Drone Sense: ~~Towards~~ An ~~an~~ Elemental Communication
Oliver Case, Adam Fish, Bradley L Garrett

> *'There is therefore a terrestrial fire, water, air, and earth, but there is also an aerial or celestial earth, water, fire, and air. There is a struggle between the earth and sky, with the imprisonment of all four elements at stake'*[1] *~~(Deleuze, 1990; 302).~~*

~~In this article, we respond to the~~This article complements ~~—~~and further contextualises our film ~~*Points of *~~*Points of ~~Presence~~Presence* (2017), an experimental narrative ~~conceived~~ created as part of the ~~larger~~ ongoing *System Earth Cable* project (Fish, Garrett, Case, 2017, 2016). In the film and on the project, w~~W~~e employ a consumer drone to extend our sense of the digitally networked environment by tracking the internet infrastructure across the North Atlantic from Iceland to the United Kingdom, via its intermediary nodal connections in the Faroe, Shetland, and Orkney Islands. Following ~~the~~ a flow of data as a complex narrative, we ~~discover~~ reveal an emerging stratigraphy ~~of open space and confinement where~~ mobility is both freed and compromised, stretched between vast open spaces and spaces of extreme confinement. ~~Completing the experience inquiry t~~Through ~~a~~ co-reflective editing of the footage with found Internet sound and imagery~~images~~, we speculate ~~on~~ that the internet-drone assemblage ~~as forming~~forms an enclosure of communication in which the digital and the organic merge. We argue that this ~~emerging~~ evolving symbiosis disrupts sense as both affection and understanding, which suggests an opportunity for reframing digitally networked communication in material-organic terms. ~~Offering a the publication in print, we~~In this short companion piece, we re-present the~~a~~ movement of the film ~~in~~ as untitled still images ~~that~~ that evoke the~~aim to evoke the~~ digital-organic ~~creation, levitat~~levitative~~ion and reflection of drone sense~~ sensibility that resonates with Deleuze's celestial elemental in the opening epigraph ~~and its inseparability from the a~~ digital-organic environment~~.~~

Connecting~~ed~~ through networked ~~devices~~~~drones~~technologies, we ~~now~~ live at the margins of sense and sensibility where our self-image feeds back on itself ad infinitum and without reference to ~~any~~ material origins. Succeeding an alienating hyper-reality, ~~networked~~ sense technologies such as the drone may, perhaps ironically, serve to remind us of our entanglements with the ~~essential being of the~~ elementals ~~—~~by ~~materially~~ extending the sensory body into the ~~living~~ elements~~environment~~. Whether employed to measure water retention on treetops in Burma ~~(Butler, 2017)~~, aid firefighters saving lives ~~(Laville, 2017)~~, or discover and attend to rare plants on inaccessible cliff faces ~~(Nyberg, 2017)~~, the drone ~~becomes~~ is an expansion of intention that serves negentropy[2], the distinctive characteristic of life that resists decay and inertia ~~(Schrödinger, 1992)~~. As pharmakon, both ~~remedy~~ cure and poison, the drone may also accelerate the entropic force as a mode of surveillance and destruction. It conjures both a first aid and kill box[3], to wield a power

[1] Deleuze, G. (1990). *The Logic of Sense*. London: Continuum. ~~Bloomsbury, London~~

[2] See: Schrödinger, E. (1943, 1992). ~~Schrödinger, E. 1992.~~ *What is Life?*. New York: Cambridge University Press~~, New York~~.

