The human-nature relationship
The emergence of environmental ethics

Gicu-Gabriel Arsene
Banat University of Agricultural Sciences and Veterinary Medicine — Timișoara
Faculty of Agriculture,
Calea Aradului, 119, Timișoara, 300645, ROMANIA

“Market capitalism has increased wealth beyond the imagination of previous generations, but cannot, in and of itself, distribute it equally or even equitably. These are problems that cannot be solved within the terms set by modernity, for the simple reason that they are not procedural, but rather valuational or, to use the simple word, moral. There is no way of bypassing difficult moral choices by way of a scientific decision-procedure that states ”Maximize X”. We first have to decide which X we wish to maximize, and how to weigh X against Y when the pursuit of one damages the fulfilment of the other. The human project is inescapably a moral project.”
Jonathan Sacks (in Dunning, 2003)

1. Overview

The relationship between humans and the environment/nature, or rather, the relationship between humankind and its natural habitat, is a matter which, in order to be dealt with, even briefly, requires some idea of myths, traditions, religions, cultures and philosophical, political and economic systems. This relationship is a vast field of research for ecology (an interdisciplinary science par excellence and (meta) science of interaction), particularly its cultural and ideological dimensions\(^1\). The human-nature relationship also involves elements of philosophy as it concerns humankind's place in the world.

According to Cooper and Carling (1999), the term environment is related to a metaphor which suggests the absence of autonomy (in relation to the term environ) and owes its success to the

---

\(^1\) The other two dimensions of ecology are its natural and social-political dimensions (Spooner, 1984).
fact that it is full of resources. The term "nature" comes from *nasce* (from the Latin meaning to be born). The Greek for nature is *phusis* from *phuomai* (meaning to grow or increase in size). It would be etymologically correct to use the term *physics* in the place of *nature* except that, in modern science, *physics* is the term used to describe the study of this world's laws by applying mathematical logic. We therefore prefer to use the term nature despite the fact that it has many different meanings.

We cannot imagine humankind existing outside of its environment — the evolution and history of humankind took place in this very environment which has its own history. It would be narrow-minded (Lowenthal, 2001) to discuss the history of humankind starting only from the emergence of the written word, and to describe the earlier period as *protohistory* and *prehistory*, as humankind's entire past and history are inextricably linked to its environment which has always been more than just background scenery.

Conventional views of history place humankind in a privileged position — history consists of humankind's ideas, creations, acts of courage and conquests, etc., while the environment is often only given minor importance. This attitude of modern-age historians, philosophers and writers is steeped in a mechanistic world-view which originated with Newton, Descartes and Bacon and extended into the 20th century (Capra, 2004).

Alongside intercultural relationships, the environment is one of the main determining factors of the history of humankind. Environmental history, which has only recently become a scientific discipline, deserves not only ecologists' but also historians' and anthropologists' attention. There is even a movement, known as *environmental determinism*, which emphasises the environment's role in the history of humankind.

The reciprocal character of the human-nature relationship is nothing new. Humankind has had a significant impact on its environment ever since it first started using fire (vast stretches of forest were converted into grassland in Eurasia and North America, beginning over 700,000 years ago). Humankind's excessive hunting led to the extinction of the megafauna, and later, its agricultural practices resulted in desertification. These are all examples of the *co-evolution* of human social systems and natural systems (Marten, 2001).

Historical elements of humankind's attitudes towards nature can only be discussed here in the light of religious approaches, at least up as far as the modern age. Humankind organised its values on religious beliefs; implicitly, this was where its ethics came from. *Socially constructed* perceptions of nature (Cooper and Carling, 1999) all represent a model. These models were originally part of religious models. After the religious approach came scientific knowledge and both approaches continued to exist side by side. If we were to judge the
validity of the knowledge acquired by one or other viewpoint, we would implicitly tend to favour the rational, i.e. scientific, school of thought. However, if we consider the convergence of models obtained by mystics and scientists\textsuperscript{2}, the complementary nature of the two viewpoints goes beyond the realm of mere hypothesis.

The elements presented here may be key to understanding the human-nature relationship, especially its development and current status, which go a long way to explaining the environmental crisis.

Primitive religions originated in early humankind's contact with nature. From the imbalance between its own power and that of the natural elements, primitive humankind gained a sense of the existence of a reality which transcended this world, and was brought into contact with the sacred. It is useful to point out here that, according to Otto (in Poupard, 1989), this first step in the emergence of *Homo religiosus* gave rise to humankind's sense of *dependency*. Religions and ancient beliefs stem from nature, which is why they are classified under the term *naturalism*\textsuperscript{3}: animism, totemism and chamanism, etc.

With the arrival of agriculture, the Neolithic revolution had a huge impact on humankind's material life and psyche. This revolution transformed what until then had been a *linear* perception of time into a *cyclical* one, and placed fertility and "woman" at the centre of spirituality (Eliade, in Lovinescu, 1992). From an ecological viewpoint, the emergence of agriculture signifies the expansion of the environment's human *carrying capacity* (Marten, 2001). In any case, this first wave (Toffler, 1981) of transformations, which was also the first and perhaps the most important revolution, divided the unity of humankind. The surplus in food products brought about the emergence of population clusters and urbanisation and, from an ecological viewpoint, put great *anthropogenic pressure* (table I) on the environment. As the *Homo sapiens* species became more diverse\textsuperscript{4}, natural ecosystems became less biodiverse.

\textsuperscript{2} Refer to Fritjof Capra's best seller *The Tao of physics* (1975, Shambhala Publications, Inc.).

\textsuperscript{3} This term is also applied to several philosophical doctrines and viewpoints.

\textsuperscript{4} This also includes *cultural* and *social diversity*. 
Table I. Data illustrating anthropogenic pressure: changes in the feeding ground of individual *Homo sapiens* and the world population (according to Puia, Soran, Carliern Rotar and Vlahova, 2001, simplified version)

<table>
<thead>
<tr>
<th>Chronology</th>
<th>Type of agriculture</th>
<th>Feeding ground (ha/individual X year)</th>
<th>World human population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1950 - today</td>
<td>intensive (&quot;industrial&quot;)</td>
<td>0.2 - 1.6</td>
<td>6 x 10^9</td>
</tr>
<tr>
<td>2500 B.C. – 1950</td>
<td>extensive, traditional</td>
<td>0.2 - 1.6</td>
<td>5 x 10^9</td>
</tr>
<tr>
<td>(10000) 5000 – 2500 B.C.</td>
<td>primitive</td>
<td>1.5 - 4.0</td>
<td>10^9</td>
</tr>
<tr>
<td>500000 – 10000 B.C.</td>
<td>hunting - gathering</td>
<td>1,000 - 100</td>
<td>10^7</td>
</tr>
</tbody>
</table>

The differences between religions (monotheism, polytheism and pantheism) are also reflected by the way in which they portray nature (nature as worshipped and perceived as a vast network of interactions, nature as eternal and unchanging, or nature as having been created and periodically being destroyed). Viewed from this angle, there is a vast difference between the two main world religion groups: the "Religions of the Book" (Judaism, Christianity and Islam, also known as the *Revealed Religions*) award prime position to humankind, allowing it to deal with nature as it likes, whereas the Eastern religions (Hinduism, Buddhism and Taoism, etc.) are more integrative (we could say that their models are more holistic).

We have decided to focus solely on these religions, as they are illustrative of humankind's main viewpoints and also because they are the religions followed by people belonging to today's main population groups.

