

## VISUALISING BIOLOGICAL INFRASTRUCTURES, ARCHIVES AND EMERGENCE

Helen Scalway and Gail Davies in conversation (London, May 2012)

*The analysis of biocapital 'cannot simply be a network analysis that traces the various types of technoscientific or capital flows that occur in order to produce and sustain this system. Such an account also needs to understand how these flows are constantly animated by multiple, layered and complex interactions between material objects and structural relations of production, on the one hand, and abstractions, whether they are forms of discourse, ideology, fetishism, ethics, or salvatory or nationalist belief systems and desires, on the other. These abstractions may be hard to pin down and map in the same diagrammatic fashion as networks and flows, but it is essential to acknowledge them'*<sup>1</sup>

*'The word 'diagram' implies a schematising; while places, in their density and richness of meaning, seem to defy schematisation. Yet in relation to the visual investigation of place, is there some expansionary potential in the 'diagram' to become a visual medium through which meaning pours out everywhere, rather than being pared too much away in simplification?'*<sup>2</sup>

**Gail:** We are sitting in my office in London. I'm Gail Davies and I'm a geographer at University College London and I'm here with Helen Scalway who is an artist. We'll explore a bit more about her art practice in a moment. The context of our conversation is some collaborative work we've been involved with for around 18 months, maybe a bit longer than that. Helen has been working in very interesting ways alongside some of my research, which is on the international challenge of coordinating mutant mouse resources<sup>3</sup>. Helen has been responding to, working with and augmenting this work, through some creative ways of diagramming, representing and visualising the sorts of things - including the geographies, infrastructures, architectures and experimental practices of scientists working with mice – which I am trying to write about.

So to start off, I just want to ask Helen what she's working on at the moment and invite her to say a little bit more about what her work involves, as an art practice.

---

<sup>1</sup> Sunder Rajan, K (2006) *Biocapital: the constitution of postgenomic life* Duke University Press, p.20

<sup>2</sup> Scalway, H. (2011) Concept note for Charting Place: Diagrams, charts and the visualisation of the making of places, 'Landscape Surgery' seminar at Royal Holloway University of London.

<sup>3</sup> The main texts which Helen has been working with include: Davies, G. (2010) Captivating behaviour: mouse models, experimental genetics and reductionist returns in the neurosciences. *Sociological Review Monographs* 58, 53-72; Davies, G. (2011a) Playing dice with mice: building experimental futures in Singapore *New Genetics & Society* 30:433-441; Davies, G. (2011b) 'Writing biology with mutant mice: the monstrous potential of post genomic life' *Geoforum* doi:10.1016/j.geoforum.2011.03.004; Davies, G. (2012a) What is a humanized mouse? Remaking the species and spaces of translational medicine. Forthcoming in *Body & Society*; Davies, G. (2012b) Caring for the multiple and the multitude: assembling animal welfare and enabling ethical critique. Forthcoming in *Environment and Planning D*.

**Helen:** I'm working with two or three other things right now, one of them is a return to using materials, very much trusting the materials. I'm going to try and create the idea of an organism. I won't say what kind of an organism but a living organism, as a sort of timeline, so it will be like a river or a flow into which various things pour, but with the unpredictability of the sort of materials I use: inks, dyes, pigments, powders, muds, earths, gravels, sands. These of course will get carried into the stream and they will have their odd inter-reactions which are unforeseeable and often quite exuberant. So I'm going to abandon myself in this piece of work to what the materials will do.

Otherwise, I'm editing diagrams that I've made and that's going to take me some time.

**Gail:** So there are two really very different sorts of visualisations of places and practices that are going on here. Maybe I should let you first explain why I'm saying visualisation rather than artistic representations. Perhaps you can tell me the problem you have with the word "artistic" and explain what visualisation means in this context for those people, especially in science, who are perhaps used to thinking about it in a different way.

**Helen:** Sure, well I would never undertake to say what art is, that would indeed be a fool's errand! I think of myself as a visual worker. I get very worried about the word "artistic" because it seems to me to lurch towards an aestheticisation. I was an art student in a very interesting art college, and had tutors who said to me "politicise, don't aestheticise". But the aesthetics come out if one thinks with integrity, then the work will have a strength which is of a different kind.

I think the word "artist" is just too vague, a word like a screen to project anything on to, whereas if I think of myself as a visual worker it directs me towards thinking and thinking through doing, thinking through my practices.

As far as visualisation is concerned, I do understand that in this context, it might be taken to mean digital visualisations of data, datascares and things like that and I have looked with interest at datascares. But of course what they deal with always is quantification, they metricise, they are looking at quantities, whereas I'm interested in the much more messy flows which turn space into complex place.

**Gail:** So there are lots of things going on in there and hopefully we'll come back to all of them in some way. There's something in there about the relationship between aesthetics and politics, there's something in there about space/place and your collaborations with geographers, there's something in there about data and the architectures through which data are generated and how those are changing at the moment.

But I want to come back to where you've started which is the two different kinds of visualisations you're working with at the moment, one of which is what you'd call diagrams and one of which is more about these experimental materials which are flowing and exuberant and have their own potential for excess and messiness. This is something I'm very interested in, in my work as well because it seems to be at the heart of what infrastructures in biology do, they're trying to work productively between something that has to be able to be fixed in some way and something that's much more exuberant and open to emergent potentials too.

You've said a little about your method ways of working with materials, and again perhaps we can come back to that. But to set the scene a little more, could I ask you to say a little bit more about what these diagrams are, just explain them to people.

**Helen:** The word “diagram”, I think carries a load which can be misunderstood in that it can refer to quite technical things, work that’s always digital for example. But my diagrams tend to start as hand drawings because that’s the way I think. I suppose the idea first came to me as a result of coming across Gilles Deleuze’s formulation of the diagram as a map of the relationships between forces<sup>4</sup>.

Now he insists and others have insisted after him and expanded on the idea that such diagrams will always be very abstract, they’re not pictures and they really do abstract away from anything figurative, to just focus on the actual forces. Whereas I rather transgress this. I would more often use the word “chart” for what I do because I often find it very helpful to take for example, an architectural floor plan and look at that. That can be the ground plan of an entire site for example, like an animal research facility where I’d be looking not just at the actual mouse house and the places where procedures are carried out and the quarantine rooms and so on, but also such things as the barriers and the cafe and the sports facilities and the larger context.

**Gail:** Just to explain a little bit more. We’re sitting here and chatting with some diagrams in front of us. One reason they are so interesting to me is they’re quite clean in their look, they’re black and white and they’re a mix of flow diagrams, arrows, boxes, text and spaces, which have of them something of the qualities of an architectural diagram. Or they’re systems, for example the one here, which is based on system diagram showing the flow of materials and separation of dirty and clean spaces essential to an animal research facility. But they are then animated by these sorts of intensities and depths, through the qualities of the spaces that you’ve written onto them quite literally and which makes the interaction of values within these spaces legible.

So in some ways when you first look at them, you think “oh yes I know what I’m looking at here”. But then when you begin to read into them, you find really unexpected things. Instead of the apparent or idealised transparency of a scientific diagram, which you aim for in science, you get a rendering of all overlapping complexities, material practices and amidst these the social anxieties too. I’m reading from the diagram here. We’ve got the locker room from an animal research facility represented here, which contains scientists’ coats, bags and keys, it also contains assumptions, it contains prejudices, it contains situated histories, anxieties, ambitions, private lives, memories and so on. These of course are very much a part of the processes that animate the space itself. So if you go back to the idea of the diagram being maps of relations, these are not necessarily between abstract forces here. There may be those, but these are also deeply social, material, humanised and non human spaces in which incongruous entities that inhabit these spaces interact. Later on in the ‘non-human spaces’ we get the jostling together of bites and bytes – bites as in animal bites and bytes as in digital bytes and so on. So these have this immense ability to capture, in my mind, in two or three dimensions, what is really difficult to hold on in play in a written narrative.

