

Abstract

New materialism is emerging as one of the most significant developments in healthcare research in recent years, offering radical new ways to rethink our critical relationship with forms, matter, objects and things. As with any new paradigm, it can take some time for the limitations of the approach to become clear. In this article I examine some of these limitations, focusing particularly on new materialist definitions of objects and the ontology of affect. Drawing on the recent work of Graham Harman and Timothy Morton, I argue that new materialism fails the 'flat ontology test', and reinforces the kinds of idealism that it purports to critique. Object Oriented Ontology, on the other hand, may allow us to shape a radical new ethics of objects, using that to transform our abusive relationship with the ecosystem, disturb traditional enlightenment binaries and hierarchies, and to put aside human hubris.

Key Words object oriented ontology, new materialism

What's real is immaterial: What are we doing with new materialism?

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There is a pleasure in the pathless woods,
 There is a rapture on the lonely shore,
 There is society, where none intrudes,
 By the deep sea, and music in its roar:
 I love not man the less, but Nature more,
 From these our interviews, in which I steal
 From all I may be, or have been before,
 To mingle with the Universe, and feel
 What I can ne'er express, yet cannot all conceal[1]

Introduction

In recent years, matter has become the focus for a range of philosophies that draw on the work of people like Gilles

Deleuze and Félix Guattari, Luce Irigaray, Pierre Bourdieu, Donna Haraway, Alfred North Whitehead, Judith Butler, Bruno Latour, Rosi Braidotti, Martin Heidegger, Michel Serres, Maurice Merleau-Ponty and Michel Foucault. Frequently referred to as new materialism, this work spans a range of positions and perspectives.[2] Although many of the ideas taken up by new materialism are not new, they have provoked a significant departure from the preponderance of idealist approaches, such as social constructionism, phenomenology, and discourse analysis, in health care research and practices in recent decades.

The focus of new materialist writing has been on a new ethical relation between human and non-human worlds, especially '[o]ur habit of parsing the world into passive matter (it) and vibrant matter (us)'.[3] New materialism challenges the idea that humans are the pre-eminent entity in the universe, and introduces the possibility of a flat ontology in which all matter has access to the same virtues, capabilities, and affordances that have traditionally been reserved only for people. Part of the appeal of new materialism lies in its promise of an ethics

that puts “man” in his place and gives precedence to the materiality of every thing.

It is not hard to see why such an approach has garnered interest. We now unquestionably live in postmodern, posthuman, postqualitative times, in which, all too often, we find ourselves at odds with those who would argue that it is their moral right to bear arms, to demand a woman’s right to choose, or to convert the Amazon into a palm plantation. We are bemused to find ourselves even debating whether humans are indeed the cause of climate change, whether black lives really do matter, #me too, the re-birth of fascism, human trafficking, chemical weapons in Syria, ethnic cleansing in Myanmar, and Donald Trump tweeting threats of nuclear attack from the Oval Office. “Is this really the dividend of centuries of Enlightenment and social progress”, we ask ourselves?

New materialism has arrived at a time when serious questions are being asked of the idealism of the last half-century. Sitting under the looming shadow of global species extinction, surrounded by the persistent effects of human hubris, many have wondered how it can be that when you scratch the surface of a human, you still find a white guy underneath. [4] Consider, for example, this call to arms from the 2018 Congress of Qualitative Inquiry;

These are troubled times. The global right is on the rise, north, south, east, west. It is setting the agenda for public discourse on the social good. In so doing it is narrowing the spaces for civic discourse. A rein of fear is on the rise. Repression is in the air: Brexit, the Trump presidency, global protest. Dissent is silenced. The world is at war with itself. The moral and ethical foundations of democracy are under assault. The politics may be local, but the power is global, the fear is visceral. We are global citizens trapped in a world we did not create, nor want any part of.[5]

Some have argued that new materialism is not that new, having its antecedents in the writings of Spinoza, Leibniz, Marx, Deleuze and Guattari. Many others have been working to hone some of its principles over the last decade or so. But it is perhaps the confluence of post-qualitative and post-human sentiments that has made the latest explosion of interest possible. In the health domain, at least, the groundswell is being driven by authors drawing on a diversity of approaches, including Karen Barad’s agential realism, Bruno Latour’s Actor Network Theory, and Fox and Alldred’s affect economy.

