Unreal Objects

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Digital Materialities, Technoscientific Projects and Political Realities

Kate O'Riordan

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Introduction: Problems With Objects

'Unreal Objects' as a title might seem like a contradiction. That is the point. This is a book about contradictory and competing realities. The world is full of technological objects that are naturalized and taken as a given. Accepting these objects in their own terms means that responding reactively to them is one of the only positions available. Objects orientate people, knowledge and worlds. The point of the book, then, is to disorientate some of these objects and look at ways of taking them in different terms. There is an imperative to look at the world and its phenomena in terms of objects, and to disavow other ways of knowing by prioritizing some objects over others. This appears in particular kinds of materialist thinking such as object orientated philosophy and accelerationism (Bogost 2006, 2012; Morton 2013; Williams and Srnicek 2013). I'm going to refer to this as object materialism. Materialism itself is not the issue at stake here – multiple kinds of material thinking contribute to knowing and intervening in the world. Feminist materialism, historical materialism, science studies and ecological materialisms are also influential in taking things seriously as both material and representational. However, a particular kind of insistence on the object, in both the claims of technoscience and directions in academic and political thinking, are part of a problem to be addressed here. The way that object materialisms in the world of theory seem to mirror the claims of technoscience is striking; both insist on taking particular technological objects as a given, in their own terms. The book works to bring back a sense of objects as things in the making, mediated, unstable, not quite given, constantly deferred, and as part of the problem of always positing science and technology as the answer.

The book undoes this imperative to be object orientated by looking at what I'm referring to as unreal objects. Taking digital-media-materiality together amounts to a proposition that media objects mediate and make worlds, and that what counts as media and as material are political questions. Approaching emerging technoscientific projects as unreal

objects is a way of challenging the imperative to find technological fixes for social issues, and the demand for everything to be an object.

The imperative to look at the world in terms of the agency of real objects operates across political discourse, technological, scientific and engineering fields, and philosophical and critical theory. For example, the US president Donald Trump promises to build a wall, delivering an agential object as a political solution. In the UK, Trident is offered as an object, a self-defined thing: it is what it is. Walls and weapons are offered as real political objects making cuts in the world. At the same time, in the register of philosophical and critical theory, leading thinkers tell us that there is a world of objects that appears to us directly, unmediated, and that we have to deal with this world reactively, in material terms.

The current focus given to objects and the idea that we can only deal with the reality of the world as it is given to us might be an abdication in bad faith. It leaves reaction as the only option and impels acceptance of multiple factors as just realities we have to deal with. However, realities are made up too, and the full capacity of 'made up' to mean manufactured, created, invented is important here. Objects are not just givens to which reaction is the only orientation. Politics are involved in the making of objects, realities and worlds. It seems to me that there are two types of object that are given to us as real: those that are construed as arising from the world, like bodies and mountains; and those that are made in the world, like iPhones and computers. Even though the latter are more obviously made up, manufactured, real things, they too are taken as inevitable. Their inevitability, high status and economic value mean that they outweigh other kinds of realities in a hierarchy of unreal objects. The status of technoscientific objects has a special role in securing the real: they are both made up and promise to remake other realities. Genomes will remake bodies, biosensors will remake homes and cities, smart grids will remake climates.

This is then a book about emerging technologies, new things that promise to remake other realities. Some of the examples are more emerging than others. Some haven't made it off the prospectus and others have already become part of everyday life. All the examples in this book can be thought of as big emerging technosciences, and the idea that they will all be realized in the world is a naturalized and deterministic story that I seek to disrupt. All are emerging in a moment in which the role of the media is central to the research into, and the development and delivery of, new technoscientific realities. The role of the media is folded

into these projects in multiple ways. On the one hand, the role of public relations and creative media agencies is pervasive in the development of these projects from their very early stages. On the other hand, technoscientific objects themselves constitute processes of mediation, stabilizing temporary realities through media texts, devices, sequences and platforms. All of the examples join up technologies and bodies to create sites at which biological materials and informational technologies circulate, flow and mediate each other.

I use the term unreal here to try to emphasize hierarchies of reality and of materiality and to demonstrate differential materialities and realities. The unreal objects of the title are media materialities, objects which are given as real but also operate on a spectrum that includes what can also be thought of as immaterial, symbolic, insubstantial and unreal. Unreal objects are both a proposition and an approach: a proposition that objects that appear real are also made up; and an approach to emerging technologies that takes them as objects and discourses, material and symbolic, imaginary and actual. They are contradictory things in the world that can serve as reminders of the contradictions of given realities. This is to point to forms of intervention, thereby disrupting the narrative of the inevitable world given to us in which we can only react.

