The Affective Labour of Autism Neuroscience

Entangling Emotions, Thoughts and Feelings in a Scientific Research Practice

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Abstract

This paper extends discussions on the role of emotion in scientific lives, by showing how the emotional commitments of researchers (here, psychologists and neuroscientists) can play a specifically constitutive or generative role. Autism research is an area where the tricky intertwinements of subjects, thoughts, interactions and bodies can be remarkably explicit: the paper uses this case to show how researchers' emotions can actually mediate transactions between intellectual/scientific problems and more material/bodily concerns. The paper argues that autism research shows the on-going presence of affect in scientific subjectivities; in particular, it shows how scientific subjects sometimes constitute intellectual projects through a sensitivity to their own bodies and emotions. Gathering these concerns together, the paper extends recent discussions of body-work and emotion-work by Natasha Myers and Elizabeth Wilson, and also draws on the 'emotional' aspects of AN Whitehead's process philosophy.

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Introduction

This paper is about the relationship between autism research, emotion, and feeling. In particular, it is about the way that neuroscientists who work on autism often talk about their research through notably emotional narratives, and about the way that they sometimes articulate their science through the bodies and feelings with which those emotions are registered. In the clinical literature, 'autism spectrum disorders' describes a group of neurodevelopmental conditions with characteristic problems across three domains: social interaction, communication and repetitive behaviour or interests (WHO, 2010). Autism has increased in both prominence and visibility in recent decades, and an increase in UK prevalence to 1% (Baron-Cohen *et al*. 2009), has made autism the focus of a growing popular and political concern (Murray, 2008). And yet, despite this emergence, autism has not yet been fixed to any firm genetic or neurological marker (Lord *et al*., 2011; Gupta and State, 2007) – a gap that makes autism a topic of growing interest to social scientists and humanists too (Grinker, 2007; Eyal *et al.* 2010; Davidson, 2008).

This paper emerges from a research project in which, as a sociologist of neuroscience, I have been trying to think about the ways that autism gets figured by the theories, methods and institutions of the new brain sciences. One aim of this project has been to characterise the conceptual and affective labour of neuroscience, especially as that practice is caught up with the description of new diagnostic forms, such as autism. Pursuing this interest, I have conduced short narrative interviews with thirty-four cognitive-psychological and biological-psychiatric autism researchers, almost all involved in brain-imaging studies of auitsm – to get a sense of how these researchers think about, and conceptually work towards, the connections between autism and the brain. As a novice interviewer, though, I struggled to find an entry-point for this – and so, as an ice-breaker, I started to ask interviewees about what had gotten them interested in autism research in the first place. In reply, I expected a litany of books read, lectures attended and intellectual

interests developed. And, usually, that's what I got. But sometimes, too, I got stories that were very different. These were stories whose major themes were not guiding theories, or powerful explanatory paradigms – but that were actually centred on the quality of the feelings experienced by the individual scientist in the course of her research. They were stories about feelings of upset, sadness and fear, but also stories of pride, desire, and even love.

In her account of the emergence of the autism spectrum, and of the waxing understandings that have appended it, Chloe Silverman urges attention to the use of love, specifically, as an 'analytical tool' – talking about love, says Silverman, 'shifts the focus from psychiatrists, epidemiologists, and geneticists to parents, counsellors, diagnosticians, and lawyers' (2011: 3). If, for psychologists, love has simply been something that they studied in autism:

> beyond the laboratories…love continues to function in normative claims about the practice of research. Parents and their allies say that emotional knowledge enables them to observe and attend to their children in the right way, guides them in medical decisions, and helps them make the right choices for the person they love (ibid.).

If love has sometimes been seen 'as a liability or a barrier to reliable knowledge,' there is room, now, to start thinking about love as 'the source of specific, focused and committed knowledge' (ibid.: pp.3-4). In this paper, I want to advance that suggestion in two ways. First, I want to build on Silverman's account of love, to think about the broader role of emotion and affect in the putting-together of concrete knowledge. Second, I want to suggest that paying attention to emotions, and to the role that emotions play in generating and sustaining knowledge of something like autism, does not necessarily move us beyond the laboratory. My key argument is that focusing on the role of emotions in making knowledgeable claims tells us something important about the practice of neuroscience. Here, and among autism researchers especially, I argue that an unimpeachably scientific,

laboratory-based work of looking for, and thinking about, the neurobiology of autism, is often an emotional and an affective labour too.

Recognition of emotion's presence in scientific spaces has a long history in science and technology studies (Lynch, 1985: 169; Latour, 1996: 282). But if the place of affect in the laboratory is no surprise, there remains a question – most famously posed by Max Weber (1919) – of the relationship between the passionate attachment that motivates a scientific interest, the actual performance of scientific work, and the status of the objects and truth-claims that are produced. Recently, and drawing in particular on long-standing attentions to the body and affect within feminist science studies (Haraway, 1988; Hayles, 1999), scholars have started to more precisely characterise the circular and generative nature of this relationship. Elizabeth Wilson, in her work on Turing's calculating machine, has urged attention to the way that 'feeling and thinking might coassemble' in the unfolding of a modern technoscience (2010: 24). Natasha Myers, focusing on the relationship between dance, body-movement and molecular biology, has shown some of the ways that scientists use their bodies to 'figure out' the subjects of their research – dancing and body-work, she argues, can become 'effective media for articulating the forms, forces and energetics of molecular worlds' (2012: 153-156).

