

Punctuated Equilibrium

**(Afterthoughts,
Notes & Murmurs)**

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'The notion of the "biological individual" is crucial to studies of genetics, immunology, evolution, development, anatomy, and physiology. Each of these biological sub-disciplines has a specific conception of individuality, which has historically provided conceptual contexts for integrating newly acquired data. During the past decade, nucleic acid analysis, especially genomic sequencing and high-throughput RNA techniques, has challenged each of these disciplinary definitions by finding significant interactions of animals and plants with symbiotic microorganisms that disrupt the boundaries which heretofore had characterized the biological individual. Animals cannot be considered individuals by anatomical, or physiological criteria, because a diversity of symbionts are both present and functional in completing metabolic pathways and serving other physiological functions' – Scott Gilbert

The idea of the ecosystem – a notion of nature as a self-regulating organism – with its murky roots in colonialism, holism and scientific racism, has proven an inadequate and highly flawed concept.

Looking at non-linear dynamics, such as chaos theory or the ways in which life operates, through the weather, for example – it seems clear that mapping nature 100 percent is impossible, as an indefinite number of microscopic events can bring about an almost infinite number of outcomes. Nevertheless, a romantic belief persists that there is an inherent balance in nature. In contradiction to this idealised harmony, nature is violently volatile. It is unexpected changes, unpredictable skips and revolutions, where resilience and adaptation determines what survives, not a built-in intelligence. In evolutionary biology, the theory of punctuated equilibrium proposes that most sexually reproducing species experience little evolutionary change, but are instead in a state of stasis. It is only a sudden event that can make a species suddenly split into two distinct species or evolve into something else.

As we stare ecological disaster in the face, with the most optimistic of us clutching at the straw of salvation-through-technology, perhaps an evolutionary mishap is the only real hope. As we merge not into the sci-fi dream of higher beings with unearthly and techno powers entwined, but its opposite – a mutation of human and animal with bacteria, fungi and micro organisms in the soil and the air, of minerals and crystals – and evolve to a new species. Our anxieties delude us into believing that we can cool the atmosphere by buying organic vegetables and patch the ozone layer by recycling our waste. As we enter the first man-made geological age – the anthropocene – the worldwide panic makes me want to adopt a fatalistic, perhaps nihilistic or aesthetic, strategy: let it all go to hell! Let's watch it all burn to the ground, and see what we can build from it. I see wicked beauty in the fall – the giant icebergs of Greenland calving into themselves like a Caspar David Friedrich painting in motion. It is anyway too late to save this world, so we need to imagine a new one. If we are meant to be agents of hope and imagination, why can't we dream up a post capitalist future? The process of rise-and-fall recurs throughout history, meaning that our current systems need to collapse at some point. So why does the fall seem so endless... a perpetual machine, a never-ending slow-motion nightmare? Make it stop! If capitalism is a system of forgetting, what wisdom will be lost, what will we grow from the ashes, what stories will we tell our children?

While working with this book, I have seen large colonies of bewildered rabbits fleeing through the streets, their homes eradicated by yet another flat-packed designer loft dwelling. My favourite cluster of elder trees – which have given me enough flowers for several vintages of sparkling elderflower wine – the brambles I used to collect for my breakfast and the small meadow where I used to bump into foraging Turkish Omas are all gone. The walnut tree has been left in the shade of a new towering building, no longer able to produce fruit; my favourite sloe bush has been chopped down for no reason. What can preserving a measly sliver of hedgerow in the city teach us? Finding your own food, in the 'wilderness' all around us, opens up possibilities, a survival strategy. So much has been said of the degeneration arising through the industrial denatured food we have been feeding ourselves, so much romanticism about the times when we were hunter-gatherers has been dreamt. We try so hard to destroy or preserve our world – resist! Listen to the trees, smell the grass, roll in the mud, lick the moss. Ingesting leaves we just picked gives us a fleeting moment of relating, however imaginary, to something

outside economics. Imagine if we can choose to become a new species – a breed of algae and flesh, mutating with our food sources, fermented, cultured (like bacteria); we could eat ourselves, become moss and morph from human to lichen to fungi. This is to imaginatively stretch Goethe's 'accidental metamorphosis' or think of Dale Pendell's 'green allies'; in Scott Gilbert's words, 'We are all lichens now'.

We use nature to tell stories about who we are. And thus we are entering a more barren landscape of this fever. Much of the rhetoric around conservation could, if transferred to humans, seem scarily similar to nazi ideology and race theory. There is talk of invading species, blacklisted plants, brown snails. At first glance, it might seem absurd to say that our language around plants and gardens has parallels with eugenics, but race biology (Statens institut för rasbiologi) and the first major classification system of plants (the plant taxonomy founded by Carl Linnaeus) has its roots in Sweden – specifically the University of Uppsala – a country with a very recent tradition of forced sterilisation of ethnic minorities and transgender people. The fear of the other/the dark/the exotic – botanists even talk about keeping genotypes 'clean' – makes me wonder why one type of vernacular is acceptable for plants but not humans. Conscious usage has been an important tool for shifting attitudes to other phenotypes and cultures (genetically speaking, it is incorrect to speak of races, as humans are one species, one race). The repercussions of an ill-thought-through conservation strategy are immense in terms of what it means to be human. Nationalism is represented in the ways we equate national identities with flora – we talk of what belongs within national space, even if plants grow over several continents.

Plants have no national or political borders. When plants are accused of 'aggressively invading', it is not the plant's fault. An argument for combating blacklisted plants is that they destroy native plants, mainly by encroaching upon their habitats, but most habitat loss is due to human settlements, industry and agriculture. It was also us humans who brought 'invasive' plants with us from our travels. I would like to see a mixed ecology – one that is still evolving, moving, migrating – rather than one contained in some botanist's obscene concept of purity. Being myself a result of migration – my grandparents from India to Pakistan, my father from Pakistan to Norway, my mother crisscrossing Norway her whole childhood and now me, constantly moving – the discourse of genotype contamination becomes awkward. If it is determined that the supposedly natural balance we have disturbed needs to be corrected through the management of specific species, rather than understanding that we have shaped nature all along, we appear aloof. If we take specific examples like the Amazon rain forest and Yellowstone National Park – both of which are perceived as authentic wilderness – we find that the landscapes were shaped by indigenous people for thousands of years through careful management and foraging. Some of these techniques and ideas are similar to those we now find in western methods of permaculture and forest gardening.

Returning to the potential for mutation and the evolution of a new species – not as sci-fi, but very real present sci-fact – let it be remembered that:

Our bodies already consist of four times as many microorganisms – in the form of bacteria, viruses and yeasts – than human cells, our own DNA. They are on our skin, tongues, guts, feet and genitals; millions were first given to us when we passed through our mothers' birth canal. We are already foreign, aliens in ourselves – to ourselves. Are we more something else than our selves? Are our bodies even our own? Microorganisms have evolved with us for thousands, even millions, of years. Where do the human chain of DNA and the strands of mycelium begin or end? In Scott Gilbert's words again, 'We have never been individuals'. What are we, if not 'star dust ... golden.....and we've got to get our selves back to the garden'.