

## Paradigm crash, paradigm shift

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### ABSTRACT

Anarchism, if it is to play a major role in a post-Western society (and it must!), needs to reconsider some of the fundamental scientific, psychological and biological assumptions that underlie its theory and praxis. Much of our ideology rests on ideas that have been discredited, and anarchism has not kept up with the changes, allowing the reactionary right to capture the high ground of debate. Anarchism's superstructure can survive and even grow if we make some necessary changes in its substructure.

Even the most sanguine anarchist must admit that our project of liberating humanity and nature did not fare very well in the twentieth century. So far the twenty-first does not look any better. Patriotism, violence, racism, corporate greed and other psychoses are as epidemic as ever – despite the fact (so obvious to us) that anarchism, not socialism or fascism or capitalism, has the best answers to the problems now facing the world. Is anarchism washed up? Probably yes – unless it adapts to the civilisation-shattering paradigm shift just now beginning. The same is true for every other Westernism, of course; but anarchism, precisely because it has contributed so much to the shattering, has a better chance of surviving and helping to build the new order.

In 1997 I published an article in *Social Anarchism*, in which I suggested that anarchism needs to look at and incorporate some new and radical scientific principles if it is to make any meaningful contribution to a post-Western society. Cutting-edge physics and general systems theory offer new ways of defining reality, and any future ideology will have to start from a more stable foundation than most – including anarchism – now do. In a 2005 article in the same journal I consider the impact that cognitive science, and new theories about evolution, may have on the anarchist project.<sup>1</sup> Both of these articles focus on what needs to be discarded. Here I hope to offer some positive suggestions as to the foundations upon which a post-Western worldview must be built. It is my assertion that, given what we are beginning to know about evolution, language, physics, and other 'scientific' fields, anarchism is the *only* political ideology that will make sense in that world.

Before we can make any attempt at outlining the 'new paradigm', we anarchists need to understand what a paradigm is, and how to step outside it. Thomas Kuhn in his *Structure of Scientific Revolutions* was the first to popularise the term, and most educated people know who Kuhn was and what he said. A more useful approach for us, however, may be found in the work of another philosopher of science who is not so well known, perhaps because he is so hard to understand.

### THE WORLD ACCORDING TO BATESON

If anyone comes close to a genuinely post-Western synthesis – bringing together evolution, systems theory, psychology, ecology and many other disparate *logoi* – it is Gregory Bateson (1904-1980). Morris Berman suspects that 'that future historians may come to regard him as the most seminal thinker of the twentieth century'.<sup>2</sup> Let us hope there *are* future historians.

Bateson was the son of William Bateson (1861-1926), a pioneer in the field of genetics (in fact he coined that word) and Darwinian evolution. Bateson *père* insisted that empirical and scientific knowledge was sadly incomplete: it lacked 'ecstasy', a gut feeling for the beauty and virtue of whatever one is trying to understand. He challenged the Cartesian notion that the gene – a discrete physical entity – was the sole carrier of heredity. What is passed on through evolving generations, Bateson argued, is not the physical body but its *form* – an abstract concept that has more in common with 'mind' than with 'matter'. The scientific method available to him was unable to compass such an idea; but for William Bateson, 'reason' had little to do with logic; it was the ability to grasp intuitively and viscerally the relationships among objects and phenomena. He concluded that 'what was transmitted in heredity was not an objective substance, but the power or faculty of being able to *reproduce* a substance; tendency, disposition, was what was passed on'.<sup>3</sup> Such a theory necessarily requires a holistic or systems view of nature, since no purely physical entity could possibly influence another in this way. As systems theory had not yet developed, and the word 'holism' had not been coined, Bateson was not able to fully articulate this vision.

Like many of the founders of the post-Western paradigm, Gregory Bateson 'came to his senses' through the traditional route of academic psychology. His first notable work, which established the 'double-bind' theory of schizophrenia, evolved over some decades in the mid-twentieth century. The essence of the double-bind concept is that *people* are not insane; *situations* are insane (though of course, people are part of the situation). Trying to deal with this conundrum can lead to madness or to enlightenment.<sup>4</sup>

Western science as it is currently composed cannot explain any sort of learning above the level of what Bateson calls ‘Learning I’ – that is, stimulus and response. (The error of behaviourism lies in thinking that this is the *only* kind of learning.) But living systems – and perhaps those we usually consider ‘non-living,’ as well – will eventually exhibit ‘Learning II’, a qualitative dialectical leap in which the context of the learning activity is apprehended. For example, the stereotypical Pavlov’s dog hears a bell ring, and then sees food appear; before long she salivates when the bell rings, knowing that food will soon follow. This is Learning I. But after some repetition of this process, the dog understands that a rule has been established, and will be confused when the bell is *not* followed by food. It may then be possible to teach her to ring the bell herself to get a reward. This is Learning II, which requires comprehension of an abstract notion applicable to a wide range of real-life situations: if a buzzer is substituted for the bell, the dog will quickly learn how to manipulate the new factor. Learning II, then, is ‘learning how to learn’. We construct our perceptions of reality as well as our own personalities out of Learning II experiences.