In the paper that follows, I ally myself with these accounts of the role of emotional labour in autism neuroscience. The paper shows how a firmly neurobiological account of autism might be traced through not only scientists' experiences of being 'interested' in autism 'intellectually,' but also of being 'hit' by autism 'in the stomach.' But I also ground this material in a precise account of the relationship between the emotional qualities of scientific subjectivity, and the constitution of scientific objects. To do this, I will draw on the process philosophy of AN Whitehead (1935, 1964, 1979). Well-known in contemporary social-science theorizing as a philosopher of 'objects,' recently scholars have deepened the

interest in Whitehead to account for his contributions to subjectivity (Stenner 2008) and the emotions (Shaviro 2009) more fully. I work my own data through an engagement with Whitehead, here, because Whitehead locates his ontological fore-fronting of experience, and of subject-object relations, within specifically *emotional* moments. Drawing on Whitehead moves us beyond the mere presence of affect, to think about how attending to emotion is also a way of thinking about the generative emotion-work of the laboratory. It urges us to resist a distinction between the affective qualities of scientific subjectivity, and the hard work of achieving a neurobiological correlate of the autism spectrum.

Then it hit me in the stomach

Consider this extract, which comes from an interview with a senior professor of cognitive neuropsychiatry. In the course of our conversation, she began to tell me about her first real research job in the field. 'I was travelling around [schools] on my own,' she began,

> and I remember the first time I walked into an autism school – which I think was [a *well-known school*], one of the first autism schools there was. This of course was in the late eighties. And...it's hard to convey because actually autism schools aren't like that anymore. But...the sound when you go through the door – the kind of particular sounds that low-functioning children with autism make in place of language that aren't like the squeals of ordinary kids. To just walk into the playground and see all the children busy, all this movement but none of it co-ordinated, children not moving together - you know, one child in a corner rocking, one child examining the light through their fingers, another child running in circles, with this extraordinary squeal that other children can't produce. It's just so different. You walk through a door, and on the other side of the door is a world that's so utterly different from the high street in [*that part of London*]. So I found it completely captivating, and...terribly, terribly upsetting.

'That break between the ordinary world and the world of the school,' I asked, 'can you remember…on what level did it hit you? Was it kind of an *emotional*, kind of...?'

> It's very visceral, yeah. Very visceral. And although I thought I knew a lot about autism, because I'd *read* a lot about autism, I'd *heard* a lot about autism – actually I was utterly unprepared for it. Nothing I'd read conveyed the level of lack of language, intellectual impairment…So, here was this thing that I was really passionate about and interested in intellectually. And then it hit me in the stomach. It was visceral. It was very visceral.

There is something striking about this as a description of entering the field and actually doing science. Certainly, the Mertonian account (1979) of scientific disinterest and reason is no longer influential – but the construction of this narrative through images of 'upset,' 'viscera,' 'passion,' even being 'hit…in the stomach' still brings me up short. Because however much the passions have been a focus in the sociology and history of science, themes of impersonality, disinterest, and moral neutrality *still* structure many accounts of the scientific life – even if these tropes are only maintained for public consumption. Experimental psychology in particular, as Theodore Porter has pointed out, following Mitchell Ash,

> 'has been more self-consciously scientific than the natural sciences precisely because of its institutional weakness and intellectual disunity. Inflexible methods of quantification compensated for the lack of a secure community…[statistical tests] were part of a regime of replication and *impersonality*, necessary if the study of psychical phenomena was to win even a modest degree of scientific credibility' (1996: 211).

Indeed a self-conscious psychological scientism was also a theme of my interviews. But these were usually overtaken by self-narrations like the following: 'I remember one woman,' said a junior researcher,

> …it was heart-breaking. Her child was very high-functioning, won awards for this, that, and the other. It was her only child – she said, 'oh, he was my blessing.' She didn't think she'd have children - she was, like, forty-plus. But she said 'oh, it's so sad, I'm there with my husband eating breakfast and just wish that...Daniel or whatever...would just sit and eat breakfast with us. But he's just not interested. He just gets up and walks away.' And she was really grieving, because this relationship with this blessed child that she'd longed for just hadn't materialised, but he was incredibly articulate, incredibly bright, very nice boy - but that kind of emotional, just not

> engaged, I thought, 'it's so interesting' because she's, you'd think she had the easier deal, but she was the one who I think was emotionally finding it a lot harder than some of these other parents who you think 'well, I don't know how...your lives are so disrupted,' you know, so that was a really interesting lesson. I don't know how it informs my...but I think it does make me sensitive, and one thing it does make me think about is that, kind of issues that people will probably say are to do with political correctness, I'm very careful about the language I use, like you know, 'individuals with autism,' and people say 'autistic,' you're just, you know, very careful with the language. And being respectful, and things like that. And think, you know, these aren't, you know, your subjects - well, they are but, you know, you don't, that's not the way you...relate to them.

Here is the psychologist neither as Merton's disinterested zealot, nor as Porter's impersonal seeker of scientific credibility. Here, instead, is the psychologist as a slightly heart-broken young woman, keen to stress her sensitivity to a mother's grief, fumbling a little with the politics of language, and worrying about whether or not she relates well to her 'subjects' – a term that she is reluctant to use. Later, distinguishing laboratory life from her home life, she said: 'I think I'm quite an empathic person…I don't want to take this sort of stuff home with me.' As a view of what it is to do science, and of what it is to get drawn into the scientific life, I am not only struck by how willing this interviewee is to elide any implied injunction towards distance – but, more specifically, by how skilfully she embeds her scientific subjectivity precisely in a deeply personal and emotional commitment to other people. In other cases, disinterest was not just elided, but the moral imperative of the scientific life was specifically addressed and emotively affirmed. 'I was joking the other day with a friend of mine who used to work in the motor trade,' said one brain-imager:

> We were talking about service managers. And I'd just met some service managers who were friends of friends of ours, at a dinner party – and I was surprised at the lack of conscience that they had. They had no conscience. You know, their family and their friends were very important to them. But essentially if it didn't influence them, or didn't have an influence on them directly, they had very little interest in it. And it just seemed to match with the kinds of work that they had to do – you know, they were very keen on meeting business targets, and that's the priority rather

> than…people. And the way people feel. That's secondary to the way the business is run. And, you know, that's the way some people are and that's fine. But some people are the other way around, and they care perhaps a little bit more about the way people feel.

