”.<sup>40</sup> ‘Episteme’ was dropped from the name of ‘physica’, but remains in its definitions, as ‘science’ or ‘philosophy’. From this word, and one of its derivatives,

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<sup>38</sup> *ibid.*

<sup>39</sup> *ibid.*

<sup>40</sup> “physic (n.)” in OnED *op. cit.*

‘physicalis’, derive an entire family of contemporary English words, such as, physic, physics, physical, physician, physicist, physicalism, physicality, and so forth.<sup>41</sup>

Orientation to science survives in today’s conception of ‘physical’, and, as there are no other explanations readily suggested by their histories, ‘physical’ and ‘material’ clearly have come to be associated as a result of beliefs produced by the practice of ‘natural science’ or ‘physics’. No doubt, the same tendencies of scientific belief explain the presence of ‘material’ in definitions of ‘nature’.

Curiously, however, not only has ‘materialism’ fallen out of favor in contemporary philosophy, replaced by ‘physicalism’ because “physics itself has shown that not everything is matter”, which renders ‘materialism’ “historically important but no longer scientifically relevant”, but it is difficult to find in the history of science any time when physics *did* suggest that everything is matter.<sup>42</sup> In Francis Bacon’s *Novum Organum*, often extolled to be one of the first articulations of the great “scientific method”, he wrote:

The task and purpose of human Science is to find for a given nature its Form...Nor have we forgotten that earlier we criticized and corrected the error of the human mind in assigning to Forms the principal role in being. For though nothing exists in nature except individual bodies which exhibit pure individual acts in accordance with law...It is this *law* and its *clauses* which we understand by the term Forms...he who knows only the Efficient and Material causes...does not touch the deeply rooted ends of things. But he who knows forms comprehends the unity of nature in very different materials.<sup>43</sup>

The talk of existence as “individual bodies” might bring to mind a strict version of ‘materialism’, but one mustn’t overlook the “individual acts” he also spoke of, nor his

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<sup>41</sup> “physic (n.)”, “physics (n.)”, “physical (adj.)”, “physician (n.)”, “physicist (n.)”, & “physicality (n.)” in *ibid.*

<sup>42</sup> Stoljar, Daniel. "Physicalism." *Stanford Encyclopedia of Philosophy*. Ed. Edward N. Zalta. Stanford University, 9 Sept. 2009. Web. 16 Dec. 2012.

<sup>43</sup> Bacon, Francis, Lisa Jardine, and Michael Silverthorne. *The New Organon*. Cambridge: Cambridge UP, 2000. 102-3. Print.

emphasis on the forms born by material. One would do well in this context to remember one's grammatical parts of speech. Even if all nouns refer to matter, there are still characteristics of matter, described by adjectives, as well as actions of matter, described by verbs. Reference to activity especially has been made throughout the history of physics with words like force, impetus, energy, momentum, vital principle, and so forth. While there were, no doubt, people, particularly during the Enlightenment era, who called themselves materialists, none that I know of denied the reality of such factors. One frequently finds references to "matter in *motion*" more readily than just plain matter in all the famous summary statements of their view, which is consistent with the OED's definition of 'materialism' as "the theory or belief that nothing exists except matter *and its movements and modifications*"(emphasis added).<sup>44</sup> This is, moreover, not even to mention 'space' and 'time', the existences of which one might say are necessary conditions for the existence of matter.

This would all seem to suggest that a simplistic understanding of 'materialism', as attesting the existence exclusively of matter, is not an entirely accurate portrayal of any major trend in Western scientific thinking since the Ancient Greeks. Yet, it remains to be explained why it is, that on dictionary.com the second definition of 'physical' is "of or pertaining to that which is *material*", the first definition of the adjectival form of 'material' is "formed or consisting of matter; *physical*; corporeal", and why the first definition of 'nature' is "the *material* world..."(all emphases added)<sup>45</sup> The way in which these three terms, 'natural', 'physical', and 'material', and their closest relatives circle around one another, each appearing in definitions of both of the others, or at least in

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<sup>44</sup> "materialism" in OED *op. cit.*

<sup>45</sup> "physical", "material", & "nature" in dictionary.com *op. cit.*

definitions of close relatives of both of the others, suggests a central idea about which they all orbit, the sun to their planetary system, which holds them all together. At or near that gravitational center must be a more accurate notion of the sort of ‘materialism’ that has really been influential in the Western tradition.

What remains to be examined of the attitude represented by that deceptively simple word, and what may more easily show what the attitude is really about, is just what it holds to be *non-existent*. Though it was removed in the most recent edition of the OED, the 1989 edition included this clause in the first definition of ‘materialism’: “Often applied by opponents to views that are considered logically to lead to...the attribution to material causes of effects that should be referred to spiritual causes.”<sup>46</sup> Both the 1989 and the newer edition include a secondary theological sense of the term as “Emphasis on or preference for that which is material, at the expense of spiritual or other values...”<sup>47</sup> The first two definitions of ‘naturalism’ in the current OED read respectively, “*Ethics*. Action arising from or based on natural instincts, without spiritual guidance...” and “*Philos.* The idea or belief that only natural (as opposed to supernatural or spiritual) laws and forces operate in the world...”<sup>48</sup> On dictionary.com, the third definition of the adjectival form of ‘material’ reads, “pertaining to the physical, rather than the spiritual or intellectual aspect of things”, and the first definition of ‘physical’ from the Collins entry reads “of or relating to the body, as distinguished from the mind or spirit”<sup>49</sup>. This is only a small sampling of the pages of easily findable similar evidence that all points

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<sup>46</sup> “materialism” in 2nd Ed. of OED *op. cit.*

<sup>47</sup> *ibid.*

“materialism” in current OED *op. cit.*

<sup>48</sup> “naturalism” in *ibid.*

<sup>49</sup> “material” & “physical” in dictionary.com *op. cit.*

conspicuously to three things: that the word ‘spirit’ is the most frequently used word to denote that to which ‘material’ is opposed, that ‘spirit’ is often associated with the ‘mental’ or ‘intellectual’, and that ‘spirit’ is also often associated with the ‘supernatural’ or ‘divine’.

‘Spirit’ comes, by way of the Latin ‘spiritus’, from the PIE root ‘(s)peis’, meaning either “to breathe” or “to blow”, a sense which survives in the contemporary English word ‘respiration’, among others.<sup>50</sup> Within Latin, this seems to have remained the primary sense of ‘spiritus’, so that, while similar associations of ideas can be found in a number of ancient cultures, such as in the referents of Ancient Greek ‘pneuma’, the transference of its original meaning to the likes of souls, ghosts, and minds seems to stem from its use particularly in Christian theological texts.<sup>51</sup> The OED and the OnED both trace the word’s introduction into the English tradition specifically to the Vulgate, just as the Trésor de la Langue Française informatisé (TLFi) attests that ‘esprit’ came to French primarily through the intermediary of Christian religious texts.<sup>52</sup>

There are two particular uses of ‘spiritus’ to which all the diverse meanings of ‘spirit’ can plausibly be traced. The first is from Genesis, wherein ‘spiritus’ and related words were used in the Vulgate in reference to the “breath of life” that God is said to have blown into the form of Adam, which he had fashioned out of clay.<sup>53</sup> In fact, the very first definition of ‘spirit’ in the OED is “The animating or vital principle in man (or

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<sup>50</sup> “spirit (n.)” in OnED *op. cit.*

“(s)peis” in Shipley *op. cit.*

<sup>51</sup> “spiritus” in Lewis *op. cit.*

<sup>52</sup> “spirit” in OED *op. cit.*

“spirit (n.)” in OnED *op. cit.*

“Esprit, subst. masc.” *Le Trésor de la Langue Française informatisé*. ATILF. Web. 3 December 2012

<sup>53</sup> See Genesis 2:7, 6:17, 7:15, and 7:22. As of December, 2012, the Vulgate is available online in several places, such as <http://www.latinvulgate.com>.

animals); that which gives life to the physical organism, in contrast to the purely material elements; the breath of life”.<sup>54</sup> Here, again, is the contrast with the ‘physical’ and ‘material’, as well as conspicuously direct invocation of the “breath of life” from Genesis. The question of what the difference is between a newly dead body, wherein all the constituent parts remain, potentially in tact, and a living body which can move, feel, communicate, and so on is likely one of the oldest questions ever asked, and it seems that, by association with this story, ‘spirit’, much like ‘soul’, has come, in English, to refer to whatever the answer to that question might be.

The other important Christian use of ‘spiritus’ is in reference to the famous concept of the “Holy Spirit”, as in the phrase, “in nomine Patris, et Filii, et Spiritus Sancti”, that catholic priests invoke as they make the “Signs of the Cross”. The second of the five classes into which the OED divides the 22 meanings (many of these, in turn, with several sub-species) of ‘spirit’ begins with and is thus fundamentally characterized by this sense. It is there elaborated as “the active essence or essential power of the Deity”.<sup>55</sup> The use of ‘essence’ here brings to mind Aristotelian ideas of what makes a thing particularly what it is, a reminiscence which explains the presence of this definition in the same class of meanings: “The essential character, nature, or qualities of something; that which constitutes the pervading or tempering principle of anything”.<sup>56</sup> Noteworthy in this definition is the presence of the word ‘nature’, as well as its overall equivalence to the first definition of ‘nature’ in the Collins entry on dictionary.com.<sup>57</sup> Clearly, then, this is not the referent of ‘spirit’ whose dubious existence produced the contemporary sense

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<sup>54</sup> “spirit, n.” in OED *op. cit.*

<sup>55</sup> *ibid.*

<sup>56</sup> *ibid.*

<sup>57</sup> See pg. 1.

of ‘nature’ as ‘material’ rather than ‘spiritual’. There being so many senses of ‘spirit’, this contradiction is not necessarily fatal to the meaningfulness of such a conception, but it could be, depending on how intimately tied it is to the more relevant senses.<sup>58</sup>

Which sense of ‘spirit’, then, *is* the key to elaborating ‘material’ and, thence, ‘nature’? Unfortunately, this question is not as straightforward as one might hope. Several of the other senses of ‘spirit’ seem equally to contradict the notion of ‘nature’ as fundamentally opposed to it. The first, and hence oldest, class of historical meanings of ‘nature’ listed in the OED refer to “physical or bodily power, strength, or substance” and include “The vital or physical powers of a person; a person’s physical strength of constitution” and “The physical strength or constitution of a thing, esp. a natural substance”.<sup>59</sup> While this sense is very old, the OED quotes a text from 1971 for the second of these definitions.<sup>60</sup> Clearly this sense is very similar to the “vital principle” from the first definition of ‘spirit’, quoted above. Many other of the OED’s definitions of ‘spirit’ amount to much the same sort of thing, such as “Vital power or energy; the normal operation of the vital functions” and “Mettle; vigour of mind; ardour; courage; disposition or readiness to assert oneself or hold one’s own”.<sup>61</sup> Akin to the notion of ‘spirit’ as an intangible soul that leaves one’s body upon death, these senses of both ‘nature’ and ‘spirit’ seem frequently to be used in descriptions of something having departed from within a person or object, though that person or object remains. Thus, one of the OED’s definitions of ‘spirit’ reads, “In phrases denoting or implying diminution or

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<sup>58</sup> It does seem plausible that the connection between the various senses of ‘spirit’ is so intimate, when one considers the the interesting case of “convergent evolution” between ‘spirit’ and the Germanic ‘ghost’.

<sup>59</sup> “nature, n.” in OED *op. cit.*

<sup>60</sup> *ibid.*

<sup>61</sup> “spirit, n.” in *ibid.*

cessation of the vital power, or the recovery of this”.<sup>62</sup> The possibility of such a thing diminishing or ceasing while its host remains implies a link to this definition of ‘spirit’: “A subtle or intangible element or principle in material things”.<sup>63</sup>

This last sense relates to nature in multiple ways. First, one of the quotations cited for it in the OED is strikingly similar to one of the quotations cited for the sense of ‘nature’ as the “strength or constitution of a thing”; respectively they read, “The spirit of the straw is washed out by the rain.” and “Mr Carter doesn’t mind one rain on the peas after they have been cut - ‘This...takes some of the “nature” out of the straw’, he commented.”<sup>64</sup> Further, the idea that this intangible element of something is a “principle” clearly links it to the notion of essential character found in other definitions of ‘spirit’ and very prominently in definitions of ‘nature’. Yet further, this principle’s intangibility brings to mind such common ideas about ‘nature’ as this one, from Hume’s

*Enquiries:*

It must certainly be allowed, that nature has kept us at a great distance from all her secrets, and has afforded us only the knowledge of a few superficial qualities of objects; while she conceals from us those powers and principles on which the influence of these objects entirely depends.<sup>65</sup>

Hume wrote this passage in the context of a discussion of deriving knowledge of causation from experience, which, while Hume, himself, took a dim view of the possibility of so doing, is precisely the commonly understood objective of science.