The reality paradigm we inhabit is generated by our expectations. If we have learned to think that the fundamentalist Christian God is an objective reality, then he *is*, in our world: we accept and validate those events or experiences that seem to fit this particular context, and we reject those that do not. Paradigms are self-validating. It is of course possible to break out of one paradigm and find another to inhabit; but the same contextual rules will apply. The fundamentalist who ‘wakes up’ to atheism will now seek out and embrace whatever seems to prove that God *doesn’t* exist. Bateson argues that the only way out of this trap is what he calls ‘Learning III’, or the comprehension of ‘paradigm’ itself as opposed to any particular paradigm. This involves a profound restructuring of reality and of one’s own personality, perhaps even the complete loss of ego. When someone achieves Learning III in Western civilisation, he is classified as a psychotic. In non-Western traditions he may achieve *satori* or *fana’* or enter some alternative reality, perhaps with the help of psychotropic drugs.

Perhaps one of the reasons anarchism has never been a mass movement – why it has always been on the outer fringes of political and social analysis – is revealed by Bateson’s ‘Learning III’ model. Anarchists stand outside what we might call the ‘political paradigm’, the set of beliefs that says we must have some form of organised authority, be it fascist or socialist or even Green. This makes us the political equivalent of Bateson’s ego-less psychotics. If we follow his advice, this means redoubling our efforts to demonstrate that human beings *do not* need to be ruled. We have been on the right track all along, but we have not made many converts, perhaps because we cling to an outmoded and flawed model of human nature. We have fumbled towards a Learning III analysis – one thinks of

the Green motto, ‘neither right nor left, but out in front’, or Tucker’s *Instead of a Book*. But we have not employed a systematic and coherent philosophy to get there.

For Bateson, learning is just another name for evolution. This profound insight must perforce emerge as one of the pillars of the anarchistic, ecological post-Western worldview. From the individual to the species to the planet, living systems evolve because they are affected by other systems, and the response to the effect is learning. The tricky part is that our planet is systems-within systems-within systems, and the changes proliferate all up and down the hierarchy in unpredictable and novel ways. (This is where chaos theory is helpful.) Darwin’s great error, according to Bateson, was his misidentification of the ‘unit’ of evolution. That is, species as such do not evolve, much less individuals; it is ecosystems that undergo evolution. The idea has obvious resonance with deep ecologist Arne Næss’s ‘Self-realisation’.

The biologists Humberto Maturana and Francisco Varela (the true pioneers, perhaps, of post-Western biology) take a similar view. All systems are organised, but living systems are autopoietic: that is, ‘their organisation is such that their only product is themselves. The being and doing of an autopoietic unity are inseparable, and this is their specific mode of organisation’.<sup>5</sup> Furthermore (and this sounds a lot like Kant), we can never have direct, objective knowledge of our environment, due to the way we are constructed biologically. In Maturana’s view, information does not pass between observer and observed. An event in one system – say, a flash of light from an auto headlamp – constitutes a ‘structural coupling’ with another system, say the human eye. The coupling stimulates the eye (or more precisely, the organism of which the eye is one element) to behave in a certain fashion determined by the internal structure of the organism in question. The flash of light does not cause you to ‘see’ a headlamp; it prompts your brain to respond in a manner determined by your reason and intuition and your past experience of headlamps. The reader familiar with behaviourism – the ultimate in materialist psychology – will note that Maturana is talking about its very opposite. Behaviourism can be seen as a metaphor for the authoritarian hierarchy of Western civilisation. The behavioural psychologist, to whom people in complex social situations are categorically the same as rats in a maze, ‘has converted the experimental subject into an allopoietic system, while continuing to function himself as an autopoietic system’. It is easy to see the political edge to Maturana’s epistemology, ‘for it points to the power relations that determine who gets to function autopoietically and who is reduced to allopoiesis’.<sup>6</sup>

Bateson’s version of quantum indeterminacy is ‘incompleteness’, or the idea that much of what we would call ‘knowledge’ can never be

known, even in principle. This does *not* mean that our knowledge is incomplete merely because we do not have the time or the tools to acquire all knowledge (the Enlightenment's conceit); it means that the best we can hope for is rough models of reality. The dynamic equilibrium of any system – from a molecule to a galaxy – is dependent upon cybernetic communication, or the ceaseless exchange of information ('difference', as Bateson would say). Information is a part that represents the whole; it is the map, not the territory. The territory is *implicit* in the map. If the map is an *explicit* representation of the territory, then it *is* the territory. We could, in principle, draw a map of the world to the scale of 1:1; such a map would be the same size as the world, and to draw it would be entirely pointless – we could learn the same or better information from looking at the world itself. As Berman puts it, 'if all tacit knowing could be made explicit, all unconscious information be made conscious, there would not be anything that was not a cliché'.<sup>7</sup> This implicit portion of knowledge – most of all possible knowledge, in fact – can be recognised and taken into account, even intuited; but it cannot be *known* in the usual Western meaning of that word.

