

Green Roots and Shoots

A History of Ecological Thinking

The following history focuses on the emergence of what British political scientist Andrew Dobson has called 'Ecologism', though we prefer 'EcoCentrism'. The kernel of this tradition is the view of people, not as conquerors of nature, but as "plain members and citizens of it", in the words of the American forester and conservationist Aldo Leopold. Concepts like interdependence, balance and especially limits provide the framework through which we would think about, value and do things.¹ EcoCentrism puts first the Earth and its life-support systems, on which depend all species, not just people. The key perspective in analytical terms might be called 'limits-to-growth' theory while the practical conclusion to be drawn from it is that humans must all learn to tread more lightly and to "share smaller pies" as the American writer Tom Bender once put it. The conventional goal of universal affluence-for-all (defined in terms of physical consumption in the manner of the typical citizen of a country like Britain) is, viewed in this paradigm, an impossible goal and sustained attempts to achieve it suicidal.

First and foremost it is necessary to clarify the meaning of 'ecology' and 'ecological'. Though professional scientists often take umbrage at what they see as the hijacking of such terms for non-scientific purposes, it still seems legitimate to use them broadly since no other terminology is so relevant. Thus ecological thinking has several strands:

1. Appreciation of the diversity of landforms and lifeforms ecosystems contain, in terms of utilitarian, aesthetic and, above all, intrinsic value;
2. Awareness of ecological systems and their dynamics, i.e. ecology in its narrowest 'scientific' sense;
3. Understanding of human dependence on what is the 'real wealth of nations', not just specific resources but the wide variety of 'life-support' services delivered by ecosystems, from specific ones such as mangrove swamps and coral reefs to, say, the entire atmosphere;
4. Comprehension of the magnitude and range of human impacts on the rest of Nature and its consequences for humans and other species alike;
5. Analysis of the sources of those pressures, specifically a) human population growth, b) per capita consumption and c) the technologies used to deliver a given range of goods and services to a given number of people, including the institutional framework through which such choices are mediated;
6. Prescription of policies that can put the relationship between humanity and the rest of nature on a less destructive and more durable footing: 'tread lightly'.

Point 1 above must be particularly stressed. Without some sense of respect for the intrinsic merit of non-human Nature, including a corresponding willingness to constraint human activity, there will always be some immediate and seemingly unanswerable case to take one 'bite' out of the planet. After all, it often seems as if anthropogenic extinction of wildlife is 'cost-free' or an extra dollop of pollution will make no difference, at least in the here and now. Further, it is impossible to put a precise figure on how much this wetland or that old-growth woodland is financially worth. Purely utilitarian calculations are, then, likely to encourage further steps down the road of ecological suicide.

Thus EcoCentrism spans both science and morality. It rests itself on what steady-state economist Herman Daly calls the "ultimate means" (i.e. high quality and readily available energy and matter, both the means of and conditions for production without which human or any other form of life is not possible) and the "ultimate ends" (i.e. the goals of an ethical responsible life). It thereby dissolves any is-ought dichotomy.

It is important here to underline the dangers inherent in a related word, 'environment'. It is a term that almost invites its own marginalisation. It can be taken to mean everything around an individual, not just air, water, soil and so forth but also bad housing, poor schooling, unsatisfactory domestic circumstances and the like. It can mean just about everything... and therefore nothing much in particular. Sight is thereby lost of the critical issue: the Earth's life-support systems and the fact that on their well-being humankind is utterly and inescapably dependent. Furthermore, the issue is not just the damaging impact of resource depletion,

pollution and environmental degradation. That in itself is scarcely a radical insight. It is that ecological protection is all important; no matter how pressing or worthy, all else is secondary. It might also be noted that ecocentrism is both a critique of the existing social order and its unsustainable impacts as well as a vision of a more sustainable alternative. It has thus rung many 'alarm bells', spotlighting the drawbacks and dangers inherent in 'business-as-usual'. But it also has suggested values and policies that might lead to less harm being done to life on Earth. Critics might dismiss it as a 'single issue' tendency. Yet its perspective is nothing if not deep and broad-ranging. It is about Life: continuing life, life in all its evolving diversity. It is certainly deeply concerned about and respectful of Earth and its varied land- and lifeforms. But it is not a species of misanthropy. Study of the literature of EcoCentrism will lead to a variety of thinkers who have also been concerned about human life and the right of all peoples to live without deprivation and oppression.