The beginning of modernity marked a turning point in history and reason began to take on importance in all of humankind's attitudes and actions which resulted in a religious crisis ("God is dead"). Analytical (and therefore dissociative) reasoning, methodical reasoning (Descartes), mechanicism (Newton), quantification and experimentation (Bacon and Galileo) were all transformations of the paradigm that governed modernity. The changes made possible by the arrival of industry (followed by science and modern technology) made up Toffler's second wave (1981). Industrialisation, which also had repercussions on agriculture, brought about substantial improvements for *Homo sapiens*. It dramatically boosted its environment's carrying capacity and a population boom soon followed (table I). The "nature-machine" or "nature resource store"

---

is an image which lingered in modernists' minds and, which, in many ways, still endures today. In the early 1970s, at the dawning of the environmental crisis, doubt was cast over the idea of an indestructible, untamed nature, endowed with considerable autopoietic capacity and resilience. Global civilisation in the post-modern, post-industrial world must solve the problem of its continued existence and is faced with many challenges such as the illusory emancipation of humankind from its environment, environmental degradation, depletion of resources, limited scientific possibilities (at least at present), accelerated dynamism of events, and crises experienced by individuals and groups (within their environments!). Humankind finds itself in a historically unprecedented hegemonic position. Not only can it do what it likes with global resources, but it is also master of its own future. As master of the world and master of these resources, it must also assume responsibility, whether this is for the sake of its own well-being, out of responsibility for future generations (anthropocentric attitudes) or out of respect for nature (biocentric and ecocentric attitudes).

The following description of some types of human-nature relationships demonstrates that the physical and biological relationship between the rational being (regardless of the rational being's actions) and nature is the same as the relationship between the part and the whole. Thus, just as an individual's supreme philosophy is to "know how to die", the best thing that humankind can do is to find its place within the constantly evolving natural world which existed before the arrival of humankind and will continue to exist after humankind has passed away. In this context, ethical reflection about the problems arising from the environmental crisis becomes necessary. Ecology's scalar approach and the fractal, chaotic (deterministic chaos) and fuzzy (unclear, fluctuating, changing) quality of ecological systems lead us to an understanding of the importance of all our actions and to the precautionary principle (Jonas, 1993).

2. Religious perspectives

2.1. Animism

This type of belief is based on the existence of spirits — invisible entities which animate stones, rivers, animals and trees, etc. Dreams and myths are the main instruments of this type of perception and metaphorical representations are accompanied by magical practices. Animism

---

6 A habitat's ability to sustainably support a certain number of people in a population, by providing everything that the population requires.
7 A living system's ability to regenerate some of its components.
8 A living system's ability to maintain its properties by resisting disturbance, through fluctuations around a state of equilibrium.
does not differentiate between the soul and the spirit. Human properties and behaviour are attributed to non-human elements from the environment (anthropomorphism, personification). As everything has a spirit, the world is also inhabited by the spirits of ancestors, and humans must avoid antagonism with things or nature. From this emerges the idea of harmony with the environment. Transgression of natural laws or failure to respect the spirits brings misfortune. From an ecological viewpoint, this is an acceptable attitude aside from the fact that it is not based on scientific fact, as is also the case of modern ecocentric attitudes. Atran (in Hatano, 1999) supports the idea that the explanations given by animists focus more on an imaginary world than on a real one.

Animism was common during protohistoric and prehistoric times. Other religions (Hinduism, Shinto, etc.) feature some of these elements and certain elements can also be found in the Australian Aborigines' religion and in the traditional religion of North American Indians, etc. For the latter, respect for their true ethic land, i.e. the area in which they live, is almost a natural result of having lived in the same nurturing area for centuries.

Prominent female deities worshipped by ancient peoples (Isis by the Egyptians, Ishtar in Mesopotamia, Demeter and Gaia by the Greeks and Ceres by the Romans) were merely an extension of nature worship, this time in its personified form, and the expression of a different type of relationship with nature (Egri, in Fischer and Maarten, 1999).

2.2 Hinduism

Hinduism is practised in India, Indonesia and on the island of Bali. Hindu dogma teaches that Vishnu is present in everything that surrounds us and therefore everything has a divine nature. The Law of Karma, or the Law of cause and effect, governs the evolution of the soul through successive reincarnations. Nature must be respected, as its components embody divine manifestations and spirits in different stages of spiritual evolution. The divine is omnipresent. Cows are sacred as they are provided for the nurture of humankind (Krishna, one of Vishnu's avatars, is represented as a cow-herd). Trees, symbols of abundance, and rivers (especially the Ganges) are also worshipped.

Hinduism has various theories about nature. Chatterjee (1998) distinguishes four schools of philosophy:

- the bruthas theory (the four elements: water, earth, wind and air) is the instrument used to explain all cosmic phenomena;
- the Samkhya philosophy distinguishes between purush (spirit) and prakriti (nature). The three basic qualities of nature are sattva, rajas and tamas. The mind is also part
of prakriti;
- the paramanas (atoms) theory, associated with Nyaya Vaisheshika, is similar to Democritus' theory;
- the mayavada theory, according to which the physical reality of nature must be surpassed or transgressed.

A closer examination of traditional Indian philosophical systems (including Buddhist ones) reveals their complex and often sophisticated nature (Śaṅkarācārya, 2002). In this wide variety of beliefs and attitudes, humans, animals, plants, gods and the earth are all subject to cosmic laws and the place of humankind in the universe is variable.

Hinduism can be criticised for the fact that it focuses on transcendence (of the human condition to the divine condition) and that, to some extent, it neglects pragmatic aspects such as defining the place of humankind within the universe (Poupard, 1989).

Mahatma Ghandi, the famous Hindu who made ahimsa (non-violence) popular, has inspired many environmentalists (for example, Arne Naess, the founder of Deep Ecology).

2.3. Buddhism

Buddhism was founded by Buddha Sakyamuni 2500 years ago in the context of debates within Hinduism, from which it takes up several elements such as the unity of humankind and nature, karma and samsara. It spread from India to China, Tibet and Japan (Zen Buddhism) and has developed several traditions.

Desire is the primary cause of unhappiness and suffering (duhkha), especially when we desire what we cannot have. Consequently, happiness is achieved through renunciation and by restricting ourselves to our immediate needs. Humans do not try to obtain the grace of the gods but, through compassion and constant individual effort, by following the Noble Eightfold Path and observing Dharma (the universal moral law), they seek to ultimately reach the perfect world of Nirvana. Buddhists encourage non-violence (we should only kill to provide for our basic needs) and therefore this is one of the most compatible religions with the idea of preserving nature in its untamed state.

Buddhism and Hinduism do not grant humans the status of "Master of nature". These faiths exalt non-attachment to material goods and consider ignorance to be a sin (Jensen, 1999), which has major ecological ramifications. Nevertheless, traditional Buddhism gives priority to humans above animals, to man over woman and to animals above plants within the moral continuum of the world. All are capable of progressing towards enlightenment in cycles of death and reincarnation. Each progresses through their own effort and there is no boundary between those
who are gifted with sensitivity and those who are not, or otherwise this boundary is illusory or temporary. In Zen Buddhism, the natural environment (mountains and rivers) is conducive to awakening (Swearer, 1998).

The Dalai Lama and other eminent modern Buddhists are committed to peace campaigns and to defending the oppressed and the environment.

2.4. Taoism/Daoism and Confucianism

Alongside Confucianism, Taoism is China's dominant religion. It extols the existence of Tao/Dao (meaning, literally, the way) which is all-powerful, universal, beyond human powers of understanding, and constantly in motion. Taoism can be considered as both a philosophy and an attitude to life. Rather than trying to dominate nature, humankind must fit into the universal order and balance opposing forces (Yin and Yang), while seeking the authentic, the Simple (Su), the Unrefined (Pu) and the Natural (Ziran), in the flow of universal energy (Qi). Tao is not the product of a transcendent god but is rather the infinite energy of the Cosmos.

Confucianism also considers humans to be children of nature and focuses on individual social duties (respect for elders, filial piety, etc.). The philosophy of Confucius (551-479 B.C.) is a collection of practical, conservative advice, established with regards to the great trinity of heaven, nature and humankind.