Indeed, these “secret powers and principles” evoke Bacon’s “forms”, which one would perceive if one had delved more deeply than a basic account of material and efficient

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<sup>62</sup> *Ibid.*

<sup>63</sup> *Ibid.*

<sup>64</sup> “spirit, n.” & “nature, n.” in OED *op. cit.*

<sup>65</sup> Hume, David, Lewis Amherst Selby-Bigge, and P. H. Nidditch. *Enquiries concerning Human Understanding, and concerning the Principles of Morals.*, 3rd ed. Oxford: Clarendon, 1975. 32-3. Print.

causes, or, in Hume's terms, the "few superficial qualities" to which we normally have access. Thus, the word 'spirit' seems often to refer to the sort of things mentioned earlier, whose existence only the most naive and justly ignored materialist would deny. But this discussion of 'spirit' was meant to clarify what a more congenial materialist would claim does not exist.

Perhaps, however, this last equation of 'spirit' to 'nature' goes a step too far. The connection here drawn between an "intangible principle" and "nature's secrets" rests on their common inaccessibility to the senses. However, there is an important distinction to consider, between intangibility in fact and intangibility in principle. It is conceivable that at least a part of the viable materialist attitude is that "nature's secrets" are only secrets because we have yet to look in the right place or the right way, that they are in principle discoverable to the senses. Such an attitude would be consistent with some of the less viciously circular aspects of some definitions of both 'material' and 'physical'. 'Material' is frequently equated with 'corporeal' in dictionaries, whose second definition in the first entry on dictionary.com is "material; tangible", and the OED gives the following definition directly of 'physical': "Of or relating to natural phenomena perceived through the senses (as opposed to the mind); of or relating to matter or the material world; natural; tangible; concrete."<sup>66</sup> Such facts as that a ball will roll better than a cubic block, or that a spinning billiard ball will roll differently when struck with the cue than will a ball that is still, are not at all perplexing, because the qualities that explain them are readily apparent to one's vision. Inspired by such clarity of understanding, physical scientists have most typically sought to explain "nature's secrets"

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<sup>66</sup> "material" in dictionary.com *op. cit.*

<sup>67</sup> "physical, adj." in OED *op. cit.*

in terms such things as the shape and motions of things much like balls and blocks that are too small, or perhaps too far away, to see. Advances in experimental technology, such as the microscope and the telescope, have even brought some of these things into view. It would make sense, then, that scientists, who have enough faith in the knowability of “nature’s secrets” to dedicate themselves to pursuing such knowledge, would tend to assume that every part of existence is “material”, in the sense of being discoverable in such a way.

Of course, as more recent physical theory has progressed toward consideration of the ever smaller and weirder, problems have arisen for a materialism construed in terms of sensation. The Heisenberg Uncertainty Principle, as just one of many possible examples, posits that certain properties of extremely small particles like electrons, already far too small to ever be ‘seen’ in any fashion, even with the assistance of lenses, cannot *in principle* be observed simultaneously, by the senses or, indeed, by any means. This sort of problem is recent enough, however, that it does no discredit to the understanding of the historical bent toward materialism in the physical sciences as a faith in the ultimate accessibility of “nature’s secrets” to the senses. Moreover, this understanding of the materialist attitude readily suggests plausible transfers of the meaning of ‘material’ or ‘physical’ that would very much elucidate the significance of certain changes in the history of the use of ‘nature’. It is not difficult to imagine, for example, tangibility in principle evolving into knowability in principle from such as is tangible, then perhaps even further to knowability by means of standard scientific practice, and even to simply the purview of science. If the plausibility of this sort of transfer were allowed, then the tendency of religious terms in definitions of ‘nature’ in

both Middle English and Middle French to be replaced by terms like ‘material’ and ‘physical’ in modern definitions could easily be understood as a tendency of ‘nature’ to refer more to what scientists know about than what clergy know about.

Evidence suggesting this sort of story abounds. In Middle English, ‘nature’ was defined, among other ways, as “the universe as a divine creation;...also, the universe as a fallen creation in need of divine grace”; “Nature as an embodiment of moral and political principles; right morality”; and “Nature personified; also, the goddess Nature”.<sup>68</sup> In a dictionary of Middle French, one can find these definitions: “Active principle, inherent in the created world (often personified), of divine essence, which acts from birth and is the source of innate characteristics”; “Active principle, inherent in the created world (often personified), which makes it so that the created world is as it is, the forces that maintain the order of things and the beings of the universe (in virtue of the divine creation, excluding miracles and operating independently of human actions)”; and “The created world, visible”.<sup>69</sup> Salient in these definitions are references to creation, divinity, gods, personification, and morality. The OED’s etymology of ‘nature’ lists Middle French as a source of or influence on the English word right along with Anglo-Norman and Old French, and among the general senses there listed are “active force that establishes and maintains order of the universe” and “principle of life that animates and sustains the human body”, from the early 12th and early 13th centuries respectively.<sup>70</sup> The first of these is remarkably similar to one of the Middle French dictionary definitions, and the second, like many of the other definitions from the “middle period”, is remarkably

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<sup>68</sup> “natur(e, n.” *Middle English Dictionary*. University of Michigan, 2001. Web. 16 Dec. 2012.

<sup>69</sup> “NATURE, subst. fém.” *Dictionnaire du Moyen Français (1330-1500)*. ATILF, 2012. Web. 16 Dec. 2012.

<sup>70</sup> “nature, n.” in OED *op. cit.*

similar to some definitions of ‘spirit’. Middle English was spoken until not long before the scientific revolution, while Middle French seems to have continued into its beginning. In light of all this, the close correspondence of the older usages of ‘nature’ to the continued usages of ‘spirit’ are less troubling; they seem to be vestiges of the pre-scientific revolution era when the word ‘nature’ was much more tied with religious ideas than it is now. So, after this long discussion of the less than lucid meaning of ‘material’, one thing has become reasonably clear, that definition of ‘nature’ in terms of ‘material’ signifies that ‘nature’ now refers primarily to things studied and posited by science and hardly at all to religious ideas. In this way, the story of the equation of ‘physical’ with ‘material’ begins to look more like a story of the equation of ‘material’ with ‘physical’, which has already been shown to refer to the product and purview of science.

Yet, there remains one other refreshingly clear sense of ‘material’ whereby it holds its own as a bearer of meaning that is not totally subjugated to what is physical or scientific and which is crucial to understanding modern definitions of ‘nature’. It stems from the contrast of ‘material’ with one of the most common senses of ‘spirit’ not yet discussed, namely, as the mind or intellect, which characterizes one of the five classes of its meanings in the OED and is by far the primary sense of ‘esprit’ in modern French.<sup>71</sup> In fact, in recent philosophical discourse, ‘materialism’ and ‘physicalism’ most frequently come up with regard to what is called “the mind-body problem”. This is reflected in the second half of the OED’s philosophical (and oldest) definition of ‘materialism’, only the first half of which, regarding belief exclusively in matter and its changes, has been critiqued thus far. That second half reads: “...Now also more

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<sup>71</sup> “spirit, n.” in *ibid.*

narrowly: the theory or belief that mental phenomena are nothing more than, or are wholly caused by, the operation of material or physical agencies.”<sup>72</sup> It would be a difficult stretch to link the attribution of materiality to ‘nature’ very directly to the popularity of this kind of ‘materialism’, but the issue it concerns is defined by a distinction that is without question evoked by that attribution.

A variety of complementary terminological sets are used in reference to this distinction. ‘Mind’ and ‘body’, of “mind-body problem” fame, are popular with those philosophers interested in whether things mental can be reduced to the “physical” going on in the brain. ‘Body’, in that context, tends to refer specifically to the human body, but it is also often used with the same kind of distinction in view with a more general referent, for which purpose its latinized equivalent ‘corpus’ or some derivative thereof is another popular choice. Other favorites include: ‘internal’ and ‘external’, ‘perceiver’ and ‘perceived’, ‘knower’ and ‘known’, ‘phenomenal’ and ‘noumenal’, ‘idea’ and ‘essence’, and, of course ‘mental’ and ‘physical’. Perhaps the most provocative of all such alternatives, however, is the set of ‘subject’ and ‘object’, most likely because of their connection to the context of intellectual integrity and rigor. Hence, one finds in the OED’s list of special uses for ‘material’ the term ‘material object’, defined as “a thing made or consisting of matter, a physical object; (*Philos.*) an object having real physical existence independent of mind or consciousness.”<sup>73</sup> If, as seems entirely unobjectionable, one interprets “the material world” as “the collection of all material objects”, then it is clear that material is, at least in part, invoked in definitions of ‘nature’ to indicate that it exists outside and independently of the mind.

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<sup>72</sup> “materialism, n.” in *ibid.*

<sup>73</sup> “material, adj.” in *ibid.*

This implication is redoubled by the association of ‘nature’ with ‘reality’, evinced in the use of ‘realite’ to characterize the DAF’s entire first class of definitions of the French ‘nature’ and in one of the specific definitions in the second class, as well as numerous other connections to ‘reality’ to be found in English dictionaries, such as this definition of ‘natural’ in the OED: “Having a real or physical existence.”<sup>7475</sup> The meaning of ‘real’ or ‘reality’ is most typically explained with reference to the divide between the contents of the mind and what is external to it, especially by contrast with ‘imaginary’ or by attribution of objectivity. Several of the OED’s definitions of ‘real’ follow this pattern: “Having an objective existence;...not imaginary.”; “*Philos.* Relating or attached to the doctrine of the objective existence of universals.”; “With *the*. That which actually exists (contrasted with something...imaginary...)” These definitions from two separate entries on dictionary.com follow suit: “...; actual rather than imaginary...” and “existing or occurring in the physical world; not imaginary...”. Within all of these definitions, indications of the inherent connection between ‘reality’ and ‘nature’ show themselves in the links between ‘physical’ and ‘real’, and especially in the near equation between ‘existence’ and ‘reality’ (invoked in nearly every definition of ‘real’), which recalls the transfer of meaning from birth to existence in the historical development of ‘nature’. Rather than bearing a simple equivalence to that ancient germ of so many of the nuanced modern senses of ‘nature’, however, ‘real’, by its association with ‘nature’, augments that concept with its opposition to the imaginary and the subjective. If the significance of this opposition as indicating distinctness from the mind is not yet clear, consider that “Actually existent, as opposed to what is *spiritual, intellectual, fictitious,*

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<sup>74</sup> “nature, n. f.” in DAF *op. cit.*

<sup>75</sup> “natural, adj.” in OED *op. cit.*

etc.”(emphasis added) is a sub-definition of the OED’s definition of ‘natural’ as “Having a real...existence”, as well as these generally representative definitions from the OED, respectively of ‘imagination’ and ‘objective’: “The mind considered as engaged in imagining; a person’s mind, or part of it...Formerly also: the inner operations of the mind in general, thinking...” and “That is or belongs to what is presented to consciousness, as opposed to the consciousness itself; that is the object of perception or thought, as distinct from the subject; (hence) (more widely) external to or independent of the mind.”<sup>76</sup>

Many eminent and highly influential thinkers, past and present, have expressed serious objections to the validity of any distinction between the objective and subjective. It should, therefore, be surprising that the current meaning of so widely used a word as ‘nature’ relies on that distinction. If it is not possible to draw an acceptable boundary between what is internal and what is external to the mind, then the meanings of materiality, physicality, reality, and, hence, nature are not at all clear, and they may even be entirely without content. Yet, aside from George Berkeley, who in the early 18th century very publicly attempted to repudiate the meaningfulness of ‘material’ because of his difficulties with drawing such a boundary, rejection of any of these ubiquitous terms is nigh unheard-of.<sup>77</sup> Perhaps, this apparently tenuous situation can be understood simply as a consequence of a “tyranny of the majority”, but, as in the case of materiality, so the lack of a necessary connection between distinctness from the mind, its contents, or both and the fundamental metaphor, birth, from which all meanings of ‘nature’ seem to derive, necessitates some explanation of what additional factors have made that concept a part of

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<sup>76</sup> “natural, adj.,” “imagination, n.,” & “objective, adj.” in *ibid.*

<sup>77</sup> Berkeley, George. *Principles of Human Knowledge ; And, Three Dialogues*. Ed. Howard Robinson. Oxford: Oxford UP, 1999. Print.

the standard contemporary understanding of ‘nature’. Fortunately, the same shift from Middle English and Middle French accounts of ‘nature’ to their modern counterparts, which helped to clarify the historic trends that led to the association of ‘nature’ with ‘material’, points to the likelihood of finding clues in the early modern era.

