Re-conceptualizing the Self in United States Forestry: An Historical and Comparative Study of the Ideas of Aldo Leopold and the *Zhuangzi*

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Abstract

One of the factors affecting the long-term prospects of human societies is how the societies conceptualize and interact with the biophysical environment. This conception is grounded in how humans conceive of themselves. Seigel (2005) observed that since the seventeenth century the Western self has been discussed along or within three dimensions: the bodily or material, the relational, and the reflective dimensions. In this thesis, I consider the concept of the self as a locus for change to help us navigate the Anthropocene.

The founding of the discipline forestry in the United States around 1900 is an excellent case for studying the concept of the self in relation to the environment. The concept of the self that was implicit in the thinking that led to the founding of forestry provides insights into the relationship between humans and the rest of nature that is implicit in the modern paradigm of natural resource management. The concept of the self in federal forestry practice in the United States from 1905 to 1945 was one that represented stewardship, sovereignty, and order, a response to the preceding wasteful and exploitative practices. Conservation philosophy reflected the modern Western concept of the self, including its individualistic character as well as its dualistic and utilitarian relationship to the environment. Recently, Puettmann, Coates, and Messier (2009) proposed managing forests as complex adaptive systems (Parrott and Lange 2013), which suggests that the traditional concept of the self and the thinking of the management of forests are flawed. New paradigms for conceptualizing the self in forestry are needed.

The writings of the American conservationist and wildlife ecologist Aldo Leopold (1887–1948) on the relationship between humans and the environment constitute a milestone in environmental philosophy. Beginning in 1939, Leopold articulated his concepts

of “land health” and a “land ethic.” Leopold called for humans to consider themselves as members and plain citizens of the biotic community rather than as conquerors. In other words, Leopold espoused a concept of self that was based on aesthetics and ecological values as well as human membership in the land community.

The *Zhuangzi*, a Daoist text that was composed by Zhuangzi (c. 375–300 BCE) and like-minded writers in China during the Warring States period (475–221 BCE), presents a different notion of the self. Since “self” is a highly reified concept in Western thought and Zhuangzi’s concept of the person is inseparable from its bodily dimension, it is more fruitful to refer to Zhuangzi’s concept as that of the body-person. Zhuangzi’s thinking is centred on *tian* (“the heavenly/natural” 天), which emerged from *dao* (“the way” 道). Specifically, Zhuangzi calls for humans to follow *tianli* (“heavenly/natural pattern” 天理), the deep patterns of natural processes in the world. However, to do this one must first cultivate one’s *xin* (“heart-mind” 心), empty it of preferences and worldly concerns such that it becomes mirror-like. In this state of awareness, one is able to respond appropriately and spontaneously to whatever circumstances one encounters.

Leopold’s concept of the self and Zhuangzi’s concept of the body-person provide alternatives to help us rethink forestry practices. Both concepts portray the self or person in which Seigel’s three dimensions of the concept of self are linked together by a common principle. For Leopold, it is the ecological worldview, which makes human members of the biotic community. For Zhuangzi, all existents are generated from *dao* and unfold according to *tianli*, the heavenly/natural pattern. Directing our human inclinations and consciousness towards these common governing principles is an important major step towards rethinking the concept of self in forestry and addressing our environmental predicament.

Abstract

Un des facteurs qui influent sur les perspectives à long terme des sociétés humaines est la façon dont elles conçoivent et interagissent avec l'environnement biophysique. Cette conception est fondée sur la manière dont les humains se conçoivent eux-mêmes. Seigel (2005) a fait l'observation que depuis le XVIIème siècle, le Moi occidental a été pensé à travers trois dimensions : la dimension corporelle ou matérielle, la dimension relationnelle et la dimension psychique. Dans cette thèse, je considère le concept du Moi comme un lieu pour le changement et le développement pour nous aider à naviguer dans l'Anthropocène.

La fondation de la foresterie en tant que discipline aux États-Unis vers 1900 est un excellent exemple pour l'étude du concept de la relation entre le Moi et l'environnement. Le concept du Moi, qui était implicite dans la pensée qui a conduit à la fondation de la foresterie, donne un aperçu de la relation entre les humains et le reste de la nature, qui est implicite dans le paradigme moderne de la gestion des ressources naturelles. Le concept du Moi dans la pratique forestière fédérale aux États-Unis de 1905 à 1945 représentait la gérance, la souveraineté, l'ordre; c'était une réponse aux précédentes pratiques de gaspillage et d'exploitation. La philosophie de la préservation reflète le concept occidental moderne du Moi, y compris son caractère individualiste ainsi que sa relation dualiste et utilitaire à l'environnement. Récemment, Puettmann, Coates, et Messier (2009) ont proposé une gestion des forêts en tant que systèmes adaptatifs complexes (Parrott et Lange 2013), ce qui suggère que le concept traditionnel du Moi et la manière de penser la gestion des forêts sont imparfaits. De nouveaux paradigmes pour conceptualiser le Moi dans le secteur forestier sont nécessaires.

Les écrits de l'écologiste américain Aldo Leopold (1887–1948) sur les relations entre les humains et l'environnement constituent une étape importante pour la philosophie

environnementale. À compter de 1939, Leopold a articulé les concepts de « santé de la terre » et « d'éthique de la terre ». Leopold a appelé les hommes à se considérer eux-mêmes membres et citoyens à part entière de la communauté biotique plutôt que comme des conquérants. En d'autres termes, Leopold a épousé le concept du Moi basé sur l'esthétique et les valeurs écologiques et sur l'adhésion de l'homme à la communauté de la terre.

Le *Zhuangzi*, un texte écrit par Zhuangzi (c. 375–300 BCE) et d'autres auteurs en Chine au cours de la période des royaumes combattants (475–221 BCE), présente une notion différente du Moi. Puisque le « moi » est un concept réifié dans la pensée occidentale et que le concept de « personne » chez Zhuangzi est inseparable de la dimension corporelle, il est plus fructueux d'aborder le *Zhuangzi* en considérant le concept de « corps-personne ». La pensée de Zhuangzi est centrée sur le concept de *tian* (« le Ciel, le Céleste »), qui émerge du concept de *dao*. Plus précisément, Zhuangzi appelle les hommes à suivre le *tianli* ("la Voie Céleste"), les motifs profonds des processus naturels du monde. Cependant, pour ce faire, il faut d'abord cultiver son *xin* («cœur-esprit»), le vider des préférences et des préoccupations mondaines de telle manière à ce qu'il devienne tel un miroir. Dans cet état de conscience, on est alors en mesure de répondre adéquatement à toutes les circonstances que l'on rencontre.

Le concept de Moi de Leopold et le concept de corps-personne de Zhuangzi offrent des alternatives pour nous aider à repenser les pratiques forestières. Ces deux concepts dépeignent le Moi et la personne dans lesquels les trois dimensions du concept de Moi chez Seigel sont reliées entre elles par un principe commun. Pour Leopold, c'est la vision écologique et évolutive du monde qui rend les humains membres de la communauté biotique. Pour Zhuangzi, tous les êtres sont générés du *dao* et se déploient en fonction du *tianli*, le modèle céleste / naturel. Diriger nos inclinations humaines et notre conscience vers ces principes directeurs communs est une étape importante pour repenser le concept du Moi dans l'industrie forestière et pour adresser notre situation environnementale.

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Preface

In this thesis, I discuss the concept of the self during the founding of forestry in the United States around 1900. I discuss this concept in the context of modern Western concepts of the self and the environment as well as German forestry, from which United States forestry was derived. Using Seigel's typology of the modern Western concept of the self as consisting of three dimensions—the bodily, the relational, and the reflective dimensions—I show how the concept of the self in early United States forestry was based on utilitarian conservation philosophy.

My contribution lies in using the concept of the self to study and rethink forestry, as well as studying the writings of Aldo Leopold (1887–1948) and of Zhuangzi (c. 375–300 BCE), a thinker in Warring States China, to develop a concept of the self that is consonant with the biophysical environment. Leopold's concept of the self and Zhuangzi's concept of the body-person are grounded in a common principle with the environment. For Leopold, it is the ecological and evolutionary worldview, in which humans are members of the biotic community. For Zhuangzi, all existents are generated from *dao* and unfold according to *tianli*, the heavenly/natural pattern.

Chapter 1: Introduction

One of the factors affecting the long-term prospects of human societies is how they conceptualize and interact with the biophysical environment. This conception is grounded in how humans conceive of themselves and of the environment. In other words, our concepts of the environment and the self are mutually implicated. The foundations of our modern Western concept of the self were laid by European thinkers during the seventeenth and eighteenth centuries, when the world was supporting a vastly smaller human population that was using relatively rudimentary forms of technology.

In the present time, we find ourselves living in what Crutzen and Stoermer (2000) have called the Anthropocene, a geological epoch succeeding the Holocene that is characterized by human activities being the major force which affects the ecology, geology, and climate of the planet. Indeed, the pursuit of exponential economic growth by a majority of countries has resulted in an accelerating impact of humans on the finite biosphere (Steffen, Broadgate, et al. 2015), thus undermining the life-support system humans need to sustain themselves and the rest of nature (Rockström et al. 2009; Steffen, Richardson, et al. 2015).

In this thesis, I consider the concept of the self as a locus for change and cultivation to help us navigate the Anthropocene. I chose to study the concept of the self because it is an often overlooked aspect in our efforts to address our environmental predicament and also because our concept of the self is constituted by assumptions and mental models of the normative mode of existence in our social and biophysical context. The assumption here is that our profoundly transformed biophysical context—altered by our very own species, no less—requires that we adopt a different concept of the self to ensure the well-being of life

and the life-support systems of the planet. Although developing and adopting a new concept of the self in relation to the environment is challenging, I assume that doing so could lead to enduring changes in our relationship to the environment and, consequently, our action in it.

Specifically, I will be examining the foundational concept of the self of forestry in the United States. The objective here is not to assess the current state of the forest in the United States, since the extent of forests in the US has been roughly the same for the past century, though the quality of forests might have changed (MacCleery 2011). Rather, the objective is to use forestry in the United States, in particular the management of federal forests, as a case study to examine the concept of self that influenced forestry practice during its early development and explore alternative formulations.

This thesis consists of six chapters, including this introductory chapter. In Chapter 2, I discuss two preliminary topics for this thesis: the concept of the self in modern Western thought in general and the United States in particular, as well as possible ways to modify it to better reflect humans' ecological relationship to the environment, and environmental narratives of the United States. In Chapter 3, I examine the foundational concept of the self in United States forestry by discussing German forestry (which had a profound influence on United States forestry), the founding of the national forests and Forest Service, and the Progressive conservation movement at the turn of the twentieth century. In Chapter 4, I discuss the concept of the self as reflected in Aldo Leopold's (1887–1948) work, specifically his emphasis on the concepts of land health and land ethic, as well as cultivating an aesthetic attitude towards the land. In Chapter 5, I discuss the concept of the self—or more precisely, the concept of the "body-person"—in the *Zhuangzi*, a text written by Zhuangzi (c. 375–300 BCE) and like-minded writers in Warring States China (475–221 BCE). In Chapter

6, I review my thesis and provide suggestions for forestry education and practice in the United States.

In this thesis, I elide the masculine character of the concept of self in Western thought in general and in United States forestry in particular. At the end of *The Passion of the Western Mind*, Richard Tarnas pointed out the "pervasive masculinity of the development of the Western intellectual and spiritual tradition" (1991, 441). In other words, the Western concept of self was developed and understood through "man." Further, and relevant to my task here of rethinking the concept of the self in relation to the environment, Tarnas wrote: "The 'man' of the Western tradition has been a questing masculine hero, a Promethean biological and metaphysical rebel who has constantly sought freedom and progress for himself, and who has thus constantly striven to differentiate himself from and control the matrix out of which he emerged" (1991, 441). Likewise, the founding of forestry in the US was influenced by the discourse on masculinity in US society at that time.[1] However, the masculine dimension of forestry during this period lies beyond the scope of this thesis.

I also elide the broader context of civilization in which forestry operates and the changes required therein. Modern forestry was developed to meet the needs of civilization in general and the sovereign nation-state in particular. I do not discuss the nature of modern civilization, though I assume that changes, or transformation, of our concept of our selves are needed in the Anthropocene. The writings of the two thinkers I examined here, Aldo Leopold and Zhuangzi, have a profound impact at the personal level. Leopold is

[1] Bederman (1995) observed that the discourse on manhood in the United States at the turn of the twentieth century was linked to discourse on civilization and race.

remembered for his *A Sand County Almanac*, in which he spoke directly to the reader on the relationship between humans and the land and his own self-transformation. Zhuangzi rejected the appurtenances of mainstream society, including public office and the need to be useful to society, and his writings appear to instruct readers on how to cope with the hypocrisy and depredation of society.

Chapter 2: The Modern Western Concept of the Self and Environmental Narratives of the United States

2.1 Introduction

In this chapter, I discuss the modern Western concept of the self and environmental narratives in the United States. Both topics constitute the foundational thinking of forestry in the United States.

2.2 The Modern Western Concept of the Self

The debate about individuality and selfhood is a central question, if not *the* central question, in collective attempts at self-definition by the modern West (Seigel 2005, 4). The purpose of this review of concepts of the self is to underscore its importance as the focus for research in our attempt to address our environmental predicament and to provide context for this thesis. Recognizing the diversity in Western thought and the polyvalent nature of the subject, in this review I focus on aspects of the self that are pertinent to the environment.

The concept of the self is so natural to and ingrained in the Western psyche that most scholarly works that discuss the topic did not see the need to define it (Elliott 2014; Gallagher 2011; Martin and Barresi 2006; Seigel 2005; Taylor 1989). It is so basic and natural to our thinking that defining it without using the word itself is difficult. From a cognitive and phenomenological perspective, the sense of the self refers to a consciousness of oneself as an immediate subject of experience that is unextended in time (Gallagher 2000; Strawson 1999). From the perspective of Western philosophy, the concept of self

involves the notions of personal identity over time, narrative, and ownership of experience (Gallagher 2000).

There is a certain self-reflexive quality in this study of the concept of self during the founding of United States forestry; in other words, the study itself reflects to a certain extent the Western concept of the self. Frank Johnson noted that Western descriptions of the Western concept of self can be seen as "a play within a play" where "the conceptual threads from philosophy, theology, psychology, and social science…. not only constitute an historical record, but simultaneously are part of a cultural record within which Westerners have inevitably enacted self in the process of explaining self" (Johnson 1985, 92). Admittedly, this is not the case since I am not Western, though researching this thesis has enabled me to study the script of the Western "play."

2.2.1 Characteristics

Although the Western concept of the self is a diverse one, its salient characteristics stand out. In this subsection, I discuss the salient characteristics, namely its individualistic and dualistic character, as well as the Judeo-Christian foundation of its relationship to the environment. I then discuss the interpretations of some scholars of the concept as well as its particular characteristics in the case of the United States.

2.2.1.1 From Soul to Self

According to Martin and Barresi (2006), the proximate origin of the concept of the self is the naturalization of the concept of soul in Christian theology to the body. This process first occurred during the thirteenth century, when Aristotelian natural philosophy was assimilated and adopted by Latin philosophers in Europe. Prior to this encounter, Christian Neoplatonism had been the received view among the philosophers. The process

would happen again during the seventeenth and eighteenth century, only more radically. The concept of soul was becoming increasingly untenable from a philosophical perspective as philosophy diverged from theology. During this period the concept of the self was recruited, notably by Descartes and Locke, to replace the notion of soul (Martin and Barresi 2006, 93–97, 297).

2.2.1.2 Individualistic

The emphasis in Christian doctrine on the redemption and salvation of the individual contributed to the individualistic character in the Western concept of self (Johnson 1985, 119–120; Martin and Barresi 2006, 56). According to Christian doctrine, one is estranged and ontologically separated from the Judeo-Christian God due to original sin, and hence, one needs to conduct one's life in a way to ensure one's individual well-being in the afterlife. This narrative generated an anxious self-concern among the faithful that accounted for the individualistic character of the Western concept of the self (Martin and Barresi 2006, 56). The Reformation contributed to the individualistic character as well by rejecting Church authority and emphasizing the individual believer's conscience and response to the scriptures (Stoll 1997, 36; Tarnas 1991, 238–240).

2.2.1.3 Dualistic

The writings of René Descartes (1596–1650) marked an important threshold in the development of the modern self. Living in an age marked by unexpected and disorienting discoveries and the collapse of cultural traditions and fundamental institutions, Descartes sought a way out of the uncertainty and confusion that he was experiencing. He began his method of arriving at certain knowledge by systematically doubting everything, even the apparent reality of the physical world and his body. He was left with a datum that was

indubitable, the fact of his own doubting. He used this certainty of individual self-awareness—famously stated in Latin as *Cogito, ergo sum*, "I think, therefore I am"—as the first principle of human knowledge (Hatfield 2015).

Descartes' *cogito* revealed another equally important aspect of his thinking: the essential hierarchy and division in the world. According to Descartes, the world is divided into two essential substances. *Res cogitas* is the substance of the human mind, including that which humans perceive as within. It is an unextended substance that is distinct from the material world. In contrast, *res extensa* is the extended substance that constitutes the objective world, including animals and the human physical body. It is essentially everything that humans perceive as outside their minds. Only in humans do the two realities come together as mind and body. According to Dear (2012), this organization of knowledge into essences is emblematic of "method," a logical and philosophical category used during Descartes' time for investigating nature. Indeed, Descartes articulated his *cogito* doctrine in his 1637 text entitled *Discourse on Method*.

While this modern version of the mind-body dualism is known as Cartesian, the dualism derived support from Western philosophical, theological, and folk traditions, including Plato's ideal forms and psyche and the Christian notion of the soul (Johnson 1985, 98; Martin and Barresi 2006).

2.2.1.4 Influence of the Judeo-Christian Tradition on Western Attitudes towards the Environment

The Judeo-Christian tradition exerts an enormous influence on the attitudes of Western society towards the environment. The Genesis creation narrative at the beginning of the Bible contains the most prominent and important treatment of nature. According to Stoll (1997, 13), positive and negative treatments of nature—the world in its "natural" state—

exist in this narrative. The positive treatment of nature in Genesis includes: God manifesting his glory, power, and wisdom in creation and creation in turn glorifying him; the vision of a regained Eden, albeit after the fall of man; and man's dominion over nature interpreted as stewardship. The negative treatment of nature includes the fallen and barren state of nature which exercised man, and man's dominion over nature (Stoll 1997, 13). These positive and negative treatments combine together into a shifting and ambivalent worldview of the environment, the expression of which at any given time being contingent on the interpretation of the Bible and the local context.

The anthropocentric and utilitarian environmental worldview of the Judeo-Christian tradition has been frequently attributed to the Biblical injunction, stated in Genesis 1:28, for man to subdue and have dominion over the earth. White (1967) famously articulated this thesis. Stoll (1997) observed that this injunction was essentially sterile and vague in the context of the rest of the Bible, and should be viewed as being permissive rather than prescriptive of humans' use of nature. However, the injunction became "elastic and plastic" when taken from Genesis by the church and given to common people, and was shaped and used by people to serve their ends (Stoll 1997, 27).

2.2.1.5 Economic Self-Interest

According to Hirschman (1977), European thinkers during the seventeenth and eighteenth centuries transformed the passion for material wealth into economic "interests" to countervail less desirable passions. As Hirschman described it, the new thinking was that "*one set of passions, hitherto known variously as greed, avarice, or love of lucre could be usefully employed to oppose and bridle such other passions as ambition, lust for power, or sexual lust*"(1977, 41, italics in original). Further, a world governed by the pursuit of economic self-interest had the advantage of being predictable and transparent (48–56). The

passion for material wealth was rationalized such that the pursuit of economic interest became a reasonable project, a "calm passion" (63), for modern individuals.

In general, the traditional concept of the self in modern Western thought is one that is individualistic, essentially separated from and elevated above the physical environment, possesses an anthropocentric and utilitarian attitude towards the environment, and is expected to act in economic self-interest.

A corollary to the modern Western concept of the self is the concept of the natural environment. The central focus in modern Western thought on the human individual and human society as well as the resulting anthropocentric and utilitarian attitude towards nature can be traced back to the Enlightenment in eighteenth-century Europe. The rise of humanism, the influential dualism of Descartes, and Newton's startling discovery of the physical laws of the planets—which contributed to the deistic rejection of Christian revelation—helped relegate the physical environment to an inert otherness. Merchant (1980) described this development as the "death of nature."

2.2.2 Interpretation

Lugubrious assessments of the Western concept of the self by Western scholars are not uncommon. In these assessments, there is an acknowledgement of how the current concept depreciates the physical environment and, consequently, threatens the survival of humans. Martin and Barresi's reflection on the career of the self as a theoretical concept is typical: "the story of Western theorizing about the self and personal identity is not only, but centrally, the story of humankind's attempt to elevate itself above the rest of the natural world, and it is the story of how that attempt has failed" (2006, 305).

2.2.2.1 Self-Interested Human Nature

In *The Western Illusion of Human Nature*, anthropologist Marshall Sahlins (2008) observed that, since Greek antiquity, human nature has been conceptualized in Western thought as being avaricious, contentious, and self-interested. While not specific to the concept of self, Sahlins' thesis on the Western notion of human nature provides insight into the concept. He identified Thucydides' account of the civil strife in Corcyra during the Peloponnesian War of the 5th century BCE, among others, as an ancient source of the conception of human nature as being self-interested. Sahlins suggested that society will be reduced to anarchy if humans are not governed either through domination by a sovereign or through a self-regulating system of mutually opposing, free, and equal individuals. He illustrated these two political principles by citing Hobbes' absolute sovereign and John Adams' emphasis on a system of balance of power for the success of the republic. In other words, the assumed natural self-interest of humans led to Western thought being characterized by a "generic structure of an elemental anarchy resolved by hierarchy or equality" (2008, 1).

Sahlins observed that this sustained Western contempt for humanity—"the Western hatred of self" (2008, 98)—is unmatched by other cultures in the world and is a terrible mistake. "My modest conclusion is that Western civilization has been constructed on a perverse and mistaken idea of human nature….It is probably true…that this perverse idea of human nature endangers our existence" (2008, 112).

2.2.2.2 The Sovereign Self

According to Gillespie (2007), thinkers in the seventeenth century devised the notion of the sovereign individual and the sovereign state in response to the tremendous political problems that plagued the period, especially The Thirty Years War (1618–1648). The notion

of the sovereign individual assumes that individuals are sovereign over themselves. Descartes' formulation of the self can be interpreted as establishing sovereignty. His *cogito* reflects his belief in the ability of human beings to establish their existence that is based on their individual conscious thoughts, independent of God, and to shape their own destiny, becoming masters and possessors of nature along the way. Gillespie, on the other hand, considers the notion of sovereignty as unsuitable for entities that exist in the world:

> The notion of sovereignty is at its core a counterfactual, theomorphic notion that is grounded not in knowledge but in belief. It imagines an entity that is absolutely independent and all-powerful, bound in no way by any other entity or force. While this might make sense as the description of a transcendent God, it does not make much sense as a way of describing entities within the world, where all beings interact and are dependent upon other beings and forces. (Gillespie 2007, 116)

Elshtain (2008) argued that the emergence and solidification of sovereign selves can be attributed to the dominant interpretation of God as a monistic, singular entity that represents absolute will. This interpretation stands in contrast to that of God as a triune that represents reason and love and is dialogic and relational in nature (Elshtain 2008, 159–160). Further, she observed that characteristic of all self-sovereignty thinking is a triumph over something, with nature being a highly desirable domain to master and control. Elshtain argued for a mature selfhood that eschews sovereignty, seeks meaning and dignity, and is able to overcome the dichotomy between all-self and no-self. Further, she considered such a

concept of selfhood as an achievement, rather than a presupposition (Elshtain 2008, 228–229).[2]

2.2.2.3 Three Dimensions of the Modern Western Self

Seigel (2005) observed that since the mid-seventeenth century, the basis of selfhood in Western culture has been discussed along or within three dimensions: the bodily or material, the relational, and the reflective. The bodily dimension refers to our physical, corporeal existence, and how our consciousness is housed in and shaped by this body. Our bodily nature endows us with a particular constitution or temperament, and contributes to our needs and urges (Seigel 2005, 5).

The relational dimension refers to how our selves are influenced by our social and cultural connections. Our languages, identities, knowledge, and values are shaped by the connections with society and others (Seigel 2005, 5). Since this thesis concerns the environment, I will discuss the relational dimension in terms of ecological relationships with the environment.

Finally, our reflective dimension refers to our ability to actively regard objects, including our bodies, our relationships with others, and our own consciousness. In this sense one's reflectivity appears to possess a self-creating ability since it generates and perceives one's own image: "we are what our attention to ourselves makes us be" (Seigel 2005, 5–6).

Recognizing that the three dimensions are separable, Seigel further observed that accounts of the self can be generally classified as being single-dimensional or multi-

[2] This recognition of selfhood as an achieved state echoes the interpretation of personhood in the *Zhuangzi* that is presented in section 5.11.2.

dimensional. Of the three dimensions, Seigel identified reflectivity as being the pivotal dimension on which freedom hinges, since reflectivity allows one to establish a certain mental distance from one's existence. Consequently, a thinker's view of the self, be it one- or multi-dimensional, is significantly influenced by how the person positions reflectivity in relation to the other dimensions (Seigel 2005, 5–11).

Further, Seigel observed that a peculiar dichotomous mode of understanding the self arises when the basic or genuine form of the self is constituted by reflectivity alone, or posits reflectivity as dominating or being dominated by the bodily or relational dimensions. In such cases, there is a sense that "human beings must be all in order to escape being nothing," that one must achieve absolute emancipation in order to avoid repression (5). There is a tendency to "treat partial limitations as total" (10). The corollary of this dichotomy between the alternatives of all-self and no-self is a "denial that the mix of autonomy and dependency commonly found in ordinary life represents the genuine or authentic condition of personal existence" (10).

In such cases, what is remarkable is how the thinkers can, in their imagination, entertain both the repressed and emancipated modes of the self as well as envision a rapid transition from the former to the latter. By positing this transition the thinkers display a capacity to transfigure life. One of the examples Seigel mentioned was how "the Cartesian ego suddenly enters into the truth of its own self-referential subjectivity just at the point when its subjection to worldly confusion and uncertainty seems most complete" (Seigel 2005, 9). Solomon (1993) described this tendency by individual thinkers to posit the universal nature of their philosophy as symptomatic of a "transcendental pretense" that characterized philosophical thought during the Enlightenment. This transcendental pretense was supported by the universal nature of science. Since the seventeenth century,

Western Europe and the United States have been the scene of this emancipation of the individual and focus on one's self.

2.2.3 The Concept of the Self in the United States

While Americans inherited the Western concept of self from Europe, they have also modified it in a way that reflects their own beliefs and circumstances. One of the more salient characteristics of the self, as it has emerged in the United States, is the exaggerated sense of individualism and independence from one's social and biophysical context (Smith 1978). Ironically, it was the country's exceptional physical conditions which enabled Americans to develop this exaggerated sense of individualism and independence and pursue their private interests. Indeed, Alexis de Tocqueville, who was reporting his observations of the United States to his French compatriots in the early nineteenth century, attributed the young country's congeniality towards liberty to its exceptional physical conditions ([1835/1840] 2012). Echoing an earlier remark on the Western concept of the self, this study of the concept of the self in United States forestry is self-reflexive in the sense that the concept of the self was influenced by the abundance of land and forests in the country.

American studies scholar Andrew Delbanco (1999) observed that hope for self-betterment is a dominant animating force in the United States, and that the locus of this hope has gradually shifted over time from God to state and finally to self. During the first two hundred years of settlement in the New World, the hope of the settlers had been expressed primarily through the Christian religion, which gave meaning to life and promised deliverance from death. In the second phase, from before the American Revolution (1765–1783) until the 1960s, hope was expressed through the state in the form of citizenship in a sacred union. From the 1960s onwards, hope was expressed through

glorification of the self via consumption and instant gratification, resulting in hope being "narrowed to the vanishing point of the self alone" (Delbanco 1999, 103).

Transcendentalism, a literary, philosophical, and political movement that flourished during the nineteenth century, provided a counter-discourse to the mainstream ideas of selfhood and individualism as described by Delbanco (1999). The Transcendentalists, represented by figures such as Ralph Waldo Emerson (1803–1882) and Henry David Thoreau (1817–1862), criticized contemporary society for its heedless conformity and urged Americans to cultivate an original relationship with the universe. According to them, selfhood and individualism ought to be bounded to conscience, justice, self-reliance, and nature (Goodman 2013).

In the context of the United States, Sahlins (2008) noted that the self-interested human nature came to represent the best in humans when it was transformed into the pursuit of happiness. Possessive individualism (Macpherson 1962) was conflated with basic individual freedom, the core principles of which were enshrined in the United States Constitution and Bill of Rights. While this self-regarding attitude has been characterized by some as the disenchantment of the world, Sahlins felt it was more accurate to consider it as "the enchantment of society *by the world*—by the symbolism of body and matter instead of spirit" (2008, 87).

2.2.4 Developing a New Concept of Self in Relation to the Environment

The foregoing review reveals the pathological and anthropocentric aspects of the Western concept of the self in relation to the environment. Clearly, the foundations of the modern Western concept of the self were laid during the seventeenth and eighteenth centuries with politics and economics as the primary concern. In *The Great Work*, Thomas Berry summarized the essence of our challenge thus: "to reinvent the human—at the species

level, with critical reflection, within the community of life-systems, in a time-developmental context, by means of story and shared dream experience" (Berry 1999, 159). Our present immense scientific knowledge of the biophysical environment presents us with a compelling case for re-conceptualizing our concept of the self. As we will see in section 4.6.3.3, the American conservationist Aldo Leopold developed his land ethic based on his understanding of the ecology of the land.

Noting that scientific analysis of the concept of self has been leading to fragmentation of the concept, Barresi and Martin (2011, 52–55) proposed that an integrated theory of the self, if one was feasible, would have to consider three major dimensions: the ontological, the social, and the experiential. The ontological dimension refers to the kind of thing or process that the self is. Further, they suggested that the human self is best thought of as something that is either an organism or constituted by an organism. The social dimension refers to the role of social interaction on the concept of the self. The experiential dimension refers to the first-person experience of self and its role in human lives.

Barresi and Martin proposed giving primacy to the ontological, organismic dimension, noting that "the human organism should be acknowledged to be the primary source of unity for human selves" (2011, 54). They argued that the biological individual provides the self with an "objectively verifiable unique identity that persist through time" as well as a site for a variety of processes involving the social and experiential dimensions to occur (54). Barresi and Martin's emphasis on the organismic dimension of the self, which is a process as well, is no surprise, considering their assessment that the history of Western theorizing of the self has been one of elevating the self to an exalted "demigod" status above the rest of the natural world (55).

While Barresi and Martin's emphasis on the bodily dimension is appealing, to reconceive ourselves in relation to the environment we need all dimensions of the self to be aligned with the environment. How would Seigel's three dimensions be recast from the perspective of the environment? In terms of the bodily dimension, the environment, as we now understand it, appears essential to the very constitution of our physical selves. Our bodies absorb and eliminate air, water, food, microbes. For example, studies on the microbial communities residing on or within the human body, or "human-associated microbiota," reveal that this microbiota consists of trillions of microorganisms and plays an important role in human body function (Robinson, Bohannan, and Young 2010). As Fromm (2009, 95) put it, "the 'environment'…runs right through us in endless waves."

This intimate relationship between our physical bodies and the environment means that the human-environment relationship is not dualistic; rather, we are utterly dependent on the environment. Indeed, "the unit of survival is the organism and its environment" (Bateson 1972). Ingold (2006) proposed thinking of an organism, such as a human being, as a "relational constitution of being" where an organism would be imagined as an ever-ramifying web of lines of growth, with multiple lines branching out from a single source. Each organism is enmeshed within a "domain of entanglement" and the effect of its behavior ramifies through this entanglement to varying degrees.

What does our physical bodies' reliance on the environment require of our reflective sense of self? Two changes come to mind. First, we need to be cognizant of our dependence on the environment, rather than consider ourselves as separate from it. Second, we need to complement our modern rational and analytic mode of thinking with an awareness of the gestalt nature of our existence in relation to the environment.

In this thesis, I use the aforementioned environmental perspective of Seigel's typology as a standard to discuss the implicit concept of the self during the founding of forestry in the United States (Chapter 3), and in Aldo Leopold and Zhuangzi's thought (Chapters 4 and 5, respectively).

2.3 Environmental Narratives of the United States

The environmental narratives of the United States reveal some of the underlying thinking that animates forestry in the country. These environmental narratives are related to the aforementioned concepts of the self in modern Western thought and its particular expression in the country. I will discuss the concepts of wilderness, the frontier, Jeffersonian agrarianism, Carolyn Merchant's thesis of human thought on and action in the physical environment of United States as reflecting a recovery of Eden narrative, American Romanticism, and the indigenous peoples' perspectives.

2.3.1 The Wilderness

The early white settlers of North America were confronted by a landscape that had no counterpart in the Old World. One of the defining features of the early North American landscape was how it was relatively undisturbed by humans, at least by European standards, although the landscape bore the mark of use and disturbance by the indigenous peoples. This relatively undisturbed condition has been commonly interpreted as "wilderness" (Oelschlaeger 1991). According to Roderick Nash's classic study, *Wilderness and the American Mind*, the "wilderness condition" of the continent was a pre-occupation of the early white settlers (Nash 2014). The settlers viewed wilderness through their cultural and religious conditioning and interpreted it to be a wholly negative condition to be feared, eradicated and ultimately replaced by farms and shining cities on hills (Nash 2014, 30–31).

Callicott and Nelson (1998) described the concept of wilderness current among Euro-Americans as a "received wilderness idea" that was inherited from their forebears in the patriarchal Western civilization. Callicott and Nelson considered this received wilderness idea as an artefact of the sharp dichotomy between humanity and nature in Puritan thinking. Accordingly, the early Puritans saw themselves as God's emissaries in the wild and unruly stronghold of Satan that was the New World.

Furthermore, Nelson and Callicott (2008) suggest that this received wilderness idea formed the foundation of future concepts of wilderness in three main ways:

1. through the idea of preservation of wilderness for outdoor recreation, in particular hunting, and thus the preservation of masculine values, with Theodore Roosevelt (1858–1919) and Leopold as the early architects;
2. through the idea of appreciating the spiritual and aesthetic values of wilderness, as articulated by Thoreau and John Muir (1838–1914), and;
3. through the idea of American wilderness as a source for beautiful models for landscape painting and later photography, as noted by Hargrove (1989).

2.3.2 The Frontier

A related idea to wilderness is that of the frontier. In 1893, Frederick Jackson Turner (1861–1932) articulated his influential thesis of how the frontier played an instrumental role in the creation of American society, when early white settlers expanded civilized society into a wilderness. The resulting society was democratic (for white men) and without a landed aristocracy and intrusive government, unlike in the Old World (Turner 1921). According to this frontier narrative, the frontier separates white settlement from a wilderness that consisted of forests, deserts, wetlands, and grasslands (Denevan 1992). Therefore, to the extent that wilderness in the United States is dominated by forests, Turner's frontier thesis

exemplifies literary critic Robert Harrison's observation that "forests mark the provincial edge of Western civilization in the literal as well as imaginative domains" (1992, 247). In the minds of the early European settlers, wilderness was viewed in contrast to human settlement.

2.3.3 Jeffersonian Agrarianism

Thomas Jefferson (1743–1826), one of the founding fathers of the United States, embraced an agrarian vision for the new nation, which was reflected in his *Notes on the State of Virginia*, first published in 1781. He viewed cultivated land as forming the bedrock of the nation and the small-scale yeoman farmer as virtuous and indispensible to a prosperous and democratic republic.[3]

Agrarianism refers to "a set of political, economic, ecological, and social convictions arising from the period when agriculture was central to American life" (Hagenstein, Gregg, and Donahue 2011, 4).[4] It was based on two premises. First, the character of human beings

[3] Jefferson wrote in *Notes on the State of Virginia*: "Those who labour in the earth are the chosen people of God, if ever he had a chosen people, whose breasts he has made his peculiar deposit for substantial and genuine virtue… generally speaking, the proportion which the aggregate of the other classes of citizens bears in any state to that of its husbandmen, is the proportion of its unsound to its healthy parts, and is a good-enough barometer whereby to measure its degree of corruption" (Jefferson 1984). A keen student of economics, Jefferson felt that the country should specialize in agriculture and rely on free trade to obtain manufactures from Europe; he viewed manufacturing as "ancillary and superfluous" (Krall 2002).

[4] Leo Marx, in his seminal book *The Machine in the Garden*, preferred to use the term "pastoralism" instead of "agrarianism" to describe Jefferson's social ideal, the difference being that economic factors play a less important role in the former as compared to the latter (1964, 126). He argued that

as individuals and as a society was profoundly shaped by the work they do. Second, there was something profoundly satisfying and valuable in working the land and that the way the land was cultivated influences the health of society (Hagenstein, Gregg, and Donahue 2011). According to agrarian thinking, freehold agriculture, conducted by the small-scale yeoman farmer, possessed a salutary effect on the character of the young nation, thereby safeguarding it from the social ills then inflicting afflicting Europe that were brought about by manufacturing and urban life. In reality, the agricultural economy in America was tainted by slavery and, by the late nineteenth century, undermined and overtaken by industrialism (Hagenstein, Gregg, and Donahue 2011).

2.3.4 Recovery of Eden Narrative

The environmental historian Carolyn Merchant (2013) argues that the treatment of nature in Western society has been driven by a narrative of recovery of Eden. The narrative is comprised of two compelling and related stories, one ascendant and the other descendant. The first is the mainstream recovery narrative, a story of upward progress in which humanity develops the ability to control and manage the Earth. This narrative emerged when the traditional biblical narrative of redemption of humanity through Christianity was merged with advances in science, technology, and capitalism during the Scientific Revolution of the seventeenth and eighteenth centuries.

Jefferson's primary interest in agriculture was in its function "*as a landscape*—an image in the mind that represents aesthetic, moral, political, and even religious values" and that he was willing to accept the economic disadvantages of an agricultural economy in exporting agricultural produce and importing finished goods (Marx 1964, 126–130).

The second story, the obverse of the first, is premised on society's long and slow decline from a previous age in which the world was ecologically more pristine and socially more equitable. Often told by environmentalists and feminists, this story calls for a rapid recovery of these earlier conditions through sustainable ecological relationships and the establishment of an equitable society. While the ascendant story is a linear story of progress, this descendant story calls for a return to a previous state and therefore represents a cycle. Both stories operate on the premise of social progress and decline. The challenge here is to construct a new narrative for humanity that transcend the dichotomy between progress and decline.

Merchant's recovery narrative is especially significant when applied to the discovery and settlement of the New World. Building on the theme of "Adam in America" (Lewis 1955; Noble 1968), Merchant pointed out that the immensity of the inland forests in America allowed the early settlers to physically realize the Adamic narrative of recovery of Eden from the wilderness. The settlers accomplished this by first clearing the forest and creating a garden home in the clearing. In the context of American progress, which was enabled by powerful narratives such as *laissez-faire* capitalism, mechanistic science, manifest destiny, and the frontier story, "[t]he reinvention of Eden by a heroic Adam acting to improve a nature depicted variously as a virgin, fallen, or fruitful Eve is the mainstream story of most European Americans" (Merchant 2013, 122–123). This story is reflected in Jefferson agrarianism, which led to a general policy of transferring land from the public domain to smallholders (Cox 1985).

