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Thinking diffraction, becoming a mess

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Pete Fleming

Thinking diffraction, becoming a mess

MA Graduation Essay

*theory in the mud, as muddle.*¹

material-semiotic composting: mud making becoming-with the muddle

People spend a lot of time tidying things, but they never seem to spend time muddling them. Things just seem to get in a muddle by themselves. And people have to tidy them up again.

Gregory Bateson, 'Metalogue: Why Do Things Get in a Muddle?', 1948 (published 1972), as quoted in the video artwork "Why Do Things Get in a Muddle? (Come on Petunia)", 1984, by Gary Hill Studio, as seen at the exhibition "Why Do Things Get in a Muddle?", curated by Stephanie von Spreter at Fotogalleriet in Oslo, 2016, and rewatched at vimeo.com/45472623 in 2017 (video file uploaded 2013).

'Metalogue: Why Do Things Get in a Muddle?' appears in the 1972 compendium 'Steps To An Ecology of Mind', a collection of the writing of Gregory Bateson. This appraisal of the nature of the world, as quoted above, is given as testimony to the question "Why Do Things Get in a Muddle?" in a dramatized conversation between a daughter and her father on the nature of subjective viewpoints. The daughter asserts it is *people* that busy themselves with maintaining a categorical *tidying* in the face of a divergent, emergent, and urgent world-of-*things* expressing itself - in this scenario to be muddled is to be thing. Bateson-as-father goes on to explain that different people have differing views on 'tidy' and different systems for enacting it. This subjective conception of difference is pivotal to his later proposal of *Mind*, a cybernetic alias for Gaia, God, a supra-net. The ecology - *the relations of organisms to one another and to their physical surroundings* - within his planetary super system, *Mind*, is formed by closed feedback loops interacting through *networks of pathways*² for the transmission of differences, or *bits* of information.

Responding to Brian Massumi's proposition that "a political ecology would be a social technology of belonging, assuming coexistence and co-becoming as the habitat of practices,"³ Isabelle Stengers advocates for an *ecology of practice*. Contrary to Bateson's ecology of *Mind*, Stengers focuses on *practice* - the actual application or use of an idea, belief, or method as opposed to theories about such application or use. This is an intra-active concept not an interactive one, that places the action on the inside, within an entangled and embedded position, rather than as witnessed from an outside, observing interactions between elements.

¹ Haraway, Donna, *Staying with the Trouble, Making Kin in the Chthulucene*, 2016 Duke University Press, p.31

² Bateson, Gregory, *Steps To An Ecology of Mind*, *STATS*, p.488

³ Massumi, Brian, ANU Humanities Research Centre Symposium, August 2003

An ecology of practices may be an instance of what Gilles Deleuze called 'thinking par le milieu', using the French double meaning of milieu, both the middle and the surroundings or habitat. 'Through the middle' would mean without grounding definitions or an ideal horizon. 'With the surroundings' would mean that no theory gives you the power to disentangle something from its particular surroundings.⁴

Stengers is pushing us to think intra-actively, to practice thinking within and with the surrounding muddle, the milieu. Invoking Deleuze, she weaves a thread through Spinoza's *Ethics*⁵, the legacy of monism⁶, and Bateson's cybernetic *Mind*. Taking this further into the sciences my thoughts get caught up in the wavelengths and particles muddling Karen Barad's exposition of the diffraction grating.

The quantum understanding of diffraction troubles the very notion of dichotomy – cutting into two – as a singular act of absolute differentiation, fracturing this from that, now from then.⁷

The seemingly simple experiment of sending a beam of light, or a beam of atoms, through two slits at the same time proved that light, and even matter, can behave as both a wave and a particle, a characteristic called wave-particle duality. These two characteristics are not exhibited simultaneously, but are in fact mutually exclusive. That is, when observed as wave, light or matter acts like a wave, but when observed as particle it acts like a particle. On the one hand, after passing through the two slits (the diffraction grating) the particles disperse like waves passing a harbor entrance, with their recorded distribution showing interference patterns, but on the other hand, if you record the path of individual particles through the experimental apparatus the waveform interference pattern disappears and a particle intensity distribution pattern is observed. That the observational apparatus, repeatedly, predictably, and even non-chronologically⁸ alter these characteristics unequivocally proves that it is impossible to separate the objects and agencies of observation, that they are ontologically entangled. I mention this quantum conundrum as empirical support for debunking thinking that splits the world into individual and determinist binaries. Here, I suggest, light and matter is acting *par le milieu*; both *through* and *with the middle*. Taking heed of Stengers' intra-active thinking,

⁴ Isabelle Stengers, Introductory notes on: an ecology of practices, *Cultural Studies Review*, Vol.11 No.1 March 2005, p.187

⁵ See Deleuze, Gilles, *Spinoza: Philosophie pratique*, 1970 Presses Universitaires de France,

⁶ A theory or doctrine that denies the existence of a distinction or duality in some sphere, such as that between matter and mind, or God and the world; the doctrine that only one supreme being exists.