The intellectual climate during that period was characterized by reassessment of the fundamentals of knowledge, especially in so far as methodology of inquiry was concerned. Hence, in addition to the scientific revolution, the European academic community saw also the emergence of epistemology as a newly well-engaged, sophisticated, and rigorous field of philosophy in its own right. Before that time, direct treatment of the origin, definition, and standards, derived therefrom, of knowledge was scarce in the Western philosophical tradition. The obvious relevance of this field to the issue at hand, regarding the mind’s relationship to that about which it has knowledge, points to the likelihood of finding answers in the epistemological literature of that time, as well as the importance of the term ‘donné’, or ‘given’ in English, in the DAF’s description of the first class of definitions of ‘nature’.<sup>78</sup> It is well known that the fundamental divide within the dominant strains of epistemological thought during that period ran between the rationalist and empiricist schools. Interestingly, despite their differences, their major representatives seem to have been largely in accord regarding the distinction between subject and object. Descartes, famous for doubting his senses and looking within himself for the truth, rather than to the external world, nonetheless wrote:

Now there is in me a passive faculty of sensory perception...; but I could not make use of it unless there was also an active faculty, either in me or in something else...But this faculty cannot be in me, since clearly it presupposes no intellectual act on my part, and

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<sup>78</sup> “nature, n. f.” in DAF *op. cit.*

the ideas in question are produced without my cooperation and often even against my will. So the only alternative is that it is in another substance distinct from me...This substance is either a body, that is, a corporeal nature...; or else it is God...But since God is not a deceiver...[and] he has given me a great propensity to believe that [sensations] are produced by corporeal things...It follows that corporeal things exist. They may not exist in a way that exactly corresponds with my sensory grasp of them...But at least they possess all the properties which I clearly and distinctly understand...<sup>79</sup>

Here one finds an indication of a factor, which, in addition to the image of birth or the growth of plants, has incited the creation and shaped the development of ‘nature’. That factor is the passivity of sensation, a thing so patently imposing on human minds that even Descartes, paragon of skepticism, in the face of the constantly demonstrated fallibility of the senses, could not doubt it. Locke, as well, noted that, “[t]hough thinking, in the propriety of the *English* tongue, signifies that sort of operation of the mind about its *ideas*, wherein the mind is active;... in bare naked *perception*, the mind is, for the most part, only passive”.<sup>80</sup> He then also drew attention to another key observation:

whether we can...certainly infer the existence of anything without us, which corresponds to [our] *idea*[s], is that, whereof some men think there may be a question made,...But yet here, I think, we are provided with an evidence, that puts us past doubting: for I ask anyone, whether he be not invincibly conscious to himself of a different perception, when he looks on the sun by day, and thinks on it by night...? We as plainly find the difference between any *idea* revived in our minds by our own memory, and actually coming into our minds by our senses, as we do between any two distinct *ideas*.<sup>81</sup>

Hume later described these two sorts of perceptions as “distinguished by their different degrees of force and vivacity.”<sup>82</sup> Thus, the empiricists drew attention to the fact that, not only is the mind constantly exposed to things over which it seems to have no control, but

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<sup>79</sup> Descartes, René. "Discourse on the Method." *Descartes: Selected Philosophical Writings*. Trans. John Cottingham, Robert Stoothoff, and Dugald Murdoch. Cambridge: Cambridge UP, 1998. 115-6. Print.

<sup>80</sup> Locke, John. *An Essay concerning Human Understanding*. Ed. Kenneth Winkler. Indianapolis: Hackett, 1996. 34-6. Print.

<sup>81</sup> *ibid.*, p. 233-4

<sup>82</sup> Hume. *op. cit.*, p.18

these things also clearly differ from those things one can control in their vividness, their “force and vivacity”.

Without question, the concepts of subject, object, and their essential opposition to one another, as well as awareness of these very basic observations, long predate the early modern period. In the Christian tradition, which dominated European intellectual culture and significantly shaped the meaning of ‘nature’ during the middle ages, God very explicitly created a world entirely separate and independent from humanity before he created humans.<sup>83</sup> The medieval definition of ‘nature’ as “the created world” could, thus, be understood as implying the same externality to the human mind indicated by the materiality and reality of the modern concept.<sup>84</sup> Nonetheless, the early moderns turned a more attentive eye to the dynamic between subject and object in their pursuit of certainty, and the concurrent shift in the use of ‘nature’ appears very much linked to that focus. The importance of the origin of ideas to that pursuit of certainty stems from an insight that has been discussed since antiquity. In fact, it is expressed in the very first statement of Aristotle’s *Posterior Analytics*: “All teaching and all intellectual learning come about from already existing knowledge.”<sup>85</sup> To argue some point, one must rely on accepted premises. If one wished to demonstrate those premises, one would find need of other premises, and so onward into an infinite regression. In the face of this insight, it seems paradoxical that we should know anything at all. Yet we find that we do. There must, then, be some more immediate way in which we obtain knowledge that does not involve a process of reasoning from premises. By determining what that source is, early modern

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<sup>83</sup> see Genesis, chapters 1 & 2

<sup>84</sup> see above, p.31

<sup>85</sup> Aristotle. "Posterior Analytics." Trans. Jonathan Barnes. *The Complete Works of Aristotle*. Ed. Jonathan Barnes. Vol. 1. Princeton, NJ: Princeton University Press, 1984. 114. Print.

empiricists hoped to avoid false premises and all erroneous thinking based on them by restricting discourse to what can be shown to derive from this special, original knowledge. Essentially, the rationalists thought that such knowledge was, at least in part, inherent in our minds from our beginnings, while the empiricists thought that it came exclusively through experience, primarily of the external world and through the senses, though also in part by inward observation of ourselves. However, what is even more interesting and germane to this discussion of ‘nature’ than their accord as to the distinction between subject and object, is that, despite their disagreement, thinkers from both of these schools associated ‘nature’ with this original source of knowledge, hence its description as “given” in the DAF.

The identity between the empiricist conception of the ultimate source of knowledge and the conception of nature as “the material world” is obvious. Hence, one finds statements in that tradition like these from Bacon’s *Novum Organum*: “Man...understands only as much as he has observed of the order of nature”; “...while we mistakenly praise the powers of the human mind, we do not seek its true supports.”; “The syllogism...compels assent without reference to things.”; and “[humanity] rejects the light of experience”.<sup>86</sup> The empiricist proposal for the refinement of knowledge, then, could be described as an effort to ground our logical reasoning in observation of *nature*, so that it makes true “reference to things”. In this vein, Hume made it clear that, “When we entertain, therefore, any suspicion that a philosophical term is employed without any meaning or idea (as is but too frequent), we need but enquire, *from what impression is*

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<sup>86</sup> Bacon *op. cit.*, p. 33, 34, 35, & 44

*that supposed idea derived?*"<sup>87</sup> Descartes, on the other hand, was adamant that the way to refine the premises of our otherwise unobjectionable reasonings was to look within one's spirit. The very first thing he saw cause to doubt was just what Bacon seems to refer to as "observation of nature". Everything, therefore, that identifies nature with the external world and contrasts it with the spiritual suggests that at the root of rationalism is a turn away from nature. Yet, at times, when a notion fits his criterion of being "clear and distinct" to his spirit, Descartes describes the notion as "manifest by the natural light".<sup>88</sup> In the fourth of his *Meditations*, he treated the term 'natural light' as though it were interchangeable with "power of understanding".<sup>89</sup> Thus, even in his drastically different epistemology, the ultimate source of the best knowledge is described as natural. Regardless of the differences between Descartes's use of 'natural' and, say, Bacon's use of it, 'nature' and 'natural' are now associated with the source of knowledge. This legacy is vividly evident in this jocular passage from a 1962 essay by Imre Lakatos, which recounts the history of philosophers' attempts to avoid the epistemological infinite regress described above:

The Euclidean Programme proposes to build up Euclidean theories with foundations in meaning and truth-value at the top, lit by the *natural light of Reason*, ...The Empiricist Programme proposes to build up Empiricist theories with foundations in meaning and truth-value at the bottom, lit by the *natural light of Experience*.<sup>90 91</sup>

However, while recognition of this legacy is, by itself, an important step toward understanding contemporary use of 'nature', the differences between Descartes's use of

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<sup>87</sup> Hume *op. cit.*, p. 22

<sup>88</sup> e.g., Descartes *op. cit.*, p. 91

<sup>89</sup> *ibid.*, p. 103

<sup>90</sup> Lakatos, Imre. "Infinite Regress and Foundations of Mathematics." *Mathematics, Science, and Epistemology*. Ed. John Worrall and Gregory Currie. Cambridge: Cambridge UP, 1980. 5. Print.

<sup>91</sup> It is also interesting to note the similarity between "natural light" and Bacon's "light of experience".

‘nature’ and ‘natural’ to refer to his faculty of understanding and the use of ‘nature’ to refer to the world external to the mind are also instructive. The fact that there can be agreement that ‘nature’ refers to the “given” basis of knowledge, while disagreement as to what constitutes the “given” remains, illustrates one manner in which different meanings of ‘nature’ can appear more similar than they are. For example, an empiricist and a rationalist might appear to be employing the same concept when they both state that “knowledge can come from nature”, yet, as they would disagree on where knowledge comes from, surely these apparently equivalent statements must mean different things by “nature”. A slight departure into some of Descartes’s most famous and influential writing can be tolerated will demonstrate how this sort of situation can be an impediment to clear communication and indicate some of the important distinctions between meanings of ‘nature’ to keep in mind in order to avoid confusion.

In his *Discourse on Method*, Descartes justified a rather empiricist-like turn in his methodology, and thereabouts he also clearly invoked the typical understanding of ‘nature’, as comprising things like “fire, water, air, the stars, the heavens and all other bodies in our environment”.<sup>92</sup> Further, he expressed an opinion there, that knowledge of the external world acquired through direct observation and experimentation could constitute a “practical philosophy which might replace the speculative philosophy taught in schools” and could “secure the general welfare of mankind”, which seems very much in accord with Bacon’s view.<sup>93</sup> His attempt to avoid contradiction between this surprising turn and his rationalist epistemology depended on subtle use of a crucial distinction between general and particular knowledge. With that distinction, he was able

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<sup>92</sup> Descartes *op. cit.*, p. 47

<sup>93</sup> *Ibid.*

to define a limitation of the intuitive and deductive methodology one would expect to arise from his epistemological position, namely that the immense range of plausibly deducible truths regarding particulars is beyond the capacity of the human mind, so that the acquisition of such knowledge requires the extraneous assistance provided by observation and experimentation. General knowledge, on the other hand, seemed to him to require no more than reason.<sup>94</sup> He wrote in the *Discourse* that the “first principles and causes” could be deduced from “certain seeds of truth which are *naturally* in our souls”(emphasis added), and that a similar method brought him knowledge of “the first and most ordinary effects” of those causes.<sup>95</sup> Thus, as far as particular knowledge is concerned, Descartes seems to have been in accord with Bacon, who wrote that nature is the foundation of knowledge, yet, where he differed from Bacon, regarding general knowledge, he still consistently described the foundation of his reasoning as “natural”. It would seem, then, that Descartes meant to invoke multiple senses of ‘nature’ and ‘natural’ in the *Discourse*, one corresponding to the spiritual, mental realm, and the other corresponding to the material, external realm.

In his final *Meditation*, he explicitly delineated these two senses:

...if nature is considered in its general aspect, then I understand by the term nothing other than God himself, or the ordered system of created things established by God. And by my own nature in particular I understand nothing other than the totality of things bestowed on me by God.<sup>96</sup>

Thus, it becomes unmistakably clear that the sense of ‘nature’ that makes reference, not to the external and material world, but to elements of the human “spirit”, or mind, which might perfunctorily appear somewhat idiosyncratic to Descartes, is just the familiar

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<sup>94</sup> *Ibid.*, p. 48-9

<sup>95</sup> *Ibid.*

<sup>96</sup> *Ibid.*, p. 116

concept of “human nature”, with emphasis on our rationality. The idea that the capacity to reason is most essentially what sets us apart as human is commonplace. Aristotle is famous for proposing that humanity could be precisely defined as “rational animals”, and, whether such a thing can clearly be discerned in any of his writing or not, that notion has long received much attention in philosophical literature. Within the Judeo-Christian tradition, a number of things point to the same idea, such as the stories from Genesis, that God created humans in his own image, that he gave them dominion over the rest of his creation, and that, when Eve and Adam acquired *knowledge* of good and evil, they became more like God.<sup>97</sup> More recently, statements about “what separates us from the beasts”, like Locke’s statement, that “it is the *understanding* that sets man above the rest of sensible beings, and gives him all the advantage and dominion, which he has over them”, whether one finds them agreeable or not, have become familiar to the point of sounding cliched.<sup>98</sup> Essentially, then, the divide within Descartes’s different uses of ‘nature’ and ‘natural’ appears to be an instance of the general divide with which this section began and quickly turned away from, that between nature as what is innate to and defining of individuals and nature as the totality of existence, or, at least, external existence. The “natural light” or the “seeds of truth which are naturally in our souls”, which are, according to Descartes, the source of general knowledge, are natural insofar as they are innate to humans, part of what make us human, while particular empirical knowledge is imparted by the nature that is “the material world”. Not surprisingly, Descartes having been a Frenchman of the early 17th Century, the naturalness of the

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<sup>97</sup> see Genesis 1:26 & 3:22

<sup>98</sup> Locke *op. cit.*, p. 4

“natural light”, which he took pain to point out was given him by God, is very much consistent with the Middle French definitions of ‘nature’ mentioned above.