Since the North American continent had been likened to the Garden of Eden due to its virgin and abundant natural resources, it was no surprise that forestry was considered through this metaphor by early and contemporary writers. To New England Puritan settlers,

the abundant and teeming landscape of the US would come across as the Garden itself (at least when times were good) and therefore the lumbermen could be thought of as lumbering in Eden (Stoll 1997, 1–3). Mustian (1978) observed that if we consider the thought of reproducing a given species or forest type as the beginning of silviculture, then silviculture (like agriculture) had its origin when man was banished by God from the Garden of Eden and made to till the earth for his livelihood. Prior to this he only had to harvest the old growth in Eden.

2.3.5 American Romanticism

American Romanticism refers to the intersection between several intellectual and artistic movements during the middle of the nineteenth century (Mazzeo 2006). A response to the eighteenth-century Enlightenment values of rationality and order, American Romanticism sought to reinvigorate values that were marginalized by the Enlightenment, such as imagination and natural spiritualism.

A prominent theme of American Romanticism was a renewed attention to nature as a source of spiritual and psychological renewal and not merely as a system of law to be apprehended. Further, the American relationship to the landscape during the nineteenth century was influenced by the divergent social climates of the urban North and the agricultural South, as well as territorial expansion to the American west through the opening of the western frontier and to the south through the war with Mexico (1846–1848). These developments raised to the American psyche the tensions between the urban and the rural, the industrial and the pastoral, and civilization and the wilderness. As Mazzeo (2006) observed, “American Romanticism may be understood as an alternatively nostalgic and progressive response to these shifting values and as an effort to negotiate the tension between different models of the American relationship to the landscape.” Rather than

viewing the landscape and its wilderness as an obstacle towards social and economic progress, American Romanticism portrayed them as a source of spiritual, moral, and national vitality. Ironically, Hall and Ames interpreted such romantic visions as abetting the dominance of rationality in Western thought through its "loyal (and effete) opposition" (1995, 105).

The works of painters and writers of this movement reveal the tension in the American psyche between a pastoral ideal and industrial capitalism (Mazzeo 2006). Key figures in American Romanticism include writers such as Nathaniel Hawthorne and Herman Melville, as well as painters such as Thomas Cole (1801–1848) and Sanford Robinson Gifford (1823–1880) of the Hudson River School.[5] While earlier painters of the American landscape focused on the aesthetic tradition known as the picturesque, the Hudson River painters introduced the aesthetic of the sublime, "an experience characterized by feelings of fear and anxiety in the face of something awesome—particularly wild and rugged landscapes" (Mazzeo 2006). The American romantic period was also related to the Transcendentalists, a group of philosophers and writers that included Ralph Waldo Emerson and Henry David Thoreau, as mentioned earlier in section 2.2.3.

2.3.6 Indigenous Peoples' Perspectives

The commonplace wilderness idea in the United States belies the impact of earlier populations of *Homo sapiens* on the continent. These peoples, who have been labelled as "indigenous" following European contact, have established a presence on the continent for at least 15,000 years. Indigenous peoples altered indelibly the landscape of the continent,

[5] Gifford Pinchot's father, James Pinchot, named him after his friend Sanford Robinson Gifford (Miller 2001, 31).

albeit not in the same way and therefore not as evidently as industrial society (Adovasio 1993; Denevan 1992; Pyne 1997, 71–90). Notably, indigenous peoples modified their environment through hunting of Pleistocene fauna and through clearing the land, agriculture, and the use of fire (Pyne 1997, 71–90; Williams 1989, 32–49). To the untutored eye, the North American continent upon European discovery appeared virgin, unspoilt, and unsullied, although this was not so, at least in any absolute sense.

The indigenous peoples consist of numerous tribes and possess a worldview and environmental attitude that is distinct from that of the mainstream Western culture of American society. While not all indigenous tribes have managed to thrive successfully in their environment in the past or in the contemporary Western form of society, their immediate relationship with their environment has, on the whole, enabled them to create a unique "sacred ecology" of relationships and understanding of the landscape (Berkes 2012). A particular challenge for the indigenous peoples in recent history is reconciling their practices in relation to their environment with the paradigm of "natural resource management" of mainstream society (Lewis 1995).

The Menominee tribe in Wisconsin provides an example of exemplary forest management by an indigenous people that combines indigenous perspectives with modern economic and ecological principles, though they are by no means representative of other tribes (Menominee Tribal Enterprises 2015). The Menominee Nation manages its forest with the goal of maintaining the long-term sustainability of the forest. This means letting the trees grow to more than 200 years, maintaining a large and old growing stock, engaging in selection harvest and long-term monitoring, and prioritizing the needs of the forest over that of the mill in the reservation. Underlying these practices is an ethic that is concerned with the sustainability, care, and diversity of the forest, and a political culture that employs

a conservative, consensus-building approach to policy-making (Davis 2000; Trosper 2007). The Menominee tribe managed to retain stewardship of their forests and develop their own mode of forestry after a period of interference in the late nineteenth century from nontribal interests and government policy (Beck 2005, 46–62). Indigenous scholars have made significant contributions in their reflection on the concept of self (Hornborg 2008; McPherson and Rabb 2011; Moore et al. 2007).

In sum, the foregoing review suggests that Americans' attitudes towards the environment during the nineteenth century were dominated by the themes of the frontier and wilderness, a Jeffersonian pastoral ideal that reflected a narrative of recovery of Eden, as well as a Romanticism that sought spiritual uplift and aesthetic values in the wilderness (Cox et al. 1985). Confronted by an immense wilderness and natural forests, Americans apprehended their environs according to their religious and cultural conditioning. More generally, the natural resource abundance of the United States and the ability of Americans to convert it to economic abundance had led them to become a "people of plenty" whose character is underpinned by individualism and democratic institutions (Potter 1954).

Peter Brown (2009) proposed using Aldo Leopold's land ethic (see Chapter 4) as fertile ground for forging a link between ethics and evolutionary biology as well as other sciences (Brown 2009, 2012; Brown and Garver 2009). He identified four obstacles in the United States that prevent the country from internalizing a Leopoldian ethic (Brown 2009). First, the founding of the United States by founding fathers who were raised with Christian values meant that the fundamental conceptions of the Christian tradition became part of the conceptual foundations of the United States. Examples include the aforementioned impulse to tame or remove wilderness and the recovery of Eden narrative, as well as a sense of

exceptionalism of the country that entails special privileges, even entitlements, chief of which is the non-negotiable preservation of the American lifestyle. Second, the founding documents of the United States, the Bill of Rights and the Constitution, emphasized rights without duties and are not responsive to the constantly evolving insights from science. Third, there is a widely held belief that in the United States that one can believe and promote whatever one thinks, and that there is a corollary right to do whatever one wants with one's property. The final obstacle is the materialistic dimension of American culture, which has been present from the beginning of European settlement due to the abundance of natural resources on the continent.

2.4 Conclusion

The modern Western concept of the self is generally characterized by individualism, the pursuit of economic self-interest, and a dualism between the mind and the environment. The Judeo-Christian tradition has a strong influence on Western thinking on the relationship between humans and the environment. These characteristics of the self were developed further in the United States, due in part to the extraordinary physical condition of the country. The themes of the frontier and the wilderness, agrarian democracy, the recovery of the Edenic condition, as well as Romanticism, dominated mainstream American attitudes towards the environment during the nineteenth century.

Chapter 3: The Foundational Concept of the Self in United States Forestry

3.1 Introduction

In this chapter I examine the concept of the self that drove the founding of the United States federal forestry institution, the Forest Service, at the beginning of the twentieth century. I chose to research on United States forestry because it displays a conscious intention to preserve the usefulness of the national forests by managing their use, in contrast to the exploitative lumber activities that preceded this stage. However, this seemingly rational endeavour yielded results that were unexpected and at times devastating. As forest historian Joachim Radkau observed, "in modern times, human dealings with wood and the forest may be described as a series of rationalization drives" (2012, 9). Yet behind these rationalization drives lie emotions that are often only tacitly assumed. Two sets of rational as well as emotional thought are prevalent here. The first is the concept of "economic interests," which were promoted during the seventeenth and eighteenth centuries to countervail other passions (Hirschman 1977). The second is patriotism and national security, which Gifford Pinchot (1865–1946), the founding chief forester of the United States Forest Service, frequently evoked in his rhetoric for promoting forestry.

As we will see, the chequered ecological record of early United States federal forestry is the result of imposing onto forest ecosystems artificial human assumptions and schemes which are not consonant with the ecosystems' ecology. In other words, poor ecological outcomes in United States federal forestry were caused by ideas in forestry, economics, and politics that were based on an incomplete understanding of forest ecology.

I begin with a discussion of German forestry. This is followed by a discussion on the forests and the founding of the discipline of forestry in the United States, beginning with Bernhard E. Fernow (1851–1923) and Gifford Pinchot. I discuss their work on establishing and institutionalizing forestry in the United States in the context of the conservation movement of the time. Next, I briefly discuss the development of forestry thinking after World War II by reviewing the development of the management paradigm of the national forests. Since the thinking behind forestry is encapsulated in its textbooks, I present the findings from a survey of forestry textbooks. Finally, I discuss two relatively recent paradigms of forest management, ecological forestry and managing forests as complex adaptive systems, before discussing the concept of the self that is implied during the founding of United States forestry.

3.2 History of German Forestry (Eighteenth to Nineteenth Century)

The development of forestry in Germany and its neighbouring states is a result of necessity. The high density of population, intensive industrial development and lack of easy access to wood supplies from abroad, compared to other countries in Europe, prompted early attention to forest conservation during the seventeenth and eighteenth centuries (Fernow 1911, 6; Radkau 2012).

3.2.1 Intellectual Origins of Forestry Thought

Rubner (1985) identified two main roots of European forest science: Greek natural philosophy, which gave rise to modern analytical thinking, and the experience of forest practices dating back to the late Middle Ages. The ancient Greek philosopher and botanist Theophrastus (c.371–c.287 BCE) described the characteristics of plants and trees, including their growth characteristics in relation to their environment as well as their uses, and gave

attention to the relation between an organism and its environment (Dorandi 1999; Hughes 1985; Rubner 1985).

Notable publications on forest management and policy in Europe during the late seventeenth and early eighteenth century prefigured forestry. Although dozens of publications in Europe prior to the eighteenth century mentioned forest management techniques, Hans Carl von Carlowitz's 1713 *Sylvicultura oeconomica* was the first independent work on forestry that was divorced from hunting or agriculture (Fernow 1911, 85–86; Mantel 1964). Other notable developments during this early period include John Evelyn's 1664 *Sylva*, a seminal work on woodland management in England (Batey 2007; Darley 2006),[6] and the French forest ordinance of 1669, drafted and implemented under the leadership of Jean Baptiste Colbert, who was Minister of Finance of France under Louis XIV (Brown 1883; Mather, Fairbairn, and Needle 1999).

3.2.2 Emergence of Modern Forestry

During the eighteenth century Germany was made up of different states, each ruled by a prince (von Friedeburg 2011). In the second half of the century, the desire for prosperity of the prince in German-speaking Central Europe led to an attachment of bureaucrats to the quantitative spirit (Lowood 1990). During the Enlightenment period, the advancement of fiscal administration and resource management called for a science of the

[6] Evelyn espoused discreet management of woodlands and plantations to secure England's timber supply for posterity. While *Sylva* was influential in the popularity of tree-planting as a past-time, it did not lead to the development of forestry. Evelyn's contemporaries preferred to import scarce resources, leveraging on England's strength in international trade and colonialism, and to rely on substitution of raw materials through technical innovation (Grober 2012, 65–70).

administration of a state. In Germany this became known as *Kameralwissenschaft*, translated as "cameralism" or the "cameral sciences" (Tribe 1984), which subjected various administrative, economic, and social practices to rational or "scientific" scrutiny (Lowood 1990). The terms derived from the *Kammer* (chamber), where the prince's advisors traditionally deliberated. The cameral sciences were institutionalized in eighteenth-century universities for the training of civil servants and the curriculum usually included forestry (Lowood 1990).

Prior to the emphasis on timber production by the state, forests in Germany were managed primarily for the hunting pleasure of the nobility. The forms of ownership of the forests in many cases can be traced back to the royal and feudal manorial forests and to the commonly owned woodlands, which originated at the beginning of the Middle Ages (Mantel 1964). The peasantry in early modern Germany did not have a modern concept of property—that of absolute ownership—and instead ordered the economy of land resources according to the exercise of usufruct rights (Warde 2006, 38–40). Until the middle of the eighteenth century, the primary duties of wardens working in the forests were those in connection with hunting, at least in higher positions, and, to a lesser extent, the military. The higher positions were dominated by the nobility and hunting had higher priority over forestry (Fernow 1911, 81). The *holzgerechte Jäger*, game wardens versed in forestry, contributed to the technical knowledge of forestry on the basis of years of practical experience (Mantel 1964).

Not surprisingly, forestry became the focus of state administrations after government officials realized the deteriorating state of forests and the possibility of timber shortages.[7] Wood was a common material in the economy and "provided, literally, the framework for everyday life" (Warde 2006, 5–6). German forestry was driven by economic rationalization to generate profits and was practised with enthusiasm and patriotism (Lowood 1990). Scott (1998, 14) described forestry during this period as one of the "centralized state-making initiatives." Thus German forestry began as a state programme designed for producing a sustained timber yield and improving the financial position of the state.

Modern forestry emerged during the late eighteenth century through a synthesis between the technical knowledge held by the practical foresters and the more theoretical concepts and teachings of the cameralists and natural scientists (Mantel 1964). Georg Ludwig Hartig (1764–1837) and Johann Heinrich Cotta (1763–1844) are generally considered to be the founders of forest science, or *Fortswissenschaft*.[8] Forestry education was institutionalized in the mid-eighteenth century with the establishment of *Meisterschule*, or "master-schools," each depending on a knowledgeable forest manager.[9]

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[7] According to Radkau (2012, 325), during the late eighteenth century Europe still possessed a relatively abundant supply of timber and the continent was by no means suffering from excessive wood shortages, even though complaints about timber famine had reached a peak.

[8] Other founding members include Friedrich Wilhelm Leopold Pfeil (1783–1859), Johann Christian Hundeshagen (1782–1834), and Carl Justus Heyer (1797–1856) (Mantel 1964).

[9] The first master-school was founded by Hans Dietrich van Zanthier in 1763 in Wernigerode, later transferred to Ilsenberg, and ended in 1778 with his death (Fernow 1911, 83). Hartig established a master-school in Hungen (1789–1791), transferred to Stuttgart in 1807, and in 1811 he was appointed head of the Prussian Forest Administration and lecturer at the University of Berlin (James 1996). Cotta

This development of forestry in Germany coincided with a tendency towards quantification that was prevalent during that time. Beginning in the fourteenth century a new model of perceiving reality emerged in Western Europe, one that was based on visualization and quantification (Crosby 1997). This mentality continued to the eighteenth century, when Europe was marked by *l'esprit géometrique*, or "the quantitative spirit," resulting in the systematization and quantification of knowledge (Heilbron 1990). This tendency towards quantification led foresters to pursue a synoptic view of the forests through the *normal tree* and the *normal forest*.

3.2.3 Sustained-Yield of Timber: Normal Tree and Normal Forest

One of the earliest challenges facing the early German foresters, who were under pressure from the state to deliver results, was to estimate the volume of wood in a forest and manage the forest such that it would yield steady revenue. This led to the development of the sustained yield of timber, made possible through the concepts of the "normal tree" and the "normal forest."

As Grober (2012, 122) explains, the word "normal" does not mean typical or common in the language of the eighteenth century. The Latin root word "norma" means a

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established a master school in Zillbach in 1795. In 1811 he was called to Saxony to be director of forest surveys, whereupon he transferred his school to Tharandt, which became the State Forest Academy of Saxony in 1816 (James 1996). Bernard Lorentz, a friend of Hartig, founded the forestry school in Nancy, France, in the 1820s (Ciancio and Nocentini 2000). According to Fernow, the course of forestry education prior to the mid-eighteenth century "was a simple one and mainly directed to learning the manipulations of the chase, training of dogs, tending of horses, setting of nets, shooting, etc. Two or three years' life with a practical hunter were followed by journeying and working for different employers, woodlore being picked up by the way from those that knew" (Fernow 1911, 83).

perpendicular line, a right angle, and by extension anything that is "regulated." Here the trees and forests are regulated to a "norm," an average or standard that was derived in the mind of the forester according to geometric sensibilities. In other words, the trees and forests are normalized or standardized on paper according to the mental abstraction of the forester.

The normal tree (*normalbaum* in German) was created through yield tables, a construct of tables, geometry, and measurements that specify the volume of saleable wood contained by an idealized standard tree of a given size-class under specified conditions of normal growth and maturation (Lowood 1990). The yield tables, "this needful tool of the forester" (Fernow 1911, 246), were improved by checking empirically against the actual volume of wood in sample trees. By comparing the trees in a sample plot with its archetypal counterpart, the *normalbaum*, and generalizing estimates of volume and predicted growth of the plot to the entire stand, the foresters arrived at what appeared to be a satisfactory notion of the stand's current timber content and growth prospects. Scott (1998, 15) noted that by "radically narrowing his vision to commercial wood, the state forester had, with his tables, paradoxically achieved a synoptic view of the entire forest."

Given this synoptic view of the forest, the sustained yield of timber was accomplished through the concept of *normalwald*, the "normal forest."[10] The idea was to achieve a sustained level of timber harvest by partitioning a forest into different cells, or "coupes,"

[10] According to my English references (albeit authored by Germans), the normal forest concept was originated either by "an obscure anonymous official in the Tax-collector's office of Austria" for the sake of insuring sustained yield management, but its theory was not made known to and fully developed in German forestry until about 1820 (Fernow 1911, 115), or by Hartig and his followers (Grober 2012, 121).

harvesting each cell and letting it regenerate, and proceeding as such through the different cells such that after completing a stipulated cycle the first cell will be ready for harvesting again. Specifically, if we denote by T^* a steady-state rotation age that repeats through time, then T^* also denotes the number of cells which the forest area is divided into. Every year one of the cells will be cleared and reforested, which then becomes the youngest age class. After a complete cycle of T^* years, the same cell will be ready for harvesting again. In this way, so the thinking goes, one can harvest timber at approximately the same rate every year, i.e., one achieves sustained yield over time. The scientific challenge for the forester was to determine the optimal rotation period, which also implied the number of cells and their optimal size, according to site factors and characteristics of the species in question (Amacher, Ollikainen, and Koskela 2009, 3). In present-day forest science parlance the normal forest "is an idealized forest composed of even-aged, fully stocked stands" with the number of stands determined by the rotation period (Puettmann, Coates, and Messier 2009, 5). This method of achieving sustained yield is also called the area method of regulation of the cut (Smith et al. 1997, 427).

The principle behind the appropriate rotation period is that once a particular stand of trees has exceeded its maximum annual growth rate, it should be harvested since the annualized average growth rate has been maximized and will subsequently decline. From a utilitarian, profit-maximizing perspective, these relatively slow growing and "over-mature" trees should be harvested and replaced by stands that will yield maximum annual growth when harvested at rotation age.

The birth of modern forestry in Germany was thus characterized by mathematical reductionism and an optimistic faith in the ability of humankind to maximize and predict

forest growth.[11] The German normal forest became an archetype for imposing on "disorderly" nature the neatly arranged constructs of pre-ecological science and produced "monocultural, even-age forests that eventually transformed the *Normalbaum* from abstraction to reality" (Lowood 1990, 340).

The mathematical nature of German forestry recalls Descartes' aim and method of achieving certitude and indubitable truth through one's reasoning that was based on mathematics (Harrison 1992, 123). A considerable mathematician, Descartes recounted in his *Discourse on Method* how he relied on a provisional code of morals prior to his discovery of stable foundations of knowledge. One of the four maxims of this code was to remain firm and resolute in his temporary course of action, no matter how doubtful that course might seem.[12] He likened this to how the best course of action for a traveller who is lost in the middle of forest and wants to leave the forest is to walk in a straight line. This solution was better than staying put in the forest or changing one's course in a haphazard way (Descartes [1637] 1996). For Descartes, the forest symbolized tradition, randomness, and confusion, and the method for pursuing indubitable truth, to walk out of the forest of errancy, was through one's rational thought that was grounded in mathematics. Similarly, the state forester, Descartes' subject of knowledge, relies on his own resources—his analytic rationality, yield tables, and measuring tools—to overcome uncertainty and tradition and

[11] Indeed, around 1800, Carl Christoph Oettelt, the *Forstmeister* (forestry master) of Ilmenau in Thuringia, was planning the management of forests around Kickelhahn for two rotation periods, each of 120 years (Grober 2012, 89).

[12] The other three maxims were: 1) to obey the laws and customs of the country he is residing in; 2) to master his thought and desires; and 3) to devote his life to his current vocation of developing methods to discover the knowledge of truth.

chart a future of predictable forest yield and income. By planting trees in rectilinear rows the forest becomes an orderly chessboard *ruled* by geometry, thus enabling one to walk through it in a straight line (Harrison 1992, 123).

The concept of the normal forest had a lasting impact on silvicultural practices and thinking. The normal forest, the normal tree, and the use of yield tables became standard tools of forestry. Reflecting on the significant impact of the normal forest concept on the development of silvicultural systems and practices in the past 150 years, Puettmann, Coates, and Messier observed that "the legacy of the normal forest concept was a strong focus of silvicultural approaches and practices on fully stocked stands, stands with fairly simple structure and composition, intensive thinning practices, and harvest timing determined by productivity measures" (2009, 16).[13]

3.2.4 Financial Returns from Forestry

Further abstraction in German forestry thought occurred during the mid-nineteenth century when some scholars proposed that forests should be managed according to financial principles. The first breakthrough in this regard was by Martin Faustmann (1822–1876), who correctly formulated the rotation problem and all the associated opportunity costs that result from delaying harvesting in any period by incorporating the interest rate (Faustmann

[13] From a social perspective the development and application of the highly regulated forestry and scientific silviculture in Germany led to loss of usufruct rights of the peasants, the establishment of a greater forest police presence, and a higher rate of forest offences (Hölzl 2010, 2011; Warde 2006).The antagonism and increasing rates of forest theft was one of the causes that led to the 1848 revolution (Linebaugh 1976). Between 25 October 25 and 3 November 3,, 1842, Karl Marx (1818–1883), then editor of *Rheinische Zeitung* published five articles in the newspaper on the debates about a law on theft of wood in the Provincial Assembly of the Rhine (Linebaugh 1976).

1849). In 1860 Robert Max Pressler (1815–1886), building on earlier work by Faustmann and others, proposed soil rent theory as a method for managing forests (Grober 2012, 124–125; Möhring 2001; Pressler 1860). The goal was to achieve long-term maximum return on capital, which resulted in shorter rotations. In contrast, the goal of the original forestry model, now called the theory of highest revenue, was to achieve maximum timber yield. According to Heske, the soil rent theory's profit-oriented, *laissez-faire* approach did not gain much traction in actual practice, though it did provoke some adjustment in forestry practice (Heske 1938, 37–39).

3.2.5 Reaction to the Normal Forest: The *Dauerwald* Movement

The early foresters were aware of the potential shortcomings and consequences of the normal forest, and that it was "an emergency measure," with Cotta and Gottlob König voicing concerns about this highly artificial management model (Grober 2012, 123). In the late nineteenth century Karl Gayer (1822–1907) articulated the importance of ecological processes and advocated close-to-nature silviculture, although ecological knowledge was rudimentary at that time (Puettmann, Coates, and Messier 2009, 37).

By the time Gifford Pinchot, who would become the founding Chief Forester of the US Forest Service in 1905, arrived in Europe in 1889 to learn about forestry, German forestry had evolved into a highly developed discipline. On the eve of World War II, Franz Heske, who was addressing himself to American foresters, could boast: "For all time, this century of systematic forest management in Germany, during which the depleted, abused woods were transformed into well managed forests with steadily increasing yields, will be a

shining example for forestry in all the world" (Heske 1938, 81).[14] Since early German forestry focused on maintaining a sustained yield of timber, it has been identified as a key origin for sustainability thinking (Grober 2012; Worster 1993, 144–145).

The idea of *Dauerwald*, which can be translated as "permanent forest" or "continuous forest," emerged around 1920 as a method of forestry that was better aligned to natural processes and conditions than the normal forest. *Dauerwald* refers not to a specific silviculture treatment, but to a framework that avoids clear-cutting and treats regeneration as secondary, in contrast to the focus in forestry thinking during the late eighteenth and early nineteenth century on clear-cutting and artificial regeneration of monoculture (Helliwell 1997; Puettmann, Coates, and Messier 2009, 38; Troup 1927).

3.3 The Forests of the United States

Forests have played an important role in the founding and establishment of American society. In the late nineteenth century, the forests enabled the country to transform from an agrarian to an industrial economy (Rutkow 2012; Williams 1989).

One striking difference between the New World and the Old World was the extraordinary extent of old-growth forests in the former. Old-growth forest can be defined basically as "a forest that is dominated by big, old trees, both live and dead, standing and fallen, and that usually contains many other smaller trees" (National Commission on Science for Sustainable Forestry 2008, 6). However, given the diversity of forest types and

[14] According to Paul Draghi at the Yale School of Forestry & Environmental Studies, Henry Graves, who was Dean of the school at the time of the publication of Heske's book, excluded two chapters from publication, presumably due to their nationalistic tone (Paul Draghi, personal communication, October 4, 2013).

biomes on the planet, "a single, precise definition of old-growth applicable to all forest types is neither possible nor desirable" (Wells, Lertzman, and Saunders 1998).[15] Definitions of old-growth forests in the literature can be broadly categorized into three groups, referring either to structural and compositional features, or the successional process that have led to and currently maintain the old-growth stage, or biogeochemical processes (Wirth et al. 2009).

The most iconic and largest remaining old-growth forests in the US are located in the Pacific Northwest states of California, Oregon, and Washington.[16] Indeed, the hot spot of tree longevity in the world is located in the mountain ranges of western North America, where species can reach an age of more than 2,000 years (Schweingruber and Wirth 2009). Old-growth forests exist and have existed in other parts of the US and there have been attempts to establish old-growth forests on the east coast, where most of the original old-growth forests had been cleared by white settlement during the colonial period (Cronon 1983).[17]

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[15] Common competing terms to "old-growth" include ancient, antique, climax, frontier, heritage, indigenous, intact, late-seral, late-successional, natural, original, over-mature, pre-settlement, primary, primeval, pristine, relict, untouched, and virgin (Wirth et al. 2009). Even when the same definition was adopted, different remote sensing techniques have led to different estimates of the extent of old-growth forests in the US (National Commission on Science for Sustainable Forestry 2008, 12).

[16] The old-growth forests in this region are mixtures of Douglas-fir (*Pseudotsuga menziesii*), western hemlock (*Tsuga heterophylla*), western red-cedar (*Thuja plicata*), and other species such as Coastal redwood (*Sequoia sempervirens*) (Franklin et al. 1981).

[17] Restoration of old-growth forests on the east coast is complicated by the loss of original species such as American chestnut (*Castanea dentata*) and American elm (*Ulmus americana)* (Davis 1996).

3.4 Early Beginnings of Forestry during the Late Nineteenth Century

Forestry took on a different mode when it was imported to the United States from Europe, in particular Germany. The forests there were different from those of Europe and therefore required different treatment. Furthermore, the economic, social, and political spheres of the United States were based on individualism and *laissez-faire* capitalism. Hence, forestry in the United States was conducted through a different mode of human agency as compared to its counterpart in Germany.

The first European settlers in America encountered a vast landscape that was dominated by forests. Since the goal of the settlers was to establish settlements out of the forests, the settlers looked upon this overabundance of forest with disdain. This attitude was reflected in the use of the word "lumber" in North America for rough-cut wood and logged trees, instead of timber—in the settler's mind the trees were useless and cumbrous (Williams 1989, 4). The prodigious clearing of forests and use of timber products continued through to the post-Civil War period.

Prior to 1900 the use of forests by individuals and timber companies was largely characterized by a utilitarian attitude that lacked forward planning. The prevalent form of lumbering then was called "cut-out and get-out," which refers to the practice of purchasing forestland, processing the large trees into timber, exporting the timber, selling the deforested land, and moving on to another forested area (Flader 1994, 235; South 2014, 379). The goal was to make the highest profit while minimizing expenditures and taxes in a relatively short period of time. This practice was encouraged by a complex of interrelated factors: the impression that the nation's forests were inexhaustible; the importance of wood to society as a fuel and construction material; and the tendency for frontiersmen and homesteaders to clear land for agriculture.

During the late nineteenth century, agricultural clearing as well as industrial felling and lumbering significantly reduced the extent of the nation's forest estate. The lumber industry was first developed in New England during the early nineteenth century. Personnel and technology spread to the Lake States by mid-century, which led to the lumber industry's prodigious clearing of forests in the region (Williams 1989, 160–161). By the early 1870s, conspicuous consumption of lumber as well as the conspicuous waste through milling and fire resulted in an increasing concern of timber famine in the populace, especially after the clearing of the forests in the Great Lakes region (Williams 1989, 228–230, 393).[18]

3.5 Bernhard E. Fernow

The first professional forester hired by the federal government to help manage the forests in the country was Bernhard E. Fernow, a German-born and trained forester who immigrated to the United States in 1876 (Rodgers 1951).[19] Fernow served as chief of the

[18] The concern over a possible timber famine led to several developments: in 1865 the Reverend Frederick Starr of St. Louis wrote an article in the Annual Report of the Commissioner of Agriculture, entitled "American Forests: Their Destruction and Preservation"; in 1872 Arbor Day, a holiday set aside for tree-planting was first proclaimed and held in Nebraska; in 1876 Increase A. Lapham of Wisconsin was commissioned by the state legislation to write a report on the impending timber deficiency (Sparhawk 1949; Williams 1989, 383, 371–373).

[19] Fernow's predecessors were Franklin B. Hough (1822–1885), who was appointed in 1876 as the country's first "forestry agent" and became founding chief of the Division of Forestry in the Department of Agriculture from 1881 to 1883, and Nathaniel Egleston, who was chief from 1883 to 1886 (Steen 1976, 9–21). Hough, a physician, triggered the move to establish a federal position in forestry when he gave an address entitled "On the Duty of Governments in the Preservation of Forests"

Division of Forestry from 1886 to 1898. He was convinced that neither the public nor the forest industry would support scientific management of the forest and therefore focused the work of his Division on dispensing information and technical advice to those who sought it and studying individual tree growth (Hays 1959, 29; West 2000).

Fernow's tenure saw the passing of two important legislative acts which enabled the creation of the national forest system. The 1891 Forest Reserve Act gave the United States president authority to set aside land from the public domain for the creation of forest reserves by proclamation.[20] The reasoning behind this Act was that private enterprise could not be entrusted to manage the nation's forests in the public interest (Hays 2009, 2–3), of which the chief concern at that time was conservative utilization of the forests to preserve the resource base. The Act went against the traditional government policy from the late eighteenth century onwards of disposing all Western land from public to private ownership (Steen 1976, 4–6). Indeed, the Progressive conservation movement, of which federal forestry was a part, "provoked controversy in a country with a strong anti-statist tradition" (Balogh 2002). The Act was targeted at creating forest reserves in the West, thus

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to the American Association for the Advancement of Science at its meeting in Portland, Maine, in the summer of 1872 (Williams 1989, 399–400).

[20] The Forest Reserve Act was actually a rider called section 24 that was hastily added to a bill by a conference committee. The bill was passed hurriedly at the end of the session and was called the Act of March 3, 1891, commonly referred to as the Creative Act (Ise 1920, 117–118; Steen 1976, 26–27; Williams 1989, 410–411). On September 10, 1891, President Benjamin Harrison exercised his new powers for the first time by withdrawing land surrounding the Yellowstone National Park to create the Yellowstone National Park Timberland Reserve (Bassman 1974; Steen 1976, 27).

aggravating the relationship between vested economic interests in this region and the legislators and federal government that were based in Washington, DC.

The forest reserves came under the administration of the Department of the Interior but no mandate or resources for the management of the forest reserve were stipulated (Muhn 1992). This situation was remedied by the Organic Act, commonly known as the Forest Management Act, which was passed on June 4, 1897.[21] The purpose of the forest reserves was to "improve and protect the forest," "secure favourable conditions of water flow," and "to furnish a continuous supply of timber for the use and necessities of citizens of the United States" (Organic Act of 1897). However, the Act allowed for mining and agriculture if they were deemed more valuable than forest lands, and did not explicitly forbid grazing, lumbering, nor the generation of hydroelectric power, thus reflecting the utilitarian ethos and political realities of its time (Williams 1989, 415).

Fernow was succeeded by Gifford Pinchot in 1898. While Fernow was credited with establishing forestry in the US, Pinchot was recognized for institutionalizing the profession.[22]

3.6 Gifford Pinchot

Gifford Pinchot was born in 1865 to a wealthy family of French ancestry from Pennsylvania and with business ties to New York City (Miller 2001, 20–54). Pinchot

[21] The Organic Act/Forest Management Act was an amendment to the Sundry Civil Appropriations Act (30 Stat. II, 34) (Steen 1976, 324–325).

[22] Fernow, who was not a politician or fund-raiser, resigned to become founding director of the New York State College of Forestry at Cornell University, a position that was "more consonant with his scholarly attainments" (Rodgers 1951, 230, 241).

considered forestry as a career when he was twenty, upon his father's prompting (Pinchot [1947] 1998, 1). He eventually settled on forestry as a career upon graduating from Yale College in 1889, despite receiving misgivings about the future of forestry in the country from Fernow, Commissioner of Agriculture George B. Loring, and Harvard botanist Charles S. Sargent (Pinchot [1947] 1998, 5).[23]

Pinchot went on to become the first trained American forester, having studied at the French National School of Forestry in Nancy from 1889 to 1890 and taken a tour of managed forests in France, Germany, and Switzerland before returning to the United States (Miller 2001, 87–88; Pinchot 1891). He came under the tutelage of Sir Dietrich Brandis and Lucien Boppe; the latter urged him to demonstrate that forest management would be financially viable in the United States in order for forestry to gain acceptance by society (Pinchot [1947] 1998, 11, 15, 30). At that time the general opinion among foresters in Europe and experts like Fernow and Sargent in the United States was that forestry could not be successfully practised in the country due to the preponderance of old-growth forests.

[23] Pinchot, the class deacon and member of Skull and Bones, the dominant senior society at Yale, wavered just before graduation and gave consideration to a missionary career (Miller 2001, 71–72). He announced forestry as his career during his Yale commencement address in June of 1889, which he recounted in religious terms in his autobiography: "Being a convert to Forestry, I was eager to bear witness to my faith….I had carefully prepared myself to talk, not on Forestry, but on some subject long since forgotten. But on the spur of the moment I dropped it, my future profession welled up inside me and took its place, and I made to the exalted graduates of Yale (in June of 1889) my first public statement on the importance of Forestry to the United States—and my first public declaration that I had chosen it for my lifework" (Pinchot [1947] 1998, 6).

3.7 The Progressive Conservation Movement

Pinchot's conservation activism and the early reforms in United States forestry were part of a broader conservation movement during the Progressive period from 1890 to 1920. Since forestry was institutionalized in the US as part of the conservation movement, understanding the origins of the movement will inform our understanding of forestry in the United States.

During the late nineteenth century, the changes in the American landscape wrought by the forces of unconstrained economic development and industrialization were stark and ecologically disruptive. The Progressive era in the United States from 1890s to 1920s marked a period of social reform as the country sought to address the basic conservation problem: how to reconcile a finite and diminished endowment of natural resources with a growing economy and population (due to reproduction as well as immigration). University education and research blossomed during this period and scholars applied themselves to the country's problems (Gould 2001; Hays 1959; Skowronek 1982; Wiebe 1967).

This modern concept of conservation can be traced back to several sources, including the influential 1864 book *Man and Nature* by George Perkins Marsh (1864). Marsh cautioned against the destruction of natural resources and described his first-hand observation of the environmental impact of humans in the Mediterranean.[24] Other important sources include the professionalization and rationalization of amateur nature enthusiasts, John Muir's popular writings and his activism in the Sierra Nevada (Fox 1981)

[24] Pinchot, who was presented with a copy of *Man and Nature* on his twenty-first birthday on August 11, 1886, described Marsh's book as "epoch-making" (Miller 2001, 55–56; Pinchot [1947] 1998, xix).

and sportsmen's interest in conserving game species and population beginning in the late 1860s (Reiger 1975, 50–72; Warren 1997).

Generally speaking, conservation can be interpreted as the conscious effort to develop and exercise principles for guiding human actions in relation to the biophysical environment, usually with the goal of ameliorating human impact on the environment. However, the meaning of conservation has evolved over time, along with its economic, political, and social context as well as scientific and ethical perspectives (Meine 2013). The earliest use of the term "conservation" as applied to forests can be traced back to 1875, when John A. Warder, in a meeting to organize the American Forestry Association, founded a year later, stated the aim of the association as: "[t]he fostering of all interests of forest planting and conservation on this continent" (Sparhawk 1949, 705). According to Hays, the word "conservation" was first used during the Progressive conservation movement in the context of constructing reservoirs to conserve spring flood waters for use later during the dry seasons, as part of a broader movement of Western water development by federal administrators and political leaders (Hays 1959, 5).

Many scholars have provided interpretations of the conservation movement during the Progressive era of the 1890s to the 1920s, including: as a democratic movement to protect the nation's natural resources from exploitation by special interests (Bates 1957); as events and decisions that were part of a modernizing wave that resulted in the evolution of the country's political structure towards centralization (Hays 1959);[25] as a search for order

[25] Hays articulated the intended concern behind his 1959 *Conservation and the Gospel of Efficiency* in the preface to the paperback edition released in 1969: "I had hoped that the work would turn the reader away from the substance of conservation as such [the evolution of conservation policies in the Progressive Era] and into the realm of political structure. I was concerned not so much with the idea of

as the country transformed from a society of autonomous local communities to one that was dominated by increasingly large corporations and institutions (Wiebe 1967); and as an interplay of the sometimes opposing and sometimes corroborating themes of efficiency, equity, and the aesthetics which incorporated wilderness and later ecological concerns (Koppes 1988). For Fox, the radical amateur aspect of conservation as exemplified by Muir represents an anti-modernist reaction that treats modern progress as ambiguous at best (Fox 1981, 351–355).[26]

3.8 The Forest Service and the National Forests

After returning from his training in Europe, in December 1890 Pinchot sounded out important figures on the potential of developing a forestry movement in the United States and was roundly discouraged (Miller 2001, 96–97). From 1892 to 1895, he managed the forest on George W. Vanderbilt's Biltmore estate in North Carolina. From 1896 to 1897, Pinchot served as the secretary and youngest member of the National Forest Commission, which made a study trip to the forest reserves in the West and provided recommendations on their management (Miller 2001, 129–138; Williams and Miller 2005).

In terms of forestry skills Fernow was superior to Pinchot, but forestry then, as now, was as much about politics as it was an application of natural sciences and Pinchot was politically more adroit than Fernow (McGeary 1960; Steen 2001, 30). In 1898 Pinchot

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efficiency, which many have focused on, but with the political structure and system of decision-making which efficiency and all that it involved represented."

[26] Fox identified the following thinkers as belonging to the anti-modernist aspect of American thought: Jefferson, Emerson, Thoreau, Henry George, Frederick Law Olmsted, Thorstein Veblen, Henry Adams, Mark Twain, Frank Lloyd Wright, T. S. Eliot, Robert Frost, Lewis Mumford, and Edmund Wilson (Fox 1981, 352).

succeeded Fernow as Division chief.[27] Pinchot's forestry programme was boosted when his personal friend Theodore Roosevelt became President of the United States in 1901.[28] This important relationship, together with the energy, talent, and political acumen which Pinchot brought to his office, enabled him to achieve three major accomplishments: the transfer of the country's forest reserves, then under the administration of the Land Office in the Department of the Interior, to his agency in the Department of Agriculture on February 1, 1905;[29] the ascending status of his agency within the federal government, reflected in its renaming to the Bureau of Forestry in 1901 and finally to the Forest Service in July 1, 1905; and an increase in the area of forest lands reserved by the government. When the Forest Service began in 1905 it had 63 million acres under its administration; at the end of Pinchot's tenure in 1910 it was in charge of 168 million acres (Steen 1976; US Census Bureau

[27] One week into his new position Pinchot requested Secretary Wilson that his title be changed from "Chief" to "Forester." This further delineated the difference between Fernow and him, and between forestry and botany or horticulture. The title of "Forester" was changed back to "Chief" in 1935 (Lewis 2001, 85–86). Pinchot explained his request in his autobiography: "In Washington chiefs of division were thick as leaves in Vallombrosa. Foresters were not" (Pinchot [1947] 1998, 137).