**Image on next page: Helen Scalway 2013**

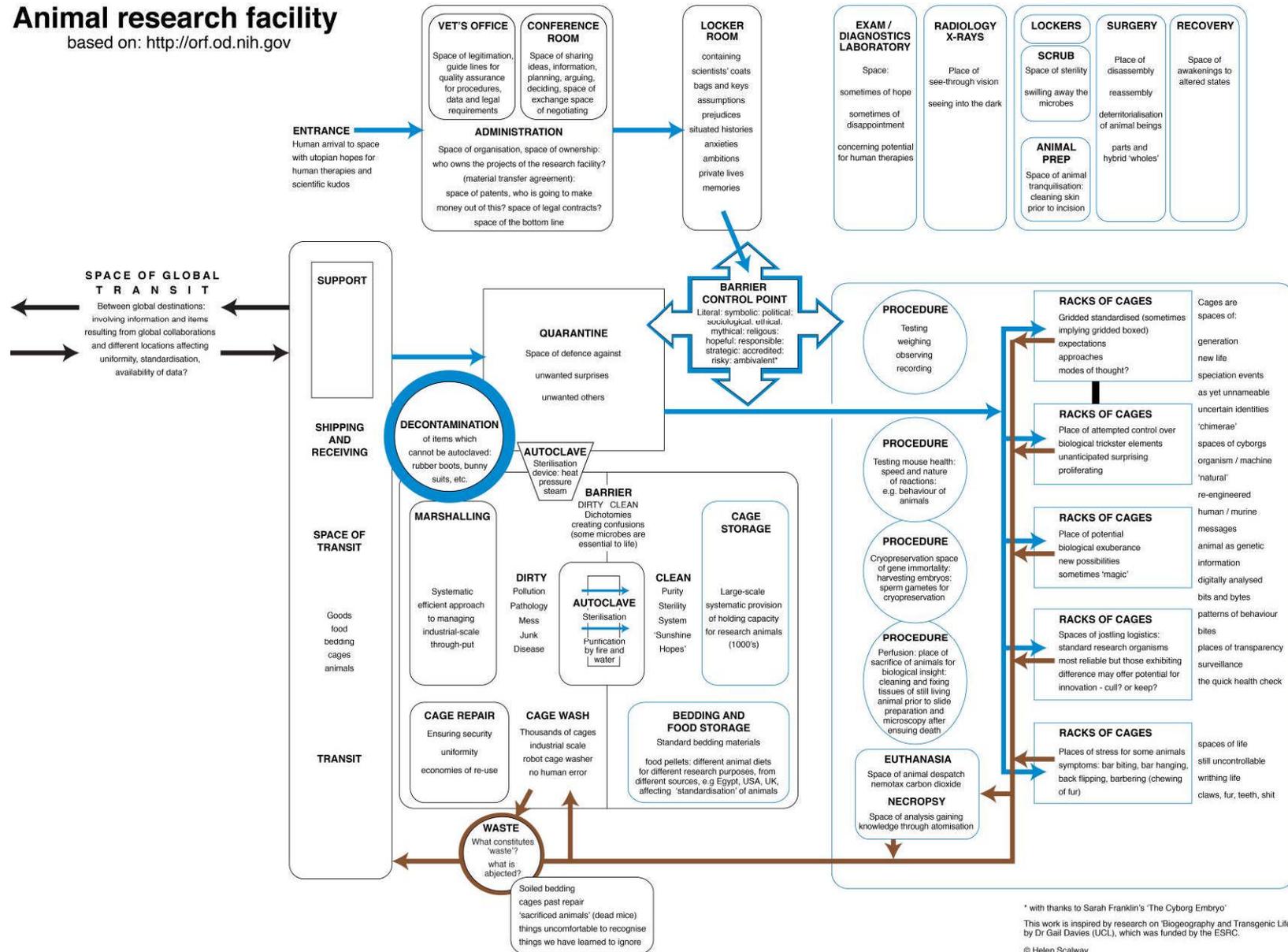
This chart is based on the system diagram for an ‘Animal Research Facility’ by the American National Institute of Health. The diagrams are not literal, however: they aim to suggest the many forces which produce the delineated space.

There is zoomable version of this image available at: <http://www.micespace.org/wp-content/plugins/wp-imagezoom/zoom.php?id=LYicb>

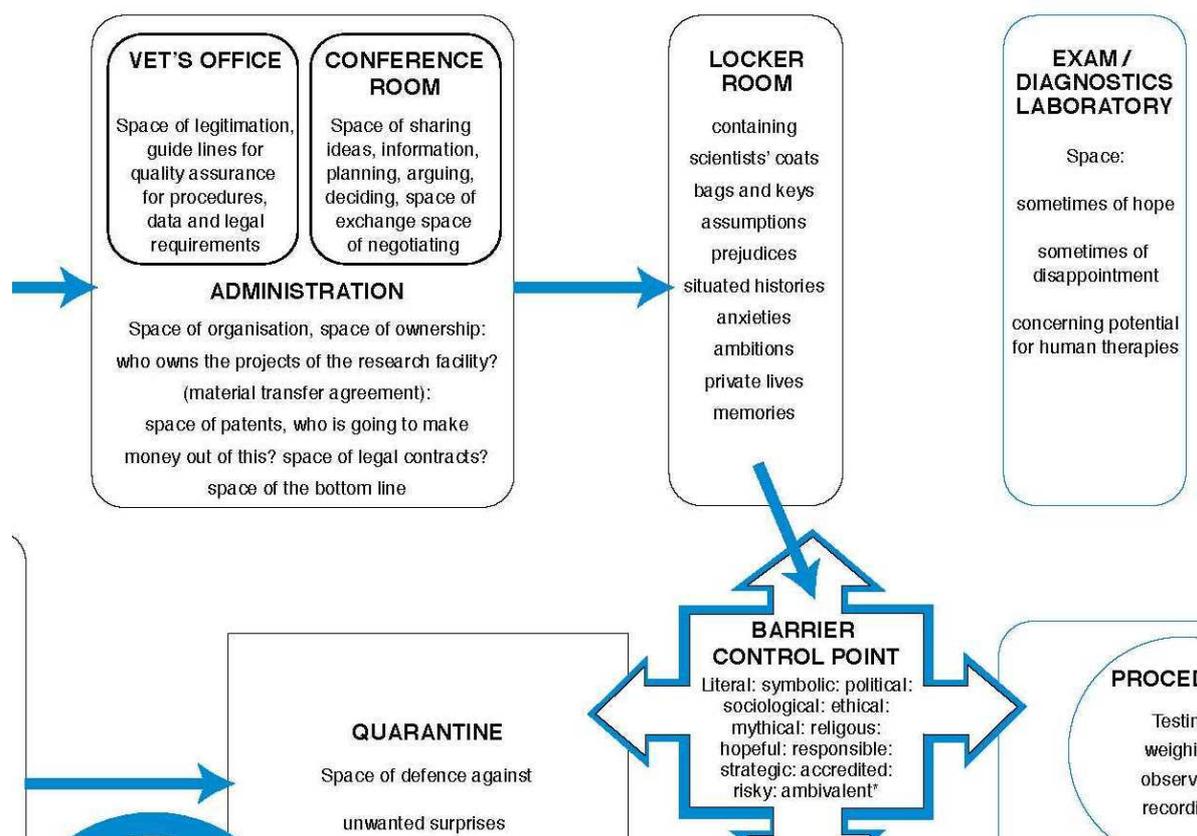
---

<sup>4</sup> ‘The diagram [...] is the map of relations between forces, a map of destiny, or intensity, which proceeds by primarily non-localizable relations and at every moment passes through every point’ (Deleuze, 1988, p.36)

**Animal research facility**  
 based on: <http://orf.od.nih.gov>



\* with thanks to Sarah Franklin's 'The Cyborg Embryo'  
 This work is inspired by research on 'Biogeography and Transgenic Life' by Dr Gail Davies (UCL), which was funded by the ESRC.  
 © Helen Scallway



**Helen Scalway 2012: draft showing close up of the Locker Room**

**Helen:** Yes, I think the great thing that these diagrams do is that they make writing spatial. It would have taken perhaps fifty pages of prose or more to describe all that's going on in this animal research station. What the diagram does is to let you see at least some of it on a sheet of A3 and I think it would still be legible if it went down to A4. It lets the eye wander around. You can go round it in a directed way but also you can scan around it in your own way, in your own time. The other thing that it does I think is it breaks the sequential flow which written verbal language always has, and that sequentiality really does structure thought in a particular way, but it can also be a very containing and controlling way. I would suggest that the reason these diagrams can allow thought to behave differently is that sequentiality is broken, allowing things to be seen simultaneously or in a different order, the components have been dispersed in a way which lets the viewer or reader pick them up and rearrange them in their own way. And it's also quite surprising to see what gets side by side with what.

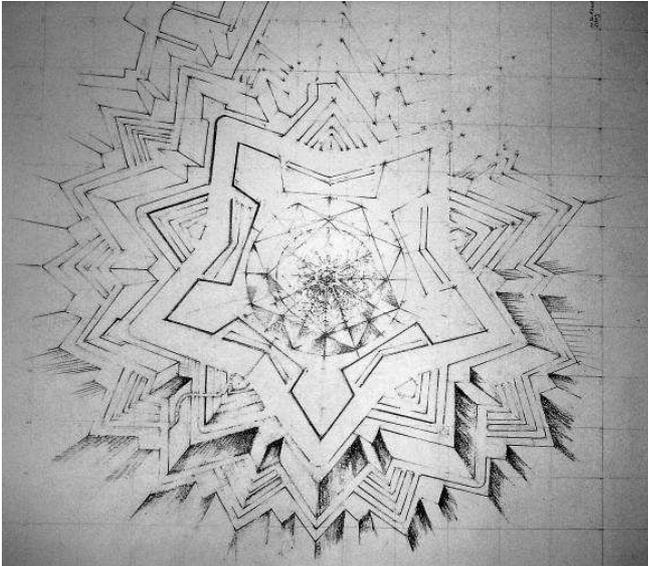
So the ones we've got here are in draft form at the moment, but we're going to take some of them to Beijing, we're also going to be putting them in UCL's Grant Museum of Zoology, contextualising them amongst the Museum's zoological specimens.

I have to say that the diagrams became even more social after a conversation with Kaushik who said to me that the nature of scientific collaboration might also be much complicated by the social: for example there might two people, scientific colleagues who might have started as friends but have since quarrelled and they've still got another two years of the collaboration to run, and that tension gets into what they still have to produce.