Of course, when he's talking about the 'some people' who are 'the other way round,' he means himself and his colleagues – bright, highly-educated people, working to alleviate the problems of people with neurodevelopmental disorders, and doing so in a fairly unglamorous office, for relatively small salaries. I was interested in the way he narrated his relationship to scientific work as a way of attending to 'the way people feel.' There is a clear sense, here, of the affective commitment of his science, and also of his self-construal as a researcher precisely through registers of feeling and care. He told me later about going with a group of friends to a comedy club, and being picked out of the crowd by the comedian; on being asked what he did for a living, my interviewee was gratified to be able to give the joke-defying response, 'cancer research' (as a young medical imager, he had also done research on cancer). 'It's just about getting some sleep at night,' he said to me, 'so, I suppose if I can go to sleep at night thinking I've made some sort of contribution […] then I'm happy.'

This idea, of worrying about being happy in scientific work, and of locating that happiness in a commitment to care for other people, was echoed by another researcher who told me that she had gotten into autism 'by chance,' having been interested in mathematics and neuropsychology. But then she talked about how important it was for her to work directly with parents and teachers of children with autism. She described these interactions in such a heartfelt way, that I asked her how this squared with her avowed disinterest (following her narrative, of course, I myself had unconsciously slipped into an affective mode of interviewing). 'For myself, personally,' she said,

> if I was doing more of a pure science that wasn't...didn't have an end-point that was kind of applicable – I'd sort of find that quite difficult. I think I need to, um...either be a clinician myself [*laughs*] or do applied research.

When I asked her why she couldn't just be happy producing data, she said:

> I suppose it's just that satisfaction...that whole knowing that what you're doing has a purpose. Um...and that it's not just a job. You're dealing with people's lives and, you know, a report that you write about a child does go on and have an impact. So, um, it's...yeah […] Well, it's...the fact that, you know, you're listening to parents and hearing their stories and you're, you know, hearing their suffering and what they've had to put up with and the fights and battles. And, I suppose...the fact that they give a lot to you in taking part in research. So they are, um...it's very different from a clinician's role. So they give a lot of time to you. And so I suppose it's just wanting to give something back to them.

She then talked more generally about talks that she gives to parents and clinicians, and how she contributes to the field more generally, before laughing self-consciously and saying: 'I hope I have a purpose in life.' What I find striking, in these last two accounts, is the sheer refusal of disinterest, and the sense that scientific work is privileged in the way it relates to other people's feelings, and especially other people's suffering. What I am trying to account for in this paper is precisely the way that such researchers trace their laboratory labour through these kinds of affective registers. I am interested in why it is that an 'intellectual interest' in the neuroscience of autism might run alongside a reference to stomachs and feelings, to suffering and heartbreak.

I want to do this. I want to do this.

In their genealogy of objectivity, Daston and Galison point to the emergence of a new kind of scientific subject in the nineteenth-century: whereas the 'enlightenment savant' had been an active and critical sifter/synthesizer of data, the scientific subject of the nineteenth century, by contrast, 'strove for a self-denying passivity' (2007: 203). Far from the 'otherworldy' figure of previous eras, the goal now was to 'practice self-discipline, self-restraint, self-abnegation, self-annihilation, and a multitude of other techniques of self-imposed selflessness' (ibid.). Steven Shapin (2010) makes a similar argument, identifying a turning point in the last couple of centuries in which the passionate individual was slowly effaced by narratives centred on slow, processual, collective endeavour – thus did we move from a passionate Benjamin Franklin in the 1770s to a 'stress on

mundane methodological discipline' a century later (2010: 33).This also moved causal accounts of scientific labour from a felt individual *urge*, to something rooted in dispassionate collective *technique*. In our century, says Shapin, this has become a claim for the 'moral equivalence' of scientific practice – or a drive, particularly in the wake of the technological horrors of the Second World War, to stress the moral ordinariness of most scientific labours, and their consequent abstraction from the vices, virtues, and feelings of individuals (2010: 47).

Of course, contemporary scientific practices must be distinguished from the establishment of these historical norms. Not least, the dispersed laboratory of a modern technoscience is filled with all kinds of bodies that were perhaps not well anticipated by the disinterested gentlemen of the eighteenth-century – including, as Donna Haraway reminds us, women, working-class people, people from ethnic minority communities, and other inhabitants of 'nonstandard' corporality and affect (1997: 269. *cf.* Rose, 1994). As Shapin points out, there is a danger of mistaking a receding public script of scientific propriety for the actual emergence and assemblage of technoscientific work: the fact is, says Shapin, 'the closer you get to the heart of technoscience, and the closer you get to scenes in which technoscientific futures are made, the greater is the acknowledged role of the personal, the familiar, and even the charismatic' (2010: 5).