The premise of this book is that political legitimacy is negotiated through science and technology taken as objects, that mediation is central in materializing this authority as real, but that other stories can be told which undo the objects of technoscience as they are given. Emerging technologies become nodes of contestation about what collective investments should be made and what common futures are desirable, and as such they are political objects. However, the question of which objects come to accumulate that political gravity, or to assume a reality, has as much to do with the media life of these objects as anything else.

SOME BACK STORY: WORKING WITH EMERGING TECHNOLOGIES

I've been thinking about unreal objects for some time, and some specific experiences will help to tell a story about how this developed into a proposition and an approach. The first is an anecdote about a dinner conversation. I was working on a three-year project about the economic and social aspects of genomics. This was just after the Human Genome Project had been completed and some two decades into the emergence of genomics as a global big science endeavour. At the annual project

conference dinner one of my colleagues observed jokingly to a genome scientist that she wasn't sure if she believed in the genome. After all, she noted, you can't see it or show it to me.

We had both recently read the novel *Life* by Gwyneth Jones, in which the protagonist conjures a strand of DNA from onions and washing-up liquid. DNA you can touch and see. Genes and genomics on the other hand are not apparent to the eye. Genomes are only manifest as objects as sequences of data, three billion base pairs per genome. You can look but you can't really touch. The human genome is printed out as a sequence of letters in a book in the Wellcome library and you can touch the book – but this is a book, a media object, not a genome. The genome sequence is likewise a sequence not a genome. On one level it is hard to believe in genomes, and this story about scepticism expressed at the centre of genomic research is refreshing. On another level, a huge amount of attention, investment, work and media production has gone into making genomes objects. This realization and materialization has been complex, produced through networks of objects, actors and processes of mediation over many decades. They have real effects on people's lives, from the careers of scientists, to the experiences of research subjects and patients.

At the time of this conversation my attachment to genomes was abstract. I'd been working on the economic and social aspects of genomics as a media analyst for some time and continued to do so for a decade. Towards the end of that time my attachment became more passionate when I discovered that my mother, my sister and I had a relatively rare genetic condition. Whether passionately or abstractedly invested, it is clear that genomes occupy such an important position that world leaders have claimed they are the language of god, and billions of pounds, dollars and other currencies have been poured into them. Although, as other scientific fields come into (re)ascendance in the early twenty-first century (physics and neuroscience in particular), it is also clear that perhaps there are fashions in the sciences as elsewhere. The £11 billion spent on the Hadron Collider, which opened in 2008, overshadowed the estimated spend of £5 billion on the Human Genome Project completed in 2000, or thereabouts.[1] Science and their technologies rise to prominence, rule the day and move on. However, as mediations they don't disappear, they reanimate and remediate (Bolter and Grusin

1 The draft genome was announced in 2000 but the Human Genome Project wasn't officially competed until 2004.

1998). For example, neuroscience reanimates psychology, and genomics remediated questions about the effect of nuclear and chemical warfare on populations (Higuchi 2010; Cook-Deegan 1991).

Another key experience that shaped this book was my involvement in the technology assessment project EPINET.[2] As part of a larger consortium, I led the media analysis strand of the project alongside people working on environmental, economic, legal, socio-technical and ethical aspects. At the time I was surprised that the research objects in each strand of the project were media materials. The basic units of analysis were texts produced about the technologies. Where there were prototypes, trials or pilots they were communicated through reports, images, texts, conferences, conversations, as well as assemblages of actors, relations and objects. We had been commissioned to look at technological objects, which although designated as emerging, were defined as things in the world. The emerging technologies were already given to us as objects, in relation to which assessment was reactive.

In this project the media analysis was distinct because we were looking at public and audience engagement and mediated visions and imaginaries. However, our strongest contribution was in some ways the reminder that other forms of assessment were also looking at visions. We compared use and take up with prospective visions, and focused on questions about the forms of media production and consumption involved. However, the objects kept shifting, and my overriding impression coming out of that project was that these emerging technologies, which included in vitro meat, biosensors and smart grids, were, above all, media objects. Things, and discourses, formations, tropes, figures, visions made up through media forms, and the attempts to define these as objects, were communicative, world-making processes that embedded the beliefs of those making, attending and investing in them.

The idea that technology is the materialization of cultural beliefs or is a cultural form is not a novel observation; it has been influential in both media and science and technology studies (Williams 1974; Latour 1991). That imaginaries are world-making is a proposition that has been examined in feminist approaches to technoscience, and especially in the work of Donna Haraway (1988, 1992, 1997). The proposition that we can only react to objects is at odds with these approaches to science and technology. Objects after all are orientating devices (Ahmed 2006), and

2 The epistemic networks project: epinet.no

to suggest that the objects of technoscience are unreal is to provide some disorientation as an intervention.