The purpose with this article, however, is not to add to the popularity of new materialism, but rather to critique these approaches, and argue that ultimately new materialism may not offer the radical ontological turn that some suggest. To make this argument, we first have to understand how new

materialism functions as a framework for thinking through matter, and to do this we need to define what are meant by objects. This will then allow an exploration of an argument that new materialism may not be the best approach for thinking through the breadth of cultural, ecological, economic, material, political and social problems that now assail us, and that a different approach to objects may hold more promise.

I will argue that Object Oriented Ontology (OOO, or ‘triple O’ as it is sometimes called) – a philosophically distinct and radically different approach to forms, objects and things, offers a more powerful set of philosophical and theoretical tools to reform healthcare as a human-centred practice, and radically redefine what health means. It offers a mechanism for a fully flattened ontology, and a philosophy to explain how real and sensual objects exist and interact, and it rejects the occasionalism that has allowed Gods, science or idealism to arbitrate the ordering and engagements of things in the world. OOO suggests ways to overcome the kinds of binary distinctions we have created between nature and culture, object and subject, mind and body, and it shows us how we might engage in the symbiotic real and, by doing so, avoid a species extinction that is looking ever more likely as the years go by. In this paper I introduce some of the main principles underpinning OOO and explore how it has been used by one of its main proponents, Timothy Morton, to critique our approach to nature, ecology and sustainability. I close the paper posing some of the ways I have sought to apply OOO to the work of respiratory physiotherapy. To begin with, however, we need to examine the way we are now being encouraged to think about objects.

What is an object?

Objects have held a long fascination for philosophers. Graham Harman argues, however, that most have done their best to eliminate objects as things in and of themselves from their philosophical writings, through processes that he describes as ‘undermining’ and ‘overmining’.[6] Undermining refers to the process of reducing things to some ultimate physical element or particle; defining something by its pieces, and focusing on what a thing ‘is’. Much of western science is premised on the idea that there are smaller elements forming the sub-structure of all things, and that understanding the workings of these fundamental elements lies at the heart of the scientific endeavour. But Harman also argues that the history of these efforts at undermining reach much further back than the natural philosophers of the Enlightenment, arguing that the pre-Socratic pursuit of apeiron – or the basic units that aggregated together to form the known universe

– highlights the long fascination we have had with deriving the fundamental basis of all things. For the pre-Socratics it was air, water or fire, for today's health scientists it may be DNA, atoms or electromagnetism. Overmining, on the other hand, is the upwards reduction of things, common to idealist philosophies, where there is nothing deeper than what a thing does; nothing beyond language and discourse, mathematics, power relations and effects. We see this process of overmining in the continental philosophies of the last century: in phenomenology, linguistics, critical theory and social constructionism. Critically, both undermining and overmining give an outsized role to humans.

In response to this, a great deal of recent interest in new materialism has sought to uncover how something can be more 'alive' than lifeless matter (undermining), yet more material than discourse (overmining). Jane Bennett devotes a considerable amount of space to this question in her book *Vibrant Matter*.^[7] Drawing on the notion of vitalities, Bennett argues that we have long sought to identify the energy or force that animates living matter. Embryologist and philosopher Hans Driesch, for example, believed that there must be some 'impersonal agency' existing between things; giving life to them - something interstitial, manifold, non-material, non-spatial, and non-mechanical, neither force nor energy - a process he termed *entelechy*.^[7 p71] And Henri Bergson's *élan vital* similarly corresponded with the 'internal push of life', an overflowing excess, a 'perpetual, loosely directional efflorescence of novelty'; a 'drive without design'.^[7 p76-8] It is not hard to see why Bennett and others have been drawn to these accounts, as new materialists have searched for ways to imbue objects with the vitality and vibrancy that might allow us to equate the irrepressibility of matter with human existence. But, significantly, Harman argues that contemporary materialism 'does not merely undermine and overmine the object, but performs both of these maneuvers simultaneously',^[8] suggesting that Bennett and others have failed to escape the legacy of the philosophies that new materialism openly appears to oppose. What is happening here then? What is happening to objects themselves in the process of new materialist rendering? And what is the status of the thing called 'matter' that new materialists refer to, that Harman and others are beginning to oppose; see, for example, references 9-12?