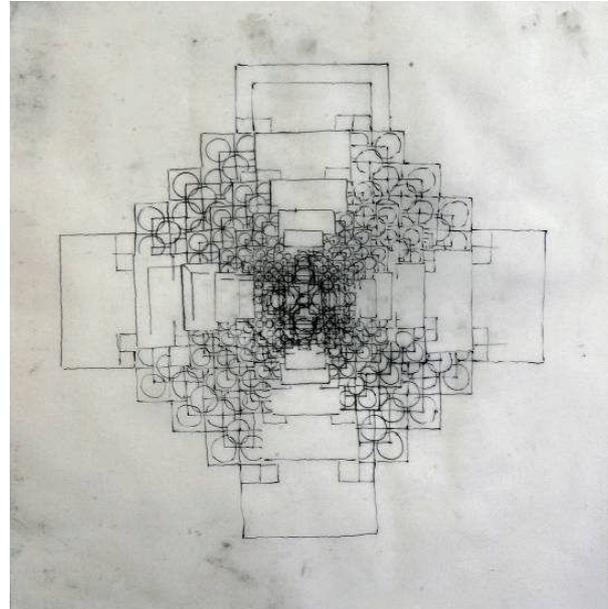
**Gail:** That really interesting. Could I ask you to say something more about some of the influences on your work – whether from artists or other spatial thinkers?

**Helen:** There are many and it's going to look very eclectic, but I find connections between them all the time. I don't know that I'd call these 'influences' so much as stuff which still haunts around when I think about making work.

I'd start with Émile Mâle's *The Gothic Image*, which I first read as an undergraduate studying literature. What I found extraordinary then in this work is the sense that a building, in this case the Gothic French cathedral of the 13th century, was formed by a world-view; its physicality was an expression of the will and desire of its builders. It was the work that ignited my interest in architecture as expressive, consciously and unconsciously, of desire and intention. Later I read Erwin Panofsky, who related the development of European Renaissance perspective to a wider cultural change during the Renaissance period in Europe. The human comes to be central so that man is no longer separate from God and the systematisation of perspective enables a view in which man can be suggested as occupying the same space as the divine, as in Piero Della Francesca's *Resurrection of Christ*, at which I used to stare a lot. So this was the kind of work I would look at with a kind of questioning but baffled interest. And from there I began to think about the way architectural formations express not just functions but entire attitudes: again this is going to seem very eclectic but I was researching the seventeenth century French General Vauban's star-castles with their unassuagably fearful multiplication of ramparts and bastions and ditches, at the same time as reading the architectural historian Adam Hardy on the endless cycling out and proliferation of life represented by Hindu stupas or reliquaries.



**Scalway: Defensive structure based on Vauban star castles**



**Scalway: Proliferating Space after drawing by Adam Hardy in Paradigms of Indian Architecture**

I have always also looked at the work of Giambattista Piranesi, the eighteenth century Italian architect now remembered mainly for his etchings entitled 'Il Carceri' or 'Prisons', which are disturbing evocations of ancient ruins as nightmare proliferating dream spaces somehow spawned by the classicism and control of the architecture of his time. I also carry in my mind the work of his admirer, the early nineteenth century architect

Sir John Soane, and the astonishing work of Soane's genius draughtsman Joseph Gandy whose works such as *The Bank of England in Ruins* (1830) raises complex questions about the relationship of architecture to society – the out-of-controlness, the hauntedness of his work, by forces which scatter all order.

I have only slowly made sense of this array of reading and imagery. Foucault's analysis of Bentham's Panopticon in his *Discipline and Punish* – the key study of the built diagram of power in action – enabled me to make many connections. And I read and re-read to this day Thomas Markus's Foucault-inflected book of 1993 *Buildings and Power* in which I've found a trove of diagrams and images to pore over.

**Gail:** These charts of biological practices aren't the first of these diagrams that you've produced. You've also worked in collaboration with geographers before on fashion and the textile shop, the sari shop in London and I wondered if we could go back to some of your earlier work<sup>5</sup>. I am interested in your reflections on how people respond to and read these diagrams. But, I'm also interested in what is different for you when you start moving towards some of the things that we are talking about at this conference in Beijing. In what ways are the infrastructures of the biological sciences a different kind of space to the sari shop? Are there unexpected things which emerge from putting these side by side as well?

---

<sup>5</sup> Elsewhere Helen has written about this shift as follows: 'This drawing is the one which has most influenced my current work in 2012, which is on an entirely different project. It is an attempt to chart a South Asian textile shop serving a diasporic community in Green Street E13, and is based on numerous visits and conversations in such shops. The proprietors, their assistants and the clients became collaborators on this piece as their input was incorporated.

The work is not literal though it riffs on the conventions of the architectural drawing of actual floor plans. Where it departs from the literally descriptive is in its labelling, so that some distances, eg the depth of the 'shop window' display, are not only shown but lettered as extremely shallow: other distances, such as the store room, are shown and lettered as unfathomably extensive, the 'store room' being understood both literally as a holding area for stock but also as a metaphorical store, a store room of the diverse forces which create the customer's taste, the pressures on her to buy. This speaks of language, of memory, the opinion of her family, etc. In the same way the 'fitting room' is lettered as the literal space for trying on a garment but also the metaphorical space where self-images are tried out: the 'counter' became not just a counter but the space of transactions of more complicated kinds than just cash ones, and the 'rubbish bin area' out the back of the shop as a space of possibly complex forgetting or abjection. Thresholds and boundaries can also be read as literal but also psychological and metaphorical (as the threshold of the shop's front door from the street into the world of the shop and all it implies for a diasporic clientele).

The diagram sought to engage as an economical but intriguing way of presenting the multi-dimensionality of the place and is perhaps the single most innovative piece of work I made during the Fashioning Diasporas project. I am now looking more closely, in my current collaboration with the geographer Gail Davies, at further issues arising from this way of multi-dimensional 'charting', such as the way different kinds of line may suggest the kinds and degrees of impermeability or of porosity of boundaries, the complex semiology of icons such as arrows, and the issues around hand-drawing versus digital rendering. The Textile shop chart has therefore raised for me huge and continuing questions as to what lines and arrows might convey, whether the pre-drawn icons available in graphics software close down the suggestive, open communication of place and its experience which the possibilities in hand-drawing might achieve, or whether such hand drawing can on occasion be just too ambiguous to allow entry to viewers: perhaps the digital rendering aids communication by offering replicable and therefore readable – but possibly clumsy - visual code. The Textile Shop diagram has therefore been a key starting point for questions which expand and intrigue because there are no right answers.'



**Helen:** The diagram that I made was a result of repeated visits to Green Street in Newham, which is in East London, E13 and E7, towards Barking and Dagenham. It's an area of very mixed ethnicities but the high street, Green Street, is populated by these textile shops, many are owned by Muslims I believe but they sell everything to all the communities who live there.

I became aware of this place as an incredibly shifting, rich, diverse, multiple space that was full of different histories. London, like every other big cosmopolitan city, is in a state of becoming, it's in a state of flux and change and you can't still it. It's very likely that in a couple of decades, these communities will have moved away just as other communities have done, like for example the Huguenots who came in the seventeenth century and the Jewish communities who came in through Spitalfields in the nineteenth, so this was something to try and seize hold of, the space at a moment of shifting time.

I used to look at things like weather maps repeatedly, and those digital models which are animated, so you can see the storm coming and the shiftingness and elements feeding in. Maps of course are often beautiful but they provoke me by eliminating all the traces of the journey and I wanted to make a diagram that somehow could contain all that shifting life, could somehow suggest it. So, for example, the street has got these plate glass windows with shallow display space behind, you look in from the street and there's a shallow space of display. Then the threshold, the door, is a space of hesitation, the fitting room is the space where the question is asked, "what do I look like in this?", 'Who am I when I wear this?' - that is the question which makes that little cubbyhole space into a place, a fitting room, that and the infinite reflections between looking glasses; the shop floor is a space of unassuageable desires, then there's a one-way mirror - the shops I used to go into, had one way mirrors between the front of shop and the store room.

Go through there into the store room, and what is actually stored in there? Here the way the diagram works changes, the register changes. It's not just the boxes and the extra stock, though of course it's that as well. The diagram suggests the store room is a hidden reservoir of customers' desires, of the forces which have formed her taste. The influence of her family, is she a widow, will her husband like it, what will her in-laws think, what is her religion, because that does affect what gets bought, what are her memories, what is her idea of beauty? These are some of the unseen forces which have produced the front of the shop, a real place with its arrays of choices.

Then, every shop has a front door but also a back door leading to the dustbins.. The diagram asks what constitutes rubbish, we can get into questions of abjection here, what is it that might get put out the back, thrown out, buried?

This shop diagram is mapped in black and white, apparently simple, onto a pared-down architectural floor plan, a very simple layout which is really riffing off an architectural diagram. So what you've got is something that's almost like a document for discussion, it's not meant to be beautiful, it is meant to get people talking.

What I did was to take a very early draft version of this document back to Green Street, by that time I'd learned which were the three or four shops where the people were really helpful to me, and we spread it out on the counter, I was on one side and they were behind the counter and we pored over this, the clients and shop assistants and proprietors were all helpful, so they became my colleagues and my co workers. I was really dependent on them.

**Gail:** Do you get any sense about what new insights this allowed you to include or how it allowed you to see how they were reading or understanding the diagrams?

**Helen:** They gave me a very positive response. I had been concerned at what they might say "let alone" think but they seemed to recognise what I showed them with a warmth in their recognition. They said, "Oh yes, we

understand this". They took on board the various registers and different dimensions in the diagram at once as though they had a real inwardness with it or it made something visible which they knew all about from the inside. They also made suggestions for which I was grateful, for example when it got to ideas about beauty one of the assistants said, 'The magazines are really important to us, Asian Bride, you've got to put that in' and someone else said, -' And the film posters because we are passionate about films'. The Bollywood films are very important and so I was actually able to put more things in, those conversations really made it possible for me to begin to populate the diagram.