For the 'primitive' culture as described by Lucien Lévy-Bruhl, all knowledge was tacit. For the modern Cartesian paradigm, all knowledge is explicit. Bateson's great contribution to post-Western epistemology was his holistic recognition that both types of knowledge have their proper place; they are not mutually exclusive. Their relationship is dialectical, but they cannot be translated into one another; they are not interchangeable. In cybernetic language they are respectively 'analogue' and 'digital'. I prefer 'unconscious' and 'conscious'. This is just one example of how murky our knowledge of 'human nature' really is. William Cronon puts it another way: 'The term "human nature" ... compresses such diverse and complex phenomena into such a flat, colourless cartoon that it erases most of the things scholars wish to understand'.<sup>8</sup>

In my opinion, a Batesonian approach to psychology and evolution renders the nature-nurture debate irrelevant. At present, most anarchists and other radicals seem to believe only in 'nurture', that is, that human nature is infinitely malleable and has little or no connection with instinct or the evolutionary past. (A few would argue that anarchism is essential because humans have a built-in tendency to be corrupted by power, but most of us recognise that such a position plays directly into the hands of dictatorship.) This nurturist view is just as wrong as the neo-Darwinist position that *all* behaviour is at root instinctive. Radicals are here in harmony with postmodernism but in direct conflict with nearly all mainstream biological science (keeping in mind that even the most 'objective' science will be coloured by its social and political milieu). The desire to liberate human beings from the fetters of their animal heritage is a noble

one, motivated by hatred of racism, sexism and discrimination of all sorts. But it is misguided. One of the best brief refutations of this position I have seen is a 1997 article in *The Nation*, by Barbara Ehrenreich and Janet McIntosh. They define postmodernism (in this connection) as

... a series of tenets that include a wariness of meta-narratives (meaning grand explanatory theories), a horror of essentialism (extending to the idea of any innate human traits) and a fixation on 'power' as the only force limiting human freedom – which at maximum strength precludes claims about any universal human traits while casting doubt on the use of science to study our species or anything at all.

It may be true, as the Kantian line of thinking goes, that we cannot ever be completely sure about anything; but we can make some pretty good guesses. The theory of evolution, and its accompanying psychological models, have been put to some rather unpleasant uses in the past hundred years, but that history does not invalidate them as theories.

Would it really be so destructive to our self-esteem as a species to acknowledge that we, like our primate relatives, are possessed of an inherited repertory of potential responses and mental structures? Would we forfeit all sense of agency and revolutionary possibility if we admitted that we, like our primate relatives, are subject to the rules of DNA replication (not to mention the law of gravity)?<sup>9</sup>

The answer is, no, we would not – if we take a fresh look at the whole question from Bateson's point of view.

I doubt if there are many people (as yet) who fully comprehend Bateson, and I am certainly not one of them. But the foregoing is perhaps enough to allow a glimpse at his comprehensive epistemology. Morris Berman's tabular comparison of the scientific world-view with Bateson's epistemology might just as well be labelled a comparison of the Western and post-Western paradigms. The latter is holistic, relational, contextual, dialectical and intuitive.

What is the 'goal' of the Western project?

*Conscious, empirical control over nature.*

What is the 'goal' of the new paradigm?

*Wisdom, beauty, grace.*

What is the nature of conscious thought in the Western view?

*Logic is either/or; emotions are epiphenomenal.*

And in Bateson's system?

*Logic is both/and (dialectical); the heart has precise algorithms.*

What is reality?

*Matter and motion.*

Or is it:

*Process, form, relationship.*<sup>10</sup>

Bateson's work must not be regarded as an ideology, not even a post-Western one. 'It is really a stance toward life and knowledge, a commitment rather than a formula'.<sup>11</sup> Nor is it the only avenue to a post-Western worldview: consider Rupert Sheldrake, Hazel Henderson, Arne Næss, or the work of the Scientific and Medical Network.