Nothing outside affect

One of the key principles of new materialism is that existence is relational, and governed by what Fox and Aldred called an 'affect economy'.^[13] New materialism argues that there is

nothing outside affect (what matter 'does', 'what capacities it has to affect its relations or to be affected by them'^[13]) Echoing Alfred North Whitehead's theory that to understand an entity we must understand its relations (prehensions), and Bruno Latour's belief that 'an actor is nothing more than whatever it transforms, modifies, perturbs, or creates',^[14] new materialists like Bennett, Karen Barad, Katherine Ott, Nick Fox and Pamela Alldred, Diana Coole and Samantha Frost, Mirka Koro-Ljungberg and others, argue that objects and matter only exist as confederations. As Karen Barad has said, 'Believing something is true doesn't make it true. But phenomena—whether lizards, electrons, or humans—exist only as a result of, and as part of, the world's ongoing intra-activity, its dynamic and contingent differentiation into specific relationalities'.^[15] In the affect economy (the forces and relational links between matter that produce new entities, akin to a economy of trade and production), there are no real mind-independent objects pre-existing the formation of assemblages. Echoing Derrida's aphorism that 'nothing exists outside the text', Elizabeth St Pierre stated that in the 'posts' '...there is no Real - nothing foundational or transcendental'.^[16] There is only 'affective-discursive practice',^[17] or the 'patterned forms of activity that articulate, mobilize and organize affect and discourse as central parts of practice'.^[18]

But here we arrive at the first fundamental problem with new materialism and its reliance on affect, because if there is nothing 'outside' the assemblage formed between things, then there can be no surplus; nothing beyond the boundaries of the intra-active relationship between objects; nothing more than the affect economy. If there is no residue, no excess beyond the coupling, there is no possibility for emergence, for surprise, or change. Everything that can possibly happen must be contained within the assemblage itself. Affect theory cannot allow *relata* to possess properties that are not enclosed in their relationship, because this would suggest that there is more than affect taking place, and this would require some explanation. We would be forced to decide how significant this excess actually was. Was it, perhaps, vastly more important than the affective relationship itself? Perhaps it is so important that it diminishes affect to a momentary aberration? In which case affect might be dismissed as insignificant. So, in affect theories, *relata* cannot be allowed to precede their relations, and the existence of an extrinsic reality beyond the limits of assemblages is denied. There is nothing real beyond that which comes into existence agentially. There is no essence or existence given to matter 'before' it forms a relation with another entity. There is no object 'apart from the practices that register existence'.^[6] And so, as with many philosophies before it, new materialism accidentally succeeds in getting rid

of the very things it purports to champion; replacing them with a system that struggles to account for what objects really are.

But perhaps most significantly, an affect economy cannot distinguish between trivial and significant assemblages, and so labours under what Harman, after Quine 1980, calls a 'slum of possibilities',[20] in which it is almost impossible to decide whether a volcano is of greater significance than a sneeze. To resolve this, new materialists allow for a 'third party' to arbitrate what really matters. This form of occasionalism refers to the need for some sort of intermediary to 'realise' the nature of reality. Throughout history we have deployed Gods or other deities, science, or, more recently, language and discourse, as vehicles to mediate and make sense of which bits of the world's 'furniture'[20] are privileged and which are marginalised. And so it is with new materialism, where affect refers to what is meaningful to us – as humans. Despite its best intentions to challenge the human hubris of existing binary dogmas, the new materialisms position humans firmly at the top of the 'natural' order. As much is acknowledged by Jane Bennet when she concludes *Vibrant Matter* by saying that, 'To put it bluntly, my conatus^a [or my will to persist and thrive as an entity] will not let me 'horizontalize' the world completely'.[7] In the same way, Karen Barad suggests that, "We have to meet the universe halfway, to move toward what may come to be, in ways that are accountable for our part in the world's differential becoming".[15]^b

The key ontological challenge therefore remains to treat 'all relations as ontologically equal translations whether humans are involved or not'.[20] Why do we persist in saying that 'the emergence of [human] thought is more important than the emergence of stars, the formation of heavier elements in supernovae, the symbiotic emergence of eukaryotic cells, or the evolution of invertebrates?'[20] But how can we do this? How can we let go of being human to engage in such a radical ontology. Even this question betrays our innate humanism, and our occasionalistic tendencies to replace God with anthropocentrism.[22,23] Surely this then is the real radical challenge offered by a new ethics of objects?