[3] A kill box is 'a temporary autonomous zone of slaughter', ~~.~~ coined by the US military. See, e.g. Chamayou, G. (2015). *A Theory of the Drone*. New York: The New Press~~., New York. (Chamayou, 2015)~~

Commented [TB1]: Although the vast majority of readers will no doubt register that this is your own work, it may be worth modifying the wording of this sentence somewhat to make this more explicit. For example, it may be better to write 'we respond to and further contextualise our film ___'…

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Commented [TB2]: Unless you feel it is absolutely vital that we find a way to include these links, we would prefer to remove them, as the formatting and lay-out of the journal (esp. the use of footnotes and spacing of columns) will otherwise crowd the page with lengthy URLs

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that can reconfigure the interface between capital, state, and sense[4] ~~(Shaw, 2017)~~. ~~Now evolving in~~In the ~~corporate sphere~~tech industry, 3D Robotics CEO and ex editor-in-chief of *Wired* magazine Chris Anderson claims that the drone will give 'everybody' access to 'tools only satellite owners had just a few years ago'[5] ~~(Anderson, 2017)~~. True to the technoliberal perspective that technological democratisation is both economically and socially beneficial (Fish, 2017), Anderson advises us to ~~capitalise upon~~seize upon the apparent 'emptiness' of the sky.

Commented [TB3]: Awkward wording, consider revising…Perhaps something more along the lines of 'as the evolution of the drone becomes increasingly subsumed by the corporate sphere…'.

Commented [TB4]: See comment #2 below

In the domain of artistic research, the drone is a powerful ethnographic tool for exploring the margins of society where an aerial mobility of vision can mediate otherwise hidden perspectives to a global community. A striking example of this can be found in the *Unequal Scenes Project*[6] ~~(Miller, 2017)~~ which communicates an imbalanced world in original, emphatic terms by making bird's eye flyovers ~~of~~ over ~~some of~~ the starkest economic divides in modern society. Johnny Miller, the socially subversive pilot behind the project, ~~considers~~ suggests that the impact of these images may in part ~~be due to~~arise from the feeling of detachment exerted by drone vision ~~(Ibid)~~. ~~One may argue that it is~~We also suggest, however, that ~~precisely through~~ such detachment is experienced methodologically as a ~~by~~ controlled bodily extension and~~,~~ that ~~the~~ viewers may experience~~s~~ a ~~different~~ distinctive form of contact with the other and the environment through a proxy-sense; a form of ~~; a~~ detachment ~~arguably~~ beginning with photography ~~and finding~~ and finding potential reciprocity in the digital.~~, a further aspect of self-recognition.~~

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The most important aspect of the drone is ~~arguably~~ its capacity to mediate real time sense-data back to the ~~pilot~~body, ~~and~~ by extension, any networked computer. Using a WiFi connection, the ~~levitating~~ acrobatic camera works in parallel to the evolving ~~underground~~ subsurface megastructure that is the internet. It is thus tethered to the earth, ~~and becomes~~ not only an extension of ~~the~~ body~~,~~ but also a node in a sensorial feedback system at the extremities of a ~~global~~ planetary computer network. Navigating a space between digital and organic networks, the networked drone can therefore ~~take~~ assume the role of ~~a~~ techno-reflexive tool for understanding ~~an~~an hybridity of digital and organic information. In *Points of Presence*, the posthuman eye observes its own anthropomorphisation as it watches ~~a~~ our collective effort to procreate through an emerging body of infrastructural ~~veins,~~ arteries and high security rib cages that surface only fleetingly ~~for a momentarily~~ before ~~being~~ burrowing back into private, governmental, and corporate camouflage~~d through private, governmental, and corporate interest~~. As ex-bodies, the internet and

[4] Shaw, I. (2017). *The Great War of Enclosure: Securing the Skies*. Antipode. ~~pp.~~ 1-24.
[5] Anderson, C. (31 March, 2017). *The Revolution of Drone-carried Sensors*. Web Interview. Geomatics International Magazine.
[6] Miller, J. (2017). *Unequal Scenes*. Online project. www.unequalscenes.com.

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the drone share the same light-encoded information~~-~~, a circulation of frequencies~~for blood and electricity for energy~~ ~~–both~~originally formed by harnessing fire, that promethean gift that transforms humanity's fragility into its power. This light stream burns sub-aquatically, utilising water as a bridge. The drone, a distinctly aerial body, thus inadvertently reflects a~~n~~ multi-elemental origin and the pilot recedes or ascends to the role of spectre and channel, ~~caught between~~stretching the space between pyro-political and sub-marine technologies.