The diagram really got them going. Of course there were some language difficulties. Not all the older ladies in Green Street speak English, they would be speaking in Hindi or Bengali, that is the ones who might be in their 60s or older, their daughters might be in their 40s and they would be speaking accented English but their granddaughters, these are the 14/15/16 year olds were speaking as East London as they come, "innit". So this was fascinating especially when they started arguing with each other over the diagram – that was great.

**Gail:** When I saw this diagram which is the first time I encountered your work, I immediately thought there were clear similarities with what I was trying to capture with my work. It partly comes from some of the things you've been talking about, this question of translation and language and how do you think about the relationships within one space where everyone's talking slightly different languages. So in the world I've been researching, you've got people who talk about molecular biology, you've got people who talk about animal welfare, you've got people who talk about clinical application and all of that's in there, in different inflections, intensities and visibilities in different spaces, but with potential relevance for every space. It's all there, all overlapping and how they relate – or don't translate – becomes incredibly interesting, as well as which languages and materials move more efficiently and in what ways.

There's also something similar about archives, which I want to come back to. You've got a store room marked on the sari shop diagram, which is one of the biggest bits of text. So there is something about translation and about archives in here, which resonates with many of the knowledge-value themes. What these diagrams, to me, do as well, I think, is they allow you to say something very important about the role of the social, the biographical if you like, in these spaces. They're actually deeply humanistic diagrams if you don't mind me saying.

**Helen:** They're meant to be...

**Gail:** That's interesting to me and something I have found very difficult to write about in my work. There is an element of concern for many scientists in talking about animal research, and I've promised anonymity, so there's a question about how do I call attention to those social processes and dynamics and allow them to be read by other people in a way that doesn't compromise that anonymity. I think you've been very acute to those communicative, biographical and social issues in these diagrams, in ways I've struggled to attend to in my writing.

But what is also interesting is that in these diagrams you avoid narrowly deterministic relations between the social, the infrastructural and the material. By organising these spatially you allow people to make their own connections between the material infrastructures and social processes, so they remain open to different readings to different people in a way is tricky to do in academic texts.

There is also a temporality to these diagrams. They are places that are animated by both the past, and their potential futures – by the importance of archives and the potential of emergence. I know the store room of the sari shop is not the only part of that project which worked with archives, and you have used archive boxes as part of your work before and plan to do in our collaborations too. I wonder if I could ask you to explain more about your interest in the archive.

**Helen:** Archives are always really interesting. I put this shop map into a show at the Royal Geographical Society, along with a sort of mock-up of a museum. The shop was absolutely full of seething life on the move, pattern is always on the move, it's always being transformed. The museum offers a sort of stasis– or at least it might look like that – actually museums are also full of movement and of shifting.

I did do a lot of work in the archives of the V&A<sup>6</sup> and it is a stunning archive because what it is, is grey aluminium drawers, very rational, that you roll out and inside are beetle wing embroideries and gold work and silks and muslins and things that blow your mind with their beauty.



**Helen Scalway 2009 Archive box**

An 'archive box' in which a photo of the patterning created by the highly rational, functional drawers in the textile store at the V&A is reframed by a sample of their contents, a nineteenth century Indian beetlewing garment border embroidered on net, whose pattern speaks of quite different priorities.

---

<sup>6</sup> The Victoria and Albert Museum in South Kensington in London <http://www.vam.ac.uk/b/blog/moving-patterns>

If these things are to be stored at all, there has to be orderly thought and thought that aims to be transparent and we can only ever aim at that – it's beyond human capacity to know where our own opacities are but the world which flooded out of this rational storage system was so completely different. What became apparent really was that the archive itself was such a construction, a series of choices, not made just on aesthetic grounds but because it had to have examples of this, or examples of that, it had to be complete as the different archivists of that institution understood completeness at the various stages of its colonial and then post colonial history.

So what gets selected to put in the archive is a big question. How is the history to be narrated, what will be preserved? And even more tellingly, what will get quietly lost? And then of course there is the question of access to the archive, which is really interesting because knowledge has gatekeepers and is guarded. For example I offered to just go and "I'll go and look through" I said and shoot the photographs I need, but they said, "Oh no you won't, we'll have to send a qualified person who will handle these fragile textiles for you" and so it was and quite right too, from the point of view of preserving the textiles.

But already, there was a kind of "this is special" and to get access at all, you're already in a having been selected situation.



**Helen Scalway 2009 Ceramic stairs with studio diorama**

Ceramic staircase at the V&A and artist's studio at Wimbledon College of Art. A 3-d collage in which one space frames another.

And then the museum encases its possessions in a kind of authoritative framework where the messy thinking and indecisions that lie behind the choices of what goes into the archive are all cleared away. I made a piece of work about this. What I did was to make an archive box as a little diorama and it was framed in a photograph of the impressive, really grand ceramic staircase at the V&A but this staircase led up to, opened out into, another collaged photo of my messy collapsing artist's studio which I occupied at Wimbledon College of Art where I had a residency in the course of this project with the V&A.

This little diorama is a particularly interesting piece of work to me because it renders important, through the framing, the actual very, provisional, indecisive drafting chaos of the artist's studio. Those are yellow post-it notes you can see all over the big paper on the floor, my movable re-positionable way of organising a not-yet-there set of thoughts. Perhaps there are connections here, with the writing of Bruno Latour on scientific diagrams in his lecture, *How to be Iconophilic in Art, Science and Literature*<sup>7</sup>.

That sounds an odd remark but he says that the way that scientific diagrams and illustrations come into being should be a subject to as much scrutiny as is given to the process whereby old master art works have come into being. This is because scientific diagrams have all that mess and different trials and the passage of time elided so they can sometimes appear speciously clean and orderly and that gives them authority. But in fact, they are often embodiments of inflected narratives like other narratives, just as entangled in their place and time.

**Gail:** You've been moving extensively between architectural diagrams and diagrams of scientific processes and spaces. They are all infrastructures in some sense, in that they are ways of holding things together through logics and ideas of order, even as they overflow them, and are built from relationships even as they shape them. But there are also some differences between them. There are clearly aesthetic differences between the ceramic staircase at the V&A and the aesthetics of contemporary science laboratory. I wondered if I could ask you what your encounter with contemporary biomedical science practices has been like and how you have transferred these ideas to scientific infrastructures. Or not transferred because every instance of your work is very different in response to the places that you've been thinking about and the people that you've been working with!

**Helen:** I think the encounter that really struck me, in terms of what I've just been talking about and how what is going on is framed, was at one of the facilities that I gained access to in the UK. I drove to it. You take a turn off a road which is very discreetly marked, in such a way that the place is invisible from the main road. Having got through the initial security check from the car park, where the security men phoned ahead, I was then accompanied to a rather beautiful building with shallow, wide steps to a quite grand, simple, contemporary building, lots of glass and light, you go into this corporate entrance and it's a really quite splendid atrium, glass and light and transparency.

Coming from the ceramic staircase, making this connection about framing, I guess it was the fact that I was already sensitised to the idea of how institutions produce "knowledge", how important is the framing to what they are going to declare as 'knowledge', whether the framing is by a grand nineteenth century ceramic staircase or a grand twentieth century corporate atrium, framing is utterly important and the value which is perceived in the knowledge, it relies on this grand context, this is one way in which things gain their authority.

At this facility I was told that I certainly could not get within smelling distance of the mice which had been my big request, and instead I was taken to the press and education office and I was kindly treated but certainly, we

---

<sup>7</sup><http://www.bruno-latour.fr/sites/default/files/66-GALISON-JONES-pdf.pdf>

were not going to go anywhere near the mouse house. Also on the walls there were various lush decorative art works, the walls were high and white and light, there was a sense of corporate wellbeing, the library, the lecture theatre, the provision for refreshments, all of these things were very well appointed and I just had this feeling of having been on the receiving end of a presentation, perhaps a Utopian one.

With the lab diagrams, I think I'm conscious of wanting to put in all the things that might complicate what offers to be pure reason or to have the authority of "scientific knowledge" or certainty or uniformity. The shop hadn't got any uniformity, it was not about science, it was all to do with desire, the customers' love of vivid orange or crimson with loads of silver and beads, so those issues were not there. But with the lab diagram, perhaps because I had been reading Bruno Latour, I was really looking at the ways that, these objectivities, so called, are really anything but. I'm working on another diagram where I've got the break-out rooms and corridors and cafe spaces and the sports halls, squash courts and swimming pools and so on, the kinds of social spaces where love affairs perhaps might start or quarrels break out, where the collaborations and competitions and contests of the labs might be continued in other ways.

I'm also trying to engage with the different histories and narratives embodied in the different sciences which collaborate in these facilities: arguments about how a story might be told, about how findings, might be framed one way or the other – narratives, in fact. In your interviews you present all these different kinds of scientists, some will tell their work as though it's a matter of bio informatics, just completely at one with the idea of DNA as encodable information, bits, zeros and ones, while a vet or an animal handler or an animal technician, each have different ways of telling the story and it's those slippages which the diagrams could be really interesting in helping to make clearer.

