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Where do experiments end?

'The prevailing definition of 'Experiment' as a repeatable recurring fixed event which gives rise to repeatable consistent reading [...] cannot take account for the variability of all events between the readings' (The Office of Experiments, 2010, Principles and Articles).

This is the last of three editorials written as board member for *Geoforum*. These have provided a welcome opportunity for theoretical speculation, which overflows research papers, and experimental exploration with alternative sites of critical intervention. Although unplanned, the editorials have addressed similar themes, evoking interpretative tactics from the borderland, positioning humour and monsters as biopolitical tropes in the unfolding transformations of nature, science and society (Davies, 2003; 2007). Given this is the last editorial; it is perhaps fitting to talk about endings. In this final commentary, I examine emerging questions around where experiments end. I want to return one final time to questions about the constitution of borders and the turbulence of boundaries, this time between the laboratory and the landscape, experimental objects and experimental subjects, and communities of aesthetic and scientific practice, using these to explore the changing nature and scope of experimentation.

Geographers, and others, are increasingly interested in the sites of actual experimentation (Powell and Vasudevan, 2007) and the location of truth spots (Gieryn, 2006). Here, there are questions about the assemblage of apparatus, the characteristics of space and the disposition of witnesses through which experimentation enables the 'systematic production of novelty' (Pickstone, 2000, p. 13) and provides visible testimony for a formerly invisible nature (Shapin, 1989). Also of growing attention is the way that experimental practices, such as ubiquitous testing (Ronell, 2005), perpetual survey (Thrift, 2008), and interactive simulation (Der Derian, 2009), overflow these experimental sites, such that an experimental society, or a wider condition of experimentality, can be recognized¹. These emerging cartographies of experimentation disturb each other somewhat. They have different temporal-spatial imaginaries, define experimentation through alternative analytical or actors' categories, and address themselves divergently to epistemological questions about scientific practice or the

ontological politics of technical democracy. The turbulence on the borders between them is intriguing, for it raises further questions about the spatialities and ontologies implied by different forms and sites of experimentation. Galison (1987) addresses a related question, asking how experiments end. In this case, the stability of experimental results tells us when a trial programme reaches closure. The experiment starts on the laboratory bench and ends within the factory infrastructure of high-energy physics. Shaffer (1995) asks the same question in an earlier era, where do experiments end? His interest is the epistemological shifts that allow the extrapolation of experimental protocols from tabletop observations to Victorian astronomy. Both locate these experiments precisely and in answering their respective questions, stress the importance of repeatability and stability to the ontological settlement of experimental systems. Yet, the same stability cannot be achieved in the generation of novel forms of knowledge and the rendering of new forms of visibility through methods of monitoring, testing and simulation, which are extensive, iterative and contextual. Here, the laboratory overflows its traditional constitution, inhabiting diverse informational, technological and political environments, changing the nature of experimental sites and experimental subjects. Let loose, the inevitable ‘variability of all events between readings’ changes the very idea of an experiment, and the question of how and where experiments end.

These thoughts take shape on a bus tour, travelling out of Southampton on a chilly January morning with a group of artists, historians, geographers, local researchers and others, to visit a collection of cold war experimental sites across southern Britain². The event has been organised by Neal White and Steve Rowell. Both are artists, interested in experimental aesthetics and experimental geographies. Today, White and Rowell are working collaboratively, under the banner of the Office of Experiments. The tour marks the end of an exhibition, entitled ‘Dark Places’, commissioned by the Arts Catalyst, and staged at the John Hansard Gallery in Southampton. Both have solo projects in the exhibition. Steve Rowell’s piece is *Mastering the Ultimate High Ground*, a title taken from the book by Benjamin Lambeth on the adoption of space systems by the US Air Force; the exhibition illustrates the UK military bases which support this distributed spatial network. As the accompanying catalogue explains, ‘this is not space warfare; it is using space to support air warfare’ (O’Reilly, 2009, p.5). White’s installation of the *Mike Kenner Archive* offers a perspective from below, recovering the history, and spatiality, of the release of biological materials from

¹ I take this term from the ongoing programme of interdisciplinary events on experimentality, hosted by the Institute for Advanced Studies at Lancaster University, 2009-10. For more information, see <http://www.lancs.ac.uk/experimentality/>. Last accessed 13/05/2010.

² There are several online accounts of the bus tour, from the Arts Catalyst <http://www.artscatalyst.org/experiencelearning/detail/darkplacesbustour/>, the New Scientist <http://www.newscientist.com/blogs/culturelab/2010/02/in-search-of-dark-places.php>, and Angela Last <http://mutablematter.wordpress.com/tag/dark-places/>. All sites last accessed 13/5/2010. See also Kelly (2010).