[28] Roosevelt was sworn in on September 14, 1901, following William McKinley's assassination the previous day. According to Miller, Roosevelt and Pinchot discovered in February 1899 their mutual delight in playing "games, especially those in which they could flash their youthful vigor or test their manly prowess" (Miller 2001, 147).

[29] After three months in office Roosevelt was advocating the transfer of the forest reserves to Pinchot's agency. The Department of the Interior had its own Forestry Division, called Division R, which was headed by Filibert Roth. However, Roth and his division had to rely on Pinchot and his staff for forestry expertise (Steen 1976, 61).

1975, 533).[30] Pinchot's success can be attributed to his personal qualities, which enabled him to forge friendships and alliances, and his foresight in pursuing policies that boosted the value of his agency (Steen 1976, 68, 71, 73–74; Williams 1989, 416–421).

In 1900, Pinchot contributed to the forestry profession by founding the Society of American Foresters (with six others in his office) as well as the Yale Forest School, which his family underwrote (Pinchot [1947] 1998, 150–153).[31] Pinchot wanted to produce "American foresters trained by Americans in American ways for the work ahead in American forests" (Lewis 2001; Pinchot [1947] 1998, 152).[32]

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[30] The statistic of 63 million acres was taken from Steen (1976, 74). According to Pinchot's autobiography 86 million acres of forests were transferred to the Forest Service in 1905 (Pinchot [1947] 1998, 260); the Census report stated that the national forests had 75.3 million acres in 1905, presumably by the end of the year (US Census Bureau 1975, 533). Roosevelt and Pinchot connived to create 16 million acres of new forest reserves, just before Congress rescinded the president's power to create forest reserves by proclamation in early 1907 (Pinchot [1947] 1998, 300).

[31] The *Proceedings of the Society of American Foresters* was founded in 1905 and in 1917 was merged with Fernow's *Forestry Quarterly*, founded in 1902, to form the *Journal of Forestry*. Brandis, who mentored Pinchot at Nancy, had advised Pinchot in the early 1890s that the key to instilling professional integrity in a forestry agency was to bind the foresters around a core set of values, to cultivate an *esprit de corps*. Pinchot gave the Yale Forest School the use of his family property, Grey Towers in Milford, Pennsylvania, for its summer camp, where the school's students—from which the nation's early forestry leaders would emerge—could bond (Miller 2001, 279).

[32] The implication here was that the New York State College of Forestry at Cornell University, which was founded in 1898 and directed by Fernow, was "modelled on German fashions," a charge Fernow resented (Rodgers 1951, 284). The first director of the Yale Forest School was Henry S. Graves (1871–1951). Graves was six years younger than Pinchot and graduated from Yale College in 1892, three years after Pinchot. They met through the Skull and Bones senior society. Like Pinchot, Graves was a class

Pinchot's work in transferring management responsibility for the reserves to his agency meant that he had to win political support from affected constituencies. Pinchot gave assurance to the lumbermen that they would continue to have access to the reserves under a programme of "wise use" and convinced the livestock owners that he would allow grazing in reserves (Williams 1989, 419–420). In 1903 lobbying by the American Forestry Association, acknowledgement by the Secretary of the Interior Ethan A. Hitchcock that the transfer would produce "better administrative results" and public support from President Roosevelt helped dissolve congressional opposition. All this manoeuvring and lobbying culminated in the American Forest Congress, held in Washington from January 2–6, 1905, and attended by members of the political and business elite, which passed a resolution supporting transfer. The transfer was finalized on February 1, 1905 (Miller 2001, 196–197; Pinchot [1947] 1998, 235–292).

In 1907, the forest reserves were renamed *national forests*, thus emphasizing the extension of the country's sovereignty to its public forests and the active role of Pinchot's Forest Service in managing them. The new name also reflected Pinchot's utilitarian stance on how the forests should be purposefully managed to further the nation's interest (Steen 1976, 75). The national forests became the subject of active and purposeful management by government agency and, consequently, a domain where disparate public interests were to be reconciled.

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deacon. It was Pinchot who encouraged Graves to pursue forestry as a career. Graves studied forestry at the University of Munich, and would later succeed Pinchot as chief of the Forest Service in 1910 (Draghi 2013). Pinchot neglected to remind his readers that the forestry theories and books initially used in the United States were German and that his mentor Brandis was German.

3.9 Pinchot's Conservation Philosophy

Pinchot's philosophy towards natural resources was characterized by "utilitarian conservation," the belief that natural resources such as forests and water should be sustainably used for human ends and that the government should regulate their use in order to accomplish this. This thinking is exemplified by the phrase "the greatest good of the greatest number in the long run," which was found in Secretary of Agricultural James Wilson's letter of direction to Chief Forester Gifford Pinchot, sent on February 1, 1905, when control of the forest reserves was transferred to Pinchot's Bureau of Forestry. It is generally believed that Pinchot wrote the letter for Wilson's signature (Pinchot [1947] 1998, 260–262; Wilson 1905).

However, Pinchot's focus on the concept of conservation came in 1907, two years after the letter. Pinchot credited William J. McGee (1853–1912), then head of the Bureau of American Ethnology, for making him see the pursuit of the "greatest good" idea as the goal of natural resource management (Pinchot [1947] 1998, 322–326).[33] The phrase ultimately derived from British philosopher Jeremy Bentham (1748–1832), who articulated his utilitarian principle as achieving "the greatest happiness of the greatest number" (Bentham

[33] Pinchot sought to raise the profile of this conservation philosophy in the nation and became the public face for conservation matters in the Roosevelt administration. He organized the 1908 Governor's Conference on the Conservation of Natural Resources at the White House on May 13–15, 1908 which brought together important government officials and men of science. This resulted in the appointment of Pinchot as Chair of the National Conservation Commission, which was organized in June after the conference and submitted its report in 1909. Indeed, President Roosevelt remarked that "on questions of conservation the chief forester was in truth the keeper of his conscience" (Miller 1992).

1776; Miller 2001, 155).[34]

Pinchot's utilitarian stance on conservation stands in contrast to the preservationist approach championed by Muir, who felt that a certain portion of the natural landscape should be set aside as wilderness (Miller 2001, 1–12; Turner 2000). Their opposing viewpoints came to a head in the 1906–1913 debate to dam the Hetch Hetchy valley in Yosemite National Park in order to create a stable water supply for San Francisco. Muir and his allies fervently opposed the plan while Pinchot and Secretary of the Interior James Garfield became the chief advocates within the Roosevelt administration (Fox 1981, 139–147; Miller 2001, 169–174). The Hetch Hetchy debate has been frequently used to illustrate the contrast between Pinchot's utilitarian conservation philosophy and Muir's preservationist philosophy.[35]

Recognizing the shortcomings of the dichotomous utilitarianism versus preservation paradigm is important. While acknowledging that this paradigm is valuable in understanding environmental history, Curt Meine (2004b) observed that the paradigm has its shortcomings. The paradigm, which strongly reflects the Euro-American conquest of the continent with scant applicability to other cultures and landscapes, tends to: 1) draw attention to conservation issues that involve "spectacular, scenic, and charismatic"

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[34] Bentham wrote that the fundamental axiom of his principle of utility could be stated as "the greatest happiness of the greatest number that is the measure of right and wrong" (1776, i–ii).

[35] The Raker Act to authorize the dam project was passed by Congress and signed by President Woodrow Wilson in 1913, after Theodore Roosevelt and Pinchot had left office. Muir died the following year. The schism between Muir and Pinchot presaged the rivalry between the Forest Service and the National Park Service (Rothman 1997).

elements, and away from more pedestrian issues; 2) oversimplify one's relationship with one's environments, considering how all living creatures "use" their environments; 3) overlook how programmes for protecting wilderness and wild species originated from utilitarian programmes; 4) promote polar positions and discourage pragmatic and adaptive approaches in conservation; and 5) sharpen the alienation of us humans from our biophysical environment (Meine 2004b).

Pinchot's utilitarian and conservative approach to managing the country's natural resources needs to be viewed in the context of his desire to win political and public support for his campaign to transfer control of the forest reserve to his Bureau of Forestry and to implement federal control over the forests. Further, the scientific forestry he espoused was seen at that time as a form of enlightened stewardship of the forests during a period when timber was considered a strategic resource.

3.10 Forest Management from 1900 to 1945: Sustained-Yield Forestry

Pinchot initially sought to establish sustained-yield forestry in the national forests, such that annual harvest equalled annual growth increment. However, since the national forests in the West coast were dominated by old-growth with low net growth, very little timber could be harvested through this conception of sustained-yield. To extract more timber and implement regulation of old-growth forests, Hanzlik (1922) proposed that the annual yield be determined not only by the growth increment of immature stands but also by an orderly liquidation of the trees that were beyond rotation age. During the mid-1920s, Forest Service regulations were modified to reflect this shift in focus from regulating the yield to regulating the growing stock, even though Hanzlik's formula did not guarantee the sustainability of harvest levels between the conversion period and subsequent rotations

(Parry, Vaux, and Dennis 1983). Besides producing timber, this sustained-yield formula would also convert old-growth forests to regulated forests.[36]

The policy of the United States Forest Service during this early period focused on managing the land for full productive use, which meant replacing the old-growth forest with regulated forest. Compared to the goal of efficient production of timber, the old-growth forests were considered to be idle, decadent, and disorderly (Langston 1995, 98–100, 109–113). This led to an ironic situation where the Forest Service's forest management policy for staving off timber famine was to encourage the harvesting or "liquidation" of old-growth forest, even if the old-growth species were not favoured by the market, or when doing so would actually cause the Forest Service to lose money (Hays 2009, 7; Langston 1995, 108–113). The foresters' mentality was to engage in an epic struggle against all factors inhibiting the establishment of regulated forests—outsiders, big business, insects, fires, disease, and the original old-growth forests (Langston 1995, 156).

To calculate what the sustained timber yield of a site should be, the foresters used site classification to determine its "biological potential" for growing timber and eventually a growth rate. Calculation of the allowable cut was based on this idealized, assumed potential growth rate. Timber harvest planning was marked by optimism, faith, and assumptions of how much fast the forests would grow (Langston 1995, 168–171).

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[36] The sustained-yield concept took another turn and focused on sustaining communities when the Sustained-Yield Forest Management Act, drafted under the influence of David T. Mason, was adopted in 1944. The unsuccessful act called for establishment of cooperative forest management units to ensure a steady supply of timber to sustain forest-dependent communities (Hays 2009, 61; Parry, Vaux, and Dennis 1983).

The Forest Service's objective in its early years was to establish scientific forestry and federal sovereignty in the national forests. Forest Service employees in the field sought to regulate the forests and their utilization by people. Rothman (1997) observed that the educated foresters during the 1920s and early 1930s were a special breed who were scientifically trained and yet capable of communicating with remote homesteaders. They "embodied order" and often lived "as wilderness men on the fringes of established society" (Rothman 1997). The desire to impose order on the forest must be understood in the context of the general exploitative attitude towards forest utilization during the mid-nineteenth century that led to fears of timber famine and the importance of wood as a strategic resource. The Forest Service officials were respected guardians of the public forests before the 1940s (Bolle 1997).

3.11 Pinchot's The Training of a Forester (1914, 1937)

In 1914 Pinchot published a popular manual entitled *The Training of a Forester*, meant to encourage young men of suitable character to consider forestry as a profession. Pinchot's anthropocentric utilitarianism was clear in the book.[37] On the first page he asked "What is a forest?" He answered by asking "First, What is forestry?" Thus, the forest is understood in terms of the practice of forestry, which is "the art of handling the forest so that it will render whatever service is required of it without being impoverished or destroyed" (Pinchot 1914, 13). The forest and forestry were both considered in terms of

[37] Bentham and Mill, the chief exponents of utilitarianism, explicitly recognize the non-human animals also experience utility and therefore have to be included in the utilitarian calculus. Pinchot's utilitarian calculus is anthropocentric since he only considers the utility of forests from the humans' perspective.

human use and values. The anthropocentric methods listed therein, such as dendrology, silviculture, and forest economics, reflected this philosophy.

Pinchot situated forestry within the conservation movement, noting that the latter came about by applying the forester's "foresight and common sense" to other natural resources (1914, 24–25). He proclaimed the anthropocentric philosophy behind conservation: to ensure "a planned and orderly development of all that the earth contains for the uses of men" (1914, 25). This philosophy is realised through the conservation principle—which according to Pinchot is the forester's principle raised to public attention—of utilizing natural resources in "a planned and orderly scheme for national efficiency, based on the elimination of waste, and directed toward the best use of all we have for the greatest good of the greatest number for the longest time" (1914, 25).

The beneficiary of forestry and conservation are human communities and, more generally, the nation. Throughout the book Pinchot noted how the practice of forestry and conservation would strengthen the nation, and emphasized the need for the federal forester to maintain cordial relations and good communications with the various stakeholders of the national forests. Indeed, Pinchot noted that "forestry is a form of practical statesmanship which touches the national life at so many points" such that foresters need to remain cognizant of the needs and purposes of their fellow citizens (1914, 67). Accordingly, the best citizen makes the best forester (Pinchot 1914, 67). This focus on the nation recalls Delbanco's (1999) characterization that hope in the United States was centred on the nation from the Civil War until the end of World War II.

The Training of a Forester went through three more editions. The second and third editions, published in 1917 and 1933 respectively, were minor revisions of the first. The fourth edition, published in 1937, was significantly revised to reflect recent advances in

ecological knowledge. Acknowledging the emergence of ecological concepts and that the earlier editions of the manual were written for pioneer conditions, many of which no longer existed, Pinchot articulated the need for forestry to recognize ecological realities in the forest. Since the forest is "a complex community with a life of its own" (Pinchot 1937, 9), Pinchot identified forest ecology, entomology, and wildlife management as required subjects for forestry training, alongside the traditional anthropocentric subjects. Thus, the anthropocentric foundation of forestry was tempered by the need to respect how the complex forest community was governed by "a strict code of natural laws" (Pinchot 1937, 9). In addition, he admitted that forests possessed spiritual and aesthetic values (14). Pinchot was aware of changing public opinion of forestry and was able to revise his previous position and keep up with the latest thinking (Miller 1994).[38] Pinchot's revised thinking on forestry adumbrated the changes that were to occur in the management of the national forests after World War II.

3.12 Differences between German and United States Forestry

The practice of forestry had to be adjusted when it was transplanted from Germany to the United States, due to the different forest and cultural context. Compared to the forests in Europe, the forests in the United States were more extensive and diverse, consisting of species and types of forests that German forestry did not have to reckon with. As such, it was difficult to implement the intensive forest management techniques that were common in Europe and foresters in the United States had to devise their own management plans for

[38] Pinchot's revision of his conception of forests and forestry in the fourth edition was facilitated by Robert P. Holdsworth, a member of the forestry faculty at Massachusetts State College in Amherst whom Pinchot hired to revise the text (Miller 1994).

their unique situation. Pinchot felt that German forestry was not a model for the United States because it was too pedantic, "too much striving for detailed perfection" (Pinchot [1947] 1998, 17). While German forestry operated in a state-oriented society, forestry in the United States had to negotiate democratic politics and stakeholder activism, which explained the muted career of the German-born Fernow in the United States.[39]

This difference in context between Germany and the United States resulted in the poor translation of some forestry techniques from the former to the latter. Recognizing the localized character of early silvicultural systems that were developed in Germany is important. Because Germany had a decentralized administration and legislation made up of several autonomous princely states, early silviculture and forestry in the eighteenth and nineteenth century consisted of a diverse set of techniques that were adapted to local conditions. The techniques were steeped in tradition and local knowledge, and worked well within the stable social and economic context out of which they emerged, characteristics that were lost when German forestry techniques were later translated into the English language for use in the United States (Behan 1975; Puettmann, Coates, and Messier 2009, 25–28, 53–54; Spurr 1956).

[39] As a German-born forester, Fernow was not accustomed to the democratic politics in the US, which he admitted himself (Sparhawk 1949, 708), and did not flourish as chief of Division of Forestry or as director of the New York State College of Forestry. He eventually became a professor at the University of Toronto in Canada. In defence of Fernow, Williams wrote: "But in justice to Fernow, while recognizing his limitations as a political activist and noting the prevailing political and social sentiments of the 1880s, one must conclude that he was no laggard in seeing the way ahead" (Williams 1989).

3.13 Paradigms of Forest Management after World War II

The evolution of forestry thinking in the Forest Service after World War II reflects the development of forestry and the concomitant social, economic, and political context in the country. A review of this evolution will allow us to better understand the driving forces and assumptions behind forestry in the US.[40]

3.13.1 1945 to 1960s: Production Forestry

The demand for matériel during World War II led to a higher rate of timber harvest from the national forests than had been the case during the 1930s. This higher rate continued after the war due to rising demand and the fact that private timber holdings were exhausted during the war (Hays 2009, 62–63). The rationale for the higher production was based on how much wood could be made available for harvest based on the latest management techniques such as fire suppression, pesticide use, superior seed stock, and

[40] This discussion of the different historical periods in forestry thinking and policy of the Forest Service is based on three references. Kennedy, Thomas, and Glueck (2001) categorized the evolving perceptions of management of U.S. public management into: the initial stage of forest harvesting and migration (1850–1900s); sustained-yield development and management (1900s–1950s); scientific, multiple-use forest management (1950–1980s); and ecosystem-based stewardship (1990–c.2001). Hays (2009) categorized the policy of the Forest Service into three periods: an initial focus on the silvicultural imperative (1891–1920); responding to the evolution of an agency clientele consisting of groups with different interests in the national forests (1920–1975); and confronting the ecological forest (1976–2005). MacCleery (2008) described the evolution of the Forest Service as one from custodial management (from 1905–1945), to production forestry (1945–1985), and finally to ecosystem management (1990s–present).

logging methods that maximized utilization and reduced waste. Sustained-yield production had given way to maximum production (Hirt 1994, 132–134).

During this period, the relationship between the Forest Service and the private forestry sector improved from its previous antagonistic state—Pinchot had considered "industrial forestry" with derision and called for public management of the industry's forests—due to their common goal of meeting robust timber demand. Besides this agreeable regulatory environment, the growth of "industrial forestry" also involved advances in the science and technology of tree growth and changes in forest technology and forest management aimed at reducing costs. This led to the dominance of clear-cutting and salvage harvesting following windthrows and epidemics (Bolle 1997; Hays 2009, 63–66). The significance of industrial forestry was how its focus on economical timber production led to the imposition of a simplified management regime on a complex ecological system (Hays 2009, 66; Scott 1998).

3.13.2 1960s to 1980s: Scientific, Multiple-Use Forestry

The 1950s and 1960s saw considerable growth in demand for non-timber uses, outputs, and values for national forests and other federal lands by an increasingly mobile and affluent population. This led to a series of legislative acts that had bearing on the Forest

Service's mandate and practices.[41] Other acts apply to the federal agencies in general.[42] These acts imposed significant burdens on the work of the Forest Service.

Given these new requirements and the demands of the citizenry to expand the range of national forest management objectives beyond fulfilling the traditional economic goals, the Forest Service sought to include aesthetic, recreational, and ecological considerations. In other words, foresters had to maintain an optimum mix of products and services that corresponded to a diverse set of values. This change reflected the declining share of agriculture in the American economy as well as the needs and values of an increasingly urbanized population. The role of foresters had changed from one of a technocratic, benign, and potent custodian to a facilitator and collaborator working in partnership with stakeholders and other professionals to resolve conflicts and achieve new objectives (Behan 1990; Kennedy, Dombeck, and Koch 1998; Kennedy, Thomas, and Glueck 2001; Koch and Kennedy 1991). The greatest good was now expressed, not merely in terms of the use of

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[41] The Multiple Use-Sustained Yield Act of 1960 gave the agency permission and discretionary authority to manage the national forests "for outdoor recreation, range, timber, watershed, and wildlife and fish purposes." Two acts were passed in the 1970s that required the Forest Service to plan and include stakeholder participation in decision-making: the Forest and Rangelands Renewable Resources Planning Act of 1974 and the National Forest Management Act of 1976.

[42] The Wilderness Act of 1964 provided for the designation of significant areas of federal lands that were considered to be "wilderness," thereby subsuming the wilderness area in the national forests that were previously protected by administrative orders. The National Environmental Policy Act of 1970 required federal agencies to evaluate the environmental impact, evaluate alternatives and allow for public comment when proposing actions. The Endangered Species Act of 1973 prohibited federal agencies from carrying out actions that might adversely affect species that were listed as threatened or endangered and required agencies to protect the species' habitat.

tangible forest products, but also in terms of intangible values (Dunsky, Dunsky, and Steinke 2005; Lewis 2005).

3.13.3 1980s to 2007: Ecosystem-Based Management

Through the 1980s, the increasing role of ecological science and the ecosystem concept had a profound impact on forest management in the United States. The increasing awareness of ecology—"the branch of science concerned with the interrelationships of organisms with each other and with their environment" (Levin 2009)—in academia and public consciousness resulted in calls by civic groups to manage the national forests along ecological principles (Hays 2007). Scientists had also investigated the ecological characteristics of old-growth forests (Franklin et al. 1981) and would eventually call for a new paradigm in forestry, naming it "new forestry" (Franklin 1989; Gillis 1990; Swanson and Franklin 1992) and later "ecological forestry" (Franklin, Mitchell, and Palik 2007; Seymour and Hunter 1999), which I discuss later in section 3.16.1.

This shift in forest management was driven by the increasing use of a new important concept in ecology—that of the ecosystem.[43] The ecosystem is "a natural unit consisting of

[43] The term "ecosystem" was coined by Arthur Roy Clapham (1904–1990) after he was asked by Arthur Tansley (1871–1955) for a suitable word to describe the "biological and physical components of an environment in relation to each other as a unit" (Willis 1994). Tansley introduced the term to academia in a seminal paper (Tansley 1935) where he discussed the main concepts then current in ecology and some of the competing synonyms which ecosystem eventually supplanted (e.g., biotic community, complex organism). That other competing synonyms were also suggested at that time reflects the need of a concept of delineating a portion of the environment as a unit for study. However the term "ecosystem" did not gain much traction until 1942, when the concept was applied with a focus on an ecosystem's trophic dynamics. Raymond Lindeman presented his analysis of the energy cycle of

all the plants, animals, and microorganisms (biotic) factors in a given area, interacting with all of the nonliving physical and chemical (abiotic) factors of this environment" (Levin 2009). Although the scale of ecosystems is variable, the term often refers to a landscape-scale system that is characterized by one or more community types, e.g., forest ecosystem (Levin 2009). The ecosystem concept focuses attention on both the organisms (including humans) and physical factors of an area; the inclusion of the latter led observers to study the ecology of the ecosystem as a system.

In 1992 the chief of the Forest Service, Dale Robertson, officially announced the adoption of ecosystem management as the paradigm for managing the national forests (Berlyn and Ashton 1997; Robertson 1992). A key pragmatic expression of this new phase in forest management was the curtailment of indiscriminate clear-cutting in the national forests (MacCleery 2008).

3.13.4 2007 to present: Ecological Restoration

Dale Bosworth, a former chief of the Forest Service, and Hutch Brown, a policy analyst of the Service, announced in 2007 that the Forest Service is focusing on ecological restoration. This focus is in response to public expectations on the national forests, such as clean water, wilderness, habitat for wildlife, and opportunities for outdoor recreation (Bosworth and Brown 2007).

Cedar Bog Lake in Minnesota in his article, "The Trophic-Dynamic Aspect of Ecology" (Lindeman 1942). His ground-breaking work on trophic dynamics helped establish the concept of ecosystem in ecology and marked the advent of ecosystem ecology (Cook 1977; McIntosh 1985, 196–198; Worster 1994, 306–311). The ecosystem concept was given a further boost when Eugene Odum organized his influential 1953 textbook *Fundamentals of Ecology* around ecosystems and their structures and functions.

A recent major development in natural resource management is managing for ecosystem services, particularly through monetization and commodification of the services (Gómez-Baggethun et al. 2010; Norgaard 2010). This management paradigm reflects the managerial concept of an economic self and adhere more closely to neoclassical economics than ecology.

3.14 Textbook Survey

An important source for discerning the concept of self is the corpus of forestry textbooks that was written for the United States context. While textbooks do not reflect the practice of forestry, they reflect the thinking of forestry. As such, a survey of ten textbooks was conducted to discern the concept of the self in forestry. The years of publication of the textbooks span from the 1910s to the early 2000s. The titles were chosen based on research at the library of Yale University and from references in literature. Key information, definitions, and notable quotes of each title are presented in Table 1. The earlier titles possessed an enthusiastic tone which reflected the newness of forestry and the role of wood as an important resource in American society. Admittedly, none of the textbooks explicitly discussed the concept of the self, which is unsurprising since it is not their concern. However, my analysis of their contents will allow us to gain some insight into their implicit concept of the self.

3.14.1 Definition and Description of Forestry and/or Silviculture

The textbooks defined forestry and silviculture as the production and management of a forest for human objectives, usually those of the owner, though some allow for non-economic objectives such as for aesthetic purposes or for a game preserve (Recknagel and Bentley 1919, 135). Such declarations reflect the private property regime that underpin

forestry in particular and modern Western society in general. The method for realising these goals are scientific and are, at the same time, constrained by economic conditions. Chapman (1931) emphasized the business and economic aspect of forestry and spoke in terms of "economic forestry" or "commercial forestry" (45). In the case of Meyer, Recknagel, and Stevenson (1952), the purpose of forest management is cast in the economic terms of capital and interest: "the chief task of forest regulation is to safeguard the necessary working capital, allowing only the interest or current growth of this capital to be harvested annually or periodically" (93).

While the definition of forestry was described mostly through biological sciences (and later ecology) and economics, Smith et al. (1997) noted that "silviculture is a kind of process engineering or forest architecture aimed at creating structures or developmental sequences that will serve the intended purposes, be in harmony with the environment, and withstand the loads imposed by environmental influences" (5). In the earlier textbooks it is common to treat forest as a "crop," and Hawley (1935) compared silviculture to agriculture. Most textbooks recognize that forestry is both an art and a science, though it is more common for the earlier textbooks to describe the applied component as the "arts" of forestry.

In general, multi-authored textbooks that are relatively recent tended to be circumspect, eschew any pretence to having total knowledge of the forest, and affirm the nuances and contingency of forestry practice (Smith et al. 1997; Young and Giese 2003). As Smith et al. (1997, 4) noted, "skill practice itself is a continuing, informal kind of research in which understanding is sought, new ideas are applied, and old ideas are tested for validity." As always, there are exceptions. Some of the earlier textbooks pointed out how the practice of forestry is contingent on local factors and that forestry is both an art and a science, and

thus requiring improvisation. On the other hand, Nyland (2001) treated silviculture as an "orderly discipline" and as problem solving.

3.14.2 Ecological Paradigm

The early textbooks emphasized regulation of the forest through the normal forest system (Meyer, Recknagel, and Stevenson 1952; Recknagel and Bentley 1919) and relied on the concept of vegetation succession of Frederic Clements (1874–1945) and Henry Gleason (1882–1975) (Toumey and Korstian 1947). Since the field of ecology did not gain traction in academia until the late 1930s, most of the textbooks before that period did not mention the term. When ecology did appear, it was understood through familiar terms: Guise (1939) noted that forest ecology and silvics were synonymous and recognized the relationship to zoology for wildlife management.

More recent textbooks appreciate the complexity of ecology of forests. Smith et al. (1997) called for adaptive management and recognized the need to avoid strict intensive artificial management of forests. Nyland (2001) recognized the changing context and paradigms of forestry and acknowledged the ethics of conservation and resource use. Young and Giese (2003) relied on forest ecosystem management.

3.14.3 Paradigm of Natural Resource Management

Since forestry was an inchoate field at the beginning, the earlier textbooks stressed the importance of managing forests for the sake of securing a perpetual stream of forest values. The emphasis was the intensive management of forests in order to control and regulate them—wild forests were considered to be amenable to regulation (Chapman 1931, 435). A second emphasis was the need to ensure that forest management represented sound

economics. Hence, intensive management practices were prescribed only when it was economically feasible.

All the textbooks interpreted forestry and silviculture through the paradigm of natural resource management, reflecting the "command-and-control" mentality as pointed out by Holling and Meffe (1996). However, not all textbooks display an assertive anthropocentric attitude. Some of the later textbooks were written in a more circumspect tone, reflecting the benefit of hindsight and recognition of how other forces, such as economic or social forces, might be at play. For example, Young and Giese (2003) noted that "as a society, we are now more concerned with ecosystem management and resource planning, which must deal with issues relating to diversity and biological conservation, wilderness, endangered species and the right of the people to influence the direction of resource management" (38). As noted by Langston (1995) earlier, the adoption of ecology or ecosystem management does not necessarily preclude a management philosophy of control. While Nyland (2001) adopted the ecosystem management paradigm, he displayed optimism in the ability of humans to successfully manipulate the forest ecosystem. On the other hand, the most recent title, *Forest Ecosystem Science and Management* by Young and Giese (2003), was written as an edited volume and, as a result, the book was able to reflect the complexities of the field.

In sum, the textbooks surveyed here reflected a diverse set of understandings regarding forests and forestry. All the textbooks discuss forest management for the sake of human interest, though some acknowledged the diversity of human interests and recognized non-economic interests as well. Nevertheless, the objectives in forestry are *pursued* through the rational method of science and economics. Seen from this perspective, the textbooks

assumed that humans interact with forests and the rest of nature primarily through science and economics, a result of the modern societal context in which forestry is practised. And since the textbooks did not explicitly consider the concept of the human self, they did not propose the concept as a locus of management and change. The more recent textbooks did recognize that forestry need to adapt to changing social expectations.

There is also a range of views on the ability of humans to manage forests, from the highly optimistic and managerial position to a consideration of silviculture as guiding natural processes "to produce forests that are more useful than those of nature" (Smith et al. 1997, 5). It seems unavoidable that humans would always discuss forests, or other entities that are deemed to be "natural resources," in reference to their needs and interests.

Table 1: Key information from textbook survey

Year	Title	Author (and Affiliation)	Definition of Forestry/Silviculture	Notable Quotes	Ecological and management principles	Remarks
1919	*Forest Management*	Arthur Bernhard Recknagel; John Bentley, Jr. (Cornell University)	"The science and art of managing forests for forest purposes" [Society of American Forester's definition]	p.iii: "It is the earnest hope of the authors that this humble contribution...may stimulate the practice of forest management by owners of timberland—large and small, public and private—to the end that this important natural resource may be systematically maintained and developed."	Uses concept of normal forest, a standardized model of forest, where ideal state is normal age-class distribution resulting in sustained yield. p.135: "Objects of Management.—At the working-plan conference the objects for which the forest is to be managed must be decided, i.e., whether: (a) For sustained yield. (b) For exploitation. (c) For protection (watershed protection). (d) For aesthetic purposes. (e) For a game preserve, or how far each or all of these or any other consideration is to govern."	Highly technical and managerial.

1931	*Forest Management*	Herman H. Chapman (Yale School of Forestry)	"It is the purpose of this text to bring out the economic and business problems presented in the management of forests on the basis of production of wood for use in industry...Fundamentally, forest production must be conducted according to the same principles which apply to all forms of business enterprise." (p.9) “Forestry treats of the relations of forests to human welfare. It constitutes the science and art of controlling, protecting, producing and utilizing forests in order to realize the largest possible human benefits from their existence and use." (p.19)	"The future of the economic life of the United States is dependent upon the wise use of all of her natural resources. No renewable resource can be wasted or neglected without permanent injury to the economic structure. The rehabilitation of the forest resources must come about through the operation of economic forces." (p.8) "Definition of Economic Forestry - Economic or commercial forestry deals with the production of forest trees as crops yielding wood and by-products as raw materials destined for human use. The objectives of economic forestry require cutting or harvesting the trees, giving rise to the industry of logging or lumbering." (p.45)	Considers forests and trees as crops. "Land which does not yield products or use of value in any of the above lines is classed as waste or barren. It is the purpose of forest management to develop each and all of the possible uses of a tract of forest land in such a way that the greatest sum of utility is obtained and the greatest total profit or benefit received." (p.168) Wild forests can be regulated (p.435). Cites John Dewey's *The Quest for* Certainty (p.143).	Optimistic about humans' ability to manipulate forests as a crop. Emphasizes efficiency, planning, certainty, systematic planning and organization.

1935	*The Practice of Silviculture with Particular Reference to Its Application in the United States of America* (3rd ed.)	Ralph C. Hawley (Yale School of Forestry)	p.4: " The purpose of silviculture is the production and maintenance of such a forest as shall best fulfill the objects of the owner...The commonest object...is the production of wood crops to secure the highest returns, financially, in a given time. Protection of water sheds and lands adjacent to the forest, conservation of wild life or development of the best esthetic effects are other objects which may be of primary importance with certain owners. This book treats primarily of the production of wood crops."	“Silviculture today is actually practiced on only a fraction of the forest area, but its application must be extended over all lands where wood crops are to be grown. Business conditions control the practice of silviculture as in a similar way they do the practice of agricultural science on farm lands...The unmanaged or mismanaged forests, like poorly cared-for farm lands, do not produce forest products of the kind, in the amount, or of the value which might be grown. Silviculture, by properly tending the wild forest and establishing new forests on open areas, increases productivity.” (p.2)	Treats forest as a crop, comparing it to agriculture. Abhors fire, prescribes slash disposal.	Provides a general overview of common silvicultural methods.

1939	*The Management of Farm Woodlands*	Cedric H. Guise (New York State College of Agriculture)	“The basic problems of farm forestry are therefore those of recognizing the farm woods as an agricultural crop, restoring it to productive condition, and managing it intensively for a continuous supply of timber or for its other beneficial values.” (p.15) “Forestry is the art of establishing, managing, and utilizing woodlands. It deals with wooded areas of every size, age, and condition of growth. Whether woodlands are grown for a supply of timber or other useful products, for the encouragement of wild life, for the prevention of soil erosion, or for recreational benefits, it is only through the application of forestry that effective results will be obtained.” (p.19)	Comparing forestry to agriculture: “Forestry has many features of similarity with agriculture....the forest...should be managed in a way so that it too will yield its annual crop of wood or wild life.” (p.19) "The art of forestry is built upon a foundation of biological science, economics, and engineering." (p.35) “The ideal farm woods is one in which the soil is completely utilized with stands of well-formed, thrifty, and valuable species. Trees should be spaced with reasonable uniformity and should be of varied sizes and kinds. Crowns should be normal in shape and size.” (p.37) “Policies of Control.--- To improve, sustain, and handle the property in accordance with sound business procedure should be the fundamental policy governing the management of farm woodlands.” (p.308)	Recognizes the relationship to zoology for wildlife management. Considers forest ecology and silvics synonymous.	Basic, clear writing, straight-forward for application.

1947	*Foundations of Silviculture upon an Ecological Basis* (2nd ed., revised)	James W. Toumey (Yale School of Forestry); Clarence F. Korstian (Duke University)	p.1: “Silviculture is that branch of forestry which deals with the establishment, development, care, and reproduction of stands of timber. Its aim is the continuous production of wood.” p.2: “The practice of silviculture deals with the various methods of raising and caring for forest crops.”	“A natural, unmanaged wild forest, in all stages of its development from a denuded area to one covered with climax vegetation, is the field where the underlying silvical principles that determine sound silvicultural practice must be discovered.” (p.3) "...valid economic principles and basic silvical principles must be coordinated in a silvicultural practice that is both biologically and economically sound." (p.4) “Nature scatters seeds of the various species without vision. For example, she often brings ash seed to soil silviculturally hostile to ash.” (p.5) Recognizes the favorable effect of forests on tranquility of mind and considers aesthetic as a potential growing branch of forestry. (p.236)	Climax succession	While aware of the various ecological factors affecting growth of forests, uses these factors to help achieve human goals, while preserving these same factors, e.g., soil condition.

1949	*Applied Silviculture in the United States* (2nd ed.)	Ruthford Henry Westveld (Dept of Forestry, University of Missouri)	Did not provide any definition but delves directly into forest management for commercially valuable species.	Mentioned the potential of applying the pesticide DDT in combating insect damage. (p.27)	For each region, discusses the ecological and economic basis of forest management.	Discusses management of forests of each region with business efficiency.

1952	*Forest Management*	Hans Arthur Meyer (The Pennsylvania State College); Arthur B. Recknagel (St. Regis Paper Company); Donald D. Stevenson (Office of Foreign Agricultural Relations, US Dept of Agriculture)	p.5: “Forest management as a technical subject of instruction deals with the organized application of silviculture, protection, engineering, logging, and other technical fields of forestry to a particular tract or group of tracts of forest land. To secure and to assure uninterrupted annual or periodic yields from a forest is one of the chief tasks of forest management.” p.92: “The regulation of the future cut of a forest is perhaps the most important objective of a forest management plan. Three different tasks or problems of forest regulation may be conveniently distinguished, namely: a) Determination of amount of allowable cut. b) Distribution of allowable cut by blocks and compartments. c) Determination of the time when cut is to be made in each block or compartment. In other words, the forester must determine how much to cut, where to cut, and when to cut.”	“The chief task of forest regulation is to safeguard the necessary working capital, allowing only the interest or current growth of this capital to be harvested annually or periodically.” (p.93) “The actual determination of the most suitable rotation for a given forest, or working group of a forest, must take into account all the economic, technical, and silvicultural factors discussed above.” (p.103)	Regulation of forest for the sake of sustained yield accomplished through the normal forest system.	Deals with aspects of forest management. Focuses on management plans at the end. Recognizes that economic conditions determine how intensive forest management can be.

1997	*The Practice of Silviculture: Applied Forest Ecology* (9th ed.)	David M. Smith (Yale); Bruce C. Larson (Yale); Matthew J. Kelty (University of Massachusetts); P. Mark S. Ashton (Yale)	"Silviculture has been variously defined as the art of producing and tending a forest; the application of knowledge of silvics in the treatment of a forest; or the theory and practice of controlling forest establishment, composition, structure, and growth. Since silvicultural practice is applied forest ecology, it is also a major part of the biological technology that carries ecosystem management into action." (p.3) "Silviculture is a kind of process engineering or forest architecture aimed at creating structures or developmental sequences that will serve the intended purposes, be in harmony with the environment, and withstand the loads imposed by environmental influences." (p.5)	"In silviculture, natural processes are deliberately guided to produce forests that are more useful than those of nature." (p.5)	Recognizes ecological principles, and avoids strict intensive artificial management of forests. Nevertheless, attempts to control forest ecosystems within the bounds of natural processes and direct them towards human values. Recognizes need to close ecological cycles within distances that are not needlessly large. Calls for adaptive management (p.10). Cautious about ecosystem management (p.39).	Rigorous, clear-headed approach to silviculture.

