HOW THINGS ARE: A SCIENCE TOOL-KIT FOR THE MIND
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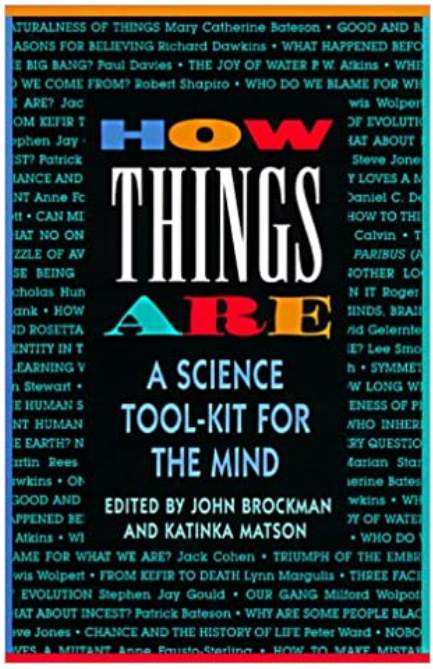

On the Naturalness of Things
Mary Catherine Bateson

Clear thinking about the world we live in is hindered by some very basic muddles, new and old, in the ordinary uses of the words *nature* and *natural*.

We seem to slip easily into thinking that it is possible to be outside of nature—that with a little help from on high, we could rise above the ordinary contingencies, evade the consequences of our actions, and be supernaturally delivered from the all-too-natural realities of illness and death. Some usages seem to suggest that it is possible to be below nature, as in "unnatural acts" (sometimes called "subhuman"), or "unnatural parent" (which means an unloving parent or one who fails in the obligations of nurture, with no logical connection to a "natural child," one born outside of the culturally sanctioned arrangement of wedlock).

These usages have in common the notion that nature is something it is possible to get away from, to get around. The intellectual problems created by circumscribing the domain of "nature" are probably even more confusing than those created by Cartesian dualism, although they are no doubt related. Descartes was concerned to define a domain for science that would be safe from ecclesiastical interference: *res extensa* matter, the physical body, divorced from mind or spirit. The effect of this was to create two different kinds of causality and separate spheres of discourse that must someday

be brought back together. The folk distinctions that describe the concept of "nature" are messier but equally insidious. As with Cartesian dualism, they tend to slant ethical thinking, to create separation rather than inclusion. In Western culture, nature was once something to be ruled by humankind, as the body was to be ruled by the mind.

Recently, we have complicated the situation by labelling more and more objects and materials preferentially, from foodstuff to fibbers to molecules, as natural or unnatural. This sets up a limited and misshapen domain for the natural: loaded with unstated value judgments: the domain suggested in Bill McKibben's title *The End Of Nature* or in William Irwin Thompson's *The American Replacement of Nature*: Yet nature is not something that can end or be replaced, anymore than it is possible to get outside of it.

In fact, everything is natural; if it weren't, it wouldn't be. That's How Things Are: natural. And interrelated in ways that can (sometimes) be studied to produce those big generalizations we call "laws of nature" and the thousands of small interlocking generalizations that make up science. Somewhere in this confusion there are matters of the greatest importance, matters that need to be clarified so that it is possible to argue (in ways that are not internally contradictory) for the preservation of "nature," for respect for the "natural world," for education in the "natural sciences," and for better scientific understanding of the origins and effects of human actions. But note that the nature in "laws of nature" is not the same as the nature in "natural law," which refers to a system of theological and philosophical inquiry that tends to label the common sense of Western Christendom as "natural."

Ours is a species among others, part of nature, with recognizable relatives and predecessors, shaped by natural selection to a distinctive pattern of adaptation that depends on the survival advantages of flexibility and extensive learning. Over millennia, our ancestors developed the opposable thumbs that support our cleverness with tools, but rudimentary tools have been observed in other primates; neither tools nor the effects of tools are "unnatural." Human beings communicate with each other, passing on the results of their explorations more elaborately than any other species. Theorists sometimes argue that human language is qualitatively or absolutely different from the systems of communication of other species; but this does not make language (or even the possibilities of error and falsehood that language amplifies) "unnatural." Language is made possible by the physical structures of the human nervous system, which also allow us to construct mental images of the world. So do the perceptual systems of bats and frogs and rattlesnakes, each somewhat different, to fit different adaptive needs.

It is often possible to discover the meaning of a term by seeking its antonym. Nature is often opposed to culture or to nurture. Yet human beings, combining large heads and the appropriate bone structure for upright posture and bi-pedal locomotion, have evolved to require a long period of adult care after birth, time to acquire those variable patterns of adaptation and communication we call culture. How then could "nurture" be "unnatural"! The characteristics of the human species that set us at odds with our environment and with other species are part of the same larger pattern.