⁷ Barad, Karen (2014) *Diffraction: Cutting Together-Apart*, *Parallax*, 20:3, p.177, DOI: 10.1080/13534645.2014.927623

⁸ If the paths of individual particles through the diffraction grating are recorded, but then the information subsequently deleted *after* the experiment, the waveform interference pattern is once again observed. This is referred to as the 'Quantum Eraser Experiment'. To quote Barad:

If one focuses on abstract individual entities the result is an utter mystery, we cannot account for the seemingly impossible behavior of the atoms. It's not that the experimenter changes a past that had already been present or that atoms fall in line with a new future simply by erasing information. The point is that the past was never simply there to begin with and the future is not simply what will unfold; the "past" and the "future" are iteratively reworked and enfolded through the iterative practices of spacetime-mattering - including the which-slit detection and the subsequent erasure of which-slit information- all are one phenomenon.

Barad, Karen. *Meeting the Universe Halfway, Quantum physics and the entanglement of matter and meaning*, 2007 Duke University Press, p.315

and considering our atomic entanglement, it is clear that diffraction provides a way of figuring difference as a becoming-with.

Diffraction owes as much to a thick legacy of feminist theorizing about difference as it does to physics. As such, I want to begin by re-turning – not by returning as in reflecting on or going back to a past that was, but re-turning as in turning it over and over again – iteratively intra-acting, re-diffracting, diffracting anew, in the making of new temporalities (spacetime-matterings), new diffraction patterns.⁹

This is an understanding of a diffractive ecology grounded in materialist feminist discourse and is vital to reading the contrast between this knowledge and that of Bateson. These are not feedback loops interacting across a system, the system is implicit in the intra-action.¹⁰ Bateson conceived of difference as a trial and error feedback in-response-to, whereas a diffractive position places difference in a because-with situation. To quote Donna Haraway:

Diffraction does not produce "the same" displaced, as reflection and refraction do. Diffraction is a mapping of interference, not of replication, reflection, or reproduction. A diffraction pattern does not map where differences appear, but rather maps where the effects of difference appear.¹¹

The diffraction pattern is not a categoric index but a map-in-process of relationships and affects. I would argue that where Bateson's reflexive feedback networks operate through competitive neoliberal nodes (individual points of contact within a homeostatic system), a diffractive model envisages an interwoven *patterning of flows*.¹²

⁹ Continued:

(The play here between reflection/returning and diffraction/ re-turning, separated only by the mere mark of a hyphen, is an important reminder that reflection and diffraction are not opposites, not mutually exclusive, but rather different optical intra-actions highlighting different patterns, optics, geometries that often overlap in practice). We might imagine re-turning as a multiplicity of processes, such as the kinds earthworms revel in while helping to make compost or otherwise being busy at work and at play: turning the soil over and over – ingesting and excreting it, tunneling through it, burrowing, all means of aerating the soil, allowing oxygen in, opening it up and breathing new life into it.”

Karen Barad (2014) *Diffracting Diffraction: Cutting Together-Apart, Parallax*, 20:3, 168-187

¹⁰ Although I have highlighted materialist feminist discourse here, it is important to underline the work done by intersectional feminists. From my research it was the work of intersectional feminists on living difference and being figured-as-different that helped create the academic context for the evolution of the diffractive model I am writing about.

See Collins, Patricia Hill, *Black Feminist Thought: knowledge, consciousness, and the politics of empowerment*. 1990 Unwin Hyman, pp. 221–238, and Cooper, Brittney, *Intersectionality*, The Oxford Handbook of Feminist Theory, 2015 Oxford University Press.

¹¹ Donna Haraway, *The Promises of Monsters: A Regenerative Politics of Inappropriate/d Others*, in *The Haraway Reader*, Routledge 2004 p70

¹² See Eva Hayward, *Sensational Jellyfish: Aquarium Affects and the Matter of Immersion*, *differences* 2012 Volume 23, Number 3: 161-196

Spacetime mattering / What matter(s) matter?

How then might this *patterning of flows* appear in a material sense? Looking at the quote from Gregory Bateson with which I opened this paper, these words have been iteratively *re-turned* within various spaces, times, and *matterings*¹³: by the author, by a publisher, by an artist, by a curator, by a video compression algorithm, by a student. These words trace a path, not of point-to-point connections, but of spatial and temporal interference. Being sensitive to these diffractions, essentialist cartographies of the unique author are rendered obsolete. When “the unitary vision of the subject cannot provide an effective antidote to the processes of fragmentation, flows and mutations, which mark our era”¹⁴, it is time for a new descriptive methodology.