Such contextually sensitive use of ‘nature’ and ‘natural’ has an unfortunately powerful proclivity to cause confusion, which is so difficult to resist that it seems even such an accomplished and meticulous thinker as Descartes succumbed to it. Even if this semblance is deceptive and he did avoid confusion in his own mind, it cannot be denied that the parts of his writing in which he used ‘nature’ and ‘natural’ are rather difficult to precisely decipher. In the *Discourse*, he distinguished between two levels of general knowledge, namely, the “first principles and causes” and their “first and most ordinary effects”.<sup>99</sup> Knowledge of both of these, by his account, is derived from the sort of nature that is particular to us and comprises our rationality. Yet, while the first comprises items of knowledge that can possibly be conceived as beyond sensation, like awareness of self and God, the second comprises entirely external things. Moreover, Descartes argued that those “first effects” were easier for him to know than particulars, in part because they are “the most common” things, which implies both, that the difference between knowledge about them and about particulars is not a big one, and that his repeated sensory exposure to them enabled his knowing them.<sup>100</sup> This suggests that the source of his knowledge of the “first effects” was actually nature as external existence, rather than nature as what is innate.

The final *Meditation* only compounds this difficulty. There he covered the “aspects of corporeal things which are either particular...or less clearly understood”, phrasing that clearly echoes his description in the *Discourse* of those things known with

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<sup>99</sup> Descartes *op. cit.*, p. 48-9

<sup>100</sup> *Ibid.*

the help of nature as the external, and he wrote of these things that “the very fact that God is not a deceiver, and the consequent impossibility of there being any falsity in my opinions which cannot be corrected by some other faculty supplied by God, ...[implies] that everything that I am taught by nature contains some truth.”<sup>101</sup> It was immediately following this that he delineated between the two senses of ‘nature’ quoted above, apparently in order to clarify in what ways one might be “taught by nature” and to establish their connection to God and, hence, their validity.<sup>102</sup> What is puzzling is that, if his own particular nature, as his definition suggests, included his ability to reason, then being taught something by his own nature would seem to refer to the intuitive deductive method he deemed appropriate for *general* knowledge. Indeed, his statement that “[there] is nothing that my own nature teaches me more vividly than that I have a body...” seems to imply that his body is one of those “first effects”, which are easy to know because they are so common.<sup>103</sup> Yet, he clearly expressed that his intention in that passage was to discuss “things which are either particular...or less clearly understood”, and that intention is still evident where, after the statement in question, he wrote that there are “things which I may appear to have been taught by nature, but which in reality I acquired not from nature but from a habit of making ill-considered judgements”, which could not be true of the general matters that call for no more justification than clear and distinct intuition.<sup>104</sup> To make matters worse, after his statement about the existence of his body wherein he specified that his teacher was his own particular nature, he began describing other things that an unspecified nature had taught him. It is relatively clear

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<sup>101</sup> *Ibid.*, p. 116

<sup>102</sup> see above, p. 42

<sup>103</sup> *Ibid.*

<sup>104</sup> *Ibid.*, p. 117

that he meant throughout the entire passage to refer to his own nature, especially considering that he eventually found need to “more accurately define...[being] taught something by nature” and did so with the clarification that “In this context I am taking nature to be something more limited than the totality of things bestowed on me by God. ...My sole concern here is with...a combination of mind and body.”<sup>105</sup> Despite this, many of the items of knowledge he discussed in that passage pertained to entities entirely external to himself. It seems that, at least while he was writing the last *Meditation*, he considered things he knew through his senses to be the teachings of his own nature, because the faculty of sensation is a part of the mind, or a part of people, as combinations of a body and a mind. Consistent with this attitude is his emphasis on the idea that “the bodies which are the source of these various sensory perceptions possess differences corresponding to them, *though perhaps not resembling them.*”(emphasis added)<sup>106</sup> If sensations involve a mixture or mutual influence of internal and external natures, then it is difficult to deem one or the other the ultimate source of knowledge that depends on sensation. This difficulty has plagued all of modern epistemology, eliciting a variety of responses, including advocacy of redefining ‘nature’ and outright denial of its meaningfulness.<sup>107</sup>

Perhaps, then, Descartes’s writing would have been easier to decipher if he had been more careful about distinguishing between nature as the external world and nature

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<sup>105</sup> *Ibid.*, p. 117

<sup>106</sup> *Ibid.*

<sup>107</sup> Kant, for example, saw this as a primary problem with his predecessors and sought to address it with his phenomena/noumena distinction and his “transcendental realism”. Much contemporary Western philosophy has, in turn, commonly been seen as fundamentally characterized by its reaction to Kant. Vogel provides one example of someone who, because of his belief in the importance of an active internal influence, sought to redefine ‘nature’, and Soper describes some postmodernists as deniers of the very meaningfulness of nature because of the same kind of belief.

as his own nature. The need for care, however, does not end there. In fact, this distinction involves a complex of multiple important distinctions. The distinction between what is internal or external to one's mind, that is, the distinction between material and a certain sense of spiritual, is one aspect of that complex, and this discussion of epistemology grew out of discussion of its role in defining nature. Another important aspect was mentioned at the outset, that is, the distinction between reference to a singular thing and reference to a collection of things. Care with either of these distinctions could greatly facilitate the kind of epistemological discourse that Descartes was involved in. For example, the apparent contradiction between Descartes's contention that the ultimate source of knowledge was within his spirit and his description of it as 'natural', which might seem to invoke the "material world", is resolved when one understands him to mean the kind of nature that is particular to an individual. While being external to the mind is an important part of the usual meaning of nature as the world, nature as what is particular to something happens to include mental aspects in the case of a human. However, yet another crucial aspect of the distinction between nature as in human nature and nature as the material world remains that is of special significance, because it applies equally as much to either side of that distinction taken alone as it does to the contrast between them. It is the distinction between principles or attributes and those things that bear or follow them, which plays a role in the distinction between human nature and the material world insofar as human nature comprises the essential attributes of humans and the governing principles of their behavior, while the material world would seem to comprise objects that would exhibit or follow such attributes and principles. That this distinction transcends the one between particulars and the collective world can be seen in

the fact that difficulties related to it were more prominent in the empiricist tradition, which was characterized by more consistent use of ‘nature’, as referring to the external world, when describing the source of knowledge. For example, in Bacon’s statement that nature is the source of all our knowledge, he focused not simply on nature, but on “the order of nature”, which could be observed “in fact or *by inference*”(emphasis added).<sup>108</sup> Hume’s famous problem of induction had to do with this sort of inference to something beyond what is available through sensation alone.

This issue recalls the discussion of nature’s “secret powers” and the true form that materialism has taken in the modern scientific tradition.<sup>109</sup> Interestingly, before the early modern shift in the use of ‘nature’, a major aspect of which was its association with materiality, the sense of nature as a governing principle or principles of the whole world was more prominent, as can be seen in this Middle French definition: “Active principle, inherent in the created world (often personified), which makes it so that the created world is as it is, the forces that maintain the order of things and the beings of the universe...”.<sup>110</sup> Now, the first specific definition of ‘nature’ in the DAF reads, “The totality of beings and things; the world in so far as it is ordered and regulated by laws.”<sup>111</sup> It is reasonably clear that the referent of this definition is supposed to be the things in the external world themselves, especially considering that the next definition in the same general class explicitly names things like mountains and bodies of water, rather than the laws themselves. While the adherence of these things to natural law is an important part of this sense of ‘nature’, the DAF, unlike the OED, does not list the law itself, or any similar

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<sup>108</sup> Bacon *op. cit.*, p. 33

<sup>109</sup> see above, p.22-29

<sup>110</sup> Dictionnaire du Moyen Français *op. cit.*

<sup>111</sup> “nature, n. f.” in DAF *op. cit.*

concept, as a definition of ‘nature’ in the category of meanings that refer to the world collectively. The sense of ‘nature’ as a principle or attribute of an individual entity, however, has not exhibited the same decline in prominence. Many of the meanings of ‘nature’ that parallel meanings of ‘spirit’ are of this sort, that is, referring to a principle rather than a substance. Thus, it seems that, although the materialism that has characterized modern science and much modern thinking allows, perhaps even requires, things of this kind, perhaps the association of ‘nature’ with materiality and science and the separation of it from the spiritual and religion has somewhat obscured this facet of nature. This would explain its greater obscurity in relation to the meanings of ‘nature’ more typically associated with materiality.

The two classes into which the DAF divides the senses of the modern French ‘nature’, namely, those referring to “that which, in reality, appears as given, as independent of the will and actions of humans” and those referring to “that which uniquely constitutes a being, a thing”, reflect another similar pattern, in their overt association of the concept of independence from humanity exclusively with the first class.<sup>112</sup> The same pattern holds in the OED, though they made it less explicit. None of the four classes of senses in the OED’s entry on ‘nature’ have any reference to independence from humanity in their descriptions, but all of the specific definitions with that feature are within the class described as “Senses relating to the material world.”<sup>113</sup> Understanding of this association, and indeed of anything to do with the sense of nature as independent or not from humanity, is the most potentially important thing that one could hope to gain through study of the etymology of ‘nature’, because the most pressing

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<sup>112</sup> *Ibid.*

<sup>113</sup> “nature, n.” in OED *op. cit.*

practical problems relating to nature have to do with our relationship to it, as humans. The next logical questions, therefore, are ‘Whence the association of independence from humanity with certain senses of ‘nature’?’ and, more generally, ‘Why is independence from humanity part of the meaning of ‘nature’ at all?’

Heretofore, this discussion has covered the ultimate origin of the word ‘nature’ and its associations with the physical, material, real, and given. Over the course of that discussion, it has become clear that any question about why some element of a definition has been associated with the rest eventually requires reference to something beyond definitions. In other words, definitions, by themselves, have proven insufficient to provide a thorough understanding of a word’s significance. This situation implies an inherent limitation on definitions, and, although the distinction between analytic and synthetic statements has been famously and compellingly attacked by W. V. O. Quine, it, or something like it, is the most readily accessible means of explaining what that limitation is.<sup>114</sup> It appears that definitions are essentially analytic, while the construction of language involves, or at least can involve, synthesis. To translate this philosophical jargon, one might say that the process of composing a definition requires the prior existence of some already complete thing to be defined, which thing, if it is a complex of parts, has its parts already assembled. The process of defining it, then, is a process of distinguishing between the parts and making those parts explicit. Thus, definitions report connections that have already been made, but cannot be used to make them in the first place. The construction or discovery of the concept to be defined, on the other hand, involves discernment of a relationship between the concept’s parts that seems worth

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<sup>114</sup> Quine *op. cit.*

noting. Perhaps these parts are essentially unified, though they can be named separately in a definition, or perhaps people deliberately put them together in a way that is not necessary, but which they find useful. Assuming something like this account is accurate, one would expect a question about the relationship between parts of a definition, or between different definitions for that matter, to demand recourse to some kind of perception from which the definitions are derived.

Five such perceptions have been indicated by this discussion of the origin and development of 'nature'. 'Nature' originally took the form 'natura', which was a Latin construction from a verb meaning to be born. That verb, in turn, was ultimately derived from a PIE root that also referred to procreation. Therefore, it is reasonable to assume that perceptions of people being born is one of the sources of the associations of concepts described by definitions of 'nature'. 'Phusis' was the greek equivalent of 'natura', and this word was derived from a PIE root that referred to growth. It is clear from related words and the predominant uses of 'phusis' and the verb from which it was constructed that perception especially of the growth of plants was foundational to the concept it named. Further, 'phusis' also came eventually to refer to human birth, so that perceptions of the growth of plants and of a similarity between that phenomenon and the birth of people should also be considered sources of the concepts named by 'nature'. It has been shown that the materiality, reality, and givenness attributed to 'nature' indicate that the perceptions, that sensation is passive, and, that sensations are more vivid than memories or other sorts of mental images, also form part of the foundation of the meaning of 'nature'. It is to these five things, then, that one should turn in search of an

answer to the question of why independence from humanity is a part of the meaning of 'nature'.

Conveniently, each of these perceptions points in some relatively straightforward ways to a notion of something independent from humanity. When a child is born, it emerges *from* its mother. When a plant sprouts up, it emerges *from* the ground, or, depending on one's perspective, *from* a seed. When a leaf grows, it grows *from* a branch or stalk. These facts begin to imply a potentially universal truth, namely, that things begin to exist by emerging *from* something that already exists. Thus, because humans exist, one might expect that we owe this to a world that existed before us, *from* which we sprang. Such a world could not depend on us to exist. On the contrary, it must be we who depend on it. Invoking dependence in this way brings to mind yet other probably relevant perceptions, like the necessity of breathing air, drinking water, and eating food. The passivity of sensation suggests to us that there is something apart from us that will be how it is without us making it so, for otherwise we should be able simply to will it to appear differently. We can willfully create images in the mind, but these are clearly different from and intuitively less important, or, as we tend to say in English, less real, than our passive sensations. Even the ways in which we can willfully affect what we sense are limited. They seem to universally require the use of our bodies in some fashion. This fact suggests the relevance of any perceptions which give us the idea that our minds are different from our bodies. One cannot, for example, touch one's mind, not literally anyway. Further, there is only so much we can do with our bodies, and often, if not always, these things involve a reliance on the way some apparently external thing is. For example, though one can affect the color one perceives something to be by painting

it, doing so depends of the color of the paint. Hence, we make such statements with the word ‘nature’ as this one from Bacon’s *Organum*: “All man can do to achieve results is to bring natural bodies together and take them apart; Nature does the rest internally.”<sup>115</sup> All of these speculations on how the concept of nature might have been built up from what history seems to indicate were the fundamental perceptions that incited its creation offer a plausible answer, not only to the general question about independence from humanity, but also to the specific one, regarding its association with the external world, insofar as that world is what is suggested by them.

