Do We Need Nature?

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synopsis

The question, 'Do we need nature?' implies the startling possibility of dispensing with nature. The corollary, 'Does nature need us?' seems somehow less absurd, because humanity is surely a function of nature rather than the inverse. Yet there is a reciprocity: Humanity alone can conceive of nature and we alone can be bereaved of nature. As W.B.Yeats put it, 'man has created death', and nature, too, is an idea, a cultural artefact of the separateness innate to the human sense of self. From this arises our *responsibility* for nature.

A desire to protect nature is thus at its deepest philosophical root a personal good. But in exploring nature humanity explores itself, and in changing itself changes nature too. Nature is more than terrestrial biology. Increasingly, the larger cosmos becomes the epigenetic landscape on which evolves our concept of 'meta-nature' - of the world *and* our place in it. *Nature, too, is a process. No final preferred state is predictable. Thus to protect is not to preserve a stasis; to protect is to promote a process, which includes ourselves.*

We desire to preserve earth's biodiversity; but does the universe at large benefit from the greatest possible variability of species? This is an ecological hypothesis that remains untested beyond our immediate environment. The universal 'good' is unknown. Physics offers no reason to think that a preferred configuration of the universe is one in which meta-nature resembles the terrestrial biosphere circa 2000 AD.[i] The hope of 'discovering' a preferred universal good lies in human creativity, in a process of transformation of human being which must also transform the idea, and the structure, of nature itself.

does nature need us?

Surely it is no more in humanity's gift to admit or to exclude nature than a fish may eschew the sea or a bird the sky? Yet evolution shows that members of these species have done those very things, even without technology. Species, along with their ecological territories, can migrate and adapt over time. We, too, could remove ourselves from our natural environment - say by moving into interplanetary space.

Easier still, maybe, to imagine nature abiding equably without humanity. Evidently the biosphere does not need us any more than it needs any other particular organism, in the sense that it will probably not cease to be should we leave. But equally plainly the biosphere will be changed as a result, from which fact some may wryly conclude that at least one human act could affect the biosphere for the good.

But categorising any adaptation as benign or malign has to be done with reference to criteria which are frequently subjective. Whether eradicating smallpox or some colourful vertebrate is ultimately of more significance to the biosphere is difficult to say in the absence of 'design goals', and issues of aesthetics and self-interest interpose. Global biodiversity is perhaps a statistically objective criterion; but of what? Do the evolutionary efficiencies of maximum diversity constitute an autonomous 'purpose' of nature? If so, would such a purpose automatically be benign? Surely value judgements are distinctively *our* contribution?

This invites us to consider an inclusive, value-free viewpoint, from which the dynamical reciprocity between humankind and nature appears subsumed within a larger 'symmetry group'. Evidently, by 'nature' we can mean something more general even than 'natural environment'. This generalisation leads from biology to chemistry and physics, and the question then is, 'Do we need our physical environment?'

Nature thus defined *includes* our technology. It shapes our tools as much as we do and through them shapes us; our every action is a transaction, a bargain from which we cannot resile. Does a galaxy cluster 'need' gravity? Gravity is just the precise definition of the activity of clustering itself. In the same way, *'nature' is in the end just the exhaustive definition of the process of our own existence.*

nature is an act of imagination

So we can only draw away from nature in proportion as we diminish ourselves, a diminishment whose end is the end of human existence - death. But there is a paradox here, because it is the essence of human death that nature - we feel - then *reasserts* its ownership of what remains. In the act of departing from nature we finally become one with it.

The cessation of human being has this unique character, over and above the physical processes which we say are the same for all creatures, in that only for the dying human creature has its ownership by nature ever been in doubt. Human life is not a freehold, but we believe that the terms of its lease are probably unique among those negotiated by other organisms that we know. *A consciousness of a certain distance from nature is the essence of what it is to be ourselves at all.*

Our separateness from nature is something (to paraphrase another poet) not so much in the stars as in ourselves, something that comes with being a conscious human. Although we distance ourselves from nature - culturally, technologically - only by means of nature itself, still the opening up of a psychical distance is the essence entire of what, at bottom, we *mean* by 'nature'. We properly exist only when we *ex-sist*, in the root sense of to 'stand out' from nature. This appears as the meaning of the scriptural myth of the Fall.

A person is the locus of many 'given' sense experiences. Likewise an electron 'feels' a potential, and 'experiences' inertia. But neither a collection of sensa, unconsidered, nor the acceleration of a charge, is itself nature. A tree shrew is equally a locus of natural sensa, but one supposes that it no more imagines itself an ex-sistent inhabitant of a realm of nature than does the tree. Nature emerges when, in a physical analogy, an organism begins to conceive of its sensa as representing its individual coupling with the 'field' of nature. This coupling is at once both a juncture and a separation.

The idea of nature is *the* prototypical scientific 'model', an imaginative concept and an activity, the reciprocal of the enactment of the personal. Its concreteness arises, paradoxically, from the same process of abstraction in which we generate our personal selves as exemplars of 'human nature'. Our concept of nature is not separable from our concept of ourselves. The extent of our responsibility for nature is therefore coextensive with our responsibility for ourselves, and is incalculably large.

freedom or constraint?

At the same time, the ambiguous reciprocity between 'field' and 'charge' illustrates that a dependency does not imply a causal priority. Aggregations of charges can modify the field, just as modification of the field may alter the distribution of charges. The issue for an electron is not whether the field may be done without, but the extent to which mechanical or gravitational forces might dominate the distribution of charges and thereby alter the local configuration of the field.

