THE ANTHROPOCENE CRISIS AND HIGHER EDUCATION: A FUNDAMENTAL SHIFT

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ABSTRACT

This article seeks to address a fundamental shift that has occurred in reality; a displacement that requires us to critically account for the ways in which knowledge is both being produced and taught at universities. The recent re-naming of the current geological epoch after a*nthropos* has some chilling implications for humans and the ecosystems on which their livelihoods depend. As pedagogues, the crisis of the Anthropocene demands that we make drastic interventions in the way we teach and in what we teach. My aim is to suggest ways in which Deleuzoguattarian schizoanalysis, intersecting as it does with critical posthumanism, the affective turn and the new materialisms, might assist us in this process of crafting socially and environmentally-just pedagogies that are relevant to the contemporary situation. In so doing, I will address some of the uncanny ethical, ontological, epistemological and affective configurations of these theoretical perspectives to show how these ideas may impact the curriculum of socially/environmentally just pedagogies and the practice of such pedagogies in higher education.

Keywords: Anthropocene, Capitalocene, Anthrobscene, Cthulucene, transversal thinking, the uncanny, schizoanalysis, critical posthumanism, machinic enslavement, capitalist realism, transdisciplinarity, onto-epistemology, 6th extinction, Deleuze and Guattari

INTRODUCTION

The Anthropocene could be described in terms of 'learning to live in blasted landscapes' and 'coping with life in the aftermath of global anthropogenic disasters' (Kirksey, Shapiro and Brodine 2013, 15). The uncanny spectre of life thrown out of balance by the actions of *anthropos* requires, as a matter of urgency, new approaches to both ontology and epistemology. This article will discuss ways in which we might foster 'transversal thinking' – a concept that is central to Deleuze and Guattari's formulation of schizoanalysis. This 'onto-epistemology' (a way of being and thinking) favours inclusiveness, flexibility, mutability and multiplicity, acknowledging the entangled kinships between humans and a multitude of non-human others. Such an uncanny aesthetic formulation, moreover, requires coming to terms with uncomfortable knowledge about the unhinged world that humans have brought into existence.

Donna Haraway's slogan 'Cyborgs for Earthly Survival' (2015, 161) gets to the core of my suggested schizoanalytical or transversal approach. To be a cyborg in Haraway's sense does not mean to be a 'man-machine' but rather to be symbiotically alive to a multiplicity of nonhuman critters and things. As Karen Barad (2007, 136) explains, being a posthuman cyborg means fostering a type of transversal thinking that takes 'issue with human exceptionalism while being accountable for the role we play in the differential constitution and differential positioning of the human among other creatures'. Such a perspective implies a keen sense of the uncanny because it requires a critical engagement with the unfamiliar, strange and uncomfortable. It requires us to untangle our familiar world of hierarchical and binary constructions and to consider the strange, intensive and entangled world of affects we share with animals and things. According to Isabelle Stengers (2015), the arrival of the Anthropocene, the so-called 'age of man', is in itself uncanny, requiring that we engage with difficult knowledge and 'stay with the trouble' as Haraway (2015b) would put it, taking cognisance of the damage we have already done and might yet do to the network of life we find ourselves inextricably embedded in. As Stengers (2015) writes, a fundamental 'reality shift' is taking place – and has been taking place for a long time already. A schizoanalytic approach, as I will argue, forms a useful navigational tool for mapping the stormy waters of this reality shift in the classroom.

THE ANTHOPOCENE CRISIS

We are no longer in the Holocene, a geological epoch that began 11 500 years ago with the ending of the cycle of Pleistocene ice-ages. Since the advent of industrial capitalism, we have been in the Anthropocene, a geological epoch wholly shaped and characterised by accelerated human impacts on the lithosphere, hydrosphere, atmosphere, and biosphere of planet Earth. As Haraway (2015, 160) explains, the Holocene named 'a period when refugia, places of refuge, still existed, even abounded, to sustain reworlding in rich cultural and biological diversity', whereas the Anthropocene 'is about the destruction of places and times of refuge for people and other critters'. Human beings 'have so altered the planet in just the past century or two that we've ushered in a new [geological] epoch' writes Elizabeth Kolbert (2011, 70). Indicators of the Anthropocene include a spike of 'bacterial' proportion in human population and resource consumption, the chemical alteration of the world's atmosphere and hydrosphere as well as massive losses of biodiversity and ecosystem degradation that are so profound that scientists now accept the reality of an ongoing 6th mass extinction of biological life (Kolbert 2011, 73). The situation is so dire that scientists believe that losses (of biodiversity and ecosystems) will

surpass the voracity of the 5th major extinction event (the asteroid impact that killed-off the dinosaurs 65 million years ago) within the next few decades. Furthermore, as Stengers (2015) writes, we are incontrovertibly at the end of 'cheap nature' and all that this implies for economies, societies and institutions. As Haraway bluntly explains, 'cheapening nature cannot work much longer to sustain extraction and production ... most of the reserves of the earth have been drained, burned, depleted, poisoned, exterminated, and otherwise exhausted' (2015, 160).