**Gail:** They are also drawing our attention, as I said before, to interplay of hopes and desires, both in the personal biographies and social imaginaries that animate science, both within these lab spaces and also in relation to their wider geographical setting. I think that's where the comparison with the Victoria & Albert museum becomes really interesting to me. That was a determinedly colonial institution based in London, which wears its geography on its sleeve. You go and you see these artworks in London collected from different parts of the world or these bits of design from that part of the world. It acknowledges the fact it's a geographical project, which is about collecting. Then it has had to deal with this post colonial shift, which is one reason artists are being brought in to work with the archive in new ways, to add layers of meaning to it that disrupt this colonial narrative, trouble it, or at least get us to think differently about it.

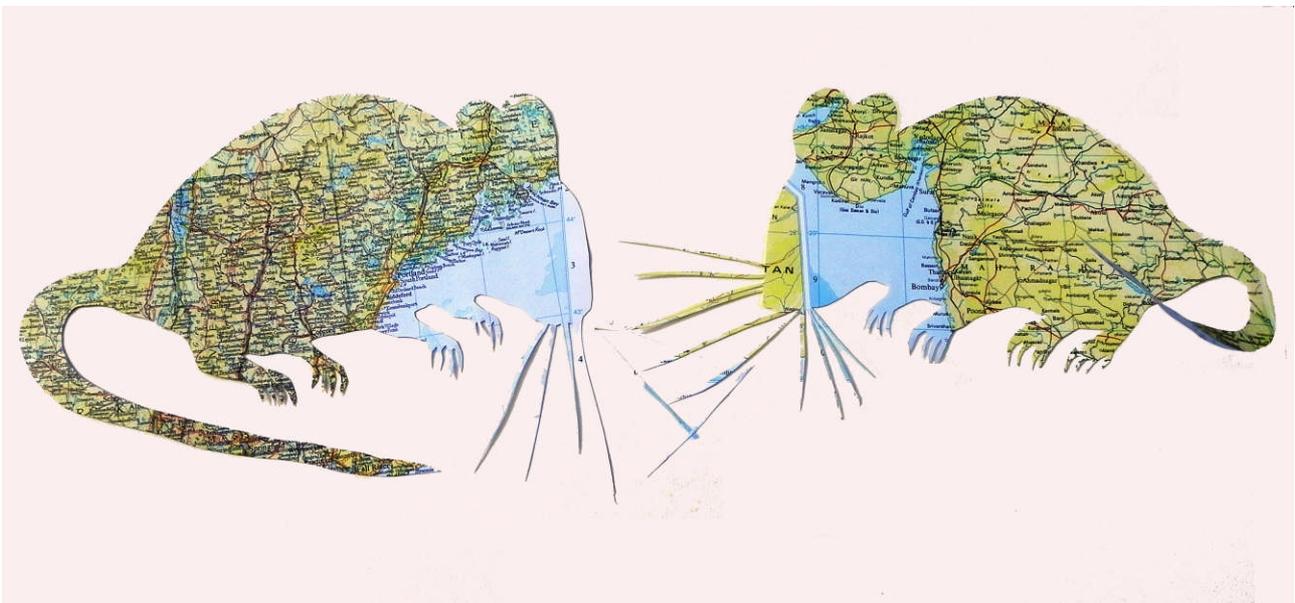
Whereas the geography of science is, I think, both essential to, but often erased from these facilities and infrastructural spaces. This is something I find very interesting because I think geography, or locality, inflects the practices of science and scientists in all sorts of important ways, even as it is a collaborative project underpinned by an idea of 'universality' that requires people in different places to work together. This is pertinent to the kinds of ways that cities want to build new spaces of science. These architectures both reflect national investments in science, but also try and signal placelessness as well, that this is a global space, that it is a literal utopia - meaning 'no place'.

What is also really interesting – coming back to some of what we started with in terms of the stream of materials that you are thinking about at the moment, is that materials are often transformed through their circulations across space. One thing I've been writing about in my work is how mice change from place to place and if you want to think about translating science from these placeless, or ideally placeless, centres that are producing universal knowledge, you have to think about translations which are linguistic or social, but also that are about material transformations and the management of biological potential or emergence. So to me what is really interesting about your practice is that it has these two different dimensions – the diagrams and the archive boxes, and then the more experimental pieces – like the river you started talking about at the start.

Then there is the further inflection of translational research which is about moving research from laboratories into communities, and you have to think incredibly hard about what that means for those different communities.

**Helen:** I think there's a great deal to be said on the question of translation to pick out just one strand from several in what you have just said.. It invariably involves transformation. One of the most fascinating pieces you wrote was on the Rosetta Stone where you were actually really querying that metaphor, of the Rosetta Stone, for translation in this context of bioscience<sup>8</sup>. The Rosetta Stone metaphor suggests there is something which can be translated bit for bit into some exact equivalent, as though it didn't change in translation and of course, it's not like this. In terms of language for example, people who are bilingual seem to be able to move between different sensibilities, for example the English and French languages embody completely different sensibilities, it's almost like inhabiting two different worlds.

To some extent I've tried to begin to address this, coming away from the architectural diagrams and actually using maps. There are a great many map artists and I think a lot of map art is actually not very interesting but by bringing the atlas into play and working with the scalpel cutting mouse outlines from maps say of Japan, Singapore, North America in the area where the Jackson lab is, Maine and the UK, Harwell and the Sanger labs, these different pages of the atlas, each speak. People will see the mouse outline but they also read the different place names and the huge gust of other worlds, whole other cultural hinterlands can be activated with the use of maps. I think if I'd managed to obtain a map of say, Japan, with the map having been designed and produced in Japan, this sense of a cultural hinterland would become even more immediate, because even the Japanese manner of drawing a map is different, you can tell a map actually that's been made in Japan, it's got the most exquisite culturally inflected drawing element which we don't get in Western maps.



Helen Scalway 2012 DRAFT

---

<sup>8</sup> Davies, G. (2012a) What is a humanized mouse? Remaking the species and spaces of translational medicine. Forthcoming in *Body & Society*

I certainly wouldn't claim originality in cutting up and rearranging maps, it's just that cutting mice out of an atlas is a bizarre thing that this project has provoked me into. Mice are very interested in each other, so when you put these mice together and their whiskers touch, they seem to be sensing each other. Geographically what does that mean? That distance and that intimacy? The UK mouse is maybe starting something with a Singaporean or Chinese or American mouse, these are issues I'm trying to refer to with a very light touch, the images are meant to suggest that the mice bring a whole lot of other stuff with them, how they, as animals have been fed, how they have been handled, the history of their genetic inheritance, their lives in those facilities and in those different parts of the world, all of that becomes animated I hope through these map images. A bit ambitious, perhaps.

**Gail:** Brilliant! There's one element we've not talked about which is not only the mouse's relation to each other, it's the mouse's relation to humans, which I think raises intriguing questions: What a model is? What does it mean to model the human in a mouse? What does it mean to model a disease? What does it mean to move from the model to clinical application? That's the other thing I think is really interesting in your work, and we've developed a dialogue around, which is the way science often uses arrows to indicate shifts as if the steps are obvious and sequential. I guess it relates to your points about maps and the way they give us certain both spatial and cultural vocabularies that are often obscured to us. When we look at the arrow, it's something that's given to us, that we don't tend to think about very much and that sets us off in ways of thinking. They are embedded in our thinking and in our computers, and in the ways we write. I guess I'm interested in how the grammatology or the semiotics of the arrow, forms such a strong way of thinking in all of these biological and social scientific representations of translations, which as you've indicated, are just so much more messy than the arrow can ever indicate.

**Helen:** It's a huge question isn't it because what you're really introducing is something to do with the iconography of digital graphics programmes.