2001	*Silviculture: Concepts and Applications*	Ralph D. Nyland (State University of New York College of Environmental Science and Forestry)	p.1: "Forestry involves the science, business, art, and practice of purposefully organizing, managing, and using forests and their resources to benefit people. Silviculture deals with the methods for establishing and maintaining healthy communities of trees and other vegetation that have value for people. These include benefits derived either directly or indirectly from the trees themselves, other plants, water, wildlife, and minerals found in forested areas---and also a host of intangible benefits that people realize through recreation and other non-commodity uses. Silviculture also ensures the long-term continuity of essential ecologic functions and the health and productivity of managed forested ecosystems. It is fundamental to sustainable forestry."	First chapter is titled "Silviculture as an Orderly Discipline" and treats silviculture as problem solving (p.13).	Recognizes changing context of forestry, philosophy of multiple-use management (from late 1950s into the 1990s), ecosystem management, and the ethics of conservation and resource use.	Assumes a confidence in the ability of humans to control forest dynamics.

2003	*Introduction to Forest Ecosystem Science and Management*	Raymond A. Young (editor) Ronald L. Giese (editor)	"The science of forestry is a complex amalgamation of the biological, physical, managerial, social, and political sciences... An edited book on forestry is thus the best method for conveying the science of forestry in one text." (p.v) "We can now define forestry as the art, science, and practice of managing the natural resources that occur on and in association with forestland for human benefit. This definition necessitates that the forest manager consider not only the trees in the [p.2] forest, but also such things as protecting wildlife and preserving water systems for drinking and aquatic life. Foresters are often involved with the control of fire, insect pests, and diseases in the forest, and they can also assume the broad role of protecting the forest environment. The forester is a land manager responsible for all the goods, benefits, and services that flow from the forest." (p.1)	"The net result of these changes has been to create an institutional setting for forestry that is very different and more complex than ever before. As a society, we are now more concerned with ecosystem management and resource planning, which must deal with issues relating to diversity and biological conservation, wilderness, endangered species and the right of the people to influence the direction of resource management. Modern foresters [p.39] are challenged, interested, and motivated by the complexities of their profession in a milieu of biological, quantitative and social sciences." (pp.38-39)	Forest ecosystem management	Book is designed as an advanced beginner text. Interestingly enough, in chapter 2 on forestry as a profession and career, ethics ranked high among competencies employers expect to be achieved at the undergraduate level (p.49). Because it is an edited volume, it was able to include a wide range of topics. However, the chapters on forest management still follow a natural resource management paradigm.

3.15 The Foundational Concept of the Self in United States Forestry

The concept of the self that is implied during the founding of forestry in the United States is manifested through the thinking that went into its founding, including the conceived role of forestry in society. It is the product of Western concepts of the self and environment, the proximate source of which is the Enlightenment movement in Europe. The modern Western concept of the self that emerged from the Enlightenment is one that is individualistic and autonomous as well as existing in a dualistic relationship with the environment. The environment is considered to be a realm meant for human dominion for the sake of human progress, which is achieved through science, market-based economics, and democratic politics.

The founding of forestry in the United States that replaced the wasteful and short-term exploitation of forests reflected these ideals. The early American foresters focused on imposing sovereignty, order, and efficiency in the utilization of the national forests through scientific and economic management of the forests while operating within the democratic politics of the nation. The creation of the forest reserves, later renamed the national forests, represented an assertion of state sovereignty over the forests. The federal government came to possess *de jure* authority over the national forests, and this was manifested on the ground by the agency of field employees of the Forest Service. This state sovereignty was used to bring economic order and efficiency to the forests, both in terms of their growth and use. The sustained-yield doctrine sought to convert the old-growth forests to regulated forests that yielded higher growth rates. The educated foresters during the 1920s and early 1930 embodied order as they established a federal presence in the wilderness.

After World War II, ecological understanding of forests and American society's demands on national forests became more sophisticated while the economic imperative

remained unchanged, prompting foresters and related professionals to rethink forestry. Whatever ends one conceives for forestry, even non-economic ones such as habitat for wildlife and aesthetic value, the means are still practised primarily through science and economics.

How would the concept of the self during the founding of United States forestry be described according to Seigel's typology of the self? In reference to the bodily dimension of the self, the traditional purpose of forestry is to meet the needs of our embodied selves by providing us with material and ecosystem functions for sustenance. Our bodies' needs and urges drive the demand for forest products and functions, and hence for the practice of forestry. The practice of forestry recognizes that the environment is essential to the constitution of our bodily selves to the extent that it provides us with food and water. However, this recognition should not be over-exaggerated, since economics plays an important role in the practice of forestry.

In terms of the relational dimensions, the assumed relationship of the self to the forest was one of stewardship by utilitarian conservation. Foresters considered forests to be for the use of humans, though the meaning of "use" quickly expanded to include non-extractive uses such as recreation and wilderness preservation, with Aldo Leopold being one of the first advocates (Leopold 1925). Foresters implemented the stewardship of the forests for human material use through sovereignty, order, and efficiency. Ecological understanding of the land had not matured before World War II, and did not influence forestry practice until after the war, when ecological issues such as the preservation of biodiversity gained public attention. The relationship between the self and the forests and the environment in general was defined in terms of science and economics.

In terms of the reflective dimension, the self that is conceived of during the founding of United States forestry is one that possessed no inhibition to utilizing the environment for human ends. In this concept of the self, the forests were considered to be an economic resource, to be "used, though not used up" (Pinchot 1907, 17) for the sake of the economic development of the country. Foresters were to achieve this goal through the ideals of sovereignty, order, and efficiency, as well as by striking a balance between the present and the future, through the assumption of appropriate growth and interest rates, as well as between the public and the private interest. The concept of the self is conceived through economics and utilitarian philosophy, and expressed through a vision for progress in society through the Bentham/Pinchot maxim of "the greatest good of the greatest number in the long run." Conservation called for one's self to exercise "foresight, prudence, thrift, and intelligence" in public and private affairs (Pinchot 1910, 48), signifying a break from the haphazard practices of the past.

McQuillan (1993) traced the characteristics of traditional utilitarian thinking in United States forestry that favours the regulated forests over the natural forests, including old-growth forests, back to three different thought sources. First, McQuillan described the action of forestry as possessing a "gardeners ethic," where foresters engage in stewardship and virtuous toil over neat rows of forest crop (195). Second, while Pinchot's "greatest good" doctrine has been often traced to the utilitarian thinking of Bentham and John Stuart Mill (1806–1873), in which human action is determined based on the hedonistic principle of maximizing pleasure and minimizing pain, McQuillan described traditional forestry as a form of Stoic utilitarianism, where maximized utility production is cast as a means to meet need-based concerns through duty-oriented labouring. According to McQuillan, this thinking is based on the glorification of labour and repudiation of idleness that emerged

from Protestant thinking and had characterized Western life since before the Enlightenment. Finally, McQuillan suggested that traditional utilitarian forestry was characterized by the enthusiastic pursuit of positive science, where science was viewed as self-justifying. Positivist forestry science coincided with the glorification of labour and the pursuit of utilitarian ends, thus further compelling foresters to intervene substantially in the forests.

The characteristics of the modern Western concept of self that were mentioned in Chapter 1 were reflected in the founding of United States forestry: a dualism between the human mind and the environment, including the human body; a sense of sovereignty of the self over nature; and a focus on self-interest. The developments in and antagonism surrounding forestry after World War II resulted from an increasingly complex understanding of forest ecology and of human interest in forests. Since the 1990s, management of the national forests has shifted towards a more ecological practice and deemphasized timber production, as exemplified by the recent shift in Forest Service thinking towards ecological restoration (Bosworth and Brown 2007).

3.16 New Paradigms of Forestry

Besides the ecological restoration paradigm that is adopted by the Forest Service, there have been other developments in forestry. In this section, I discuss ecological forestry, which first began as "new forestry," and the paradigm of treating forests as complex adaptive systems. I also discuss Maser (2005) and Zeide's (2008) suggestions on forest management.

3.16.1 Ecological Forestry

"New forestry" surfaced during the late eighties and called for the preservation of structural and composition elements of harvested stands in order to maintain the complex conditions that are required for sustaining biodiversity and maintaining ecosystem functioning (Franklin 1989; Franklin et al. 2000). New forestry signified a break from traditional forestry and generated considerable amount of interest in the academic community, due in part to increased public interest in old-growth forests and forestry practice in the Pacific Northwest (Hays 2007; Spies and Duncan 2009).

Ecological forestry emerged during the nineties (Seymour and Hunter 1999; Seymour, White, and deMaynadier 2002) and gradually replaced new forestry after 2000. Ecological forestry can be defined as "a strategy for forest management, which attempts to model anthropogenic activities in forests on historic non-anthropogenic patterns of succession and disturbance in order to meet multiple social and ecological objectives" (Batavia 2015, 5). In a way, ecological forestry is a renamed version of new forestry that elaborates on the silvicultural methods advanced rudimentarily in the new forestry literature (Batavia 2015, 16, 18).

Batavia (2015, 2) argued that ecological forestry "fails to coalesce into a discrete philosophy of forest management due to persistent metaphysical, normative, and ethical ambiguities, which allow for problematic philosophical and practical inconsistencies." For example, the ecological forest paradigm posits a dualism between humans and nature. Further, practitioners tended to underestimate the need for a normative decision framework when deciding how to emulate nature, such as deciding which of nature's processes emulate. Due to such ambiguities, ecological forestry lacks a clear

ethical consideration, which allows for a range of different and potentially incommensurable actions to be pursued (Batavia 2015).

3.16.2 Forests as Complex Adaptive Systems

The growth of ecology through the twentieth century coincided with the emergence of a range of fields of study. These fields acknowledged the intrinsic complexity and probabilistic nature of physical phenomena, which led to a growing recognition of the science of complexity (Waldrop 1992).[44] With the rise of the ecosystem concept during the 1980s, it became clear that ecosystems could be considered as complex adaptive systems (Levin 1998, 2005).

Complex adaptive systems are systems that are "characterized by individuality and diversity of components, localized interactions between those components, and an autonomous process that selects a subset for replication and enhancement from among components, based on the results of local interactions" (Levin 2009). The characteristics of a complex adaptive system are often described in terms of processes and probabilities. For example, an ecosystem is an assemblage of life forms, geological features, and climate factors, drawn together by biogeochemical and physical processes. This is in contrast to the

[44] Similar developments include the emergence of cybernetics (Wiener 1965), information theory (Shannon and Weaver 1949), operations research (Williams 1968), game theory (Von Neumann and Morgenstern 1953), and computer science during and after World War II, which led to growth in the field of systems thinking (Lilienfeld 1978). Jay Forrester's research on systems dynamics using computers made possible the modelling work on the limits of growth by Meadows et al. (1972) (Forrester 2007). Ilya Prigogine's work on thermodynamics provided insights into the energetic foundation of life (Prigogine 1968).

deterministic Newtonian worldview where the state of an object in the past and future could be determined based on information of its current state.

Although the concept of complexity attracted the attention of researchers at the close of the twentieth century, it is important to recognise that complexity is not a new phenomenon in the biophysical environment. Indeed, it could be argued that this recent recognition of complexity in the forests reflects the limitations of the Newtonian, mechanistic world-view in explaining biophysical phenomena. The emergence of the field of ecology has led to a shift away from this world-view. Indeed, the recognition of ecosystems as complex adaptive systems encouraged scientists to understand the principles that underlie complex phenomena, which links the analytic scientific method to the immediacy of human experience.

With the recognition of ecosystems as complex adaptive systems comes the inconvenient implication that the conventional top-down, "command-and-control" approach to natural resource management had been undermining the resilience of the natural resources (Holling and Meffe 1996). In particular, it is increasingly becoming accepted that forests are complex adaptive systems (Parrott and Lange 2013); whether a homogenous, intensively managed, mono-specific tree plantation or an uneven-aged forest, both possess characteristics of a complex adaptive system (Puettmann, Coates, and Messier 2009, 112). The intuitive response here for forest managers is to treat forests as complex adaptive systems and attempt to manage them accordingly (Campbell et al. 2009; Messier, Puettmann, and Coates 2013; Puettmann, Coates, and Messier 2009). An important objective in managing ecosystems in the face of global environmental change is maintaining its resilience, defined as "the ability of an ecosystem to recover from or resist disturbances

and perturbation, so that the key components and processes of the system remain the same" (Levin 2009).

However, the field of silviculture, which dates back to the mid-eighteenth century, was developed with the aim of controlling the "establishment, composition, structure, growth, and role of trees within managed forests" (Puettmann, Coates, and Messier 2009, 41–42). The focus of silvicultural practices was very much on effecting the predictable and efficient production of wood, and reflected the social and political circumstances and the Newtonian, mechanistic world-view from which it emerged (Puettmann, Coates, and Messier 2009).

In recognition of the complex character of forests, the goal of forest management activities has begun to shift from a focus on efficient production of human-desired goods and services to one on maintaining the adaptability and resilience of the forest ecosystems. Specifically, for silviculturists, the objective of managing forests as complex adaptive systems is to manage for "a prescribed envelope of possible future conditions for each stand," instead of one particular outcome (Puettmann, Coates, and Messier 2009, 126). Traditional silviculture has been concerned with managing for a combination of objectives in the forests, such as timber, watershed protection, or wildlife. The goal for managing forests as complex adaptive systems is to maintain a forest ecosystem in a way that facilitates the ecosystem's ability to adapt to variability in the global environment and consequently increase its ability to continually provide ecosystem goods and services, although possibly at a lower rate (Puettmann 2011). Managing forests as complex adaptive systems is still a largely theoretical concept, although research on turning it into practice has begun (Messier, Puettmann, and Coates 2013).

Conceiving forests as complex adaptive systems not only forces us to rethink the concept of forest management, but also forces us to consider even whether the term "manage" is the correct verb to use. The term suggests that human intervention possesses a level of efficacy and mastery in manipulating an object, which is not entirely accurate in the case of complex adaptive systems. From the perspective of the paradigm of complex adaptive systems, the command-and-control approach to manipulating the biophysical environment for human ends comes across as somewhat clumsy and maladaptive. Above all, the paradigm of complex adaptive system suggests that the command-and-control approach assumes too much certainty and confidence in its methods. A more accurate way to describe the human influence on complex adaptive system would be "tinker" or simply "respond."

At a broader level, Chris Maser (2005) suggested that we manage the public forests of the United States through the paradigm of caretaking the forests as a biological living trust. The focus here is on leaving a forest legacy. In caretaking the forests, he proposed that we: learn to be humble and learn from nature; study the processes of nature; grow beyond the limited perspective of our own interests; and work together for a common goal, a sustainable forest for a sustainable environment and society (235). Maser also contended that "leisure is a prerequisite for the proper caretaking of the public forests" (234), by which he meant that Americans balance leisure with work, as well as approach their work with ease and leisure and giving each task the time it deserves. Further, he noted that incorporating leisure into our lives to manage forests as a biological living trust requires "self-mastery" (235).

Boris Zeide (2008) called for a level-headed and realistic approach to forest management, and called attention to society's reliance on monocultures, such as in agriculture. He advocated the use of zoning and intensive management of monocultural

plantations, noting that plantation management on less than 10 percent of the world's forest area could provide a supply adequate to meet major timber and fibre needs (Sedjo and Botkin 1997). This intensive management would thus relieve harvesting pressure on the rest of the forest area. However, this "land-sparing" intensive forest management may fall prey to the Jevons paradox, where increased demand for forest products outstrips improved efficiency in production.

These recent developments in forestry thinking represent an advancement from traditional forestry thinking. However, concomitant changes in our concept of the self is necessary for any revised version of forestry to achieve enduring and meaningful changes, as suggested by Batavia's critique of ecological forestry and implied by the paradigm of managing forests as complex adaptive systems. Maser's observation on the need for us to achieve self-mastery to incorporate leisure into our lives and manage forests as a living biological trust is particularly insightful.

At the end of his book on the history of wood, forest historian Joachim Radkau articulated the futility of trying to reconcile sharply conflicting social interests in forestry, and of manipulating complex forest ecosystems to pursue purely economic objectives (2012, 326). Pointing out that real organic growth occurs in the forests before our eyes, Radkau noted that "on a wide historical horizon, the forest and wood open our eyes to opportunities that culture and nature have to evolve together" (2012, 326). In the next two chapters on Aldo Leopold and the *Zhuangzi*, I begin this important work by discussing possible ways of re-conceptualizing the self.

Chapter 4: Aldo Leopold

4.1 Introduction

The writings of American conservationist Aldo Leopold are a milestone in the discourse on the relationship between humans and the environment. His work is relevant to our present discourse on rethinking forestry because he was grappling with the same issue as we are now: a profound deterioration of the environment as a result of an economics that emphasizes economic growth, a materialist consumer culture, technological advances that increase the impact of humans on the environment, and a general environmental attitude in society that commodifies the environment for human use.

Leopold encountered an array of conservation issues during his career, such as game and wildlife management, watershed protection, soil erosion, and outdoor recreation. These issues, set against a background of rapid social and economic transformation beginning in the 1910s, through the Great Depression and the Dust Bowl of the 1930s, and finally the catastrophic World War II and subsequent demobilization of the 1940s, prompted Leopold to reflect upon the nature of the relationship between humans and the environment. After decades of promoting conservation within the existing economic system, he eventually turned his mind toward challenging the underlying assumption of society on the role of human beings in the environment and developing the concepts of land health and a "land ethic." His ideas on the human-land relationship shine some light on how forestry can evolve into a less anthropocentric practice.

Leopold's writings were tinged with a sense of grim foreboding and caution that reflect his stark and critical appraisal of the prospects of human society in its current mode of consciousness. He laboured to effect change through his writings, research, teaching, and

involvement in conservation organizations while being realistic about the chances of improving the situation. Towards the end of his life he wrote,"[t]hat the situation is hopeless should not prevent us from doing our best" (quoted in Meine 2010, 478). According to his graduate student and later assistant Robert McCabe (1987), he possessed a good deal of faith in humanity, which probably explains his industry.

While Leopold was ahead of his time in his thinking on the need for ecology and land health to inform the human-environment relationship, his thinking was also a product of his time. As a result, some aspects of his thinking can come across as parochial to our present-day sensibility. I will raise critical views of his ideas as they appear in the chapter.

In this chapter I discuss Leopold's concept of self by focusing on his last decade of writings on conservation, in particular his consideration of the presence of plants and consciousness in animals, as well as his ideas of cultivating land health, a land ethic, and an aesthetic sense of the land. I begin with a brief biography of Leopold in order to provide a sense of the important influences early in his life and his personal characteristics. Next, I review literature on Leopold's writing and briefly discuss the development of his ecological thinking and his attempts to rethink economics. Finally, I discuss his ideas as articulated in *A Sand County Almanac*, taking into account all three parts of the book.

4.2 Biographical Background

4.2.1 Family Upbringing

Aldo Leopold was born in 1887 and raised in a comfortable, middle-class social environment in Burlington, Iowa. His father, Carl Leopold, ran a successful office furniture business and had an abiding interest in the outdoors, especially hunting, which led him to develop a conscientious personal code of sportsmanship (Meine 2010, 18–21). Aldo Leopold learned how to hunt from his father and they went on numerous hunting trips. He also

developed other outdoor interests, most notably bird-watching, with much encouragement from his parents (Meine 2010, 16–21, 26–27). Leopold's early passion for the outdoors and hunting left an indelible impression on him: "my earliest impressions of wildlife and its pursuit retain a vivid sharpness of form, color, and atmosphere that half a century of professional wildlife experience has failed to obliterate or to improve upon" (1949, 120). He kept this passion for the rest of his life. The early cultivation of this passion in his life would influence his career choice and become a key foundation of his thinking on conservation and ecology.

4.2.2 Education at Yale Forest School

The Leopold family's middle-class status enabled the family to send Leopold to the East Coast of the US to attend preparatory school, where he gave himself an "environmental education" through his outdoor hobbies (Low 2011),[1] and college. Through his readings Leopold had developed an interest in the new field of forestry, which had gained currency then with dwindling forests an important social and economic concern (Meine 2010, 27). Leopold enrolled in the Yale Sheffield Scientific School in 1905 and graduated with a Bachelor of Science degree in 1908.[2] He started taking courses at the Yale Forest School

[1] Although Low (2011) described Leopold's outdoor adventures during preparatory school as his "environmental education," during Leopold's time this "environmental education" is perhaps known as "natural history education."

[2] The Sheffield School was founded in the middle of the nineteenth century to provide undergraduate education in the applied sciences. Its curriculum was a departure from that of Yale College, which focused on academic subjects such as Greek and Latin, philosophy, and theology (Warren 1950). Reforms by enterprising instructors at the Sheffield school beginning in the 1870s resulted in the students being exposed to a range of subjects in the humanities and social sciences, including economics, which was then called "political economy" (Barber 1988; Warren 1950).

while still an undergraduate and spent an additional year there, graduating in 1909 with a Master of Forestry degree.

The forestry curriculum at the Yale Forest School covered the scientific and technical aspects of forestry and, as mentioned above, involved consideration of the larger social and economic context. For example, the silviculture course attended by Leopold in the fall of 1907 listed Fernow's *Economics of Forestry* (1902) as one of the suggested readings (Leopold 1907, 209). Leopold's coursework at the Forest School reflected contemporary thinking on conservation—a rational approach to managing the forests which relied on economic calculation and planning, so as to produce a sustained stream of goods and values for human use, such as timber for construction and forage for livestock grazing. In his lecture notes for the course on forest management Leopold recorded Pinchot's dictum for forest management: "In deciding questions [on conflicting land use] it is the policy of the [Forest] Service to preserve the greatest good to the greatest number in the long run" (Leopold 1908, 974–975).

However, Leopold should be considered a disciple of Gifford Pinchot's utilitarian thinking only in the nominal sense, for his character was too independent for him to be dominated by any one person or by any idea. Leopold adopted Pinchot's conservation philosophy toward natural resources because it sufficed at that time (Meine 2010, 83). Indeed, his "greatest asset was his independence, and his awareness of the interdependence that allowed it," the former of which enabled him to keep an open mind and develop new ideas as the need arose (Meine 2010, 83). Over time Leopold would develop his own ideas on society's attitudes towards the natural world, which would place him at the cutting edge of environmental thought.

4.2.3 Career in the United States Forest Service

Leopold's view on humans and land evolved gradually over his long career in conservation, first as a forester in the United States Forest Service and then as Professor of Game Management (later Wildlife Management) at the University of Wisconsin. Upon graduating from Yale in 1909, Leopold moved to the southwest territories of Arizona and New Mexico to begin his career with the Forest Service. His early responsibilities included forest management, grazing and recreation policy, and a nascent game and fish program. During this period he advocated policies such as the extermination of large predators and the draining of wetlands which went against the ecological wisdom he would develop later (Leopold 1915, 1945; Meine 2010, 167).

Leopold rose quickly through the ranks of the Forest Service. In 1919 he became the assistant district forester in charge of operations for the twenty million acres of national forests in the Southwest. In 1924, he moved to the Forest Products Laboratory of the Forest Service in Madison, Wisconsin, to serve as assistant and later associate director. He grew increasingly uncomfortable there, in part because his maturing ideas, which were always concerned with the broader subject of human-land relations, could not be reconciled with "the industrial *motif* of this otherwise admirable institution" (Leopold 1947). He left the Forest Service in 1928.[3]

[3] In 1924 William B. Greeley, then head of the Forest Service and Leopold's instructor at the Yale Forest School, expressed his desire to have Leopold assume the position of assistant director at the Forest Products Laboratory with the thinking that he would succeed then director Carlile P. Winslow; Winslow was expected to step down within a year (Meine 2010, 225). Koning (2012) speculated that Greeley wanted Leopold at the Laboratory because he wanted someone who understood the ecology underlying forestry and, from past experience with Leopold, knew that he would review the situation at the organization and make independent, even unpopular, recommendations. Leopold never fully

4.2.4 Game Surveyor and Consulting Forester

From 1928 to 1932 Leopold found work conducting game surveys for the Sporting Arms and Ammunition Manufacturers' Institute and from 1932 to 1933 he established a game management program for the Wisconsin conservation commission. During this hiatus between 1928 and 1933, a period of financial uncertainty for Leopold and the country, he continued to contribute to game management. Besides his consulting work, Leopold led the formulation of a national game policy in 1930 (Meine 2010, 275–278) and published *Game Management*, the first textbook on the subject, in 1933 (Leopold 1933b).

In 1931 Leopold attended the Matamek Conference on Biological Cycles (Huntington 1931) and met Charles Elton, a leading expert in animal ecology and Professor of Zoology at Oxford University whose work on ecology would begin to influence fundamentally his thinking on wildlife management specifically and conservation more generally (Meine 2010, 282–284).

4.2.5 Professor at University of Wisconsin

In 1933 Leopold joined the University of Wisconsin at Madison as Professor of Game Management in the Department of Agricultural Economics.[4] Leopold's appointment at

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explained his decision for the move (Meine 2010, 225). His decision to resign from the Laboratory in 1928 was wise in retrospect: Winslow did not step down as director until 1946 (Havlick 2009). Despite his unease at the Laboratory, Leopold was productive in his role as second-in-command and received a promotion in 1926 for displaying "a high degree of tact, judgment, industry, initiative and constructive ability in all of his work" (recommendation statement cited in Koning [2012]).

[4] The University of Wisconsin is now known as the University of Wisconsin-Madison, following the merger in 1971 of public universities in Wisconsin to form the University of Wisconsin System (Cronon and Jenkins 1999, 521–596).

University of Wisconsin was a propitious development for his career and the conservation cause. The University of Wisconsin had a strong tradition of developing progressive reforms for the state. This was bolstered by the presence of two prominent economists, Richard T. Ely and John R. Commons; the latter was a major figure in institutional economics.[5] Moreover, the New Deal conservation programmes were being rolled out in earnest during the early thirties, and together with the reformist posture of the university and the state, gave Leopold an opportunity to develop and test his ideas on conservation.

Besides his teaching duties and research activities on wildlife ecology, Leopold managed the university arboretum and wildlife refuge as a site for pioneering work in ecological restoration and provided educational outreach activities to the farmers through the university's agricultural extension service. He was also involved in hundreds of conservation programs and organizations, including the Soil Erosion Service's pilot watershed project in Coon Valley, Wisconsin, which began in 1933 as part of President Franklin D. Roosevelt's New Deal program, and the Wildlife Society, which he helped found in 1935.[6]

4.2.6 Personal Character

Leopold's intellectual curiosity was unbounded, a trait which was helpful to his work on conservation issues and ecological research. Later in his life he wrote "there are two

[5] Institutional economics refers to a movement in American economics that flourished during the first half of the twentieth century. Its leading members, besides John R. Commons (1862–1945), were Thorsten Veblen (1857–1929) and Wesley C. Mitchell (1874–1948). Protesting against the highly theoretical nature of neoclassical economics, institutional economists sought to study the economy through culture, empirical studies and policy reform (Rutherford 2011).

[6] The Soil Erosion Service was renamed the Soil Conservation Service in 1935.

things that interest me: the relation of people to each other, and the relation of people to land" (Leopold c.1947). Like a detective, he would examine signs in the outdoors and infer the events that led to them. An ecologically conscientious person, he was aware of his own impact on the environment.[7]

Leopold was a considerate and kind gentleman who extended the same courtesy to everyone regardless of their social standing. According to son Luna, he possessed a "deep personal concern for the individual" which Luna considered as the basis of Leopold's land ethic (cited in McCabe 1987, viii). Leopold set high standards for his graduate students and made himself available to them, and received their best in return (McCabe 1987, 23).

4.2.7 Spiritual & Religious Attitude

The religious circumstances of Leopold's upbringing are unclear. According to his biographer, Curt Meine (2010), Leopold grew up in a secular home environment.[8] On the other hand, Robert A. McCabe, a graduate student of Leopold who went on to become his assistant and, after his demise, replaced Leopold at the Department of Wildlife Management

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[7] Leopold wrote: "I realize that every time I turn on an electric light, or ride on a Pullman [railroad sleeping car], or pocket the unearned increment on a stock, or a bond, or a piece of real estate, I am 'selling out' to the enemies of conservation. When I submit these thoughts to a printing press, I am helping cut down the woods. When I pour cream in my coffee, I am helping to drain a marsh for cows to graze, and to exterminate the birds of Brazil…Nay more: when I father more than two children I am creating an insatiable need for more printing presses, more cows, more coffee, more oil…" (Leopold 1932) Leopold and his wife Estella had five children.

[8] Aldo Leopold's father, Carl Leopold, did not approve of preaching and did not influence the spiritual development of Aldo and his two brothers and sister (Meine 2010, 15–16). As a teenager Aldo's spiritual base was constructed from secular reflections on his readings of writers such as Tennyson and Emerson and from his family's attitudes (Meine 2010, 25–26).

at the University of Wisconsin, wrote that Leopold was exposed to German Lutheranism in his youth (McCabe 1987, 8).[9] According to Meine there is not much documentary record to confirm or disprove this assertion (Curt Meine, email correspondence). In sum, we cannot identify the religious circumstances of his upbringing and only know of his religious and spiritual attitudes as an adult.

In his adulthood Leopold did not espouse any formal religion and would consent to enter a church only on rare occasions.[10] As a parent Leopold did not say a word on the subject of religion. Even though he hid his doubts about the Church for the most part, his children could sense that he took a dim view of it (Meine 2010, 376).

In late 1947, Leopold was bedridden at home due to a medical condition called trigeminal neuralgia, and was awaiting surgery. Seeing him in his bored and depressed state, his youngest child Estella struck up a conversation with him and took the opportunity to ask him whether he believed in God. Estella recalled:

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[9] McCabe felt that even though Leopold did not espouse any formal religion, he was still in some sense religious: "One might infer from his writings that A.L. [Aldo Leopold] was a person taken with religion. His knowledge of the Bible, both Old and New Testament, was not superficial…as an adult he espoused no formalized religion. That is not to say he was irreligious. On the contrary, I believed him to be very religious despite the fact that he did not talk openly about it" (McCabe 1987, 8).

[10] One was for his marriage to Estella Bergere, a Spanish-Italian Catholic at the Cathedral of Saint Francis in Santa Fe on October 9, 1912 (Meine 2010, 115). As a non-Catholic, Leopold had to vow not to interfere with the spiritual upbringing of any children he might have with Estella. Leopold found this annoying but took the vows (Meine 2010, 121–122). His close relationship with Estella played an important role in his life and undoubtedly contributed to his success in wildlife management and conservation work. Another time Leopold consented to enter a church was for the marriage of his daughter, Nina Leopold, to Bill Elder on September 25, 1941 (Meine 2010, 418).

> He replied that he believed there was a mystical supreme power that guided the Universe…But to him this power was not a personalized God. It was more akin to the laws of nature. He thought organized religion was all right for many people, but he did not partake of it himself, having left that behind him a long time ago. His religion came from nature, he said. (Cited in Meine [2010, 506])

Leopold's second child, son Luna, gave a similar assessment:

> I think he, like many of the rest of us, was kind of pantheistic. The organization of the universe was enough to take the place of God, if you like. He certainly didn't believe in a personal God, as far as I can tell. But the wonders of nature were, of course, objects of admiration and satisfaction to him. (Cited in Meine [2010, 506–507])

Even though Leopold kept his distance from the Church, his love for literature led him to become well-acquainted with the Bible. He first read the Bible at Yale, having joined a Bible study group there and later in his life revisited the text multiple times; he had a particular fondness for the Old Testament prophets, proverbs, and psalms (Meine 2010, 64–65, 160, 183). He had a keen interest in history and found the Bible a rich source of historical evidence and information on natural history.[11]

[11] He revisited the Bible while serving as Assistant District Forester in Charge of Operations in District 3 (which included twenty-one forests in the South and Southwest) from 1919 to 1922. In 1920, he wrote an article entitled "The Forestry of the Prophets," where he appraised the Hebraic knowledge of forest fires, timber use, and silvicultural knowledge based on his reading of the Books of the Prophets (Leopold 1920). He also referred to the concept of ecology for the first time in print: "Isaiah (41–9)

In sum, Leopold's references to biblical ideas in his writings must be understood in light of the above discussion on his indifference towards the Church in his adulthood, his literary and historical interest in the Bible, his awe and admiration of the wonders of nature, and his unceasing rumination on how humans should lead their lives in relation to the land. Readers who are not aware of Leopold's apathy towards the Church may be tempted to think otherwise upon noticing his familiarity with the Bible in his writing, most notably *A Sand County Almanac*. For example, in the preface to the book Leopold wrote about his weekend rural retreat: "On this sand farm in Wisconsin, first worn out and then abandoned by our bigger-and-better society, we try to rebuild, with shovel and axe, what we are losing elsewhere. It is here that we seek—and still find—our meat from God"(Leopold 1949, viii). Such seemingly religious statements need to be considered in light of his neutral and sometimes less than favourable perspectives on the Christian worldview. In the same preface, Leopold pointed out that conservation has not achieved much progress because of Abraham's biblical injunction for humans to treat the land as property that was to be used for their benefit (Leopold 1949, viii–ix). His reflection on the Ten Commandments (the "Mosaic Decalogue") helped him develop his thinking on the structure, role, and evolutionary potential of an ethic, which contributed to his concept of a "land ethic" (Leopold 1933a, 1949).

Leopold possessed a deep passion for, and curiosity about, the outdoor environment from a young age. This meant that for his entire life the condition of the outdoor environment would occupy a principal position in his mind and led him to recognize the

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seems to have had some knowledge of forest types and the ecological relations of species" (Leopold 1920, 76; Meine 2010, 183–184).

interrelationship between the different elements of the environment. He was conscientious of his impact on the environment. Socially, he was courteous and humble and possessed a deep concern for the individual.

4.3 Literature Review

4.3.1 Jeffersonian Agrarianism

Flader and Callicott (1991) observed that Leopold's "land ethic cannot be fully comprehended apart from the essentially Jeffersonian reflections on political economy with which it was so closely connected." In his writings Leopold frequently extolled the importance of the farmer in conservation. Convinced that "government cannot own and operate small parcels of land," let alone good land, he argued that the individual farmer is in the best position to steward the land in a way that would yield a broad range of private and public benefits, including economic, aesthetic, and ecological ones (Leopold 1939b). Leopold's desire to instill conservation thinking and behaviour in society while preserving individual freedom and democracy led him to call for farmers and private landowners more broadly to develop an enlightened attitude towards the land and become inspired practitioners of land conservation.

Leopold was conscientious about the need to preserve liberty and democracy after two close associates, Jay "Ding" Darling (1935) and Douglas Wade (1944), pointed out that he appeared to be leaning towards socialization of natural resources in his writings (Newton 2006, 166–167, 169–170). This tension and the desire to retain individual liberty while achieving conservation may explain Leopold's interest in rethinking economics along ecological principles (Lin 2014). They may also explain why Leopold placed much faith and hope in the ecologically conscientious American farmer or landowner to take the lead in conservation practice (Leopold 1939a, 1939b). However, his nuanced, ecological

understanding of human presence in the land meant that he did not idealize wild nature as static and timeless, as was the tendency in Jeffersonian republican thought; instead, he articulated a more hopeful and realistic view of the land for citizens to participate in conservation and cultivate civic virtues (Cannavò 2012).

Would Leopold have called for the socialization of natural resources had Darling and Wade not warned him against it?[12] According to Curt Meine (email communication), Leopold does not fit into our standard paradigms of economic philosophy and political ideology. His faith did not lie in the ability of unfettered markets nor that of the government to address conservation problems. Rather, he considered conservation as a cultural movement (not merely as an economic and/or political movement) that involves relationships not just among people but also between people and natural communities. This latter set of relationships lie outside the province of typical socio-political thought and was consequently neglected during the expanding industrial economy of the 1930s and 1940s that would change the social, political, and economic realities in American society and transform the physical landscape. Leopold was urging society to give consideration to the human-land relationship and the ecology of the land and develop a set of cultural values and practices—an ethic—that not only reflected a commitment to the land, but also addressed the basic motivations of human behaviour that are often masked by economic rationality. Such an ethic is crucial for encouraging farmers and other landowners to reconcile their private interest with the public interest.

4.3.2 Citizenship

Leopold's view of the role of the farmer was related to his view on how conservation could be practised through expanding the notion of citizenship, thus causing his name to

[12] I am grateful to Professor Greg Mikkelson for raising this question.

surface in contemporary literature on environmental citizenship (Gabrielson and Cawley 2010). Leopold was facing an immense challenge: he had to reconcile ecological consciousness, which called for a certain level of restraint in human actions, with the distinct character of American citizenship, which was shaped by democracy and liberal individualism.

He favoured bottom-up approaches to conservation, in which individuals and civic groups would cultivate an ecological conscience and promote conservation through various civic activities. In so doing Leopold was building upon the American tradition of civic organizing which persisted despite the dominant individualist and capitalist tendencies that took hold in American society during the nineteenth century (Flader 2003). To Leopold, husbandry of the land—participating with one's hands, actually building or maintaining the health of the biotic community—was the highest form of citizenship (Flader 2003).

4.4 Development of Leopold's Ecological Thinking

In a 1940 letter to Gifford Pinchot, Leopold revealed an important insight into his own thinking when he commented that "the year 1920 marks a turning point from (what shall I call it? a certain viewpoint, as yet unnamed) to an ecological mode of thinking" (Leopold 1940). In this section we trace the development of Leopold's thinking on conservation, economics and ecology through the 1920s and 1930s.

Leopold's interest in outdoor recreation, in particular hunting, led him to pay particular attention to game conservation. In 1915, Leopold managed to get himself assigned almost full-time to game and fish work in the Southwestern district in Arizona and New Mexico (Flader 1994, 11).

4.4.1 During the 1920s

From 1919 to 1924, Leopold was appointed assistant district forester in charge of operations in the district. Leopold's curiosity, habit of keen observation and voracious reading of the writings of early American naturalists and explorers such as Lewis and Clark, John Burroughs and Ernest Thompson Seton, led him to consider the ecological interrelationships of the land he was working in (Flader 1994, 10. 17). However, during this early period Leopold did not incorporate wildlife in his analysis and he believed in control and management of the land up till the 1930s (Flader 1994, 17, 25). Nevertheless, during this administrative stint he made four significant moves which revealed a stirring in his mind towards ecological thinking.

First, in 1922 he submitted a proposal to designate a portion of the Gila National Forest as a wilderness area, which was approved two years later.[13] However, according to Callicott (1992), Leopold held an uncritical attitude towards wilderness that could be traced to an "unconscious ethnocentrism that he shared with most of his contemporaries" (see section 2.3.1). This led him to assume that the presence and environmental impact of the indigenous peoples before European contact was negligible, as was their impact on the environment.[14] Leopold maintained this romantic view on wilderness for the rest of his life.

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[13] Leopold creatively interpreted the meaning of "use" when he described preservation of wilderness areas as "the highest use" of the national forests according to Pinchot's criterion of "the greatest good to the greatest number" (Leopold 1921, 718; Meine 2010, 194–197).

[14] Using the concept of carrying capacity of the land, Leopold (1941a) wrote "Every environment carries not only characteristic kinds of animals, but characteristic *numbers* of each. Thus the characteristic number of Indians in virgin America was small." In a 1937 essay Leopold portrayed a less than favourable (or what Callicott called "less than fully human") image of the Apache. The opening line reads: "The predatory Apache of our Southwest was early rounded up and confined in reservations,

Second, in December 1923 Leopold completed a *Watershed Handbook* which was meant to teach field personnel how to diagnose and respond to watershed and soil erosion problems in the Southwest. The handbook reflected a change in conservation thinking from the Progressive Era, which generally focused only on management to promote the sustained yield of resources, to a more recognizably modern perspective that was now forced to consider the complex and interrelated nature of land resources (Meine 2010, 220).

Third, at the same time Leopold prepared a speech entitled "A Criticism of the Booster Spirit" (1923), delivered to an Albuquerque civic society, in which he deplored the booster's fixation on simplistic economic growth and materialism. At that time there was a general trend of "boosting" or promoting small towns and cities in order to raise their status in the public perception.[15] While acknowledging that the booster's efforts were well-meaning and sincere, Leopold nevertheless felt that boosterism had resulted in a rash of economic aggrandizement which was excessive and insensitive. "Is there any real economic necessity," he wrote, "for the army of billboards that marches across the peaceful landscapes of the Rio Grande Valley, flaunting its ribald banners in the face of the eternal hill, and shouting at every turn of the road what is the best brand of chewing gum, tires, or tobacco?" In the speech Leopold felt that resources should be channelled to "internal betterment," such as improved education and public health service, instead of pursuing economic aggrandizement.