Following this recognition, I am trying to think about the way that a contemporary scientific project, even one as drily methodological as the search for a neurobiology of autism, is traced through the feelings, and the body, of the unapologetically individual and familiar autism neuroscientist. As well as accounts of emotional laboratory work that I described above, the role of emotions and the body were also evident in interviewees' recollections of the formation of their scientific subjectivities, and in their affectively-registered *desire* for the scientific life. 'When I was thinking about university,' one lecturer recalled:

> I'd really had a very - I was intending to do English literature, actually, and then just one day, literally, I woke up and thought 'no, I want to change that to psychology,' having no really formal idea about psychology education [...] looking back on it, I still think that that was how it was. It was literally a wake up in the morning and say "I'm not going to do English literature. I can still read the books I want to read. I'm going to do psychology"

Several interviewees located the formation of their desire for science in similarly personal, passionate and even embodied moments: one mentioned an early encounter with Clara Claiborne Park's (1967) pioneering autism autobiography as something which 'made me very excited.' Another told me that she had just felt 'some form of intrinsic desire to enable people to […] live their lives in a more comfortable environment.' Another recalled how, when still at school,

> I was quite into literature and drama, and quite creative, I suppose – but I couldn't like really figure out ever, how am I going to get a proper job out of this [*laughs*] and then we were doing Dr Jekyll and Mr Hyde at school, and one of my teachers recommended that I go and read some Freud because this ties in, so then I went to the library and I looked up Freud. And I remember – I just specifically remember – being, like, people research how other people think and feel. And I never knew this before […] this was a massive revelation to me, and I was like 'I want to do this, I want to do this.'

Max Weber (1919) describes this as the scientist's feeling of 'strange intoxication' – which, along with a 'passionate devotion,' Weber was quite well aware of, except that he was keen to separate interest from practice in the course of the 'scientific vocation.' But what I am trying to show, in this paper, is that interviewees worked across those boundaries in a much more complex manner than such a rubric would allow. What I heard from these interviewees, over and over again, were accounts of scientific subjectivity, and of scientific labour, that bespoke a more entangled relationship between intellectual and affective practices. In these interviews, doing the neuroscience of autism is the product of an intoxicating revelation. And this revelation is borne out in the emotional and affective commitments of a very particular kind of scientific labourer – here, someone who feels,

desires, and imagines; someone who is easily thrilled but also slightly upset; someone committed to the easing of other people's suffering; someone who desires to be morally good, and someone who wants to feel happy about that goodness.

Thinking and feeling

Recently, 'emotion' and 'affect' have emerged as major points of inquiry in social-scientific and literary-theorising – with some even diagnosing an 'affective turn' (Massumi 2002; Clough and Halley 2007. See Papoulias and Callard, 2010, for an alternative diagnosis). My goal, though, is not to theorise these terms as such[1]. Instead, I am interested in the broadly affective and embodied ways that some autism neuroscientists talk about scientific work and scientific lives. In particular I want to know why a neurobiological account of autism often gets traced through the feeling body of the individual scientist. If this paper claims any affinities with the broad literature on feeling, it is via the longstanding empirical and material-feminist attention to the salience of bodies and things– a corpus which, for some time now, has been seeking ways to think and live with the always-hybrid nature of corporeal human life (e.g. Haraway 1991, Grosz 1994, Blackman and Venn 2010).

Within the texts on emotion that are broadly affiliated to this tradition, some have recently focused on the roles of bodies and emotions within scientific and technological spaces. In her discussion of the life of Alan Turing, for example, Elizabeth Wilson (2010) explores the role of affect not only within Turing's own life and practice, but within artificial intelligence and robotics more generally. At the heart of Wilson's account is the attribution of affective registers not only to human scientists, but also to the non-humans in these

[1] Note in particular that I do not carefully parse terms like emotion, affect and feeling in this paper – and I proceed on the basis that my data is not illuminated by, for instance, the distinction between the cognitive and the non-cognitive that often marks a break between these terms in affect theories (see e.g. Pile, 2009, for a discussion). Throughout the paper, I use such descriptive terms as they best fit the empirical material – and this is a material that moves, without obvious care, between registers that are variously embodied, qualified, tacit, analytic, and so on.

spaces. Machines, robots and programmes are not just figures or elements of emotional exchange, but nodes within a more general assembly of relays, both figured and figuring within a wider affective entanglement. Wilson stresses the degree to which machines and machine-properties are not exemplars, nor are they *products* of a cold, knowing intelligence: machines, as well their creators, are bound up with 'a fusion of intellect and muscle and beauty and nerves' (2010: 8). Within the laboratory, Wilson argues that the relationship of thinking to feeling is one of 'introjection' which significantly re-figures how we can think about the interiority of both the rational scientist and the calculating machine, as well as the creative and generative back-and-forth between the two: if Turing's work and life are animated by *both* 'affective and intellectual concerns,' then 'it is his errant curiosity, his capacity for enjoyment and surprise, and his childish engagement with computational machinery that underwrite the importance of [his canonical] 1950 paper' (ibid.: 35). Wilson gives a picture of an affectively-committed scientific and intellectual labour, in which the scientist is not simply beset by feelings for her objects, but is instead one node within a much broader circulation of 'affective commerce' (ibid.: 16). Moreover, the scientist's ability to recognise and negotiate the complexity of this emotional web is intimately tied into the success of her scientific practice. In Wilson's account, Turing is a brilliant scientist not least because 'the traffic between [his] internal states and the internal states of others is a key methodological concern in his work' (2010: 16-18).