**Gail:** Is it just that? Where does that arrow come from?

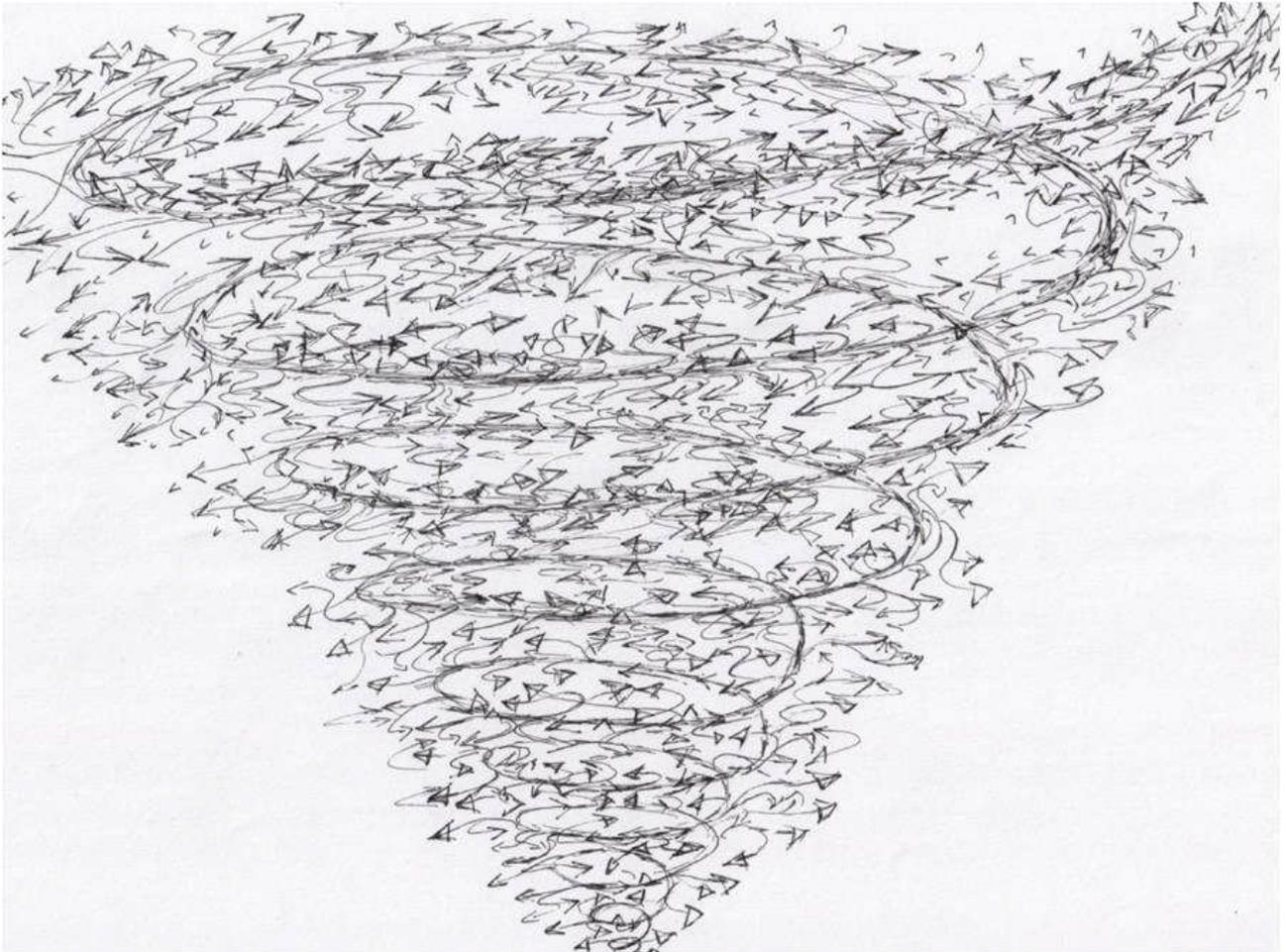
**Helen:** I think that it's debated as to whether it started with the image of a pointing hand as we see on old street signs, for example there is one in Hampstead in London left over from the early 20th, late 19th Century, a wonderful image.

But of course the arrow itself suggests passage, in that it has a head, a column and a tail. The notion of passage comprises more than one dimension. An arrow might not always indicate simple direction; in other contexts it might indicate the passage of time also.

There have been entire papers written on the iconography of the arrow as it appears in places like airports, but in those places it will certainly have had its genesis in the graphic design software in of someone's computer.

I think that there's a lot to say, it goes back to the time when I idly and unthinkingly put an arrow linking two separate diagrams and you very rightly picked me up on this icon and said, "I've been thinking about the scope and possible meaning of this arrow" and of course, at that point, I realised there was more to it and I'd have to give it more thought. The problem with the arrow icon comes with the unthinking way in which we idly use in a hurry any familiar tool that comes to our hands and more and more, in business, in science, in architecture, everywhere, diagrams are made using this icon. Often for example it will be in PowerPoint or some such other digital program, where what we're given is a selection, but the choice we are offered is somebody else's idea of what is adequate, somebody else's drawing and it only works through those pixels that they've already laid down.

Very often also, the icon is used in a context where it's concealing a mess by simplifying it. But often we need to live more in the mess or to see it because the arrow can be too often grossly reductive, it indicates certainty where there isn't certainty, it can suggest unity where there isn't unity, it can erase histories of mess and histories of unresolved and unresolvable mess.

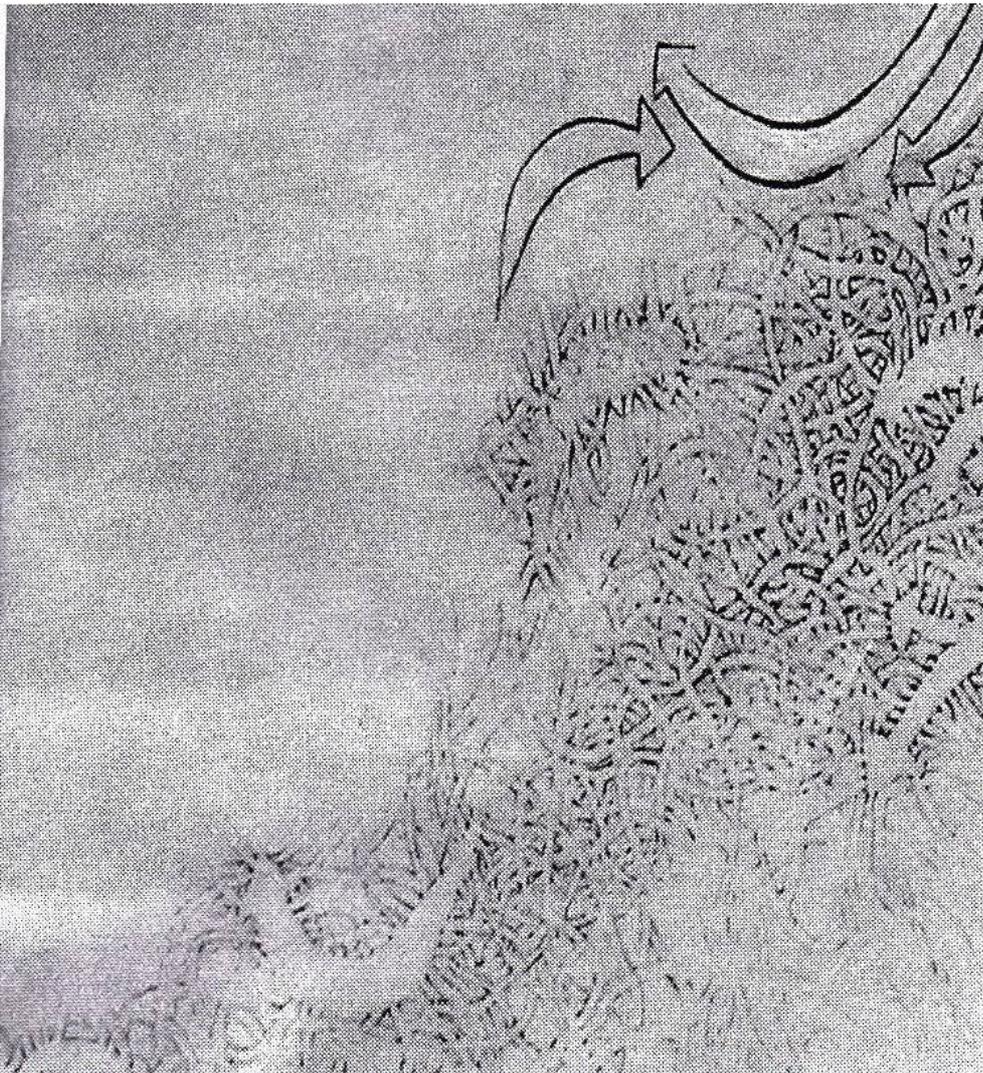


**Helen Scalway 2011: DRAFT**

**Gail:** What's lovely is this emergence from the hand because it seems to me that's the ultimate reduction, you move from something that was touched, that was embodied, that had an author if you like or a person, a subject identified with it and suddenly it becomes abstracted and abstracted and abstracted and you lose the touch, you lose the embodiment, you lose the kind of sense that it emerged from relations, it had an origin, a someone who was gesturing towards something. When you think of it this way, the arrow becomes this way of figuring a movement that's not only about a direction, but always about a relation.

Until you started thinking me about them, I hadn't begun to look at how often such devices used, not only in visual forms of representation but also in the way you write and you think. Just to give you one anecdote, I have just had some proofs back for an article and the copy editor suggested changing one of the words that I'd used.

I'd talked about the importance of 'recognising' something quite challenging, recognising the impossibility of living without some form of suffering<sup>9</sup>. To me this term "recognition" was really important. It had layers in it about cognition, about thinking, about knowing. It also had at its core this encounter with the other. So for me the point was about recognising the impossibility of living without being implicated in some form of suffering, whether in relation to animal experimentation or in recognizing our interdependencies, of my health being dependent upon the corporeal experience of other people in other places participating in food production, biomedical, experimental or clinical processes. So this word 'recognition' implied to me a relationship to the other, a process of knowing, and the two together, of recognising the implications of this knowledge in the context of the other.



Helen Scalway  
Complex Arrows

---

<sup>9</sup> Davies, G. (2012b) Caring for the multiple and the multitude: assembling animal welfare and enabling ethical critique. Forthcoming in *Environment and Planning D*. The phrase was taken from Haraway, but is also informed by the work on 'Corporeal Generosity' by Rosalind Diprose. The extract is: 'Recognising shared suffering is not simply to suggest symmetry between humans and animals, to raise the status of one versus the other in subsequent cost-benefit equations. It is more complicated than this, for both animals and humans are inserted into complex knots of relations, which recognise the impossibility of living without suffering. As Haraway puts it, "there is no way of living that is not also a way of someone, not just something, else dying differentially" (Haraway, 2008, page 80).'

However, the copy editor didn't like the repetition of the word "recognise" and changed it to "highlighting"...! And I suddenly thought "where does highlighting come from?" And it comes from what you do when you highlight a text that already exists. It's a felt tip pen or it's a mark that you make on computer on a text. It suddenly seemed to remove everything I was trying to think about in terms of relations and replaced it with simple, flat, emphasis. It was extraordinary. I got really quite angry!