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whereas across the line in Mexico he was, until his recent near-extinction, allowed to run at large" (Leopold 1937). However, he noted earlier in his criticism of the booster spirit that the booster's interest in exploiting the Pueblo Indians "betrays a fundamental disrespect for the Creator, who made not only boosters, but mankind, in his image" (Leopold 1923, 102).

[15] Leopold had worked with "boosters" in Albuquerque and in a sense had been one himself when he worked at the Chamber of Commerce.

Finally, Leopold articulated his thoughts on ecological change in southern Arizona in "Grass, Brush, Fire and Timber in Southern Arizona," published in 1924 in the *Journal of Forestry* (Leopold 1924). In this article, which was based on his own field observations, Leopold concluded that, contrary to prior Forest Service thinking, fire was a natural process in the southern Arizona landscape. Prior to recent changing in grazing practices, the region's grass cover held its soils in place and maintained its watershed functions. The intensification of grazing, however, was contributing to soil erosion by disrupting the fire regime and removing grass, which was more effective than the succeeding brush in holding soil together.

According to Leopold, the challenge in light of this new ecological understanding was how to manage the land in order to achieve balance among its varied resources. The absence of grass and fire due to more intensive grazing had resulted in a natural expansion of woodlands, thus benefitting timber yield. However, the range and watershed resources had suffered damage, the latter of which provide irrigation to the agriculture sector. Leopold wrote: "Our present job is to conserve the benefit to timber and minimize the damage to watershed and range." Underlying Leopold's recommendations was an attempt to reconcile economics with ecological reality—ecology was beginning to influence the pursuit of "the greatest good for the greatest number." Nevertheless, Leopold was aware that the Forest Service was dealing with a phenomenon which was part of something larger: "We are dealing right now with a fraction of a cycle involving centuries…We can not obstruct or reverse the cycle, but we can bend it; in what degree remains to be shown."

The themes of Leopold's work during this period—preserving wilderness lands, sustaining organic resources, reinterpreting ecological facts, and evaluating the concept of economic growth and progress—would resonate in his later work.

4.4.2 During the 1930s

Leopold's ecological thinking matured during the 1930s, having been stimulated by several key events and intellectual milestones. At the end of the decade, he would publish his milestone article "A Biotic View of Land" (Leopold 1939a).

4.4.2.1 Essays on "The Conservation Ethic" (1933) and "Conservation Economics" (1934)

At the beginning of the New Deal era Leopold delivered two important speeches, "The Conservation Ethic" and "Conservation Economics," which drew upon the lessons he had learned from his participation in early New Deal conservation projects; both speeches were later published in the *Journal of Forestry* (Leopold 1933a, 1934b). In these essays he discussed the key issues that, in his view, hampered conservation. Economic expediency overwhelmingly dominated attitudes toward land, resulting in degradation of large tracts of land and their component "resources." Conservation during the New Deal period was relying heavily on public ownership and the adoption of laws and regulations affecting the private landowner, and did not address the short-term, profit-driven mentality that led to destructive land use in the first place. However, it is important to recognize that the primary purpose of the New Deal was to restore the country's economic activity by stimulating private consumption through government spending. Therefore, the New Deal conservation projects were means to an economic end. Leopold concluded that conservation and society in general need to consider deep changes in the human–land relationship and in economic thinking and practices.

In both essays Leopold displayed a keen understanding of the relationship between ecology and economics. In a section in "The Conservation Ethic" (1933a) titled "Ecology and Economics," Leopold pointed out the limits of public ownership as a conservation tool. The

problems of soil erosion and forestry, Leopold stated, are "coextensive with the map of the United States. How far can we tax other lands and industries to maintain forest lands and industries artificially?" Public ownership is only a means to what Leopold saw as the "real end" of conservation: "a *universal symbiosis with land*, economic and esthetic, public and private" (Leopold 1933a).

In "Conservation Economics" (1934b), Leopold discussed how the conservation of various land resources—forests, soil, game, and recreation—entails a minimum land area as well as a degree of dispersion and connections across the landscape that public landownership alone cannot achieve. In other words, conservation requires careful and conscientious use of the entire landscape, which ran against the then prevailing assumption that "bigger [public] buying is a substitute for private conservation practice." While Leopold recognized the value and necessity of public ownership for achieving conservation on the land, he was aware that it was insufficient. Moreover, preventive conservation measures are usually cheaper than curative ones. Leopold concluded that "[t]he thing to be prevented is destructive private land-use of any and all kinds. The thing to be encouraged is the use of private land in such a way as to combine the public and the private interest to the greatest possible degree." Leopold would continue to ponder the problem of conserving the public interest on private lands (Freyfogle 2003).

4.4.2.2 Purchase of "the Shack" (1935)

In 1935 he purchased a worn-out farm on the sandy floodplain of the Wisconsin River in Fairfield township of Sauk County. The only structure left standing at the property was a chicken coop, which the Leopold family converted to a cabin, nicknamed "the shack" (McCabe 1987, 94–102; Meine 2010, 340–342). This property gave Leopold an opportunity to spend time in a rural landscape where he could observe the ecological drama of wild

plants and animals, try his hand at land stewardship, and reflect upon the role of humans on the land.[16]

4.4.2.3 Trips to Germany (1935) and Mexico (1936, 1937)

Leopold's research trip to Germany in 1935 and two hunting trips to the remote Sierra Madre in northern Mexico in 1936 and 1937 provided insightful comparison for his thinking on human land-use, conservation practice, and ecology. In Germany he saw the dismal result of excessive and intensive human intervention in the natural species composition and processes, in particular the lack of wildness in the land. Leopold reported, with a hint of irony, Germany's attempt to remedy the situation through a shift from mathematical forestry to a permanent and continuous system of forestry called *Dauerwald*: "Forestry is a turmoil of naturalistic movements. The Germans, who taught the world to plant trees like cabbages, have scrapped their own teachings and gone back to mixed woods of native species, selectively cut and naturally reproduced (*Dauerwald*).... In their new *Dauerwald* the hard-headed Germans are now propagating owls, woodpeckers, titmice, goshawks, and other useless wildlife" (Leopold 1939a).

On the other hand, the Sierra Madre, lightly touched by human occupation, came across to Leopold as a "biota still in perfect aboriginal health" (Leopold 1947; Meine 2010, 359).

[16] The conventional, economic value of Leopold's rural property had already been depleted, but Leopold saw an ecological and aesthetic value in it. As a university professor, Leopold could afford to acquire and maintain the property just for this value.

4.4.2.4 Professor of Wildlife Management (1938)

Leopold in these years shifted his focus from *game* management to *wildlife* management. He revised his earlier thinking on predators of game species, viewing them as an integral part of the landscape which should be respectfully managed, instead of exterminated. In the fall of 1938 he began to refer to himself as "Professor of Wildlife Management" (Meine 2010, 387), which reflects a comprehensive change in his thinking from an earlier stance of focusing only on the aspects of land that were pertinent to humans to an integrated ecological worldview. With his deepening understanding of ecological interrelationships, Leopold increasingly saw the idea of "*game* management" as ecologically unsound and too anthropocentric. In 1939 Leopold was made chair and only professor of the newly-created Department of Wildlife Management.

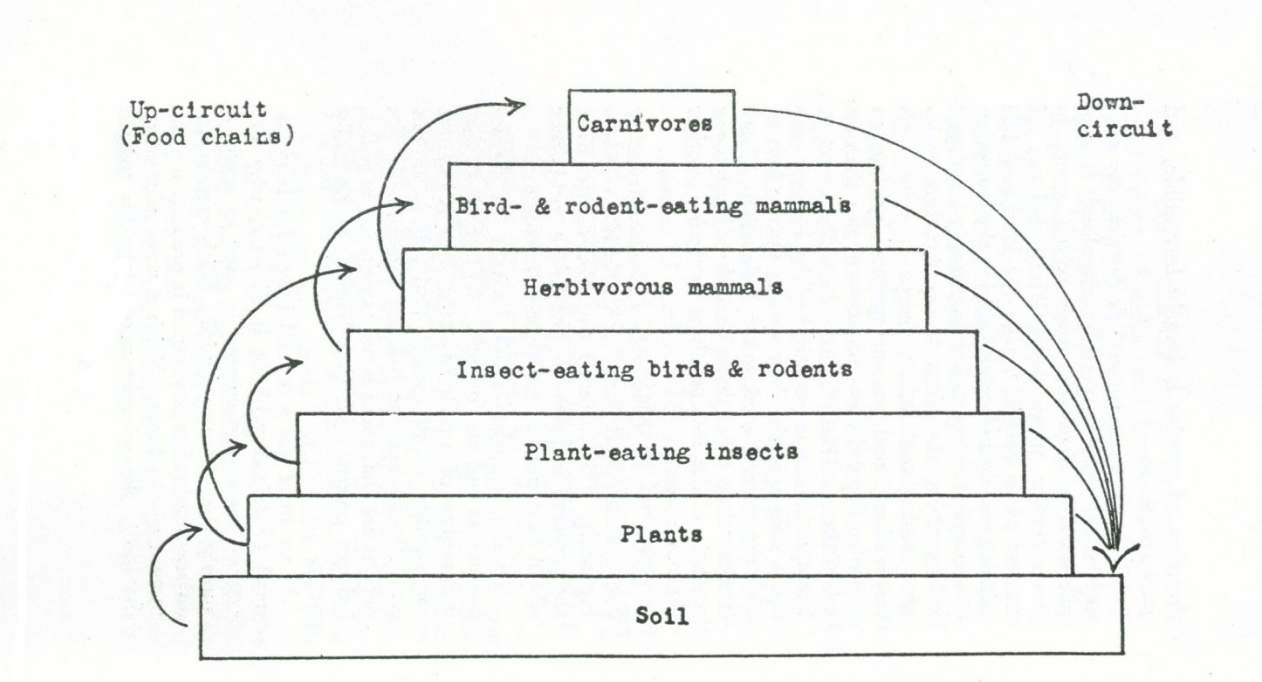

Figure 4.1: A rendering of Leopold's drawing of the biotic pyramid which appeared in his article "A Biotic View of Land" (1939a).

4.4.2.5 Article on "A Biotic View of Land" (1939)[17]

This flourishing of intellectual activity culminated in Leopold's 1939 article "A Biotic View of Land," a landmark paper in which he articulated his ecological model of "the land pyramid"[18] with soil forming the bottom layer, followed by plants, herbivores, insectivores, and finally carnivores at the peak, and with the energy captured from the sun conducted upwards through food chains and downwards back to the soil through death and decay

[17] This section was modified from Lin (2014).

[18] Leopold's land pyramid was based on Charles Elton's biotic pyramid of food and food chains (McClellan and Dorn 2006, 201–203; Newton 2006, 201–203).

(Leopold 1939a).[19] The traditional concept of economic utility now appeared deeply problematic: ecology had now revealed "a biota so complex, so conditioned by interwoven cooperations and competitions, that *no man can say where utility begins or ends*" (Leopold 1939a). Towards the end of the article Leopold reflected on the implications for conservation. "It seems possible…that prevailing failure of economic self-interest as a motive for better private land use has some connection with the failure of the social and natural sciences to agree with each other, and with the landholder, on a common concept of land" (Leopold 1939a). In Leopold's mind, the standard economic view of land as a collection of resources to be managed separately for short-term economic gain was inconsistent with ecological reality or conservation needs. It was undermining the prospects of life, human and non-human, to thrive.

Leopold's biotic view of land could be considered as a threshold, after which he would view his work through the lens of ecology rather than conservation. For Leopold, the goal now was to realign social and economic institutions to reflect the place of humans in this pyramid model of land. In *A Sand County Almanac*, Leopold wrote: "Man shares an intermediate layer with the bears, raccoons, and squirrels which eat both meat and vegetables" (Leopold 1949, 215). This change is reflected in his shift in thinking about conservation ethics and conservation economics during the 1930s to land ethic and ecological economics during the late 1940s.[20]

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[19] According to Callicott (2014), Leopold's conception of the "land pyramid" conflates the flow of energy through, and the cycling of nutrients within, the ecosystem, noting the contemporary ideas of Lindeman (1942) which clearly separate the two.

[20] Leopold did not achieve much progress during the first half of the 1940s as both he and the nation were preoccupied with World War II.

4.5 Rethinking Economics

From the mid-1930s to the end of his life in 1948, Leopold was developing proposals to rethink economics, following on from his article on "Conservation Economics" (1934b). At first he sought to develop a conservation economics, but with the maturing of his ideas on ecology, sought to integrate ecology and economics together in an "ecological economics" (Lin 2014).[21]

4.5.1 Conservation Economics Research Prospectuses (1934–1938)

Leopold considered following up on his "Conservation Economics" (1934b) essay with concrete research. From 1934 to 1938 he drafted four research prospectuses for a conservation economics project.[22] Leopold's overall goal was to encourage private land-owners to conserve their land for the public good by creating various "inducements" and to minimize conservation by government agency, which he felt did not solve the root cause of conservation problems. Towards this end he articulated straightforward yet broad and complex research objectives in the first three prospectuses: study the reasons for the failure of private land-owners to practice conservation of soil and other resources, identify and quantify public benefits of conservation on private lands, create economic and legal incentives to promote private conservation in order to realize these benefits, and encourage integration of land uses (Leopold 1934c, n.d.-a, n.d.-b). In present-day economic parlance, Leopold was searching for solutions to the problem of negative externality, which is an example of market failure.

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[21] The contents in this section were adapted from Lin (2014).

[22] The time period was taken from the dates of the first and last prospectuses in the archive folder containing the four prospectuses. The two prospectuses in the middle were not dated but I assumed that they were written during this period.

4.5.2 Proposed Ecological Economics Position (1947)

In late 1947, Leopold drafted a memo on creating a position in "ecological economics" at the University of Wisconsin with William Vogt (1902–1968) in mind.[23] This represented a shift in Leopold's thinking from his conservation economics ideas of the mid-1930s, where he sought to find solutions from within the existing economic framework. His new emphasis on reorganizing economics along ecological principles can be attributed to his discussions with Vogt and his own maturing ideas on ecology from the late 1930s onwards, which provided him with a science of the land to buttress a fundamental rethinking of economics. Unfortunately, Leopold died on April 21, 1948, before the plan could advance any further. His proposals to rethink economics reveal the extent of his dissatisfaction with discipline, although none of these proposals were realized (Lin 2014).

4.6 A Sand County Almanac and Sketches Here and There (1949)

Leopold was to achieve greater success with promulgating his land ethic in *A Sand County Almanac and Sketches Here and There*, which was published posthumously in

[23] William Vogt was an ornithologist who turned his attention to the problem of human development and the environment later in his career. From 1943 to 1949 Vogt worked at the 21-nation Pan American Union (the predecessor to the Organization of American States) as the chief of conservation. In this newly created position, Vogt prepared reports for the governments of Mexico, Costa Rica, El Salvador, and Venezuela on the relationship between human population and natural resources (Harmond 2000; Pan American Union 1946). Vogt's genius lay in analyzing the interaction between the human population and natural resources of a country as a totality, at the same time factoring in history and global trends in population, industrialization, and consumption, and gleaning insights by comparing these conditions with analyses of other countries. On learning of Leopold's draft memo, Herman Daly remarked that Vogt "was perhaps as close as you could come in 1948 to finding what today would be called an ecological economist" (personal communication).

1949.[24] The book consists of three parts. In Part I, titled "A Sand County Almanac," Leopold recorded vignettes from his time spent with his family at "the shack." In Part II, titled "Sketches Here and There," he recounted episodes in his life that made him realize and reflect on the inimicality of the values and behavior of society toward conservation. In Part III, titled "The Upshot," he articulated his dissent and analysis of this problem and presented his concept of developing a land ethic in the final essay, "The Land Ethic." Callicott (2014, 21) interpreted Leopold's project in the book as "the exposition and promulgation of an evolutionary-ecological worldview and its axiological (ethical and aesthetical) and normative (practical moral) implications."

Pryor (2011) pointed out that most readers tend to read "The Land Ethic" essay in isolation from the rest of the book. However, Pryor argued that we must read the book as a whole in order for us to appreciate the totality of Leopold's ideas towards the land, and to recognize his emphasis on "the role that ethics and art must play in awakening emotions, such as love, wonder, and reverence" (Pryor, 466).

Flader (2003) observed that the first members of the land community that one encounters in the first two parts of the book are the nonhuman animals such as mice, pines, parrots, and grebes (Leopold 1949, 4, 87, 138, 161). In these recollections and reflections of the land, Leopold portrayed humans as being subordinate and rather obtuse. This important and subtle view, conveyed with irony, humour and disarming charm, prepares

[24] His son Luna led a team of close friends and colleagues to prepare the manuscript for Oxford University Press. The team made minor adjustments to the writing and titling and, in consultation with the publisher, changed the title from Leopold's *Great Possessions* to its present one (Meine 2010, 523–525). Perhaps the most important change was to shift "The Land Ethic" from its original first position in Part III to its present final position (Meine 2010, 523–524; Ribbens 1987).

the reader for Part III, where Leopold explicated his views on the need for humans to reconsider their role and behaviour in the land community.

In Parts I and II of his posthumous work, Leopold rendered animals as conscious, intentional subjects. He considered them as members of the land community; in Part III he would consider humans as members as well and not as "conquerors" of the land community. Callicott et al. (2011) suggested that Leopold's portrayal of animal Others "serves to redefine and transform the self—the self of the book's 'implied author' and, through the familiar process of reader identification with the author, this encounter also transforms the self of the reader."

Following Pryor's advice, I will discuss the first two parts of the book before discussing Part III, in which Leopold articulated his concepts of aesthetics, land health, and land ethic.

4.6.1 Part I: "A Sand County Almanac" (The Shack Sketches)

True to its name, Part I is an almanac of sorts that contains short essays grouped according to the months of a year. Leopold provided a first-person account of his observations at the shack and its environs in the different seasons. More accurately, he shared his *interpretations* of the various phenomena he encountered, which involved every aspect of the land: animals, plants, and the physical landscape. Leopold melded these different elements of the land together into a compelling account that made his shack and its environs come alive for readers.

Leopold anthropomorphically personified the animals in his interpretations of their behaviour. In the first essay of Part I, titled "January Thaw," Leopold speculated on the behaviour of a meadow mouse:

> Why is he abroad in daylight? Probably because he feels grieved about the thaw. Today his maze of secret tunnels, laboriously chewed through the matted grass under the snow, are tunnels no more, but only paths exposed to public view and ridicule. Indeed the thawing sun has mocked the basic premise of the microtine economic system!
>
> The mouse is a sober citizen who knows that grass grows in order that mice may store it as underground haystacks, and that snow falls in order that mice may build subways from stack to stack: supply, demand, and transport all neatly organized. To the mouse, snow means freedom from want and fear. (Leopold 1949, 4)

By interpreting a meadow mouse's daytime excursion as an act of grieving over the deteriorating circumstance of its "economic system," Leopold bestowed upon the mouse a sense of "sober" citizenship and alertness of its habitat. Further, he pointed out to his reader the importance of snow cover for preserving the meadow mouse's interests, expressed in terms of its "freedom from want and fear." Freedom from want and from fear of aggression, together with freedom of speech and religion, constitute the "Four Freedoms" of humans which Franklin Delano Roosevelt (1882–1945), the president of the United States from 1933 to 1945, introduced in January 1941 to rally the country against imminent war. By characterizing the nous and survival of the meadow mouse in terms of its sober citizenship and freedom from want and fear, Leopold appeared to be hinting at his idea, stated later in Part III, of considering humans as plain members and citizens of the land community. Further, by implicitly drawing the analogy between the anthropocentrism of men and the microtocentrism of mice, the former is "gently lampooned as no less preposterous" than the latter (Callicott et al. 2011, 120).

Examples of anthropomorphic personification of animals abound in the rest of Part I, leading Callicott (2014, 23–26) to suggest that Leopold's goal in Part I was to portray "the intersubjectivity, the interiority of the biotic community." In his attempt to guess the reason behind lone geese in a skein, Leopold acknowledged that "subjective interpretation" of animal behavior is "risky" (1949, 20). However, he was not speculating from a scientific perspective (though he did rely on scientific observation and mathematical analysis). Nevertheless, Callicott et al. (2011) pointed out that we need to "convince our positivistic-scientistic selves…that we can be as confident of the existence of other nonhuman animal subjects as we are of the existence of other human subjects." Since humans are animals from an evolutionary-ecological worldview, and that animals resemble us in terms of features and behaviour, then "by way of a similar analogy" we may legitimately conclude that the animals think and behave like us (Callicott et al. 2011, 123).

Leopold portrayed plants by describing them in the context of human and natural history. In "Good Oak," he recounted milestones in human and natural history as he and his family sawed through an oak tree that was killed by lightning. The oak stem contained eighty rings which represented its life from 1865 to 1945. Leopold began: "It took only a dozen pulls of the saw to transect the few years of our ownership, during which we had learned to love and cherish this farm" (1949, 9). Towards the end, he introduced his discussion on the history of the 1860s by alluding to the Civil War and the "larger issue" of maintaining the integrity of the "man-land community":

> Our saw now cuts the 1860's, when thousands died to settle the question: Is the man-man community lightly to be dismembered? They settled it, but they did not see, nor do we yet see, that the same question applies to the man-land community. This decade was not without its gropings toward the larger issue. (Leopold 1949, 15)

Leopold ended his discussion in 1865 by recollecting an origin story of John Muir's preservationist thinking. Muir's brother, who then owned the family farm, rejected Muir's offer to buy from him "a sanctuary for the wildflowers that had gladdened his youth….he [Muir] could not suppress the idea: 1865 still stands in Wisconsin history as the birth-year of mercy for things natural, wild, and free" (1949, 15–16).

Elsewhere in Part I, Leopold recorded his reflections and lessons learned from trees. In "Axe-in-Hand," Leopold analyzed his own predilection for pines over other tree species, concluding that "I love all trees, but I am in love with pines" (1949, 70). In "A Mighty Fortress," Leopold described how disease-afflicted trees in the woodlot on his shack property enriched the woodlot with higher levels of wildlife activity. In "Pines above the Snow," he presented a thoughtful and engaging account of the pines he and his family had planted. For example, by studying in March the browsings of the deer on white pines, he could guess how hungry the deer were. At the end of the essay, he shared how the sight of his pines standing erect against their burden of snow in midwinter gave him "a curious transfusion of courage" (1949, 87).

4.6.2 Part II: "Sketches Here and There"

Leopold organized the essays in Part II, "Sketches Here and There," according to the regions of the essays, such as Wisconsin, Arizona and New Mexico, and Chihuahua and Sonora. While continuing to portray the animal Others, he also introduced the concept of noumenon, or the "imponderable essence" (1949, 138), of the land, which stands in contrast to phenomenon, which we can straightforwardly perceive. Leopold borrowed the concept of noumenon, which he rendered as "numenon," from the Russian philosopher-mystic P.D. Ouspensky (1878–1947), who used it in his 1912 book *Tertium Organum*, which was translated to English later (Ouspensky 1922).

In the essay “Thinking Like a Mountain,” Leopold combined a portrayal of the interiority of animals with the noumenon of the land. He recounted an episode from his early days in the Forest Service, where he and his crew shot, with more excitement than accuracy, at a she-wolf and her pups. The she-wolf was mortally wounded while the pups managed to escape with at least one hurt. Leopold wrote: “We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known ever since, that there was something new to me in those eyes—something known only to her and to the mountain” (1949, 130).

The wolf plays an essential and irreplaceable role in its habitat in the Southwest, where Leopold was stationed. From an ecological perspective, the wolf keeps the deer population in check, thus protecting the forests from excessive browsing by deer. But the wolf’s role runs deeper, for it contributes to the noumenon, the “hidden meaning” (1949, 129), of the land, something which Leopold learned only after seeing the fierce green fire. Recognizing the importance of love as a motive force in Ouspensky’s book, and the similarity between the book and Leopold’s “Thinking Like a Mountain,” Pryor (2011, 482) speculated that Leopold “may have turned to Ouspensky’s concept of love to help him understand and communicate a powerful moment of self-transformation and knowledge” when he saw the dying fierce green fire in the she-wolf’s eyes.

Elsewhere in Part II, Leopold had also identified the key species of a particular location that underpin the location’s noumenon. In the essay “Escudilla,” he showed that it was bear for Escudilla Mountain in Arizona (1949, 133–137). In the essay “Guacamaja,” he stated explicitly that “the grouse is the numenon [sic] of the north woods, the blue jay of the hickory groves, the whisky-jack of the muskegs, the piñonero of the juniper foothills,” before sharing his “discovery of the numenon of the Sierra Madre: the Thick-billed Parrot” (137–141).

Leopold also suggested that the noumenon of a land need not be represented by a single animal species. In "Rio Gavilan," he described a form of "music" in the hills of the Rio Gavilan that is different from the audible sounds.[25] One is able to "hear" it only when one enters a calm and reflective state:

> This song of the waters is audible to every ear, but there is other music in these hills, by no means audible to all. To hear even a few notes of it you must first live here for a long time, and you must know the speech of hills and rivers. Then on a still night, when the campfire is low and the Pleiades have climbed over rimrocks, sit quietly and listen for a wolf to howl, and think hard of everything you have seen and tried to understand. Then you may hear it—a vast pulsing harmony—its score inscribed on a thousand hills, its notes the lives and deaths of plants and animals, its rhythms spanning the seconds and the centuries. (Leopold 1949, 149)

Here Leopold discussed a form of perception and understanding of the river and its surrounding land that is cultivated from recognizing the natural "harmony" of the land. He believed that this harmony is generally stable—evidenced also in his call in the land ethic to preserve "stability" of the land (see section 4.6.3.3 below)—but could be disrupted by "discords of misuse" such as excessive hunting of particular species or excessive roads and tourists (149–150).

Leopold used this metaphor of the music of the land to criticize reductionistic science and progress. He charged that professors who research on "the instruments of the great orchestra that produced this music" do so by focusing on a particular type of instrument and

[25] Leopold's metaphor of the music of a river is akin to the metaphor of the panpipes of *tian* in the *Zhuangzi* (see section 5.9.4).

describing its different parts, thus failing to detect the harmony in the orchestra. Further, Leopold pointed out how science subscribes and contributes to the imperative of growth-based progress, which assumes that "every river needs more people, and all people need more inventions, and hence more science," while failing to accept that the good life along a river might depend on the perception of its music and hence preservation of some music to perceive (153–154).

In Parts I and II Leopold interpreted for his readers the life and meaning of the non-human elements of the land. He imputed and interpreted the interiority of non-human animals and interpreted the ecological history of plants of the land. Sometimes his perspectival imagination took on a sense of yearning. For example, he wished that he were a muskrat—"eye-deep in the marsh"—so that he could better observe geese in March (Leopold 1949, 19). Further, he used Ouspensky's concept of noumenon to refer to the "imponderable essence" of the land, illustrating it vividly with the dying green fire in the eyes of the dying wolf, and subliminally with the noumenal "music" of the Rio Gavilan river. As Pryor (2011) and Callicott et al. (2011) noted, Leopold's identification and descriptions of meaning and animation in these non-human elements of the land serve to transform the human self. Humans are no longer living in an inert world, a worldview espoused by scientism and eagerly exploited by economics, but are plain members and citizens of the land community, as he explicated in Part III.

4.6.3 Part III: "The Upshot"

Leopold turned to aesthetics and developed the concepts of land health and land ethic in his attempt to address society's utilitarian attitude towards land. Since his land health and land ethic are intertwined, I will discuss them in tandem.

4.6.3.1 Aesthetics

Leopold espoused managing the land for both utility and aesthetics. He was influenced by the work of the regionalist artist John Steuart Curry (1897–1946).[26] From 1936 till his death in 1946, Curry was the initial appointee of the artist-in-residence programme at the University of Wisconsin's College of Agriculture, the first such programme in the United States (Cronon and Jenkins 1994, 783).[27] Further, Curry was appointed to the College's Department of Agricultural Economics in 1943 (Glover 1952, 338–339), which strongly suggests that he would have crossed paths with Leopold.[28] In a notable essay "The Farmer as Conservationist" Leopold invoked the regionalist artists to emphasize the aesthetic dimension of life and how economic decisions can affect it:

> What is the meaning of John Steuart Curry, Grant Wood, Thomas Benton? They are showing us drama in the red barn, the stark silo, the team heaving over the hill, the country store, black against the sunset. All I am saying is that there is also drama in every bush, if you can see it…The landscape of

[26] John Steuart Curry, Grant Wood, and Thomas Benton form the triumvirate Regionalist school of art that emerged in the mid-west during the early 1930s and continued into the early 1940s.

[27] This appointment was made upon a suggestion by the dean of the College of Agriculture, Chris Christensen (Glover 1952, 339). Concerning the artist-in-residence programme, Glover wrote: "The object in mind was the hope of deepening appreciation of rural life along lines similar to the work of rural sociology. Curry conducted art contests, he arranged collections of meritorious paintings, and he exhibited his own works. At his death in 1946 he was recognized as an artist of stature whose virtues of 'simplicity and wholeheartedness' justified the confidence of the College" (Glover 1952, 339).

[28] While Leopold became Professor of Wildlife Management in his one-person Department of Wildlife Management in 1939 and moved to a separate site, he kept his former appointment in the Department of Agriculture Economics until his death in 1948 (Schaars 1972, 83).

> any farm is the owner's portrait of himself. Conservation implies self-expression in that landscape, rather than blind compliance with economic dogma. (Leopold 1939b, 263)

In an essay in Part II, titled "Marshland Elegy," Leopold acknowledged the remarkably ancient evolutionary history of sandhill cranes on the geologic time-scale (Leopold 1949, 95–101). According to Callicott (2008), Leopold's aesthetic appreciation of nature, which could be described as his "land aesthetic," is based not only on the physical appearance of natural objects and places, but also on knowledge of their evolutionary history and ecological relationships. The end result is an extension of the "traditional criteria of natural beauty to the point where they essentially merged with his sense of long-term utility based on land health" (Meine 2004a, 112). Moreover, Leopold felt that the appreciation of nature should be accessible to the layperson and that improving the public sensitivity of landscapes and the underlying biophysical processes is crucial to maintaining the health of the land (Meine 2004a, 112). Indeed, in Leopold's view beauty was an attribute of lands that possessed stability and integrity (Newton 2006, 347). Leopold would include the criterion of beauty as part of his land ethic.

4.6.3.2 Land Health[29]

Leopold based his land ethic concept, essentially a re-imagining of the role of human beings in the land, on his ecological understanding of how the land works, namely: 1) his consideration of humans as being part of land; 2) his awareness of the limits of science in revealing how the "biotic mechanism of land" or the "land mechanism" (Leopold 1949, 214); and 3) the need to establish and maintain land health. I elaborate on these ideas next.

[29] This section was modified from Lin (2014).

In Leopold's thinking humans are not separated from the land, even when land was represented in a scientific form like a land pyramid or in a network of lines of dependency—or food chains—in a land community (see Figure 4.2). He considered humans to be part of the pyramid, sharing "an intermediate layer with the bears, raccoons, and squirrels which eat both meat and vegetables" (Leopold 1949, 215). However, human modification of the land is of a different order compared to the other organisms: the use of scientific tools and technology was causing severe degradation of the land. Leopold concluded that "man-made changes are of a different order than evolutionary changes, and have effects more comprehensive than is intended or foreseen" (Leopold 1949, 218).

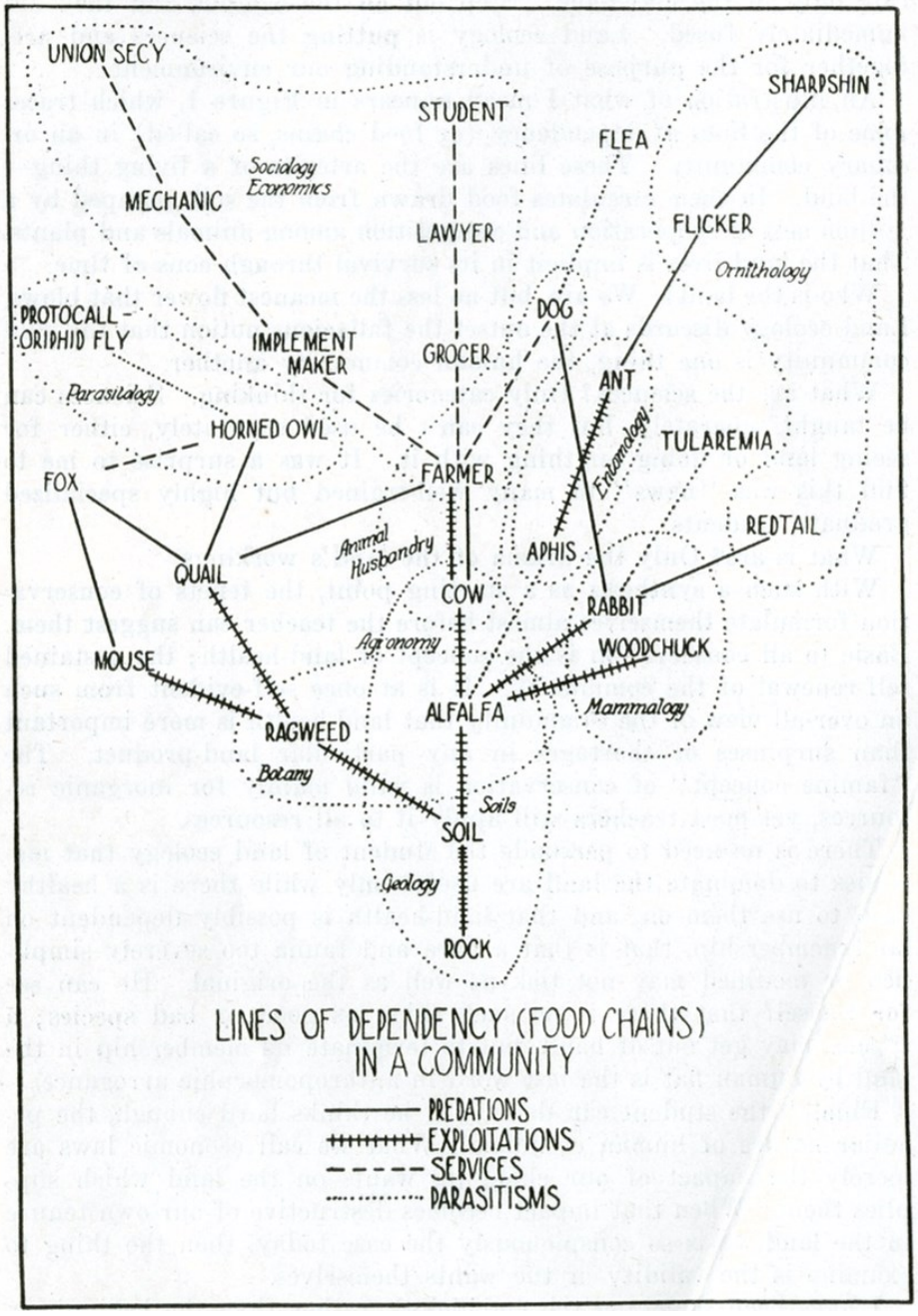

Figure 4.2: Figure that accompanied Leopold's "The Role of Wildlife in a Liberal Education" as it appeared in *Transactions of the Seventh North America Wildlife Conference*.

Leopold recognized the limits of science in understanding the biotic mechanism of land: “The ordinary citizen today assumes that science knows what makes the [biotic] community clock tick; the scientist is equally sure that he does not. He knows that the biotic mechanism is so complex that its workings may never be fully understood” (Leopold 1949, 205). The irreducible complexity and uncertainty in the workings of the land call for a certain measure of restraint and humility from humans when interacting with the land. Leopold imagined his land ethic as a guide for human behaviour in complex ecological situations (Leopold 1949, 203).

Leopold’s concept of land health, which he had introduced in his published work but had explored in more depth in his unpublished manuscripts,[30] plays an important role in his land ethic: “A land ethic…reflects the existence of an ecological conscience, and this in turn reflects a conviction of individual responsibility for the health of the land. Health is the capacity of the land for self-renewal” (Leopold 1949, 221). Leopold was using land health, which represents a characteristic state of functioning of the land, as a guide for human activity. Leopold used the term “unity” to describe this land-health attribute of the original native state of land and called for “unified conservation” (instead of lopsided, single track conservation which focuses only on a single resource) so that human activity is configured to promote and maintain land health instead of causing damage to it (Leopold 1944). The goal here is to discern and maintain the intrinsic characteristics of the land and to prevent or reverse the derangement of the land, or “land-sickness” that was caused by excessive or misguided human activity in industry and agriculture (Leopold 1941c). The examples of

[30] These manuscripts have since been published: “Conservation: In Whole or in Part?” (Leopold 1944); “Biotic Land-Use” (Leopold c.1940); and “The Land-Health Concept and Conservation” (Leopold 1946).

symptoms of land-sickness which Leopold mentioned include loss of soil fertility, soil erosion, abnormal floods and shortages in water systems, and the sudden disappearance or irruption of plants and animal species (Leopold 1949, 194, 221). Moreover, since Leopold viewed humans as part of land, his concept of land health encompassed the health of natural systems, humans included (Meine 2004a, 100). In terms of the concept of ecosystem, Leopold is calling for humans to be considered as part of the ecosystem and for human health to be considered as part of ecosystem health (Lin and Fyles, in press).[31] Leopold's concern with understanding and restoring the intrinsic characteristic of the land led him to see the vital importance of preserving wilderness areas, a cause in which he was heavily invested, as a control against which to check and compare the human experiment on land use.[32]

Leopold's ecological knowledge and land health concept are therefore an integral component of his land ethic, providing a normative framework for understanding the land mechanism and to help him establish a "mental image of land" in relation to which "we can be ethical" in "The Land Ethic" essay, the final essay in *A Sand County Almanac* (Flader and Callicott 1991). He proposed two yardsticks of land health: soil fertility and diversity of fauna and flora (Leopold c.1940). In a manuscript entitled "The Land-Health Concept and Conservation" Leopold articulated four broad guidelines to achieve land health: 1) preserve

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[31] Interestingly enough, one of Leopold's earliest uses of the phrase "land ethic" occurred in a pithy 1935 essay entitled "Land Pathology," in which he discussed the problems of relying simply on the profit motive in conservation, the social, historical, and cultural reasons for the limited success of conservation so far, and the importance of ethics and aesthetics in tempering economic activity on the land (Leopold 1935).

[32] "Just as doctors must study healthy people to understand disease, so must the land sciences study the wilderness to understand disorders of the land-mechanism" (Leopold 1941b).

native species; 2) avoid violence in land-use such as large-scale earth moving or application of chemical pesticides; 3) inculcate among landowners a relationship with the land that goes beyond economics; and 4) limit the size of human population (Leopold 1946).

A criticism of Leopold's thinking is this willingness to speak up on limiting human population, which revealed vestiges of the then popular neo-Malthusian thinking on how the populations of developing countries needed to be controlled, if not reduced (Chase 1977; Powell 2015). Leopold wrote in the manuscript: "[i]t is notorious that many of the 'undeveloped' regions are already overpopulated" (1946), a sentiment that sits uncomfortably with our present-day sensibilities. He was most likely influenced by conservationist William Vogt (1902–1968), a close intellectual associate with whom he maintained correspondence, and who held neo-Malthusian views on the importance of population control.[33] Leopold's discussion of population control measures must be seen in light of his thinking on civilization, race, and ecology of the land, as well as the discussion of race in American society in general, and in the conservation movement in particular, during the first half of the twentieth century.[34] The delicate issue of population control for the sake of protecting the environment persists to our present time.