What then is radical about new materialism if it does not show us a way out of human exceptionalism, and functions as just another vehicle for a human-centric critical theory, operating within the human sphere, whilst paying cursory attention to the other things we share the cosmos with? Should we be so enamoured with new materialism if its effect is to reify classical human identity politics? As Jane Bennett says; 'The political goal of a vital materialism is not the perfect equality of actants, but a polity with more channels of communication between members'.[7] DeLanda and Harman argue however that 'Any philosophy that is intrinsically committed to human subjects and dead matter as two sides of a great ontological divide ... fails the flat ontology test'.[20] So how might we

approach the question of objects differently in the face of persistent human exceptionalism?

Harman's OOO

Returning to Graham Harman's argument about how philosophers – particularly in the west – have historically dominated objects, we can establish the first principle of OOO, and say that an object is that which cannot be reduced through undermining to its component atomic pieces, or conversely overmined to its discursive effects: An entity qualifies as an object as long as it is irreducible both to its components and its effects.[6,24] Harman's Object Oriented Ontology, which sits broadly under the umbrella of Speculative Realism,[25] is a realist ontology, arguing that objects of every sort exist prior to their relations.[6] Things act because they exist, not vice versa. This argument runs counter to much of the language of discourse, becoming and affect that have dominated anthropocentric idealism over the last half century, but Harman goes further. Not only is his philosophy realist, but it also accepts the reality of things that may not be materially present. For Harman, things don't have to be materially present to be real. This immaterial position opens up OOO to all forms of objects that may or may not be materially present; apples and atoms, dreams and fictional characters, governments and leaders, concepts and chest infections.

Part of the reason for Harman's anti-materialism lies in his difficulty locating where the thing called 'matter' actually resides. He asks, 'Where is this matter supposedly located? Where on earth can we find formless matter?'[20] Because matter always takes some sort of form, Harman argues that form precedes matter. But forms also exist without matter (in works of fiction, for example), so form is perhaps more useful as a way of interrogating objects than focusing on its materiality.[6] Harman also argues that forms are 'organised and structured' but 'not directly knowable', which is a key to his understanding of objects. Harman's work is heavily influenced by a radical re-reading of two pre-eminent phenomenologists - Husserl and Heidegger. From Husserl, Harman takes the notion of the Eidos – or the essence of the object hiding beneath layers of accidental effects, adumbrations, meanings and relations. From Heidegger, he takes the idea of the object always withdrawing and evading capture.

Husserl showed us that we can never fully interact with what Kant called the 'noumena', or thing-in-itself. Rather, when objects of all sorts interact with one another, they only ever encounter their respective surfaces, because objects are always encrusted with layers of accidental properties. These adumbrations, or 'shadows', hide the essence of the thing-in-itself and prevent one object from ever encountering another fully. Husserl believed that acts of imagination and cognition might allow us to strip away these adumbrations that bejewel

objects, and this formed the basis for his phenomenological method. But Husserl, like Kant before, also believed that only humans could do this. Harman, on the other hand, argues that humans are no better at knowing the essence of the thing itself than any other entity, and all entities engage in the same elusive engagement. And so humans are no more privileged in their phenomenological capacities than real trees, shabby carpets or fictional sea urchins.

A second key influence on Harman's approach to objects has been taken from Heidegger's belief that we can never exhaust the possibilities of other objects, and that they always withdraw from capture. Or, as Tim Morton prefers, objects are more 'open', meaning that they are not 'empirically shrunken back or moving behind'.^[26] I might see this chair, for instance, but I can never know all of its properties or possibilities, and I will always be surprised by how it might manifest or express itself. And as with his approach to Husserl, Harman extends Heidegger's radical withdrawal to all things, arguing that it is not only humans that fail to exhaust the possibilities for other forms, but that this is true of all objects. The sun cannot exhaust the fullness of the beach towel any more than we can.

In this way, Harman brings his radical re-reading of Husserl and Heidegger into synthesis. Husserl offers the essence of an object with its surface effects and adumbrations, and Heidegger gives us the object that withdraws. Harman uses this to define an immaterial philosophy understood in two fundamental states of objects each with two possible conditions: real and sensual objects, with real and sensual qualities (see Table 1).^[20] As Harman puts it;

While there may be an infinity of objects in the cosmos, they come in only two kinds: the real object that withdraws from all experience, and the sensual object that exists only in experience. And along with these we also have two kinds of qualities: the sensual qualities found in experience, and the real ones that Husserl says are accessible intellectually rather than through sensuous intuition'.^[8]

Harman argues that any significant philosophy must be able to account for all events, realities, correspondences, descriptions, knowledges, relations, and experiences, and do this for all things, not just those things that correspond to human experience. It cannot give over half of the field of philosophy to one species at the expense of all others, as has been the case for western philosophy since the Enlightenment. Nor can it accept the new materialist response to this and suggest that all things are relational. Harman shows the potential scale and reach of OOO in his discussion of space and time.