In his science-fiction novel *2312* (2012), the author Kim Stanley Robinson refers to the current state of Anthropocene affairs as 'the dithering'; a name that recalls the entrenchment of our current global economic system and our refusal to accept and deal with the realities of climate change, biosphere destruction and all the weighty implications of these destructive scenarios (see Beauchamp 2013; Haraway 2015a). This begs the question: how are we as academics coping with the capitalist system of unquestioned consumerism that is hastening extinction or engaging with the phenomenon of the Anthropocene (if in fact we are engaging with these issues at all?). More pertinently for this publication, how are we preparing students for collapsing worlds (societies, economies, environments, etc.) – realities that do not lie in some distant future, but in the here and now.

Machinic enslavement

While many students, particularly first generation learners in South Africa, may lack access to nutritionally adequate meals or appropriate living and studying conditions (let alone post-university employment opportunities and viable economic futures), an increasingly large number have access to televisions, cellphones or smartphones and, of course, capitalism's mediated dreams of consumer oblivion. As Deleuze and Guattari (1988, 457) would have it, new technological networks have both 'deterritorialising' and 'reterritorialising' effects; while freeing or deterritorialising us, they reterritorialise or embedd us more firmly in a culture of 'machinic enslavement' in which we effectively think and act as automatons. Manuel Castells (1996) describes how the networked communication media of late capitalism create the illusion of a seamless 'ever present' and a global culture of 'real virtuality'. All, of course, is not well with our 'seamless ever present', which has, in fact, been hard-wired for constant socio-economic instability. While South Africa is currently experiencing a crippling drought (threatening both food security and, potentially hundreds of thousands of jobs) as a result of global warming-related El Nino effects, the spectre of globalisation-related socio-economic instability (such as a devalued currency, escalating costs of living and collapsing job-markets) looms large (and often unspoken) in our classrooms. While Paul Virilio (2009) writes about

how technological networks numb consumers to the true scope of capitalism's apocalyptic impact on nature, society and individuals, Jean Baudrillard (1994) theorises the noxious impact of 'hyperreality'; a technological apathy or mediated 'brain fog' that spreads, virus-like, with communications media, smothering the globalised world in a haze of simulacra and consumer oblivion. Mark Fisher (2009) refers to the impact of this mediated hyperreality as 'capitalist realism' – a 'mental disorder', the symptoms of which manifest in higher education institutions in the form of apathy, cynicism and mental agitation. 'The slogan which sums up the new conditions is "no long term"', writes Fisher (2009, 32), warning that the biggest problem for contemporary students and pedagogues may be the pernicious impact of technological networks on critical faculties. 'What we in the classroom are now facing is a generation born into ahistorical, anti-mnemonic blip culture'; a 'dyslexic', or rather a 'postlexic' generation 'who process capital's image dense data very effectively without the need to read' or even think (2009, 25). Coupled with new post-Fordist modes of capital, production and labour, the complex connectivity engendered by the 'networked space of flows' (the globally interconnected system of electronically-based financial transactions, telecommunications networks, television, social media, the internet, etc.) has generated, as Castells (1996, 436) writes, an uncanny experience that is 'globally connected but locally disconnected'.

The space of flows has engendered an uncanny temporarility; a radically unstable geopolitical situation in which anything can happen at any time, it can happen very rapidly, and its sequence will be independent of what goes on in the places where its effects are felt. As David Bell (2007, 77) notes, time as well as space have become 'accelerated, randomised and desequenced', upsetting the 'former rhythms of life'. Today, in the minds of many theorists, economists, politicians and pedagogues, we have the situation of a state of wild ontological and epistemological disorientation, combined with a deadly sense of paralysis. In the background, which frequently morphs into the foreground, there is the uncanny spectre of immanent biospheric and socio-economic collapse. In short, the very fabric of life (both ecological and social) is under threat. These socio-economic, cultural and pedagogical issues foreground the arrival the Anthropocene, 'a new epoch of the earth', as James Proctor (2013, 83) writes, 'in which nature [including human nature] is no longer as natural as it once was (or seemed)'. At the root of the problem are outdated and problematic 'notions of nature' and 'what it means to be human' that inform dominant paradigms of knowledge production, technoscientific innovation and cultural/economic practice (2013, 83). At stake are questionable (one might, in fact, say highly poisonous) conceptions of progress and human exceptionalism which are promulgated, often unquestioned, in subjects and disciplines that span the arts/humanities and

the sciences. Welcome to the Anthropocene or, as Haraway (2015b), Stengers (2015) and many others would describe it, the 'Capitalocene'.

