

Chapter 2

Conceptualisations of Nature: The Narratives So Far

Abstract This chapter traces the history of the idea of nature in Western traditions of thought, giving the reader a background into the complexity of the idea. Earlier work by scholars is summarised with explanations and comments in order to indicate how the concept of nature has always been conceptualised through particular historical and cultural perspectives. The need to study the concept of nature within alternative traditions of thought is discussed. Building on the themes from the earlier chapter, a brief outline of some of the major disciplines linked to the field of Environmental Philosophy is also described.

Keywords Conceptualisation of nature in Western traditions of thought • Science and nature • Bacon’s project • Enlightenment • Romanticism

2.1 Introduction

An overview of the conceptualisation of nature both from Eastern and Western streams of thought is presented this chapter. The historical trajectory of nature in Western thought is mapped through the writings of various historians of nature and environmental philosophers. The attempt has been to focus on the literature around the idea of nature that directly or indirectly relates to ecological themes and problems discussed in the first chapter. However, earlier work on conceptualisation of nature in Eastern thought in general deals with certain ideas of nature in Classical Philosophy as well as some practices and customs around nature prevalent even today.

As mentioned earlier, two significant ideas frame the background of this summary of works. One is the survey of literature available around conceptualisation of nature in both Western and Eastern traditions of thought and the second is the relevance of such conceptualisations for deriving a possible framework for ecological ethics. What are the conceptualisations of nature we have around us that help us understand what nature is? What is our relationship to our environment?

How do we move from the conceptualisation of nature that favours exploitation, to one that inspires and encourages conservation? What kind of conceptual ideas or perspectives of nature would create a framework for an ecological ethics that would be free of the various problems and issues discussed in earlier chapter? Philosophical ideas around nature are usually placed within some environmental ethical positions describing a theory in terms of “bio-centrism”, “ethnocentrism”, “anthropocentrism”, etc. These are newer ways of understanding the earlier ideas about nature. My overview from a philosophical perspective ignores these positions (which are sometimes political) and tries to place the conceptualisations within a historical context. Not to do so would exclude the place of Indian thought that does not fall under these divisions due to the unique conceptualisations of nature that are available in these sources. I believe that philosophy, especially Environmental Philosophy, cannot be disembedded from the larger concerns of the society. However, it is also important to have some category to place this history of the “nature idea” in perspective. Therefore, I have chosen to highlight the conceptualisations of nature as “inclusive of human beings” or “exclusive of human beings” (non-human nature), as well as trace the changes in conceptualisations that are seen in various intellectual periods of historical importance.

A possible question that one may ask here is about the time periods of both Eastern and Western thoughts taken up for discussion. Why does the summary of work in Western thought cover a range of conceptualisations from ancient Greek Philosophy right up to the modern philosophers while the predominant discussions of nature in Indian thought clusters around pre-modern concepts?

In this regard, I can only offer the explanation that the historical trajectory of a particular line of Greek thought lead to the gradual development of natural philosophy in the West; in contrast Eastern thought focused on conceptual paradigms of particular traditions that they refer to as principles or *tattvas*. According to Comford (1997), the scientific tendency can be traced through a line of thinkers of the Milesian school and their successors such as Anaxagoras:

These atomists succeeded in reducing physis to a perfectly clear conceptual model such as science desires, comprised of little impenetrable pieces of homogenous matter, with none but spatial properties—tiny geometrical solids, out of which all bodies, whatever shape and size, could be just built up (p. 144).

In Indian thought, though there were schools that had similar ideas, they never gained enough prominence to displace dominant forms of what we know as the Vedantic schools of thought. These include non-dualism, dualism, and special dualism in the later periods of history. Some of these concepts continued to flourish in their embedded forms in the areas of philosophy, language, and other traditions of knowledge such as Āyurveda or Tantra. Also, it is evident that rituals and traditions continued to evolve in practice along with discourses of nature being perpetrated by mythology as well as the narratives of the divine. Some contemporary thinkers such as Aurobindo, J. Krishnamurti, or Tagore did write about nature, but given their background in Western thought, they were already presenting a globalised view, which was also influenced by Western thought.

To prepare a kind of a map that looks at the conceptualisation of nature in Western traditions of thought is to actually trace out the relevant concepts from a conglomeration of disciplines such as geography, history, biology, ecology, and philosophy. Any attempt to provide a complete picture of the concept of nature or a historical description of this idea in the West is too monumental a task and is likely to fall short on many accounts. On the other hand, an engagement with nature from a single perspective—such as the uses of nature in a particular literature genre—could be dismissed as an enumerative project. Lovejoy (1927, p. 444), who has listed the aesthetic uses of the word nature, calls it the “verbal jack of all trades”. Therefore, my introduction to the concept of nature deals with those conceptualisations of nature that would make sense in the framework of a philosophy of conservation and action.

At the outset, it is important to remember that concepts are better understood as representations and not definitions. It is true that conceptual resources have their own history of development and have been used or re-fashioned over different time periods and the concept of nature is no exception. On one hand, a concept as distinguished by various traditions of thought and writing can be surveyed; on the other hand, it is also important to be clear about the undistinguished presuppositions that the concept as such is already surrounded by. Though the term “nature”, as we use it today is derived from a particular discourse in Western philosophy, there is nothing particularly Western or Eastern about the natural world that we inhabit.

A large part of early Western philosophy was but the philosophy of nature. However, there have been dramatic alterations in the way nature has been perceived. So, as a preamble to my work I think it is important to give a picture of these transformations here. These historical and cultural perceptions of nature have not only influenced scientific thought, but have also been influential in many ways on the development of sciences themselves. Collingwood (1945) in his book *Idea of Nature* traces the historical development of the idea of nature, from the early Greeks to the modern scientific period. A reading of this very detailed book indicates that the concept of nature developed from a long line of philosophy, beginning with the Greek tradition, but we also know now that its meanings and paradigms have changed over time. However, legacy of these early thinkers to Western civilisation cannot be under-estimated. Though the early Greek philosophy subscribed to an idea of nature as a living being, only certain trends in the Greek tradition were adopted into Western Metaphysics and are important to discuss here.

2.2 Cosmological Accounts

Collingwood (1945, p. 29) explains how the Greek conceptualisation of nature in Ionian thought answered the question “what is Nature?” in terms of the query “what kinds of things exist in the natural world?” He further adds that the word nature,

which often refers to the collection or aggregate of natural objects in modern sense, was used by the Greek philosophers to refer to a principle, principium, or source. Similar kinds of analysis are undertaken by many traditions of Indian Philosophy to list the possible existents and their relationships. These will be discussed in the later chapters of the book in detail (c.f. Chap. 3).