[33] When Vogt gave a talk at the University of Wisconsin on how certain Latin American countries were not managing their resource base well enough to support their growing population, he offended some Latin Americans in the audience; Leopold, on the other hand, was quite impressed by the "intellectual appraisals" of Vogt (McCabe 1987, 114).

[34] For example, Hays (1959) observed that delegates at the first session of the National Conservation Congress in August 1909 called for the conservation of the Anglo-Saxon race, among others.

4.6.3.3 Land Ethic

Eventually Leopold concluded that conservation of the land would need to be based on an ethic. To respect ecological reality, Leopold proposed that the sphere of ethical concern be expanded to include the land. This is accompanied by a transformation of consciousness of human beings from the dominant mentality of "conqueror of the land-community to plain member and citizen of it" (Leopold 1949, 204). In Leopold's view, humans' relationship with the land should be expanded to embrace more than just economics: "quit thinking about decent land-use as solely an economic problem. Examine each question in terms of what is ethically and aesthetically right, as well as what is economically expedient." The next two statements have been interpreted by most readers as encapsulating the land ethic: "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (Leopold 1949, 224–225).[35]

Leopold's dictum was directed at people whose thoughts and actions influence land-use—in other words, everybody. It spoke most directly to landowners, such as farmers, and land-use decision-makers, such as foresters and government bureaucrats. It also spoke to the layperson whose consumption patterns and mentality towards the land affect land-use decisions in myriad and sometimes imperceptible ways. Indeed, during Leopold's lifetime the percentage of US population living in rural areas gradually decreased from more than 64 percent in the 1880s and 1890s to about 44 percent in the 1930s and 1940s, and has

[35] The term "biotic community" was one of the terms that was used in ecological discourse during Leopold's time and was used in Charles Elton's *Animal Ecology* (1927). Leopold was using its metaphorical aspect to describe how "the plants, animals, men, and soil are a community of interdependent parts" (Leopold 1934a).

continued to decrease to approximately 19 percent in 2010 (US Census Bureau 2012, 13–14). This demographic development suggests that Leopold's land ethic needs to be accompanied by a more explicit "consumption ethic" for it to gain traction in our present highly-urbanized and high-consumption world (MacCleery 2000).

Leopold's use of the concepts of integrity and stability in the biotic community reflected his understanding of the land mechanism. For Leopold, the *integrity* of the land referred to its functional integrity, "a state of vigorous self-renewal" synonymous with health, which needs to be preserved (Leopold 1944). By *stability* Leopold was not implying a static state of the land. Instead, he was referring to a dynamic equilibrium in the land mechanism, in contrast to the "self-accelerating rather than self-compensating departures from normal functioning," the severe instability in land, which he observed in the American landscape during the 1920s and 1930s (Leopold 1935; Meine 2004a, 129). He was informed by his observations on how the stability of various ecosystem processes is dependent on the species diversity of that ecosystem. The more the ecosystem is able to keep its original species diversity and population levels, Leopold argues, the more stable the various processes of the ecosystem will be (Leopold 1944).[36] This prompted him to call for human modification of the land to be "as gentle and as little as possible" (Leopold c.1940). Freyfogle (2009) noted that "[w]ith his land ethic Leopold transformed land health from a communal goal into an ethical norm to guide individual behavior."

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[36] Leopold was assuming the idea that biological diversity enhances ecological stability, the "diversity-stability hypothesis," which was challenged by studies conducted by Robert May and others. However, these studies, which were based on mathematical models, had shortcomings, including a focus on individual species population. Beginning in the mid-nineties the hypothesis was rehabilitated by an experimentally-driven research program and a shift in focus from population to ecosystem stability. See Mikkelson (2009).

Recognizing that the ecological foundations of Leopold's land ethic appear obsolete, Callicott (2014, 94–97) provided an update on the land ethic according to development in ecological thought since Leopold's time. Callicott observed that Leopold considered evolutionary change as the only natural and directionless change to the land and, hence, other significant changes to the land as anthropogenic in nature (2014, 94). Leopold was certainly aware of successional change in the land, but understood it as terminating in a relatively static climate condition. His call for ensuring stability in the land was prompted by the land pathologies he witnessed during the 1930s, such as the Dust Bowl (Worster 2004). Since Leopold's time, however, ecologists have identified natural disturbances to ecosystems—such as wind damage, insect outbreak, flooding, wild fires, species migration and extirpation—that result in directionless changes in the ecosystem. This flux of nature suggests that Leopold's stability and integrity of the land could be better described as the functioning of the land with a state of dynamic equilibrium; stability in the sense of the land residing within a range of natural variation, and integrity in the sense of the natural biotic and abiotic processes that act to maintain the land within that range.

This leaves us with beauty of the land, which Callicott (2014, 96) interpreted as referring to land health, pointing to Leopold's discussion of the aesthetics of healthy land (Leopold 1935, 1946). Newton (2006, 342–343) concurred, observing that for Leopold, "beauty…was an attribute of lands that were healthy." Nevertheless, Callicott felt that we could use the temporal and spatial scales of ceaseless and directionless successional change and natural disturbance change to evaluate anthropogenic change (2014, 95). He provided an updated version of Leopold's land ethic maxim to take into account the flux of nature: "*A thing is right when it tends to preserve the beauty of the biotic community and to disturb it only at normal spatial and temporal scales. It is wrong when it tends otherwise*" (2014, 97,

italics in original). This updated version is more congruent to the recent paradigm of responding to forests as complex adaptive systems (see section 3.16.2).

4.7 Leopold's Concept of the Self and Implications for Forestry

By the time Leopold took up his appointment as Professor of Game Management in 1933 at the University of Wisconsin, his professional interests had diversified beyond forestry to conservation in general. Nonetheless, the issue of managing forests and woodlots remained pertinent to his work on the conservation of wildlife and of soil and watersheds. In this section I discuss the concept of the self that is implied in Leopold's writing and its implications on forestry.

From the above discussion we can draw some insights on Leopold's sense of changes that are needed in our modern concept of the self to maintain the health of the land, which includes humans. Leopold emphasized that humans should consider themselves to be plain members and citizens, as opposed to conquerors, of the biotic community. Recognizing our membership in the biotic community compels us to develop a land ethic to ensure that our land-use decisions are based on aesthetics and land health as well as economics. Leopold's hope was that, by adding two criteria for land-use, aesthetic ("beauty") and land health ("integrity and stability"), to the criteria for land-use, humans would be able to shift away from a utilitarian and economic attitude towards the well-being of the land. In other words, Leopold was trying to help humans reclaim themselves as Homo *sapiens* and oppose the tilt in the modern mindset towards Homo *economicus*.

Seigel's (2005) three dimensions of the self are well-represented and complementary to each other in Leopold's thinking. Leopold sought to establish the relational and the bodily dimensions of the self with respect to land through the field of ecology, by emphasizing our membership in the biotic community. He sought to establish this through his land pyramid

(Figure 4.1) and network of food chains in the land community (Figure 4.2). Humans are immutably members of the land community and, as a result, human health is immutably linked to land health. He sought to link the relational and bodily dimensions to the reflective dimension by articulating the need for individuals and society to cultivate an ecological conscience and a land ethic, and by his unrealized attempts to rethink economics. For Leopold, the three dimensions are linked together through the field of ecology and the immutable dependency of life on the land, and manifested through human thought and action that are aesthetic, ecological, and ethical.

Leopold had a profound influence on forestry. He spearheaded several initiatives during his career at the Forest Service. His writings inspired an ethical turn among foresters during the late 1980s and the early 1990s. As Flader observed, "the ebb and flow in the receptivity of foresters and other land managers to Aldo Leopold's message is owing to larger forces in our society" (1999, 3). Leopold's influence on forestry is considerable since he was a forester in the Forest Service. He also used forestry as an example in Part III in which his concepts of land health can be applied. In the essay "Land Health and the A-B Cleavage," he described two groups of foresters. Foresters in Group A treats the soil and forests as a commodity for producing timber and "feels no inhibition against violence" (Leopold 1949, 221). Foresters in Group B treats the land as a biota and prefers natural reproduction, native species, and creating a natural environment that can sustain a host of secondary forest functions such as wildlife and watersheds (Leopold 1949, 221). This "A-B Cleavage" has been frequently mentioned by foresters in their discussions on principles of forest management (List 2000).

What changes should be made to forestry given Leopold's concept of the self? Two related changes are obvious. First, as members of the biotic community, we need to practice a form of forestry where our needs do not dominate those of other species. In other words,

we should consider how much timber to harvest or how much of other benefits to draw from the forests, in terms of what the forests can afford to yield without compromising their health. Second, our benefits from the forests should not only be considered in economic terms, but also in terms of aesthetic values. These values can come in the form of personal experience of relatively undisturbed forests, or of knowing the evolutionary and ecological history of the forest, such as that of old-growth forests.

Considering forests as complex adaptive systems would force us to reconsider our policy of forest management. An implication of recognizing complexity in the system is the inadequacy of relying solely on rationality and analytic thinking when formulating a response. Leopold's emphasis on developing aesthetic values in the land could be seen as a way to help us manage our own response to the complexity in the landscape. Empirical knowledge is indispensable of course, but the goal here is not to impose managerial control over the landscape. Rather, we are tinkering with the landscape to guide it towards an "envelope of possible future conditions" (Puettmann, Coates, and Messier 2009, 126) from which we can derive utilitarian and aesthetic values.

Chapter 5: Personhood in the *Zhuangzi*

5.1 Introduction

The study of personhood in the *Zhuangzi*, a Daoist text that was composed in China in the Warring States period (475–221 BCE),[1] may seem out of place in the present project to reformulate the concept of self in United States forestry. However, the value of this study becomes apparent if we approach it in the spirit of exploring other possible formulations in the course of developing our own alternatives and entering into a dialogue with other cultures. This dialogue will also remind us of the cultural specificity of Western ideas and make us realize that alternative formulations of the self exist. In other words, our modern Western concept of the self is not immutable. Since the word "self" is a culturally freighted concept in the Western thought, I will use the word "personhood" instead of "selfhood" in this chapter. Later in this chapter, I explicate the problems of using the word "self" when discussing Chinese philosophical thought.

Daoist thought has often been identified as possessing ideas that can serve as an alternative to the dualistic and anthropocentric worldview of the modern West (Callicott 1994, 67–75; Girardot, Miller, and Liu 2001; Miller 2003, 2006). This exploration of the *Zhuangzi* for inspiration to mend the relationship between humans and the rest of nature can be considered as part of the Religion and Ecology project (see next section) and a broader effort to derive ideas from Asian thought traditions to address issues of our present age (Duara 2014).

[1] The historical dating used in this chapter is based on the *Encyclopedia of Chinese Philosophy* (Cua 2003).

Stating certain requisite qualifications at the outset of this discussion on Daoist thought that was developed in Warring States China is instructive. First, we need to avoid romanticizing the ancient Chinese and discard any notions that they lived in harmony with the environment or were in touch with themselves.[2] The philosophical discourse during the Warring States period was responding to the political and social situation of its time and revolved around humanistic concerns—such as the nature of human beings—and not environmental ones. Second, Daoist thought constitutes only one, albeit highly influential, tradition in the history of Chinese philosophy. During the Warring States period the philosophical landscape was filled with a diversity of traditions of thought, with Confucians and Mohists creating two major schools.

I begin by mentioning the broader scholarly efforts to rethink the relationship between humans and the environment through the study of thought traditions in the world. In particular, I mention the project on Religion and Ecology founded by Mary Evelyn Tucker and John Grim. This is followed by a brief discussion on a major difference between Western and Chinese philosophical thought: the abstract nature of the former and practical nature of the latter. Next, I provide the historical context and philosophical landscape of the *Zhuangzi*, review Daoist philosophy, and discuss the meaning of the *dao*.

With these preliminaries accounted for, I begin my discussion of the *Zhuangzi* by examining its authorship and dating, general characteristics, and methods employed, as well as interpretations of the text. Next, I discuss two topics of the *Zhuangzi* which are relevant to my thesis: the meaning of *tian* ("heaven" 天), and the concept of the person and body. I examine the latter by studying the usage of *shen* ("body-person" 身) and *xin* ("heart-

[2] I am indebted to Dean Alan K. L. Chan for the second point.

mind” 心) and conclude that for the *Zhuangzi*, the human individual is properly considered as a body-person. I discuss Zhuangzi’s thinking on the relationship between *tian* and the body-person which he illustrated through the story of Woodcarver Qing. Finally, I discuss Zhuangzi’s concept of the body-person through Seigel’s (2005) three dimensions of the reflective, the relational and the bodily, as well as their implications for forestry.

In this chapter I will rely on the translation of the *Zhuangzi* by Brook Ziporyn (2009). References in the form “(21/8/11)” are, respectively, to the page, chapter, and line of the text of the *Zhuangzi* found in *A Concordance to Chuang Tzŭ* (Harvard-Yenching Institute 1956).

5.2 Religion and Ecology

As mentioned in section 2.2.1.4, the environmental predicament facing Western society has often been attributed to Christianity’s anthropocentrism and instrumentalist attitude toward the environment (White 1967). This has led scholars to study the world’s religious traditions in their efforts to recast society’s relationship with the environment (Callicott 1994; Callicott and Ames 1989; Callicott and McRae 2014; Taylor 2005). This conscious study of how religious traditions influence the human-environment relationship was encouraged by a series of ten conferences on “Religion and Ecology” held at Harvard from 1996 to 1998. Each conference featured a major world religion, including the three Abrahamic religions and the Chinese philosophical and religious traditions of Confucianism and Daoism.[3] Coordinated by religion scholars Mary Evelyn Tucker and John Grim, this

[3] The conferences, held at Harvard Divinity School’s Center for the Study of World Religions, examined the ecological thought reflected in the traditions of Judaism, Christianity, Islam, Hinduism, Jainism, Buddhism, Daoism, Confucianism, Shinto, and indigenous religions.

conference series and its published proceedings sparked intellectual and community interest in this Religion and Ecology project (Gottlieb 2006; Grim and Tucker 2014).

Recognizing the qualifications and limits of the Religion and Ecology project is important. In their series preface Tucker and Grim (2001) mentioned the "problems and promise of religions": the indifference to or negation of the environment in some religious doctrines; the blemished historical record of religious traditions in their institutional expressions and dogmatic forms; and the inevitable gap between theory and practice. In addition, recognizing the historical complexity and diversity of each tradition is important. For these reasons, approaching the project from an instrumental attitude of "mining" the conceptual "resources" of the religions should be avoided (Callicott 1994). Tucker and Grim called for achieving a "*critical understanding*" of the complexity, contexts, and frameworks of the religions and strive for "*empathetic appreciation*," with an eye towards "the *creative revisioning* of mutually enhancing human-earth relations."[4] Adopting this conscientious attitude is especially important when studying non-Western religious traditions, such as those of the Chinese.

[4] Taylor (2005) raised three criticisms of the Religion and Ecology series: a focus on major "world religions," thus neglecting other forms of nature-related religiosity; a focus on scholars and viewpoints from within the mainstream of these world religions, though the Indigenous Traditions and Ecology conference and book paid attention to contemporary grass-roots engagement; and an over-reliance on White's premise that the environment and our behaviour towards it is influenced by religious attitudes, thus neglecting to simply consider the relationships between humans, religions and other cultural dimensions, and their livelihoods, environment, etc.

5.3 Practical Nature of Chinese Classical Philosophy

Taken as a whole, Chinese philosophical and religious thought represents a departure from Western thought. Scholars in comparative philosophy have identified general differences between the character of Chinese and Western thought. One major difference stands out: in contrast to the abstract nature of Western philosophical thought, many scholars have identified the practical nature of Chinese philosophical thought as an important feature.

Western thought since the Enlightenment period has been characterized as being based on abstract reasoning, and relying on the rational and empirical modes of thinking for the presentation of the world and charting one's course of action through it (Coutinho 2013, 20). Rational discourse seeks to discover essential laws, properties, and structures of our physical surroundings. This is commonly attributed to the ancient Greeks' concern for theoretical truth for its own sake (Wong 2003). The result is that the pragmatic and hermeneutic modes of thinking—discourse that engages in problem-solving and gives meaning to our lives through interpretation—are relegated to secondary importance in Western thought (Coutinho 2013, 20).

In contrast, there is greater emphasis in Chinese thought on, and a consequent focus on developing, the practical as against the theoretical mind (Allinson 1989b). In this case pragmatic and hermeneutic modes of thinking take on primary importance while the rational and empirical take on secondary importance (Coutinho 2013, 20). Lao Sze-kwang (1989) suggests that Chinese philosophy as a whole is primarily "orientative" in character, that is, that Chinese philosophy intends to bring about—with reference to a primary problem—some change in the self or in the world or, in other words, self-transformation or transformation of the world. As we will see, Zhuangzi's ideal body-person is one whose

heart-mind is aligned with the *dao* (“the way” 道) and *tian* (“the heavenly/natural” 天). While the Chinese tradition did not value theoretical truth for its own sake, Wong (2003) suggests that this is possibly due to an “absence of a division between the metaphysical and the pragmatic or the transcendent and the culturally particular.” Later we see how Zhuangzi’s *tianlai*, or panpipes of *tian* (天籟), refer to the whole of existence where each existent is attuned such that it remains in a state of *ziran* (“that which is so of itself” 自然).

5.4 Historical Context: The Warring States Period (475–221 BCE)

The beginning of the Warring States period (475–221 BCE) was marked by the disintegration of the northern state of Jin into the three states of Han, Wei, and Zhao at the end of the *Chunqiu*, or Spring and Autumn, period (770–476 BCE). During the Warring States period, the geopolitical scene consisted of seven major states and a number of minor ones. The states were initially engaged in a balance of power through the art of diplomacy and war; the tumultuous period was marked by military campaigns and political instability (Yates 2007) as well as intellectual ferment. From 266 BCE onwards the state of Qin embarked on a campaign for total conquest, the success of which in 221 BCE marked the end of the Warring States period (Lewis 1999) and the establishment of the Chinese imperial period.

While the ruling structure during the Zhou dynasty was based on aristocracy and kinship, the rulers of the new states, in their desire to consolidate power within their boundaries, relied on a meritocratic system that admitted talent regardless of family background. This led to the establishment of the new *shi* (士) class in society, who served as civil and military functionaries. Although the *shi* class was likely to have been initially dominated by aristocrats, the new opportunities provided social mobility for commoners.

Most of the intellectuals during this time emerged from the *shi* class (Munro 1969, 7–11; Schwartz 1985, 57–59).

5.5 Philosophical Landscape

Philosophical thought flourished during the tumultuous Warring States period, with intellectuals developing theories on politics and governance and seeking the rulers' ears. The more prominent intellectuals founded schools of thought. The schools that present-day scholars are familiar with include the Confucians, founded by Confucius 孔子 (551–479 BCE), and the Mohists, founded by Mozi 墨子 (fl. 470–391 BCE). All the texts written during this period that have survived to our present time, including the Confucian *Analects*, the Mohist *Mozi*, the *Laozi*, and the *Zhuangzi*, are composite texts, a result of accretion and compilation by followers after the main author (if there was one) had died (Nivison 1999).

According to Nivison (1999), the disintegration of the Zhou and the onset of constant war had a profound influence on Chinese political philosophy. People looked back to the centuries when the Zhou kings had real authority and order prevailed in society as a kind of golden age; the most virtuous societies were thought to have existed in the past. They came to think of the ideal social order as one where order was maintained for the good of all by a central political authority in the known Chinese world.

Although the foundational Daoist texts of the *Laozi* and the *Zhuangzi* were composed during this period, the idea of a Daoist school of philosophy was invented later; as Graham noted, "Zhuangzi never knew he was a 'Daoist'" (2001, 128). In his commentary on the efficacy of existing philosophical and political thought, the Han dynasty (202 BCE–220 CE) lord grand astrologer Sima Tan 司馬談 (died 110 BCE) identified six *jia* 家 (De Bary and Bloom 1999, 278–282; Smith 2003). The character *jia* commonly means "family" but in

this context means "people [with expertise in something]" (Petersen 1995, 34ff). In his syncretic reformulation, Sima Tan identified a *Daojia* 道家, which he probably took to mean Huang-Lao Daoism, a syncretic form of Daoism which was popular during the early Han dynasty (Roth 1999; Yates 1997). Later, the scholar and bibliographer Liu Xiang (79–8 BCE) classified the *Laozi* and the *Zhuangzi* under *Daojia*.[5] Smith (2003) argues that it is only during this time, when *jia* came to represent a category encompassing person, text, practice, school, and history, that the term *Daojia* could be accurately translated as "Daoism." Berkson (2005) prefers to characterize the thought articulated in the *Zhuangzi* as "Zhuangzian" and not "Daoist" per se.

Certain characteristics of the intellectual discourse during this period are noteworthy. Benjamin Schwartz observed that a common thread among Chinese thinkers during the Warring States period was the socio-political mode of thought. The social was never separate from the political in the sense that there was a belief in the power of conscious will of kings or political elites to influence the course of human affairs (Schwartz 1985, 413–416).

Moreover, the intellectual discourse during the Warring States period occurred in "a world of shared notions subject to variant interpretations" (Schwartz 1985, 186). Terms that were frequently used include *qi* ("vital force" 氣), *xin* ("heart-mind" 心), *wuwei* ("effortless action" 無為 [Slingerland 2003]), *dao* ("way/to discourse" 道), *de* ("virtuosity" 德), *xing* ("human nature" 性), and *li* ("propriety" 禮). Different philosophical schools—known

[5] The original *Qi Lue* ("Seven Categories" 七略) was composed by the Han scholar Liu Xiang (79 or 77–8 or 6 BCE) and his son Liu Xin (46 BCE–23 CE). Ban Gu included *Qi Lue* as part of the *Han Shu* ("History of Han" 漢書) (Ban and Yan [1962] 1975, 1729–1732).

collectively as the "Hundred Schools" (*baijia* 百家)[6]—and different texts rely on different clusters of terms—for example, Daoist philosophy focuses on *dao*, *de*, and *wuwei* while frowning upon the largely Confucian *li*. The practice of *bian* ("disputation, argumentation" 辯) was common during this period of intellectual ferment, especially between the Confucians and Mohists (Coutinho 2004, 77–108). Each school of thought was arguing for the efficacy and superiority of its *dao* ("way") as the way of ordering human affairs. Unfortunately, most of the texts written during the Warring States period have been lost. As a result, we do not know the overall complexity of the philosophical positions of the "Hundred Schools" and are still trying to reconstruct the historical development of Warring States thought.

5.6 Daoist Philosophy

Modern Chinese scholars recognize two forms of Daoist thought. The first is Daoist philosophy (*daojia* 道家) whose beginning was attributed to the composition of the text the *Laozi* by its putative author Laozi (late fourth to early third century BCE) and which was widely considered to be further developed by Zhuangzi (c. 375–300 BCE) in his *Zhuangzi*. The second is Daoist religion (*daojiao* 道教) which first developed in the Eastern Han dynasty (25–220 CE) through a combination of distinctive elements: ancient Daoist thought; the belief in immortality; various physical, medical and meditative practices; and the millenarian belief in the dawn of a new age of "great peace," *taiping* 太平 (Kohn 2003).

[6] The term "hundred" was used to refer to the numerousness of schools and does not mean that there were exactly a hundred schools.

As mentioned above, the key texts of Daoist philosophy are the *Laozi* and the *Zhuangzi*, composite texts which were retrospectively classified as Daoist. While the Confucians sought to order human life in human terms, Laozi and Zhuangzi sought to do so in cosmic terms. Hans-Georg Moeller described Daoist philosophy as "meta-political" since its focus is on grounding political theory in an overarching cosmology and spiritual practice, in contrast to the metaphysical project of the ancient Greeks who sought to ground physical reality in a transcendent realm beyond (2004, 8). One can sense that the *Laozi* and the *Zhuangzi* were speaking out against—yet recognising the inevitability of—the predation and exploitation that are concomitant with civilization.

5.7 The Zhuangzi

The *Zhuangzi* 莊子 is named after the putative author of its first seven chapters, Zhuangzi ("Master Zhuang"), whose real name was Zhuang Zhou 莊周 (c. 369–286 BCE).[7] Not much is known about him except for a brief biography recorded in *Shiji* 史記 or *The Grand Scribe's Records* written by Sima Qian 司馬遷 (145–86 BCE). According to this record, Zhuangzi lived during the time of King Hui of Liang and King Xuan of Qi and his writings were thought to be continuing, in essence, the tradition of the *Laozi*. He was a native of Meng in the state of Song, and served as a minor official in a locale known as "lacquer-tree park" in Meng (Nienhauser 1994, 23–24).

5.7.1 Authorship and Dating

The present version of the original Chinese work consists of thirty-three chapters, which was edited by Guo Xiang 郭象 (c. 252–312) from a fifty-two chapter version that is no

[7] The *Zhuangzi* is also known as *Nanhua zhenjing* ("Perfect Scripture of Southern Florescence" 南華真經).

longer extant; Guo Xiang also wrote a commentary for the text (Chan 2003; Robinet 2008). The chapters are usually classified by scholarly consensus into three sections: the inner chapters (first seven chapters), the outer chapters (chapters eight through 22), and the miscellaneous chapters (23 through 33). The inner chapters are usually considered to form a single coherent set of work written by a single author, the historical Zhuangzi. The outer and miscellaneous chapters might be read as expositions and responses by later disciples.[8] The last chapter, chapter 33, contains a summary of the world of thought in Warring States China.

The authorship of chapters in the *Zhuangzi* has received considerable attention from scholars. Graham places the compilation of the *Zhuangzi* in the early Han dynasty and classifies the outer and miscellaneous chapters into four groups: 1) the Primitivists, who reject all government and the accoutrements of civilization (chapters 8–10, chapter 11 [lines 1–28] and chapter 12 [lines 83–102]); 2) the Syncretists, whose worldview is characterized by an integration of *Yijing* philosophy and *yin-yang* cosmology with Daoist ideas (chapters 11 [66–74], 12 [lines 1–82], 13–15, and 33); 3) the School of Zhuangzi, with themes that are similar to the inner chapters (chapters 17–22); and 4) the Yangist miscellany, consisting of hedonists or followers of Yang Zhu 楊朱 who believe that the ultimate aim of life is pleasure and nothing is worth physical harm to oneself (chapters 28–31) (Graham 1990; 2001, 27–29). Chapters 23–27 and 32 are considered to be "ragbag" or miscellaneous chapters that consist of fragments.

[8] From a hermeneutic perspective, Wu Kuang-ming likens the outer and miscellaneous chapters to be a "companion" to the inner chapters and considers the authorship of the full text to be a "circle of friends" (Wu 1990, 14).

Liu Xiaogan (1994) argues that the text was compiled well before unification in 221 BCE, and classified the chapters into three schools: 1) the "Transmitters," followers of Zhuangzi whose works bear similarities with the inner chapters (chapters 17–27, 32); 2) the "Anarchists," who reject all government (chapters eight to first part of chapter 11, 28–29, 31); and 3) the "Huang-Lao" school which fuses the thought of various schools with Daoist ideas (second part of chapter 11 to chapter 16, 33).

Recent archaeological evidence supports Liu's estimate of the date of compilation of the *Zhuangzi*. A badly damaged bamboo slip copy of the text was excavated from a tomb which dates back to the early Western Han period (202 BCE–8 CE) and is located in present-day Shuanggudui 雙古堆 near Fuyang 阜陽, in Anhui province. Passages from all three sections (the inner, outer, and miscellaneous sections) were present in this copy. Reporting on this discovery, the researchers conjectured that the *Zhuangzi* was composed no later than the late Warring States period, thus suggesting that the outer and miscellaneous chapters are at least as old as the Western Han (Zhongguo wenwu yanjiusuo Fuyang diqu bowuguan Fuyang Hanjian zhenglizu, 2014).

5.7.2 General Characteristics

The *Zhuangzi* is an unusual philosophical text, consisting of short passages that relate fantastic imagery, satiric stories and dialogue, as well as accounts of ecstatic experience and exceptional craft skill. It focuses on the individual mind and advocates personal ways of wisdom and methods of self-preservation and survival in a tumultuous world. Zhuangzi's use of imagery (Liu 2013) reflects his wariness of solely relying on language to articulate one's thoughts and his view of the futility of disputation, which some thinkers, most notably the Confucians and Mohists, engaged in during his time. When a

reader reads passages that describe fantastic imagery, her mind is never at rest as it conjures the image while at the same time wondering what to make of it.

It is important to know the philosophical developments during Zhuangzi's time to appreciate his writings. As noted in Sima Qian's brief biography, Zhuangzi paid most attention to the Confucians and Mohists, as is evident in the inner chapters. The Confucians advocated duty and love in one's special relationships (for example, love for one's parents and children), specialized in rituals (for example, music performances and elaborate funeral rites), and sought to advise rulers on government affairs. Zhuangzi criticized the Confucians' elaborate rituals and desire for political appointments. His subversive sense of humour is reflected in his portrayal of Confucius in the inner chapters as either a subject of ridicule or lecturing or as a spokesperson for Zhuangzi's thoughts; Confucius' favourite student Yan Hui is also depicted as achieving sagacious insight that makes him worthy of becoming Confucius' teacher (Littlejohn 2010).

The Mohists, founded by Mozi 墨子 "Master Mo" (fl. 470–391), constitute another dominant school of thought during the Warring States period, but declined and disappeared in the early Han dynasty. In contrast to the Confucians, the Mohists advocated impartial and universal concern, evaluated policies according to utilitarian and frugal standards, and advocated a strong defence force for state survival, with some Mohists becoming experts in defensive warfare (Yates 1980). Later Mohists developed a sophisticated system of dialectical argumentation (Graham 2003). Zhuangzi criticized the later Mohists' analytic attempts to use language to fix categories of thought.

One of the themes of the *Zhuangzi* is to question the worth and purpose of the human intellect and worldly achievements. This is conveyed in the text through the censure of intellectual disputation between the Confucians and the Mohists and absolute knowledge

in general, and the rejection of government office. In contrast, Zhuangzi valorised highly skilled craftsmen, whose skilled practice could be interpreted as an avenue to access the *dao* and providing lessons on how to lead one's life. He also valorised men whose bodies are deformed or mutilated who possessed *de* ("virtuosity"), simply by virtue of their being and acceptance of their physical form. Ivanhoe (1999, 250–251) identified three characteristics of the concept of *de* in the *Zhuangzi*: its attractive power, its ability to affect others in distinctive ways, and its separation from physical appearance. Thus, in contrast to the Confucians and Mohists who laboured to improve society—the former by seeking office and the latter through acting out of universal concern—Zhuangzi advocated the cultivating of one's artisanal vocation in order to access the *dao* or maintaining one's uselessness with regards to society for the sake of self-preservation.

5.7.3 Methods Employed in the *Zhuangzi*

A few general observations can be made regarding the methods employed by the *Zhuangzi*. The *Zhuangzi* engages in a literary mode of philosophical discourse, where important ideas are conveyed through literary expression, especially narratives (Coutinho 2013, 16; Wong 2003). It employs the rhetoric of exaggeration that jolts us into some kind of reflection on who we are and why we do what we do (Yearley 2010). Another rhetorical tool used in the *Zhuangzi* is the posing of double rhetorical questions, usually of the type "Is there really X? Or is there no X?" as seen in chapter 2, "Qiwu lun" ("Equalizing Assessments of Things" 齊物論) (Ziporyn 2009, 12, 15, 16). Such questioning forces us to question our sense of being able to achieve firm knowledge and has, with other features in the text, led scholars to interpret it as advocating a form of scepticism (Kjellberg and Ivanhoe 1996).

5.7.4 Interpretations of the *Zhuangzi*

Given the vague and protean nature of the *Zhuangzi*, scholars have proposed various interpretations of the text, yet these interpretations reveal as much about the thinking of the former as the latter.

Graham (2010) interprets Zhuangzi as presenting a kind of ideal-observer view of ethics, where an individual attends to the situation at hand by responding spontaneously with awareness. Further, in the context of rationalistic Western philosophy, responding spontaneously with awareness sets limits to rationality.[9]

A considerable number of interpretations focus on the inner chapters only. Allinson (1989a) interprets the inner chapters as inducing in the reader spiritual transformation, defined as a transformation from a lower to higher consciousness, and in the process undoing critical, analytic thinking while cultivating an esthetic, intuitive mode of apprehension. Schwartz considers the inner chapters to be similar to Jewish, Christian, and Islamic mystical traditions in advocating union with the ultimate ground of reality (Schwartz 1985, 192–194). Yearley proposes that Zhuangzi advocates a mysticism of a

[9] Graham's thinking on the *Zhuangzi* must be considered in light of his view that rational thought during the Warring States period was manifested in the later Mohists only. He characterizes Zhuangzi's explicit anti-rationalism as a reaction to the emergence of later Mohist logic and suggests that Zhuangzi's preference for spontaneity and fantasy over reason and logic was instrumental in turning Chinese philosophical thought away from the rationalist path (Graham 1989, 7; 2001, 5; 2010). However, Coutinho argues that it is not right to say that rational thought did not play a role in Daoist texts, since the Daoists, who were concerned about acquiring the correct insight into the way of the cosmos, had to reason among alternative methods, though their reasoning may not have been articulated in strict logical terms (Coutinho 2013, 193, fn 18).

different kind, an "intra-worldly" mysticism that calls for total involvement with and enjoyment of each moment, followed by a detachment from the moment once it passes and a lack of desire that it return (Yearley 2010).

A common observation on the *Zhuangzi* is its scepticism and the resulting "therapeutic" effect on readers. Kjellberg (1996) and Raphals (1996) highlight the similarities between Zhuangzi and Hellenistic and Platonic scepticism, respectively. Van Norden (1996) suggests that in the inner chapters Zhuangzi is a therapeutic sceptic who uses sceptical argument that makes one overcome limited common sense, thereby making one more open to different convictions, which is necessary for one to achieve the illumination (*ming* 明) that is characteristic of the sage. Ivanhoe suggests that Zhuangzi's appeal to the perspective of *tian* could be "read as a form of therapy, designed to curb our terrible tendency toward self-aggrandizement" (1996, 200).

Hansen (2010) provides another interpretation of scepticism in the *Zhuangzi* from the perspective of linguistic philosophy. Focusing only on the second chapter of the *Zhuangzi*, "Qiwu lun" ("Equalizing Assessments of Things" 齊物論), he conceives of a multiplicity of *dao*s instead of a single absolute *dao*, where the *dao*s are understood as prescriptive discourses. Using this interpretation of *dao*, Hansen argues that Zhuangzi is propounding perspectival relativism, the view that all judgements are made in a context and perspective that are framed by systems of judgement. Since each system is internally self-justifying, none of the systems, and consequently, perspectives and judgements are privileged or absolute. It is incoherent to talk about a real or absolute perspective. The final result is that the author of "Qiwu lun" is a sceptic.

Steven Coutinho identifies vagueness as an important concept in the *Zhuangzi* and in Daoist philosophy in general. According to Coutinho, Western philosophy always

searches for “definition, essence, clarity, and deductive validity” and is always at pains to eradicate “vagueness, ambiguity, and indeterminacy,” while the Daoist philosophy of the *Laozi* and the *Zhuangzi* takes vagueness, ambiguity, and indeterminacy as defining characteristics of the world through which humans can yield insightful understanding of things (Coutinho 2004, 11). Zhuangzi, by meditating on vastness, vagueness, and the penumbral in the first two chapters—“Xiaoyao you” (“Wandering Far and Unfettered” 逍遙遊) and “Qiwu lun” (“Equalizing Assessments of Things” 齊物論)—reminds us that the world and life are “penumbral,” and that the nature of all models and instruction is that they cannot guarantee closure of application. This interpretation forces us to realize that there is a point where our usual perspectives and modes and categories of thought break down and are no longer applicable (Coutinho 2004).

Zhuangzi’s programme of “detachment in involvement” (Nivison 1999), self-preservation to last out one’s years that are endowed by *tian* (“the heavenly/nature” 天), and reconciliation with death was a patent response to the vicissitudes of life during the Warring States period. Focusing on the inner chapters as well, Wang Bo observed, from how Zhuangzi strove to keep himself and his self-esteem intact, that

> one wonders if Zhuangzi saw that civilization during his time was hard-wired to destruction, and since doing (*wei*) cannot ameliorate the situation, that he chose to do nothing and preserve himself rather than exert himself, like what Confucius did. That one is better off playing mad to reconcile the ironies and tragedies, instead of trying to save the world. (Wang 2014, 19)

In sum, scholars have developed coherent interpretations of the Zhuangzi, at least of its inner chapters. However, as Schwartz (1985, 62) pointed out, “even carefully articulated

doctrines ostensibly based on sustained logical discourse…remain full of unresolved problems." This will be the case *a fortiori* in a text such as the *Zhuangzi*, where its intended meaning is often articulated indirectly through many brief passages that relate fictional accounts. In trying to understand the text, Burton Watson observes that "in the end, the best way to approach Zhuangzi, I believe, is not to attempt to subject his thought to rational and systematic analysis, but to read and reread his words until one has ceased to think of what he is saying and instead has developed an intuitive sense of the mind moving behind the words, and of the world in which it moves" (Watson 1968, 7).

5.8 The Concept of Dao

The word *dao* ("way" 道) is a significant concept in Daoist philosophy, though it is also used in other Chinese philosophical texts and traditions (Cheng 2003a; Kirkland 2008). Although we cannot explain Daoist philosophy solely by the word *dao*, it is fair to say that a defining feature of Daoist philosophy is its treatment of the concept of *dao* as the substance of a philosophical discourse. In classical China, the original meaning of *dao* was a "road" or "path," and also to "say" or "speak." Its meaning was extended to include a doctrine or set of teachings that allow us to live life on optimal terms and the concomitant body of discourse,[10] which was used by Confucians and others (Kirkland 2008); in this sense, *dao* could be translated as "guiding (dis)course" (Ziporyn 2009, xiii). In the Confucian *Analects*, *dao* refers to the all-embracing normative human order, encompassing the ways of social interaction that are encoded in cultural norms and the attendant prescriptions on individual behavior (Coutinho 2004, 122; Schwartz 1985, 62–63).

[10] Using this definition of the *dao*, one can speak of the *dao* of Confucianism, Buddhism, Christianity, of being a graduate student, and of academic writing.

However, whereas *tian* (“the heavenly/nature” 天) occupies a central position in the *Analects* such that *dao* appears as the “*dao* of Heaven,” in the *Laozi* the *dao* takes precedence and is considered to be the ultimate principle that is manifested in the movements of *tian*, *di* (“earth” 地), humans, and the myriad things (Allan 1997, 73–74; Schwartz 1985, 195–196).

According to Sarah Allan, the philosophical concept of *dao* as a natural course or way as used in the Confucian *Analects* and *Mengzi* and the Daoist *Laozi* and *Zhuangzi* is grounded in the root metaphor of a stream of water, though this metaphor is used in the two schools in different ways. In the *Analects* and *Mengzi* the conceptual metaphor behind the *dao* is the channel that is cut to guide the flow of water. Although the cutting of the channel may come across as contrived and unnatural—a criticism levied by the *Laozi* and the *Zhuangzi* against the Confucian focus on propriety and rituals—in Confucian thought the guiding of the flow of water through a proper channel, or the guidance of a people through “channels of proper behavior established by a humane king,” is a manifestation of natural heavenly order (Allan 1997, 70–73).