SCHIZOANALYSIS AND THE UNCANNY

In *Anti-Oedipus* (1983), Deleuze and Guattari conceptualise 'schizoanalysis' as a critique of the normative models of industrial capitalist society and its flawed socio-political and eco-social engagements. Concerned with how learned patterns of behavior are inherited from and promulgated unquestioningly by educational institutions and socio-political regimes, they set out to discover new means of mapping cognitive and affective processes and configurations, both at the level of the individual and at that of the social. As they explain in *Anti-Oedipus'* sequel, *A thousand plateau*s (1988), while capitalism erodes or deterritorialises traditional hierarchies, promising to give ever greater numbers of individuals access to self mastery and material comforts, its' relentless decoding of social and eco-social relations gives way to a new set of reterritorialisations or rigorous and constraining contours, bringing into play a new 'megamachine' of cybernetic control, 'machinic enslavement' and environmental destructiveness. They ask readers to uproot themselves from social/institutional conditioning, tease out the 'intangible' and unconscious sets of poisoned affective disorders that govern their 'enslavement' and to use the insights gained from this process of conceptual deterritorialisation to engender radical social and pedagogical transformations. Guattari explains the schizoanalytical agenda thusly: 'Without pretending to promote a didactic program, it is a matter of ... escap[ing] the systems of modeling in which we are entangled and which are in the process of completely polluting us, head and heart' (1996, 132).

In *A thousand plateaus* (1988) Deleuze and Guattari demonstrate how a multitude of insights and approaches from different disciplines and forms of knowledge may come unexpectedly together. Key to their suggested program of schizoanalysis or transversal thinking is an aesthetic perspective open to transports of affect and sudden flashes of insight; one that apprehends reality as a multileveled and polyphonic whole made from interlocking parts. Guattari (2002) emphasises that what is needed, above all, is to foster greater interactivity, participation, and spaces for cultural minorities as well as alternative models of thought and action. To think and teach transversally or schizoanalytically, he writes (2002), means having the courage to map the entangled, unspoken, uncanny and uncomfortable relations that characterise modern machine-mediated consumer society.

But what does it mean to be shizoanalytical and to engage with uncanny transdisciplinary entanglements? In *A thousand plateaus,* Deleuze and Guattari (1988, 69) ask that we 'consider

the strata' of knowledge production (the hierarchical division of knowledge into subjects and disciplines) and realise that 'there is no fixed order':

> ... one stratum can serve directly as a substratum for another ... or the apparent order can be reversed with cultural or technical phenomena providing a good soup for the development of insects, bacteria, germs, or even particles. ... Furthermore, if one considers the plane of consistency we note that the most disparate of things and signs move upon it: a semiotic fragment rubs shoulders with a chemical reaction, an electron crashes into a language, a black hole captures a genetic message, a crystallisation produces a passion, the wasp and the orchid cross a letter. There is no 'like' here, we are not saying 'like an electron', 'like an interaction', etc. The plane of consistency is the abolition of all metaphor; all that consists is *real*. There are electrons in perversion, veritable black holes, actual organites, authentic sign sequences. It's just that they have been uprooted from their strata, destratified, decoded, deterritorialised ... and that is what makes their proximity in the plane of consistency possible. A silent dance.

Schizoanalysis is a Deleuzoguattarian term for the type of uncomfortably strange and unfamiliar onto-epistemological 'mixing' that lies at the core of the new materialist and critical posthumanist approaches to knowledge, some of which I will be discussing presently. Their 'thousand plateaus' are new diffractive languages with which to express the immanent, multiplex, schizophrenic, transversal and entangled 'natures' of human relations to the world. These entail crafting new onto-epistemological assemblages by ranging across multiple areas of learning and ways of perceiving; cross-pollinating the jargon of molecular biology with that of literature, philosophy, chemistry, physics, philosophy, economics, anthropology, psychology, etc. With this in mind, Joni Adamson, MeiMei Evans and Rachel Stein write that 'education which aims to be environmentally just' and in line with the new approaches to knowledge must 'translate the mantra of ecology (*all is connected*) into a web of concrete relations that includes not only ecological but cultural, economic and political processes' (in Adamson, Evans and Stein 2002, 11). There can be no socially-just pedagogy, for example, that does not take cognisance of environmental, historical, economic and scientific concerns. My own approach to teaching posthumanly encourages students to think schizoanalytically or transversally by foregrounding history, society and science as outcomes of attitudes toward and relationships with the environment in which individuals, cultures, animals and things are inextricably embedded. I present students with a series of interconnected readings that explore geology, biology, anthropology, history, science, sociology and economics in relation to the environment (and to ontological and epistemological constructions of familiar binary oppositions such as self/other, nature/culture and, of course human/world). Environmental justice is a core issue that lies at the heart of contemporary (post)humanities; one that permeates (albeit silently) all existing disciplines and facilitates connections to be made between them. It may, in fact, spore a raft of new disciplines in the near future (and it may emphatically need to

if our species is to survive).