The word in the roman language, "*natura*" comes from the word "*gnascor*", a root that is the same as "origin" or "birth" (same as the root of the word "pregnant"). However, the Romans, according to Tellenbach and Kimura (1989), used this word to translate the Greek meaning of the word physis. According to Naddaf (2006), the word physis represents the essential nature of a thing—the entirety of its creation, growth, and maintenance: "In sum, phusis [physis] must be understood dynamically as the 'real constitution' offered thing as it is realised from beginning to end with all of its properties". But, Naddaf adds that "physis" is never employed in the sense of a static principle. The original meaning of the word physis [physis] comprises three types of emphasis—as origin, as processes, and as a result. Psyche was the soul that all the living beings possessed. Homer uses this word in the sense of life. Later thinkers like Aristotle refer to this as "soul" or the "life principle". A point that the philosopher McClure (1933) raises in his paper on the Greek concept of nature is that the "psyche" of nature and man are not the same: "The soul of man is a fragment of the universal fiery energy that appears in the universe at large. Man is the universe in the miniature" (p. 120).

On examining the development of the concept of nature in the Greek period, one notices that each of these early philosophers attempted to answer the question, "what was the essence of the world?" differently. This essence, the undifferentiated stuff for Thales was "water". Collingwood's (1945) description of the Greek concept of nature also attributes the idea of an "ensouled world" to Thales. Anaximenes made out this essence of reality to be air and Heraclitus decided it was fire. The first idea of nature as order seems to come from Heraclitus, where opposites in nature regularly follow each other—such as night follows day and death follows life. Laws of Nature, according to Anaximander, are all nourished by one divine law. This early concept was developed slowly into the sophisticated presupposition "laws of nature" of modern science. McClure (1933, p. 121) suggests that in Heraclitus' cosmology, the idea of a process of tension, a sort of a "give and take" generates the concept of law and order. Carone (2001) explains this "harmony of tension" as something that is inherent in nature for Heraclitus. Marshall (1992, p. 68) writes: "Heraclitus stands at the source of Western metaphysical tradition which stresses process and flux in nature". For Heraclitus, the orderly succession of events was ensured by "reason" or "destiny".

Elsewhere, nature is considered to be moderation (Sophrosune) as opposed to human arrogance (hubris) and nature thus teaches humankind a lesson in humility (Carone 2001). The Greeks greatly appreciated the beauty and order in nature and any disturbance of the natural order was also "hubris" and attracted punishment from the gods.

For Ionians, there was a distinct problem of how to explain the differences in natural things. If everything was “stuff” and homogenous, how would different things have different properties? Also, it was not clear how one could distinguish matter from the space it occupied. The resolution of these questions was the philosophy of Pythagoras and his school which is always identified with him. Collingwood (1945), writing about Pythagoras, states that this ancient Greek philosopher was trained as a mathematician; therefore, he attempted to find a connection between the problems of cosmology and the achievements of geometry. Pythagoras suggested that qualitative differences in nature were based on differences of geometric structure. It is not therefore important to ask what primitive matter is like or ascribe to it any character differing from that of space itself. All we must describe is the power of being shaped geometrically. The nature of things by virtue of which they severally and collectively are what they are, is geometrical structure or form. Collingwood (1945) further suggests that the Pythagorean project continues into present day science which correlates properties with structure. So according to Pythagoras, it does not matter what the world is made up of; what we have to strictly look at is the patterning and changes of matter which provide the explanation of properties.

Carone (2001) points out that in later Greek thought of Socrates, the order of the universe was important. The idea that this order (both natural and social) was maintained by friendship and moderation seems to be repeated as a constant theme in his speeches. Plato, considered the disciple of Socrates, is said to adhere to what is popularly called “metaphysical dualism”. Carone (2001) also suggests that, in order to deal with the flux of the phenomenal world, Plato invokes the concept of form, the stability of which allows us to attain stable knowledge. While the perceptible world is in a state of flux, the ideas or forms are unchanging. Collingwood (1945) explains the relation between the forms and the perceptible world for Plato:

The world, the aggregate of natural things was throughout its fabric a complete of matter and form. Form was wholly immanent in the world. Form the intelligible had its being only as that which re-entered intelligible the world in which it was immanent (p. 72).

Timaeus contains some of the main ideas of Plato’s cosmology. Here, one finds that the emphasis has shifted, from the idea of matter to the idea of form. Plato’s cosmology is like a logical succession to Pythagoras’s concepts and the notion of mathematical form is extended to include all other forms. “Matter” in the *Timaeus* is simply that which is capable of assuming geometrical form, and the form which it can receive is independent of any material embodiment and constitutes itself and apart from the matter in an intelligible world. The world of nature is a material organism or animal, alive everywhere with spontaneous movement. The intelligible world is called the immaterial organism, alive, because forms are related dynamically in dialectical connections. The same world is not alive with movement, because movement implies space and time and the world of forms has no space and time. If space and time are not present in the world of form, where do they arise in

the world of nature? Since the world of nature is a copy of the world of form, one would expect that every feature have a corresponding ideal made in that world (Collingwood 1945).

According to Collingwood (1945), the *Timaeus* suggests that space corresponds to no feature of the intelligible world.

Space is simply that of which the copy is made, like it is the sculptor's clay or draughtsman's paper. In the intelligible world, everything realises its entire nature simultaneously—for example, all properties of a triangle are present in the triangle at any given movement, so it does not need a lapse of time to realise then one after another. In the perceptible world the total nature of a thing is never realised all at once (Collingwood 1945, p. 80).

It is in Plato's philosophy that we begin to find early ideas of the one cause which Aristotle engages with as the prime mover. *Timaeus*'s answer to the question about the need for god as a creator is that the world of nature is a becoming process and that all things becoming must have a cause. Why should god have created this world? The reason that Plato gives is that god is good and the nature of goodness is to overflow outside itself and reproduce itself.

Citing evidence from Plato's works that are available to us, Carone (2001, p. 70) also discusses Plato's idea that humans who have not lived up to the highest rationality may be reborn as animals. It is also interesting to note that for Plato, plants too are like humans and that they experience pain and pleasure. This indicates the idea of a shared psyche. It is easy to naively conclude that "physis" and "psyche" are placed in opposition in Greek thought, but one must be careful to remember that psyche is inherent in physis and not necessarily opposed to it.

Aristotle is often considered Plato's successor. His view is that nature is a source or cause of things being moved and of being at rest, within that to which it belongs primarily. In his work *Physis II*, Aristotle (Trans. 1963) begins by talking about the various ways in which nature can be defined:

Of the things that exist, some exist by nature, others through other causes. Those that exist by nature include animals and their parts, plants, and simple bodies like the earth, fire, air and water—for of these and such like things we do say that they exist by nature. All these obviously differ from things that have not come together by nature; for each of them has in itself a source of movement and rest (p. 209).