In a related text, but focusing more on the body than emotions, Natasha Myers has drawn on her experience with the 'Dance your PhD' phenomenon to show some of the ways that scientists use body-movement to 'figure out' the subjects of their research (2012: 153). Dancing and body-work, Myers argues, can become 'effective media for articulating the forms, forces and energetics of molecular worlds' (ibid.:: 153-156). Myers, like Wilson, calls attention to the 'affective entanglements' of scientific research – the way that the

cognitive or intellectual aspects of scientific labour, as well as the objects of that effort, are not easily separable from the feelings, and the movements, and the vibrations, of the scientists in the laboratory. Using the body 'can generate both new forms of knowing, and the things known,' Myers points out; it can also 'make explicit the kinaesthetic and affective dimensions of what are normally recognized as thought experiments' (ibid.: 162, 171). Centrally at stake in Myers's account of scientific work is researchers capacities 'to *move with and be moved by* the phenomena that they attempt to draw into view' (ibid.: 177, emphasis in original). Bodies are '*excitable tissues*,' Myers argues – they have 'the capacity to collect up and relay nuanced molecular affects' (ibid., emphasis also in original). One of the primary metaphors that Myers draws on in her account of scientists' body-work is 'rendering' – a term whose multiple valences carry the sense of a representation, of the work of producing that representation, of a cut, and also of a communication. Dancing your PhD, like feeling your robot – and also, I am trying to show, like figuring out a neurobiological account of autism – is an act of rendering. It articulates the tangle between the body of the researcher and the thing researched, but it does so precisely in the service of animating and collaborating with (even dancing with) the object in question.

With Myers and Wilson, then, we can begin to see the productive and even generative roles of affect in scientific work. In Wilson's account (quoting Fortun), 'cognition and affect "feed off each other…and set possibilities in motion"' (2010: 22). For Myers, 'scientists…conduct *body experiments* to work through hypotheses about how molecules interact' (2012: 156). In both cases, high-quality intellectual work is deeply embedded in the ability of scientists to give themselves up to a kind of affective relationality; the capacity for thought, here, is thickly entangled with the aptitude for feeling. This is precisely what I think is in play among the autism neuroscientists within my interviews: affect makes the 'constricted space' of both brain and diagnosis more expansive

(Wilson, 2010: 38); it helps to 'render' new possibilities for relationships between the two (Myers, 2012: 172). Within a 'cognitive' task that is as difficult and awkward as finding neurobiological correlates for autism, the connective, expansive, and generative possibilities of affective relations begin to appear in a new light.

Let me return to the senior scientist I quoted at the beginning of this paper. Having told the story of her entry to an autism school, she spoke about one of the children in particular:

> So there was a boy in the class I was helping with, who didn't speak at all – very beautiful-looking (it's a cliché, but it's true - a lot of children with autism are); always had his hood up against sound; easily distressed; and spent a lot of time drawing in the air with his finger. And, just occasionally, if you sang to him, he would finish off what you were singing - with words, with sung words. But never ever spoke any words (of speech or communication). Just think: if you're interested in this, I mean, how fascinating. How completely fascinating. And how completely tragic. I remember, from my undergraduate experience, walking back out of the door and into [the] high street. And on one occasion seeing some mum, not exactly slapping their kid, but pulling their kid along and giving them a hard time about whatever it was – whining about something or other. And thinking that...it was so extraordinary that that ordinary child could communicate - you know, that this two- or three-year old could whine to their mum about this, compared to these kids inside this school who, if they'd been able to do anything like whining, we'd all have been cheering and clapping. So, I don't know, it's hard to describe. Of course it's a very long time ago now. But I remember it clearly. I remember it very clearly. And it was partly probably intensified by the fact that I was travelling to these places on my own, and so I would go into a centre for a couple of days, and go to a different place for a couple of days. The staff and children were very helpful and very likeable. It was still a very kind of, umm, a very upsetting experience.

Looking again at these two extracts, it is striking how central the body is to the narrative – the story is carried along by the squeals and cries of one child, the rocking back and forth of another, the light filtered through the fingers of a third, and, finally, the unqualifiable feeling in the stomach of the researcher herself. It's also noteworthy that the interviewee interprets my

question about emotions as a question about the body – and she affirms the specifically affective nature of her experience on that level: 'it's very visceral, yeah.' In the second story, the body is also very much to the forefront – here, the account is built on a foundation of singing voices and splayed fingers, of slapping hands and beautiful faces.

But I particularly want to draw attention to the triumvirate that appears at the end of her first story – where autism is something that the researcher is 'passionate about,' that she is 'interested in,' but that, finally, 'hits' her 'in the stomach.' There is a sense that, once this researcher goes out into the tangible world of special schools and disordered children, her intellectual interest in autism enters into exchange with, and becomes thinkable through, affects, emotions and bodies. Wilson (2004: 41) has argued elsewhere that the gut, specifically, is the boundary that 'allows the outside world to pass right through us' (2004: 44). She quotes Gershon to the effect that 'the open tube that begins at the mouth ends at the anus. Paradoxical as it may seem, the gut is a tunnel that permits the exterior to run right through us' (ibid.). I cannot help, now, but think about this interviewee's story as a memory of a similarly complex form of embodied experience and understanding – where her intellectual interest in autism is at least part-transacted through some more stomached feeling. Equally, in the second account, discussion of the science does not go unaccompanied by an acknowledgement of a very visceral sadness – and vice versa. 'How completely fascinating,' she says, on the one hand, and 'how completely tragic,' on the other.