In *The uncanny* (2009), Nicolas Royle argues 'for the importance of notions of the uncanny as a way of beginning to think about culture, philosophy, religion, literature, science, politics *in the present*' (2009, 22). Like Deleuze and Guattari, Royle calls for a form of transversal thinking and doing that is able to navigate between multiple areas of knowledge and practice. Such an uncanny onto-epistemology, he writes (2009, 3), is necessary for coming to grips with the contemporary state of affairs; 'a situation in which we appear to have mastered nature, yet are taking the world to pieces in ways and speeds beyond our control'. This is a difficult and entangled paradox that we need to schizoanalytically explore in the classroom by referring to interconnected examples from a broad array of fields and disciplines. We should stay with the trouble when we seek to engage students with the entangled question of ethical and environmental responsibility; in short, we should engage students by fostering an uncanny aesthetic approach to learning and knowledge. As Royle (2003, 2) explains, the uncanny has to do with the unfamiliar; a sense of creeping strangeness located in ontological and epistemological disturbance – 'a crisis of the natural, touching upon everything that one might have thought was "part of nature": one's own nature, human nature, the nature of reality and the world'. Part of the uncanny, he writes (2003, 8) is realising that we, along with our students, are caught up and implicated in the very processes we are trying to comprehend. As posited most famously by Freud building on the work of Jentsch, the uncanny is to do with what Deleuze and Guattari would later describe as schizoanalytical deterritorialisation. It is about the *unheimliche* (literally, the 'unhomely'); a sense of being 'lost in the world' that assaults us when the familiar is rendered unfamiliar, when the boundaries that separate nature from culture, animate from inanimate, individual from collective, living from dead, embodied from disembodied, or the future from present or past are suddenly agitated (2003, 2). More importantly, the uncanny is also about experiencing the sudden flashes of insight that accompany seeing the familiar in an unfamiliar light (2009, 3). These are all useful points of departure that should be considered when constructing Anthropocene-appropriate curricula. After all, these questions directly address the uncanny agency of *anthropos*, the 'classically-framed' (hu)man that finds himself suddenly embroiled in 'a strangeness given to dissolving all assurances about [stable] identity' (2003, 9). The uncanny as Royle explains, is when 'one tries to keep oneself out [of the trouble], but one cannot ... [when] the escape clause is confounded' (2003, 10).

Ronald Barnett (2005) maintains that the notion of strangeness promises nothing less than a 'new universal' for the university in an age of supercomplexity. Teaching in this vision works

in 'strange spaces', becoming focused on 'the production of human capacities ... for the personal assimilation and creation of strangeness' (2005, 795). An uncanny climate of global uncertainty calls for an urgently-needed ontological turn in higher education; a greater concern with the nature of being in relation to teaching and learning, and a nurturing in students of the ability to live with precariousness. The Anthropocene, he writes (2007, 1) calls for a fluid and entangled schizoanalytical pedagogy 'that opens up unfamiliar spaces and calls for a will to learn even amid uncertainty'; a pedagogy which encourages students 'to come into new modes of being'. For Royle (2003, 52) too, 'intellectual uncertainty' – central to many understandings of the uncanny – is something generative, exhilarating and 'a crucial dimension of any teaching worth of the name'. As Sian Bayne (2008, 197) writes, 'volatile, unfamiliar spaces for learning perhaps materialise and to an extent *literalise* the idea of "awkward spaces" – when used well, they open to us vibrant new domains where generative intellectual uncertainties might be nurtured'.

Critical posthuman and new materialist pedagogical perspectives

Despite the entrenchment of *anthropos* in the mediated machineries of the Capitalocene, there are, in fact, numerous maps of new and exciting posthuman territories; science-fictional mazings that might lead us away from catastrophe. The well-defined and well-disciplined intellectual boundaries between humans, other lifeforms and matter itself have indeed been collapsing since the dawn of the information age and its networked space of flows. As feminist new materialist author (and practicing scientist) Karen Barad (2007, 27) reminds us, advances in physics, chemistry and molecular biology as well as 'the recent convergence of biotechnologies, information technologies and nanotechnologies [are] reconfigur[ing] the human and its others so rapidly that it is already overloading the circuits of the human imagination'. Like Deleuze and Guattari, new materialists like Barad and Jussi Parikka as well as critical posthumanists like Rosi Braidotti, Iris van der Tuin and Haraway foreground entanglements and interdependencies between disciplines, histories, temporalities, bodies and things, natures and cultures.

As with Deleuzoguattarian schizoanalyis, critical posthumanist and new materialist perspectives ask us to consider the uncanny dimensions of uncomfortable knowledge and to be at ease with precariousness. Critical posthumanism as Barad (2007, 136) reminds us, should not be understood as some 'postmodernist celebration' of the 'death of the human' or 'the next stage of Man'. Rather, as Haraway (2015a, 160) concurs, it asks us to consider the 'dynamic ongoing sym-chthonic forces and powers of which people are a part, within which ongoingness