Natural things, once their generation begins, "grow by means of themselves" (p. 210). This is the most fundamental difference between art and nature for Aristotle; nature is a source of change within the thing itself. Two concepts were important in Aristotle's view of nature: purpose or teleology and the order or hierarchy of beings. Aristotle's concept of "*entelechy*" demonstrated that nature had a tendency to move towards definite ends. Nature had a purpose. Inherently, all beings occupied a place within an order of hierarchy. Coupled with the idea of cornucopia or abundance of beings in nature, Greek philosophers could construct a scale of beings from the highest to the lowest. The beings lower in order fulfilled their purpose by satisfying those higher up in the hierarchy. The value of a being was fixed by where it was placed in this order.

2.3 Beginnings of a Science of Nature

For a long time, the Aristotelian concept of nature held sway in sciences and philosophy. In the sixteenth and seventeenth centuries, there was a movement away from Aristotelian physics in what Collingwood (1945, p. 94) perceives as a major cosmological revolution. There was a shift away from teleology and purpose to the enquiry into the process structure as well as nature of the world:

The naturalistic philosophy of the Renaissance regarded nature as something divine and self-creative; the active and passive sides of this one self-creative being was differentiated by distinguishing ‘*natura naturata*’, or the complex of natural changes and processes, from *natura naturans*, or the immanent force which animates and directs them (1945, p. 95).

This important idea in medieval times was the shift from the *telos* of the world, towards a *telos* that made man central in every sense. Brutt (1924) also writes of this shift:

For the dominant trend in medieval thought, man occupied a more significant and determinative place in the universe than the realm of physical nature...the whole world of nature was believed to be teleologically subordinate to him and his eternal destiny (p. 4).

Brutt (1924, p. 5) also points out clearly as to how two movements led to this conviction: Greek philosophy (post Aristotle) and Judeo-Christian theology. He connects this underlying world view of man’s all-important and influential role in the universe to the development of medieval physics. He posits that not only was nature subservient to man under this conceptualisation, but the world of nature was also considered to be “immediately present and fully intelligible to his mind”. Post Aristotle, Greek Philosophy in the early phase of Renaissance still believed that the world of nature—*natura naturata*—was like a living organism. Nature could feel pain and pleasure, or experience love and hate. With the coming of the new astronomy of Kepler and Copernicus, the idea of nature as an organism was replaced by the idea of nature as a machine. It has also been argued that the idea of nature as “designed” became prominent as the orders of its workings were tabulated. To a certain extent, the design theory of nature actually helped to divinise nature, as there was a stronger argument for a divine mechanic who put nature’s clockwork together. The impact of this idea was that “nature” was no longer a copy of some other original perfect world, and this was evident in the way it was studied and recorded. Collingwood (1945) points out the shift in the way nature was perceived:

From an early date in the history of the movement it led people to think of nature as self-creative and in that sense divine, and therefore induced them to look at natural phenomena with a respectful, attentive, and observant eye; that is to say, it led to a habit of detailed and accurate observation, based on the postulate that everything in nature, however minute and apparently accidental, is permeated by rationality and therefore significant and valuable. The Aristotelian tradition, regarding nature as a material imitation of a transcendent immaterial model, implied that some things in nature were accidental (p. 95).

We can say that conceptualisation of nature in the medieval period based itself firmly on two intersecting ideas that came together. One was the concept of the designed universe with a divine creator and the other was the purpose of this creation, which was to be used by man quite firmly. Also embedded in the idea of man's geo-centrally located importance was the theological movement. The prime mover of Aristotle and the personal father in heaven became one, and this god favoured man. The entire realm of nature was created by god for man to know and enjoy. Leiss (1994, p. 31) states that: "science conceived as the winning of mastery over nature seemed to be the natural fulfilment of the Biblical promise that man should be lord of the earth". The famous passage in the Bible reads:

And God said; Let us make man in our image, after our likeness: and let them have dominion over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth (Citation).
So God created man in his own image, in the image of God created he him; male and female created he them. And God blessed them, and God said unto them, be fruitful, and multiply, and replenish the earth, and subdue it; and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth (Genesis 1:26–28)

We can trace an important development in the Christian Theology that created a dichotomy in the concept of nature in the popular imaginations of that period. While all nature was divine and sacred, there also seems to be a parallel idea of a wild and savage nature that resisted domination. The spirits and forest creatures were not gentle, nor were they "usable" by human beings. The sacred creation of God became less sacred in the wild as it resisted man's domination. Leiss (1994) traces this to the myth of man's dismissal from Eden. With the fall of man from Eden the most sacred garden, nature too was subjected to a fall from the sacred place it occupied. This led to the conviction that the more nature was tamed and brought under human control, the more earth would be like paradise. The idea of imitating this lost paradise also led to the development of gardens, cultivated landscapes, and domestication of nature both in Islamic and Christian cultures at this time (Leiss 1994, p. 31). Leiss writes about this:

The decisive question for Christian theological commentary on this point was how the Fall affected man's dominion on earth. The existence of wild animals was regarded as evidence that there had been a partial loss of authority on account of sin, for it was assumed that in the Garden of Eden all animals obeyed man's bidding. The domestication or destruction of the wild animals would be a sign that the earthly paradise had been restored. The legends recounting the deeds of the early saints who retired into the wilderness all speak of their accomplishments in taming beasts as proof that they were reasserting the rightful human sovereignty enjoyed prior to the Fall (p. 31).

On one hand, nature would be subject to use by man, sanctioned by the divine. On the other hand, investigating nature would fundamentally imply investigating the secrets of the divine plan and order of things in the universe. Leiss (1994) further points out:

Nature has a double aspect. In its immediate presence, as the source of satisfaction for vital human needs, it necessarily arouses utilitarian modes of behaviour (which may differ

widely in structure and detail); reflectively, however, nature appears as the visible testimony of God's providence and thus must be regarded from the perspective of its value as an aid in understanding the divine scheme (p. 34).

During the Renaissance, there were steady successions of remarkable technological innovations. Many contemporary scholars have claimed that the Renaissance is the primary modern source for the idea of mastery over nature. Alchemy, magic, and other investigations into the nature of matter played a role in furthering the cause of man's mastery of nature. The idea that these arts were against god and one was interfering with nature if one engaged in science and technology was perhaps averted by the timely work of Bacon. He was universally praised as "the secretary of nature". Bacon (1620, quoted in Leiss 1994) provided the world of scientific method with legitimisation, whereby the idea of mastery over nature became widely acceptable and the cultural impact of religion gradually diminished. The concept of mastery over nature has been regarded as an outstanding contribution of Bacon's world view for a long time. Through explaining the concept of "The Fall from Eden", Bacon establishes his related contention that trying to know nature would not only give us complete understanding of god's plan but would reverse the effect of the fall from Eden. He writes of the restoration at two levels:

For man by the fall fell at the same time from his state of innocency and from his dominion over creation. Both of these losses however can even in this life be in some part repaired; the former by religion and faith, the latter by arts and sciences (1620, quoted in Leiss 1994, p. 31).