Time, for Harman, can be understood as the tension between the relatively stable sensual object and its constantly shifting sensual qualities. The experience of (lived) time, for all entities, is an experience of 'change within continuity ... or the relative endurance of sensual objects amidst a constant shift of adumbrations' – an expression of the tension between a real object and its sensual qualities.^[20] Space, on the other hand, is an expression of the unstable 'network of relations and non-relations between objects'.^[20 p123, emphasis added] Some things are close to us, others are distant and to experience them requires work. Space reflects this distance and the 'interplay of an object's distance and nearness from me and from all other objects'.^[20 p127] This is not the sensual experience of distance, but the 'real object that remains distant from us, even as its sensual qualities are accessible'.^[20 p127]

Importantly, Harman reminds us that all entities engage in a continual array of encounters with the sensual qualities of other entities, and that 'although humans are of obvious interest to humans, we are really a fairly minor (if unusually interesting) sort of entity in a cosmos inhabited by trillions of other entities. ^[20 p2] This question has been taken up engagingly by Timothy Morton, whose OOO-inspired examination of ecology, nature and the cosmos, points to some of the ways OOO might be used by other fields in the future.

Table 1: Four conditions of Harman's OOO	
Real objects	Exist in their own right. They are mind-independent, non-relational entities, that exist in the here and now. They are always withdrawn and inexhaustible.
Sensual objects	Inherently relational, not real, existing here-and-now only as correlate of some real object, virtual, not existing in their own right.
Real qualities	Qualities that define the essence of an object without ever being exhausted by thought or praxis. The essential features without which objects would cease to be what they are.
Sensual qualities	Qualities that are the things we encounter when we interact with other entities. The superficial features that present themselves to us and suggest the object beneath.

Tim Morton's OOO

Perhaps one of the best examples of how OOO can be applied to contemporary questions and concerns comes from Tim Morton's work on ecology. In a series of books over the last decade, Morton has increasingly drawn on OOO to set out a radical agenda for rethinking the historically anthropocentric relationship with ecology;

OOO offers us a marvellous world of shadows and hidden corners, a world in which things can't ever be completely irradiated by the ultraviolet light of thought, a world in which being a badger, nosing past whatever it is that you, a human being, are looking at thoughtfully, is just as validly accessing that thing as you are.[27]

Morton argues that humanity's 12,500-year project to command the ecosystem, and bring it under our economic control, has resulted in a 'foundational, traumatic fissure between, to put it in Lacanian terms, reality (the human-correlated world) and the real (ecological symbiosis of human and nonhuman parts of the biosphere)'. [26] Morton calls this 'The Severing', and this, he argues, is the cause of our increasing anxiety and separation from all other things in the ecosystem; overlaying its superabundant 'cheapness' and openness with the 'loathsome' notion of 'Nature', that is 'a way to blind and deafen oneself to the strangeness of the symbiotic real'. [20 p62]

Morton argues that this severing is the basis of our anthropocentrism, which suppresses possibilities of solidarity with nonhumans. By contrast, 'ecology' is the cheap version of nature; an ecology that is surprisingly available and accessible to us. It is not something 'out there' to be commanded and tamed, but actually right under our nose. Drawing on Harman's re-reading of Husserl's eidos, Morton accuses us of layering ecology with adumbrations of significance and discursive meaning, so that it now feels like an inaccessible, intimidating and paralysing concept to most people. People are sitting at home looking at Pinterest images of nature rather than smelling flowers and planting lettuces;

It is time to release the copyright control on this gap. The name of this release is ecological awareness. Ecological awareness is coexisting, in thought and in practice, with the ghostly host of nonhumans. Thinking, itself, is one modality of the convocation of specters in the symbiotic real. To this extent, one's "inner space" is a test tube for imagining a being-with that our metaphysical rigidity refuses to imagine, like a quaking peasant with a string of garlic, warding off the vampires.[26]