By way of illustration I turn to a recent encounter with the work “The Text of Light” (1974) by American filmmaker Stan Brakhage, as embedded on the now twenty year old online archive UbuWeb. Made two years after *Steps To An Ecology of Mind* was published, the sixty-seven minute film consists entirely of abstracted patterns of light photographed frame by frame reflecting and refracting through a thick, deep-green ashtray, and various other pieces of crystal glassware. Streaks of light cascade across the frame as shimmering points of light dance about. During remarks following a screening of the film at the San Francisco Art Institute in November 1974, Brakhage makes reference to Neils Bohr, the physicist credited with discovering the wave-particle duality theory, and speaks of the film making process in a materialist sense:

Here I am with a macro lens, which is a piece of glass here, and one stuck way out here, or several. And they are never more than an inch or two away from a crystal ash tray which is surrounded by other glass, so where does the lens end? That *all* could be considered a lens which is photographing the sun.¹⁵

He is even entangled as a body in the work: “What I began doing was always holding the camera in hand... It had to be moved by a quivering attention of the hand.”¹⁶ However close to a potential *ecology of practice* this might get, Brakhage was primarily concerned with ‘*the same*’ *displaced*, always insisting his work was a phenomenological documentary practice, quite literally *the unitary vision of the subject* - “I saw very much what you saw on the screen, only it was better of course.”¹⁷

I’m sure the particular *spacetime mattering* of a projection at the San Francisco Art Institute in 1974 was quite different from that of the video I watched at http://ubu.com/film/brakhage_light.html. A compressed upload of a VHS *rip* - 35mm film into magnetic tape into datapacket - the work is mapped across screens, servers, hyperlinks, museums, universities, rare cinema screenings, and each diffraction brings new colors and textures. In many ways

¹³ “Diffraction is an iterative practice of intra-actively reworking and being reworked by patterns of mattering...Diffraction is not a singular event that happens in space and time; rather, it is a dynamism that is integral to spacetime mattering.” Barad, Karen. (2014) *Diffraction: Cutting Together-Apart*, *Parallax*, 20:3, 168-187

¹⁴ Braidotti, Rosi. *Transpositions, on Nomadic Ethics*, 2006 Polity Press, pp. 31 (from *A Cartography of Glocal Powers*)

¹⁵ Brakhage Stan. *The Seen*, in *Essential Brakhage: selected writings on filmmaking*, McPherson & Co. New York, 2001. p.154-172

¹⁶ Ibid.

¹⁷ Ibid.

'The Text Of Light' itself becomes a document of the ontology of media, mapping *the effects of difference* between formats. In this dispersed and *re-turned* artwork I would argue that the piece should be read *par le milieu*, that is, without an ideal definition of what it is, and as deeply entangled within its environment. As an example of abstract experimental filmmaking, the film object Brakhage defined as a "gift of the phenomenal"¹⁸ - a quasi-spiritual transcription of subjective wonder - is apparent, but the work is equally an example of digital *mutation*, an evolutionary adaptation to a new environment. Just like with the diffraction grating, the nature of the observed phenomenon changes with corresponding changes in the apparatus.

Hito Steyerl describes these digitally mutated and temporally fragmented images, as "the poor image"¹⁹ - as low resolution copies in motion. Contrasting the legacy of film purists with digital copies of their work, she asserts that film makers such as Brakhage are indicative of producers of rich images "firmly anchored in systems of national culture, capitalist studio production, the cult of mostly male genius, and the original version"²⁰. *The poor image* is in Steyerl's view "a snapshot of the affective condition of the crowd"²¹, located within an ecology of image users, images are social and therefore inherently political forms. "The condition of the images speaks not only of countless transfers and reformattings, but also of the countless people who cared enough about them to convert them over and over again, to add subtitles, reedit, or upload them."²² Each corrupted pixel, VHS stripe, and buffer pause contribute to a cartography of affect, a new diffractive re-turning.

The mess

Akin to Steyerl's *poor image* that "transforms quality into accessibility, exhibition value into cult value, films into clips, contemplation into distraction"²³, Donna Haraway has suggested "material-semiotic composting"²⁴ as a methodology for mud(dle) making. Learning from the multi-limbed *chthonic earthy ones* - such as spiders, octopus, lichen - she advocates an *ecology of practice* as a becoming-with the milieu:

The tentacular ones make attachments and detachments, they make cuts and knots; they make a difference; they weave paths and consequences but not determinisms; they are both open and knotted in some ways and not in others.²⁵

¹⁸ Ibid.

¹⁹ Steyerl, Hito. *In Defense of the Poor Image*. E-flux Journal #10 - November 2009. <http://www.e-flux.com/journal/10/61362/in-defense-of-the-poor-image/>

²⁰ Ibid.

²¹ Ibid.

²² Ibid.

²³ Ibid.

²⁴ Haraway, Donna. See 1

²⁵ Haraway, Donna. See 1

I suggest that we take up Haraway's affective example as a methodology for understanding the ontology of digital media. Tentacles are used for grasping, moving about, sensing; to feel, try. Surely this is an apt metaphor for a diffractive critical practice.

Perhaps, in the face of a continued effort to tidy the world into indexical categories, hope lies with its opposite, the mess. With lingual origins in Old French and Latin, meaning portion of food or something put on the table, mess also described something sustaining or useful to have at hand. Later the word gained use in reference to a community of diners. Why did the mess, the muddle, come to be viewed in negative? Surely a nourishing activity would be to spend time muddling things with others?