It would be very fruitful to conclude, based on these answers, that, in order to avoid any confusion about our relationship to nature caused by the equivocality of our name for it, one need only be wary of whether one is using ‘nature’ to communicate something about the external world or something about the innate. Were that the case, the implications of nature’s independence from us would only be relevant to matters involving the former type of use. Unfortunately, however, problems related to that fundamental division, akin to those that make epistemological literature difficult to understand, complicate matters. To fully appreciate the weight of these problems, it is necessary to recognize more of the influence that the impressions behind the notion of nature’s independence have had on our conception of it. One indication of that influence can be found in definitions of ‘nature’ like the following, from the OED, the DAF, Random House, and Collins, respectively: “The phenomena of the physical world collectively; *esp.* plants, animals, and other features and products of the earth itself, *as*

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<sup>115</sup> Bacon *op. cit.*, p. 33

*opposed to humans and human creations*”<sup>116</sup>; “The physical world with its diverse aspects seas, mountains, woods, fields, rivers, *as opposed to cities.*”<sup>117</sup>; “The natural world as it exists *without human beings or civilization*”<sup>118</sup>; “all natural phenomena and plant and animal life, *as distinct from man and his creations*”<sup>119</sup>. (all emphases added)

Independence is not quite the same thing as the exclusion described by these and many similar definitions. Any plant or animal would be dependent upon the material world in roughly the same way a person would, yet their inclusion in nature is never disputed. This raises the question, “What is different between ourselves and these other dependent entities, without which nature would still exist, just as it would without us?” The traditional answer is that we, alone, have rational minds, and the attribution to nature of materiality, physicality, reality, and objectivity all indicate a sense of the natural being distinct from the mental. Ironically, then, our own peculiar nature is the reason for our exclusion from nature. This bizarre result of the equivocality of ‘nature’ renders it difficult to argue that, simply by keeping straight whether ‘nature’ is used to refer to the innate or the world, we may avoid confusion regarding our exclusion from nature. It appears that any explanation of that exclusion would involve both senses of ‘nature’.

Moreover, it seems that humans can make both kinds of nature unnatural. Something artificial, for example, is “made or constructed by human skill, esp. in imitation of, or as a substitute for, something which is made or occurs naturally”.<sup>120</sup> If the artificial imitates something physical so well that it can serve as a substitute for it, then it must also be

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<sup>116</sup> “nature, n.” in OED *op. cit.*

<sup>117</sup> “nature, n. f.” in DAF *op. cit.*

<sup>118</sup> “nature” at dictionary.com *op. cit.*

<sup>119</sup> *Ibid.*

<sup>120</sup> “artificial, adj. and n.” in OED *op. cit.*

considered part of the physical world, but an unnatural part. On the other hand, artificial entities still have essential characteristics that make them what they are. One might, for example, speak of the nature of a chair being such, that someone could sit on it, or perhaps blame the need for constant maintenance on the nature of a car or computer. One might even go so far as to say that the construction of artificial things is a process of altering the nature of what they are made from. A metallurgist, for example, will take a hunk of earth with certain essential properties, like hardness, malleability, and brittleness and, by heating it, pounding it, mixing it with other hunks of earth, and so on, alter those properties. A sword, then, might be said to be dangerous by its very nature, and yet to be unnaturally sharp and hard.

That both material objects and their essential characteristics can be made unnatural demonstrates that the distinction between senses of ‘nature’ that refer to one or the other of those things is not sufficient to avoid confusion about the relationship of humanity to nature. Accordingly, the OED definition of ‘nature’ which most clearly and directly invokes nature’s exclusion of humanity is followed by a sub-definition of the same basic sense that reads, “In wider sense: the whole natural world, including human beings; the cosmos.”, all of which falls under the class referring to the material world.<sup>121</sup> Further, not only does our inherent nature enable us to alter the natural world, thereby distinguishing us from it, but we seem to be able to violate even that nature which inheres in ourselves, as people are sometimes said to be unnatural, in the sense of “Devoid of natural feeling; acting at variance with the dictates of nature.”<sup>122</sup> Some other distinction, then, must delineate between the senses in which people are included in and subject to

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<sup>121</sup> “nature, n.” in *Ibid.*

<sup>122</sup> “unnatural, adj. (and n.)” in *Ibid.*

nature and those in which people are excluded from and able to violate nature. Although the role our rationality plays in that distinction undermines explanation in terms of the difference between the material world and innate essences, the cultural legacy of English-speakers indisputably indicates that it is key to understanding the assumptions about the relationship between humans and nature that are contained in our language.

One of the major such indications is the attribution of materiality, as opposed to spirituality, to nature. As has been discussed at length, this attribution seems to date from the early modern period, a period characterized by intellectual upheaval that spurred interest in rigorous methodology and produced modern science, and it conflicts to some degree with a number of older understandings of ‘nature’ that continue to influence how the word is used. Interestingly, before that shift, and indeed yet after it, the senses that evoke spirituality were often personified. Personification suggests similarity to humanity, which in turn suggests that perhaps the exclusion of humanity from nature is due, not to our being fundamentally different from it, but to our being so similar as to be alternative to nature. Much else points the same way. If the Garden of Eden, for example, is understood as an allegory for the pre-civilized “state of nature”, so that God would represent the personified ordering principle of nature, then it is quite significant that it was eating from the “Tree of Knowledge of Good and Evil”, which made Adam and Eve too much like God, that precipitated our expulsion into a life of “toiling in the soil”, one of the essential features of civilization.<sup>123</sup> Also, the dominion granted us over the other living things in the natural world in Genesis suggests that we are able to play a role like the personified “force that establishes and maintains [the]order of the

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<sup>123</sup> see Genesis, chapter 3

universe”.<sup>124</sup> Moreover, the action of that force, whether it is referred to with ‘nature’ or ‘God’, is frequently described by analogy to the governing bodies of the civilized world. Thus, nature has laws and makes “dictates”, while God is called “Lord” and Jesus a “king”. Such metaphors suggest a similarity between the functions of nature and of government, and other metaphors, like our “conquest” of or elevation “above” nature more strongly evoke a sense of mutually exclusive competition for the very same function.

In this way, one can begin to comprehend the significance and limitations of humanity’s exclusion from nature, but the same issue, as it relates to human activities and their products, rather than to humans themselves, requires its own elaboration. Artificiality is the key concept for that purpose. Nature’s reality has already been linked to its conception as external to, and independent from, the human mind, and the contrast between reality and artificiality has implications for the status of human creations, as well. This contrast can be seen in such definitions of ‘real’ as these: “genuine; not counterfeit, artificial, or imitation; authentic”<sup>125</sup> and “Esp. of a precious metal, stone, or similar object: natural, as opposed to artificial, imitation, or depicted.”<sup>126</sup> Whether it was extended to ‘nature’ and ‘natural’ by virtue of association with reality, or things were the other way round, as is suggested by the vintages of the OED’s quotations and the common use of ‘natural’ in the relevant definitions of ‘real’, the same contrast applies to some of the concepts denoted by those words. For example, the OED defines ‘natural’ and ‘unnatural’ respectively as “Formed by nature; not subject to human intervention, not

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<sup>124</sup> see above, p. 31, from “nature, n.” in OED *op. cit.*

<sup>125</sup> “real” at dictionary.com *op. cit.*

<sup>126</sup> “real, adj.<sup>2</sup>, n.<sup>2</sup>, and adv.” in OED *op. cit.*

artificial.” and “Devoid of natural qualities or characteristics; artificial.”<sup>127</sup> While the contrast between reality and artificiality may not be very relevant to retracing the historical development of ‘nature’, it draws into relief some of the features of the artificial that put it in opposition to nature. The sense of ‘real’ defined in contrast with the artificial can, interestingly, be used to describe artificial things as well as natural ones. A real airplane, for example, is different from a fake one in about the same way that a real volcano is different from a model of one. Objects that are real in this way are so in contrast to objects that are not like them, but which appear to be like them. Hence, the definitions of this sense of ‘real’ reference imitation and depiction alongside artificiality, and the OED classifies it as a sub-species of the same sense that encompasses the sub-species described as “actually and truly such as its name implies”.<sup>128</sup> This points to the particular importance of the imitation of nature by the artificial described in the OED’s first definition of ‘artificial’. The centrality of this aspect of the artificial to its distinction from nature would be entirely consistent with and mutually corroborative with the idea that humanity is separate from nature in so far as it plays the same role that nature can. One might, then, be inclined to say that humanity is characteristically in the process of creating its own artificial world within the natural one, so that humans, as agents, are contrasted with nature as the creative and maintaining force behind the natural world, while human creations are contrasted with nature as the material world.

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<sup>127</sup> “natural, adj. and adv.” & “unnatural, adj. (and n.)” in *Ibid.*

<sup>128</sup> “real, adj.<sup>2</sup>, n.<sup>2</sup>, and adv.” in *Ibid.*

### **Conclusion: Formulation and Application of the Taxonomy**

It should now be evident that the paramount obstacle to clear use of the word ‘nature’ is the multiplicity of its various senses, especially because many of these senses are not entirely consistent with one another, as is the case, for example, between meanings that exclude the spiritual and those which mirror senses of ‘spirit’. The chief end of this sort of etymological exploration, therefore, is a separation of the major threads in the senses of ‘nature’. This separation should be definite enough to indicate the scope of relevance of an idea or argument that employs the term and when contradictory senses of it have been used together in a problematic way. Three major distinctions of such heuristic value seem to suggest themselves in the present treatment. First, there is the distinction between individual particular natures, as in the popular expression, “the nature of the beast”, and nature as a unified whole, as in the expressions “back to nature” or “mother nature”. Second, there is the distinction between tangible substance, as in the definition of nature as “the material world”, and governing principle, as in the concept of human nature, or nature’s “secret powers”. Third, there is the distinction between senses of nature that are inclusive of, or applicable to humanity and those that are exclusive of and contrasted with it, the critical importance of which was discussed in the introduction.

As important or more so than recognizing where on these three spectrums any notion of nature lies is the recognition that those spectrums are separate and independent of one another. The first and second of these distinctions are easily confused. Particular natures seem always to also be natures in the sense of a governing principle. This semblance relates to the way in which senses following this pattern were likely derived

from the seminal Latin sense of ‘natura’ as birth. The concept of what has been born refers equally as much to all existence, so that when nature relates only to individual entities, it seems to be through reference to *the way things are* from birth, their innate qualities. Association between nature as a great unit and materiality completes the apparent equation. Further, association of the same with distinctness from humanity and its creations, coupled with the applicability of the concept of innate, defining qualities to anything, makes the distinction between senses inclusive and exclusive of humanity seem to fall along the same lines. Hence, one common perfunctory solution to the contradiction between the senses of ourselves as part of nature and as opposed to it is that nature applies to humanity only in the sense in which it applies to anything, meaning only the way that thing is, while the other sense of nature as the world “out there”, similar only in name, is without complication opposed to us. The popular perception of a dichotomy between political interests, either in human concerns, or concerns on behalf of nature is in accord with this sort of perspective.

There is nothing necessarily wrong with such a perspective. The definitions of words change over time, the only restriction being their efficacy in communication, so that the meaning of a confusing word could potentially be fixed in any way that resolves that confusion, provided that it catches on with enough people that it is actually understood that way. However, this particular resolution would, in fact, be a relatively new invention. It is reasonably clear from the history of the word ‘nature’ that the association of materiality with the natural world primarily indicates that nature is described by the physical sciences. Together with other associations, it also represents being external to the human mind and connecting with it through sensation. This latter

significance begins to explain the coincidence of associations with materiality and with independence from humanity. Because the physical sciences posit much more to the so-called “material world” than matter, nature’s description as material does not amount to the equation of nature as a great unit with nature as substance. This is why in the section of meanings “relating to the material world”, even before it lists its equivalent of the French definition, “The totality of beings and things; the world insofar as it is ordered and regulated by laws.”, which reads “The phenomena of the physical world collectively; esp. plants, animals, and other features and products of the earth itself, as opposed to humans and human creations.”, the OED lists “The creative and regulative power which is conceived of as operating in the material world and as the immediate cause of its phenomena.” and, secondarily, “This power personified as a female being.”<sup>129</sup> There is a clear contrast here between that which is regulated, or caused, by “law” or some “power” and that “law” or “power” itself, which could not, at least entirely, be material in the sense of consisting only of matter. Further, as science has progressed, particularly with the advent of evolutionary theory and neuroscience, humanity has increasingly been seen as governed by such natural laws, and, therefore, no different from other “natural phenomena”. Thus, the equations between the three named distinctions begin to fall apart. It is not necessarily only nature as what is particular that can include or apply to humanity, and nature as a whole can be thought of as a governing principle, or at least having one, as much as it is just a collection of tangible objects.