Morton argues that acts of ecological attunement are not grand gestures of eco-activism, but small acts of solidarity

and kinship with other objects within the ecosystem. In typical jocular fashion, he tells us that 'Just as when Goebbels heard the word "culture" he reached for his gun, when I hear the word "sustainability" I reach for my sunscreen'. [26] Grand acts of eco-activism, like gestures towards sustainability, mask the fact that they are first and foremost concerned with sustaining 'the neoliberal, capitalist world-economic structure. And this isn't great news for humans, coral, kiwi birds or lichen'. [26] All too often;

When we look to 'save the Earth' we are really saying we are "preserving a reasonably human-friendly environment." This isn't solidarity, this is infrastructural maintenance. What is preserved is the cinema in which human desire projection can play on the blank screen of everything else'. [26 p37]

Morton encourages us to care less and to remove the layers of complexity we have fixed around the ecosystem. Every effort we make, he argues, damages our solidarity with the symbiotic 'real'. Instead, 'The point is to rappel "downwards" through the empathic part of the capitalist superstructure, to find something still more default than empathy'. [26]

Morton's work has a fascination with the gap that exists between what a thing is, how it appears, and a strange linkage between the two that defines the object. Echoing Harman's notions of real and sensual objects, Morton explores the persistent gap between what a thing is and how it appears. For Morton, the reality of an object is always open, withdrawn, and never fully accessible. What we are presented with when things interact with other objects is 'thing data'. Raindrops, using Kant's analogy, have certain properties (Harman's real qualities) that fundamentally differentiate them from blue whales and fictional characters like Anna Karenina. They are round, wet, and have a certain momentum, but, Morton argues, this isn't the raindrop we're experiencing but raindrop data, and if the raindrop could talk and express itself, it still would not be expressing the real raindrop, only more raindrop data.

If we treat all things as objects, and we know that each object is itself a confederation of other objects, then, Morton argues, it is possible to view the singular object as ontologically only one thing amongst many. It is possible, then, to argue that, contrary to conventional wisdom, that the 'whole' is not, indeed, greater than the sum of its parts – an overmining strategy par excellence – but it is instead just ontologically equivalent to all the other parts. There are, therefore, a lot more parts than there are 'wholes'. This may seem a trivial point to make on the surface, but such a simple idea can have profound implications, because traditionally we have

seen hegemonic discourses like Gaia and Mother Nature as dominant structures with many interchangeable parts. Under this schema, the loss of the coral reef, for example, is less significant because Gaia will simply replace it with something else. The parts are subordinate to the whole, and holism is a privileged discourse. This echoes our historical monotheism in which a God governs the world and intervenes for good or ill. By contrast, OOO allows for there to be more parts than wholes, and this creates the possibility for endless creativity and surplus, rather than constraint, control and subordinacy.

What, then, constitutes 'us'; human beings as a whole? By virtue of their consciousness, we say that humans are distinct from all other matter in the cosmos because we 'act', where other things merely 'behave' in response to their immediate environment. Humans, we say, are fully present to their intentions. But this differentiation is becoming harder and harder to sustain, as we struggle to distinguish between life forms and non-life forms. What, in the end, is the 'me' that is human? Morton asks, if we are made up of all kinds of things that are not 'me' (clothes, daffodil DNA, thoughts, oxygen molecules, received ideas, etc.), then there is clearly a lot less of me than I might previously have thought. And if I am ontologically real and yet only available as 'me data', I exist in the same ways as all other objects in the cosmos. This allows us to acknowledge that humans exist as distinctive objects, but that they are not human all the way down and all the way through, and that they have no more access to the world than anything else (since all objects are fundamentally open to/withdrawn from each other).

While Morton's work on ecological awareness resonates strongly with Graham Harman's writings on OOO, there has been little concerted work undertaken to apply this radical approach to health. Despite the fact that affect has become an area of significant interest to health researchers in recent years, most of the focus has been on new materialism and ideas of an affect economy. Harman and Morton's work roundly rejects this approach though, and proposes, instead, a realist ontology that should resonate strongly in the world of healthcare. For most of my professional life, I have worked as a respiratory physiotherapist and lecturer. Physiotherapists, like most orthodox western healthcare professionals, have a strong grounding in a biomedical world view, whose foundation is in realist empiricism. Notwithstanding this, I have been an avid promoter of idealism and social constructivism for more than 20 years. The two make uncomfortable bed-fellows, but my personal predilection for the Nietzschean continental philosophies of Foucault, Deleuze and Guattari, Virilio and others has, at least, allowed me to resist the urge to see one approach as good and truthful at the dismissal of the other.

