

As Yet Impossible: in human performance symposium

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People Watching Nature: “It’s all in the Umwelt!” and “How do we value a view?”

In response to the invitation to deliver a “provocation” as part of the “As Yet Impossible: in human performance” symposium I wrote three short essays. I was unsure what a provocation was, and if my thoughts and subsequent presentation would be provocative. The response of those present to my “provocation” was interesting. The provocation turned in to a dialogue. Questions were posed; issues were raised, by me and members of the audience, and there was much discussion that continued throughout the day.

In the weeks following the symposium, and based on the experience of presenting the three essays, I have rewritten parts and combined two into one. Here, I present the resultant two essays: “It’s all in the Umwelt!” and “How do we value a view?” These two essays explore different but related issues; they are presented to provoke debate, to spark ideas, and to explore the links between science and art.

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Provocation 1 – It's all in the Umwelt!

In 1790, Xavier de Maistre (1763-1852), as the consequence of a duel, was imprisoned for six weeks in his room, a long square, with a perimeter of thirty-six paces, at the top of an apartment building in Turin. Here he pioneered room-travel. In his book *Voyage autour de ma chambre (Journey around My Bedroom)*, de Maistre describes how he locked the door, put on his pink and blue pyjamas, and travelled to the sofa and from there to his bed. “When I travel through my room,” he writes, “I rarely follow a straight line: I go from the table towards a picture hanging in a corner; from there, I set out obliquely towards the door, but even though, when I begin, it really is my intention to go there, if I happen to meet my armchair en route, I don’t think twice about it, and settle down in it without further ado.” In his second book *Expédition nocturne autour de ma chambre (Nocturnal expeditions around my bedroom)* he voyaged a little further; to his window and looked up at the night sky. The importance of de Maistre’s approach to travel was summed up by Alan de Botton (2002, p246) who writes: “De Maistre’s work springs from a profound and suggestive insight: that the pleasure we derive from journeys is perhaps more on the mindset with which we travel than on the destination we travel to. If only we could apply a travelling mindset to our own locales, we might find these places becoming no less interesting than the high mountain passes and butterfly-filled jungles of Humbolt’s South America.”

De Botton argues that the chief characteristic of travel is receptivity, and compares this to habituation and blindness associated with home. Receptivity: willingness or readiness to receive, especially impressions or ideas, is a state of mind, something that we carry within ourselves, but something we can easily forget to pack alongside our sandwiches as we set out on our daily commute.

Umwelt (pronounced OOM-welt) is a German word. Its literal meaning is “the world around” or “the environment”. However, scientists studying animal behaviour use the word umwelt to evoke something much more specific: the perceived world, the world sensed by an animal, a view idiosyncratic to each species that is related to its particular sensory and cognitive powers and limited by its deficits. The umwelt of a dog is different from that of a Sparrow, and both from that of a human (Yoon, 2009). We might also speak of a human

collective umwelt: the shared perception of the world, which is limited by our own sensory and cognitive powers, and by our culture. A typical human eye will respond to light with a wavelength between 390 and 750 nm, normal human hearing is limited to frequencies between about 20 Hz and 20 kHz, and the way we interpret the signals from our sensory organs is determined by our culture: by our shared ideas.

Two and a half thousand years ago the Greek philosopher, Plato, had a dilemma: how do we know so much based on so very little. We know, for example, what various animals and plants are by simply looking at them. We can all recognise a rose, even though there are many types of rose and we might have only seen a few varieties in our life time, we can all recognise a dog even though there are many breeds of dogs, and we can all recognise a fungus when we see it growing in autumnal woodland. We do not need to be able to name these species or breeds; we “know” what they are. Psychological studies have demonstrated that we have an innate ability to classify the world around us. This ability comes from our umwelt.

Every indication is that our umwelt, our own idiosyncratic view of the world, is based on a model developed during our species’ days as hunter-gatherers. Our umwelt is modelled for survival, and it built from an exploration of, a tiny piece of the world, that which one would explore on foot (Yoon, 2009). Times have moved on. We no longer gain our experiences from walking around.

In addition to their own exploration, an individual person will gain experience and knowledge from the teaching of their parents and teachers, or from interactions with their peers. An individual’s umwelt will be shaped by these three influences, and by other interactions with other media, today that means television, radio and the ever more pervasive internet.