The traditional Chinese civilisation, dominated at times by Taoism and others by Confucianism, has, to a certain extent, successfully maintained a less degraded natural environment which is demonstrated in its durability. Taoist beliefs and actions are based on the idea of the existence of a dynamic cosmic system of interactions (ecosystem) (Miller, 1998). On an individual level, popular culture is familiar with feng-shui, the practice of arranging spaces in harmony with the environment.

Taoism has also been exported to the West, and despite being misunderstood, offers a conceptual and practical framework for reconsidering and rebuilding our relationship with nature:

“When the great Tao is forgotten,
Kindness and morality arise.
When wisdom and intelligence are born,
The great pretence begins.
When there is no peace within the family,
Filial piety and devotion arise.
When the country is confused and in chaos,
Loyal minister appears.”

Lao Tseu, *Tao Tö King*

### 2.5. Mazdeism

This religion of ancient Iran is based on Zarathustra's doctrine which appeared around the year 1000 B.C. in reaction to the orgiastic cult practised by warrior brotherhoods. This is a monotheistic religion. The holy book, *Zend-avesta*, proclaims love for benevolent nature created by the god Ahura-Mazda. An evil, harmful nature exists, mainly in the form of predator animals. Fighting these animals, multiplying herds and destroying forests is therefore justified. This pastoral civilisation's outlook, which demonises untamed nature, led to overgrazing problems and grassland degradation.

### 2.6. Judaism

Historically, this is the first of the three monotheistic faiths and the first Abrahamic religion. The unique God (*Yahweh*) made the following covenant with the people of Israel: if they put their faith in God and respected the Law, they would be led to the Promised Land where they would live in prosperity. Through Moses, Yahweh gave the people of Israel the Ten Commandments, or "the purest of moral obligations recognised by 2nd millennium cultures" (Poupard, 1989).

Humans are placed above animals. If they were to think of themselves as being equal to animals they would be governed by the laws of animality and therefore dehumanised. Humans are the pinnacle of creation and are free to enjoy creation's fruits without abusing them. If humankind destroys the marvellous world created by God there will be no more chances to restore it (Fink, 1998).

The idea of human *dominion* over nature is common to the entire Judaeo-Christian civilisation. The divide between sacred texts and their interpretations and between the *Torah*'s teachings and the laws of economy has left room for modern values with their host of negative alterations which have replaced traditional values. Criticism of Judaeo-Christianity was one of the first elements to have triggered the emergence of environment ethics and ecologism.

---

9 The West became familiar with Taoism through the works of Lao Tseu (4th century B.C.), however, it is thought to have existed earlier in Asia.

10 Translated by Gia Fu Feng, see URL: [http://www.ijing.com/laotse/LaotseE.htm](http://www.ijing.com/laotse/LaotseE.htm)
With regard to the major change produced by the emergence of Biblical religions, Berry (1996) wrote:

"The barrier between the western mode of consciousness and the natural world, and the consequent ethical deficiency in western conscience, began in some manner with the biblical emphasis on the perception of the divine in the historical events rather than within cosmological manifestation. The entire biblical experience could be described as a movement from the cosmological to the historical which began with the Exodus experience."

2.7. Christianity
This faith differs from Judaism in its refusal to accept an impersonal God — a Christian believes in the trinity of God the Father, the Son (Jesus Christ or God incarnate) and the Holy Spirit. The three main branches of Christianity are Catholicism, Orthodoxy and Protestantism or Reformism (including the various forms of Neo-Protestantism).
The Book of Genesis is often quoted to express the relationship between Christians (and also Jews) and nature:

"… God said unto them, Be fruitful, and multiply, and replenish the Earth, and subdue it: have dominion over the fish of the sea, and over the fowl of the air, and over every living creature that moveth upon the earth."

*Genesis, 1: 27-28*

For Christians, the position of humans is unequivocal: they are masters of all other earthly creations. According to modern interpretations of this Bible passage, the position of "master" carries certain responsibilities: humans are not tyrants left to enjoy the "fruits of the earth", but wise managers of these fruits.
In some of their implications, modern techniques used to manipulate living material are heretical and prove that arrogant humans are seeking to become creators after the Creator himself.
The modern (Post-Inquisition) Catholic church appears to be more open to dialogue with the scientific world than the orthodox church and especially Islam and Judaism. (Rabbis and Imams discourage believers from doubting or from asking questions that are considered to lead nowhere). Jean-Paul II's activities are a good example of this.
Catholic church reforms (associated with the birth of Newtonian physics) form the basis of the

---

11 From the Latin *dominus* = master of the house, he who inhabits and is responsible for
changes that foreshadowed modernism. The emergence of the Protestant ethic, which views material success as a reward granted by Heaven to the believer, is often criticised in books on ecology/ecologism (White, 1967\textsuperscript{12}; Schweitzer in Warren, 1997 etc.). Individualism, social selection (influence of Darwin through biological laws merely being carried over into the cultural domain), liberalism, economist reductionism and the atomisation of science and communities are the causes of the West's progress but also of the environmental crisis. Thanks to Christian theology's central role in encouraging the conquest of nature, it can now lay claim to the holistic approach of ancient Christianity\textsuperscript{13}, in which the complex relationships between cosmology, spirituality and morality meant that the natural world was given more respect. The Church now finds itself in the middle of an "Ecological Reformation" (Hessel, 1998) and is developing a true ecological theology. Relearning how to be creatures (rather than gods!) would lead to a far more environmentally friendly attitude, even within the framework of our monotheistic religions. According to Norman Wirzba (2003):

"Careful analysis of our cultural assumption should lead us to the conclusion that the path of acquisition and material success, so much driven by our own anxieties and fears, is in fact the culprit leading to our own unhappiness\textsuperscript{14}.

\subsection*{2.8. Islam}

Islam is, chronologically speaking, the third of the three main monotheistic religions. It is a monism, and as such, resembles Judaism and Christianity. It takes a clear stance on humankind's position in the world, setting humans above angels and perceiving them as Allah's representative (khalifah) on the Earth. According to al-Ghazali, the code of conduct (Shari'ah) is centred around the well-being of humankind (Ahmad, in Dunning, 2003):

"The obligation of the Sharia'ah is to provide for the well-being of all humankind, which lies in safeguarding their faith, their human self, their intellect, their progeny, and their wealth."

Compassion is predominantly directed towards fellow creatures rather than towards surrounding nature, although the complexity of interactions in the universe is acknowledged. Believers value creatures and the countryside, as they are signs of Allah. Paradise is depicted as a garden, and Muslims cherish the colour green. The Koran (Qur'an) provides enough reasons for establishing

\textsuperscript{13} For example, the visions of St. Francis of Assisi, the Christian mystic, or Meister Eckart.
a "green jihad" — a possible solution on the part of Islamic theorists to the environmental crisis (Denny, 1998).

In addition, Islam is similar in many ways to Christianity and Judaism as regards the status of the natural world, the role of humankind within the universe and God's existence in a kingdom other than that of the material world.

3. Modern perspectives

3.1. The world-machine

The 17th century marked the start of the scientific revolution. This turning point in the history of European civilisation (which until then had been dominated by two authorities — Aristotle and the Church), and, subsequently, in the whole of humankind, began with a few basic discoveries:

- Nicolas Copernicus (1473-1543) formulated the heliocentric theory (the Earth revolves around the Sun, and not the opposite) in 1543,
- Francis Bacon (1561-1642) published *Novum Organum* (New Tool of Reasoning) in 1620,
- Rene Descartes (1596-1650) laid the foundations for analytical reasoning and deduction in his work, *Discourse on Method* (1637),
- Isaac Newton (1642-1727) discovered the laws of rational mechanics which are presented in his famous work *Philosophiae Naturalis Principia Mathematica* (Mathematical Principles of Natural Philosophy, 1672).