Perhaps ~~this~~ the technical network, this technical body, is not ~~so much extending~~ extending itself as hypothesised by Marshall McLuhan[7] ~~(~~1994~~)~~, ~~as it is~~ but ~~being stretched or expanded~~stretching or expanding so that the space between elements widens and becomes porous to other flows of information. Theory meets science through a mobilised image as we speculate on a digital and organic interdependence, perhaps an ~~with the organic and an~~ eternal return, ~~something like~~ a Deleuzian *superfold*[8], towards a collective understanding of consciousness. For now, a technological expansion of sense necessarily exists within the confines of an atmosphere, a limit of bodily expansion in spherical layers where thought and matter coincide to render a collective experience of time and insecurity of space. According ~~to~~ Jean-Luc Nancy, life itself is 'ecotechnical' and bodies are created '~~in order~~ to make '~~t~~the sense that we vainly seek in the remains of the sky or the spirit'[9] ~~(Nancy, 2008, 89)~~. ~~In the history of human flight~~As if bridging dreams, the connectivity and precision of the digitally networked drone suggests ~~it as~~we are in the process of making ~~a~~ a revolutionary step ~~in understanding the body's vertical evolution~~the human quest to explore the universe.

The internet itself may ~~also~~ be ~~considered a~~the vehicle - where 'vehicle', from the latin *vehere* [*to carry*] - is also a channel, medium, and agent. If the body ~~itself~~ exposes a breakthrough of sense, the drone may serve to repeat this process of exteriorisation. However, connected to the internet, a circuit completes between the earth and the sky to give rise to an enclosure of commons that may ~~threaten our any~~undermine or annihilate potentials for aerial freedom ~~(Garrett and Fish, 2016)~~. ~~In order to~~To make sense of this, consider the margins of digitally networked communication. An atmospheric circuit closes within the confines of climate and, on a far larger scale than alluded to in the epigraph, a war of elements stirs between the

[7] Mcluhan, M. (1994). *Understanding Media*. Cambridge: MIT Press. ~~Edition, Massachusetts~~.
[8] Deleuze's enigmatic term which arguably signifies an epochal transition where silicon chips and the organic fuse. See: ~~(~~Deleuze, G. (2008). ~~Deleuze, G. 2008. *Foucault.* London: Bloomsbury, London;~~ 109~~)~~.
[9] Nancy, J. (2008). *Corpus*. New York: Fordham University Press~~, New York~~. 89.

Commented [TB5]: Wording of this portion of the sentence is a bit confusing; consider revising

Commented [TB6]: See comment #2 below – this is one instance where the citation could easily be done away with

Commented [TB7]: While there is nothing especially wrong with this, there is nothing especially right about the transition between these sentences either. Consider modifying to better establish the link between one and the next.

Commented [TB8]: As with the above comment, consider revising to better smooth out the transition between this and the preceding sentence. For example: 'Just as a drone may be considered an extension of the body, the internet itself may also…'

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movement, space and energy of information. Here, it is useful to turn to Bernard Stiegler's ongoing project[10] which identifies in digital evolution an automatic, algorithmic society that functions according to the laws of thermodynamics. From this perspective, Stiegler suggests we may consider life and information in the same breath and as a continual struggle between entropy and negentropy ~~(Stiegler, 2016)~~. Man-made technology therefore disrupts the balance to the extent of finding ourselves in ~~the~~ an 'Anthropocene', an ~~age~~ deep-time epoch where human-technical mechanisation is the dominant factor in accelerating planetary entropy. Inseparable from capitalism, Stiegler asserts that the Anthropocene is an age from which we must ~~quickly~~ urgently escape by consciously creating negentropic ~~technologies~~ systems that return to humans ~~to the people~~ the time saved by such a revolution in noetic automation~~–~~ - that is, we must ~~enter into~~now trigger ~~the~~ a *neganthropocene* ~~(Ibid)~~. We are in a tempestuous transition from individual to planetary ego ~~as now being witnessed~~visible in ~~the~~ geopolitical transformations ~~in international politics~~ and in the recalibrations of media truth (both crises of sense). ~~and where the~~As ~~Bernard~~ Stiegler suggests, the Anthropocene must first become conscious of itself ~~in order~~so that it may ~~to~~ evolve beyond itself[11].