Roots of ecological wisdom

EcoCentrism has long roots. Amongst the first settled 'civilisations', there were those sensitive to human damage to the web of life. Back in the 5th century BC., for example, Herodotus observes that "mans stalks across the landscape and deserts follow in his footsteps". Not long after, Plato had bemoaned the tide of human destructiveness. There was also Epicurus who clearly enunciated the conservation principles that make a nonsense of the still widely held delusion that we can get more from less, or, that technology will create resources out of thin air or make wastes magically disappear.

Conversely, efforts to protect environmental systems were made in very early times, albeit ones too weak to resist the tide of further destruction. It is even said that wildlife protection can be traced as far back as the (Buddhist) Maurya Empire in southern Asia (some two hundred and fifty years BC). Perhaps it was the Taoists of ancient China who as a group first articulated a systematic ecological perspective.

From the Middle Ages and the Early Modern Era, voices with a distinctly ecological timbre can be heard. They included St Francis of Assisi, who anticipated the rise of a sensibility that showed greater respect for other lifeforms, and the Englishman John Evelyn from the Late Stuart period, who denounced pollution. In the 18th century, the Scottish physician James Hutton clearly enunciated an organic and cyclical view of the Earth and its life processes. The year of the French Revolution also saw the publication in England of a landmark in nature writing, *The Natural History of Selbourne* by Reverend Gilbert White (1720-1793), who displayed an attunement to the particularities and beauties of his locality which bioregionalists are advocating some two hundred years later.

Public measures against pollution and environmental despoliation dates back several countries. The burning of sea coal was banned back in medieval England while, in Victorian times, the 1858 'Great Stink' in London led to action over sewage disposal. In 1872 the first National Park (Yellowstone) had been created (though the foundations of Yosemite National Park were actually laid by Lincoln in 1864). Indeed individuals such as William Wordsworth in England and George Catlin in the USA had been campaigning for such systems of protection much earlier in the 19th century. By mid-century, there were individuals such as Henry Thoreau, who were questioning the whole industrial order, recoding his experiments in frugal living in *Walden* (1854),

Scientific awareness had also developed. Thomas Malthus had raised the issue of environmental constraints on population growth in his *An Essay on the Principle of Population* (1798). In the same period, Jean Baptiste Lamarck developed the science of biology. Whatever the merits of his views on heredity, he correctly perceived the Earth as an interconnected system, in which its living and non-living parts dynamically shaped one another. Human rootedness in ecological systems had been spotlighted by Charles Darwin amongst others. George Marsh had spelled out in detail ecological constraints on human activity, especially in his *Man and Nature* (1864). Indeed, he had warned farmers in the USA about their practices as early as 1847.

The German biologist Ernest Haeckel popularised the word 'ecology' in the 1860s, a word based on the Greek 'oikos' or home, terminology which carries connotations of something to protect and cherish. Another word 'biosphere' introduced by Eduard Suess in 1875, also encouraged a holistic appreciation of the living world, thus challenging the dominant reductionist approach. Understanding of thermodynamic constraints on energy conversion had been deepened by a

string of researchers such as Sadi Carnot (1796-1832), Rudolf Clausius (1822-1888) and Lord Kelvin (1824-1907). Alfred Lotka (1880-1949) and others had linked population dynamics and energetics. The idea that geology would set constraints on resource availability had been highlighted by economists such as Stanley Jevons (1835-1882). John Stuart Mill had advocated a 'steady-state economy' in the same year the *Communist Manifesto* was published (1848).