Porton Down in Wiltshire in the 1970s, as part of spraying experiments for biochemical warfare research. The archive features the exhaustive work of Kenner, who has collected and archived information on these releases through a 15-year campaign of Freedom of Information requests³. The installation of the archive within the gallery space amplifies access to these documents, but also questions our own relations to these occluded sites of experimentation. The third collaborative piece by White and Rowell, and the one to which the bus tour is most closely related, puts this challenge more directly. This is the 'Overt Research Project', an archive of the artists' visits to UK sites where experiments take place. These include government, commercial and private research institutes, covering science parks, nuclear installations, communication facilities, and military testing grounds. The sites are documented through photographs and site notes, taken from perimeters or moving cars, cataloguing but never contravening these manifestations of scientific and technological experimentation in the landscape. The website is to be launched soon, and the invitation extended to join their research network, contributing our own observations to this expanding database. White and Rowell have written an accompanying guide to being an 'overt field researcher' in the exhibition catalogue, complete with badge, space for observational notes and legal guidance on approaching and taking photographs of sensitive sites. The bus tour, advertised as a 'tour of critical sites of advanced technological development in the South of England'⁴ marks the end of the 'Dark Places' exhibition, but is also the start of this next phase of open-ended experimentation.

In a recently translated book, Callon et al. explore the generative points of connection between 'secluded research and research in the wild' (2009, p. 94). As science, technology and experimentation overflow the boundaries of existing frameworks, so laboratory research is necessarily accompanied by everyday experimentation, which they argue demands new kinds of responsibility and responsiveness from scientists, politicians, artists and social scientists, as well as citizens. The terms 'secluded research' and 'research in the wild' seem apposite here. They point to relations between the closed and open spatialities of experimentation of interest to academics, as well as the encounters between dark places and overt research staged in this artistic practice. In part, this is about the scaling up of the 'socio-technological experiment' to one with no boundaries, 'carried out in real time and in the scale of 1:1' (The Office of Experiments, 2010). But, importantly, these experimental geographies have complex cartographies, not all of which are visible or accessible. To name an experimental society is not to say that the experiment is everywhere and always the same.

³ For more information on the background to these releases and analysis of the patterns of secrecy and knowledge production around biological warfare experimentation in the UK, see Balmer (2004).

⁴ <http://www.artscatalyst.org/projects/detail/darkplaces/>. Last accessed, 13/05/2010.

These emerging contours are spatially complex and unfold through time. The experiment does end, if only in obsolescence, as one experimental site is replaced by another. As Callon et al. continue, ‘the expression “laboratorization of society” does not mean that society is reduced to one huge laboratory, but that at different spots laboratories are implanted that frame and preformat possible actions. This movement is continuous, for not only are new spaces of action opened up by the installation of new laboratories, but those already in place are replaced by new laboratories that make the earlier ones obsolete. Laboratorization is an interminable undertaking, always starting again’ (2009, p. 67). In this context, an experimental intervention is necessarily a temporal-spatial one, engaging with the transformation of spatial and temporal description, the framing of possible actions, and the preformatting of subject/object relations. And it is in this context, in a perhaps improbable manoeuvre, that the bus tour emerges as an aesthetic intervention into the unbounded experiment.

This particular vehicle winds its way cautiously through narrow rural lanes that lead us to a series of government, military and increasingly commercial scientific facilities, taking in the Chilbolton Observatory, the Chemical and Biological Defence Establishment at Porton Down, RAF Boscombe Down, the International School for Security and Explosives Education (ISSEE) at former RAF Chilmark, and Blandford Camp, site of the Land Systems Reference Centre. All are experimental sites in some sense, differently located within the dynamics of cold-war and post cold-war research. The experiment today is one of placing ourselves in relation to these sites. This event is about locating these facilities within the landscape, tracing their patterns of visibility and invisibility. But it is also, critically, about exploring the embodied practices of what it means to try to encounter these experimental sites. Placing sites opens up alternative means of narrating them, unfastening them from their singular association with the abstract spatialities of military science and technology. As Edensor and Holloway suggest in their exploration of the rhythms of a different tour, ‘the coach is but one mobile element in a seething space pulsing with intersecting trajectories and temporalities, rather than the vantage point from which landscape is “known”’ (2008, p. 498). Travelling through these landscapes makes evident the complexity of placing such experimental sites in the congested British landscape. There is the close juxtaposition of rural communities, who often service and protect, as well as sometimes contest such sites. There is the co-option of local topography to conceal built infrastructure, such that the tour is as much about encountering absences as seeking vantage points. The temporal dimensions emerge as well. Cold war spaces are symbolically transformed into nature reserves, albeit inaccessible ones littered with unexploded ordinance. Ex-military installations have to pay their way as well in this era of public-private partnerships, and so the landscape bears the traces of commercial

courses restaging emergency training situations again and again. At Chilmark, we rent the onsite catering team and moussaka becomes the unlikely tactic for gaining access to this experimental site. Through the rhythms of bus tour these spatialities are folded together and fractured; their past, present and futures entangled with the changing relations between secluded research and research in the wild.