OBJECTS IN THE BOOK

The examples of unreal objects that are analysed in this book are: human genomics, biosensors, smart grids, in vitro meat, and de-extinction. The chapters are arranged around each of the listed examples, with in vitro meat and de-extinction considered in the same chapter. In the second chapter I focus on the case of Genomics England to discuss human genomics. Human genomics is a massive terrain and multiple books have been written about its economic, cultural and social aspects over the last two decades. In the spectrum of unreal objects considered here it is well established. Genomes are media objects which have a very high media presence and a digital media ontology. This is because genomes take the form of sequences, anchored in an imagined biological materiality to which there is a very strong ontological claim but no object. Genomes are digital media, or at least appear as such in sequence form, but as the chapter demonstrates, these sequences simultaneously appear and are deferred as objects, made relational through the imperative to collect them in large numbers. Human genomics brings human biology, genetics and informatics together. Chapter 2 explores some of the media work of Genomics England and sets it in the context of the political economy of sequencing. In doing so the chapter draws out the way genomes are made meaningful in this context, but also suggests that we need to think about them otherwise.

Each chapter looks at an example in terms of how it is given as an object and set up in a dominant or preferred form, but also looks at counter versions, alternatives and contradictions. In using this strategy I aim to bring an analysis of the objects together with the suggestion of alternative ways of understanding them. For example, Genomics England is an investment based on the promise of genomics to revolutionize biomedical health care; an alternative way of seeing this is to understand genomics as part of a digital economy, driving big data and sequence technology. It also offers investment in genetic editing technologies and the possibility of engineering species and it is important to bring this into focus when the question of NHS resources are at stake.

The third chapter is on biosensors. It looks more specifically at fitness tracking technologies, object devices that measure and quantify human

movement, calorie consumption and sleep patterns. Biosensors, as a category, refer to a much wider range of technologies that sense and measure biological signals and create data streams based on these. They have application as scientific instruments, in climate science, health care and leisure. Examples include monitoring blood sugar for diabetes or measuring sweat for fitness training or chemical composition. An early example of an analogue biosensor is the so-called lie-detector or polygraph test which senses several biological signs including blood pressure, pulse, respiration and skin conductivity (Littlefield 2008). The rhythms of these signals were written out in patterns and subject to interpretation. In the examples explored here, these layers of collecting, recording and interpreting are condensed into a device, which provides a strong interpretative framework for the biological data collected. The chapter uses the example of fitness monitoring to look at how the mass-market roll out of such technologies has been taken up. It sets these objects alongside other forms of measuring and recording fitness in everyday life, by looking at diaries and letters in earlier periods. It also sets the market model of fitness tracking against digital art practices and alternative interventions into these technologies. Like the previous chapter, it does this to look both at the object as a mass-market product to which only a reactive response is offered, and at how it might be otherwise.

The fourth chapter on smart grids allows a different scale of unreal object to unfold. Smart grids are visions of alternative energy futures, which scale up to international networks. They are given as objects represented in diagrams and an industry. They are at the same time symbolic forms, extrapolating the network mode as a vision for energy. They have materialized as objects in the smart meter, which then stands in for the vision even as it embodies its contradiction. In smart-grid visions the existing national or local grids that distribute energy from one source to multiple consumers are transformed. The promised transformation is to a flexible grid with multiple energy sources, including renewables and consumer-produced forms of energy, in which smartness refers to computerized self-monitoring systems that use energy in optimal ways. To date smart grids are anchored in the roll out of smart meters, and the chapter examines how this is being conducted in the UK. In this roll out, attachment, love and nostalgia are engaged, and so the making of unreal objects as love objects is also explored. The love of technology and the enchantment of technological objects is central to unreal objects as a whole. I draw specifically on Bruno Latour's (1996) work on Aramis and

ideas about the love of technology to illustrate this in relation to smart grids and to undo their abstractions.

The fifth chapter takes in vitro meat and de-extinction together. In vitro meat is a field in which tissue culturing is the basis for creating new meat forms, or meat outside of the animal. Tissue and cell cultures are grown in laboratory conditions in order to develop new meaty food products. De-extinction on the other hand is the cloning or genetic engineering of extinct (or nearly extinct) species in order to bring them back into being. In both cases the digitization of biological signals, and the dislocation of biological materials from embodied contexts to bio-technological ones, provides the basis for creating new bodies in the world. The objects discussed in this chapter are the temporary object of the in vitro meat burger, and the almost object of the de-extinct animal or cloned organism.

The three chapters on genomics, biosensors and smart grids are largely about digital inscription; that is, the making of things as digital forms: blood and tissue samples into genome sequences; biological functions into data; energy into computing infrastructure. The last two examples, in vitro meat and de-extinction, are about rendering digital materials into fleshly entities. All of the examples constitute a biodigital milieu because they involve multi-directional flows through biological and digital forms, but the direction of flow is perhaps more clearly biological to digital in the earlier chapters, and digital to biological in the later chapter.