is at stake'. Critical posthumanists or 'compostists' (a term implying a radical schizoanalytical 'mixing together' that Haraway substitutes for posthumanism) inhabit the 'Cthulucene' as opposed to the Anthropocene or Capitalocene. Cthulucene, as a term, not only recalls the dreaded 'tentacled ones' of pre-civilised myth, but also inheres in the wonderfully bizarre and radically entangled complex interspecies networks of our living present that contemporary studies in molecular biology are beginning to unravel. For Haraway (2015a, 160), the Cthulucene, describes the task of posthumanist pedagogy as a process of uncanny transversal engagement; an 'intense commitment and collaborative work and play with other terrans, flourishing for rich multispecies assemblages that include people'. Clearly, there is a dire need to schizoanalytically explore the uncomfortably uncanny entanglements of nature and culture as well as the roles played by false cultural 'dicho-tomies' or 'cuttings apart' (Barad 2014, 168) that are central to the manufactured reality-constructs of the Anthropocene. We need to investigate how we got into this anthropocentric fix, writes Kim Stanley Robinson (in Beauchamp 2013, 1), suggesting 'Raymond Williams's idea of the residual and emergent' as a useful thinking and pedagogical tool. Using this method in the classroom, we would trace aspects of the 'present in the past and future'; detecting the present as emergent from the past, we would investigate 'what is emerging now', and speculate about what might persist and 'be in the future a residual' (Robinson in Beauchamp 2013, 1). Iris van der Tuin, referring Deleuze, urges pedagogues to develop a take on the past as active and ongoing. A 'virtual past is a past considered ontologically', she explains (2014, 232); a past that is 'a condition of the passage into the living present' where we might enact new epistemologies. She describes the forging of a critical posthuman and new materialist onto-epistemology by which we think and teach, 'without presupposing dualist structures such as subject and object, word and world, nature and culture' (2014, 233). Engaging with these kinds of speculative fabulations or 'thought experiments' via our prescribed materials, assessments and classroom debates is key to what Guattari (1995, 1996) refers to as 'ecosophy' or 'chaosmosis'. The gist of chaosmosis is an approach that it at ease with uncertainty and radical otherness; it is what Robinson (in Beauchamp 2013) refers to as a transversal and schizoanalytical process of thinking about and fostering the formerly unthinkable; namely, 'just, inclusive and sustainable human interactions with the biosphere and each other'.

Neither immaterial or infinite: the value of thinking *post* or *beyond* the human

New-materialist and critical posthumanism turns in theory have, as Sean Cubitt (2015, 1) writes, encouraged scholars and pedagogues to consider the entangled 'materials and technical

affordances' of devices, desires and cultural productions. As Parikka explains (2014, 37), the 'immaterial sphere of information' (namely, the mediated space of flows, 'cyberpsace' or the 'information super-highway' of cellphone, internet, financial and televisual networks) is, of course, quite untidily embroiled with the social, the environmental and the deep-time of geology. The energy resources and materials that have made postmodern cyberspaces possible are gathered from exhaustible geological layerings that represent irreplaceably finite environmental 'services' (such as the mineral, metal and fossil fuel deposits on which our energy-intensive information economy depends) garnered over hundreds of millions of years of geological time. Parikka (2014, 37) asks pedagogues to consider and teach about how the dire socio-political fall-outs of the coltan (columbite–tantalite) mines in central Africa are inseparable from the global flow of information economies, and asks that the long-lasting toxic environmental (and social) residues of digital production and e-waste not be overlooked or glossed over in the classroom. As Cubitt (2015, 1) explains, new-materialist and critical posthuman perspectives frame the social, the political and the technoscientific in relation 'to the central concerns of how things work, what they are made of, and how they mediate between non-human and human domains'. A critical posthuman or new-materialist pedagogical perspective would therefore take urgent cognisance of these transdisciplinary entanglements that implicate a multiplicity of species, ecosystems, societies and raw materials. The current affective turn in theory, of which Deleuze and Guattari are the primary engineers, would, in turn, ask us to consider the haecceities (the uncanny aesthetic relationalities) that these entanglements have conjured into being; i.e. the 'crises of feeling' that they have engendered. Here Jussi Parikka's neologism 'Anthrobscene' (a combination of 'Anthro' and 'obscene' – and also the title of an excellent essay by Parikka) is perhaps a useful affect-laden descriptor of the current situation. Haraway's Cthulucene speaks affectively as well as cognitively (and, of course, more hopefully) of alternative technological and eco-social possibilities and assemblages yet to come.

The Earth's resources are clearly *not* infinite, although contemporary consumer culture, as Parikka (2014) or Haraway (2015a) write, appears to be premised around this dangerous assumption. In the final chapter of his comparative environmental history *Collapse* (2004), Jared Diamond clearly outlines the 12 major environmental problems currently caused and experienced by humanity, 3 of which relate to ceilings on the availability of fossil fuels and other related natural resources (other problems relate to the destruction of ecosystems and species, industrial and e-waste pollution, as well as population growth and rising levels of consumption). As Diamond clearly argues in laymans terms, these problems are not only

inextricably interrelated with how humans think and do, but they are also uncannily entangled with one another. Moreover, any one of them, if left untreated, could result in the catastrophic and immanent collapse of human society. This fascinating reading which, like Parikka's *Anthrobscene* (2014) essay, highlights the dire socio-economic entanglements of the Anthropocene (and includes, as a bonus, compelling arguments for alternative uses to which social media could be put), has been a prescribed reading for my students for the last 10 years. It constitutes merely one example amongst a host of fascinating and informative transdisciplinary engagements that are surfacing today in the work of an array of critical posthuman and new materialist-inspired thinkers, scientists, historians, sociologists and pedagogues.