Why were these discoveries so important for Western development?

Firstly, the progress made in astronomy was synonymous with a major change in humankind's position within the cosmos, in the physical sense, i.e. the Earth is not the centre of the universe. Ptolemy's paradigm (the Sun revolves around the Earth) became obsolete and this hinted to the fact that the same could apply to other truths which, up until then, had been considered irrefutable.

Secondly, Descartes and Bacon introduced the primacy of reason. Descartes even carried out a demonstration which, through successive deductions, resulted in the conclusion that God exists. He also introduced the idea of a division between matter (*res extensa*) and spirit (*res cogitans*). Bacon introduced a new perception of nature: humankind can master nature by physically controlling it, also based on the tools of reason. Through experiments and generalisations (the inductive method), we can discover the truth. Applying Newton's simple laws of mechanics to

explain the motions of the planets and bodies led to a burst of optimism in learned circles. In this way, the world and nature were perceived simply as objects for research (and exploitation) whose secrets were waiting to be unveiled. The universe was seen as a huge mechanism and the human body was also perceived as a mechanism, as was the animal body (but lacking reason). The knowledge process moved towards deciphering the laws governing operation of these mechanisms.

Purser et al. (1995) demonstrate that this change in the way the non-human world was perceived began during the Renaissance period in the 15th century when Italian painters began depicting geometric paintings featuring natural elements that complied with the laws of geometric harmony.

Inspired by Newtonian physics and the works of the philosopher Thomas Hobbes$^{15}$ (1588-1679), the philosopher John Locke (1632-1704) perceived societies (made up of individuals) as being governed by similar laws to those governing the physical universe. According to Locke, individuals' cumulated actions explain society's behaviour. The natural state of the individual implies freedom, equality and the right to ownership. This is where we find the most significant influence on modern political and economic reasoning (Capra, 2004; Dresner, 2002).

Lamarck's and especially Darwin's and Wallace's evolutionist theory was the first to challenge the Cartesian system. The giant clock of the universe had not been created once and for all but was constantly evolving! The publishing of The Origin of the Species by Natural Selection or the Preservation of Favoured Races in the Struggle for Life (1859) not only had an impact on the biological sciences, but also enjoyed a long career in the social sciences. Social Darwinism perfectly suited landowners (who were better adapted to the capitalist context than the working class) and colonialist countries (better adapted and more advanced than less "civilised" people). The evolution concept was fashioned by Marx and Engels to announce the obsolescence of capitalism and its future replacement by the fairer system of socialism and subsequently communism. And we all know how these ideas shaped the course of history in the 20th century.

For Marx and many economists, animals, the earth and cultivated plants were all a means of production.

In addition, towards the end of the 19th century, scientists had to face the problem of how to explain certain phenomena using equations from conventional physics. This was the case for thermodynamic processes, which were more complex than bodies in motion. The second law of thermodynamics was significant as it introduced the idea of entropy, i.e. the irreversible

---

$^{15}$ According to Hobbes, all knowledge is acquired through sensory perception.
universal tendency of energy dispersal and degradation and of increasing disorder, which gave rise to the concept of the *Time's Arrow*. Anthropogenic pressure on the environment increased; the power to manipulate natural elements grew to unprecedented levels with the use of machines and the energy produced from coal and oil combustion.

### 3.2 Relativity, the organicist paradigm

The end of the 19th century and the first three decades of the 20th century were marked, in physics, by the birth of the theory of relativity and the quantum theory with Albert Einstein's substantial contribution. The foundations of the mechanistic paradigm were practically pulled to pieces. Conventional physics equations could not describe processes at the atomic and sub-atomic level. Paradoxes that were difficult to accept (light's dual nature — light as particles or light as waves) and the shared nature of mass and energy resulted in the discovery that in experiments, the observer is not impartial. The universe was no longer perceived as a clock but as an immense network of interactions. Everything is interrelated.

Progress was made with the birth of nuclear power, but became obscured by the horrors of the Second World War.

Biological sciences developed and formed several disciplines. The invention of the *ecosystem* concept in 1935 by the English botanist Sir Arthur Tansley is of particular note. After the Second World War, discoveries in molecular biology paved the way for genetic and biotechnological modifications which had a major impact on medicine and agriculture.

In the 1960s, the West was affected by the appearance of the negative effects of industry, i.e. pollution.

The first flights into space brought with them photographs of the Earth and the realisation that our planet is unique, *a small pearl in a thick sea of black mystery*\(^{16}\). Western societies provided the setting for rebellions against the *establishment* (the *hippy* movement). A movement in favour of the environment developed within this climate under the threat of nuclear war (the cold war).

In the face of these realities, philosophers, scientists and ecologists came to the conclusion that civilisation must either change or perish. Our planet is not a dead body clothed in a living garment (the biosphere), it is more than the sum of its parts and it behaves like a superorganism.

\(^{16}\) "Suddenly from behind the rim of the moon, in long, slow-motion moments of immense majesty, there emerges a sparkling blue and white jewel, a light, delicate sky-blue sphere laced with slowly swirling veils of white, rising gradually like a small pearl in a thick sea of black mystery. It takes more than a moment to fully realise this is Earth … home." US astronaut Edgar Mitchell (from the booklet of the CD entitled *Earthrise – The rainforest album*, Earth Love Fund & Polydor, 1992).
named *Gaia* (Lovelock, 1979), regulating its conditions according to various feedback mechanisms in order to sustain life. Ecology became a metascience (Déléage, 1991) which also gained a cultural and social dimension. The deterministic chaos theory, complexity theory (Morin, 1992) and fractal theory reshaped the structure of life and environmental sciences. Awareness of the damage caused to nature was reflected in political initiatives on a global scale (the Rio and Johannesburg summits, numerous agreements and conventions to reduce the negative effects of pollution and overexploitation of natural resources, etc.). It would not be right to leave out events such as the fall of the Iron Curtain, the spread of information technology or the emergence of a veritable "nososphere"\(^{17}\) from this brief presentation. The fact that scientific developments and knowledge are progressing at a pace that outstrips that of all of humankind's past feats raises ethical issues about the use of this knowledge (Chichilnisky, 1997).

The present historical era, referred to by some as the *postmodernist*, *post-industrial* or *information age*, can be summed up by the word *crisis*. The evolution of the "living" is on its way to being settled by the "cultural". At present, we as individuals, communities and humankind, must rethink our place within nature and our perception of nature, and therefore create a paradigm shift, i.e. change from a mechanistic and linear approach to an organicist and cyclical one.

### 3.3. Deep ecology

In 1972, at a conference held in Bucharest, the Norwegian philosopher Arne Naess laid the foundations for *deep ecology* (also known as *genuine ecology* or *deep green*). This was one of the crowning moments paving the way for ecocentrism. In Naess' opinion, *shallow ecology* is anthropocentric. According to Naess, biospheric egalitarianism is expressed by applying eight principles in equal measure to all species and to human society (Adams and Dyson, 2003). These principles (see appendix) place the *flourishing* of human life and all other life forms on an equal plane, as all life forms have intrinsic value. Human activity is explicitly identified as being responsible for degrading the global atmosphere and the solution could be found by changing policies and economic, technological and ideological structures. This would require significant changes such as appreciating the quality of life rather than aspiring to a more material lifestyle, being profoundly aware of the difference between *big* and *great*, and being obliged to participate

---

\(^{17}\) This term was coined by Pierre Teilhard de Chardin (1881-1955). It comes from the Greek word *noos* (mind) and refers to all the dynamic knowledge and intelligence which humankind possesses and which envelopes the Earth like the atmosphere or hydrosphere, etc.
in implementing the necessary changes.