It was the twentieth century that witnessed a big increase in the 'alarm bells' being run.ⁱⁱ This is scarcely surprising. In those decades, evidence mounted of the grave risks attendant on increased human pressure on the planet. Symptomatic of the human impact was the death of 1914 of the last surviving Passenger Pigeon, once the most populous bird on the planet. The year before, William Hornaday had published *Our Vanishing Wildlife*, in response to the near destruction of American buffalo and other assaults on biodiversity.

In the 1930s, the American dustbowl disaster had affected millions. It was widely published through studies like *Deserts on the March* by Paul Sears (1935) and by 'New Deal' photographers such as Dorothea Lange and Arthur Rothstein (who snapped the famous 'Father and sons in dust storm' image). Geographers such as Carl Sauer were also charting human destruction of wildlife while human depletion of resources was being highlighted by ornithologist William Vogt and zoologist Fairfield Osborn. There was growing awareness amongst historians at least of much older human 'own goals', as marked by the ecological suicide of civilisations as diverse as ancient Sumeria, the Roman Empire, Angkor Wat, and Easter Island.

Scientists inside the young Soviet Union had also been working towards an ecological view of the world. In 1926 Vladimir Vernadsky, for example, published his *Biosphere*, whose very title evokes a picture of humans as but one part of a bigger system. His work further spotlights the limit capacity of ecosystems to underwrite human activity, not least full-speed industrialisation. Nature was not some limitless, free asset, there to be used and abused at will.

Indeed more sustainable alternatives were being canvassed in the inter-war years by pioneers such as Rudolf Steiner (Germany) Masanobu Fukuoka (Japan) and Lady Eve Balfour (UK) The American agronomist F. H. King and British agricultural advisor in India Sir Albert Howard were also demonstrating that traditional practices had many advantages over seemingly more 'progressive' industrialised agriculture.

Post-war

As the dust settled on World War 2, economic recovery took hold in many countries. Indeed the war years had been boom time in the USA. Now there was a general take-off across what was soon to be called the "Developed World". At the same time, it was widely thought that poorer countries were none the less 'developing' and destined to join their richer neighbours. Critics of the dominant order in countries like the USA and UK were left on the sidelines, making empty predictions of a return of another 1929-style crash. By the mid-1950s many people probably felt that they had never had it so good.

Yet there was a tiny of thinkers who saw that the real underlying problem — the unsustainable relationship between humankind and the rest of Nature — had not gone away. Indeed they correctly predicted that the day of reckoning for excessive human demands on ecological systems might be postponed but it could not be put off for ever. From the pens of Fairfield Osborn, William Vogt, Samuel Ordway and Baker Brownell came a stream of publications, which together constitute a rounded theory of limit-to-growth. They are especially notable since most were published in the late 1940s and early 1950s at a time when most people were mesmerised by the vigour of American mass production and by the first signs of the long post-war boom.

Most significant, however, was an American forester and conservationist, Aldo Leopold, whose work from 1949, especially *A Sand County Almanac*. from 1949, laid the foundations for a worldview in which humans are just 'plain citizens of nature'. Other species are recognised as possessing intrinsic, not just instrumental, value. Within Western culture, Leopold's 'land ethic' gave a strong ethical dimension to 'Limits' theory.

The American ecologist Eugene Odum played a leading role in stressing how the Earth functions as a life-support system as well as warning of the many ways it was being undermined by human action. As he put it later "growth beyond the optimum is cancer". In the 1950s and early 1960s, the questioning of 'can-do-will-do' technologically driven development was deepening. Aldous Huxley's dystopian novels had an distinctly ecological edge, for example, while Lewis Mumford

was challenging the arrogance and irresponsibility of the whole industrial project. French sociologist Jacques Ellul published penetrating critiques of the emerging 'technoculture'. But perhaps the most important figures from this period was Rachel Carson, who blew the whistle on the chemicalisation of the environment. Raymond Dasmann must also be mentioned, not least for his innovative work on the concept of bioregions.