### THE DECLINE OF THE WEST

A lot of people have seen it coming, some as long as a century ago – Nietzsche, Henry Adams, Herbert Spencer. Oswald Spengler coined the phrase as the title of his 1918 opus. It sounds better in German: *Der Untergang des Abendlandes*, 'the Going-Under of the Evening Lands'. The idea has been satirised ever since.<sup>12</sup> Will Cuppy published *The Decline and Fall of Practically Everybody* in 1950 (or rather his estate did), and Fukuyama's *The End of History* was nearly as funny. Still, the decline is indeed happening, and the pace is accelerating. We are already in the 'post-modern' era, whose philosophies have successfully disengaged from the mechanistic control trip known as Western civilisation but are still in search of a new anchorage. The dialectic between globalisation and devolution, the 'information revolution', and many other changes have been chiefly heralded by corporate capitalism, and perhaps for that reason radicals have tried to ignore the signs. But the coming transformation is likely to prove an unpleasant surprise for the 'suits'. In these first years of the new millennium we can begin to see the dim outlines of a post-Western paradigm – and the potential for an ecological, anarchist world is great, if only we radicals stay alert to the possibilities.

The term 'paradigm shift' has been so misused and trivialised in the past decade or two that it now borders on useless, but nevertheless, that is what is happening now. An entirely new way of looking at and living in the 'real world' is emerging, and, as one might expect, it is growing out of the most unexpected seeds. Some are embracing it, others are rejecting it. Consider the United States, which appears to be retrogressing into a culture of fear and hatred, undergirded by fundamentalist Christianity and lust for power and control. Compare it with the European Union, which is progressing into unknown ideological territory, becoming something that cannot be called a 'state' in the usual dictionary sense. As unpleasant and frightening as the 'old order' has now become, and despite the damage it will probably do to the planet and the race in the next decade, we are (I

hope) looking at its last blaze of glory. Anarchism, like it or not, is a product of that old order, even though it has done much to undermine it. In order to move anarchism forward into the new order of things, we will need to accept certain premises that have been anathema to us: that there is such a thing as 'human nature', with its roots (at least) in genetics and biology; that the right/left dichotomy makes no sense – to name only the two most significant.

This does not mean that the anarchist project is a dead end. Nearly alone among the isms of the past two centuries, anarchism has dared to expose and denounce the foundations of Western (by which I mean Judaeo-Christian European) culture. It has thus been a prime mover in the decline and fall of the current paradigm. The post-Western world, whatever it may look like, will not be a clean break with the past; history after all is dialectical. New systems do not spring *ex nihilo*. They structure themselves out of the flotsam and jetsam of their predecessors. We can assume that the anarchist critique, addressing as it does the constitutional flaws in Western civilisation, will carry over in some form.

Other cultures in the past have brought about their own collapse through ecologically and socially harmful practices, but the Western paradigm has transcended that exemplar: it includes some elements that are potentially fatal to the entire ecosphere. Anarchism, with some help from ecology, feminism, Marxism and a few other radical projects, has identified these and is now in the process of deconstructing them. Whatever can be salvaged from Western anarchism and carried over the nodal line will probably derive from this effort.

### THE RISE OF ... WHAT?

The deadliest Western errors include reification (the belief that the world is a noun, not a verb), dichotomy (mind/matter, physis/nomos), objectivity (a special sort of dichotomy: the observer is distinct from the observed), and most pernicious of all, the belief that domination and hierarchy are normal and natural. Here are their healthier counterparts: bits of wisdom dredged up out of the muck by anarchists and their colleagues. (Such rescue operations are, after all, one reason radical philosophies exist.)

*First:* all cultures are organisms – that is, dynamic systems made up of living interacting individuals – but the West is the only one that is cancerous, obsessed with forcing itself on the rest of the planet. We find domination, hierarchy and other bad habits in non-Western cultures too, but never has it been so aggressive and amoral as in the modern West. This drive to dominate and control takes priority over everything else. It justifies genocide and even ecocide. Ever since its small beginnings in the Putney Debates and the French Revolution, modern anarchism has

declared that the authentic political issue is not *who has power*, but *power itself*. The analysis of domination, lately developed to a high degree by the social ecologists, has revealed one of the ugliest truths about our civilisation: it must grow and devour and control everything. This means the oppression of women, minorities, even nature itself – all that is outside the charmed circle of the ruling élite. Paradoxically, that élite itself contracts as its power expands: more and more belongs to fewer and fewer; that is the measure of success. In our civilisation the form usually taken by domination is called *hierarchy*. The standard image is a pyramid, with a privileged handful at the top and everyone else below, more weight pressing on their backs the closer you get to the base. It was for centuries accepted in the West that the entire universe, like our own culture, was hierarchic. Anarchists were among the very few who disagreed. Recent science and philosophy are proving them right.

*Second:* Western thought separates human beings from the rest of nature. One set of rules (*nomos*) applies to us (and ‘us’ often does not mean *all* humans); another set (*physis*) applies to the rest of the cosmos. This is a good example of what the Greeks called *hubris*, though they did not understand the irony. The pre-Socratic dichotomy of *physis* and *nomos* was probably the first major confirmatory shift within the Western paradigm, and the strongest. By setting itself apart from the world, Western culture took on the right to command, manipulate, exploit, and perhaps ultimately destroy that world. The biocentrism (or better yet, the ecocentrism) of deep ecology is the first clear sign that the *physis/nomos* assumption is undergoing reversal.