In 1985, Naess also developed the *self-realisation* approach, which has various stages, each one with its own intrinsic values. He called this system *Ecosophy T* (the *T* stands for *Tvergastein* after his Norwegian mountain cabin). This type of ecosophy (Naess makes it clear that this is just one among other types) has been criticised for lacking scientific precision, but, according to Naess, this is not a valid criticism, as this type of wisdom cannot be fully expressed using formal scientific language.

Radical ecology (Merchant, 1992) is not satisfied with disbanding barriers of sex, age or race. One of its theories is that there are no boundaries between the individual (*the self*) and the environment ("think like a mountain"), which explains its spiritual and metaphysical quality.

### 3.4. Ecofeminism

A theory related to the above-mentioned militant and/or philosophical movement is that of the historical, symbolic, theoretical, experiential and political relationship between the oppression of women and attitudes towards nature (Spretnak, 1993; Warren, 1996). This theory extends the fight against sexism to include the fight against the oppression of nature (*biocide, ecocide*). The unifying factor stems from the fact that masculine values have structured human societies for several millennia, i.e. aggressive behaviour against anything considered to be inferior, rational judgement to the detriment of affectivity and emotivity, competitiveness and a fighting spirit, etc. The patriarchal system (*androcentrism*), which appeared after the Bronze Age, encourages the oppression of women, (racial and sexual, etc.) minorities and nature. Western thinking has a long tradition of associating nature with women and considering nature to be feminine and therefore uncontrollable and potentially dangerous.

The relationship between feminism and ecologism developed rapidly towards the mid-1970s. The term ecofeminism was coined by Françoise d’Eaubonne in 1974 (Brennan and Lo, 2002). Ecofeminists interpret the transformation that occurred 4.5 millennia ago (when the worship of nature as a nurturing mother was replaced by the worship of a masculine god who lived far away in heaven) as being the reason for the rift between European societies and nature. Throughout history, undefined, chaotic nature has been compared to women and this notion has prevailed through the works of Aristotle, Descartes and the modern era, culminating in the emergence of the environmental problem.

The masculine/feminine duality, which attributes higher moral value to masculine properties (reason, independence, self-determination, conscience, etc.) than to feminine properties (emotivity, compassion, etc.), is a reductionism. To sweep it away, environmental ethics must
abandon the notion of rights, and focus on breaking down barriers between the two genders through dialogue and by integrating qualities considered to be feminine (such as responsibility, friendship and cooperation, etc.). Ecofeminism is similar to deep ecology in its rejection of anthropocentrism. The changes demanded by ecofeminists are enlightening (Radford-Ruether, 1999):

- from the idea of an omnipotent God in Heaven to the idea that God is in everything and everywhere (pantheism),
- from the mechanistic to the organicist paradigm,
- attribution of an intrinsic value to animals, plants, rocks etc.,
- elimination of the schizoid disorder between the body and mind,
- stop considering western culture and lifestyle to be the best and stop imposing them on "uncivilised" populations,
- move from an economy which seeks to maximise profits to a sustainable economy.

Ecofeminism had a profound influence on politics in the 1970s and 1980s (many ecofeminists were activists in ecology parties). With western societies recording substantial progress in the change of status for women (and also for minorities and animals) and in environmental policies, ecofeminist attention turned towards Third World policies, the protection of nature and the emancipation of women in these countries.

The importance of ecofeminism resides in the fact that this movement has given rise to, and stimulated, much research and reflection on the part of psychologists, theologians and philosophers in explaining western culture's different abuses of domination as -isms (sexism, racism, ageism, etc.).

"Green feminism" is often included as part of the vast New Age movement. The convergence of the Gaia theory (and its consequences) with ecofeminism is obvious. The need to establish closer relationships between our environment's different components is an appeal for friendship with the universe: "Ecology is to the Earth what friendship is to people" (Dumais, 1996).

3.5. The New Age movement

The name New Age implies an era of opening up paths and using methods and psychological techniques and technologies to change individuals and bring about their transpersonalisation (Würtz, 1994). Names for the New Age (the Age of Aquarius, the Solar Age, the Age of Unity, etc.) refer to planet Earth entering the Age of Aquarius — an era that will allegedly be accompanied by major changes.

The New Age movement is doubtless highly heterogeneous due to its relatively unoriginal
sources. Ecofeminism and deep ecology are often considered to be branches of the New Age movement. Far from coming up with new ideas, New Age followers rediscover and revive traditions such as various esotericisms and Zen and yoga techniques, while at the same time remaining extremely open to the achievements of modern science from which they draw ideas and even some of their spokespeople, such as Fritjof Capra, David Bohm, Arnold Graf Keyserling, Karl H. Pribram, Rupert Sheldrake and Francisco Varela etc. New Age philosophy is a broad syncretism.

It is impossible to pass clear judgement on the New Age movement. Even listing its various forms would take up too much space here. We will make do with describing its objectives, some of its achievements within the realm of alternative options, and some faux pas.

The New Age's ideatic theories are fascinating to the point of sacrificing lucidity for the sake of lucidity (Würtz, 1994). Accepting or rejecting them is an individual or collective (and therefore ethical) option. The way in which New Age structures work (decentralised, networked structures) and the movement's often very unconventional ideas, mean that it flourishes in developed countries with permissive democratic systems of government. Moreover, Prades (1994) reaches the astonishing conclusion that capitalism, socialism and ecologism share a unifying principle, based on a supreme value which is claimed to be nolens volens anthropocentric in nature i.e. humankind's progress and survival. However, whereas capitalism is based on the belief in individual salvation (expressed by professional success and free private enterprise), socialism is based on collective salvation (the well-being of the masses) and ecologism is based on the supreme value of the survival of the human species, from both an intragenerational and an intergenerational point of view. This would account for the emergence of socialism and ecologism in the capitalist realm.

3.6. Sustainability

Sustainability is a widely used concept which is shared by economics, ecology and politics. Sustainable development encompasses well-known solutions to reconcile economic development with the worthy continuation of human civilisation and the protection and regeneration of natural resources. Basically; this type of development is today's institutionalised answer to the environmental crisis.

The economic side of sustainability is adapted and subordinated to the cause of human solidarity which must go beyond national and temporal barriers (universal, intragenerational and intergenerational solidarity). It involves preserving the natural environment in a state of minimum deterioration. Defined in this way, sustainability is clearly an anthropocentric concept.
The concept emerged out of the climate of emulation which followed the UN Summit in Stockholm (1972) and the creation of the United Nations Environment Programme (UNEP). In 1983, the United Nations General Assembly formed the United Nations World Commission on Environment and Development (UNWCED) to study the compatibility between economic development and environmental protection. In 1987, the Commission produced a report entitled *Our Common Future*, also known as the *Brundtland Report* (at the time, Mrs Gro Harlem Brundtland was President of the Commission and the Norwegian Prime Minister). The report defines sustainable development, initially known as *ecodevelopment* (Sachs, 1980), thus:

"...development which meets the needs of the present without sacrificing the ability of future generations to meet their needs."

The definition is brief, vague and, according to experts, inapplicable (Dresner, 2002). It can be used by environmentalists, who highlight the *sustainable* part of the syntagma and also by economists who focus on the *development* part. O’Riordan (in Dresner, 2002) notes that there is a difference between the terms *sustainability* and *sustainable development*, which are often used interchangeably. The first term prioritises the environment, while *sustainable development* highlights the *development* aspect which could be confused by some with *economic growth*. Radical ecologists have been apprehensive of using the term *sustainable development* in contexts where progress is sporadic or regional. Gladwin et al. (1995) propose the term *sustaincentrism* as the middle ground between *technocentrism* and *ecocentrism*.