In contrast, the concept of the *dao* in Daoist texts comes from the varying course, the way, of water flowing across a terrain (Allan 1997, 66; Graham 2001, 7). Allan argues that the *dao* in the *Laozi* and the *Zhuangzi* is modeled not only on the course but the water itself in its various manifestations (1997, 73–79). For example, according to the *Laozi*, the *dao* benefits all living things just as water nourishes life (*Laozi* chapter 8), is unceasing and primordial like a deep spring (chapter 4), and “models itself on that which is so of itself (*ziran* 自然)” (chapter 25; Allan 1997, 74–78). The *Zhuangzi* stressed the amorphousness of the *dao* in which we exist in but of which we cannot understand: “As fish go on setting directions for each other in the water, men go on setting directions for each other in the Way

[*dao*]….As the saying goes, 'Fish forget all about each other in the Yangtse and the Lakes, men forget all about each other in the lore of the Way.'" (Allan 1997, 78–79)

The translation of the *dao* as the way reflects its literal meaning, though *dao* also means to speak and discourse. Graham (2001), in assuming that the goal of Chinese philosophy is the way to live and die and the Daoist interpretation of the *dao* as representing undifferentiated reality, observed that since the way the *dao* reveals is what one seeks, "the 'Way' is the most apposite makeshift term for it." Cheng (2003a) explains the link of the translation "way" to the "ultimate reality, truth, method, and the essence of all things" which *dao* represents by observing that "the way things move and events take place cause or determine what they are or what they become." Ziporyn (2009) translates *dao* as "the Course."

5.9 *Tian* ("the Heavenly/Nature" 天)

Tian ("the heavenly/nature" 天) is a foundational concept in Chinese thought. The literal meaning of *tian* is the sky, though in ancient Chinese thought its significance lies in the celestial entities that inhabit it. According to Allan (2007), the most powerful spirit during the Shang 商 period (c.1600–1045 BCE) and the subsequent Zhou 周 period (1045–256 BCE) was Shang Di ("lord-on-high" 上帝), who was identified with the pole star. Shang Di was the ruler of *tian*, the sky and celestial realm, and "commanded" natural phenomena. The Shang ancestral spirits, who were identified with their mythological ten suns, and the Zhou ancestral spirits, who were identified with the stars, inhabit *tian* as well. Therefore, during this early period *tian* was the location of the celestial spirits.

The concept of *tianming* ("mandate of heaven" 天命) originated during the reign of the first Zhou king. King Wen interpreted an astronomical event as a sign to legitimize the

overthrow of the Shang, which was accomplished during the reign of his son, King Wu. Since Shang Di ruled *tian*, the event was issued by his command and reflected his desire. Since the event was displayed in the sky, it could also be called a *tianming*, a "sky command." From then on the Zhou kings used the honorific *tianzi* ("son of *tian*" 天子) to emphasize their legitimacy. Over time, the concept of *tianming* became abstracted from a specific astronomical event into a cosmological theory. In this theory, *tianming* was interpreted as a "celestial or heavenly mandate" that was part of a repeating cycle linked to dynastic change. *Tian* became a euphemism of Shang Di and was understood in terms of Shang Di as well as the ancestral spirits that inhabit it (Allan 2007).

Beginning in the Eastern Zhou period (770–256 BCE), of which the Spring and Autumn period (770–476 BCE) constituted the early part, an impersonal *tian* emerged as it came to mean the origin of the natural/heavenly forces and processes (Eno 1990).

Tian is a complex concept that encompasses natural and spiritual dimensions, though nature is here conceived differently from Western thought. *Tian*'s literal meaning of "sky" is extended to mean a vast and expansive natural force that is responsible for and oversees the ten thousand, or myriad, things (*wanwu* 萬物). It is important to note that the natural powers of *tian* are manifested in natural phenomena, and hence the constancy of *tian* is reflected in the regularity of the seasons and the cycle of living and dying. In comparison with Christian heaven, there is no strong conception of a dualism between *tian* and the natural world. Therefore *tian* is the power that gives rise to things and their inner properties and tendencies (for example, the hardness of wood and the fluidity of water), imbue creatures with life, and enable things to flourish.

That *tian* possessed a natural and spiritual dimension reflects how the natural and spiritual realms were considered to overlap in ancient Chinese thought. Indeed, Ivanhoe

(2004) noted that during the Eastern Zhou "the spiritual realm blends with and infuses nature, lending it a moral curvature." The spirituality of *tian* is not manifested as a single spirit or single consciousness (Coutinho 2013, 30–31). Coutinho summed it up thus: "*Tian*, in its most philosophical sense, is not a person or a place, but the productive power of the natural world imbued with the accumulated potency of everything ancestral" (2013, 31). Ziporyn observed that with its anthropomorphic aspects dampened, *tian* "no longer refers to a particular agent, but a quality or aspect of purposeless and agentless creativity present in all existents"; therefore in his translation of the *Zhuangzi* he preferred to translate *tian* as "the Heavenly" instead of the substantive "Heaven" (Ziporyn 2009, 217).

5.9.1 *Tian* in the *Zhuangzi*

Implicit in the inner chapters is a recognition of the limits of human consciousness, that human thoughts (emotions expressed as dyads: "joy and anger, sorrow and happiness, plans and regrets, transformations and stagnation, unguarded abandonment and deliberate posturing—music flowing out of hollows, mushroom of billowing steam!" [Ziporyn 2009, 10]) account for only a portion of the phenomenal world, and further, that the source of the two sets of phenomena are one and the same. However, while Zhuangzi suggested that the common source of all these is *tian*, and advocated that we recognize which is due to *tian* and which is due to humans, in the end Zhuangzi reminded us at the beginning of chapter 6 that we do not possess absolute, certain knowledge of this.

Despite Zhuangzi's agnostic belief that no certain and absolute knowledge can be obtained through the use of language, it is obvious from the numerous references to *tian* in the *Zhuangzi* that it plays an important role in his thought. The frequent occurrence of *tian* in the inner chapters—120 times, used singly or in compounds—can be attributed to its literal meaning of "sky" and the centrality of the concept in early Chinese thought in general

and in Zhuangzian thought in particular (in contrast, *dao* occurred 46 times). Graham observes that "Zhuangzi is, to modify the cliché about Spinoza, a 'Heaven-intoxicated man'" (2001, 15). The usage of *tian* in the Zhuangzi reveals a sense of "the spontaneous and agentless creativity that brings forth all beings, whatever happens without a specific identifiable agent that makes it happen and without a pre-existing purpose or will or observable method…the sky makes the harvest without coming down and planning and planting; its action is effortless and purposeless" (Ziporyn 2009, 217).

While Zhuangzi was writing in a period where nature was infused with spiritual power, his point of departure was his thinking that humans are inextricably a part of an immense and all-encompassing natural order (Ivanhoe 2004). Thinkers at that time had already used natural phenomena as an analogue to describe human ethical ideals, for example, the use of the metaphor of water to describe qualities of human virtues in chapters 8 and 78 of the *Laozi*, and that of "sprouts" (*duan* 端) in the *Mencius* (Bloom 2009) to describe the innate nature of human virtues (Allan 1997).[11] Zhuangzi took this further by articulating that a deep structure exists in the cosmos which connects the myriad things, humans included, and used the term *tianli* ("heavenly/natural pattern" 天理) to articulate this ideal.

[11] That the use of *duan* in the *Mencius* supports this tendency to use human-nature analogues would not hold if one translates *duan* as "beginning" (Schwartz 1985, 267) or "font" (Munro 1969, 65n†). This variety of translations reflects different understandings of the meaning of *duan* (Csikszentmihalyi 2004, 142n97).

5.9.2 Relationship between *dao* and *tian*

What is the relationship between *dao* and *tian* in the inner chapters of the *Zhuangzi*? The most explicit discussion of *dao* in the inner chapters occurs in chapter six, "Da Zong Shi" ("The Great Source as Teacher" 大宗師). Zhuangzi wrote that people look on *tian* as their father and love *tian* with their *shen* ("body-person" 身)—"how much more for that which towers even higher?" (16/6/21; Ziporyn 2009, 43) Zhuangzi did not specify what that thing was, but he discussed the *dao* shortly after:

> The *dao* has its own tendency and consistency, but without any deliberate activity or definite form. It can be transmitted but not received, attained but not shown. Being its own root and its own foundation, it exists firmly even when *tian* and earth are not yet there. It makes the spirits and Lord-on-High divine, generates both *tian* and earth. It is above the summit without being high, beneath the nadir without being deep. It precedes *tian* and earth without being of long duration. It is elder to the earliest antiquity without being old. (16/6/29–31; Ziporyn 2009, 43–44, with modifications)

Thus, we see that *dao* is a primordial, generative entity that transcends descriptions like high, deep, or old. In particular, *dao* generates *tian*. Graham pointed out that Zhuangzi considers *dao* and *tian* as going beyond the distinction between personal and impersonal and displays an "awe as though for a person as an appropriate attitude to the inscrutable forces wiser than ourselves, throughout the cosmos and in the depths of our own hearts, which he calls 'daemonic'" (Graham 2001, 18).

5.9.3 *Tianli* ("Heavenly/Natural Pattern" 天理)

Zhuangzi's use of *tianli* in the story of Cook Ding in chapter 3 is one of the first in Chinese literary history (Ivanhoe 2004; Ziporyn 2009, 22n6). Cook Ding displayed a

miraculous knack when carving up an ox for King Hui of Liang (r. 370–319 BCE), such that the resulting movements and sounds resembled the regal dance and music of the ancient sage-kings. Responding to King Hui's query about this, Cook Ding explained:

What I love is the *dao*, something that advances beyond mere skill. When I first started cutting up oxen, all I looked at for three years was oxen, and yet still I was unable to see all there was to see in an ox. But now I encounter it with the spirit rather than scrutinizing it with the eyes. My understanding consciousness, beholden to its specific purposes, comes to a halt, and thus the promptings of the spirit begin to flow. I depend on *tian li* [the heavenly/natural pattern] and strike the larger gaps, following along with the broader hollows…(7/3/4–7; Ziporyn 2009, 22, with modifications)

That Cook Ding began his explanation by declaration his commitment to the *dao* is significant. It reveals that *dao* provided the ideal for how to live well, and its spontaneous expression in our pre-deliberative and unaffected inclinations showed us the way to attain it (Carr and Ivanhoe 2010, 52). Cook Ding allowed the daemonic in him to run its course and was able to carve up the carcass by following *tianli*, the heavenly/natural pattern. According to Ivanhoe (2004), *tianli* "runs throughout and defines the proper structure and function of each and every thing in the universe." What Cook Ding and other skillful exemplars in the *Zhuangzi* demonstrate is their "following along the seams of a deep pattern that runs throughout the world and according with natural processes….Following this pattern and harmonizing with these processes allows them and others to lead long, peaceful, contented, and highly effective lives" (Carr and Ivanhoe 2010, 53).

5.9.4 *Tianlai* ("Panpipes of *Tian*" 天籟)

An important illustration of the implications of Zhuangzi's conception of *tian* on one's personhood and relationship with the myriad things occurs at the beginning of

chapter 2, “Qiwu lun” (“Equalizing Assessments of Things” 齊物論). The passage takes the form of a dialogue between master and disciple, with Ziqi discussing the panpipes of *tian* (*tianlai* 天籟) to explain how his body and heart-mind could enter a rarefied, quiescent state:

> Ziqi of the Southern Wall was reclining against a low table on the ground, releasing his breath into *tian* above, all in a scatter, as if loosed from a partner.
>
> Yancheng Ziyou stood in attendance before him. “What has happened here?” he said. “Can the body really be made like dried wood, the heart-mind like dead ashes? What reclines against this table now is not what reclined against it before.”
>
> Ziqi said, “A good question, Yan! What has happened here is simply that *I* have lost *me*. Do you understand? You hear the panpipes of humans but not yet the panpipes of the earth. You hear the panpipes of the earth but not yet the panpipes of *tian*.”
>
> Ziyou said, “Please tell me more.”
>
> Ziqi replied, “When the Great Clump belches forth its vital breath,[12] we call it the wind. As soon as it arises, raging cries emerge from all the ten thousand hollows. Don’t tell me you’ve never heard how long the rustling continues, on and on! The towering trees of the forest, a hundred spans

[12] The Great Clump is usually taken to mean “earth” with a generative force akin to *tian* or *dao* (Creel 1970, 33–36; Guo 1961, 46).

> around, are riddled with indentations and holes—like noses, mouths, ears; like sockets, enclosures, mortars; like ponds, like puddles. Roarers and whizzers, scolders and sighers, shouters, wailers, boomers, growlers! One leads with a yeee! Another answers with a yuuu! A light breeze brings a small harmony, while a powerful gale makes for a harmony vast and grand. And once the sharp wind has passed, all these holes return to their silent emptiness. Have you never seen all the tempered attunements, all the cunning contentions?"
>
> Ziyou said, "So the panpipes of the earth means just the sound of these hollows. And the panpipes of man would be the sound of bamboo panpipes. What, then, is the panpipes of *tian*?"
>
> Ziqi said, "It gusts through all the ten thousand differences, allowing each to go its own way. But since each one selects out its own, what identity can there be for their rouser?" (3/2/1–9; Ziporyn 2009, 9–10, with slight modifications)

Reflecting the psychosomatic conception of the person in Chinese thought, Ziqi's rarefied state of mind was reflected in how his body resembled dried wood. Ziqi explained that this rarefied state resulted from his awareness of the panpipes of *tian*. However, Zhuangzi did not fully explain what is meant by the panpipes of *tian*. In order to interpret this imagery, we turn to the commentary by Guo Xiang (c.252–312),[13] who, as mentioned earlier, edited our extant version of the *Zhuangzi*.

[13] Of course, Guo Xiang's commentary must be understood in light of his own philosophy (Chan 2003; Ziporyn 2003).

According to Guo Xiang, the panpipes of *tian* are not a separate entity but refer to the whole of existence—the bamboo panpipes of humans, the hollows and crevices in the terrain that make up the panpipes of the earth, combined with all living things, with each thing considered as a spontaneous self-so (*ziran* 自然) process (Guo 1961, 50; Ziporyn 2009, 139). Guo Xiang explained that although the tubes of the bamboo panpipes are of different lengths, thus causing each tube to produce a different tone, they are all endowed with the same standard (*du* 度) through which their pitch is determined. Applying this insight to the panpipes of the earth, one recognizes in the diversification of the myriad things an equality that arises from each doing what is fitting and proper to itself. In his commentary, Guo Xiang used *tian* to refer to the entirety of existence. Hence a thing that is "so of itself" (*ziran* 自然) is in its own way so of *tian* (*tianran* 天然). The panpipes of *tian* refer to how each thing spontaneously self-generates and remain so of itself. As Guo Xiang put it, "each thing self-generates, without recourse to anything that goes beyond itself" (trans. Ziporyn 2009, 139); "this is the *dao* of *tian*" (Guo 1961, 50). In other words, there are no external causes to the existence of things. In sum, the panpipes of *tian* refer to how the myriad things in their diversification share a common characteristic, a unity, of each being spontaneously so of itself (Cook 2003; Moeller 2004, 135–137; Ziporyn 2009, 139). Since *tian* is considered to be equivalent to nature (Coutinho 2013, 27–32), the panpipes of *tian* also refer to the myriad things being naturally so of themselves.

This interpretation of the panpipes of *tian* provides a normative basis for conceptualizing one's personhood and relationship with the environment. At the beginning of the passage we learned that Ziqi has "lost himself," which can be interpreted to mean that he has ceased to see himself as an independent entity that is set apart from the myriad things. In the same vein, we can interpret Ziqi's seemingly being "loosed from a partner" (at

the beginning of the passage) to mean that he has lost his notion of possessing an individual selfhood, and thus any sense of distinction between "self" and "other." Further, Guo Xiang's interpretation of the panpipes of *tian* does not superordinate humans to a position above the myriad things, but instead considers an individual human as a thing among things (Cook 2003). This recognition of diversity in all of existence, that all things are so of themselves (*ziran*), does not allow for humans to impose their own standard on other things, such as trees and forests. Rather, humans would await all things, letting things, and themselves, transform of themselves. Cook (2003) concludes that the panpipes of *tian* is a call to engage in "aesthetic appreciation for life's diversity without evaluation" and to recognize our participation in the diversity of existence as a thing among things.

5.10 Self in Classical Chinese Philosophy

The contemporary Western study of the self in classical Chinese philosophy has been conducted primarily in terms of the mainline Confucian tradition, such that discussion of the Chinese conception of selfhood can occasionally refer to that of Confucian thought (e.g., Ames 1994; Ames 2004). On the other hand, Daoist thought had, until the relatively recent excavation of ancient texts, only a handful of extant texts from the ancient period—such as the *Laozi*, the *Zhuangzi*, and the *Wenzi*. Nevertheless, that these Daoist texts have survived reflects their cornerstone position in Chinese thought. As such, Daoist and Confucianist thought should be considered as "cultural correlatives" (Hall 1994, 230).

5.10.1 Self as Process and Achievement

It should be noted at the outset that concept of the "self" as conceived in ancient Chinese thought in general, and in the *Zhuangzi* in particular, is different from our modern, Cartesian, and dualistic concept of the self, insofar as we can dissociate the term from its

original Western meaning and conceive a new meaning for it. A key difference between Western and Chinese thought is how the former is based on a substance ontology while the latter, a process ontology (Ames 1993).[14] A result of this is the assumption in the classical Chinese tradition that an individual's self is something that one does—how one behaves in a particular context—rather than what one is essentially, such that it is more appropriate to speak of a human "becoming" rather than a human being (Ames 2004). This is echoed by Berkson's (2005) consideration of the self in Confucianism as an "achievement word" (to be discussed in section 5.11.2 below). Comparing Chinese ideas of the self through the ages with comparable ideas in Europe, the latter of which became salient during the Middle Ages and the early modern period, Mark Elvin (1985) observed that the Chinese were unlike the Europeans in that they were not on the whole obsessed with the personal fate of the soul after death, and nor did they share the isolation of the European soul from other souls or from an omnipotent, transcendent deity.

5.10.2 Models of the Confucian Self

Although Confucian thought espouses a set of concepts and goals that is different from Daoist thought, a review of the Confucian self is valuable in terms of elucidating key differences between Confucian and Western conceptions of the self and informing our understanding of Zhuangzi's thinking. Ames (1994) surveyed four models of the Confucian

[14] According to Ames (1993), the essentialistic substance ontology of Western thought tends to view the world as "a world of 'things' characterized by discreteness, finality, closedness, determinateness, independence," while the process ontology of Chinese thought suggests that the world is considered as "a world of 'processes' characterized by interconnectedness, interdependence, openness, mutuality, indeterminates, complementarity, correlativity, coextensiveness" (Ames 1993, 160).

self to identify their contributions and shortcomings. It is important to recognize at the outset that for the Chinese, the personal, societal, and political order are assumed to be coterminous and mutually entailing (Ames 1994, 204), a fundamental characteristic that these models are attempting to capture. The first model is that of the "hollow men," which takes selflessness as a fundamental Confucian value and subjugates the individual to the needs of the group, thereby perpetuating the stereotype of the Chinese self as being obedient to some external central authority. Ames pointed out that this selfless model implicitly assumes that Chinese drew distinctions between individual and society and between the private and the public. However, for the irreducibly social Chinese self, community interest and self-interest are not mutually exclusive.

The second model is the study of the Confucian self with a bias towards autonomous individuality, a necessary condition for realizing the liberal democratic self in the modern West. Ames observed that there is a conceptual equivocation with the term "individual" between one member of a class of similar entities, and something which is unique. While the irreducibly social basis of the Chinese self precludes autonomous individuality, Ames proposes that the Chinese self focuses on *unique* individuality, on one's uniqueness in one's kinship network and role in society.

The third model is the organic self, which became influential due to Joseph Needham's application of it (Needham 1954, 18–26). While admitting that there is a certain explanatory power in using the organic self to characterize the Confucian model of self, Ames points out that the former carries Aristotelian associations, such as the distinction between potentiality and actuality, teleology, and the immutability of species. On the other hand, the Confucian self is considered as an ongoing poietic, creative process that is not directed to a specific goal, but includes an aesthetic dimension and is given a certain

flexibility and creativity range that is circumscribed by Confucian norms such as *li* ("propriety" 禮). Moreover, the mode of existence in ancient China is one that is based on transformation; as Ames observed, "in the classical Chinese world, it is entirely reasonable to conclude that most acorns become squirrels" (Ames 1994, 200–201).

Finally, Ames critiques the part-whole structure of Chinese philosophical thought, in which an individual is considered a part of the whole (as opposed to a one-many structure), that was proposed by Hansen (1985). Ames identified several shortcomings of this model, including: it assumes that the parts are in some sense instrumental and subordinate in their relationship to the whole; it gives the parts an integrity that is misleading since the configuration of parts are the result of a specific and contingent interpretation among many possibilities; it downplays the relationships between parts; it limits the creativity of the parts to fulfilling the whole; and by Hansen's use of the term "system," which in common parlance presupposes a unity and univocality that emphasizes an overarching ordering principle at the expense of intrinsic relatedness.

5.10.3 The Focus-Field Self

Ames and Hall propose that the Chinese self be considered as a focus-field self to reflect the indistinct boundaries in Chinese thought between the individual and her familial, social, and cultural context (Hall and Ames 1998). More explicitly, since the Chinese self is relational and irreducibly social, such that one is embedded in an ambiguous group or *field*—"the family, the society, the state, and even the tradition itself"—this vagueness is focused and made immediate in the particular individual. Ames describes the focus, the individual, as a particular nexus in a network of relationships (or *lun* 倫), as being "holographic in that it construes its own field," such that "the totality is nothing more than

the full range of particular foci, each focus defining itself and its own particular field" (Ames 1994, 207).

Hall and Ames extended this focus-field model of the classical Chinese self to Daoist thought (1998, 45–77). Hall considers the *dao* as the field and each element in the *dao* as possessing its own *de*, which is understood here as a "particular focus—that which orients an item in a field of significance such that it achieves its own intrinsic excellence" (1994, 227–228). Similar to the focus-field self in the context of the Confucian self, the relationship between the *dao* and the *de* of an element is "holographic" such that "each element in the totality of things contains the totality in an adumbrated form" (Hall 1994, 228).

Many scholars have proposed caution when using "self" to describe the classical Chinese model. This arose from recognizing that "self" is a culturally freighted term in Western culture such that there is a tendency for Western cultural assumptions to linger when one uses it in the Chinese context. Fingarette suggests avoiding the independent noun form of "self" since it imputes the notion of some inner entity. He suggests using the reflexive idiom in European languages to translate Confucius; for example, translating "I examine myself" as the French "Je me demande…" (Fingarette 1991, 198–199) Hall and Ames observe that "the interpretative vocabulary associated with Chinese constructions of what we would identify as 'self' or 'person' is radically distinct from that drawn from the primary semantic contexts forming the major interpretative constructs in our tradition," and conclude that, from a Western perspective, "the Chinese are, quite literally, 'selfless'" (Hall and Ames 1998, 23).

5.11 Body-Person in the Zhuangzi

Following the advice from the foregoing review, I will avoid the use of the word "self" when discussing the *Zhuangzi*. Rather, I will discuss the concept of the "body-person" in the *Zhuangzi* to underscore the bodily dimensions of the concepts that Zhuangzi used to discuss his ideal personhood. However, I will unavoidably use the word "self" during the discussion.

5.11.1 *Ji* 己 and *Zi* 自 in Classical Chinese Grammar

A note on the usage of *ji* 己 as well as *zi* 自, used in *ziran* ("so of itself" 自然), in classical Chinese grammar is in order. These two characters are commonly translated as "self" though their usage differs. *Ji* is a reflexive personal pronoun that is used as a pronoun in all positions, as subject or object of a verb or attributive to a noun (Pulleyblank 1995, 83). Therefore, when it is translated into English there is a tendency to render it as the objectified "self" (Kohn 1992; Pulleyblank 1995, 83).

In contrast, *zi* is a reflexive pronominal adverb that always occurs before a verb, which indicates that the object of a transitive verb is the same as the subject, or the personal participation of the subject if the verb is intransitive or has another object expressed (Pulleyblank 1995, 136). Thus, *zi* may be rendered in English as "oneself" (Pulleyblank 1995, 136).

Zi occurs in *ziran* ("so of itself" 自然), which is a key concept in Daoist philosophy (Liu 1998). *Ran* 然 is a verb that means "(it is) so" and can be used to form adverbs of manner, like *ziran* (Pulleyblank 1995, 81, 102). With respect to the human self, it is significant that Daoist philosophy relies on the reflexive pronominal adverb *zi* instead of the substantive pronoun *ji*. Here *ziran* suggests that the "self" that is referenced is not a fixed entity and that for one to instantiate *ziran*, to be so of one's self, one needs to assess,

however intuitively, one's self. Equally important is how *ziran* can be applied to non-human entities like other animals, plants, and non-animate objects like water, such that they can be so of themselves. An easier way to understand this is to translate *ziran* as "naturally" (Liu 1998) such that *ziran* for these entities means to be in their natural state.

5.11.2 Problematic Use of "Self" in the *Zhuangzi*

Not surprisingly, the problematic use of "self" in the classical Chinese context is also present in scholarship on the *Zhuangzi*. This occurs not only because *Zhuangzi* was composed during the same period, but also because the concepts of self and person in the *Zhuangzi* are well-studied by scholars, which is not surprising given Zhuangzi's focus on the individual and existential concerns. It did not help that Zhuangzi used characters that were commonly translated as "self" in the context of negating them or that he often appeared to be distinguishing between an inner and outer dimension of a person's existence. While the use of "self" in general studies of Daoist philosophical thought is acceptable (Coutinho 2013; Lai 2006; Michael 2005; Ziporyn 2003), the practice becomes somewhat problematic when one attempts to discuss the concept of selfhood (or personhood) in the *Zhuangzi*.

Similar to the "selfless" description of the classical Chinese model critiqued by Ames above, a key concern among some scholars is how pertinent terms in the *Zhuangzi* are translated using the word "self," such that Zhuangzi is seen as advocating a "selflessness" (*wuji* 無己; 2/1/22; Graham 2001, 45) or the "losing" of one's self (*wu sang wo* 吾喪我; 3/2/3; Graham 2001, 48). The concern here is that the use of "self" to translate the terms without explanation or qualification can lead one to impose alien models of personhood onto the thinking of Zhuangzi.

Chris Jochim (1998) criticized translating *ji* 己 as "self" without such scruples, such that *wuji* 無己, which occurs in the first chapter (2/1/22), has been translated as "has no self" (Mair 1998, 5; Watson 1968, 32) or "selfless" (Graham 2001, 45).[15] Jochim argued that this seemingly harmless translation of *wuji* 無己 to "selfless" or "has no self" suggests that the concept of the self that is used by Zhuangzi is that of the modern Western self. Given the cultural specificity and highly reified and nominalised nature of the Western concept of self, it is misleading to translate *ji* 己 as "self" here. Drawing from Guo Xiang's commentary on the *Zhuangzi*, where Guo Xiang interprets *ji* as that which prevents one from being in accord with other living things (Guo 1961, 21), Jochim proposed translating *ji* as "ego concerns" (Jochim 1998, 57–58). Ziporyn, seemingly aware of this pitfall of simply translating *ji* as "self," translated it as "fixed identity" (2009, 6).

Acknowledging Jochim's critique of interpreting the *Zhuangzi* as advocating a "no-self" human existence, Berkson (2005) provided a conscientious interpretation of a "no-self" programme in the *Zhuangzi*. He considered "self" as an "achievement word"[16] in the Confucian context: "while we are born with our nature, we come into selfhood; it is fully realized only with our effort and over time" (Berkson 2005, 302). The Confucian self can be understood as constituted by one's relationships with others, which is manifested and maintained through concomitant proper behaviour. Thus, one's self is characterized by

[15] The full sentence is 故曰：至人無己，神人無功，聖人無名 (2/1/22).

[16] Berkson's consideration of the Confucian self as an achievement echoes Eliot Deutsch's (1993) consideration of personhood and body as achievement terms. With regards to the body, Deutsch distinguishes between the given physical conditions of one's being, and one's body, which is only as it is articulated within one's being as a person.

knowing one's roles and behaviour that are appropriate to one's station in life, which changes over one's lifetime. Employing temporality as a key concept to understanding the typology of the self, Berkson suggested that since the notion of Confucian selfhood as achievement state is realized through effort and over time, this Confucian self is based on "narrative temporality" (Berkson 2005, 302).

On the other hand, Zhuangzi saw the pursuit of this socially constructed notion of the Confucian self as obstructing the *dao* and focuses instead on cultivating an awareness on the momentary nature of existence (Berkson 2005, 305–308; Yearley 2010). Zhuangzi undermined the notion of the Confucian self by emphasizing the idea of *you* (wandering in thought and spirit), the adherence to the movements of our *qi* ("vital energy"), the harmonization with *tianli* ("the natural/Heavenly patterns"), and the importance of uselessness. Thus Berkson interpreted Zhuangzi's programme as advocating the realization of "no-self" that is grounded in "momentary temporality" (Berkson 2005, 305–308). Following Ivanhoe (1996), Berkson argued that for Zhuangzi, the guiding concept for humans is not self but *tian*, which he translated as "nature" (Berkson 2005, 311).

Jochim (1998) cautioned against reading features of modern, Cartesian notions of the "self" into the *Zhuangzi*, such as a model of outer (social) self versus true inner self, or layers of self, where one ought to focus on the true inner self and diminish the importance of or "forget" the outer self, or cultivate the inner self such that it shines through the layers of outer self. Two examples are illustrative of this tendency. Kuang-Ming Wu interpreted *wu sang wo* 吾喪我 (3/2/3), which Graham translated as "I had lost my own self" (2001, 48),[17] as containing two notions of self, a *wu*-self representing an "authentic transcendental

[17] Ziporyn (2009) translated it as "*I* have lost *me*."

cogito" and a *wo*-self representing an "objectifiable self" (Wu 1990, 16, 155). This follows from the fact that both *wu* 吾 and *wo* 我 are first-person pronouns. Translating the phrase as "I have lost me-myself," Wu argued that the loss of the objectified, false self leads one to the authentic self. However, Kjellberg (1993) pointed out that Zhuangzi's use of the two terms for self, *wu* and *wo* can be explained by the fact that unlike *wo*, "the word *wu* cannot function as an object of a verb unless pre-posed after a negation," a fact that Wu recognizes but which he used to justify his interpretation (Wu 1990, 416–417). In other words, Wu's interpretation is impossible in the language of pre-Qin Chinese.

Judith Berling (1985) interpreted Zhuangzi as opposing "the false layers of the extrinsic or socialized self" and preferring the transcendence of a wholly spiritual "perfected self." She concluded that the *Zhuangzi* represents a way to reconcile the two—"to maintain a balance between uncovering the inner core of the self and being open to the whole of life"—a solution that, as Jochim observed, was called for in the first place because an alien dichotomy had been imposed on the *Zhuangzi* (Berling 1985, 117; Jochim 1998, 43–44).

5.11.3 Zhuangzi's Concepts of Person and the Human Body

Ames suggested that for the Chinese, the mind and body are considered not in terms of dualism but as polarism, a "symbiosis" or "unity of two organismic processes which require each other as a necessary condition for being what they are" (1993, 159). In this paradigm, each existent does not derive its meaning and order from some transcendent source, but is "auto-generative and self-determinate" in the sense of being "so of itself" (*ziran* 自然). At the same time, each particular existent—each "pole"—is determined and constituted by its other. Hence, the Chinese mind and body are understood in reference to

each other[18] and, as a result, "person" in classical Chinese philosophy is properly regarded as a "psychosomatic process" (Ames 1993, 159–160, 163). Since the human body is not separated from the mind, the study of human body in classical Chinese thought yields insight into Chinese thought (Ames 2011; Csikszentmihalyi 2004) and Zhuangzi's thought in particular (Jochim 1998; Sommer 2010).

Jochim argued that Zhuangzi was not advocating a "no-self" position but had at most a pluralistic conception of "the person," which he felt was "more hospitable" to Zhuangzi's thought than the "self," which is a freighted term in Western thought (1998, 58). Jochim makes his argument by focusing primarily on Zhuangzi's usage of *shen* 身 (which he translates as "person") and, to a lesser extent, *xin* 心 ("heart-mind"). We will discuss these two terms to elucidate Zhuangzi's idea of the person.

5.11.4 *Shen* ("Body-Person" 身)

The character *shen* means "body," from which the meaning of "person" was derived. Thus, *shen* is used to refer to one's psychosomatic person and can be translated as "body-person." The meaning of *shen* as body-person might influence how one perceives one's body: Ames (1993) observed that "since the physical body is an important focus of self, it is not unexpected that in those passages [in classical Chinese philosophy] where *shen* does denote 'body,' it is one's 'lived body' seen from within rather than 'body as corpse' experienced from without."

In her study of concepts of the human body in the *Zhuangzi*, Sommer (2010) identified two primary usages of *shen* in early Chinese texts that also occur in the *Zhuangzi*.

[18] The Chinese concepts of *yin* and *yang* follow this polaristic paradigm as well.

In the first usage, *shen* refers to the locus of familial and social personhood that is located within one's body. According to Sommer, this relational *shen* is contrived by society and can only be cultivated by participating in social forces. For example, near the end of chapter 5, Duke Ai understood that "by neglecting my *shen*, I've ruined my state" (14/5/49; Ziporyn 2009, 37, with modifications). In chapter six, we read that people look on *tian* as their father and love *tian* with their *shen*; people see their rulers as being superior to themselves and would die for them with their *shen* (16/6/21–22; Ziporyn 2009, 43).

On the other hand, Zhuangzi favours the second, less artificial usage of *shen*, which refers to one's physical body that exists during one's lifetime—in other words, one's *lived* body. This usage is seen in the expression *zhongshen* ("to the end of, or all of, one's life" 終身). For example, in chapter two Zhuangzi reflected on the inevitable end of individual human lives, though most people spend their lives busily engaging in strife and friction with other things. He wrote "All your life [*zhongshen*] you labour, and nothing is achieved" (4/2/19; Ziporyn 2009, 11). This is also evident when Zhuangzi considered the cultivation of *shen* as participating in cosmic, rather than social, forces. In chapter eleven (a "Syncretist" chapter according to Graham), we read of how Guangcheng Zi ("Master Broadly Complete" 廣成子), who lives on a mountain, has cultivated his body for 1,200 years by immersing in the energies of *yin* and *yang* and darkness and light (27/11/31–44; Mair 1998, 94–97).

Jochim argued that the most philosophically significant occurrences of *shen* refers to one's entire person—body, behavior, thought, life, etc.—while admitting that in some cases Zhuangzi's usage of *shen* refers unambiguously to one's physical body (1998, 58). Setting aside occurrences of *shen* where one can, from a critical perspective, plausibly interpret

them as referring merely to one's body,[19] I will focus on two occurrences of *shen* where Zhuangzi used it in relation to non-physical entities to highlight how Zhuangzi considered *shen* to mean more than the body as well as his perspectives on it.

The first usage occurs at the end of chapter 5 "De Chong Fu" ("Markers of Full Virtuosity" 德充符) in a dialogue between Zhuangzi and his interlocutor and friend Hui Shi 惠施 (14/5/55–15/5/60; Ziporyn 2009, 38). Hui Shi (380–305 BCE) was a logician and chief minister to King Hui of Wei, and appears in the *Zhuangzi* as Zhuangzi's interlocutor and friend (Graham 1989, 76–82, 174–183). He was asking whether a human being who is "without the characteristic human inclinations" (*wu qing* 無情)[20] can still be called a human being. Zhuangzi replied in the affirmative and explained: "*Dao* gives him this appearance, *tian* gives him this form [*xing*], so why shouldn't he be called a human being?" (14/5/56; Ziporyn 2009, 38, with modifications) When Hui Shi pressed further, Zhuangzi explained how he understood "characteristic human inclinations" and its effect on one's *shen*:

Affirming some things as right and negating others as wrong are what I call the characteristic inclination. What I call being free of them means not allowing likes and dislikes to inwardly damage your *shen*, instead making it your constant practice to follow

[19] These examples include *yang shen* 養身, to nourish one's person/ body (12/4/85–86; Ziporyn 2009, 31) and *bao shen* 保身, to preserve one's person/body (7/3/2; Ziporyn 2009, 22). Jochim (1998) argued that the context of these occurrences shows that *shen* here means not just one's body but also one's person.

[20] Unfortunately, *qing* is a word with highly contested meaning in Warring States philosophy and is broadly taken to mean "reality" or "feeling" (Hansen 2003). Here I am following Ziporyn (2009, 38) in translating it as "characteristic human inclinations."

along with the way each thing is of itself, going by whatever it affirms as right, without trying to add anything to the process of life. (15/5/57–58; Ziporyn 2009, 38, with modifications)

Zhuangzi's explanation here that one's *shen* can be inwardly harmed by having "likes and dislikes" reveals that *shen* is considered here as entailing a psychological dimension, in addition to its original meaning of the physical human body. In other words, according to Zhuangzi's thinking, one's *shen* or body-person can be harmed by the kind of sophistry (which Graham calls "chop logic" in his translation) which Hui Shi is famous for. This reminds us of Ames's observation that the Chinese person is considered as a psychosomatic process.

The second usage occurs in chapter 20, an "outer chapter" that both Graham and Liu consider as sharing the same themes as the inner chapters. This episode relates Zhuangzi's experience while wandering (*you*) physically and mentally on the slopes of Eagle Hill. Ivanhoe (1991) discussed how this episode has been interpreted as relating Zhuangzi's conversion experience and provided his own interpretation of the passage, which we will use here. While wandering, Zhuangzi noticed a strange sort of magpie approaching from the south that brushed against his forehead and settled in a chestnut grove. This strange occurrence piqued Zhuangzi's curiosity. He hastened after the bird and aimed his crossbow at it. As he was doing so, he observed a cicada secure an agreeable shady spot, which led it to forget its *shen* (body-person) and become unaware of a mantis. The mantis was about to pounce on the cicada and thus forgot its *xing* (physical form/shape) and became unaware of the strange magpie nearby. The strange magpie swooped in on both and thus forgot its *zhen* (body/true nature) and was unaware of Zhuangzi. Having observed this chain of predator and prey, and how the creatures' immediate desires cause them to become unaware of their

environment and safety, Zhuangzi threw down his crossbow and ran out of the preserve, while the keeper (of the chestnut grove) came running behind, shouting curses at him. The keeper was going to catch Zhuangzi for trespassing.

Zhuangzi was depressed for three days and when his disciple Lin Qie asked for the reason, he explained it thus:

> In preserving my *xing* [physical form], I have forgotten my *shen*. Staring at muddy water, I have mistaken it for a clear pool. Moreover, I have heard my master say, "When among common people, follow common ways." But now, as I was wandering near Eagle Hill, I forgot my *shen*. A strange magpie brushed against my forehead and (pursuing it) I wandered into a chestnut grove, forgetting my *zhen* [true (nature)]. (In this way), I was brought to disgrace by the keeper of the chestnut grove. That is why I am distressed. (Ivanhoe 1991, 24, with modifications)

Zhuangzi was "wandering" (*you*), his ideal state of living, in this story. Ivanhoe (1991) identified two teachings from this episode. First, one should preserve one's natural state in such a way that one's desires—which are part of one's nature and therefore should not be suppressed—do not affect one's awareness and lead one into peril. Second and more importantly, as a human one must be mindful of the "common" folks around one, to move among them but not be caught up in their indiscretion and recklessness. To achieve this and live through one's life safely, one needs to be in touch with the "natural rhythm of things" (Ivanhoe 1991, 22).

An interesting and relevant point is how Zhuangzi used *shen*, *xing*, and *zhen* in parallel, which suggests that the three terms all refer to one's body. However, we need to investigate the meaning of *zhen* since it refers primarily to one's true state and only

obliquely to one's body. Further, Zhuangzi mentioned that he lost both *shen* and *zhen* while wandering near Eagle Hill.