**Helen:** The encounter had gone. It's the encounter with the other which had gone. That's terrible.

**Gail:** But that same manoeuvre goes on when you look at an arrow. That's lost the fact that it was a hand perhaps, that had a relationship to a subject, or a potential relationship, to the other within it. So the arrow just becomes the way of highlighting either a sequence, we move from this to this. It's lost that encounter in it. And I think what you're doing in all of yours, by putting arrows alongside other sorts of intensities and depths and emotions, is that you're replacing that and I guess it comes back to what I started out by saying, is that these are quite humanistic forms, in the sense that they return the subject to the system that you're trying to understand. Multiple forms of subjectivity within one system perhaps.

**Helen:** The graphic software arrows can produce distance which should not be there. Often, there might be much to be said for returning to the expressivities of hand drawing, where you can suggest that something is less certain, cloudier, more dissolving, more resolved in one part than another.

What you say about the hand is absolutely beautiful and it's a thought that I hadn't had; a very potent thought. In the light of your comment I think the use of a digital hand pointing as a cursor, a connection between human user and digital interface, could be seen as a disturbing misappropriation, almost a kind of theft<sup>10</sup>. But it also leads to something that's a problem, something that's unresolved for me which is that with icons like the arrow, we're using some kind of code. The 'clean' software arrow too simply encodes complexities but if I make a more nuanced cloudy or multiple arrow or an arrow which is drawn, the problem then is how is it going to be read? How is it going to be understood?

If I hand draw then I've got to make sure that I'm still making a communication unless I want to be deliberately laconic or mysterious, which I don't. In the hand-drawing of code, looking to use the way of drawing a part of the code's communication, I'm slipping between several forms of ... well if you like epistemologies, modes of communication. Allied with this problem is another, I'm looking at a diagram right now and, it's static. All over it is written and printed, things that are about the liveliness, the teeth and the claw and the furs and the hopes and the memories etc, the place has obviously got a swarming life and yet the map itself looks very static.

---

<sup>10</sup> 'In UX symbology, the most important use of the arrow is for the pointer that substitutes for a person's pointing finger. (See some typical pointers in Figure 3.) In the digital world, the arrow represents the user and provides its primary method for user input. For newer users who are unfamiliar with applications' keyboard shortcuts, the pointer may be the only way of directing the software. Although, with the ascendancy of touch-screen technology, this device may soon become deprecated.'



Figure 3—Representing user interaction with the pointer, the hand, the pointing hand, and the insertion bar  
<http://www.uxmatters.com/mt/archives/2009/10/the-ever-evolving-arrow-universal-control-symbol.php>

Helen adds: There are sites discussing the hand icon on digital interfaces as connection between user and digital content, and a lot of concern that these are usually **white** hands with all the implications that carries.

The question of how you animate either a map or an arrow, make it richly communicative, give it whatever nuance is needed, is an unresolved one, probably unresolvable!

**Gail:** That's the classic tension; it's the tension that's in people like Borges and the ultimate map being the map of all the territory that's fundamentally useless because it has so much in it, that it is the world not a useable representation of it. This is the same tension in science, that you need to abstract, to reduce, to understand and to render things in a way that makes them intelligible and manipulable and doable. But also you need to hold onto those parts that have the potential for new understandings, for something unexpected, for emergence to come through otherwise if either one of those aren't there, then you've either got a static system or you've got a totally excessive arrangement that's not understandable. So in some ways what you're doing is always moving between the two and I guess reminding us, at different points, that there are things that do have this potential for excess and maybe sometimes we're focusing on the wrong ones of those and we need to go back and open up certain points. But it is not that everything should be open at every possible point.

**Helen:** I could just say one more thing about this black and white diagram, is that it's full of closed shapes and I think this does actually in some way respond to what you have just said, the tension between the open and the closed and staying useful and manipulable while still being open, I've got lines and circles and sort of squares and rectangles with rounded corners, but they are all very coherent shapes and they do tend to be closed and the writing seeks to burst out of this closedness, to rupture these neat boundaries and let the connections join.

At every point Gail, you yourself are stitching back and forth between different systems, holding together multiple ways, things which have to be held in view together when we're looking at how something like biology travels. So at every point, yes I am querying the closedness. This visual work comes straight out of yours.

Some of my provocations about these diagrams and the word "diagram" comes with this big history as well. I find that Bruno Latour uses diagrams and I get very ... pissed off

**Gail:** I get pissed off with his diagrams too; I love some of his writing but...

**Helen:** I love the writing, and then I look at Latour's diagrams and I think "Just don't do this, put these back in the computer and shut the lid"... Why do those diagrams not help? I think it is because they are too reductive, they're too simple, they are so flat and elliptical as to be incomprehensible. I would like to ... point to, these impasses of communication....

**Gail:** I've said this before but those diagrams from books like *Laboratory Life* and *We have never been modern* have has been picked up quite widely in geography, and in some ways to produce really very generative outcomes, but then mostly they have travelled widely and without their complexities. In particular people using actor network theory started drawing these linear networked topologies in the same way as he renders the spaces of translation as simple networks of translation...

**Helen:** And they don't change. Translation involves such changes.

**Gail:** And they don't change and they lack depth and they lack all sorts of things and Latour himself then goes onto say "actually it should be actant rhizome theory"<sup>11</sup> but there's no attempt to follow that through in a visual sense at all because of the difficulty of it. And actor-network theory gets stuck with these visual imaginaries.

---

<sup>11</sup> Latour, B. (1999) On recalling ANT. In *Actor network theory and after*. Blackwell, Oxford

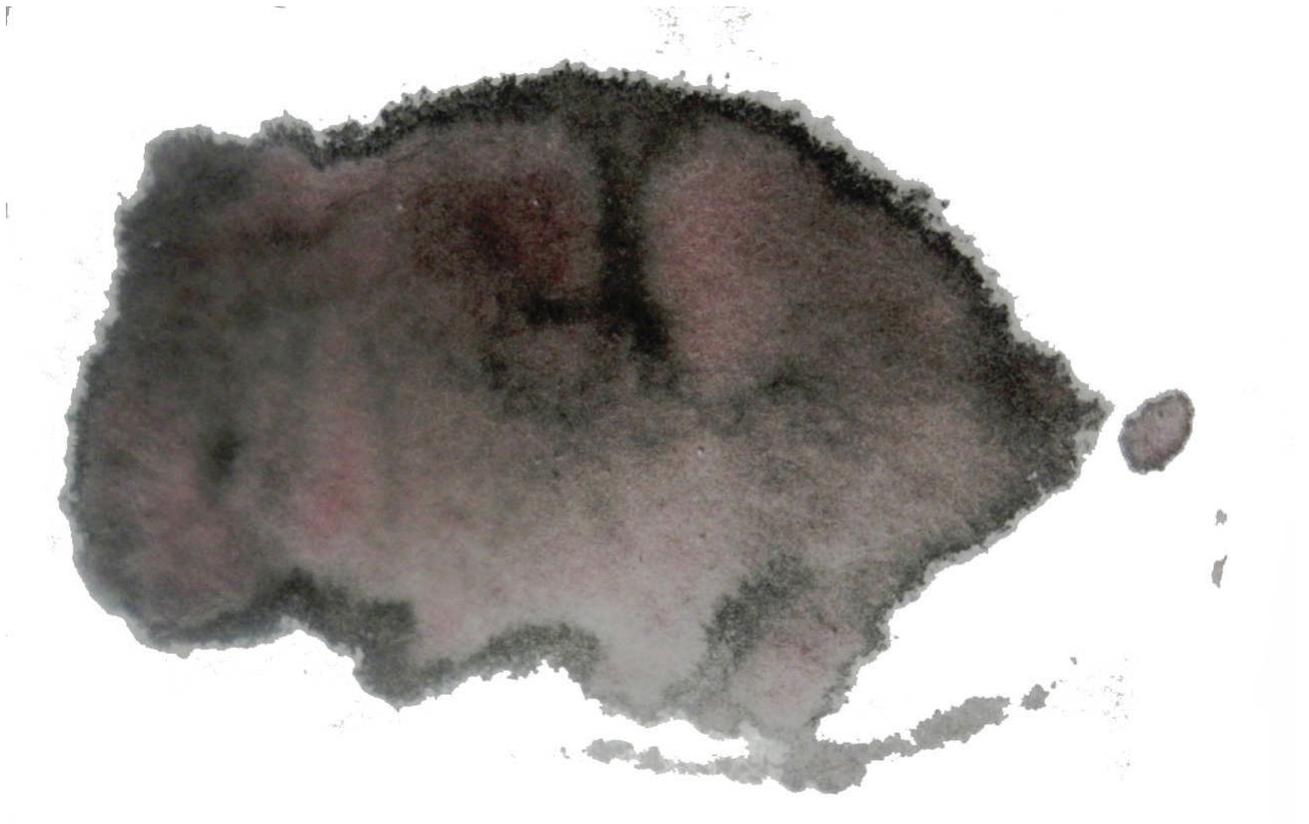
**Helen:** One of the things I'm interested to produce is a mapping or series of mappings that are rhizomatic and full of arrows doing different things, but this could be an undertaking.