So to say that our relation to nature must express the fundamental continuity of the system of the world is not to say either that nature is at our mercy or that we are at the mercy of nature. It would be better to say that we couple conjointly with a field potential of whose character, magnitude and direction we presently have no conception.

Another paradox of ex-sistence is that constraints alone bestow freedoms. A group of charges and their field 'environment' must always be a self-consistent system, by definition; but this doesn't mean that the 'natural' or 'desirable' state of that system is one of equilibrium. Charge and its field are far from equilibrium cosmically, a state which we ascribe to the supervening of 'other forces'; but we would not dream of describing this state as 'unnatural'.

Conversely the equilibrium condition of zero energy in a physical system is in general not the lowest possible energy level; rather, it is a false vacuum atop a sea of negative energy states. It's a general principle (the second law of thermodynamics notwithstanding) that the 'natural' condition of systems is not one of zero potential in respect to their 'environments'; indeed, were it so then there would be no Nature, for there would be no differentiation, no symmetries, no forces, stars, species or choices.

Human imagination does act to force the terrestrial biosphere, including itself, away from an epigenetic potential well which would otherwise be its attractor. But to see this tension as unnatural or immoral is to benchmark the evolution of meta-nature from a zero-point which is merely a false-vacuum state in the evolution of the whole.

the nature of 'meta-nature'

Identifying 'nature' with geocentric conservatism is wrong. Whether terrestrial biology is a cosmic 'means' or a cosmic 'end' cannot sensibly be debated. An holistic view takes us to the largest conceptual symmetry-group, a grand-unified existential Theory of Everything constructed in a complex phase-space of many dimensions. What is the sum over all state vectors in meta-nature as a result of an adjustment in a given 'field-charge' configuration?

Sadly we have no such theory. However, in a closed system such a TOE must represent a meta-symmetry in which the whole set of states associated with any change at all must by definition be self-consistent. This seems to be the bedrock meaning of 'natural law', in whatever terms the self-consistency requirements of the TOE law might turn out to be defined. The implication is that every human action implies and expresses the self-consistency of the whole, which simultaneously removes external moral prescription and grants us the 'freedom' to conform, like any planet in its orbit, to constraints unknowable.

This is no clockwork Laplacian determinism. Meta-nature is not merely local-real; we know it to be a complex quantum system which is also nonlocally correlated. In such a system the causal contingency is not necessarily identical with the time order; and the distinction of past from future may itself become a local effect, as parochial in the cosmos at large as the distinction between up and down. The underlying continuity of the system of meta-nature need not be expressible only in terms of prior states and given laws; the laws themselves may be emergent properties of overarching complex correlations of a quite different character.[ii]

The old bafflement remains. What actually *is* meta-nature? What the hell are we doing here? We don't have any idea of the answer to this most basic of questions, on which the coupled fates of nature and of ourselves ultimately depend. We don't even know how to frame the question except by an heroically stubborn process of trial and error. Deep metaphysical implications even of old-fashioned quantum theory are still unclear after a century. We don't yet have a TOE which explains even so much as an ensemble of a few gravitating atoms, and already our philosophical speculations effloresce bogglingly into the unknown. A 'final' theory of meta-nature may be (arguably will be) unimaginably strange.

The learning of a new skill often uses a scaffolding which, once the skill is properly internalised, we discover was inessential and can be discarded. It seems possible, indeed likely, that dreams of a future for humanity in cosmic space, or in cyberspace, are primitive presentiments of a mode of being that will one day (should we survive) transcend the distinction between self and nature in ways that are presently unimaginable. If in so doing we *un*make the idea of Death then we will have reached a point in our exploration at which a concept of Nature is also finally unmade and a scaffolding dismantled.

Until then we need the idea of nature for the project of understanding what - or, possibly, even why - we are. But the process of understanding is also a process of becoming, wherein both nature and humanity are changed, and in the end nature as we now conceive it may be seen to have been but the discarded chrysalis of a new state of being, a thing no longer needed, because we have become nature, and nature has become us.

i A certain parochial conception of ‘Nature’ is unwittingly parodied by a Glasgow high-street newsagents which, as I write, carries the famous science journal of that name on its ‘Gardening’ shelves.

ii Pierre Simon de Laplace was famously able to declare in 1821 that at any "given instant" an omniscient intelligence would be able to predict the future behaviour of every particle and star in the universe, and he could take it for granted that this would be understood to mean a micro-reductive determinism based on the rigid Newtonian collisions of atoms. It is often said that quantum theory and relativity undermined the mechanistic cosmos, but in fact Laplacian determinism was always technically unsound, because velocities and accelerations are time-dependent and so cannot be given as instantaneous ‘initial conditions’. Neither a particular state, nor a universal state, nor "knowledge" of either has any meaning in "an instant", and no conclusion whatsoever is possible about the causal order from such a frozen abstraction. Laplace’s determinism amounts to saying that any one particle's acceleration is inferable given exhaustive knowledge of the accelerations of all other particles, which is trivially obvious and certainly far from the spirit of reductionism. A future state of the whole is an outcome of a past state of the whole, and to (*a)* specify a list of particular accelerations, or to (*b)* sum over the universal ‘field’, are complementary denotations of the same set - analytic or synthetic representations of exactly the same quantity of information. Either way, meaningful knowledge of the whole subsists essentially in the *process* of the whole.