Recognizing this separation opens the way to deeper understanding of the idea of nature’s independence from humanity that we have inherited. There are two especially

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<sup>129</sup> “nature, n.” in OED *op. cit.*  
 “nature, n. f.” in DAF *op. cit.*

noteworthy factors to be found in the history of its development. One is that it has much to do with the sense of separation from the world that develops from the experience of seeking to understand it, as is evident from definitional terms that contrast nature with the mental, like real and material, from nature's description as given and its corresponding role in epistemological literature, and from the description of nature as consisting of phenomena, to name just a few such indicators. The other is that relevant senses of 'nature' have often been likened to people and their systems of regulation and governance. These factors point to the importance of understanding, communication, and, probably most significantly, control to the separation of humanity and nature.

In the same way that artisans, through their active agency, cause the otherwise ostensibly immobile and inert tools of their workshops to become part of a dynamic process, nature has long been conceived of as an agent that animates or impels those processes in the world that human agents do not. Thus, a hammer will drive no fasteners or anything of the sort without an artisan's decision and action to make it do so, but, in so far as it does anything whilst it is left to itself, such as rust, this is the action of nature, a natural process. We are different from a natural object because we seem to have some degree of control over our actions, rather than having everything we do dictated by nature, at least in the sense of the great collective thing that is external to us. Our creations, the artificial, are different from natural things, again because of the control we have over them. A key difference between human agents and nature is that one can communicate with other humans and thereby come to understand their motives, or perhaps even persuade them to act a certain way. Nature, on the other hand, is mysterious. We cannot ask it directly why and how it does what it does, so that the

pursuit of knowledge has amounted primarily to attempting to discern these things from what it does show us. Thus, another key distinction between ourselves and the “phenomena of the physical world” is that we do not know about them in the way we know about ourselves, or perhaps more accurately the way we know the contents of our own minds, which might now be distinguished from ourselves as natural phenomena, our physical bodies, even the physical aspect of our mind, the brain. Even the concept of human nature, which is far older than evolutionary theory or neuroscience and the corresponding modern forms of psychology and philosophy of mind, might be so distinguished from the part of ourselves that we have immediate access to in our minds and can be effectively communicated and understood. In this way, these insights about nature’s “independence from humanity”, or even the exclusion of humanity and its creations from it, extend from nature as the great whole to particular natures.

This understanding of nature insofar as it is contrasted with humanity and artificiality can be used to explain some of the more puzzling instances of that boundary. Take, for example, the beaver’s dam building behavior. It is similar in many respects to the human practice of dam building and contributes, though perhaps in a small way, to deforestation, one of the chief human offenses to the natural environment. Yet, while human dam building might, according to present common usage of the terms, unsurprisingly be deemed unnatural and even a threat to nature, the beaver dam accords with the definition of nature as especially referring to “plants, animals, and other features and products of the earth itself”. Human dams do not fit this definition, though they are invariably at least constructed ultimately from “products of the earth itself”, because of the additional clause of that definition, “as opposed to humans and human creations.”

This clause is an assertion, not an explanation. However, the idea that what separates humanity from nature is our lack of understanding of, communication with, and control over it does explain the difference between a beaver dam and dam built by people. Because we are unable to speak to animals, we tend to consider their actions the result of instinct rather than deliberation. Thus, while we seem to be free to act in many different ways and must use our minds to decide between them, the behavior of animals seems to occur without much of this sort of decision making, but, rather, seems to occur by itself. The sense that natural things occur of their own accord without effort is nicely illustrated by the colloquial use of “naturally”, as in “Naturally, I assumed you’d be tired after such a long journey.” If animal behavior really does occur in such an unthinking way, then it is clear that it is our control over our behavior that distinguishes it from the “natural” behavior of animals. If it is a fallacious presumption on our part that most or all animal behavior is governed by instinct, then surely it is our inability to communicate with animals and understand their motives that gives us at least the impression of a fundamental difference between our behavior and theirs. Further, while animals do clearly exhibit learned behaviors, as well as apparently instinctual ones, and a capacity to communicate to some extent, the perception of a distinction between ourselves as outside of a “nature” that includes animals remains, likely because, as individuals we still do not control the behavior of animals (except through domestication, which still is constrained by nature and might unobjectionably be deemed a case of us removing those animals from nature), and collectively we cannot discourse with animals and enact a system of governance of their behavior.

Working from no more than the experiential awareness that comes from being an actual speaker of English, one can only say that humans are and yet are not part of nature. Dictionary definitions alone offer little help, because, while there is some recognition of this duality, as can be seen in the OED's addition of "In wider sense: the whole natural world, including human beings" just after "The phenomena of the physical world..., as opposed to humans and human creations.", the difference between these senses is not explained.<sup>130</sup> In fact, the OED labels the "wider sense" of nature obsolete, suggesting a progression toward the kind of simplification along the lines of particular natures and nature as collective entity discussed above, though this label seems perhaps to be premature, given the present popularity of physicalism and the trend of seeing humanity as a natural phenomenon.<sup>131</sup> This etymological analysis, however, begins to empower us with a means to specify exactly which senses of 'nature' should apply to or include humanity and why. It lays bare the thoughts and observations at the roots of the issue so that they may be assessed and accepted, rejected, refined, or augmented. These insights also help to give a more specific idea of just what might be in danger and require protection from environmental perils, as well what it would mean to preserve or protect nature. Unfortunately, the three distinctions that offer this guidance are themselves fraught with difficulty and vagueness. Each of them involves at least one very old and controversial philosophical dichotomy, such as, part and whole, matter and form, internal and external, and freedom and determination. However, these problems are no more troubling than they have ever been, and their relation to the meaning of 'nature' demonstrate how central the word and the concepts it represents are. Whole worldviews

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<sup>130</sup> "nature, n." in OED *op. cit.*

<sup>131</sup> *Ibid.*

and systems of metaphysics are contained within one's understanding of what nature means, and while the choice between different plausible positions on the issues these regard may be difficult, it can only be facilitated by giving them fuller and more explicit expression.

A natural question, then, is what the changes in the meaning of nature that emerged along with modernity indicate about the worldview that has driven the process of modernization, whose apparent failings motivated this whole discussion. Many of the central aspects of the modern senses of 'nature' are attested from at least the middle ages, including senses related to individual essences, others to a great collective, some that explicitly exclude humanity and its creations, some that refer to a world, and others that refer to an "active principle" that orders that world. Any difficulties related to the three heuristic distinctions that have come out of the present etymology, therefore, cannot be blamed on the modern outlook. One major change that came on with the modern era, however, is both obvious and significant. It relates to another crucially heuristic distinction that remains to be discussed, that between senses of nature that include or imply some sort of normativity and those that don't. Before the modern era, the concept of nature was very much tied to the Judeo-Christian concept of the creator-god. Essentially, the similarities to human agents that nature bears were derived from the agency of God. As a result, the order of nature was thought of, not simply the way things happen to work, but as the way things are *supposed* to work, in accord with the will of God. The normativity derivable from this notion is most obviously evident in the Middle English definition of 'nature' as "an embodiment of moral and political principles; right

morality”.<sup>132</sup> This meaning of the word survives today, for example, in the description of homosexuality as “unnatural” by religious zealots. During the modern era, ‘nature’ began gradually to be less explicitly associated with God and more with materiality, physicality, and, hence, modern science. While for many scientists, their theories do not and have not precluded the possibility of a God who to a greater or lesser degree resembles what is described in the Bible, science has progressed by avoiding explanation in terms of His will, which has been key to the progress that has been made toward revealing nature’s secrets. This policy has found its expression in the modern meaning of nature through contrast between nature and the spiritual, or *supernatural*.

The normativity of nature, however, is still a popular notion, as is evident in the ubiquity of activist organizations that tout the cause of protecting, preserving, or conserving nature as though it is an obvious inherent good and the marketing of goods as “natural”.

Modern people are therefore faced with the problem of explaining the value they perceive in nature or the natural, especially because much of that value seems to be of a spiritual kind, a good example perhaps being the feeling, when looking out onto a mountain vista, that what one sees is immediately obviously good, if anything is.

In summation, what has here been offered is an account of exactly what nature has meant up to the present, some guidelines for avoiding confusion between some of its different meanings, and some analysis of their implications. The guidelines may, hopefully, aid in addressing our modern crises insofar as they lay bare the flaws in lines of thought that simply don’t make any sense. The greatest potential import of this work, however, depends upon continuing analysis of implications that has here only just begun.

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<sup>132</sup> Middle English Dict. *op. cit.*

Perhaps it is time for some change in our notion of nature. Perhaps it is fine as it is, and a clear understanding of it can point the way to answers we are currently overlooking, or even justify some already proposed. Perhaps some meanings deserve more focus than others. In any event, the single term ‘nature’ contains so much thought that is so fundamental to our relationship to the world we live in, that the more explicit its meaning, the more fertile the ground from which ideas about how to proceed with civilization must grow. It is not the aim of this essay to suggest that any one analysis of these meanings, or any one approach to our problems derived therefrom is necessarily the best. It is, rather, to facilitate discourse on these matters.

Yet, to give a better conception of the relevance of this work to such discourse, it is worth sketching some examples of how it can be applied. For one thing, the elucidation of the traditional basis of the conceptual separation of humanity and nature offered here corroborates some existing criticisms of the two sides of Soper’s divide between nature-skeptic and nature-endorsing views. Vogel, for example, criticized eco-centric or anti-anthropo-centric thinkers for underestimating the essential role played by communication in the determination of ethics.<sup>133</sup> This same sort of potential shortcoming is indicated by the critical role of communication, understanding, and control or governance in the separation of humanity and nature explored in this essay. Soper criticized the same sorts of positions essentially on the grounds that, while they often argue for an intrinsic value in nature, those values generally, if not universally, turn out to be human values, that is, valuable *to* humans.<sup>134</sup> To some extent this criticism is similar to Vogel’s, insofar as the values that can be discussed are only the values recognizable by

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<sup>133</sup> Vogel *op. cit.*, p. 160-5

<sup>134</sup> Soper *op. cit.*, p. 255 (but one example)

those who are able to discuss anything, or, as Soper wrote, “If nature does genuinely have value independently of human estimation of it, then, strictly speaking, we cannot know what it is...”.<sup>135</sup> She also wrote that environmentalists sometimes “invit[e] us to appreciate our kinship with other animal species” in a way that “overlooks those ways in which we profoundly differ from them, and are by comparison under-determined either by biology or by existing environmental conditions.”<sup>136</sup> In this way of thinking, one can clearly see the distinction between the free deliberate will of humans, which is what requires ethical thinking, and an instinctual, automatic nature. Perhaps this distinction is problematic, but that it can be seen at work in such criticisms illustrates how making these background ideas explicit could make the grounds for critique in general more readily apparent.

Other connections to the work presented here can be found in Soper’s critique of Vogel’s own position, or at least ones very much like it, which grow out of a tradition primarily concerned about social justice, or rather, more accurately, injustice, and which seek to expose the ways in which humans are the creators of what the word ‘nature’ refers to. Vogel’s view differs importantly from most of this sort insofar as he focused on the physical construction of our world, rather than the conceptual one that mediates our relationship to it.<sup>137</sup> In this way, he may escape the brunt of Soper’s arguments, which were focused on the need to recognize an extra-discursive reality in order to provide some kind of direction to discourse, despite the arbitrariness and offensiveness of

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<sup>135</sup> *Ibid.*

<sup>136</sup> *Ibid.*, p. 251

<sup>137</sup> Vogel, *op. cit.*, p. 6-7 (but one example)

the purely discursive aspect of nature, imposed by culture.<sup>138</sup> In any event, retracing the history of ‘nature’ back to the fundamental observations that gave rise to the use of the word in the first place indicates what basic apparent truths any kind of constructionist, whether like Vogel or not, might be ignoring, such as the existence of a world prior to human existence and our inability to completely control it.