The distinction that man's innocence could be reversed by faith and religion and that the dominion over nature could be restored through arts and science, particularly had the effect of secularising the field of human endeavour that was based on "understanding nature". Not only was the development of this thought limited to the terrestrial realms, but even as a quest for understanding nature, the discovery of the laws of nature brought under human understanding even the celestial bodies which had eluded reason. Merchant (2004) points out: "Recovering the lost Eden became Western culture's major project during the scientific revolution of seventeenth century. Reason and experiment were keys to reinventing Eden on earth" (p. 65).

Post-Renaissance, the scientific revolution is considered to be the source of the dominant world view that saw nature as dead and mechanistic. This view paved a way for not just domination of nature, but through the development of technology, it brought in the discourse of "harnessing nature". We have to consider two areas differently from each other: the development of the natural sciences and the development of technology. Both depended on the transformation of the concept of nature. It seems that the realm of metaphysics was separated from physis, while technology succeeded in maximising extraction of materials from nature. It was not that nature was not "used" earlier, but that somehow the moral values that it was accorded with disappeared. Marshall (1992) writes of this shift:

It marked a fundamental shift in our relationship with the natural world, which was no longer considered a divine dwelling for humanity, but an object to be used. By insisting on a rigid split between the observer and the observed, it further alienated man from nature.

No longer fearful of disturbing the vanished gods, he could exploit the machine of nature to the hilt. Released from earlier moral and religious curbs, he felt free to maximise his power in the untrammelled pursuit of his own ends. In a double process, it not only desanctified nature, but also gave man enormous power over it (p. 168).

Marshall (1992) also points out that the attitude related to the devaluing of nature is instantiated by the behaviour of the people during that age towards animals. There was also the development of the positivistic philosophy of economics, which recommended human material wealth as the ultimate aim of human happiness.

2.4 Heliocentric Revolutions

The revolution in science referred to as the Copernican revolution, changed not only the way the Western civilisations perceived the world, but also changed the way human beings looked at themselves. The new heliocentric astronomy of Copernicus and Kepler had profound influence on the concept of nature. Collingwood (1945) argues that the popular perception that the work of Kepler reduced the importance of the earth and the human being in the scheme of things is wrong. He writes:

This idea, so far from diminishing the scope of man's powers, vastly enlarged it; for it taught him that scientific laws established by him on earth would hold good throughout the stary heavens. It was directly owing to Copernicus's denial of geocentric astronomy that Newton could imagine the force which kept the moon in its orbit to be the same that drew his apple to the ground (pp. 97–98).

Burt (1924, pp. 38–39) claims that certain presuppositions about nature lead to the acceptance of Kepler and Copernicus' new astronomy. One was that nature was governed by the principle of simplicity. Following Galileo, the teleology of the world and creation, in other words the "why" that lead to finding primary cause, was replaced by the investigation into the processes and laws or "the how" of nature. Kepler's explicit analogy between nature and a machine is clear in this section of a letter written by him:

I am much occupied with the investigation of the physical causes. My aim in this is to show that the celestial machine is to be likened not to a divine organism but rather to a clockwork ... insofar as nearly all the manifold movements are carried out by means of a single, quite simple magnetic force, as in the case of a clockwork all motions [are caused] by a simple weight. Moreover I show how this physical conception is to be presented through calculation and geometry (Kepler's letter to Hewart Von Hohenburg, quoted in Marshall 1992, pp. 171–172).

After Kepler, the next idea that changed the concept of nature was given by Galileo, who suggested the idea of inertia in physics and did away with the need for an agent like God to "keep moving things". These discoveries had a profound impact on the concept of God. He became a divine mechanic, no longer perceived as the

powerful ‘Prime Mover.’ The long line of thinkers thus added to the concept that nature was knowable, measurable and interpretable in mathematical terms. The genius among these thinkers was Newton, claims Burt (1924, p. 202). Speaking about Newton’s achievement, he writes: “For him to invent the needed tool and by its aid to reduce the major phenomena of the whole universe of matter to a single mathematical law....” This victory of understanding is aptly summed up in Alexander Pope’s poem meant as an Epitaph intended for Sir Isaac Newton.

Nature and nature’s laws lay hid in night;
God said, “Let Newton be!” and all was light.

Burt (1924, p. 17) makes an observation that this was the time when natural philosophy and natural science split and “... it is largely due to Newton that a real distinction came to be made between the two”. On the other hand, at the same time, philosophical movements that countered this mechanistic view of nature were also present. The movements of romanticism and those of the anti-Enlightenment did make their presence felt at various periods in history.

The legacies of the two great cultural movements which have dominated Western thinking since the eighteenth century are ambiguous and their full repercussions are still being worked out, claims Marshall (1992). These two movements in Western thought were Enlightenment and Romanticism.

Post-Renaissance, the question about the extent of enterprise of human reasoning lead to the development of a period of philosophy known as the enlightenment. Hibben (1910) writes about the significance of this historical development in Philosophy.

The significant movement of thought known as the Enlightenment, or *Aufklärung*, falls in the main within the period of the eighteenth century. However, it is seldom that the turn of a century happened to coincide exactly with the beginning or the end of a great epoch, political, religious or philosophical. The period in philosophy which is referred to in a general way as the eighteenth century begins virtually in the year 1690 with the publication of Locke’s famous work, *An Essay Concerning Human Understanding*, and is brought to its close in the year 1781 with the appearance of Kant’s *The Critique of Pure Reason*. They are the natural boundaries of this “philosophical century (p. 3).

During the Enlightenment, there was a spread of liberating thought that freed humankind from superstitions and encouraged free thinking. The challenge of authority—of church, monarchy, or forms of tradition—resulted in the superior place for reason in the world. During Enlightenment, the idea of progress became stronger. The belief that nature would progress along with mankind was often presupposed due to the elevated status of the human being. Faith that was Christian gave way to a humanist faith. Marshall (1992, p. 294) writes: “The growing mastery over nature through technology and science made man more arrogant than ever”. The apriori, analytical reasoning of the Enlightenment replaced all other kinds of thinking and though it was reason that was to prevail, only instrumental reason prevailed (p. 295). The critique of this period is based on the fact that humanist-centred perspective, particularly a man-centred perspective tended to ignore the rest of the natural world including and other kinds of thinking, intuition, emotions, or feeling.

2.5 Romanticism

Temporally, the idea of evolution replaced the idea of human history. Earlier classical civilisations such as the Greek and the Romans perceived their relationship with nature conditioned by their prevailing belief that human history is cyclical or a meaningless flux of events. This was replaced by the Christian world view of sin, redemption, and a move towards salvation. Very subtly, the Christian concept of forward movement integrated into the Enlightenment idea of “progress”.