But it occurred to me some time ago that perhaps the problem with the contest between these competing ideologies was that advocates for either side still relied on their 'right' being greater than the other side's. So perhaps both operated along the same continuum, and so both were equally limited. New materialism and the post-inquiry work of people like Elizabeth Adams St Pierre, John Law, Annemarie Mol, Nick Fox, Brian Massumi and others[16,28-33] offered a pointer to a radical new flat ontology, that didn't so much 'allow' for a reconciliation between idealism and realism, but ultimately, for me, it revived anthropocentrism. OOO, on the other hand, feels as if it might offer some really radical new ways to rethink health and healthcare. So to close the article, I will attempt to sketch out a brief vignette of OOO applied to my small area of healthcare interest, in the hope that it points to the possibilities for a radical new approach to thinking and practice.

The possibilities of OOO for health

If we first embrace Harman's realist definition of objects (neither undermined or overmined); are comfortable with the idea that real objects are radically open to us, but can never be fully captured; and that this is as true for table lamps and imagined vampires as it is for real people, then a world of possibility opens up to us. In the past, respiratory medicine has been dominated by biomedical positivism. Medical, nursing, and allied health students are taught the biological realities of respiratory anatomy and physiology, pathology, assessment, diagnostic testing, passive and active treatments, including the use of pharmaceuticals, forms of ventilation, pulmonary hygiene and exercise, designed to maximise recovery and quality of life. Until recently there has been little room in respiratory care for the more humanistic, qualitative and subjective dimensions of breathing, and still less overlap between respiratory disease and ecological, social or spiritual dimensions of health on a cosmological scale.

But if we begin from a different starting point, and take up Tim Morton's argument that there is a lot less of 'us' – in the embodied humanistic sense – than we would like to believe, then we are suddenly open to the possibility of seeing the myriad parts that make up 'me' as being fundamentally interwoven with entities spread throughout the cosmos, what Morton calls the 'symbiotic real'. [26] If we consider oxygen, air and breath – three key features of respiratory medicine – as our exemplar, we know that the human body is almost entirely made up of inorganic elements, and oxygen constitutes almost two-thirds of our body's inorganic mass (more than 3.5 times the amount of carbon). It would be reasonable to ask then, at what point my body ceases to be a collection of inorganic elements (akin to a cadaver), and when I become

me? And what role oxygen plays in this. When does the oxygen molecule floating in the air above me now actually become part of me? Is it 'me' when it is my trachea or alveoli, or later when it dissolves into the haemoglobin or catabolized by the mitochondria? Such questions are tempting to ask but, of course, they reinforce the kinds of anthropocentrism that dogs idealist, humanist and new materialist approaches.

Harman's OOO provides possibly the first approach to the inter-relationship of objects that allows us to open areas like respiratory medicine to a much wider canvas and, for the first time, embrace the full impact of oxygen, air and breath. To work with oxygen, air and breath as objects in their own right could open up healthcare work to the biology of oxygen and carbon dioxide, the physiology of gas exchange, and the pathology of dyspnoea; the human cost of breathlessness, the voice of air, and the loss of voice; trade winds, air movement and flight; the historical and cultural significance of air as miasma, and air as a vector for disease transmission and social contagion; liquid networks of air flow; the public health dimensions of environmental design, Nightingale wards and leisure tourism; air pollution and environmental legislation; air pressure and 'I can't breathe'; the medical management of respiratory failure, and the mutual dependence between lungs and machines in artificial ventilation and air conditioning; breath as metaphor – in the Māori cultural context, known as Hā, the first breath of life – and breathing in rarefied atmospheres of space and high altitude; kissing and resuscitation; breath in song and poetry; the intimate connection between the ecology of breathing, and the work of trees and algae in gas exchange; ecological consciousness and breathing as evolutionary marker of humankind's ascension from the primordial swamp, made possible by the synthesis of oxygen within the mitochondria; and so on.

How can I reasonably practice as a respiratory physiotherapist and not have a view on the interplay between the ecology of air, the biology of breathing, the lived experience of gas exchange, the spirituality of breathlessness, or the symbiotic relationship between objects that are neither defined by what they are, nor by what they do? How can I not be interested in designer face-masks, and the creative conversion of oxygen, air and breath in works of art; or be concerned for cities like Delhi, where levels of carbon monoxide were 25 times the WHO recommended level at times last year?[34,35] How can I privilege an anthropocentric view of breathing and ignore breathing as a form of anarchy, air as 'landscape', a negative space, and terra infirma? Air as terror and medium of social control? Combat breathing[36] or muscular armor[37]? My practice and thinking, surely, has to embrace the use of

breathing in films and role player video games? And if oxygen is the 'fuel', how can I understand the role it will play in future robotics and space travel? I have to be interested in breathing as memory and history, in iron-lungs, ventilators and machine-assisted breathing. And I surely must want to understand why the diaphragm is the only skeletal muscle in the body that is both under voluntary control and essential to life? What of the interstitial (liminal) spaces between things – so important for the micro-anatomy of the lungs – but applied elsewhere too?