These matters, however, are still very abstract, and, though abstract thinking can be very practical in its general applicability, if this sort of philosophy is to be of significant use in addressing our state of crisis, then at some point it must be related to more specific and concrete problems of action. The kind of linguistic analysis presented in this essay can relate to such matters through influence on how the arguments for specific courses of action are presented. Regardless of how good an idea any project aimed at, say, environmental restoration, or economic development might be, people must be convinced to enact it. The explication of the heritage of today’s notion that humanity and nature are separate, and that, in some ways they are not, is particularly relevant to common arguments over conservation projects, because arguments in their favor often rely very heavily on an implicit value of nature and the idea that human activities can run contrary to it, while opponents frequently respond with scepticism regarding the difference between human and natural activities. Take for example the following descriptions of some “environmental problems” facing Lake Tahoe issued by the Tahoe Environmental Research Center (TERC):

The normal life cycle of a lake begins with clear water that becomes progressively browner/greener due to sedimentation and algae growth. Over time the layers and layers of dead organisms and sediment will fill up the lake, turning it into a marsh and then

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<sup>138</sup> Soper *op. cit.*, p. 8

finally into a meadow. This process normally occurs over millions of years; however, we are seeing the effects of eutrophication[i.e., the process described] happening at an accelerated rate. This accelerated eutrophication of Lake Tahoe is primarily due to the nutrients and the sediments that are entering the lake at rates higher than would naturally occur at Lake Tahoe. If we do not make a conscious effort to reduce these inputs, we could witness catastrophic changes within our lifetimes.<sup>139</sup>

Despite the vague reference to potential “catastrophic changes”, any weight this account carries seems to depend on the fact that a process that would be happening naturally has been rendered unnatural because of human influence, and that such a circumstance is inherently dangerous. This sort of thinking relies heavily on a separation of humanity from nature that does not apply to all meanings of ‘nature’, and whose role in any of them could be vulnerable to serious criticism, as well as a sense of an order of nature that it is a bad idea to disrupt, without an explanation of why such disruption would be bad, an explanation required by the secularization of ‘nature’. Similar assumptions seem to be in play in other passages from the same document. For example:

Species diversity in Lake Tahoe has been greatly affected by the intentional and unintentional introduction of exotic species, and many communities of both plant and animal life have undergone significant change since studies began. In the case of phytoplankton, these communities have a direct impact on lake clarity. For other species, changes have affected the lake’s food web and consequently have altered its fishery. Mysis shrimp were introduced into Lake Tahoe with the intention of providing additional food for the fish to increase fish size; however, this introduction had major effects on the aquatic food web.<sup>140</sup>

Especially noteworthy here is the statement that biodiversity has been “affected” rather than *decreased*. Similar rhetoric runs throughout this passage, implying that any effect on the order of nature, without specifying what it is, is to be avoided. This is not to say that TERC has not done admirable work or that there are not good reasons to address the

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<sup>139</sup> “Environmental Problems Facing Lake Tahoe.” *Docent Manual (version 4)*. TERC, June 2012. Web. 20 Dec. 2012.

<sup>140</sup> *Ibid.*

concerns raised in these passages. The point is, rather, that they just don't make a very compelling case. In the light of the kind of reflection on the assumptions with which our language is laden contained in this essay, one would likely be more careful not to rely so heavily on them and to make one's reasons more explicit. Frequently, discussions of anthropogenic eutrofication in other contexts make very explicit reference to biodiversity loss throughout the food chain, the economic impacts on fisheries, and to the toxification of water sources. The League to Save Lake Tahoe focuses on preserving the aesthetics of the lake with its regionally well-known slogan, "Keep Tahoe Blue".<sup>141</sup> Any of these points would strengthen the apparent validity of the remarks in the document quoted. They each bring up a host of philosophical issues to some extent covered here and more so in other philosophical work, but just thinking about how we talk about issues involving nature in itself has the potential impact of enhancing the rhetoric of very important practical debates to everyone's benefit. Perhaps the word 'rhetoric' carries an air of triviality, but it certainly matters to peoples' real practices. Moreover, the way we talk is very much intertwined with the way we think, so that the more explicit our presentations of our ideas, the deeper our thinking is likely to be. In this way, the work in this essay is more than a preliminary to the kind of philosophical debate to be found in the work of authors like Soper, Vogel, and many others that may eventually reshape the general mentality of our now global civilization.

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<sup>141</sup> see [keptahoeblue.org](http://keptahoeblue.org)

## Appendix: On Our State of Crisis

The crisis presently on the world's lips and minds is manifold. To take first the most basic of human concerns, there is talk of both food and water crises. As our population continues to grow exponentially, the possibility of large-scale famine grows ever more troubling, and, while the cause seems not to have been a simple inability to produce enough food for everyone, 2008 saw a massive spike in food prices that at least resembled the beginning of such a scenario.<sup>142</sup> In the summer of 2012, news outlets were abuzz with foreboding predictions of similar or worse events, in response to widespread droughts and a resultant decrease in harvests, particularly of grains.<sup>143</sup> Although the situation is apparently not bad enough, at this point, to cause a famine of an apocalyptic scale, prices remain unstable and generally higher, and untold millions are undoubtedly already suffering or dying as a result. Meanwhile, we are losing significant amounts of productive land to degradation and desertification, through practices like slash-and-burn agriculture and over-grazing on drylands.<sup>144</sup> Adding to the effect these bare facts have had on general anxiety about food supply, more speculative criticism of our system of agriculture, for example, on the grounds that its trend toward larger and larger areas of more and more genetically uniform crops is rendering them more vulnerable to epidemic,

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<sup>142</sup>Faiola, Anthony. "The New Economics of Hunger." *The Washington Post*. The Washington Post Company, 27 Apr. 2008. Web. 23 Nov. 2012.

<sup>143</sup> A few token examples: "Drought Fans Fears of New Food Crisis." *Fox Business*. FOX News Network, LLC./Reuters, 9 Aug. 2012. Web. 24 Nov. 2012.

Javier, Luzi A. "Global Food Crisis May Hit Us 'Very Soon,' IFPRI's Fan Says." *Bloomberg.com*. Bloomberg L.P., 14 Aug. 2012. Web. 24 Nov. 2012.

Kennedy, Robert. "Food Riots Predicted Over US Crop Failure." *Aljazeera.com*. Al Jazeera, 21 Aug. 2012. Web. 23 Nov. 2012.

<sup>144</sup> "Desertification." *Pubs.usgs.gov*. United States Geological Survey, 29 Oct. 1997. Web. 24 Nov. 2012. Freedman, Bill. "Slash-and-Burn Agriculture - Problems of Tropical Deforestation." *JRank Articles*. Net Industries, 2012. Web. 24 Nov. 2012.

has become increasingly widespread.<sup>145</sup> Moreover, apart from these apparent and potential flaws of modern agriculture, wild food sources are under perhaps worse threat. Some scientists argue that the stock of large oceangoing fish has been indefinitely depleted by 80-90% since the advent of modern industrial fishing techniques in 1950, as a result of overfishing, and it is less controversially claimed by the U.N.-F.A.O. that “more than half of all monitored fish stocks are now fully exploited...[and o]ver a quarter are overexploited, depleted, or slowly recovering.”<sup>146147</sup> Apart from overfishing, one need also consider the threat to ocean life posed by pollution and the acidification of all the world’s oceans caused by the carbon dioxide emissions from our extensive use of combustion.<sup>148</sup> On land, several wild grazing species, like the caribou and the american bison, have been hunted to near or actual extinction, and forest ecosystems are currently being lost at a net global rate of about 5.2 million hectares per year, which is only the latest continuation of a consistent pattern of deforestation throughout the modern era.<sup>149</sup> The gravity of this latter effect of modernization can be seen in the U.N. F.A.O.’s estimates that “80 percent of the people living in developing countries depend on non-wood forest products, such as fruits and herbs, for their primary health and nutritional needs.”<sup>150</sup>

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<sup>145</sup>Take, for example, the many popular writings by Michael Pollan on the subject, or, perhaps popular documentaries, such as *Food, Inc.*

<sup>146</sup>“Big-Fish Stocks Fall 90 Percent Since 1950, Study Says.” *National Geographic*. National Geographic Society, 15 May 2003. Web. 11 Dec. 2012.

<sup>147</sup>“Scientific Facts on Fisheries.” *Greenfacts.org*. GreenFacts, 26 July 2012. Web. 11 Dec. 2012

<sup>148</sup>Kolbert, Elizabeth. “Ocean Acidification.” *Ngm.nationalgeographic.com*. National Geographic Society, Apr. 2011. Web. 24 Nov. 2012.

<sup>149</sup>“Deforestation and Net Forest Area Change.” *F.A.O. Forestry Facts and Figures*. Food and Agriculture Association of the United Nations, 4 Nov. 2011. Web. 24 Nov. 2012.

<sup>150</sup>“Forests, Food and Health.” *F.A.O. Forestry Facts and Figures*. Food and Agriculture Association of the United Nations, 9 Nov. 2011. Web. 24 Nov. 2012.

The availability of potable water worldwide is in yet a worse state than the food crisis, as there are already 783 million people who do not have access to a source of drinking water “that, by nature of its construction or through active intervention, is protected from outside contamination, in particular from contamination with faecal matter”, according to the latest United Nations estimate.<sup>151</sup> While considerable progress has been made in addressing this particular issue since 1990, the U.N. and other watch groups also tell us that our rate of water consumption has increased about twice as fast as our rate of population growth.<sup>152</sup> In other words, modernization of one’s lifestyle leads one to use significantly more water. Considered along with the facts that we are already using more than half of the world’s readily available fresh water from rivers, lakes, and subterranean aquifers and that the rate of world population growth has held steady at 1% annually or higher for over half a century, this facet of modernization casts serious doubt on the possibility of addressing the scarcity of water simply by continuing to build up sanitation infrastructure, which has been the primary vehicle of the recent progress.<sup>153154</sup> The problem is further amplified by the fact that significant amounts of the water available for addressing this massive increase in demand is being polluted by the industries that form another essential part of the modern way of life that is creating it. Then, there is the troubling fact that approximately 70% of the fresh water we use is for agricultural purposes, so that the water and food crises are linked together in a vicious

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<sup>151</sup> "Data Resources and Estimates - Introduction" & "Definitions and Methods - Introduction." *Wssinfo.org*. WHO / UNICEF Joint Monitoring Programme for Water Supply and Sanitation, 2012. Web. 24 Nov. 2012.

<sup>152</sup>"Statistics & Graphs - Water Use." *Unwater.org*. United Nations, n.d. Web. 24 Nov. 2012.

"Water Crisis." *Worldwatercouncil.org*. World Water Council, 2012. Web. 24 Nov. 2012

<sup>153</sup>*ibid.* (unwater)

<sup>154</sup>"World Population Growth Rates: 1950-2050." *Census.gov*. United States Census Bureau, 28 Aug. 2012. Web. 24 Nov. 2012.

feed-back relationship, where increased demand for food can put more strain on water resources, while water scarcity can do the same to food supply.<sup>155</sup> Finally, much of the water we currently use, and much of what governments plan to make use of in the near future comes from finite non-renewable subterranean aquifers, which merely postpones the problem, potentially making matters worse meanwhile.<sup>156</sup> A BBC News article from 2000 warned:

[U]sing up irreplaceable groundwater does not simply mean the depletion of a once-and-for-all resource.

Rivers, wetlands and lakes that depend on it can dry out. Saline seawater can flow in to replace the fresh water that has been pumped out.

And the emptied underground aquifers can be compressed, causing surface subsidence - a problem familiar in Bangkok, Mexico City and Venice.<sup>157</sup>

This matter of using up finite non-renewable resources is fundamental to another reputed crisis prominent in contemporary media, the energy crisis. All of the change enacted by modern forward-thinkers, like any change, required and continues to require energy. The bigger the changes, the more energy they require. Prior to the modern era, much of the work of civilization was done by the brute force of human labor. Gradually, this power was externally supplemented by beasts of burden, simple machines, and wind- and water-powered machinery. Thus, the historical trend up to the modern era was to amplify the human capacity to effect change through the externalization of the effort required to do so, and the great surge of such efficacy that essentially characterizes the modern era was no exception. Rather, what marked it as a new age, at the turning point known as the Industrial Revolution, was the use of particular means of externalizing effort which depended upon combustion of fossil fuels. Since then, other non-human

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<sup>155</sup>*op. cit.* unwater

<sup>156</sup>Kirby, Alex. "Dawn of a Thirsty Century." *BBC News*. BBC, 06 Feb. 2000. Web. 24 Nov. 2012.

<sup>157</sup>*ibid.*

energy sources have become critical to modern civilization, but fossil fuel combustion remains of paramount importance. Modern society has, in a manner of speaking, placed most of its chips on fossil fuels, and today's talk of an energy related crisis centers on this dependency. The term "energy crisis" is used in a variety of senses, but most, if not all, relate in some way to concern over the scarcity of fossil fuels. For example, the term sometimes refers to short-term spikes in their price, as was the case during the famous crisis of the 1970's, and as can be seen in this quotation from a recent news article: "Some would label it an energy crisis, as analysts expect higher prices for gasoline over the Labor Day weekend".<sup>158</sup> At other times, it relates primarily to the supply of electricity, as it did, for example, during California's energy crisis of the early 90's, or as it has in relation to the current situation in Pakistan.<sup>159</sup> This electricity supply is, for the most part, just a means by which fossil fuel combustion is translated into the action of modern civilization. In fact, the major alternative to fossil fuels for electricity production, nuclear power, is itself prone to calamities, such as the Chernobyl disaster, the very recent Fukushima meltdown, and the ongoing problem of what do with radioactive waste, manifested in such contentious political issues as the Yucca Mountain storage facility, so that the crisis for some can take the form of a lack of good alternatives to fossil fuels, assuming them to be problematic. All of these senses are essentially subsumed by the problem known as peak production. Fossil fuels, by definition are the products of the decomposition of organic tissues over millions of years. Thus, they are

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<sup>158</sup>Cabural, Marie. "Energy Crisis Seen as Price at the Pump Reaches Labor Day Record." *ValueWalk*. Weneca Media Group, 31 Aug. 2012. Web. 24 Nov. 2012.