**Gail:** But in many ways you go beyond this too. You started off our discussion about this idea of the organisms as a stream of materials. And there are some experimental forms of working with materials that you've already done, pushing the qualities of materials like graphite powder or flows of inks to the point where they tip over into something else that's potentially monstrous, and they begin to, if you like, point to the issues in holding onto openness and messiness in forms that are not just about narratives but about materiality too.

**Helen:** Going on to this, I have another part of my practice which involves days of mess in my studio, getting out all these materials and it's not that I'll just make any mess, I have certain thoughts in my mind and certain approaches which I'm going to follow. The one that you're describing was when I actually made a mouse shaped pad out of J-cloths because they're very absorbent. The pad was formed of a dozen identical cut-out mouse shapes laid on top of each other and laid in a bath of sepia ink. The pad soaked up the sepia ink. I chose sepia because it divides into its constituent colours easily, you get yellows, oranges, mauves, mauve is a complex colour in itself, and I laid different papers over the top of the ink-soaked mouse pad, rag papers, blotting paper even, papers of different sorts in order to see how the fluctuating variables in my room, the sunshine coming in for example, drying the first impressions longer than the later ones, the amount of ink there was left in the pad, how that began to granulate later on ... how these fluctuating variables affected the prints, the impressions created each from the same identical mouse pad, so that I ended with an array of images, each one unique, more than one of which was actually disturbing because there was a kind of excess and it was both very raw and something very primitive, almost. An artist friend of mine said this print was something like a bison, which I believe is a very ancient kind of animal.



**Helen Scalway 2011 DRAFT**



Helen Scalway 2011 DRAFT



Helen Scalway 2012 Image showing original mouse 'pad' DRAFT

**Gail:** They also look a little bit like cave paintings sometimes, because of the colours and textures of the paper.

**Helen:** They are weirdly furry as well which is very disturbing! But I guess what was in my mind was a kind of subversive response to the old-fashioned idea of a lab mouse as a furry test tube which will be identical, separated from the environment, decontextualised. I know that scientific thinking has gone on from then, but the expectation of the computer which is so clean, the data which is so clean, there may be a lot of it but it's still not alive with claws and fur and teeth and shit. These ink and paper prints were also about replication, they were to do with reproduction in the context of mice which are endlessly "replicated". It was a trying to find a visual equivalent which would speak, which would have a communicativeness in the context of thinking about genetics, making the issues accessible to more people.

**Gail:** I have shown these to a scientist who works with mice and he responded to them immediately as, "they make me think about some of the questions I have about the use of genetically modified mice" and I hadn't even told him that this was about genetic modification or it was trying to engage with these issues. I guess to me it also points to some of the work of Derrida on difference and Deleuze's work on difference and repetition. And they potentially have all these dialogues flowing through them. But the scientist I just showed them to quite casually, as images, didn't have this context, he responded to them in a really intuitive way. Of course, I can't speak for him but some of what seemed to be at stake was the way these animals were being used in the very open-ended inductive experiments with mutation<sup>12</sup> and what constructing genetically-modified mice as a models for human disease meant for our understanding of mice as mice...

**Helen:** That's wonderful because I did have an anxiety that because they do have an ... I won't say aesthetic...

**Gail:** They do...!

**Helen:** They do have affect, and I was very worried that this could be dismissed as a kind of aesthetic rhetoric but this scientist that you're referring to, does seem to have brought a whole lot of his own concerns – which is what we all do – we are not tabular rasa, there is no such thing as a virgin territory and we bring our concerns to all our viewing, so I think that he's made sense of them through his concerns.

**Gail:** I think we should probably begin draw to a close. Are there any things that you wanted to talk about that we haven't?

**Helen:** Here at the end of my email to you Gail, I write, "you're thinking through the use of language and I try to think with my visual practices", it maybe that we've covered some aspects of this but to what extent do these thinkings together, these bringing together of different epistemes, affect each other? I think in a way we've been talking about this for the last hour but are there more specific responses to this very large question or is it in fact, too large a question to encompass? ?

Is there a more manageable question that I can ask you because I'm very interested in the performativity of your work, the way that in the length of a sentence or a paragraph, you will travel across different terrains of language, different registers of language, so that your writing is spatialised not only in what it writes about but in what it performs, in the gymnastics that it performs between one register and another.

You spoke for five minutes at Exeter University and I thought, "I need to speak to this lady"! Because you are approaching spatiality through lithe gymnastics in language, a kind of place-making in language itself, a complex

---

<sup>12</sup> For example ENU mutagenesis

set of connected and related places which are performed in writing, and this is a striking way of evoking this emergent space of becoming and of translation.

**Gail:** I think it comes from two things and this is going to sound like I'm being naïve, and I don't think I'm meaning it to be, but part of it comes from a genuine wanting to be open to everything that's in the practice that people are telling me about, and the different practices from different people with their inheritances, which are about infrastructures, they're about archives, they're about arrows, they're about representations, they're about myth, they're about backgrounds and all that. And I feel when I do research, I'm open to all of that, it almost becomes like your absorbent mice that take everything in, and then I try when I'm writing, to make sense of that in a way that explains how something emerges from this. It involves revisiting these places and writing from these different positions. It doesn't cohere simply, but there are things which emerge – empirically and analytically – from these overlapping places and practices.

And then, I actually try and write quite simply as someone who has been in all of these different places and is now in a different space, trying to explain what I have experienced as part of a conversation. So I try and take people quite steadily through these different spaces. But it's like your dioramas, you go through one layer and then you meet another layer because something else has come in that's really important, that cuts across it and then you push through that a little bit further and you get another layering that comes back and then that layering takes you back to the beginning or somewhere else.

So I think it is only a deliberate strategy in that this is the only way that I can make sense of this, given everything that I'm trying to render that's true to what people have been telling me, that's sensitive and responsive to the hand that underlies the arrows if you like, that's in the work they're trying to do, but bringing it together in a way that a reader can then travel through.

My concern is I have a tendency to try and bring things together too much because the linearity of the narrative and the need for a reader to start somewhere and to end somewhere, gives it a coherence that is probably not the case. But I guess it's also like the edges of the paper, you have to start somewhere when you're drawing too. But the viewer of an image doesn't have to travel with you in the same way as you have to keep a reader with you when you write.

**Helen:** I think we're both very much involved with the incommensurability of different people's meanings as they jostle in one space and that's where I find your writing particularly evocative, in that one can see that live trapeze artist swinging from one ring to another, over gaps. But if you have to write 10,000 words which have a beginning, a middle and an end, it's different from a diagram. The diagram is like a single freeze frame of a space at a particular moment, it hasn't got a beginning, it hasn't got an end but nonetheless the incommensurable meanings are there, written in, but it hasn't got to have that linear structure of time.

**Gail:** And then if you put them on the web, which we're also talking about doing, then you give a further dimension because you can begin to link them through hyperlinks and all these other sorts of ways of working, that you just can't do with a conventional academic article, you've got the two dimensional and then the temporal and then the webbiness of putting something on the internet, which means it can link up in all sorts of interesting ways.

So that's one of the things your work's brought to my work. The other as I've said before, is this profound attentiveness and way of incorporating the social in your work. This is ironic because I'm a social and cultural geographer, but I have difficulties expressing the social dimensions in my current work, because of the anonymity, the partiality of the knowledge that you always encounter and the question of how to give

recognition to the biographies, communities and socialities that matter in these infrastructures without having a clear sense of how to deal with this analytically.

**Helen:** I think these diagrams are somewhere between charts of soap opera and science.

**Gail:** Which is probably a great place to end, but I want, if I can, to ask you return to one of your opening provocations, which is about the relationship between the political and the aesthetic. Could I ask you to ask how you now think the diagrams, and the other work, sit within the tension between the political and the aesthetic you identify at the start?

**Helen:** Aesthetics is a huge subject with a long, changing and much contested history originating in certain Renaissance forms. It was embroiled, at the outset, in the eighteenth century and all through the nineteenth with notions of 'beauty' and 'perfection of form' and related to the viewer's sense experience of the artwork – form, proportion, colour etc. Right up to the beginning of the twentieth century, to the outbreak of the First World War – which changed everything - there was an assumption that art existed to create beauty. The remark, 'Don't aestheticise, politicise,' was made in a particular, historically much later context, in a London art college of the late twentieth century and I understood it as meaning, beware of directing energy as an artist into making things whose primary intention is visually to attract or seduce: contemporary art is a discourse, it is a form of critical thought and communication, opening up insights into and understandings of contemporary culture, the field of practices through which we live. Rigour and integrity are key and the only beauty which matters is the kind which inheres in them.

However, the diagrams do have a specific relation with aesthetics – a subversive one. They work ironically and self consciously to exploit the visual rhetoric, the aesthetics of modernity, the pared down, the uniform and replicable - in that they riff off the idea of the industrial flow-chart, in their use of digitally generated clean lines, boxes, circles and arrows. I wanted the viewer of these documents to think at first glance, 'I understand what this is, this is an image of some kind of familiar industrial space' based on received visualisations of flow-chart thinking. But then gradually, as the viewer goes beyond the purely visual elements and begins to engage with the text on the documents, I hope that that familiarity breaks down, as the text works against those over-familiar elements and we realise that the closed boxes and circles are unable to contain all that is swarming out. One set of meanings essentially from an earlier time, with simpler understandings, cannot possibly contain, in spite of its offer to do so, the much more exuberant and complex meanings we are groping towards today.

**Gail:** Thank you very much.

**[CLOSE]**