Compared with the kinds of regulated discipline that currently constitutes contemporary respiratory medicine, and much else in western approaches to healthcare, I am arguing for a new ethics of objects that embraces this superabundance of perspectives and paradigms. With the advent of 21st century technologies that will radically reshape the place of healthcare in people's lives,[38] the anthropocentrism and humanism that dominates contemporary understandings of health and illness will be harder to justify. The advent of robotic assistants, designer prosthetics and augmented reality, will make it even harder to retain the same distinction between that which is inside and that which is outside; that which is mine and that which is 'other'; that which is human and that which is nonhuman. What is needed is a radically revised philosophy of human-world relations that actually does away with the distinction between human and world, nature and culture, quantitative and qualitative, body and mind, and in doing so radically subverts the Victorian notion of professional disciplines with their impermeable boundaries and arbitrary distinctions.

The emergence of new approaches to qualitative research have opened up new ways for healthcare researchers to interrogate the meaning and significance of breathing for people.[39-48] To some extent these approaches have actively resisted the long history of reductionism and positivism that have dominated biomedical understandings of respiratory physiology and pathology. But they have also tended to promote an anti-realist, humanistic and subjective reading of breathing that has reinforced a binary position in which one either believes oxygen molecules exist and exert a significant formative influence on people, plants, air, breath, mitochondria, wind, and climates, or they do not. In the end, such an approach is as ontologically unsatisfactory as the anthropocentric scientism of western medicine.[49]

So, what is to be done? Obviously, the reach of new philosophies like OOO is far greater than just healthcare, so my focus on respiratory physiotherapy seems, on the surface at least, to be a little prosaic. But this, of course, is the point. Because orthodox, mainstream health practitioners

are largely encouraged to be reductive in their thinking, and are discouraged from seeing the work as operating on a cosmological scale for fear of seeming messianic. OOO suggests that such an attitude is redolent of the kinds of undermining and overmining that dominates our relationship with things. OOO, by contrast, offers an antidote to these persistent acts of duoming, and suggests that if we as a species are almost entirely inorganic, then focusing so much of our time and energy on ourselves might not only be wildly self-indulgent, but may also be causing many of the problems we are now experiencing as a species.

The appeal of both new materialism, OOO and the ontological turn in general, is that they open up a universe of possibilities for new kinds of research, new ways of thinking, and novel kinds of healthcare practice. But, for all its virtues, I believe that new materialism falls short of radically disrupting our anthropocentrism. New materialism's reliance on an affect economy appears radical on the surface, but in reality it is a humanistic turn on a now old qualitative theme. Clearly, removing the legacy of 12,500 years of human hubris is still the main project, but in this article I argue that new materialism fails to offer an ontology adequate for the task. OOO, on the other hand, just might.

OOO is only beginning to be recognised by scholars and, consequently, has only just begun to come under deep critical scrutiny see, for example, references 50,51. Initial indications suggest it offers us tools to reform healthcare as a human-centred practice, and radically redefine what health means; it provides a mechanism for a fully flattened ontology, and a philosophy to explain how real and sensual objects exist and interact; it rejects the occasionalism that has allowed Gods, science or idealism to arbitrate the ordering and engagements of things in the world; it shows us how to overcome the kinds of binary distinctions we have created between nature and culture, object and subject, mind and body; and it shows us how we might engage in the symbiotic real and, by doing so, avoid a species extinction that is looking ever more likely as the years go by.

Notes

a The term 'conatus' derives from Spinoza's belief that all matter possessed a living force that was its drive to persist and endure; a 'will' to express its becoming. Spinoza's exploration of conatus in the 17th century would be a significant influence on Gilles Deleuze's later work.

b A related critique, that new materialists like Jane Bennett have conveniently portrayed all matter as passive and dead

substance in order that we can then demonstrate its need for human enchantment, has been made in recent years.[21]

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