<sup>159</sup>Token examples: "No End in Sight for Pakistan's Energy Crisis." *Tribune.com.pk*. The Express Tribune, 8 Aug. 2012. Web. 24 Nov. 2012.  
S., M. "Pakistan's Energy Crisis: Power Politics." *The Economist*. The Economist Newspaper Limited, 21 May 2012. Web. 24 Nov. 2012.

replenished on a time-scale too large to be at all relevant to the scope of human civilization, most of what exists today having been formed during only two geologic epochs.<sup>160</sup> Effectively, the amount of fossil fuels on the planet is fixed and finite, and we have been depleting it steadily since the Industrial Revolution. As a result, any individual source of it cannot yield product indefinitely, but will reach a peak rate of production followed by a decline until there is no more to be had. The demand for fossil fuel has led to enough exploration of possible sources that many in the extraction industry and scientific community are beginning to suspect that they have a decent picture of how much is available altogether, and that it is little enough that demand outpacing production may not be far off.<sup>161</sup>

Another problem related to fossil fuel use is one of the two most publicized and daunting contemporary crises of them all. It is the anthropogenic climate change crisis. The severity of this crisis, and, to a lesser extent, its very reality are matters of speculation, based upon evidence that, like all scientific evidence, is highly suggestive but not absolutely definite. Some things that are known with relative certitude are that, in about the last century, global mean surface temperatures have risen by about 1.4 degrees Fahrenheit, global carbon dioxide emissions from fossil fuel combustion have increased over 11-fold during the same period, and that atmospheric carbon dioxide traps heat from the sun, as do some other gases emitted by various industrial activities.<sup>162</sup><sup>163</sup><sup>164</sup> However,

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<sup>160</sup>Campbell, Colin J. "About Peak Oil." *Peakoil.net*. Association for the Study of Peak Oil & Gas. Web. 24 Nov. 2012.

<sup>161</sup>Wheatcroft, Patience. "The Next Crisis: Prepare for Peak Oil." *Wall Street Journal Online*. Dow Jones & Company, Inc., 11 Feb. 2010. Web. 24 Nov. 2012.

*ibid.*

<sup>162</sup>Committee on America's Climate Choices and National Research Council. "Causes and Consequences of Climate Change." *America's Climate Choices*. Washington, D.C.: National Academies, 2011. 15. Print. Available at <[http://www.nap.edu/openbook.php?record\\_id=12781&page=15](http://www.nap.edu/openbook.php?record_id=12781&page=15)>

there is controversy regarding the degree to which industrial emissions, in addition to other human impacts like deforestation, are the cause of the warming trend, whether and at what rate the trend will continue, and how dire the consequences of higher temperatures are. Nonetheless, the contention that human activities are the primary cause of the present global climate change, that the trend will continue, and that the consequences have been and will be dangerously severe has thus far dominated professional scientific institutions, policy-making institutions, like the United Nations and the American federal government, and, while to a much lesser and more tenuous degree, American public opinion.<sup>165</sup><sup>166</sup><sup>167</sup> The U.S. Environmental Protection Agency, for example, warns of a myriad of drastic potential problems, including decreased water and food supply, decreased air and water quality, increased natural disasters, such as hurricanes, floods, and forest fires, greater spread of epidemic diseases, strain on some cities due to human migration, in turn due to the outright collapse of others, and increased international warfare and strife.<sup>168</sup>

Climate change has become the focal point of a much broader set of problems collectively referred to as the environmental crisis, almost to the point of overshadowing

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<sup>163</sup>Boden, Tom, Bob Andres, and Gregg Marland. "Global CO2 Emissions from Fossil-Fuel Burning, Cement Manufacture, and Gas Flaring: 1751-2009." *Cdiac.ornl.gov*. Carbon Dioxide Information Analysis Center (U.S. Dept. of Energy), 20 Sept. 2012. Web. 24 Nov. 2012.

<sup>164</sup>"The Causes of Climate Change." *Gateway to the UN System's Work on Climate Change*. United Nations. Web. 24 Nov. 2012.

<sup>165</sup>"Is There a Scientific Consensus on Global Warming?" *Skeptical Science*. John Cook, 19 Aug. 2010. Web. 24 Nov. 2012.

<sup>166</sup>"Observed Changes in Climate and Their Effects," "Causes of Change," & "Projected Climate Change and its Impacts." *AR4 SYR Synthesis Report Summary for Policymakers*. United Nations Intergovernmental Panel on Climate Change, 2007. Web. 24 Nov. 2012.

"Climate Change Basics." *Epa.gov*. U.S. Environmental Protection Agency. Web. 24 Nov. 2012.

<sup>167</sup>Leiserowitz, A., Maibach, E., Roser-Renouf, C., Feinberg, G., & Howe, P. (2012) *Public support for climate and energy policies in September, 2012*. Yale University and George Mason University. New Haven, CT: Yale Project on Climate Change Communication.

<sup>168</sup>"Climate Change: International Impacts and Adaptation." *Epa.gov*. U.S. Environmental Protection Agency. Web. 24 Nov. 2012.

the rest of it, but some other parts of the environmental crisis are more definitely problematic and are serious enough to warrant equal attention. For example, even if the emissions from combustion-driven industries are not significantly raising average temperatures, they are certainly unhealthy for us to breathe, and, even if theories that natural disasters have already worsened or will do so in future are mistaken, there is much clearer evidence that shale gas extraction through hydraulic fracturing has directly caused earthquakes.<sup>169</sup> In fact, many aspects of the environmental crisis have already been touched on with regard to other crises, such as overfishing, deforestation, desertification, water pollution, and so on. This kind of ubiquitous connection to other problems, as well as its being extremely multifarious render it a difficult problem to define. Concisely, however, one may say that it is essentially a problem of overuse, pollution, and outright destruction of the natural environment, and that recognition of it as a crisis for humanity involves acknowledgment of some sort of dependence upon that environment. Further, one part of the complex demands specific mention, because it has been publicly identified by some prominent members of the scientific community as potentially a bigger concern than climate change, namely, the biodiversity crisis.<sup>170</sup> It is estimated that, due to human impact, primarily in the form of habitat destruction, species are currently going extinct at a rate 100 to 1000 times greater than has been typical for millions of years, a rate far faster than that at which new ones are emerging, resulting in

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<sup>169</sup>Fischetti, Mark. "Ohio Earthquake Likely Caused by Fracking Wastewater: Scientific American." *Scientific American*. Scientific American, Inc., 4 Jan. 2012. Web. 24 Nov. 2012.

Smyth, Julie C. "Ohio: Fracking Waste Tied to Earthquakes." *USA TODAY*. Gannett Co. Inc./Associated Press, 2012. Web. 24 Nov. 2012.

<sup>170</sup>University of Copenhagen. "Biodiversity crisis is worse than climate change, experts say." *ScienceDaily*, 19 Jan. 2012. Web. 10 Dec. 2012.

an overall loss of biological diversity.<sup>171</sup> This is thought to be the largest extinction event since the fall of the dinosaurs, 65 million years ago, one of only 6 such events altogether, and the only one brought about by the actions of living beings, let alone just one species of them.<sup>172</sup> The loss of these species represents a loss of inestimable potential resources and design inspirations, and it could impact all sorts of natural processes upon which we unthinkingly or even unknowingly depend, such as the filtration of air and water, the production of fertile soil, and the pollination of plants. Moreover, it would be brazenly foolish to disregard the less simplistically pragmatic dependencies we have on the larger biological community, which we might refer to as aesthetic, emotional, spiritual, or something similar.

Finally, there is the other, less controversial, and of late even more publicized of the two most discussed crises, the global financial crisis and consequent global recession. Starting in 2007, major American financial institutions began to experience difficulties related to the devaluation of debt-based assets. On the verge of collapse, a number of these institutions declared bankruptcy or were forced to merge with others. Eventually, these measures having failed to save these institutions, the federal government incurred enormous sovereign debt in order to buy them out or make unprecedentedly large loans to them. As a result of the instability of these institutions, a host of American economic activities that depended upon loans from them was undermined. Production decreased, stock and commodity prices fell, many people lost their homes, and more lost their jobs.

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<sup>171</sup>Jowit, Juliette. "Humans Driving Extinction Faster than Species Can Evolve, Say Experts." *The Guardian*. Guardian News and Media, 07 Mar. 2010. Web. 10 Dec. 2012.

<sup>172</sup>Pappas, Stephanie. "Humans on Verge of Causing 6th Great Mass Extinction." *LiveScience.com*. TechMediaNetwork.com, 2 Mar. 2011. Web. 10 Dec. 2012.  
*op. cit.* Copenhagen

Because of the interconnectedness of modern economic affairs, especially to the prodigiously active American economy, these problems created a chain reaction of similar disruptions throughout the world, which, in turn, have brought about worse problems in some places than those faced in the U.S.. Of particular note are the soaring rates of unemployment and underemployment across the globe and the destabilization of governments that have taken on debilitating debt for bailout efforts similar to those undertaken by the U.S. federal government or whose pre-existing debts were made more difficult to manage by the higher interest rates and lower investor confidence that resulted from the general turmoil of the world economy. Essentially, the system of trade and industry upon which modern people depend for their livelihood and the system of governance upon which they depend for general social stability have begun to fail to provide those things to significant numbers of them. Moreover, the rapid rate of decline manifested during this crisis and the lack of positive indications for the future have led to increasing suspicion that these systems, in their present form, possess some inherent and fundamental flaw.

These problems do not constitute a rosy picture of the still incipient 21st century, and, while they form an illustratively well-rounded account of the sense of crisis that now fills the air, ever-present, persistently weighing down on the contemporary consciousness, that account is far from complete. Yet, as unpleasant as this situation is, it ought not to be surprising, for it has been anticipated by theoretical criticisms and actual events since the beginning of modern industrialization. For example, Romantics were dismayed by the impact of industrialization on the natural environment as early as the late 18th century; Malthus was famously apprehensive about population growth at the same

time; and Marx argued in the early 19th century that capitalism would be prone to periodic crises, much like today's recession and the Great Depression of the 1930's. Moreover, throughout the modern era, the prosperity of its beneficiaries has been counter-balanced by the hardship of many others. For example, the currently predominant nations have attained their status in large part by means of such tragedies as the genocide of Native American peoples, the enslavement of Africans, and later the theft of land and exploitation of labor in African and Asian colonies. This pattern of development continues today, shown in the current estimate that just under half of the world's population lives on less than two and a half dollars per day.<sup>173</sup> As the modern march forward has matured, persistent problems have grown in scale along with civilization generally, and problems that were once grim forecasts have begun to actualize and even worsen.

The mid-20th century saw the most overtly appalling episode of modern society, the second World War and the concurrent holocaust, which left us with, aside from the shock of astronomical death tolls and widespread destruction, the atomic bomb, a weapon now possessed by several nations' militaries that could, if used, do far worse. The impact these events have had on popular culture is epitomized in the famous metaphorical "doomsday clock" publicized by the Bulletin of the Atomic Scientists, which is currently set at just five minutes from midnight, or an event of "catastrophic destruction" by which "humankind could...obliterate itself".<sup>174</sup> Consequently, since the end of World War II, the term "postmodern" has become increasingly popular in the intellectual community

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<sup>173</sup>Shah, Anup. "Poverty Facts and Stats." *Global Issues*. 20 Sept. 2010. Web. 10 Dec. 2012.

<sup>174</sup>"Doomsday Clock Overview." *Thebulletin.org*. Bulletin of the Atomic Scientists, 2012. Web. 10 Dec. 2012.

and, to some extent, in popular culture as well, a trend clearly indicative of a burgeoning desire for a new era, a new way of life, founded in fundamentally new ways of thinking.<sup>175</sup> Much controversy now surrounds this term, regarding such matters as what it means, whether it represents any good ideas, whether it represents anything genuinely new, whether it has already been succeeded by a new mentality, and so on. However, even if critics uncover, through such questions, a dearth of quality in the thinking thus far proposed in that burgeoning spirit, this will have no bearing on the warrant for that spirit. If anything, it would call for greater effort to refine or replace those ideas.

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<sup>175</sup> "postmodernism." *Encyclopædia Britannica. Encyclopædia Britannica Online Academic Edition.* Encyclopædia Britannica Inc., 2012. Web. 10 Dec. 2012.

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