Increasingly, nature is opposed to artefact; yet, human beings must always work within natural possibility to create their artefacts, even in the productions of dream and fantasy. Ironically, in current parlance, many artefacts are called "natural." If what we mean by "natural" is "unaffected by human acts," the natural is very hard to find. Walk in the woods, for instance, patterns of vegetation in different North American biomes were already changed by human habitation long before the first Europeans arrived, and were changed again by the colonists. Today, there are introduced species of birds and insects and plants all across this country, even in so-called wilderness areas. The migrations of human beings to every continent on the globe have transported human parasites and symbionts since prehistoric times. Human beings, as they learned to use fire, weapons, and agriculture, have exerted selective pressures everywhere they have lived—like every other species. Henry David Thoreau was fully aware that what he could study and reflect on, living beside Walden Pond, already bore a human imprint. Still, we rue wise to treasure and learn from landscapes in which the human imprint is not obvious. This is perhaps what we usually mean by wilderness (one wonders how much the wilderness into which Jesus or John the Baptist withdrew was a human creation, as so many spreading deserts are today). Wilderness turns out to be a relative term but still a valuable one. We need areas with no visible structures and no soft-drink cans to remind us of human activity, but still, they are affected by human acts.

If natural means "unaffected by human acts," it won't be found at the "natural foods" store. Most food products have been produced by selective breeding over the centuries, turning wild plants into cultivars dependent on human beings and multiplying or eliminating their variations. Most are also processed and transported in clever cultural ways; after all, tofu doesn't grow on trees. Organic farmers must work hard and skillfully; nature doesn't do their work for them. Still, the effort to produce foodstuffs without the chemical fertilizers and insecticides that produce toxic residues is an important area of ingenuity and persuasion. It would be nice to find a way of talking about it without nonsensical and self-contradictory uses of terms like "natural" or "organic (what would a vegetable be if it wasn't "organic"!). Some of the animals and plants cultivated by human beings can survive without human hip, like domestic how cats that become feral, foreign to their settings, and disruptive to other species. Living in a more "natural" way, they may be more disruptive. It may be useful co distinguish between what we create "on purpose" and unexpected by-products. In this sense, gardens of any kind should be distinguished from the deserts created by some of the ways in which humans use land.

Human populations today exist became of massive interference with "nature." Without the invention of agriculture and other technologies, human populations would have stayed tiny, and most of our ancestors would never have been born.

Individually, we are probably alive because of medical technologies, public health, and immunizations. Without some kinds of technology, you're dead. When warfare disrupts the artifices of public health, clean water, transport, electricity, and so on, the death rates reflect this new level of "naturalness." Even "natural childbirth" is an invention that depends on modern ideas of hygiene, training, emergency backup and on the use of a watch to time contractions. Some of us pride ourselves on looking and acting "natural,"

but try looking in the mirror. Do you use hair conditioner, toothpaste, and vitamins? Even the so-called natural ones are human artefacts—and so are a clear complexion, shining hair, and straight teeth.

All this will become dearer if we try looking at something really "unnatural": a hydroelectric dam, for instance, or a plastic bag, a nuclear plant, or a polyester suit. All of our artefacts exist only because they fit into natural possibility—sometimes all too well, if they did not, they would not serve our purposes; bridges would collapse. Invention, technology, and industry—all of these exist in complete deference to nature, subject to its ordinary tests and sanctions, entropy, decay, extinction. Much that serves our purposes in the short term may work against us and the earth as we know it over time.

Human beings reshape the material world in ways that seem to meet their needs and desires. Needs, of course, are both biologically given and passed on by cultural tradition. The wiles of advertising exploit the fact that at the most ancient level, human needs and desires were shaped by the natural pressures and scarcities with which our ancestors lived. To the extent that the circumstances of human life have changed, through the exercise of human adaptive skills, the attempt to meet some needs may have become maladaptive.

This is the great and awful irony of "doing what comes naturally." The desire to have children is a product of past millennia when bands of human beings could barely keep up their numbers and as many as half of all offspring died too young to reproduce. High rates of infant survival are artefacts, not "natural" in the colloquial sense at all. Same religious groups reject contraception as "unnatural," yet the use of contraception to restore ancient balances is the use of artefact to repair the effects of artefact. The attempt to stave off death through biomedical technology is a similar result of desires that were once adaptive for the species. Because scarcity has been a fact of most of human existence, miserliness, overeating, and conspicuous consumption burden our lives today. Perhaps the delight in swift and powerful automobiles is a translation of the need to be able to run, whether in flight from predators or in pursuit of game. It's "natural" to want to own a gas-guzzling monster. It's "natural" to cling to life and the life of loved ones beyond any meaningful exchange or participation. The population explosion is "natural."

Most serious of all, the habit of seeing the human community as in some sense separate from (and in opposition to) nature is a natural habit, one that has appeared to be adaptive for our species through most of its history and may have ceased to be adaptive. Few cultures emphasize this separation as sharply as the Western tradition has, but even with Stone Age technologies and the various mythologies of Earth kinship, the awareness is there.

The steady increase in the impact of the human species on all other species, on the atmosphere and the seas and the earth's surface, requires new patterns of adaptation and new kinds of perception, for the natural course of a species that destroys its

environment is extinction. What we need to fashion today is a way of thinking that is both new and artificial—something deliberately dreamed up in the twentieth century and learned by all members of our species to protect the lives of future generations and preserve their options. We need to invent new forms and learn some new things: limits; moderation; fewer progeny the acceptance of our own dying. We need to look further into the future, using more and better science and learning to think more clearly about our interdependence with other forms of life. In doing so, we will be following our natures as the species that survives by learning.

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