*Third:* another sort of false dichotomy, that between physical and mental phenomena, is also basic to Western thought. It can be expressed in any number of ways: matter and energy, gross and subtle, body and mind, material and spiritual. In the realm of psychology, the *physis/nomos* split has generated a vast and profoundly mistaken philosophical edifice. Not only are ‘we’ separate from nature, but a similar dichotomy – that of mind and body – exists *within* us. The belief that the human mind reasons in a vacuum, without reference to the physical body or the tactile and emotional, stems from the pre-Socratics and still dominates Anglo-American intellectual life in the form of analytic philosophy. For many centuries our culture strove to erect a barrier between these two abstractions, and thought it had succeeded in the work of Descartes. Paul Shepard and other radical environmental thinkers saw this problem a long time ago: to view one’s self as disconnected from the messy, chaotic organic world is the very definition of insanity. More recently, the new field of cognitive science has begun to show why this is so. The material world-as-machine held the stage until the end of the nineteenth century, when the dark intuitions of Kelvin and Clausius, Michelson and Morley ripened into the

theories of Einstein. After that, Pandora’s box was wide open, and subatomic physics has now confirmed that even the most solid rock is no more than congealed elusive energy networked across mostly empty space. We now understand that the ‘reality’ of this or that entity or process is a question of perspective; this is what Doctor Johnson did not know when he kicked the rock and said, ‘I refute it thus’. Debate continues as to the essential nature of mind, but everyone agrees that it is *in* the universe, and the universe looks more and more like a Great Thought, as Sir James Jeans perceptively put it some eight decades ago. Scientific hocus-pocus aside, the point is that no objectively meaningful distinction can be made between physical and mental, between the inert rock and our own ethereal consciousness.

It gets worse. The paths opened by the theory of relativity and quantum mechanics led eventually to the principle that the observer participates in or even creates reality. Schrödinger’s cat is neither alive nor dead until we open the box; the electron is both a wave and a particle until we measure it, at which moment it must become one or the other.<sup>13</sup> Cause and effect are reversible; two photons light-years apart seem to influence one another’s behaviour. Popularisation of these very abstruse ideas (expressible only in equations – all verbal explanations are analogues, not reality) has led many, especially among the New Agers, to believe that the ‘real world’ all around us would not exist if we were not here to observe it. The tree that falls in the forest makes no sound unless I am there to hear it; in fact, *you* don’t exist unless I am interacting with you (as when you read this article, for example). This sort of narcissism, typical of the last stages of our moribund culture, is not entirely unreasonable: after all, if it’s true of subatomic particles, why isn’t it true of trees, which are made of subatomic particles?

But it isn’t, or not quite. The physical world is (to the best of our knowledge) objectively real, and would be here if human consciousness had never evolved to observe it. However, we do not have direct access to that reality. We can perceive it only through the medium of our senses, which alter it in many ways – gross and subtle – as they transmit information to our minds. In this sense, the tree does only make a sound if I am there to hear it fall, because the sound waves produced need to impinge on an eardrum in order to ‘make sense’. And if you and I are both there, we will not hear *precisely* the same thing, both because of differences in our sense of hearing and because of the subtly different cultural-psychological implications (Learning II) that we give to that particular sound.

*Fourth:* arising from the matter/energy dichotomy, our habit of *reification* is another of the props now being pulled out from under Western civilisation. Language plays a part here: in all the Indo-European tongues nouns are primary, verbs secondary; we are forced to give the object prior-

ity over the process. Do this through enough generations, and you will have a culture that has not only lost sight of dynamic connections, but actually reifies processes into concrete things. In English we have ‘a house’, but in the Iroquoian languages, ‘it houses’. That our noun-obsessed way of looking at the world is an error is what Heraclitus was trying to tell Parmenides; but he was battling a linguistic tide, and he failed.

How do we extract a segment of process and reify it as an object, a ‘part’ of some whole? Systems theorist Paul Weiss says: ‘We watch the complex move relative to its more variable background, and if we find that it is not perceptibly altered by the translocation, we venture to treat it as independent of its environment’.<sup>14</sup> The key words here are *relative*, *perceptible*, *background*, *environment* – all are arbitrary concepts. Our habits of thought compel us to pick out certain variables and come to some conclusion based on how much, in our perception, they vary. Think about this for a few moments, and you will realise what a flimsy pretext we use for distinguishing ‘parts’ and ‘wholes’, ‘objects’ and ‘processes’. The anarchist Paul Goodman, writing in the context of Gestalt psychology, makes the same point.