MATERIAL AND IMMATERIAL: REAL AND UNREAL

In the last months of this project three phenomena came more clearly onto the horizon. Violent public attacks on black people, queers, Muslims, migrants and left-wing politicians came to the forefront of political and media attention in Europe and the United States; regressive political changes materialized further as the UK voted to leave the European Union and Donald Trump became president elect of the United States; and *Pokémon Go* emerged.

Pokémon Go demonstrates something of the enchantment of unreal objects. It is a game in which virtual Pokémon are hunted, captured and trained in augmented space. Players need a device (phone or tablet) with data. The on-screen view of Google Maps is populated with characters such that the screen appears to show a virtual world hidden from actual

view, but in which actions in actual space create game-world effects. Walking through the city is augmented by the mobile screen to create a space where Pokémon appear and can be captured. The reach of *Pokémon Go* right now seems symptomatic of the attraction of unreal objects in a moment in which our capacity to care about real people's lives is uncertain. Pokémon is a much longer-term phenomenon and has seen mass popularity at other times (Allison 2003; Bainbridge 2013; Gibson 2002; Jordan 2004). However, its popularity at this moment has taken on a different, more diverse and ubiquitous form (Giddings 2016; Keogh 2016; Salen Tekinbas 2016). The current game utilizes augmented reality (AR). Largely confined to games, heritage, art and education projects since the 1990s, AR has found it difficult to establish broad market appeal. *Pokémon Go* has changed this entirely by introducing players to a user-friendly (although data-heavy) version of AR. Augmented reality offers another entanglement of mediated and real, remediating the actual environment as a game space in a layering that augments rather than separates out. This layering is similar to the 3D projection technology in the iMAX but AR is distributed across different spaces (locative or expanded media). It uses computational mobile devices as interfaces rather than the cinema.

The game is dependent on the idea that devices (phones, tablets), data and wi-fi are ubiquitous (Keogh 2016). It exploits and exacerbates a culture of acceptance around commodification, data mining and always-on ubiquitous devices. It is pleasurable, escapist and communal. It has come with its own scare stories about risks to players, and has garnered widespread media coverage. By July 2016, it had gained an estimated 30 million players. It's communal aspects seem like an antidote to the individualism of headsets or fitness devices. It provides pleasure and entertainment in a period marked by very dark political times. It also extends the colonizing force of the digital further, capturing more and more people in the intimate network of devices, data and media that constitute the contemporary commercial world. It directs our gaze and attention back to our devices, just as people were perhaps starting to look up from Facebook. It blends the actual and unreal, texturing the dreamscape of unreal objects further.

Pokémon Go is possibly easy to dismiss. It can be positioned as just a game, a fad, not serious, not real. It features animated characters which can be designated as low culture, mass culture, commodities, media animations, cartoons. However, the point of putting it alongside

the more serious objects of technoscience is that they are all symptoms of the same layering of the digital and the biological. Unlike genomes, biosensors, smart grids and de-extinction, *Pokémon Go* has a sense of humour. It isn't shored up with promissory rhetoric about saving lives, worlds and futures but it crystalizes the same dynamics of being media all the way down, intervening in the real and having material effects. Alongside horrific political tensions, ongoing violence and nationalism, it looks as though the attractions of unreal objects are obvious. They offer romance, capture our attention and orient us towards alternative fantasies, futures and realties. The confluence of these things helps to illustrate one of the major issues of the moment: the question of how and what we care about. Black Lives Matter, the Orlando shootings, ongoing violent attacks on specific groups of people, and the disengagement with community-building ideals like the European Union all highlight the present constitutional crisis around care and attention for people and lives. This is a crisis of political constitution but also one about how the world is made up. While millions of people log onto *Pokémon Go* and love it, there is at the same time a lack of care for particular living bodies. In short, we have constructed systems of care for technoscientific objects, nurturing the growth of devices, platforms and data. At the same time as these objects seem to offer the possibility of coming together, we lack other structures of organization to come together and nurture people and their lives.

Pokémon Go is easy to locate as a media object, but this book is about bringing things that are less easily – or more uneasily – categorized as media objects to a media approach. It seems urgent that we recognize that things taken as objects are also media objects. We need to look beyond technoscientific enchantments to different realities and find ways to co-opt and divert these enchanting objects for less destructive projects.

MEDIA AND MATERIALISM

The use of 'unreal' in the title of this book is a provocation that gestures towards academic debates about materialism, objects and knowledge. In these debates there is an argument that too much attention has been given over to questions of meaning making or text and that what is urgent is the real, material world and particularly global warming (Williams and Srnicek 2013; Galloway et al. 2014; Bogost 2012; Morton 2013). However, the challenge that these interventions leave unresolved is that