Today’s children are more likely to play indoors than their parents and grandparents (England Marketing, 2009). The umwelt of these three generations is likely to be remarkably different; each umwelt has been informed by a remarkable different set of influences. Take a group of British people over the age of 50 years of age it is likely that 46% of them spent a considerable amount of their play time outdoors in informal settings:

streets, woods, heath, fields, farmland, mountains, moorland, riversides, canalsides, ponds and other wild spaces. Of those aged below 50 years of age fewer (38%) will have played in these same areas, and of today's children only 14% will have explored this aspect of their umwelt (England Marketing, 2009). Those under 50, the parents and teachers of today's children already have less experience of the natural world to pass on today's children than those aged over 50. The situation is worse the younger the parents and teachers, with 30 year olds having had less contact with nature than the 50 year olds. Children who play indoors, who obtain their view of the outside via the computer screen will not share experiences of the natural world during play time conversations; there will be no, or little peer to peer learning.

If children are not playing outdoors, exploring for themselves, not receiving education from parents or teachers, who themselves have little or no experience of the outdoor, and not engaging with their peers in this learning what is the umwelt of tomorrow's opinion makers. Perhaps it is from the media? A simple survey of the programming on the Discovery Channel reveals a completely different umwelt; a more worrying umwelt. The 10 wildlife orientated programmes shown on Sunday 8th May 2011, two days before this symposium, took the viewer, in order, to: Tierra Del Fuego: the Everglades; New Zealand; Borneo; Laos; Texas; Hawaii, Texas and Florida in one programme; and finally two more programmes based in Texas (<http://dsc.discovery.com/tv-schedules/daily.html> accessed 8th May 2011). Not only is such a journey extremely confusing in terms of trying to make sense of the variety of animals and plants seen, but the images raise expectations that cannot be met in every day umwelt of the individual watching that programming. Does this programme making and scheduling distort the umwelt to such an extent that it adds to the disconnection from our locality and from nature?

The image portrayed by much of the media; that nature exists in distance places reflects what is known as the frontier mentality, a paradigm that persists in the cultural mindset of many, in which rich biodiversity is associated only with remote areas, reflecting a model of an empty world in which human development is completely isolated from natural (wild) processes. This need not be the case. Farina *et al.* (2003) contrast the North

American, empty world paradigm with the Mediterranean, full world paradigm in which plasticity, adaptation to disturbance, and the persisting of biological refugia are key factors responsible for the landscape dynamics. However, it is the empty world model that dominates our thinking. It is from this model that the mindset of the dominance of the economic capital over the natural and cultural ones is drawn, a mindset that has been exported worldwide (Farina *et al.*, 2003).

Henry David Thoreau (1817-1862) an American author, naturalist, development critic, and philosopher wrote in his Journal for August 30th 1856: "It is vain to dream of a wilderness distant from ourselves. There is none such. It is the bog in our brains and bowels, the primitive vigour of Nature in us, that inspires that dream. I shall never find in the wilds of Labrador any greater wildness than in some recess of Concord, i.e. that I import into it." Thoreau is highlighting the importance of the individual in interpreting the world around us and carrying with us the idea that wilderness does exist in our everyday experiences. Can we find this wilderness in ourselves and in our everyday life?

Autumnwatch, one of the BBC's flagship wildlife programmes has an audience of around 3.5% of the UK population (Source: <http://www.barb.co.uk/> accessed 21 Nov 2010). At least this programme, and the associated multi-media presence, focuses on British wildlife; perhaps a little further than that which can be experienced on foot but still relatively accessible to most. A detailed study of the environment outside our own back door produces data that might be surprising to some. In a comprehensive study of an English 741m² suburban garden in Leicester, England, Owens (2010) records 2,673+ species of plants and animals. The plus sign is attributed to the unidentified Colleoptera. This challenges the view put forward by Elton (1966) who considered urban areas to be biological deserts. Loram *et al.* (2007) estimated that approximately 8,000km² of the UK is covered by gardens; a large resource and a lot of wilderness to be explored.

Owens' journey around her garden has taken 30 years rather than the six weeks taken by de Maistre, yet the two authors share much in common: they set out a detailed exploration of their immediate environment, and challenge us all to reassess our Umwelt.

Provocation 2 - How is Nature valued?

Have you ever sat by the sea? Have you ever looked at the variety of sea life laid out on a quayside stall or in the fishmongers? Have you ever thought about the diversity of life in our fields, forests and gardens? Aristotle (384-322 BC), having lost out on the top job at Plato's academy in Athens, went to Lesbos where he stayed for two years prior to taking up an appointment as tutor to Alexander, later known as Alexander the Great. During his time on Lesbos, Aristotle described, in detail, the animals in the sea and on the island, and the habitats in which they were found. In so doing Aristotle laid the foundations for the sciences of Biology and Ecology.