Scientific and Other Dissent in the 60s

Increasing awareness of the danger of overshooting ecological safety barriers, especially due to population growth, owed much to the intellectual prowess and energetic campaigning of scientists like Paul Ehrlich, whose 1968 book *The Population Bomb* rekindled the debate about human numbers. Scientists from other disciplines also enriched 'limits' theory. They, too, were often dissidents, like the American geologist M. King Hubbert, whose comparatively lone voice warned that, since the Earth was finite in size, mineral resources too must be limited in availability. Similarly physicists like John Holdren and Amory Lovins cogently argued that the days of cheap, abundant energy could not last forever. Explorers such as Jacques Cousteau and Thor Heyerdahl were making their own contribution by establishing during their voyages that even remote areas were suffering from pollution.

In 1968, Garret Hardin's famous essay *The Tragedy of the Commons*, was published in the American magazine, *Science*, is one of the most frequently cited, controversial and still compelling ever published. It challenged the popular but naive tendency to blame all environmental problems simply upon the self-serving behaviour of vested interests like big business. Instead, it spotlighted the cumulative consequences of all the little decisions we make in our daily lives, often taken with no ill intended but with collectively ruinous results in the long-term. The analysis is crucial to the construction of a sustainable relationship to common environmental resources (air, water and migratory wildlife etc.), and indeed to any open access human systems (e.g. the public highway). The 1969 BBC Reith Lectures *Wilderness & Plenty* by Sir Frank Fraser Darling further helped to publicise the deepening imbalance between people and planet.

In 1969, Friends of the Earth was launched in the USA. It was led by the American conservationist, David Brower, who had been ousted from the by now more conservative Sierra Club, Friends of the Earth embodied the shift by environmentalists to a more active style of campaigning and lobbying. A British branch followed a year later and soon hit the headlines with its campaigns against non-returnable bottles. Other direction actions followed in FoE's wake, notably Greenpeace and the even more militant group Earth First!

A whole army of green non-governmental organisations sprouted over the following years and their combined memberships were soon to outnumber older popular movements such as trade unionism. The sinking of the Greenpeace boat *Rainbow Warrior* in a New Zealand harbour by French agents in 1985 and the murder in 1988 of Chico Mendes, campaigner against rainforest destruction in Brazil, showed that there was literally, not just metaphorically, a 'battle' for the planet taking place.

Economists of course remained resolutely blind to the real 'means of production', energy flows and the great cycles of matter. But there were exceptions, most notably the Romanian Nicholas Georgescu-Roegen who, in 1971, published his classic *The Entropy Law & The Economic Process*. No-one has done more than the American economist Herman Daly to build on this seminal work.

Watershed Year

In many ways 1972 was a seminal year in the history of ecological thought. Two publications established new benchmarks. One was *The Blueprint for Survival*, produced by a team around Edward Goldsmith, publisher of *The Ecologist* magazine. It generated a lot of debate particularly in Britain, with many leading scientists and other eminent thinkers endorsing the document. It remains a cogent study of the human predicament.

Another organisation, the Club of Rome, commissioned a team from the Massachusetts Institute of Technology to study what would happen if humanity continued on its present course. The resulting study *Limits To Growth* hit the global headlines and provoked a furious counter-attack. Part of the reason was the use of computer technology to model contemporary trends. It

necessarily simplified reality and could not quantify factors like human ingenuity. However, it is foolish to ignore its central message — that the attempt to maximise human numbers and consumption levels on a finite planet can only end in disaster. (The study has been up-dated and elaborated recently in *Beyond the Limits* by D. Meadows et al, 1992, Earthscan).