While our habits of reification and dichotomisation do give us a false picture of the world, they are not entirely arbitrary habits. The universe does not exactly consist of individual discrete objects, but on the other hand, neither is it a seamless undifferentiated whole. If that were the case, even the simplest arithmetic would not work. Right now, I see three 3.5-inch floppy disks on the computer desk beside me. Definitely three, not twenty-seven, and conversely, not a single entity that somehow expresses ‘threeness’. I am quite aware that the diskettes are impermanent – there was a time, and will be a time, when they do not exist; the subatomic particles of which they are comprised flash in and out of existence far more rapidly than I can comprehend; and what appear to be their ‘boundaries’ are in fact vague and indefinite. But surely not arbitrary, and not even ‘Western’ – a Chinese person, or even an intelligent grey parrot, would also count three disks.<sup>15</sup> But wait a moment: I also know that the principles of arithmetic – the rule that says, for example, if I take away one disk, two will remain – cannot be verified without stepping ‘outside’ arithmetic and imposing on it additional axioms, which would then themselves have to be verified by even more axioms outside that larger system, and so on – this is Gödel’s ‘incompleteness theorem’, which undermines the objective certainty of all of logic, mathematics and philosophy. We are left with the only possible conclusion: that while my reification of those three disks is logical, rational and not arbitrary, it is only so within the framework of the larger system of consciousness generated by our brains (and, presumably, the brains of similar creatures). This is all just a roundabout way of

saying that we have a cognitive relationship with the world around us which *works*, and for all practical purposes (that is, within the limits set by Learning II) it does not matter whether our cognitions are *true*. What *does* matter is to remember (i.e., Learning III) that the relationship is not fundamental, not ordained by God or by any so-called laws of nature. We can choose to conceptualise and deal with our environment in ways that are constructive, or destructive. We are just beginning to discover which is which. This is why a post-Western anarchist worldview requires a healthy respect for science alongside a consciousness that scientific principles may not be objective and universal.

*Fifth*: our culture teaches us that the universe and everything in it behaves according to certain quite definite rules – whether laid down at the creation by God or the gods, or by the structure of matter and energy. These are now usually called the *laws of nature*. Perhaps the most significant discovery of twentieth-century science is a very simple one – and not really a discovery at all; the ancients knew it. Nature is not governed by rigid immutable principles: what we call the ‘laws of nature’ are really just guidelines, flexible and somewhat fuzzy around the edges. Between the abstract principle and the real world of atoms, mountains and human brains lies a realm of indeterminacy and chaos. Chance interacts with necessity, generating our reality. If this were not the case the universe would be either cold, dead and unchanging, or completely random – and in either case, we would not be here to talk about it. The belief in immutable laws, foisted on the world by the Cartesian-Newtonian scientific paradigm, is one of the prime sources of Western civilisation’s mechanicism and its habits of dichotomy and reification.<sup>16</sup> It is what makes possible the accusation that anarchism is ‘chaos’, as if no middle ground were possible between absolute order and absolute disorder. Hence a post-Western, anarchist science will have to bring chaos theory and indeterminacy to the forefront. This is already happening at the cutting edge of subatomic physics; all we need to do is apply these ideas to the macroscopic world of human society and ecology. This is not to suggest that the macroscopic world of rocks and human beings is subject to the same chaos and indeterminacy we find at the quantum level; rather, I mean that we need to jettison the ‘either/or’ mindset induced in our culture by classical physics. This is where Bateson can help.

Einstein’s theories of relativity were, of course, the opening wedge in the scientific assault on the Newtonian paradigm. The very word ‘relativity’ is frightening to some people, those who find comfort in the absolute imperatives of Catholic dogma or fascist social engineering. But even Einstein did not foresee how far the unravelling would go: from Heisenberg’s indeterminacy principle to today’s chaos theory. The latter is quite a simple idea: small changes in initial conditions can lead to vast

changes in eventual outcome, and these changes are predictable only up to a point. Our inability to predict what a system in chaos will do next (for instance, next month's weather) is not due only to lack of data or imprecise instruments; the indeterminacy is fundamental. In any complex system, the effects of chaos are limited; even the wildest weather eventually returns to a state near equilibrium. One anarchist preaching in the wilderness will not bring down authoritarianism, but many anarchists ... my point is that chaos theory can help us understand how destabilisation works, and at the same time remind us that the results of our efforts may not be predictable. Well-established scientific examples of indeterminacy abound, and some have been around since long before chaos theory: take the 'three-body problem'. Newton himself lost a lot of sleep over this one. It is fairly easy to predict mathematically how the gravitation of two large bodies (like the Earth and Moon) will interact; we can forecast the consequent wobbles in their orbits very precisely. But add a third large body (say, the Sun) and the calculations become astonishingly complex, and precision is literally impossible (though computer models have come close). The French mathematician Henri Poincaré suggested more than a century ago that we cannot solve the three-body problem because we cannot know the initial conditions. This was the genesis of chaos theory (though we can find its antecedents even further back, in the first Renaissance efforts to understand the eccentric orbits of the planets).