Development can be assessed economically using simple indicators such as the GDP/inhabitant, but this does not give an idea of well-being (Capra, 2004; Vallée, 2002). Various types of capital support development: natural capital, physical capital produced by humans, human capital (people's levels of training, education and health) and social capital (networks of standards, values and joint convictions which determine how easily individuals and groups can work together). A fundamental issue is that of the degree of substitutability between natural capital and other capitals, a degree which defines whether there is *strong sustainability* or *weak sustainability*. Supporters of weak sustainability consider that a loss of natural capital can be compensated by other forms of capital. This idea is full of optimism and confidence in future scientific and technical solutions. On the other hand, supporters of strong sustainability consider

\[\text{\textsuperscript{18}}\text{ "sustainability is a relationship between dynamic human economic systems and larger, dynamic, but normally slower changing ecological systems, such that human life can continue indefinitely, human individuals can flourish, and human culture can develop – but also a relationship in which the effects of human activities remain within bounds so as not to destroy the health and integrity of self-organizing systems that provide the environmental context for these activities." (Norton, 1992, in Voinov).}\]
the other forms of capital to be complementary and non-substitutable. An analogy between the types of capital and ecological factors is applicable here. In ecology, the action of ecological factors is governed by two general laws: the law of complex action (whence come synergisms, antagonisms and emergence) and the law of partial substitution of the actions of ecological factors. Strong sustainability goes as far as questioning economic growth and its replacement by a stationary state. At present, decisions to set up economic facilities (factories, motorways, electric power stations, etc.) are made following assessments of cost effectiveness and environmental impact (a consequentialist approach from an ethical viewpoint). This raises the thorny problem of assessing the monetary value of environmental resources and acknowledging intergenerational equity. A wide range of economics literature and working methods exist on this topic (Vallée, 2002). Despite their imperfections, spatial and temporal dimensions, estimations of impact on the environment by considering the linear, cumulated, amplified or exponential effects, assessment matrices, check lists and product life cycle assessments (Vădineanu et al., 1999) are all working tools which decision makers are already using.

Sustainable development contains three underlying contradictions (and implies three corresponding compromises):

- between present and future generations,
- between developing and industrialised countries,
- between human requirements and the protection of ecosystems.

In 1992 in Rio, the United Nations Conference on Environment and Development (UNCED) approved 27 principles defining sustainable development and an action plan (Agenda 21) containing 2,500 recommendations. The Convention on Biological Diversity and the Climate Convention are concrete agreements forming part of the continuation of Agenda 21.

In Puia et al. (2001), Hadley summarises the three "Es" of sustainable development:

- **Environmental integrity**,  
- **Economic efficiency**,  
- **Equity** (between generations).

After the Rio summit, the use of the term sustainable grew in popularity (sustainable agriculture, sustainable political systems, sustainable societies, etc.). From an ecological viewpoint, seeing the connection between economic and ecological systems and examining local and regional problems within overall economic and ecological context signify a change of perception. **Think global, act local** is a fashionable slogan. Sustainability cannot be envisaged on a local or regional scale if global sustainability is ignored, as sustainability is possible locally by importing natural resources which may damage, or even render impossible, the sustainability in the exporting
regions or areas (Voinov).

On first glance, the concept of sustainability, which refers to notions of equity, may appear to be highly compatible with socialism. However, Dresner (2002) illustrates that such a comparison is irrelevant:

- Socialism does not have much to say about future generations,
- Historically, socialism has never paid much attention to environmental issues,
- Marx replaced the ethical commandments with historical fatality — the inevitable replacement of capitalism,
- Socialist governments have not managed to alleviate environmental problems.

Nevertheless, Avner de-Shalit (2000) recognised that, in terms of environmental impact, socialism is preferable to liberalism, although not all socialist opinions apply to environmental policies. Although equitable distribution, rationality, prudence and encouraging community spirit (monitoring and disalienating individuals, and taking part in decision-making processes, etc.) are beneficial to the environment, public ownership does not encourage a responsible attitude towards natural capital. The former communist countries provide some tragic examples of this, despite objections that could be made at this point (i.e. that the former communist regimes were dictatorial rather than socialist and that public ownership was just a front, etc.). The final paragraph in de-Shalit’s book *The Environment Between Theory and Practice* (2000) provides a conclusion:

"… I have argued that the issue of the environment cannot be squeezed into models of market behaviour as so many authors, activists, politicians, and economists have suggested. And so I think, if the call for environment-friendly policies is backed by such a theory (combination of theories), there is a good chance of this call becoming a "maverick" issue and causing the political system to change and accept the need for genuine environmental sensitivity in its policies."

In a recent report, the Commission acknowledges the limits of sustainable development, which are related to the current state of our techniques, current social organisation and the biosphere's capacity to support the effects of human activity. Under these conditions, sustainable

---

19 The author does not state whether or not he uses the term *socialism* as an equivalent to *communism*.

20 Nevertheless, some of its achievements include reduction of the world population's growth rate (although the number of people living in abject poverty has increased), new development opportunities with globalisation (although the gap between the rich and poor has widened), a
development is not a state of equilibrium, but a state of change and research, which implies the need to make painful sacrifices and decisions. And where there are decisions there are also choices and ethics.

4. Environmental ethics

Environmental ethics is one of the applied ethics (like business ethics, professional or deontological ethics\textsuperscript{21} and biomedical ethics or bioethics\textsuperscript{22}). It takes a moral approach to the study of the relationship between humans and their environment and of the value and moral status of the environment and its non-human components (Brennan and Lo, 2002). Within this discipline, the problems for which solutions are sought are practical (as environmental ethics is applied ethics), as well as abstract (in terms of looking for the foundations of, and justifications for, actions and reflecting on the moral implications of environmental interference).

Although certain works demonstrating an awareness of the harmful effects of our actions on the environment have existed since the latter half of the 19th century and the early 20th century, for instance, 1854 (H.D. Thoreau\textsuperscript{23}), 1910 (G. Pinchot\textsuperscript{24}), 1911 (J. Muir\textsuperscript{25}, T.H. Huxley\textsuperscript{26}), 1949 (A. Leopold) etc., environmental ethics — also referred to as ecosophy, ecophilosophy or ecoethics — actually emerged in the 1960s.

R. Carson's Silent Spring (1963, Hamish Hamilton, London), P. Erlich's The Population Bomb (1968, Buccaneer Books), B. Commoner's The Closing Circle (1971, A. Knopf, Inc., New York) and, in particular, the Club of Rome's report — Limits of Growth (Meadows et al., 1972, Universe Books) — are often quoted as being the impetus for the environmental movement which infiltrated politics (the Green party), the media, science and philosophy (and hence ethical thinking). The relatively late spreading of environmentalist discourse into the general public, stemmed from (cf. Holden, 1988 and Stern, 1993, in Odum, 1997) human tendency to act by taking rational measures only after a critical situation has arisen, i.e. under pressure. At present, local reduction of pollution levels (the state of the global environment has nevertheless deteriorated).

\textsuperscript{21} From the Greek \textit{deon} = duty.
\textsuperscript{22} In the narrow sense, bioethics is equivalent to biomedical ethics. In the broad sense, bioethics is the ethics of the living being (\textit{bios} = life). From this angle, environmental ethics forms part of bioethics. It is not surprising that bioethics and biomedical ethics get confused, as specific ethical issues are raised in human health matters (abortion, euthanasia, the status of embryos, etc.).
\textsuperscript{23} Walden; or Life in the Maine Woods. Boston, Ticknor & Fields.
\textsuperscript{25} My first Summer in the Sierra. Boston – New York, Houghton Mifflin Company.
\textsuperscript{26} Man's Place in Nature, and Other Anthropological Essays. London, MacMillan.
contrary to opinions suggesting that the environmental movement has become less active following its institutionalisation, we can observe (Rootes, 2003) that in Western Europe, the range of protest actions has actually increased.