Also in 1972 the UN Conference on the Human Environment *Only One Earth* was held in Stockholm. It pulled together and publicised many of the strands of environmental concern that had built up through the 1960s. The first photographs of the Earth taken from space flights had underlined dramatically the 'oneness' of the planet and that it was the one and only home all people and all species shared. Sadly, the conference was significant in another way, embodying a recurrent tendency to generate a lot of hot air about environmental degradation, pollution and resource depletion, without appropriate action afterwards. The main legacy of the conference was UNEP (The United Nations Environment Programme)

In 1973 an essay by the noted Norwegian philosopher Arne Naess was the first to spotlight the divergence of views amongst those who claim to be concerned about the environment. In *The Shallow & Deep, Long-Range Ecology Movement*, Naess argued that "shallow environmentalists" just see waste and pollution as an interference with the unchanged goal of 'business-as-usual', mere hiccups on the road signposted More Growth, ones that could be cured by better management and more technology. By contrast, Naess laid the foundations for what, today, is often called 'deep ecology', which recognises the need for a deeper reconciliation between humans and non-human species. 1973 also saw the publication of Fritz Schumacher's collection of essays, *Small is Beautiful*, which popularised the idea that bigger is often far from better.

In 1980 *The Global 2000 Report to the President* was published. This study by G. Barney et al for American President Jimmy Carter reflected the way in which concern about the environment had made an impact inside the formal political system. However, the rise of Ronald Reagan and then George Bush knocked it back down the agenda. (on Environment and Development)

The 1987 *Our Common Future* a report from the World Commission on Environment and Development (also known as the *Brundtland Report* after its chairperson) attracted a lot of public interest. It stressed the links between poverty in the Third World and environmental degradation, though it was less forthcoming about how both might be partly linked to overconsumption in the industrialised world. In many ways expressed the voice of the more progressive section of global élites. As such it was a call for a more refined exploitation and manipulation of the environment, rather than a real change of direction. In particular it called for more economic growth, contrary to the analysis like *The Limits-To-Growth*. In the meantime a more truly ecological approach, that of the steady-state economy, had been developed by the American economist Herman Daly, amongst others.

In the following years, awareness grew of the Earth as an integrated system, of which humanity was but a small though violently powerful part. The work of a scientist, James Lovelock, particularly *A New Look at Life on Earth* (1979), popularised the so-called Gaia hypothesis, although notions of a Mother Earth have deep roots in many ancient cultures. This brief review of the history and major strands of ecological strands cannot be concluded without mention of another hypothesis, the so-called the Biophilia hypothesis advanced by Professor E. O. Wilson. He argues that humans have a deep need for the other species with whom the Earth is shared, not just materially but psychologically as well.

The literary strand of Limits thinking blossomed in the hands of writers such as Gary Snyder and Wendell Berry. Writer and one-time park warden Edward Abbey reflected and encouraged the dawning realisation that more direct forms of action were necessary if the day were to be avoided when, to paraphrase him, people would no longer need to visit Los Angeles since it would have visited them.

Calls for deep, ecologically-founded changes in the values and goals of society have been made, then, for a long time. But, today, the task of fleshing out the nature of a sustainable living has progressed. Older ideas about moderation in consumption and care for others have been buttressed by advances in human understanding about our environmental impacts and the capacity of ecological systems to withstand them. Yet the more we know, the clearer the dangers signs have become, the more obvious it has become that a point of being fast approached when it will be too late to enact the policies that once could have sustained life in all its richness and variety.

Endnotes

ⁱ Curry (2006) is a succinct and readable guide to Ecocentrism. There are some useful anthologies, notably Butler (2002), Drengson & Inoue (1995), & Sessions (1995). Marshall (1992) gives a more historical perspective. The writings of the Canadian scientist Stan Rowe remain an outstanding example of how ecology as a science (and one treated holistically not in the reductionist manner now dominant) can be blended with ecologically informed ethics.

The best on-line collection of EcoCentric documents is probably <http://www.ecospherics.net/>

ⁱⁱ. Good histories of ecological thought include Marshall(1992) and, with more specific focus on limits-to-growth' theory, Kassiola (1990). For histories of the environmental movement, see Shabecoff (2003) and Spowers (2002). Human destruction of the environment down the centuries is charted in Broswimmer (2002), Diamond (1998 & 2006). McNeil (2000), and Ponting (1991)

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