The list could go on, but it should be clear by now what is shared by all Western delusions: the notion of *dichotomy*. Anarchism, or at least we anarchists, are uniquely suited to address this fallacy. We have already learned from the ecologists and the feminists that to *separate* A from B gives A permission to *dominate* B. This realisation has vastly expanded our analysis, which for earlier anarchists embraced only the political domination of one socio-economic class by another. We are now called upon to take the analysis a step further – a big step, all the way across the paradigmatic abyss. What we must do is analogous to what the classical anarchists accomplished when they demonstrated that the evil of government comes not from who holds power, but from power itself. We must explore this idea: knowing what people or things are separated by dichotomies is less significant than the false and malevolent idea of dichotomy itself. Dichotomy will have to be deconstructed.

This will not be an easy or painless task. Some of the principles we radicals cherish most highly are founded on dichotomy: the free and autonomous individual, inherent and inalienable rights, justice, common *versus* private property. Even democracy assumes a distinction between 'the people' and some other mysterious authoritarian entity that is somehow *not* the people. If we expect to maintain these ideals we will have to found them on a new basis, one that fits the post-Western view of the

world. It is encouraging to remember that many indigenous people, without benefit of Locke or Mill or even Bakunin, have been able to sustain a high level of individual freedom and human dignity. Unfortunately we cannot shed our culture like an old suit of clothes and become Hopi or baMbuti overnight. The emerging paradigm is dialectically engaged with the dying West, and whatever else may happen, we are not free to start from scratch.

So what benefits can we expect from shucking dichotomy? The greatest will be the abandonment of the 'left' and 'right' straitjacket, a dichotomy which has long kept radicals from facing the truth about science and human nature. Steven Pinker and other critics on the right are quite correct when they accuse the left (libertarians, Marxists, anarchists) of cutting their own ideological throats when they deny that human nature is largely inherited and 'hard-wired'. Peter Singer suggests that we bow to the inevitable and strive to create a 'Darwinian left'. This is a good start, but it will go nowhere if we continue to embrace (as most of us do, unconsciously) the deadly assumptions upon which the Western psyche stands. We will have to turn our backs on many of our 'heroes', those scientists and philosophers whose work has long shored up the shaky foundations of the traditional left. Pinker is right: there is no blank slate, no ghost in the machine, no noble savage. Margaret Mead was wrong about the Samoans; Ashley Montagu was wrong about human instinct; Durkheim was wrong about the group mind. Even the anthropologist Alfred Kroeber – father of the post-Western prophet Ursula Leguin – was wrong when he wrote that 'Heredity cannot be allowed to have acted any part in history'.<sup>17</sup> More painful still, we must concede that many people we dislike appear to be largely right about human nature: E. O. Wilson, Richard Dawkins, Daniel Dennett. However, it looks more and more as if many of the anarchists were right too: Bookchin, Chomsky, above all Peter Kropotkin. But here is the key point: these thinkers are right *when they look above and beyond Western categories and conceits*, not when they take sides in the political brawl that has poisoned modern science.

So let's move on. If we can get over the right/left barrier, we can take what we need from philosophers and scientists across the whole spectrum, and begin to craft a society that (by current standards; the definitions will change) will still look 'left'. This may sound like a contradiction, but it isn't: those of us who believe in equality, freedom, human rights and compassion have always been 'in the right' (as opposed to 'on the right'), even if we have tried to support our intuitive conclusions with bad science and shaky logic. If you have a sound house built on a weak foundation, it is probably worth your while to try and replace the foundation, tricky and expensive as that may be.

We can now summarise the principles that must underlie post-Western

anarchism, keeping in mind that it may be risky to root political and social ideas in an always-evolving scientific soil. We cannot assume that evolutionary biology and cognitive science have spoken the last word on what it means to be human, but we have to work with what we've got. First, and most obviously: any ideology which claims to describe the 'best way' to organise human society must be based on an accurate conception of human nature. Anarchism, and all other 'isms' of the left, have long been handicapped by a view that originates with Locke and projects into psychology and sociology through Durkheim, Boas and others who claimed that human nature is virtually non-existent, and that we can formulate scientific laws that describe the way human societies work. If these two claims are true, then human nature and society are almost infinitely malleable, and can be 'engineered' to make a better world. This view has been pretty much proved wrong, leaving the Left philosophically adrift and increasingly panicky as it finds itself unable to respond to criticisms from the Right.