The ingression of the Anthropocene/Anthrobscene has become a rallying point for transdisciplinarity across the (post)humanities and the sciences. Yet it is a difficult conversation to implement in practice, especially because it poses significant challenges to how existing disciplines are conceptualised, funded and taught. How, for instance, can we theorize temporal and spatial scales that allow us to hold the planetary and the particular in the same frame? This might challenge us to think speculatively beyond the limits of the 'human', to engage both speculatively and critically with states, materials and lifeforms anterior, posterior or completely outside human 'givenness'. To help my students engage with these decidedly uncanny and transversally-orientated issues, for example, I start the academic year with a chapter called 'Evolution in perspective' taken from Ian McCallum's *Ecological intelligence: Seeing ourselves in nature* (2001). Covering the vast time-scales of cosmic, geological and biological evolution in laymans terms, McCallum not only bridges between religious and scientific perspectives, but shows how the cultural evolution of the human species is inextricably related to and embedded within these inhuman events and immensities. There are clear benefits to such a speculative approach that asks students to consider not only communalities between different cultural approaches, but also to ponder uncanny timescales and events that reach well beyond narrow human temporalities. More than this, McCallum concludes the chapter by asking readers to consider contemporary neurosciences and their revelations about the levels of cognition and 'consciousness' that we share with our animal kin. The Anthropocene, after all, is both a crisis of and possibility for epistemology and ontology; suggesting an onto-epistemology of being and thinking that is intimate with and immanent to the Earth, its materials, processes and multitudes of lifeforms. It requires us to regard the world, its critters and things as they exist in and for themselves (and not just 'for us') and to problematise our fictions of separation. These inquiries, with their implications for how we rethink our relations to (and embeddedness in) the

world, require us to think schizoanalytically and transversally. They also form the core of critical posthuman and new materialist turns in theory, presenting, as van der Tuin (2014, 231) writes, new 'avenues for productive scholarly engagement with the twenty-first-century ecological, energy and financial crises, including their (dis-)continuous processes of in- and exclusion'.

Challenges for Anthropocene-appropriate pedagogies

The convention of single-discipline knowledge and teaching is no longer adequate for making sense of the complex socio-ecological issues facing the denizens of Earth (which include humans and a multitude of 'others') in the 21st century. Relational, critical, anticipatory and complex forms of knowledge and learning need to be at the core of the 'new education' of the Anthropocene, both in South Africa and elsewhere. The 'greening' of education thus far has generally consisted of adding new bits of green content to existing courses or introducing a few new interdisciplinary degree programs. Such steps, while positive, 'are unfortunately inadequate for meeting students' needs today or in the future', writes Heila Lotz-Sisitka (2014, 1). We are entering a world of rapid and unpredictable environmental change, which is ushering in unprecedented social, cultural, economic and political consequences. In a world of interconnected economies, ecosystems and weather patterns the local can no longer be productively seperated from the global; both are messily entangled. The real challenge of the Anthropocene, therefore, is that it has introduced elements of uncertainty into particular, regional, cultural and, indeed, all narrowly constructed areas of human knowledge. In higher education, we therefore need to rethink what constitutes appropriate 'knowledge', engage with uncertainty and foster new forms of transdisciplinary learning that are not just about 'facts', but which encourage anticipatory, uncanny and transveral forms of thinking. However, before we think about tossing the baby out with the bath-water, Lotz-Sisitka (2014, 1) cautions that curricula relevant to the twenty-first century will need to have a far stronger and more robust basis in disciplinary knowledge whilst 'engaging this strength in inter- and transdisciplinary learning and practice'. The erosion of disciplinary knowledge and the watering down of critical inquiry may be where some of the trouble with academia is at today. As Fisher (2009, 23–24) points out, not only are disciplines themselves are fatally out of touch with the times, but the basic critical skills necessary for fostering and engaging with disciplinary and transdisciplinary knowledges are fading too:

> Ask students to read for more than a few sentences and many – and these are university students mind you – will protest that they *can't do it*. The most frequent complaint is that *it's boring*. It is not so much the written material that is at issue here; it is the act of reading itself that is deemed

'boring'. What we are facing here is not just time-honored student torpor, but the mismatch between a post-literate 'new flesh' that is 'too wired to concentrate' and the confining, conventional logics of decaying disciplinary systems. To be bored simply means to be removed from the communicative sensation-stimulus matrix of texting, YouTube and fast food; to be denied for a moment, the constant flow of sugary gratification on demand. Some students want [knowledge] in the same way they want a hamburger; they fail to grasp – and the logic of the consumer system encourages this misapprehension – that the indigestibility, the difficulty *is* [knowledge].

Haraway (2015b, 1) has recently remarked that what's at stake these days is 'staying with the trouble'. In the light of Fisher and Lotz-Sisitka's observations, we could interpret this to mean encouraging literacy and bringing reading back into the classroom. As Haraway (2015a, 161) humorously sloganises it elsewhere: 'Shut up and train!'. Of course, Haraway (2015b) is primarily concerned with avoiding any kind of human exceptionalism and getting rid, once and for all, of the incapacity to think the world that is actually being lived. For Haraway and other critical posthumanists such as Braidotti and Barad, as well as for affective schizoanalysts such as Deleuze and Guattari, staying with the trouble means engaging with difficult, entangled and uncanny knowledge. This means that what is being read is as much at stake as the act of reading itself; we cannot shy away from the complex and uncomfortable issues of entanglement that are at stake in the Anthropocene/Anthrobscene. Our students are more aware of these issues than we might think; what they want from us is to teach them *how* to engage with these difficult entanglements that seem to imperil and annul their future. They might, in any event, enjoy the stimulation of difficult knowledge – as my own experience in challenging foundation-level students in the arts with world-changing debates in the sciences suggests. I am with Haraway when she emphasises (2015b) that we need to be both speculatively and transversally orientated in our approach to pedagogy.