My argument is that the tangle of these two experiences – distress and fascination; upset and interest – in the midst of such a heavily embodied account, shows what is sometimes tacitly at stake in the conduct of an autism neuroscience, *viz*. the use of the body, and of emotion, to sustain, generate, and animate an intellectual concern with the brain-basis of complex problems in neurodevelopment. I am drawing particular attention to the delicate way in which, between the first story and the second, this researcher's intellectual concerns have acquired some identifiably

affective commitments. More importantly, I am making a claim for the synchronicity of this researcher's capacity to *think* autism, and her willingness to *feel* it. My suggestion is that it is precisely her ability to trace her science through these two experiences, to memorialise them and articulate them together, that enables her to continue to push through the very complex work of autism neuroscience.

Objects of Feeling

At stake, here, is some identifiable relationship between an affective scientific practice and the object to which that practice ultimately addresses itself, *viz.* in this case, the neurobiology of autism. We already have an idea, drawing on Wilson (2004, 2010), and on Myers (2012), that there is some generative alliance between the feeling and the embodiment of scientists, on the one hand, and the ability of those scientists to articulate a complex scientific problem, on the other. In what remains of this paper, I want to build on these suggestions. In particular, I want to move towards thinking a constitutive relationship between the presence of these scientists' emotions, the affective nature of their scientific work, and the possibility of a neurobiological account of autism. I am particularly keen to make this move because the recollections and feelings that I have recounted clearly have some quite specific end in mind. I already quoted one interviewee saying, 'here was this thing that I was really passionate about,' and another saying 'if I was doing more of a pure science that wasn't...didn't have an end-point that was kind of applicable – I'd sort of find that quite difficult.' Below, we'll find another interviewee who, in the midst of a blatantly emotional account says, almost as an aside, 'I want to know…what it is, fundamentally.' The relationship between affect and this 'thing' – this 'it' – is what I wish to turn to now.

In fact, there is already a well-known discussion of the role played by emotion in the coming-together of things, and this is Whitehead's 'process philosophy' (1935, 1964, 1979). Whitehead's complex system is difficult to set out in a confined space. But his account is

essentially centred on what he calls 'prehensions' (1979: 19) – moments of substantive attraction (or, in its negative form, repulsion) between one entity and another (1979: 19). For Whitehead, such substantive connections between entities are essentially constitutive of all objects, and of all elements of all objects, in this universe. But when Whitehead talks about the connections between 'entities' he is including, for example, both a person regarding a chair, and also, within the timber frame of the chair, the regard that the various chemical components of the wood have for one another. A prehension is thus 'any grasping or sensing of one entity by another, or response of one entity to another: whether this takes the form of a stone falling to earth, or my looking at an object in front of me' (Shaviro, 2009: 3). In its positive form, this grasping is described by Whitehead as a *feeling* – and it is particularly 'feeling,' Whitehead goes on to suggest, that describes 'the basic generic operation of passing from the objectivity of the data to the subjectivity of the actual entity in question' (1979: 49). Thus, the moment of substantive and positive connection – which, for Whitehead, in its on-going, processual character, is basically constitutive of all things – is a specifically *emotional* and affective moment, and always an instance of feeling. Whitehead describes the quality of these interactions in terms of 'the *affective* tone determining the effectiveness of that prehension in that occasion of experience' (1935: 227, my emphasis). And thus any 'occasion,' for Whitehead, 'enjoys its decisive moment of absolute self-attainment as emotional unity…*the creativity of the world is the throbbing emotion of the past hurling itself into a new transcendental fact'* (ibid., my emphasis). If experience is the pre-eminent ontological fact, then 'the basis of experience is emotional' (ibid.: 226).

What Whitehead attempts to breach, with this claim, is the fundamental division between subjects and objects that has bedevilled our capacity to talk meaningfully about the concrescence of objects for some time now. This is his famous objection to the 'bifurcation of nature,' in which, according to Whitehead, a rigid separation was enacted between the

redness or the warmth of the sun, and its chemical or molecular structure. Against the claim that one of these is proper to the sun, and one proper to the subjects, minds or bodies experiencing it – for Whitehead, what the sun *is* is the series of positive and negative prehensions between things that have the positions of subjects and objects at any given moment (and here he draws no distinction between electrons, particle waves, neurons, people, warmth, and so on) (1964: 30; 1979: 41). And these positive-assembling relays are *emotional* in character; they have the quality of feeling. Such acts of perception and prehension, Whitehead argues, can 'be conceived as the transference of throbs of emotional energy' (1979: 116). What we begin to see with Whitehead, then, is a disruption of the boundary between the feeling of something, and that thing's constitution. As Stengers points out, feeling begins to have the power of a vector: 'the point,' says Stengers, 'is thus to take literally the common-sense statement "this thing is present in my experience insofar as it is elsewhere," and to construct its concept' (2011: 294). To think with Whitehead, as Stengers evocatively puts it, is to begin 'transforming scars into data' (2011: 310).

Here, we begin to approach a more precise account of the relationship between my interviewees' emotional stories of autism research, and their desire to nonetheless scientifically comprehend the neurobiological basis of autism. In the Whiteheadian scheme, insofar as an actual neurobiology of autism might come into existence, it is as a product of the very concrete emotional apprehensions of one another by its various elements – neurons, electrons, cognitive theories, scientific bureaucracies, over-interested local authorities, and, not least, individual scientists themselves. And so it becomes thinkable that scientists working at the very coalface of neurobiological autism research, straining to understand this relationship, and struggling to bring it into view, would talk about their practice in a deeply affective register. In talking through their attempt to apprehend the delicate connection between neuroscience and autism, and in reflecting on the fragility, still, of their

understanding, might we not actually *expect* them to say things like ‘it was heart-breaking,’ or ‘I found it completely captivating, and...terribly, terribly upsetting,’ or ‘it's not just a job: you're dealing with people's lives,’ or ‘I *love* the kids and I love the families,’ or ‘it made me very excited,’ or ‘I want to do this, I want to do this.’ Would we not predict, of an autism scientist, a heavy investment in feeling, and a tacit commitment to strikingly emotional discourse? Would we not anticipate, in her talk, precisely the kinds of descriptions that we have gathered here?