In response to the Enlightenment period, a tradition which denied the objectivity of science and the split between the observer and the observed developed. Popularly referred to as “the Romantic Movement”, this revolt against the Enlightenment and the Positivist sciences sought to break away from the idea of a quantitative vision of nature, towards a more qualitative vision. Thinkers of this stream of thought looked for ways of knowing that would avoid objectifying nature completely. The concept of an organic nature replaced the idea of a clockwork or machine. The idea of nature in poetry and writing, which persists to this day in wilderness debates, saw their beginnings during the Romantic period. The presupposition in such literary works was that nature was pure and it was needed to cleanse and purify humankind of the ills of an obsolete and corrupt society—one that was artificial and mechanical. Nature’s innocence and goodness creates a powerful value-based separation of places—such as the countryside or wilderness that was ideal and the built up towns and cities that were polluting. Marshall (1992, p. 285) quotes Whitehead on the Romantics: “As the philosopher A.N. Whitehead argued, one of the most important lessons for modern science was the Romantics’ protest on behalf of the organic view of nature, and ... against the exclusion of value from matter of fact”.

Schelling (1775–1854), generally regarded as the principal philosopher of Romanticism, posits an ecological world view in which the description of nature is not restricted to scientific explanation. Schelling responds to the Kantian project in his work *Naturphilosophie*. Kantian thought and idealism posits that a “thing in itself” can never be known and all that is known is our representation of it. Though in this stream there is a denial of the reality of a nature apart from our knowledge of it, there is no ontological denial of the existence of a nature outside us. “The Kantian division between ‘appearing nature’ and ‘nature in itself’ is seen as resulting from the fact that the nature theorised in cognitive judgments is objectified in opposition to the knowing subject” (Bowie 2001). According to Schelling, this objectification of nature fails to account for the dynamic forces in nature, including our own selves. He argues that our concern should not be about the nature that is actual and unavailable to us, but about what actualises nature for us or how we “construct nature”. Nature then exists for us as “a possibility of nature”. Experiments and other empirical sciences only provide us with a surface concept of nature: Every experiment contains an implicit apriori judgment of nature, making it a “production of nature”.

For Schelling, a new science—that he refers to as ‘speculative physics’—would engage with nature without these a priori judgments. He bases his theory of nature on the fact that the essence of matter consists of opposing forces of attraction and repulsion. The *Naturphilosophie* includes humankind within nature, as part of an interrelated whole: “This philosophy must accept, therefore that there is a hierarchy of life in nature. Even in mere organised matter, there is life, but a life of a more restricted kind” (Bowie 2001).

2.6 Evolution

Historical and mythological explanations of change and the origins of life forms were replaced by the development of the early biological sciences and these new ways of thinking had a major impact on the perception of nature. The travellers, who first embarked on journeys around the world, brought back tales and creatures from far off exotic lands. On one hand, we had the coming of the “wild” and the “native” worlds discovered by the Western anthropologists; on the other hand, with the high number of life forms that were discovered, taxonomy ruled the largely descriptive project of natural history until the work of Darwin.

The concept of evolution of life forms is often considered to be the “Copernican” revolution in the life sciences. The work of Darwin and others had the effect of completely changing the fundamental understanding of people with regard to life forms. Firstly, the special position of man among all other beings on earth was displaced. The naturalistic explanation linked the human beings to the rest of the natural world as human beings took their rightful place in the evolutionary tree of life. Darwin’s work is succinctly summarised by Marshall (1992) thus:

Darwin’s theory of evolution through natural selection, the most unifying of all biological theories, is based on three observations and two deductions. The first observation is that organisms tend to increase at a geometrical rate; the second, that the populations of different species are more or less static. From this, he deduces that vast numbers of organisms die before they can reproduce. The third observation is that there are inherited variations between the same members of a species. The final deduction is that in the struggle for existence, those variations which make the organism best adapted to its environment will give it a better chance to survive and reproduce. The result will be the gradual evolution of different species and the formation of new species (p. 323).

Darwin’s works show that he had a very holistic view of nature and was moved by its complexity and beauty. Darwin’s reference to nature in his work and the romantic tendency to see nature in terms of a nurturing mother has resulted with reference to the idea that is referred to by a few as the “hidden Goddess of Darwinism”. Darwin was also very clear about the interrelationships between various parts of the natural world. He recognised the concept of places for organisms to occupy (which we now call ‘niches’). Stressing the importance of the concept of evolution, Marshall (1992) states that the work of Darwin changed the absolute

position of the human and the scale of ethics, by implying that man's position in the world of nature was only a matter of degree. He writes:

The most important legacy of the Darwinian revolution is that it has undermined once and for all the attempt to defend the notion of human uniqueness on the grounds of intelligence. Humans are social animals who have developed reason, speech and a moral sense more than their fellow animals (p. 331).

Both Kant and Herder also influenced the idea of nature through their philosophical thought. Tracing the philosophical idea of cosmic evolution, Marshall (1992) writes of the influence of Kant and Herder: "Immanuel Kant too in his *General History of Nature and Theory of the Heavens* (1755) interpreted the whole universe as a product of historical development and offered the first systematic evolutionary account of cosmic history". His pupil Gottfried Herder (1744–1803) put forward a theory of organic development of cultures. Herder visualised nature as a great chain of being which placed all beings in a hierarchy, but at the same time, various beings were not separated from each other, as they were all part of an organic whole, interrelated, and interdependent a dynamic and evolving web of life. From observation of nature and its cosmic linear movement from chaos to order, one can deduce the evolution in history.

Marshall (1992) also points out that this concept of nature as consisting of a great chain of beings was positive for ecological thought. He claims that "doctrine of the Chain of Being continued to see diversity as a form of excellence" and that this chain related the human being to all of other beings in the universe by a process of evolution over time: "With Herder, the Great Chain of Being is thus temporalised: the passage from 'lower' to higher marks a succession from 'earlier' to 'later'".

Referring to the doctrine of the Chain of Being as inherently animistic and a natural ally of Pantheism—which presented the world as the overflowing manifestation of the One—Marshall suggests that Herder's philosophy paved the way for an evolutionary and ecological appreciation of nature and Romanticism. It is important to note that although it seems that Herder would almost anticipate Darwin, he in fact did not conclude that creatures have evolved from earlier ones by descent. Herder adhered to the Judaeo-Christian view of man's privileged position as lord of the creation. The earth was made for man, who was the privileged lord of all creatures on earth.

It is important to note that the development of natural science on one hand and the study of human problems and issues by historians on the other contributed to a conception of nature based on history. Nature became progressive. The idea of progress was simultaneously adopted for the human being and nature. "...civilization has moved, is moving and will move in a desirable direction" (Bury, cited Lafrenniere 1985). With the development of the field of biology, the growth of natural history and concepts from social sciences were borrowed and projected on to natural sciences and vice versa.