As Braidotti (2014) points out, there are several challenges that face pedagogy today at universities; first and foremost being 'how to we tackle the uncanny question of what it means to be (pos)thuman in the light of present Anthropocene developments'? Perhaps we need to begin by foregrounding, as Braidotti (2013, 144) suggests, the 'hierarchical exclusion[s] and cultural hegemonies' that have been used to construct standard 'androcentric' answers. In order to grapple with posthuman ontological and epistemological perspectives, we first need to engage with the historical, political, technoscientific, social, environmental and geological movements and forces that have produced this phenomenon. Ingredients in the Anthropocene soup include (but but are by no means restricted to) human migrations around the planet, the development of agriculture and civilisation, the advent of science, industrial capitalism, the revolution in molecular biology, the development of the space of flows, the onset of the 6th extinction and the theoretical 'arrival' of the posthuman. These are all topics of inclusion in

Anthropocene curricula that might help us to cultivate 'radical relationality' and a sense of 'multiple allegiances' implied in 'post-anthropocentric' redefinitions of the human (Braidotti 2013, 144). Failing to give students a critical foothold in any of the key areas that are shaping the Anthropocene, writes Stengers (2015, 142), means fatally hamstringing their capacity to engage with the world that is actually being lived. Our task is to turn our students into 'actants' rather than passive consumers (or worse, victims) of late capitalist realities. Quite often, however, despite our best attempts, our students remain unwilling actants.

In her *Cyborg manifesto* (1991), Haraway chronicles the most uncanny notion of all: as machines grow increasingly more lively and animated, humans seem to be growing more and more shockingly inert. Instead of becoming more than human, our entanglements with media technologies and Capitalocene subjectivities seem to have turned us into something rather less than human (with no insult intended to non-human others). Many of our students, writes Fisher (2009, 21), have become 'stranded between the old role of being the subject of a disciplinary institution' and their new roles as the abject 'consumers of services'. The pathologies of late capitalism (such as attention deficit hyperactivity disorder, depressive hedonia, etc.) have ensured that many students nowadays, although relentless in their pursuit of commodity pleasures, are simultaneously overwhelmed with an affective torpor. 'A sense that something is missing' and that there is 'nothing to do about it' besets them as they dream of being 'plugged-in to television, PlayStation, social media and fast-food oblivion' (Fisher 2009, 23). Of course, commodity distractions and amusements have existed in some form or another throughout the ages. Simarly, as Fisher (2009:24) writes, the task of pedagogues has always been to bring home to students that their mysterious 'missing sense can only be accessed beyond the commodity pleasure principle'. As critical posthuman pedagogues today, however, our task has manifestly become more urgent than ever before. First and foremost, we may need to inculcate in students the ability to critically recognise the poisoned status quo in which they find themselves embedded and complicit. Here the work of Naomi Klein, Mike Davis and the Adbusters collective, for instance, may provide useful critical inroads for exploring with students the phenomenon of consumer addiction and passivity. Baudrillard's concept of hyperreality and the simulacrum, the urban dystopias conjured into being by late-capitalism (explored, for instance, by Mike Davis in *Evil paradises* – 2007) are all sources of potentially gripping classroom materials. They also happen to engage with transdisciplinarity and unlock a keen sense of the uncanny. But are they apt? Shouldn't we be white-washing the grim reality and hiding the awful truth from our students? My contention, along with that of Stengers (2015) and Haraway (2015a and b) is that Anthropocene appropriate curricula need to directly engage

with the gritty history, philosophy and death-defying/life-denying science of industrialisation, capitalism, globalisation, as well as with local challenges such as xenophobia, domestic abuse, patriarchal structures, and HIV, etc. Most importantly, we need to supply students with a critical knowledge framework that enables them to appreciate how culture determines thoughts and actions in relation to self and others. We also need to teach about consumer passivity and the concept of 'nature on demand'. We live in a world of dramatically escalating environmental changes where stability can no longer be taken for granted and the future is no longer guaranteed. Fisher (2009) warns that our students' affective sensibility is entangled in this precariousness; it is a component of their contemporary 'missing sense'.