It is important to note that the (primarily emotional) reactions against the defacement of nature and the unscrupulous exploitation of natural resources appeared in Anglo-Saxon, and particularly in American, literature and essays written for a combination of aesthetic and ethical reasons.

Technological progress brought humankind face to face with a historically unprecedented situation: the significance of changes inflicted upon nature, the image of the Earth viewed from space, and local, regional or even global crises and the boomerang effect of certain technical achievements generated insurmountable difficulties for traditional ethics.

Traditional ethics deals with humans and their fellow creatures and is therefore anthropocentric and also non-cumulative (Jonas, 1993). Faced with our technical resources, the fragile nature of life on our planet — a bioregenerative spacecraft (Odum, 1997) — calls for ethical thinking to expand and include future generations and the non-human world. Environmental ethics arose out of this extentionist approach and way of thinking, primarily in the Anglo-Saxon countries.

Environmental ethics is the only type of ethics that does not solely involve culture (Rolston III, 1991). It assesses situations produced by nature and the point at which nature and culture meet. The ethical-environmental approach is a precarious one: once we humans have gone down this road, nothing will ever be the same again; problems must be tackled head on rather than bypassed: "Nowhere to run, nowhere to hide." But the situation forces us to face the problems.

The distinctive feature of any ethical approach is to examine issues and problems and try to understand them rather than dishing out solutions (Dolan, 1999). The immediacy of threats on the same scale as, but more likely than, nuclear war (Rolston III, 1991) overshadows controversy about abstract issues such as (Stein, 1999) the controversy between supporters of ethical nativism (ethics are innate and the product of biological evolution) and those who see ethics as rooted in culture alone. Sidgwick (in Sidgwick and Singer, 2005) comes to the conclusion that a theory about the origin of ethics would make very little difference to the controversies between the different schools of ethics.

---

27 One of the first results was the issue of animal status which we do not consider as being part of environmental ethics and which is most often dealt with in terms of animal rights. Laws concerning the treatment of animals exist in developed countries but there is no consensus on animal rights.

One might question the need for another type of ethics, given that traditional ethics and various religious ethics already exist. The answer is that environmental ethics does not resemble any of these ethics in any way, for several reasons at least:

- No global religion, and therefore no universal religious ethics, is available to solve conflicts of international law\(^{29}\). In addition, the foundations of religious ethics are not the same as those of environmental ethics. Religious ethics have a spiritual basis (they cannot be understood using scientific methods) whereas environmental ethics have a rational, scientific basis. There is constant attraction and tension between the two (Doucet, 1996). Both realms belong to humankind and neither can rule the other one out (Wilson, 1998). We cannot use a certain religion to explain ethics or vice versa, but rather to understand the way the two are inter-related (Isambert, in Larouche, 1994). Any practical ethics should take account of, and expand its basis of reflection to include, all human dimensions — environmental ethics has a *transversal dimension* (Chavez-Tortolero, 2003). In a disillusioned world which has lost its sacred aura, the fear of harmful consequences leads to precaution, but ultimately in the long term, only the fear of interfering with something sacred will be able to keep us out of harms way (Jonas, 1993). However, that stage is still a long way off.

- The emergence of questioning about human ecology on a global scale call for reflection, on the same level of generalisation, about establishing or building a framework for analysing actions, which independently or together, in the present or the future, are liable to cause damage to humankind and the ecosphere. Large-scale initiatives represent a new type which is no longer *ethically neutral* (Jonas, 1993). Similarly to the fields of ecology and systemology, it would appear that the field of ethics also has *emerging properties*. Just as individuals and communities require ethics to reach a minimum of consensus and escape the relativism of values and moral tribalism (Boisvert, 1999; Etchehoyen, 1991; etc.), so humankind requires ethics concerning the ecosphere (biosphere, in the broader sense of the word) and its components.

- As the "pinnacle of creation", the "master of the world", "nature's wise partner" or simply "one species among others", for the simple reason that it is endowed with reason, humankind cannot avoid defining itself in relation to nature within the new circumstances resulting from its interaction with nature.

\(^{29}\) *Law decides, morality dictates and ethics advises.*
1988 was an important year as far as the development of environmental ethics was concerned. It was the year in which several books were published, marking the birth of this discipline, strictly speaking. *Respect for Nature* (P. Taylor), *Environmental Ethics* (H. Rolston), *Foundations of Environmental Ethics* (E.C. Hargrove), *Why Preserve Natural Diversity?* (B. Norton) and *Biodiversity*, by E.O. Wilson and F.M. Peter, were all published; this was the year that marked the launch of the homonym concept, one of the most common concepts used in life sciences and politics.

In 1989, H. Rolston, E. Katz, L. Westra and others formed *The International Society for Environmental Ethics* (ISEE)\(^{30}\). 1997 witnessed the creation of another scientific association — *The International Association for Environmental Philosophy*\(^{31}\). Various periodicals were published including *Environmental Ethics*\(^{32}\) (ISEE's journal), *Environmental Values*\(^{33}\) and *Ethics and the Environment*\(^{34}\). *Eco-Ethica* symposiums are also organised from time to time.

Summaries of environmental philosophy and environmental ethics share a common characteristic, namely, they can be ranked into two (or more) categories, i.e. *anthropocentric* and *biocentric* ethical systems. *Ecocentrism* is a third category, which is closely related to biocentrism and often subordinated to it. A brief overview of these systems can be found in table II. These categories are useful for didactic purposes, but, like any broad outline, are rather simplistic. The polarised approach separates anthropocentrism from biocentrism (the broader sense of the word includes ecocentrism) and the criterion is the moral object — whether this is human or non-human. Utilitarianism and *fairness* lie at opposite poles. The scalar approach\(^{35}\) distinguishes between *anthropocentrism* (intrinsic value is attributed to human individuals), *biocentrism* (intrinsic value is attributed to individuals from other species) and *ecocentrism* (species, communities, ecosystems, ecosystem complexes, the ecosphere, and Gaia are values *per se*).

Specialised literature discusses each aspect looking particularly at each aspect's limitations from a theoretical and abstract viewpoint. Utilitarianism (the maximisation of utility assessed according to the degree of well-being, happiness or pleasure of human individuals) makes no distinction between individuals. The spectrum of anthropocentrism ranges from hedonism to more realistic, less cynical positions. It aims to justify the attribution of moral status to humans

\(^{30}\) [http://www.cep.unt.edu/ISEE.html](http://www.cep.unt.edu/ISEE.html)

\(^{31}\) [http://www.environmentalphilosophy.org](http://www.environmentalphilosophy.org)

\(^{32}\) [http://www.cep.unt.edu/enethics.html](http://www.cep.unt.edu/enethics.html)

\(^{33}\) [http://www.cep.unt.edu/values.html](http://www.cep.unt.edu/values.html)

\(^{34}\) [http://www.phil.uga.edu/eande/](http://www.phil.uga.edu/eande/)

\(^{35}\) takes processes' different scales or levels into account.
by the fact that only humans are capable of reason and discursive knowledge, but also (because otherwise people lacking the ability to make judgements in critical situations would be excluded from the moral object category) sensitivity and self-awareness, etc.

Biocentrism lies behind animal rights movements, a field which, strictly speaking, does not come under an environmental ethics. The extension of moral status to animals was also supported by research demonstrating that superior animals (from an ecological point of view) possess similar psychic properties to humans.

Ecocentrism is easily deformed, misunderstood and misinterpreted. Ecocentrism is preferred, from an evolutionary point of view, as ecosystems form the basic units of nature and the matrices in which humans and animals evolve.