I am working hard to not over-interpret this: there is no comparator here, and I make no general claim about the specificity of emotional discourse to autism neuroscientists. Nor do I argue that good autism neuroscience has to be a deeply emotional experience. But I mark a reluctance, all the same, to see only coincidence between the delicate and complex process of autism neuroscience, its awkward relationship to the separation of subjective experience from objective comprehension, and the strikingly emotional and affective way in which many of these scientists talk about their work. It seems to me that a scientific practice so actively working towards its object, so strongly marked by deeply-felt emotional attachments, and yet so intensely alive to the potent nature of affective relationality – it seems to me that such a practice may yet open up the space in which to risk some other analysis. Let me develop this last point by moving onto my final example – in which both feelings about, and the constitution of, the brain-basis of autism are very much in question. It loops back to where we began this account: with feelings of love.

Circuits of love

'It was from a theoretical stance, really that I was interested in autism,’ began a young researcher,

> But then I started working with two children with autism - one who was four, and one who was five. And both had very little speech. And I did applied behavioural analysis with those kids. I did therapy once a week for, like, I think four or five years [...] so I was quite involved with the families and the

> kids, and their schooling. And I saw huge improvements, in kids who didn't speak at four to five, and didn't really communicate very well at all, to then being eight or nine and [who then] could converse - not in a grammatically correct way necessarily, but [they] could make themselves understood. And also there were stark differences in these kids, which is quite, I think, characteristic of autism in general - just the variability, in that one child in particular, was so...he was just...he just wanted... [*here she struggled audibly*] he wanted to sp... ... [*very quickly*] he wanted to have friends. He wanted to interact with other kids. He just didn't know how to.

Already, here, there is a juxtaposition between the prosaic scientific account, and something more self-consciously emotionally-committed: in the space of just a few sentences, we are discussing the interviewee's 'theoretical stance' on autism' as well as an unambiguously poignant image of the child who struggles to make friends. This researcher does not name her upset– but I remember this interview being a small bit uncomfortable. As I have tried to render in the extract, there are a lot of gaps and silences on the tape, especially in places where you probably *would* name the emotion in question, and there are even a couple of places where this accomplished young scientist is almost talking quietly to herself. 'Was [this child] kind of articulating a desire for friendship?' I asked.

> Yeah, yeah, oh, yeah-yeah-yeah. Whereas the other child wasn't particularly interested in other kids. And his language didn't take, interestingly, as much as the other child's did. Because he just didn't interact with those other kids. They were both in mainstream schools. Um...but anyway that really got...I wanted to know why...I wanted to know why there was such variability in the autism spectrum, um, in terms of their outcomes. And...what we could do about it, I guess; what kind of factors might actually determine their outcomes. So might it be intrinsic child-related factors, like level of language to start off with, or IQ, or personality, temperament, or...general personality – or whether there were more kind of environmental or extrinsic factors, like how much intervention they've had, or the type of schooling they've got, or the type of family structure they've got. So I kind of got interested in that, and what we could do about it. I guess what we can do to try and...ensure that children with autism reach their potential, basically.

‘Yeah,’ I said, ‘because that's a bit heart-breaking – the kid who wants to have friends but doesn't know how.’

> Oh, I know. I mean that's what it was - I mean, the school he was in was lovely. So, that's just luck in some respects – he could not have been in a school that was lovely. And of course this was in primary school. When you get into secondary school, it's much more...it's hard for everybody, not necessarily just people with autism, but everyone.

She then steered away again from these kinds of topics and spoke again in that more obviously ‘scientific’ vein, about differences in autism. ‘Those are such different things to articulate,’ I said, trying to point to the relationship between her affective and scientific commitments, ‘[…] I guess I'm wondering how did you transition from one to the other, or how did you negotiate the tension between those two [kinds of commitment]?’ ‘In some respects, there wasn’t necessarily a tension,’ she replied.

> My research was on theory of mind - but also on other cognitive skills of kids with autism. And what I realised from my observations of working with the kids but also during my research and the results of my research, was that these kids did have problems in theory of mind, which limits the sorts of interactions they can have and understand. But they also have additional weaknesses and strengths as well. And that also places them with advantage, but also disadvantages as well. And so that was the tension, I think […]

I heard this as an unwillingness to acknowledge the polarities in her account, when it was obvious to me that the autism she was working with was involved in a much more complex system of apprehension and exchange – one that lacked an obvious ‘bifurcation’ between cognitive theories, neurodevelopmental disorders, anxious children, and curious, empathic researchers. What I did not hear at the time, however, but which strikes me now, is her focus on the specificity of autism itself, not as an *evasion*, but in fact as an *elaboration* of this theme. As she says: relations between different ways of constructing autism, ‘*that* was the tension.’ She is very clear – although I am deaf to it in the exchange – that she is not emoting for its own sake, but to ‘know why.’ In other words, she is trying to talk about autism concretely, but not at all as a way to get around emotion,

or to ignore it. In fact, in the Whiteheadian sense, being *able* to talk about autism might be the whole purpose of this sense of affective relationality in the first place. Thinking we had nonetheless gone off-topic, I re-phrased the question, and asked if a therapeutic desire had always driven her.