A fundamental shift

A fundamental shift has occurred and no level of our reality construct – from the pre-personal to the personal, the cultural, the economic, etc. – is exempt from the onto-epistemological crisis induced by this displacement. Our students recognise or sense this 'tectonic' movement which has been called the Anthropocene; if not consciously then affectively. After all, as Fisher (2009, 53) notes, they are expected to cheerfully operate 'amidst capitalism's perpetual instability'. They find themselves in academic institutions and disciplines of knowledge that seem wholly complicit in the spectacle of 'denial' and 'business as usual'; no wonder then that a lack of critical engagement is their default position (Fisher 2009, 54). Stengers (2015), as I have noted, writes that it would be both criminal and fatally unproductive to shelter those we teach from harsh realities. The Anthrobscene requires us to engage schizoanalytically and transversally with uncanny topics, to talk, without mincing our words, about 'erosion, pollution, contamination, a monstrous accumulation of garbage, and of course a massive loss in biodiversity ... [which] tell, and will go on telling [about humans] in a far away future measured in geological time' (Stengers 2015, 134). Moreover, it requires us to accept and teach about the reality of ontological, epistemological and eco-social assemblages that we have thus far ignored, denied or taken for granted. Simply put, we can no longer afford to take the uncanny entanglements implied by critical posthuman and new materialist perspectives for granted when it's become incontrovertible that the world (as we know it and have conceptualised it) is *in extremis.*

The overlapping of financial, ecological and social crises seem, in fact, to have coincided, as Sadie Plant (1992, 186) writes, with a postmodern spectacle of 'petrifying circularity and stultification' in higher-education pedagogy 'from which there apparently seems to be no desirable recourse'. Our task as pedagogues is to address this pressing and fatal apathy by

thinking and doing differently. As pedagogues we need to reaffirm and take seriously the goals of our profession; namely, to produce subjects who are critically aware and able to actively and creatively engage in the formulation of their own subjectivities. 'The "long dark night at the end of history" has to be grasped as an enormous opportunity', writes Fisher (2009, 80). As consumers of hyppereality and technological over-stimulation, our students (and ourselves) have an intimate understanding of schizophrenic mental states. Ironically, this proclivity for mental entanglements and dark technological pleasures has primed us for the 'transversal contamination' (or the entanglement of the disciplines) that Deleuze and Guattari and other critical posthuman and new materialist thinkers espouse. It has also primed us for a deep understanding of affect. The 'affective disorders' that we suffer from, writes Fisher, are forms of 'captured discontent', the symptoms of which 'can and must be channeled outwards [and] directed' towards building a knowledge of causes and conditions (2009, 80). As Stengers observes, we must do this 'channeling' by learning and teaching how 'to pay due attention' (2015, 137).

As I have already noted, it may be necessary to practice what Fisher (2009, 80) calls a 'new ascesis' by 'force-feeding' our students with literacy and academic rigour as necessary antidotes to the overstimulated mental torpor and critical disengagements of late capitalism. While exploiting their natural attraction for inter-connectivity via stimulating transversal topical materials, we need to encourage them to overcome their capitalist postlyxia by ensuring that they engage critically and intimately with prescribed materials (by debating, writing essays, reading texts, and through regular comprehension testing, etc.). In our courses and curricula we need to make schizoanalytical or transversal transdisciplinary connections, 'to jump from one interval to another', as Deleuze and Parnett (2007, 40) suggest. We should engage with challenging and entangled transdisciplinary topics (to venture examples from my course: 'Where do we come from? What are we? Where are we going?' and 'Capitalism and extinction', etc.). We also need to pay attention to Fisher's argument (2009) that our students' difficulties with reading and writing are not simply the result of inferior school education or problems with second/third language acquisition. Perhaps, as he suggests (2009, 60), their dys/postlexia is directly coupled with the postmodern problems of consumer mentality: the in-built conceptual laziness placed there by a capitalist desiring machine that has no need to produce critically thinking subjects.

CONCLUSION

Fostering a critical awareness of the confluence of the technoscientific, the cultural-historical

and the environmental are the first necessary steps in realising the potentials of the posthuman and freeing ourselves from the Capitalocene state of bondage. Together these concepts can help us to create a stable anchor from which to engage more fully and pay closer attention to the affective relations that inform our changing human subjectivities. Knowledge and critical thinking skills are not, however, enough in themselves. We need to exorcise from ourselves and our students a poisoned and future-denying state of paralysis. 'We know things are bad', writes Fisher (2009, 21), 'but feel helpless to do, say or think anything about it'. This is more than 'a passive observation of an already existing state of affairs. It is a self-fulfilling prophecy'. Barad (2014, 168) might say that we find ourselves frozen in a state of 'dicho-tomy', unable to think or teach schizoanalytically/transversally, or, as she would put it, 'diffractively'. We should therefore learn to pay due attention to the entanglements, uncanny symbioses and novel interconnections that mediate and intersperse between ourselves and the world. As speculative schizoanalytical explorers, we should find ourselves thawed from our complicit paralysis and enlivened by the radical promises of blurred boundaries. Posthumanism, new-materialism and the affective turn occupy an agitated edge (the boundary between ourselves and the world/cosmos) of entangled engagements. These science-fictional and speculative ways of looking and feeling offer exciting new possibilities of conceptualising and provide aesthetic antidotes to the affective and mental poisons of the Capitalocene/Anthrobscene. Along with other practitioners of shizoanalysis, we need to imagine and teach about the fantastic, the uncanny or the unimaginably alien as we recalibrate what it means to be human and how we might become and think differently. From a pedagogical perspective, fostering such posthuman manners of thinking and engaging are not mere idylls of fancy. They will become increasingly necessary if higher education is to keep abreast with the accelerated pace of Anthropocene developments and the reality of environmental (and possibly human) extinction.

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