Chong (2011) interpreted this introduction of *zhen* in the *Zhuangzi* as a form of criticism of Confucian rituals and morality. According to Chong, *zhen* is used in the *Zhuangzi* differently in its three groups of chapters. In the inner chapters, *zhen* is closely related to *tian*, the natural state and process of things. *Zhen* features prominently in chapter six, where Zhuangzi praised the ability to distinguish what is done by *tian* and by humans—including life and death—and called this *zhen zhi* (Genuine Knowledge 真知). In the same chapter, the death of Zi Sanghu was viewed as a return to *zhen* 反其真 (18/6/64; Ziporyn 2009, 46). Chong noted that in the inner chapters Zhuangzi "intimated" his views on what thoughts and behavior are opposed to *zhen* since he did not specify exactly what his views were, and nor did he openly attack Confucius, as happened in the outer and miscellaneous chapters.

In the outer chapters, which include Zhuangzi's experience near Eagle Hill, Chong observed that *zhen* is used to refer to two ideas. First, it refers to an original true nature of a thing. Second, it serves as a reminder for one to safeguard one's personal integrity amidst the corrupting influence of Confucian rites and morality, with its relationship to wealth, power, knowledge, etc.

Finally, in the miscellaneous chapters, *zhen* was used to criticize Confucian rites and morality as false and artificial, that their advocates were hypocritical, and that they negated the value of spontaneity. This is evidenced in the dialogues Confucius had with Robber Zhi in chapter 29 and with the old fisherman in chapter 21.

In sum, the use of *zhen* in the *Zhuangzi* to describe one's cognizance of how the work of *tian* and humans intermingle, and to refer to one's original true nature which one must

safeguard, inform our understanding of *shen*. Zhuangzi and the authors used both terms to refer to one's body and to articulate his thinking on how one should conduct one's body-person within the totality of existence, or all that is under *tian* (*tianxia* 天下). *Shen* referred to one's entire person, including thought and behavior, while *zhen* reflected the true nature of one's existence. One should not lose one's *shen* and *zhen* in the pursuit of one's advantage. *Shen* is therefore best understood as referring to one's body-person.

5.11.5 *Xin* ("Heart-Mind" 心)

Xin ("heart-mind" 心) is an important concept in Chinese philosophical thought. It is the key faculty of the human being, being identified early on in its philosophic career with "the emotions and volition, the will to maintain a course of action, the notion of being in charge of the person's ability to make appropriate decisions, and the notion of being the seat of wisdom as well as emotion" (Berthrong 2003, 795). Therefore, it is not surprising that Jochim identified *xin* as an important concept that elucidates Zhuangzi's concept of the person. *Xin* is similar to *shen* in two important ways: its original use was to something physical, in this case the heart, and its meaning evolved over time to encompass a growing range of emotional and mental functions. If one thinks of *shen* as the "locus of various living habits" that concern Zhuangzi, then one can consider *xin* as the "locus of habits of the mind" that concern him (Jochim 1998, 50). In other words, in Chinese body consciousness, one thinks with the heart, not the brain. Based on frequency of occurrence, *xin* is one of the most important terms in the inner chapters, where it occurs 45 times.

However, in contrast to his positive assessment of *shen*, Zhuangzi felt that one needs to make one's heart-mind attain a particular state in order for one to be in touch with the *dao*, to join with the flow of all things. Specifically, one needs to engage in fasting of one's

heart-mind (*xin zhai* 心齋) and to let one's heart-mind "wander" (*you xin* 游心), the ultimate goal being to let it enter a calm and fluid state, like a mirror. Zhuangzi's ambivalence towards *xin* has often been interpreted as his refutation of Confucian thought, in which one's *xin* is taken to be the organ that regulates and controls one's person (Berkson 2005). For example, the Confucian Mencius (371–289) wrote: "The faculty of *xin* is to think. By thinking, it apprehends; by not thinking, it fails to apprehend" (*Mencius* 6A15; Bloom 2009, 130, with modifications). Zhuangzi's ambivalence towards *xin* is revealed in his sharp observation that seeking a specific part of one's body as the genuine ruler (*zhen jun* 真君) over the rest of one's body—or of one's person—does not add to nor subtract from the part's actual genuineness (4/2/16–18; Ziporyn 2009, 10–11).[21] Zhuangzi's view is that all parts of the body operate spontaneously, in a way that is so of themselves (Berthrong 2003). Through Zhuangzi's writings on the desired state of *xin* (in some passages delivered by Confucius), one can discern his views on personhood. We discuss three concepts that are emblematic of Zhuangzi's call to let one's *xin* enter a calm yet responsive state: fasting of the *xin*, letting the *xin* wander, and making the *xin* mirror-like.

5.11.5.1 Fasting of *Xin*

Instead of acting according to the judgements of *xin*, Zhuangzi suggests that we let *qi* flow freely and guide our actions. *Qi* is a fundamental category of reality and understanding

[21] Zhuangzi's view on the parts of the body operating spontaneously is evident in his questioning: "The hundred bones, the nine openings, the six internal organs are all present here as my body. Which one is most dear to me? Do you delight in all equally, or do you have some favourite among them? Or are they all mere servants and concubines? Are these servants and concubines unable to govern each other? Or do they take turns as master and servant?" (4/2/16–17; Ziporyn 2009, 10)

in Chinese philosophy and common sense. Representing both matter and energy, *qi* in physical terms refers to gas and to one's breath. Since one's breathing is linked to one's physical well-being, *qi* comes to suggest an internal life force that impinges not only on physiological phenomena, such as one's circulation or the functioning of one's organs, but also on one's consciousness, knowledge, and morality (Cheng 2003b).

One of the most famous stories in the *Zhuangzi* is Confucius's explanation to his disciple Yan Hui on the meaning of fasting one's *xin*, or heart-mind:

> If you merge all your intentions into a singularity, you will come to hear with the *xin* rather than with the ears. Further, you will come to hear with the *qi* [vital energy] rather than with the *xin*. For the ears are halted at what they hear. The *xin* is halted at whatever verifies its preconceptions. But *qi* is emptiness [*xu*], a waiting for the presence of beings. The *dao* alone is what gathers in this emptiness. And it is this emptiness that is the fasting of *xin*. (9/4/26–28; Ziporyn 2009, 26–27, with modifications)

The fasting of the heart-mind is conceived here as a method for putting one in touch with one's *qi*, the *dao*, and emptiness (*xu*). The corollary here is that a heart-mind that is full of knowledge impedes one from reaching these states. Fox (2003) considers the fasting of the heart-mind as similar to the teaching behind *dao shu* 道樞 "the pivot of the *dao*" (4/2/30–31; Ziporyn 2009, 12), which is to keep one's core empty so as to be able to respond attentively and intelligently to each and every circumstance, and therefore similar to the concept of *wuwei*, or effortless action (Slingerland 2003). The use of the sense of listening (*ting* 聽) and other common senses, especially sight, as a channel to access one's *qi*

is characteristic of cultivation practices in the Daoist tradition (Yang 2003).[22] Without delving into this tradition, the use of listening with the *qi* to get in touch with the *dao* reinforces the linkage between one's physical body, one's heart-mind, and accessing *qi* and the *dao*.

5.11.5.2 Letting the *Xin* Wander

The concept of "wandering" (*you* 遊 or 游) is an important one in the *Zhuangzi*. It occurs in the title of chapter 1, "Xiaoyao you" ("Wandering Far and Unfettered" 逍遙遊).[23] "Xiaoyao you" suggests a free-spiritedness, of keeping an open mind with no particular preference concerning the present state of things. Scott Cook points out that this is the result of the fasting of the heart-mind, during which the heart-mind is made empty and one comes to respond to things spontaneously with one's *qi*; further, "there is a sense…in which total *in*dependence is achieved only through total *de*pendence; one need not await for anything *in particular* by virtue of the fact that he instead awaits *everything* to come to him" (Cook 2003, 71). Wang (2014, 30) suggests that *you* is Zhuangzi's way of dealing with worldly affairs, a balance between involvement and escape.

That the concept of wandering is applied to *xin* in the *Zhuangzi* underscores its importance to Zhuangzi's thought. At the beginning of chapter 5, "De chong fu" ("Markers of

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[22] Yang (2003) wrote: "Thus both permeated by and permeating into the vital energy [*qi*], the ears and eyes are not only a receptive-reactive sensory system but also the channels through which the deep-level consciousness must pass in its outward movement and at the same time also a kind of path for the reflective looking and inward listening of human consciousness returning to its origins."

[23] Alternative translations include "Far and Leisurely Roaming" (Cook 2003), "Going Rambling Without a Destination" (Graham 2001), and "Wandering Beyond" (Coutinho 2013).

Full Virtuosity" 德充符), Confucius was asked about another man of Lu, Wang Tai, 王駘, who, despite having had a foot cut off, had as many disciples as Confucius. Confucius attributed this to how Wang Tai let his *xin* wander in accord with *de* ("virtuosity" 德):

> Life and death are a great matter, but they are unable to alter him. Even if *tian* and earth were to topple over, he would not be lost with them.... Looked at from the point of view of their differences, even your own liver and gallbladder are as distant as Chu in the south and Yue in the north. But looked at from the point of view of their sameness, all things are one. If you take the latter view, you become free of all preconceptions about which particular objects might suit the eyes and ears. You just release the mind to play in the harmony of all Virtuosities [*you xin yu de zhi he* 游心於德之和]. Seeing what is one and the same to all things, nothing is ever felt to be lost. This man viewed the chopping off of his foot as nothing more than the casting away of a clump of soil. (5/13/12–15; Ziporyn 2009, 33, with modifications)

Foot chopping was a criminal punishment during ancient China which led to a degrading of one's social status. Here Zhuangzi uses foot chopping as a method to cultivate one's *de* or Virtuosities, seeming to spurn contrived social norms. Letting the heart-mind wander is seen here as allowing one to roam in the harmony of Virtuosities, and thus enabling one to recognize the relativity of different perspectives, which is an important Zhuangzian motif. Applying this perspectival open-mindedness to oneself, one is able to consider the changes to one's self and body as part of a greater transformation of things, and not something in which to "invest ego concerns" (Jochim 1998, 51).

In chapter 4, Confucius advised Zi Gao, who was about to embark on a precarious emissary mission to the state of Qi, to not take his mission beyond due measure (*guo du*, 過度) (10/4/52; Ziporyn 2009, 29). He ended his advice with the following: "Let yourself be

carried along by things so that the *xin* wanders freely [*you xin* 遊心]. Hand it all over to the unavoidable so as to nourish what is central within you. That is the most you can do" (10/4/52–53; Ziporyn 2009, 29). Zhuangzi called for making one's heart-mind attain a calm and fluid state, and advised against letting the heart-mind become agitated to the point of forcefully pursuing one's desired outcomes.

5.11.5.3 Making the *Xin* like a Mirror

Zhuangzi did not explicitly explain how one's *xin* works. However, he used the metaphor of the mirror to elucidate his thinking on *xin*. Near the end of chapter 7, "Ying Di Wang" ("Sovereign Responses for Ruling Powers" 應帝王), he wrote "The Consummate Person uses his *xin* like a mirror, rejecting nothing, welcoming nothing: responding but not storing. Thus he can handle all things without harm" (21/7/32–33; Ziporyn 2009, 54). Near the beginning of chapter 13, "Tian Dao" ("The *Dao* of *Tian*" 天道), the authors wrote, "The sage's *xin* in stillness is the mirror of *tian* and Earth, the glass of the ten thousand things" (33/13/4; Watson 1968, 142). Therefore, in order for us to develop a sound understanding of Zhuangzi's conception of *xin*, we need to understand the mirror metaphor.

Oshima (2010) provided an insightful discussion regarding the use of the mirror metaphor to discern Zhuangzi's view on *xin*. Recognizing the need to accurately understand how a mirror worked during Zhuangzi's time, Oshima noted how mirrors during the late Zhou and early Han periods were not simply reflecting surfaces, but were believed to possess mysterious powers. This sense of mystery surrounding mirrors is best illustrated by describing mirrors that could respond accurately and appropriately to whatever was in front of them. The *yang sui* mirror is a concave mirror that could draw fire from the sun when aligned correctly with *tian*, the heavens (Cline 2010; Eberhard 1969, 165). This seemingly

miraculous phenomenon is explained in modern scientific terms as the focusing and concentrating of sunlight by the concave surface to produce heat. Similarly, *fu sui* mirrors are bronze mirrors that gathered condensation from the light of the moon (Cline 2010; Eberhard 1969, 165). Since the *yin* principle is epitomized by the moon and water and the *yang* principle by the sun and fire, the mirrors "offer the paradigm for proper responsiveness: they reflect the true essence of the ultimate *yin* and *yang*—the alpha and omega of phenomena in early Chinese cosmology" (Carr and Ivanhoe 2010, 56).

Carr and Ivanhoe (2010) interpreted Zhuangzi's notion of making the *xin* mirror-like as cultivating an ideal state of mind. In this state, one is able to accurately reflect one's situation, and one's spontaneous dispositions and instincts will then cause one to respond in a fitting manner. The key is to not to stifle one's thoughts and emotions but to allow them to rise spontaneously. At the same time, one must guard against excessive rationality and emotion to prevent them from "inwardly damaging one's *shen*." In this ideal state, "one is to shed one's over-reliance on rationality and traditional knowledge, guard against the unsettling and distorting influences of excessive emotions and come to a flexible and intuitive grasp of the basic patterns underlying the events and activities in the world" (Carr and Ivanhoe 2010, 60).

Zhuangzi's method of cultivating one's body-person thus comprises two related processes: stripping away the layers of accumulated knowledge and tradition and, consequently, seeking and aligning oneself with the fundamental patterns and processes in the world.

This mirror-like state of *xin* allows us to understand what Zhuangzi meant by "hiding the world in the world." In chapter 6, he wrote "if you hide the world in the world…this is an arrangement, the vastest arrangement, that can sustain all things" (16/6/26; Ziporyn 2009,

43). If we can keep our *xin* clear as a mirror and not tarnish it with excessive rationality and emotion or with likes and dislikes, we can accurately reflect the world—*tian xia*, literally "all under *tian*"—and respond in a fitting manner.

The above analysis of the usage of *xin* and *shen* in the *Zhuangzi* reveal that the human being is properly considered as a body-person. These two terms illustrate how the physical and psychological states of one's existence commingle to form a psychosomatic process. By cultivating one's *xin* such that it is like a mirror, one will be able to reflect accurately one's situation and respond appropriately. One's *shen*, as one's lived body and, by extension, one's state of life, implies that there exists an optimum state of existence. Zhuangzi's usage of *shen* and *zhen* suggests that this optimum state is that of *zhen*, an authentic, genuine state.

5.12 Zhuangzi's Ideal Personhood: The Body-Person Guided by Tian

As discussed earlier, Zhuangzi used the panpipes of *tian* to illustrate how humans are things among things in the diversity of the myriad things (section 5.9.4). Besides the panpipes of *tian*, Zhuangzi also articulated elsewhere in the inner chapters the importance for one to recognize the workings of *tian* and leading one's life accordingly. We discuss two examples here.

In chapter 2 we learned how the sage "does not proceed from any one of [the perspectives] alone but instead lets them all bask in the broad daylight of *tian*" and "uses various rights and wrongs to harmonize with others and yet remains at rest in the middle of Potter's Wheel of *tian*" (4/2/29, 5/2/39–40; Ziporyn 2009, 12, 14). The character for "Potter's Wheel" (*jun* 鈞/均) also means equality. The two meanings converge when we consider how the equal distribution of clay is made possible by the constant spinning of the

potter's wheel. By resting at the centre of the spinning wheel, the sage is responding constantly and without preference (De Reu 2010).

Ivanhoe (1996) pointed out Zhuangzi's use of the perspective of *tian* was meant to complement, not replace, the perspective of humans. According to Ivanhoe, Zhuangzi's appeals to the perspective of *tian* was therapeutic in that it was designed to remind us that we are things among things, a small part amid a greater pattern of nature. This understanding enables us to fulfil our particular roles in the great scheme of *tian* in a way that is in tune with this greater pattern of nature and with *tian*. It requires us to be able to understand how activities in the world are attributed to either *tian* or humans and harmonize these two sources of activity within ourselves. Ivanhoe's interpretation is supported by critical passages in the inner chapters that articulate the importance of knowing what is due to *tian* and what is due to humans, and, consequently, knowing how to act such that one help *tian* with the human.

5.12.1 *Zhenren* ("Genuine Human Being" 真人)

At the beginning of chapter six, "Da Zong Shi" ("The Great Source as Teacher" 大宗師), Zhuangzi wrote:

> To understand what is done by *tian*, and also what is to be done by humans, that is the utmost.
>
> To understand what is done by *tian*: just in being *tian*, as the way all beings are born, what it does is give birth to them all.
>
> To understand what is to be done by the human: that would be to use what your understanding understands to nurture what your understanding does not understand. You could then live out all your natural years without

> being cut down halfway. And that would indeed be the richest sort of knowledge. (15/6/1–2; Ziporyn 2009, 39, with modifications)

However, immediately after this Zhuangzi doubts that one can distinguish between *tian* and the human:

> However, there is a problem here. For our understanding can be in the right only by virtue of a relation of dependence on something, and what it depends on is always peculiarly unfixed. So how could I know whether what I call *tian* is not really the human? How could I know whether what I call the human is not really *tian*? (15/6/1–3; Ziporyn 2009, 39–40, with modifications)

However, since knowledge is contingent and uncertain, Zhuangzi proceeds to explain that only *zhenren* ("Genuine Human Beings" 真人) can possess *zhenzhi* ("Genuine Knowledge" 真知) and understand the distinction between *tian* and the human. As Chong (2011) pointed out, it is not knowledge per se that defines the *zhenren* but a certain attitude that enables one to gain this knowledge.

Later in the chapter Zhuangzi wrote of the *zhenren* of old who "understood nothing about delighting in being alive or hating death" and did not push away the *dao* and use the human to try to help *tian* (15/6/7–8, 9; Ziporyn 2009, 40). Further, these *zhenren* abided by a oneness that allowed them to operate along a fine line between *tian* and the human:

> Thus, their liking was the oneness, but their disliking was also the oneness. Their oneness was the oneness, but their non-oneness was also the oneness. In their oneness, they were followers of *tian*. In their non-oneness, they were followers of the human. This is what it is for neither

> *tian* nor the human to overcome the other [*bu xiang sheng ye* 不相勝也].
>
> And that is what I call being both Genuine and Human, a *zhenren*.
>
> (16/6/19–20; Ziporyn 2009, 42, with modifications)

Chong (2011) interpreted this oneness as referring to how human beings are immutably one with *tian* (nature). Zhuangzi's *zhenren* is one who realizes this fully by living in harmony with *tian*, which is manifested as not allowing "*tian* nor the human to overcome the other." Thus, the *zhenren* is not merely an agent of *tian*, for he is human after all, but he is not merely human too, for human beings exist as part of *tian*. Therefore, the *zhenren* is someone in whom *tian* and the human abide in harmony. Moreover, Chong suggested that the skilled exemplars in the *Zhuangzi*, such as Cook Ding, were able to achieve this rarefied state, as evidenced by their ineffable, daemonic skills (Chong 2011, 335–336). Before I turn to the story of Woodcarver Qing, another such exemplar, I discuss the motif of the useless tree in the *Zhuangzi* to highlight how existents have their own value apart from human valuation.

5.12.2 The Strange and Useless Tree

Zhuangzi's trope of the strange and/or useless tree reflects his emphasis on recognizing the diversity in all of existence and in letting all things be so of themselves. The trope occurs five times in the inner chapters and once in chapter 20, which is classified as belonging to the School of Zhuangzi by Graham (2001).[24] In these stories, Zhuangzi

[24] The trope of the strange and/or useless tree occurs twice in chapter 1 (1/1/11–21, 3/1/42–47; Ziporyn 2009, 4, 8), three times in chapter 4 (11/4/64–75, 11/4/75–83, 12/4/89–91; Ziporyn 2009, 30–32), and once in chapter 20 (51/20/1–9; Ziporyn 2009, 84). Svarverud (2006) counted six instead of five

highlighted the value of a tree remaining useless to human society, pointing out how the lives of useful trees were cut short by being cut down, while useless trees were allowed to live to whatever age that was allotted to them by *tian*. In these stories, one can sense that Zhuangzi was emphasizing the self-so-ness of each thing, that each thing in the absence of human valuation possessed an intrinsic value to itself. The imposition of extrinsic values to a thing, in this case human values on trees, is tantamount to blocking the panpipes of *tian*. These stories also reflect the influence of Yang Zhu in Zhuangzi's thinking. Yang Zhu, who famously refused to pluck out one of his hairs to benefit the world, emphasized the preservation of one's self by avoiding public office and intellectual argumentation (Graham 1989, 54–61).

The most colourful expression of the trope of the strange/useless tree is in chapter 4, "Renjian shi" ("In the Human World" 人間世), where we read of a gigantic tree in a village in the state of Qi, which was so stupendous that it was treated as a sacred tree by people and attracted throngs of gazing crowds. Carpenter Shi and his disciple were travelling past and the latter, after having had his fill at admiring the tree, caught up with the former and asked why he did not do the same. Carpenter Shi explained that the tree contains only good-for-nothing "wretched timber" that is ill-suited for any purposive use. When Shi reached home the tree appeared to him in a dream and upbraided him for disparaging its uselessness. It noted that trees that are useful to humans "are trees which by their own abilities make life miserable for themselves; and so they die in mid-path without lasting out the years assigned to them by Heaven, trees which have let themselves be made victims of worldly vulgarity."

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because he was using the translation by Graham (2001), who considered the middle occurrence in chapter 4 as two separate stories.

Furthermore, the tree's uselessness was the result of active striving and not happenstance—it pointed out that its "quest" to be completely useless to humans has been going on for a long time (11/4/64–75; Ziporyn 2009, 30–31).

Thus Zhuangzi's ideal state of living is an actively cultivated state of "'simple' survival" where one achieves "freedom from the ordinary concerns and preconceptions of the world" (Major 1975, 274–275), which is akin to his concept of wandering (*you*). Berkson observed that "Zhuangzi's praise of uselessness itself is another tool to dismantle notions of selfhood" (2005, 308). Zhuangzi's praise of strange and useless trees mirrors his valorisation of men whose bodies are deformed or mutilated. As mentioned earlier, these men are portrayed as possessing *de* ("virtuosity"), simply by virtue of their being and acceptance of their body-forms, and as such, were able to live out, in a simple way, the years allotted to them by *tian*.

5.12.3 Woodcarver Qing: Matching *Tian* with *Tian*

Zhuangzi's thinking of letting things be so of themselves and not using one's measure to evaluate others is an antidote to the instrumental ways of human society. However, since we humans inevitably need to appropriate other (natural) things for our survival, how are we to go about doing it? Like the story of Butcher Ding, the story of Woodcarver Qing in chapter 19 (a "School of Zhuangzi" chapter according to Graham) suggests a process of personal cultivation that enables one to see the nature of *tian* in the trees and produce daemonic work.

Some qualifications should be stated at the outset. Woodcarver Qing's story, like that of Butcher Ding, was written to convey Zhuangzi's idea of cultivating one's body-person in order to be cognizant of the nature of *tian* in one's object of interest—trees for Woodcarver Qing, ox carcasses for Butcher Ding. As such, we need to be careful not to draw from

Woodcarver Qing's story literal lessons on how to work with trees. Moreover, this story does not reflect the actual wood utilization practices during the Warring States period. What is illuminating is how Woodcarver Qing explained the process.

Woodcarver Qing carved a bell stand that looked like the work of spirits or ghosts. When the Marquis of Lu asked how he did it, he recounted his preparation for the task:

> When I am going to make a bell stand, I dare not let it [the process] deplete my *qi*. Rather, I fast to quiet my *xin*, and after three days, I no longer presume to care about praise or reward, rank or salary. After five days, I no longer presume to care about honour and disgrace, skill and clumsiness. After seven days, I become so still that I forget I have four limbs or a body….My skill is concentrated and the outside world slides away. Then I enter into the mountain forests, viewing the inborn nature of *tian* [heavenly nature] of the trees. My body arrives at a certain spot, and already I see the completed bell stand there; only then do I apply my hand to it. Otherwise I leave the tree alone. So I am just matching *tian* to *tian* [則以天合天]. (50/19/56–59; Ziporyn 2009, 82, with modifications)

To prepare himself for the task and ensure that his *qi* was not depleted during the process, Woodcarver Qing fasted to calm his *xin*, such that he was not attached to worldly concerns. Only when his mind was focused on the task would he enter the forests to observe the trees' *tianxing* ("'*tian*ly' nature" or "heavenly nature" 天性). Only when he identified a tree whose nature makes it suitable to become a bell stand would he start work on it. He was cultivating his *xin* to reach a rarefied, mirror-like state such that it could identify a tree

whose nature resembled that of a bell stand. This is what he meant by "matching *tian* to *tian*."

This story highlights how there is an underlying *tianli* (heavenly/natural pattern) in the world. The presence of *tianli* is also implicit in the story of the useless tree. Initially, Carpenter Shi was unable to recognize that the *tianli* of the useless tree was to be of no use to humans. Therefore he evaluated the tree as being useless for human ends. In Zhuangzi's thinking, only exemplars who have cultivated their *xin* to reach a rarefied state can perceive the *tianli* in things and act accordingly. It is through such a process that one can lead a peaceful and safe life.

5.13 Concept of the Body-Person and Implications for Forestry

Zhuangzi's concept of the body-person is an achieved state, where one has cultivated one's *xin* such that it becomes like a mirror. The "way" to reach this state is to empty one's *xin* of worldly concerns so as not to harm one's *shen* (body-person), to remove the blemishes on one's mirror, so to speak. When one has reached this rarefied state, one is able to discern one's *tianxing* (*tian*ly or heavenly nature) as well as that of one's environs. In this state, one responds appropriately to one's environs through intuition and spontaneity, without contrivance and ratiocination. As a result, the realms of *tian* and of humans do not "overcome" the other [*bu xiang sheng ye* 不相勝也] in one's body-person. In this state, one has become a *zhenren*, a "Genuine Human Being."

Recognizing that Seigel (2005) used his typology of the three dimensions of the self to analyze the modern Western concept of the self, how would Zhuangzi's concept of body-person be considered in this typology? In terms of the reflective dimension, Zhuangzi's concept of body-person does not advocate for the same type of subjective consciousness that posits a dualism between mind and matter. Rather, Zhuangzi would appeal to us to rely

more on our spontaneity and pre-reflective intuitive knowledge to avoid being bogged down by ratiocination, which is injurious to one's body-person.

As for the relational dimension, Zhuangzi's concept of body-person posits a commonality between the body-person with the myriad things in the world. According to Zhuangzi, everything arises from the *dao* and develops along *tianli*, the heavenly/natural patterns. The challenge for one is to be attuned to the *tian*ly or heavenly nature in one's body-person with that of one's environs in order to respond appropriately.

Finally, the concept of body-person addresses the bodily dimension through the concepts of *shen*, the "body-person" and *xin* the "heart-mind," which refer both to the physical aspect of the human organism as well as to one's existence, thoughts, and feelings.

How are the three dimensions linked together in Zhuangzi's concept of the body-person? His teaching to make one's *xin* like a mirror illustrates this clearly. The bodily dimension is accounted for since *xin* refers to one's heart-mind, including the heart. Further, the body becomes the locus of responding according to *tianli* that is reflected in one's *xin*. The relational dimension is accounted for since the body-person is responding to *dao* and *tianli* through his or her environs. The reflective dimension is accounted for since the body-person needs to cultivate Genuine Knowledge to know what is due to *tian* and what is due to humans, in order to respond in proper measure.

The appropriate responsiveness of Zhuangzi's achieved state of the body-person provides us with a new meaning of the hackneyed phrase "survival of the fittest" (Kohn 2014, 253). If by "fit" one refers to the appropriateness of one's response and relationships in one's social and biophysical context, then Zhuangzi's concept of body-person provides a *way* to achieve it. This interpretation of fit stands in contrast to the commonplace interpretation of displaying strength and aggression in a game of zero-sum survival, which

has led some people to interpret the phrase as providing license for self-interested behaviour in present-day society.

Before discussing the implications of Zhuangzi's concept of body-person on forestry practice, it is important to note that the *Zhuangzi* was first written during Warring States China as a philosophy for living one's life to deal with the tumultuous times. It was not addressing environmental issues as we know them today, and nor was it written for our industrialized society. Nevertheless, some features of Zhuangzi's concept of body-person are noteworthy in our effort to rethink our relationship with the environment, our self in forestry, and our forestry practice. I discuss two points.

First, Zhuangzi calls for us to rely more on our pre-reflective intuitive knowledge as sources of acquiring knowledge and guiding behaviour. This stands in stark contrast to our present-day reliance on rationality. What would a forestry that is based on pre-reflective intuitive knowledge look like? This is certainly an intriguing question that requires further research. However, we must not lose sight of the necessity for human society to have some form of planning in place for forestry.

Second, since there is no diremption between one's mind and matter, including one's body, in Zhuangzi's thought, one's body-person is not alienated from one's environs. We should not necessarily assume that this would prevent one from exploiting one's environment. However, that Zhuangzi called for one to cultivate one's body-person such that one can mirror or match one's *tian*-like nature with that of the environs should give us pause. It forces us to question whether we are *worthy* of taking from the forest, and also whether our actions are aligned with the *tian*-like nature in the forests.

Chapter 6: Conclusion

The prospect of life in the biosphere is declining due to an increasing human population and the concomitant human impact on the environment. For the past two hundred years, we have been using concepts of the environment and the self that were not based on a mature understanding of the ecological relationship between the two. Since our concepts of the environment and the self are mutually implicated, a change in the former would require a change in the latter. In this thesis, I presented the concept of the self as a locus for change and cultivation to help us navigate the Anthropocene.

Specifically, I discussed the concept of the self in United States forestry. Forestry is a large and diverse field that strives to manage forests for ends that are chosen by humans. The tools of science and economics are applied to the particularity of the local context to guide the forests towards these ends. The foundational concept of the self in United States forestry reflects the characteristics of the modern Western concept of the self: individualistic, dualistic in relation to the environment, and inherits the Judeo-Christian attitude of dominion over the environment. Forestry practice evolved during the twentieth century in respond to public criticism, to the point where the Forest Service announced in 2007 the adoption of ecological restoration as its paradigm of managing the national forests. New paradigms of forestry have also emerged, such as ecological forestry and managing forests as complex adaptive systems. However, ecological forestry has fundamental shortcomings (Batavia 2015) and implementing the concept of complex adaptive systems in forest management is challenging (Messier, Puettmann, and Coates 2013). In this thesis, I proposed that a revised concept of the self is needed for us to establish fundamental changes in our relationship and interaction with the environment in general and with forests in

particular. I chose to study the concept of the self because it is an often overlooked aspect in our efforts to address our environmental predicament and also because our concept of the self is constituted by assumptions and mental models, most of which are unexamined, of the normative mode of existence in our social and biophysical context.

6.1 Insights from Aldo Leopold and the *Zhuangzi*

My comparative study of Aldo Leopold and the *Zhuangzi* provides alternative concepts of the self and highlights the peculiarity of the modern Western concept of the self. Leopold presented a critique on the modern Western concept of the self from within Western thought. The *Zhuangzi*, written in Warring States China, represented a different system of thought compared to that of the modern West. Therefore, studying the *Zhuangzi* allows us to expand our repertoire of ways of conceptualizing the self in relation to the environment and consider possible modes of human existence that are not available within Western thought. Leopold's concept of the self was grounded in land health and land ethic. My interpretation of Zhuangzi's concept of the body-person underscores the cultural specificity of the "self" to the West and the possibility of developing an ecological relationship with the environment by using a different philosophical vocabulary. Leopold's concept of the self and Zhuangzi's concept of the body-person provide conceptual sources to help us rethink forestry. In this final section I review the main points from the two thinkers' writings and speculate on the ways through which we can manifest a revised concept of the self in forestry education and practice.

6.1.1 Reorienting Humanity the Self towards Nature

A common theme of the writings by Leopold and Zhuangzi is that both emphasized a common ground between humans and the environment. As noted earlier, Leopold's

ecological and evolutionary worldview and Zhuangzi's thinking that all existents are generated from the *dao* and unfold according to *tianli*, the heavenly/natural pattern, linked the three dimensions of their respective concepts of self. These two forms of thinking also provided a common ground between one's self and the forests. Leopold and Zhuangzi provided a sense that the task at hand is to direct our inclinations towards the entire world, or all that is under *tian*. Both felt that the task is to engage in principles that govern the world—ecology for Leopold and *dao* and *tian* for Zhuangzi—and to be aware of and respond according to our particular context. Our submission to the governing principles is an important major step towards rethinking the concept of self in forestry and for addressing our environmental predicament.

6.1.2 Providing Sufficient Space for the Non-Human World

Leopold and Zhuangzi's writings gave considerable consideration to the perspectives of the non-human world. Their interpretations of these perspectives were essentially based on their literary imagination and philosophy of how one should lead one's lives. Their literary imagination also allowed them to posit representation in non-human species, suggesting to the reader that non-human elements in the environment have a value of their own.

Leopold's speculative accounts of the interiority of non-human animals and his interpretation of the historical contexts of trees and plants in Parts I and II of *A Sand County Almanac* reflected a transformation of his perspective, self-awareness, and ultimately of his concept of self in relation to the land. Leopold's writings in Parts I and II also had the potential effect of transforming the self of the reader (Callicott et al. 2011). Specifically, one realizes in an immediate and intuitive way that humans, like other forms of life, are members of the land community. Further, we need to appreciate and preserve the

intrinsic character of the land, which Leopold described as a music that flows from the land. We need to recognize that the character of the land is stable yet, paradoxically, in constant flux and we should modify it within limits.

The worldview in which Zhuangzi was situated did not posit a sharp distinction between human and non-human existents. Through stories such as the trope of the useless tree, Zhuangzi showed us how the world could be interpreted from different perspectives. According to Zhuangzi, humans and the rest of nature were linked through *tianli*, the Heavenly pattern.

6.1.3 Blunting Instrumental Rationality

Leopold and Zhuangzi's consideration of the non-human world had the effect of reducing the anthropocentrism and excessive instrumental rationality of contemporary human society. They questioned the conventional ways of self-realization in mainstream society—Leopold from the perspective of ecology and land health and Zhuangzi from the perspective of *dao* and *tian*. Arguing that land possesses an intrinsic character that needs to be preserved, Leopold urged us to consider land health when we make land-use decisions. Zhuangzi frowned on excessive rationality and argued that it detracts from our authentic and spontaneous nature.

6.1.4 Cultivating an Appropriate Response

Zhuangzi called for one to cultivate one's body-person in order to be able to respond appropriately to social and environmental situations. He also felt that one can perceive the *tianli*, the heavenly/natural pattern of the world, through cultivating one's skills in all of one's activities—carving an ox or carving a bell-stand—to a daemonic level. The burden is on humans to cultivate their body-persons such that they can recognize *tianli*, and empty their

xin such that they can respond appropriately and intuitively according to circumstances. In other words, one needs to recognize that one is part of a greater whole—the biosphere—and respond appropriately to this reality.

6.1.5 A Revised Concept of the Self in Forestry Education and Practice

We need to implement a revised concept of the self in forestry education and practice. Forestry education is important because future foresters and land managers need to be prepared for change. Indeed, "our schools of forestry must become leaders in research, caretaking, real innovation, and human relations rather than the last bastions against inevitable change" (Maser 2005, 231). Further, any revised conceptualization of forestry should be translated into actions. As Peter List observed, "any form of new forestry, whatever it may be called, rests not only on our ability to put it down on paper, in a formulated philosophy and set of ethical principles, but on its power to help us act in a responsible manner toward each other and the earth, and to exhibit our deep respect for and humility before nature" (List 2000, 292).

How would an ecologically-oriented concept of the self be cultivated and manifested in forestry education and practice? Reimagining forestry through this revised concept of the self is challenging since forestry was established with a utilitarian concept of the self. However, such reimagining of forestry is necessary, given our present accelerating trend of utilization of what are commonly considered natural resources, which is leading to their depletion and increasing loss of biodiversity. Such re-imagination can help us discover creative possibilities in the human-forest relationship.

Forestry education has undergone changes in response to the increasingly complex social and economic context of forestry practice. An important concern among forestry schools and employers is the need to complement the development of technical forestry

skills, such as ecology and species identification, with that of professional skills, such as communication and community engagement (Leslie, Wilson, and Starr 2006; Sample et al. 1999; Vanclay 2007). This need to strengthen forestry training comes as higher education is facing challenging conditions such as reduced availability of resources (Tombaugh 1998). Of particular concern is the declining enrolment in forestry programmes, which has led to pressure for forestry to merge with other disciplines (Tombaugh 1998). Mermet and Farcy (2011) suggest that the broader field of forest planning is influenced by its social context (forest-dwelling societies, agrarian societies, industrial societies, and post-industrial societies) and how it is conceived through different disciplines (applied ecology, management, and interdisciplinary integration). According to Innes (2005), the broad and diverse character of forestry requires multidisciplinarity and interdisciplinarity in forestry training and research. A possible way to achieve this is through a capstone senior undergraduate course in developing forest resource development plans. Watts, Pile, and Straka (2012) shared their experience of using sustainability and forest certification as a framework for such a course, which enables students to gain practical experience.

A possible way to complement the abovementioned developments in forestry education is to introduce the study of the history of the scientific and economic paradigm in forestry, as well as introduce alternative paradigms of the human-forest relationship. Specifically, the scientific study of forests needs to be combined with other forms of understanding of the forests, including environmental literature and traditional ecological knowledge, if it exists. Students should be encouraged to write environmental literature of their own such that they can reflect on their own concepts of self and what the forests mean for them. Further, their environmental literature can combine different types of understanding the land, including scientific, historical, and ethical. For example, how would

forestry students interpret the music of the forests and the land? They would need to be attuned to the music by developing their aesthetic appreciation of the land.

Students can consider the role of the forests and the land in the narratives of their personal existence. For example, how do the forests affect the bodily, relational, and reflective dimensions of their concept of the self? Another important topic during this reflection is the self-cultivation that forestry students need to undertake before they are able to discern the intrinsic character of the forests and the land, and learn how to extract material values from the forests without disrupting this character. Students need to appreciate the history, the present condition, and the possible future conditions of the land for future generations of plants, humans, and other animals. With this understanding, students will be in a better position to make rational, aesthetic, and moral choices for the management of the land.

The forestry curriculum can create space for theoretically considering alternative paradigms of human agency on the land. For example, what would human activity in the forest look like if there were no property rights, no pressure to extract profit, and concepts like “manage” and “over-mature” were not in use? Some of these conditions already exist in some state-owned and privately-own forests where maximizing economic returns is not the main objective.

The abovementioned suggestions for forestry education apply to forestry practice as well. Recognizing that land-use decision-makers and foresters operate within economic constraints, a possible way to complement or even circumvent economic decision-making is to have them consider how they would understand and respond to the forests if economics is not a factor. Considering a non-economic response to the forest, even in theory, would encourage them as well as the broader society to view forests in a less anthropocentric way.

How would we practice forestry in a way that reflects the natural, *tian*ly pattern of the land and maintains the well-being and "music" of the forests? Leopold suggests that to preserve land health we should avoid making "violent" changes to the land, such as large-scale earth-moving projects and using poisonous chemicals. Other practices include leaving coarse woody debris in the forests as habitat for wildlife and for enriching the soil. The criteria for forest planning could be expanded beyond the short-term objective of maximizing economic returns to reflect the multiple values that emerge from multidisciplinary thinking in forestry, as espoused by Innes (2005).

As we proceed into the Anthropocene with a rising human population and accelerating decline in the prospect of life on the planet, we have to pay more attention to the rest of nature in order to support life, including human society. This is our present challenge. Developing a concept of the self that is consonant with the ecological environment, as the writings of Leopold and Zhuangzi have shown us, will enable us to meet this challenge and be in a better position to navigate the Anthropocene.

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