> […] I guess...yeah...[*long pause*]. I guess I want...[*another longish pause*], I'm quite, um...[*almost talking to herself*] it's not empathy...I guess empathy, with...I really get on with my families, so I've just written 120 Christmas cards to my...all my kids [*she laughs uproariously on 'kids'*], all my autistic kids in [my home city] and here – just, you know, I do this every year. So, I get on really well...I love....[*she catches herself here, but then repeats quite definitively*] I <u>*love*</u> the kids and I love the families, and I think I feel that kind of rapport with them, so there's the sense that I kind of want them to do...I want them to do as best as they possibly can – because I can see that they have potential, and so, I think that's what drives a lot of my work.

I remember being taken aback at the emergence of love here – and I think she was too, given how much of an effort it was to even articulate its presence. In some prosaic ways, feelings of love should not be surprising: my interviewees, often (but not always) relatively young women, and often at quite an early stage in their careers, could not afford to be innocent of the intellectual and pragmatic complexity of familial love (Donald, 2012). This is not incidental: although there is not space, here, to engage the broader scholarship on the figuring of women's scientific labour (Fox Keller, 1977; H. Rose, 1994; Donald, 2012), or to do justice to the complicated and mostly US-based statistics on the place of women in psychology and neuroscience (Nature Neuroscience, 2006) – still my analysis takes seriously Hilary Rose's observation that 'feminist biologists, in contesting the boundaries of nature and culture laid down by sociobiology, understood in a direct and practical way that as women we, our bodies and ourselves, are part of both nature and of culture' (1994: 2). This, indeed, is the sense in which I want to focus on the emergence of love, here. Just as it was in the previous account, the rhetorical move is open circulatory, and once more

the narrative moves from theoretical stances to the emotion and back out again. 'At the same time,' said my interviewee,

> I want to know why - what it is, fundamentally, about kids with autism that is different to typical kids, so how do they perceive the world, and view the world that might be different to us...and how...and what we might do to ameliorate any differences.

I said earlier that accounts of autism neuroscience are often shot-through with thick reports of sadness, upset, love, anxiety and even pride. I said that scientists who are methodologically open to affect are not just emotional for its own sake, but that, in fact, their capacity for feeling, and for emotional labour, is heavily implicated in their attempt to work across an un-bifurcated nature. This move is again remarkably explicit here: we see that the actual practice of autism research is heavily invested in the simultaneous passing-by of thinking and feeling: that passionate attachments ('I love the kids') are not separated from intellectual interests ('that's what drives a lot of my work'). But, critically, this researcher's basic concern, and she is very keen to stress this, is the 'why' – what, exactly, is this thing underlying all these problems? I am now disinclined to think about this as I did at the time, which was to assume that my interviewee focused on the 'why' in order to avoid talking about an embarrassing surfeit of affect, i.e. that she 'love[s] the kids…and the families.' In fact, the argument that I have been building throughout this paper is that the 'why' of autism might be precisely what this whole system of affective labour is directed at in the first place. I am coming to the conclusion, in other words, that the specific, dry, and technical issues about the objective make-up of autism, which skate endlessly across the top of these accounts, and which are insisted-upon particularly in this final contribution, are *not* simply a way to avoid talking about love. They are there, in fact, precisely to explain it. An affective labour is thus not something external to the doing of neuroscience, nor to its objects. IIt is, instead, one of the ways in which precisely those works, and those objects, may be made, and sustained, and strengthened, and understood.

Conclusion

The role of emotional labour has a well-established place within the critical-psychological and psychosocial literatures (Cromby, 2007; Greco and Stenner [eds.], 2008), including in related accounts of autism (Hobson, 1995). But it is still not widely acknowledged within the self-consciously 'harder' spaces of cognitive neuropsychology and biological psychiatry. Both of these are often publicly invested (and, in the contemporary academy, probably with good reason) in un-problematized discourses of quantification, distance, method, simple objectivity, and so on. It is not at all my purpose to try and remove the 'veil' of these logics, or to argue that they are 'really' still very obviously emotional, or subjective, despite claims to the contrary. My purpose, instead, has been to describe the quiet, and complex, but still generative alliance between such logics of distance and impersonality, and, nonetheless, the very obvious on-going presence of feeling and emotion in these spaces. I have tried to show that figuring the neurobiology of autism across categories of both thinking and feeling, of trying to understand it 'out there,' by feeling it 'in here,' shows not only the porousness of the boundary between quantificatory logics of distance and the affective labour of laboratory practice; it also shows how the two might be traced together in attempts to understand the brain-basis of just such a tricky and ill-defined diagnostic entity as the autism spectrum.

On this basis, I want to conclude with a normative suggestion, which is that researchers' experiences of flows of love, desire, fear, sadness, and so on, can be a good thing in neuroscientific research. The relationship between affect and concrete knowledge might create space, then, for researchers to talk more frankly, and more positively, about the roles of emotions and feelings – of stomachs and loves – within the rubric of the new brain sciences. In fact, my interviewees talked quite openly about their affective commitments. And yet, although the function of these commitments seemed undeniable, no-one really talked about the *positive* place of

feeling in her neurobiological or cognitive-psychological research practice. Indeed, there was a tendency for interviewees to step away from these accounts, and to circle back to a distanced discourse of 'understanding.' But could there not be space to talk more explicitly, and to think more positively, about the concrete roles of emotion and feeling in bringing the objects of a scientific neuropsychology into view? And might we not then imagine neuroscientific and laboratory-based spaces that would allow researchers to reflect upon, and even to refine, the deeply scientific, but also thickly emotional labour, that I have tried to describe in this paper?

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