With an alternative understanding of digitally networked communication as essentially evolving through the element~~sal~~[12] ~~(Peters 2015)~~, we may reconsider the global internet as bound to a hybrid materiality of organic life ~~and~~ and the movement of information. The availability of advanced digital technology suggests that we, as political bodies, ~~will~~ may soon stand together at the margins of networked communication ~~with~~equipped with a pyrotechnical form of sense infused with the~~expanded between the~~ ~~limits of~~ earth, sea and sky. As an attempt to conclude a perpetual automation, we now rotate the ~~image~~view from expanded eyes to glimpse ~~our~~ a reflection ~~as an instance~~ of both body and biosphere~~, the suggestion of~~. What comes into focus is a society in an age of elemental struggle and integration, and with a responsibility to ~~fulfill~~fulfil 'the essential function of the universe, which is a machine for the making of gods'[13] ~~(Bergson, 2007)~~. ~~Today, in a universe already simulated in code[14] (McAlpine et al, 2016), we might reconsider digital communication as bound to elemental form, where more alive than objects and numbers, ask how its material unfolding may illuminate this path being forged by humans and computers.~~

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[10] Stiegler, B. (2016). *Automatic Society 1: The Future of Work*. Cambridge: Polity Press.
[11] Ibid.
[12] Peters, J. D. (2015). *The Marvelous Clouds: Toward a Philosophy of Elemental Media*. ~~The~~ Chicago: University of Chicago Press~~, Chicago~~.
[13] Bergson, H. (2007). The Two Sources of Morality and Religion in Henri Bergson: Key Writings. London: Bloomsbury, London.

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Watch Points of Presence in full at www.youtube.com/watch?v=BTg0KNAHdRM

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[14] McAlpine, S. (2016). 'The eagle simulations of galaxy formation: public release of halo and galaxy catalogues', *Astronomy and Computing*. Volume 15, April 2016, pp. 72-89.

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~~Shaw, I. 2017. The Great War of Enclosure: Securing the Skies. *Antipode* pp. 1-24.~~
~~Schrödinger, E. 1992. *What is Life*?. Cambridge University Press, New York.~~
~~**Image reference**~~

COMMENTS

1. **Images/stills:** Will it be possible to get any stills at 300dpi? While we don't necessarily need a true HD image, in order to preserve image quality this would be our preference. If this won't be possible, one potential work-around is to use a collage of sorts, by placing 16 screenshots in a 4x4 grid.
2. **References/citations:** Owing purely to the constraints of lay-out, we would ask that you review the article and attempt to remove 2-3 citations, in an effort to reduce the amount of space used up by footnotes. Paraphrasing may be of benefit, particularly in instances where the reference is to your own work. Wherever a citation is used to introduce a distinct term or work (e.g. in the case of Deleuze), it should of course be left as is. However, in instances where the citation is used princpially as a qualifier and link to an outside work, consider removing it.

PULL QUOTE 1: In the domain of artistic research, the drone is a powerful ethnographic tool for exploring margins of society where aerial mobility of vision can mediate otherwise hidden perspectives to a global community.

Oliver bio

Dr. Oliver Case is a recent graduate of the HighWire programme. His research uses video platforms and participatory methods to investigate time and vision.

Brad bio

Bradley L Garrett is a Research Fellow in the School of Geosciences at the University of Sydney, Australia. His research covers spatial politics, urban subcultures and audio/visual methodologies.