Our own demeanour at these sites is also an experimental experience, as individuals, and increasingly, as the day goes by, as a group. At each stop, we leave the warmth of the bus, and each person makes a decision about how they should or could interact with these sites. We observe, whilst not always observing, signs prohibiting photography. Archive film and interview footage, screened as the bus rolls through the landscape, offers us conflicting, sometimes conspiratorial, perspectives on these places, which we can accept or not. Sometimes decisions are taken from us. One small Royal Observer Corps nuclear bunker, sited in the middle of a muddy field, will only fit five individuals, so we draw lots. Each choice is part of a broader process of sense making. Angela Last documents this in her blog: ‘on the bus this led to discussions about how one should (or can) act around such sites as an individual or group. Demand access? Trust the government? Draw more attention to them as a form of vigilance? What alternatives are there to having such sites?’ (Last, 2010). This is about choosing to explore the limits of choice, about challenging the way that the laboratorization of society might preformat possible actions. The notion of experiment enacted here owes more to Deleuze, of the ‘encounter with what we can’t yet “determine” [...] which allows us to go beyond our social identities and see society as experiment rather than contract’ (Rajchman, 2000, p. 20; cited in Hinchliffe, 2007, p. 100). Taking these encounters into the field multiplies the positions we take in relation to these sites, exploring our own bodily affective capacities (see Latour, 2004). The body becomes an experimental site itself. This is explicitly indicated by White’s earlier work on self-experimentation. Unlike some performance art, these corporeal interventions do not focus attention on the artist’s body as a site of spectacle. A different notion of the body in the world is implied here, one which is always already an experimental site, absorbing substances, amplifying or dissipating affects, knowingly as well as unknowingly. Each coach stop becomes a study in embodied understanding, negotiating as a group what it means to act in the context of these sites and their uncertainties. The bus tour can be seen as a ‘temporary structure’⁵, our behaviours are unscripted, it offer us the potential to blur the boundaries between ‘those who act and those

⁵ ‘It is difficult to monitor and legislate over temporary structures. As administration increasingly occupies permanent institutional space, it is critical that the artist resists through experimentation without the micro-practices of control. Administration of space and event all too often arrests development, identifies risk as too risky, and standardises behaviour’ (The Office of Experiments, 2010, Structures).

who look; between individuals and members of a collective body' (Rancierre, 2009, p. 19). If we choose to take it. We can always stay in the warmth of the bus.

Resonating throughout these collective practices of exploration and engagement is an additional dialogue with the processes of redaction, of erasure, the recall or removal of knowledge (Galison, 2004). This conversation becomes quietly, but increasingly, insistent as the bus drives back towards Southampton, accompanied by an uncut film interview between Neal White and Mike Kenner. The evening draws to a close in Southampton, with the launch of *The Redactor*, a limited publication produced by the Office of Experiments, featuring extracts of Kenner's reflections on accessing classified information. The magazine reflects on this increasingly common spatial and temporal strategy. For geographers, this is a source of growing anxiety, as the amount of information entering the classified universe increases in scale to exceed the unclassified one (Galison, 2004). Thrift urges that this 'secret Universe cannot be allowed to persist. It can only warp a process of worlding that is warped enough already' (2008, p. 113). Experimental geography is one way of answering this appeal (Paglen, 2009). Yet, over time, redaction itself may draw attention to the presence of this absence, the ongoing processes of redaction presenting their own potential for what Thrift calls 'political ventilation' (2008, p. 112). 'Redaction reintroduces time into language: the redacted information lingers unseen, hampering language's assumed transparency and spurring the imagination to circumnavigate the occluded areas in order to reconstitute, bit by bit, the voided meaning' (*The Redactor*, 2010, p. 1). It is here that the skills of the enthusiast, the tenacity motivated by the desire to know, and the longitudinal data sets compiled by amateur archivists come to the fore (see also Geoghegan, 2009). The critical traditions in art denounced our 'inability to know and a desire to ignore' (Rancierre, 2009, p. 31). Here, the experimental aesthetic seeks to learn from this ongoing research in the wild, to amplify and articulate these alternative experimental knowledges and enact their ontological implications.

The participants of the tour are the experimenters. The experiment is the uncertain encounter with the visible and invisible markers that map out the experimental landscapes in which we are already interpolated. The bus stages the event, but there is no fixed or singular outcome. This multiplicity is important, and important to retain. Without it, the bus tour risks becoming a reification of a counter spatial logic, a heroic exploration of unveiling, a simulacrum of its own performance of critical engagement. The political potential of multiplicity is the point; to note, document and amplify the variability of all events between the readings, challenging the preformatting of possible actions and generating research in the wild. We may all be artists now, but the experiment does not function if this is the only discourse. The experiment is collective, but also necessarily open to contestation. Just as

there is 'a suspicion of science as usual', there is also a necessary suspicion of 'activism, art and theory as usual. The requirement is to explore relations across species and scales. [...] As Isabelle Stengers points out, one must put oneself at risk. The only choice that is off the table is allowing questions of liveliness and diversity to be seen as technical, to be decided off-stage' (Dumit, 2008, p. xiii). The stage is set. The 'Overt Research Project' encourages us to put our sites, our experiences, our enthusiasms and our collectivities on-line and on the line. Perhaps we are all multi-sited ethnographers now (Marcus, 1995). In science, social science, art and politics, the boundaries between methodologies of inquiry blur, there is no easy endpoint, rather a continuing process of reactive, iterative and generative experimentation (Thrift, 2008). The question remains open. Where does the experiment end?

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