In the same way that we do today, Aristotle, interpreted the world he saw about him in the context of the knowledge and ideas of the time. He is reported as stating: Nature made nothing in vain and everything has a purpose. Plants were created for the sake of animals and animals for the sake of men (*sic*). Domestic animals are here to labour, wild ones to be hunted (Thomas, 1984). Aristotle's views dominated western thinking well into the twentieth century.

In the 21st Century we recognise that the ecosystems (a term coined in 1930 by Roy Clapham to mean the combined physical and biological components of an environment, and later refined by Arthur Tansley as "The whole system, ... including not only the organism-complex, but also the whole complex of physical factors forming what we call the environment") provide a variety of services: the simple and obvious (food, water and many materials); the more complex (for example the regulation of climate through carbon sequestration or of flooding through water storage) and the less tangible (places to relax, seek inspiration or exercise). The Millennium Ecosystem Assessment, published in 2005, introduced these ecosystem services to a wider audience, and made an assessment of the state of these services on a global scale. It has been estimated that the cost of global biodiversity decline under a business as usual scenario could be 14 trillion Euros by 2050 (Braat *et al.*, 2008). In the UK it is estimated that the health and amenity benefits of living with a view of a green space is worth up to £300 per person, per year. The value of inland wetlands is estimated at £1.5 billion a year, the work of bees and other pollinators is

calculated at £430 Million per year, and the economic and amenity benefit from rivers, coast and lakes is put at £1.3 Billion per year (UK National Ecosystem Assessment (2011)).

In practice, however, while some services such as food and timber already have defined market values, many are not (and may never be) traded. Some benefits are intangible and difficult to value, even though many of them are simply irreplaceable, and we also have to consider the division between the Public and Private goods afforded by Nature. Public goods are characterised as being non-rival and non-excludable. That is to say that consumption of the good by one individual does not reduce availability of the good for consumption by others, and no one can be effectively excluded from using the good. Are the observing of wildlife, and the sound of bird song public or private goods? Would we pay to access these areas and experiences? Reporting on a study in Ireland, Buckley *et al.* (2009) found that 50.4% of respondents expressed a positive willingness to pay the median willingness to pay (MWTP) for formal access. They were willing to pay 12.22 Euros for improved trail infrastructure in the lowlands and 9.08 Euros for similar developments in the uplands. We already pay to visit bird reserves, and tolls exist on paths leading to view points under private ownership. Paying to access nature, to experience nature, is an established practice: in so doing it is recognised that there is a private good aspect to nature; one that can be exploited for commercial gain. Should we pay for this access becomes a personal, societal and political issue as was seen in the UK recently when it was suggested by the Coalition Government that our woodlands and forests should be privatised. There was a rising of the middle classes ostensibly demanding that access to these areas must be guaranteed and must be free. The Coalition Government withdrew its plans, sending them for review, but interestingly based their decision for doing so on arguments related to cost rather than access.

At different times different commodities are valued as more or less important. In the future with the pressures of high human population, the lack of cheap energy, and the impact of climate change which ecosystem services will be valued more highly and which less so? Will we value local food production and see, as many forecast, roof gardens, green

edible walls, and gardens and parks devoted to food production? Will access to green spaces become a commodity that is sold?

Sir Julian Huxley FRS (1887-1975), the English evolutionary biologist, humanist and internationalist, said that evolution occurs in three different sectors. The first is inorganic – the cosmic processes of matter. The second is biological – the evolution of plants and animals. The third is psychological and is the development of man's culture (Fairbrother, 1972). The first two stages, as far as humans and our relationship with the natural world, need not overly concern us: cosmic processes operate at a time scale beyond our comprehension and experience, and evolution of humans is thought to be more or less complete, though there are some indications that we might undergo relatively minor morphological changes, to become shorter and fatter. It is however, the third stage, the development of culture that is critical. Culture is defined by the Oxford English Dictionary as "the customs, ideas, and social behaviour of a particular people or group".

If Natural Capital is to be viewed as a commodity we see from the studies of Pine and Gilmore (1999) that commodities pass through stages: as commodities, goods, services, experiences, and transformations. What does this mean for the natural environment? Will we begin to move from perceiving the natural environment as providing services to a view that it provides experience, and how will we adapt to this change?

Sir John Lawton, an Ecologist, former head of the Natural Environment Research Council and former Chair of the Royal Commission on Environmental Pollution and reminds us in the talks I have heard him give, that we undertake our nature conservation activities under licence from society. Put another way it is society that provides the context and gives permission, through legislation as well as through a moral code, that allows conservation actions to be undertaken. So going back to Aristotle we should ask ourselves if our culture and society have changed, and ask how our ideas about nature and our relationship with nature have evolved over the last two thousand years. Do we still hold the anthropocentric view set out by Aristotle over two millennia ago?

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