Beyond these controversies, the worrying state of affairs requires concrete measures to be taken. Should we side with one of these three leanings? According to Warren (1997), all ethics is anthropocentric to a certain degree. We should not forget that humans are the sole moral agent in every case. When considering non-human entities with their own inherent value, we should not forget that it is humankind itself that attributes value to nature (Ferry, 1999). We can obviously reject certain viewpoints without entering into the philosophical subtleties. For instance, what human being or community would sacrifice itself or its dignity for the well-being of an animal community?

Ethical judgements in environmental issues remain topical as "Each thing has its own intrinsic value and is related to everything else in function and position." (Buddhist Sutra quoted in Soulé, in Wilson, 1998). In other words, the ethical judgement of nature is a value judgement depending on the case being analysed, without lapsing into relativism or extremism.
Table II. Outline of the main leanings in environmental ethics (without reference to animal rights aspects) according to various authors.

<table>
<thead>
<tr>
<th>Short description</th>
<th>Anthropocentrism</th>
<th>Biocentrism</th>
<th>Ecocentrism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Humans are the central focus. The environment has instrumental value. Only humankind has intrinsic value as it is endowed with reason and sensitivity. Rooted in western culture and Judaeo-Christianity, it lays emphasis on the notions of justice and rights. Exists in several varieties (strong, weak, enlightened and cynical). <em>Uti, non abuti</em> (to use, not abuse) — principle of moderate anthropocentrism (→ utilitarianism, pragmatism)</td>
<td>Biotic egalitarianism: all organisms (taken individually!) have inherent value. They are all teleological centres of life and moral objects. Living organisms all possess self-awareness, reason, sensitivity, a memory, psychological identity and desires, etc. in the same way or in varying degrees (slight differences).</td>
<td>Biospheric egalitarianism: species, communities (cenoses) and ecosystems have intrinsic value, as they are organism matrices. Communities and ecosystems must be preserved in their integrity (which sometimes involves sacrificing individuals). Humans belong to the biotic community; plants and animals are their companions. Ideology of stewardship over nature. Promotion of the biotic community's beauty, stability and integrity.</td>
<td></td>
</tr>
<tr>
<td>Limitations/problems</td>
<td>Egocentrism. Exaggerated optimism regarding scientific and technological possibilities. Unrestrained liberalism (&quot;cowboy&quot; ideology). Has difficulty explaining why it is that, among all the other creations, only humanity counts from a moral perspective.</td>
<td>Does not offer any solutions to the different aspects of the environmental crisis (soil erosion, various types of pollution, etc.).</td>
<td>Exists in extreme forms which go against certain human groups (<em>kill yourself to save the planet</em>): environmental fascism, western cultural imperialism, etc. Has difficulty explaining the interests bacteria, mountains and forests etc. have in maintaining and developing themselves and therefore being moral subjects. Sometimes contradicts democracy.</td>
</tr>
</tbody>
</table>

---

From the Greek *telos* = end, goal, result.

A *moral object* is the object towards which we have moral obligations. *Moral obligations* govern the activities of *moral agents* (only humans).
Conclusions

1. In the beginning, the *Homo sapiens* species was a social omnivore. Apart from the use of fire, it had a limited impact on its environment, equivalent to that of other species. Its entire subsequent evolution set it apart from other species as it could *consciously* change its habitat. However these changes had perverse effects.

2. Humankind's first representations of nature were integrated into religious models.

3. There is a fundamental difference between Middle Eastern and Far Eastern religions: the good/evil duality is a far more important feature in Middle Eastern pastoral civilisations than in Far Eastern agrarian civilisations. The *out-wordly* individualism (depends little on the material world) of Hindu, Chinese and Japanese civilisations contrasts with the Western world's *in-wordly* individualism (rooted in the material), which has now become modern individualism (Lal, in Dunning, 2003). Modern European culture originates in Greek thinking (Socrates, Plato, Aristotle, Euclid and Epicurus, etc.), which pays particular attention to the development of the human individual's intellectual abilities.

4. The origins of the humankind/nature duality are thought to be:
   a. domestication at the dawn of the Neolithic age when the domestic versus wild dichotomy is thought to have emerged (Shepard, 1982, in Purser et al., 1995),
   b. the appearance of Judaeo-Christian religions in which the creation plays an important role through the distinction between Creator and man (creature) (Trigano, 2002);

This duality became intensified in the modern age through the advent of the mechanistic paradigm, the main elements of which are materialism, determinism, reductionism and linear causality. We are currently experiencing a period of paradigm shifting where the mechanistic paradigm is being replaced by the organic, systemic paradigm (Bateson, 1977; Capra, 2004; Trigano, 2002; etc.). The transition is a long process and is causing confusion and difficulties, particularly at an organisational and institutional level (Galdwin et al., 1995).

5. Modern scientific representations of nature are a combination of the multi-scalar approach (synthesis of studies carried out on different scales), complexity theory, evolutionist biology and human sciences (history, anthropology, etc.) (Holling, 2004).

6. The fact that conventional ethical concepts cannot be used as conceptual tools to solve new environmental problems calls for a new form of ethical thinking — environmental

---

* sapiens (classical Latin) = wise, thoughtful, sensible.
ethics.

7. Environmental ethics appeared in the 1960s at the same point as morality issues that were being raised in relation to local, regional and global environmental crises. Up to this point, literary works had viewed nature in a more romantic light.

8. The central problem of environmental ethics relates to moral subjects such as Who/What can have moral status? Who/What can have intrinsic/inherent value? Humans only (anthropocentrism)? Every living organism (biocentrism)? Ecological complexes (ecocentrism)?

9. Despite their differences, environmental ethicists are united in underlining the importance of the wilderness for individuals and societies as well as the urgent need to find solutions to the destruction of the environment's components.

10. The sustainability concept is not an ethical/philosophical creation from which models for action can be gleaned. Ecological system tolerance levels, the needs of future generations and international equity are not universal ethical principles. There are many paths to sustainability (Irrgang, 1996) and these are not always easy. There is no framework for assessing the long-term viability of systems which, today, are labelled sustainable (Stepp et al., 2003). Decision-making processes must be hetero-referential and based on ecological knowledge and environmental sciences, economics, sociology, politics and, finally, (environmental) ethics, the latter being "a field encompassing all the other fields" (Kremer-Marietti, 1987).

11. In the "demoralised" post-modern world, ethics should be one of the first things on our minds (Bauman, 2000; Etchegoyen, 1991; etc.).

Bibliography


Boisvert Y., 1999. L’éthique est-elle une nouvelle "religion" civile au service de la démocratie postmoderne ?, *Religiologiques*, (19), at URL:  
http://www.religiologiques.uqam.ca/19/19texte/19boisvert.html


http://www.unu.edu/unupress/unupbooks/80458e/80458E00.htm


http://www.consecol.org/vol7/iss3/art11/


Voinov, A., s.a. *Paradoxes of Sustainability*, at URL:
http://www.uvm.edu/giee/AV/PUBS/PARADOX/Sust_Par.html


Appendix

The Deep Ecology Platform

1. The flourishing of human and non-human life on Earth has intrinsic value. The value of non-human life forms is independent of the usefulness these may have for narrow human purposes.

2. Richness and diversity of life forms are values in themselves and contribute to the flourishing of human and non-human life on Earth.

3. Humans have no right to reduce this richness and diversity except to satisfy vital needs.

4. Present human interference with the non-human world is excessive, and the situation is rapidly worsening.
5. The flourishing of human life and cultures is compatible with a substantial decrease of the human population. The flourishing of non-human life requires such a decrease.

6. Significant change of life conditions for the better requires change in policies. These affect basic economic, technological, and ideological structures.

7. The ideological change is mainly that of appreciating life quality (dwelling in situations of intrinsic value) rather than adhering to a high standard of living. There will be a profound awareness of the difference between big and great.

8. Those who subscribe to the forgoing points have an obligation directly or indirectly to participate in the attempt to implement the necessary changes.