As we are unwilling to sacrifice our anarchist principles, we must swallow our pride, accept those criticisms as valid, and move on to put anarchism on a sounder footing. We must accept the fact that human nature is essentially Darwinist, though keeping our minds open to alternative views and the possibility that future research may come up with models of human behaviour unimaginable to us now. We must accept, on the basis of the best information now available, that the foundations (though not the superstructure) of the human mind are hard-wired and nearly unalterable. At the same time, we must argue that while the scientific principles embraced by the Right are generally correct (brain physiology, behavioural genetics, sociobiology and cognitive science), the conclusions which the Right draws from those principles are wildly off target. Why? Because they are formulated through the use of a logic that is essentially flawed: a logic that reifies process, dichotomises reality, and distinguishes between the observer and the observed. Proof that this logic is unsound has come from systems theory and quantum physics, and is only very slowly spreading into other disciplines; it has scarcely impacted at all (yet) on the public consciousness. Anarchists need to take the lead in helping to accelerate that spread.

Anarchism is by definition a post-Western idea, and as such, it can carry over the bifurcation point we are now approaching without much alteration. Indeed it is one of the principal 'chaotic attractors' (along with feminism, environmentalism and to some degree Marxism) which has pushed Western civilisation toward that paradigmatic crisis. A cursory look at the history of the past two centuries, from a systems viewpoint, shows that Western civilisation began to show signs of disequilibrium in the late eighteenth century, with the American and French Revolutions.

Earlier events, such as the scientific revolution and the Reformation, were certainly 'attractors' as well, but not powerful enough to destabilise the system. In fact they helped strengthen it: for example, the new science flourished in the service of capitalism. (This is what systems theory calls a confirmatory shift.) But out of the revolutionary era came socialism, feminism, anarchism and other new 'isms' that challenged some of the deepest-laid foundations of our culture: patriarchy, domination, hierarchy. In the past century we have begun to see serious wobbles in Western civilisation, with side effects both fortunate and unfortunate: radical environmentalism, the Holocaust. These are symptoms of an imminent collapse, and we anarchists need to be prepared to take a leading role in the new culture that will emerge.

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## NOTES

1. Thomas S Martin, 'Steps toward a Post-Western Anarchism', in *Social Anarchism*, 23 (1997) and 'Anarchism and the Question of Human Nature', in *Social Anarchism*, forthcoming.
2. Morris Berman, *The Reenchantment of the World* (Ithaca: Cornell University Press, 1981), 196.
3. *ibid.*, 199.
4. *ibid.*, 229ff.
5. Humberto R. Maturana and Francisco J. Varela, *The Tree of Knowledge: The Biological Roots of Human Understanding* (Boston: Shambhala, 1992), 48-49.
6. William Cronon, ed., *Uncommon Ground: Rethinking the Human Place in Nature* (New York: W. W. Norton, 1995), 415, 416.
7. Berman, *Reenchantment*, 250-251.
8. Cronon, ed., *Uncommon Ground*, 35.
9. Barbara Ehrenreich and Janet McIntosh, 'The New Creationism: Biology Under Attack', *The Nation*, 264:22 (June 9, 1997), 11-16. *The Nation* is the United States' oldest and most respected left/liberal news journal. Ehrenreich is a prominent democratic socialist and author of many books; McIntosh was a graduate student at the time this article was written, and is now a cognitive anthropologist teaching at Brandeis University.
10. Berman, *Reenchantment*, 238.
11. *ibid.*, 233.
12. And dismissed, by apologists for the failed Western paradigm. 'If that [Spengler's book] was the handiwork of western civilisation, its demise was not only sure but also not to be regretted'. Jacques Barzun, in *From Dawn to Decadence: 1500 to the Present: 500 Years of Western Cultural Life* (New York: HarperCollins, 2000), 744.

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13. I recognise that a number of alternative explanations have been put forward to address this and other apparent quantum paradoxes; the point here is simply that the 'new physics' poses many questions that simply cannot be answered within the Western scientific paradigm.
14. Weiss, in Arthur Koestler and J. R. Smythies, eds., *Beyond Reductionism: New Perspectives in the Life Sciences* (Boston: Beacon Press, 1969), 6.
15. The question of whether mathematics is a human construct or an objective reality is a can of worms larger than I can open in this brief article. See David Bloor, *Knowledge and Social Imagery* (Chicago: University of Chicago Press, 1991). Thanks to Brian Martin for telling me about this fascinating book, as well as his own 'Mathematics and Social Interests', in *Search*, Vol. 19, No. 4, July-August 1988, pp. 209-214.
16. Newton's more abstruse equations do suggest chaos theory, but as he was obsessed with finding its opposite, he did not see the implications.
17. Quoted in Steven Pinker, *The Blank Slate: The Modern Denial of Human Nature* (New York: Viking, 2002), 23.

### FURTHER READING

Readers interested in learning more about Gregory Bateson are referred to his three most significant and accessible works: *Steps to an Ecology of Mind* (1973), *Mind and Nature: A Necessary Unity* (1980), and *A Sacred Unity: Further Steps to an Ecology of Mind* (1991).