With the wide spread acceptance of Darwinian notions of evolution, nature ceased to be stable and constant. "Nature was no longer perceived as a machine"

(Collingwood 1945); instead nature that was organic or biological was perceived as something that could replicate and evolve. On the other hand, the utilitarian mode of perception took over when nature was considered the source of raw material for human use. The concept of evolution thus marks the next great leap in the concept of nature.

2.7 Modern Cosmology

On the metaphysical level, the impact of the theory of evolution was the discussion of emergent properties. Two thinkers that Collingwood (1945) chooses to describe who worked on a modern cosmology are Alexander and Whitehead. Alexander's idea of nature was based on the view derived from the concept of "emergent evolution": "This world, as it exists in its ceaseless changes, appears to him as a single cosmic process in which there emerge, as it goes on, higher orders of being" (Collingwood, 1945, p. 158).

This view proposes that the evolved state of anything is not a mere product of an improvisation or modification of the original, but the new patterns emerging in the new state represent a new order of being, whose properties cannot be explained by being reduced to earlier properties of the evolutes. This idea was proposed for the concept of life by thinkers such as Morgan, who saw life as an emergent property not reducible to properties of mind or that of matter. Life and mind thus cannot be the subject of just Biology reducible to physics. Alexander extends the idea of the new patterns giving rise to new properties to the whole of creation. Collingwood (1945) writes about Alexander's view on living organisms using the concept of space-time in a unique way:

Living organisms in their turn are patterns whose elements are bits of matter. In themselves these bits of matter are inorganic; it is only the whole pattern which they compose that is alive, and its life is the time-aspect or rhythmic process of its material parts. Thus life is the time-aspect of the organism, its space-aspect being inorganic matter; in other words, life is a peculiar kind of activity or process belonging to a body composed of parts which taken in themselves enjoy an activity of the next lower order (p. 160).

For Alexander, different orders of being within matter exist, "the higher being elaborated forms of the lower, and different orders of mind" (ibid.). The formation of higher order of categories with more complexities causes this infinite evolutionary process. Yet, each of this higher order complex emergent forms is take on a form of a new simple totality that may form the basis for the next stage of evolution and so on. Collingwood (1945) suggests that this cosmic process envisioned by Alexander rests on a presupposition of categories derived from the definition of space-time:

Space-time is the source of the categories, but they do not apply to space-time; they belong only to what exists, and what exists is not space-time itself but only the empirical things in it; but these things possess categorical characteristics for one reason and one only—namely, that they exist in space-time (p. 162)

Collingwood (1945) suggests that Whitehead's concept of nature is similar to the one proposed by Alexander. Whitehead's early training was that of a mathematician and physicist: "Nature for him consists of moving patterns whose movement is essential to their being; and these are analyzed into what he calls events or occasions, which correspond with Alexander's point-instants" (p. 165).

Similar to Alexander, Whitehead also believed that the structure of a being gave it its properties and that a breakdown of structure and further analysis of it would reveal components, but would destroy this structure that gave an object its unique properties. Thus, Whitehead posits that everything that exists is like a living organism because its essence depends not only on its individual parts, but on the particular combination or pattern in which they are organised. Explaining Whitehead's ideas on the concept of nature in detail, Collingwood (1945) suggests that the processes and the organic form of nature as an organism are separate:

The activities of the organism are not external accidents; they are united into a single complex activity, which is the organism itself. Substance and activity are not two, but one. ... The process of nature is not a merely cyclic or rhythmical change, it is a creative advance; the organism is undergoing or pursuing a process of evolution in which it is constantly taking new forms and producing new forms, in every part of itself" (p. 167).

The cosmic process of nature has two parts: one is "extensiveness" in space-time and the other is "aim", which is a process explained by teleology. This is given by the idea that a process is always oriented towards a particular goal. Alexander, being an empiricist, believed that the emergent qualities of the new patterns would solely abide in the patterns; Whitehead however believed that these qualities belonged to an eternal platonic world (Collingwood 1945).

2.8 Phenomenological Traditions

Phenomenology concerns itself with the experience of human beings as they find and construct meanings in the world of everyday encounters with it. Edmund Husserl is credited with creating a way out of the paradigm of purely naturalistic view of things. According to David Wood (2005), phenomenology is a resistance movement against treating phenomenon as reducible to causal laws.

Historically, the idea of nature seems to have taken two trajectories of conceptualisation. One concept is that it is the object of study for the natural sciences. The other is that of nature being the "natural world" that we live in and the one that we experience through our senses. Husserl considered the everyday world of experience as the "life-world" (*Lebenswelt*). This is the world of familiar encounter with the environment, not in terms of any epistemological sense. This world is founded on everyday human understanding and is pre-scientific, as no operations of abstraction take place.

Husserl posits that when we do science, there is partial departure from the life world into a different world of natural scientific objects that are unchanging and

subject themselves to mathematical treatment. Nature is idealised, or in Husserl's own phrase, the "mathematisation of nature" takes place. The world of nature that is one of the experiences seems distinct from this abstracted world of objects that are mathematical. Liess (1994) summarises Husserl's brief references to nature in *The Crisis of European Sciences* (1936). He explains the bifurcation seen by Husserl in the apparent distancing of nature as an object of scientific study and nature as experienced by human beings every day:

Corresponding to the two spheres of human activity in modern life are two worlds of nature: intuited nature (*lebensweltliche Natur*) and scientific nature (*wissenschaftliche Natur*), the experienced nature of everyday life and the abstract-universal, mathematised nature of the physical sciences (Liess 1994, p. 135).

The nature of the modern scientific enterprise, according to Husserl, does not possess a being that is subsequently recognised by man; rather, it receives this being by entering into the historical world of man and by being subjected to the experiments conducted by man. Only to the extent that nature can be subject to this kind of operative manipulation can it be said to be "nature" in the sense of being the object of natural science, and only on this basis can natural science become an efficient tool for the technological domination of the world (Husserl 1936, quoted in Liess 1994).

Therefore "nature" per se is not the thematic object of the activity of science, more precisely, the natural sciences. Each perspective on nature finds a different relationship of human interest. While the human relationship to the natural world is often fraught with conflict and struggle, the final benefits of nature being used have resulted in real effects on the society. The gains begotten from the control of nature seems to not reach everyone, leading to power struggles within human beings:

Along with his growing, more and more perfect cognitive power over the universe, man also gains an ever more perfect mastery over his practical surrounding world, one which expands in an unending progression. This also involves a mastery over mankind as belonging to the real surrounding world, i.e., mastery over himself and his fellow man, an ever greater power over his fate ... (Husserl 1936, quoted in Liess 1994).

Husserl's search for a rational foundation for the interaction of the life-world and the scientific world is based on his contention that the natural sciences "hide" the connection between the two natures.

From the viewpoint of science the nature given in sense perception masks the underlying uniform structure of matter, and modern science's mastery consists in penetrating this disguise and identifying the characteristics of that structure. Considered from the opposite angle—from the viewpoint of life in the familiar world—the mastery of science is manifested in its ability to cast a "veil of ideas" (*Ideenkleid*) over the nature experienced in everyday existence, that is, to treat the phenomena of nature as if they were purely mathematical-geometrical objects (Husserl 1936, quoted in Liess 1994).

Husserl's work is significant in the conceptualisation of nature, as it addresses the beginning of multiple visions of nature, clarifying the phenomenal from the studied nature in course of Western thought.

The work of Merleau-Ponty, another important philosopher in phenomenology, is founded on the idea of perception. Wood (2005) describes this stream of philosophy thus:

A phenomenology of perception insists that it is only as spatially and temporally embodied beings that seeing takes place at all. Seeing is made possible by there being discreet bodies, including ourselves that occupying distinct places at particular times, bodies endowed with a mobility that reflects their needs and desires, and bodies whose very discreteness belies a deep interdependence. These are not just natural facts about the world but fundamental dimensions, dimensions that structure of the very possibility of there being facts at all (p. 311).

Through the study of Phenomenology, a number of environmental philosophers have worked on conceptual issues of subjectivity and the experience of nature. Attempts have been made to reverse or at least conceptually oppose the earlier views of naturalism, as well as the conceptualisation of “nature as difference” and also the idea of “nature as origin”. Vogel (2005) argues that environmental thinkers working in the post-structuralist traditions tend to think of nature as an idea origin or difference. According to him, these views segregate humans from nature one predates nature’s existence from human beings, the other separates nature as non-human. For him, understanding nature as a social construct would actually solve the ontological debates around nature. This makes nature connected to practice. For Vogel (2005), nature is the name that we give to the very concreteness of practice.

The multiple visions of nature in the current age do not lend themselves to a very clear historical discussion. The development of different disciplines around the study of nature has created a profusion of themes that are now broadly referred to as Environmental Humanities. There are two broad themes within this field. One is the continuing study of nature as an object, which led to the development of the various disciplines of environmental studies; and the second is the increased awareness of human relationships with nature in literature and culture: environmental philosophy, ethics, and the fields of nature writing and ecocriticism.

Ecological nature is one of the concepts created by the study of nature as an object. Ecology is commonly known as the study of interactions between organisms and their environment, which includes other organisms. Ernst Heinrich Haeckel (1834–1919) was the first to use the word *oecologie*, in his *Generelle Morphologie der Organismen* (1866), though he was not the first to formulate the principles of ecology. He defined ecology as “The economy of nature”. Briefly, we can say that the pattern of distribution, abundance dynamics of organisms, and their interactions are studied in this discipline, at various scales of spatio-temporal resolutions. The development of this discipline had major implications for the conceptualisation of nature.

Ecocriticism, a recent discipline, studies the relationship between nature and literature. The subject is a form of literary criticism that approaches texts through an environment-centred perspective. The fundamental premise of ecocriticism is that human beings are deeply influenced by their environment that consists of both natural and cultural aspects. While earlier literature studies have focused on the relations between human beings and their relationship with each other and society,

ecocriticism or literary ecology as it is sometimes called examines human relations with nature as represented in literature. The term “ecocriticism” was coined by William Rueckert in his 1978 essay, “Literature and Ecology: An Experiment in Ecocriticism”. He suggests that experimental ecocriticism must address how literature and ecology could develop a symbiotic relationship. He writes: “how can we move from the community of literature to the larger biospheric community which ecology tells us (correctly, I think) we belong to even as we are destroying it?”(p. 121)

Howarth (1996, p. 69) writes that “Ecology is a science strongly connected to a history of verbal expression”. Most ecological voices in history have used writing to convey the ideas about nature and the state of the environment. Both naturalists and poets were the creators of a large genre of literature called “nature writing” and they have contributed richly to the themes and debates in ecology. Some of these early writers included Aldo Leopold (*A Sand County Almanac* in 1949), Henry David Thoreau (*Walden* in 1960), and George Perkin Marsh (*Man in Nature*, in 1964).

The first phase of this discipline mirrors feminist criticism in American literature, suggests Glotfelty (1996). In her introduction to this discipline, she writes about how one goes about doing ecocriticism:

Analogous efforts in ecocriticism study how nature is represented in literature. Again consciousness raising results when stereotypes are identified—Eden, Arcadia, Virgin land, miasmatic swamp, savage wilderness—and when absences are noticed. Where *is* the natural world in this text? (p. xxiii)

She also adds that other topics related to nature and culture such as geographical features, rivers, mountains, deserts, animals, and the body are also identified. Further developments of this field, particularly in American literature has led to development of the genre of nature writing in English. While there was a revival of nature-based writing of both fiction and non-fiction on one hand, there was a renewed interest in mainstream writers whose work manifested ecological awareness. According to Howarth (1996, p. 80) Ecocriticism uses “*deixis*”, or the ability to point, to analyse language. He explains: “More developed in Asian rather than European language (liu) *deixes* locates entities in space time and social context. Through *deixes* meaning develops from what is said or relative to physical space: I–you, here–there, this–that” (p. 81).

He further adds that ecocriticism seeks to examine how the metaphors of nature are used and abused (p. 81). For studying nature in literature produced in India, one cannot use the taxonomies of nature writing based on the traditions of ecocriticism from the West. Non-fiction literatures—such as natural history, descriptions of walking and rambling in nature and wilderness accounts—all are particular to certain genres of English literature that were deeply influential in the study of nature writing. Instead, in these other literatures, we have writing that is embedded in nature and location. Place-based writing—sacred landscape accounts, pilgrimages, health geographies, travels through the forest, oral histories, and philosophical texts—all of these contain within them descriptions and representations of the natural world in

some form or the other. For instance, the topographical classification of landscape is found within a traditional system of medicine, *Āyurveda*. The Jaina texts describe an almost mythical geography of hills and continents and rivers. Kalidasa's poem *Meghadūtam*, a fictional rendering of a cloud's route to the Himalayas, has references to real forests and rivers of central India.

One must add that among the theories of literary criticism is also the category of *tiṇai*, or a reference to particular ecotypes, which in its current form, is only applicable to a particular genre of poetry in the Tamil language. More work is required in all these areas, particularly from the growing numbers of environmental philosophers in India.

Love (1996, p. 237) argues that there has been widespread rejection of writing about nature: "The literature in which nature plays a significant role is by definition irrelevant and inconsequential". He suggests that the recognition of the ecological perspective is not unique to Western American literature or certain regions. He clarifies that "[e]cological issues are both regional and global. They transcend political boundaries. What is required is more interdisciplinary scholarship and more interregional scholarship on common issues" (p. 237). He also emphasises that literature should direct its attention towards recognising "... the primacy of nature, and the necessity for a new ethic and aesthetic embracing the human and the natural..." (p. 237)

Allen (1996, p. 241) suggests that there have been issues about applying principles of ecocriticism to literature that is non-Western. She points out that there is a tendency to club together all these literatures under the theme of "folklore" and call them "primitive or pagan" (p. 241). Using the example of American Indian literature, she suggests that it is important to study them from the perspective of the people who produce these literatures. Understanding the culture would bring to the forefront the complexity and richness of meaning in these narratives of nature. Particular to these cultures is the unity of the human, non-human, and the super-natural world in ceremonial literature:

The subjects of the major ceremonial cycles include origin and creation, migration, celebration of new laws, and commemoration of legendary and mythic occasions. Each serves to hold society together, create harmony, restore balance, ensure prosperity and unity, and establish right relations within the social and natural world (Allen 1996, p. 259).

The literature of a particular time period or a region can provide access to representation of nature and also help us understand the presence and absence of nature and its relationship to human beings.

2.9 Nature Conservation

The history of conservation derives from the concept of wilderness in many ways. Johnson (2007, p. 112) recounts the growth of conservation as a practice: "The turn of the twentieth century witnessed the transformations of wilderness as an idea into

wilderness as practice: the creations of parks and other areas set aside from settlement”. It is true that when one talks of conserving nature today, the reference is usually to the idea of conserving an ecological landscape—an area that is demarcated as a “nature zone”—called by various terms such as national park, wildlife sanctuary, nature preserve, and biosphere. The activity of nature conservation involves not only presupposes the concept of nature, but also questions the nature of wilderness, construed as exclusive of human beings. It also questions its appropriateness for indigenous communities that have lived in such areas for a long time. Conservation of resources is another significant area that has evolved in the discourse of sustainability. The limitation of certain natural resources available for the use of human beings and the rapid conversion of such resources into products for consumption has created a scenario where it is likely that many of these resources may not last for very long.

In his essay, “Science, Nature and Globalization of the environment, 1870–1990”, Frank (1997) argues that the entity nature was conceptually reconstituted over the course of the last century from the conceptualisation of nature as a cornucopia of resources to a perception of nature as a universal life-sustaining “environment” or “ecosystem”. Drawing on data from the various international treaties pertaining to environmental issues, he shows that there was a positive effect on the concern for the environment when the concept of nature changes from being a cornucopia of resources to the idea that it is an environment we occupy. It is possible that the idea of nature conservation became popular after this conceptual change. The impact of human beings on the environment and the other species of the planet became clearer when the results of environmental crises in the West such as the Dust Bowl Syndrome and the effects of pesticide usage received attention. The idea of sustainability is inter-related to the concepts of conservation and preservation of resources. Norton (2003) describes the perceptions of “strong and weak sustainability” which he claims are two perspectives about what is to be preserved for future generations.

He writes: “‘Weak sustainability’ refers to the maintenance, into the future, of a non-declining stock of aggregated capital; according to this definition, a culture is acting sustainably if each generation passes on to the next as much capital in the form of natural resources, wealth technological capabilities, labouring power, knowledge etc., as they inherited from their predecessors”. Norton (2003) also suggests that in contrast, strong sustainability poses more demands than this type of requirement. It is expected under the idea of sustainability that “... each generation protect certain specified processes and features of natural systems as essential elements of their bequest to future generations” (p. 481). Norton claims that such features are referred to in terms like “health” and “integrity” that are not just ecological terms but are a part of public policy discourse. They are not only descriptive, but also evaluative (pp. 481–482). How does one measure the health of the ecosystem or its integrity? Can there be evaluative models within Indian traditions of thought that can suggest culturally relevant alternatives to some of these terms? These are some questions that will be taken up for discussion later in this book.

The belief that wilderness had to be conserved for the protection of other non-human species on the earth led to the development of Conservation Biology. Popularly called a crisis discipline or activist discipline, a major focus of this discipline is on reducing the loss of species and populations, and habitat fragmentation. Biodiversity conservation spans multiple levels of biological concepts ranging from genes to landscapes and also interactions between the different levels.

Philosophers claim that certain world views form the fundamental foundation of many ecological management practices. According to Sasidhar (2006), a transformation of these world views requires the identification of possible philosophies that can effectively reorient the current paradigms of conservative action. Soper (1995) in her book *What is Nature* also suggests that representation of nature may have political implications in the field of ecological conservation.

As an offshoot of the study of animals, ethology, or the study of animal behaviour, was a very descriptive science that slowly gained importance with the development of ecology, as it was clear that animals were deeply related to the environments they lived in. Marshall (1992) describes the split in the fundamental conceptualisations of the animal behaviour studies:

By the First World War, ethologists had developed into two camps: the vitalists, who believed in instinctive drives, and the behaviourists, who did not go beyond describing what they saw in laboratories. But an increasing number were determined to observe animal behaviour in their natural surroundings in the wild (p. 235).

As the importance of observing animals in the wild began to be more significant than laboratory studies, a large number of popular books on animal behaviour and the interaction between animals and humans were written. Renowned among these writers are Konrad Lorenz (1903–1949, who wrote many books on animal and human behaviour) and Edward O. Wilson (who wrote *Sociobiology: The new synthesis*, in 1975) who represent some of the major streams of thought in this discipline. It is clear that without the central concepts of ecology that deal with the relations between organisms and their environments as an integrated whole in the natural world, animal behaviour studies would be incomplete (Marshall 1992).

Today, we can say that ecology has also moved away from being a discipline that has traditionally been investigating the biophysical world, towards a discipline that also concerns itself with areas of human–nature relationships. It has become imperative for these disciplines to examine the different aspects of the relationship between human beings and nature. So far, ethical frameworks have dealt with the behaviour of human beings towards other human beings or at most towards other living beings. With the development of the sciences of conservation biology and ecology, the position of the human beings and their role in the biophysical environment have necessitated a paradigmatic shift in the current ethical and value systems. Conceptualisation of nature is one of the philosophical presuppositions that can be foundational to many of the key issues ecologists and conservation biologists are facing today. Since the historical trajectory of a Western concept of nature as discussed earlier cannot be undone, many environmental philosophers are looking at other systems of thought that have escaped this transformation and trajectory While

some philosophers are going back to ancient traditions of Western world in search of conceptual resources (such as the Greek concept of Gaia, or the Christian beliefs of stewardship), some others are examining conceptualisations of indigenous traditions of American Indians and Aborigines of Australia. Yet, others emphasise the study of Asian traditions of thought.

The prescriptive and moral dimensions of these traditions of thought are often supported by various metaphysical and epistemological considerations that include concepts of nature as a category or a certain idea about the ontological status of nature and its components in traditions of Indian thought—Vedic, Sāṃkhya, Sāṃkhya-Yoga. Most beliefs, conceptualisations and practices of India exist within a larger tradition of philosophy and this background cannot be ignored in any serious project in Indian thought. The final elucidation of prescriptive practices in this work attempts to address the substantive and normative practices of conservation and action.

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