

The in/visible

Edited by Clare Birchall

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Introduction

‘Light is too corruptible, too shifting and inconstant to form the basis of the relationship to the self and to the All.’ (Irigaray, 1974: 148)

‘Incredible how you can see right through me.’ (Queen, ‘Invisible Man’)

Given that the essence of the invisible lies in our inability to see it, the large number of cultural attempts to represent and mobilise it as metaphor presents an irony. The use of invisibility as a trope dates back at least to the legend of Gyges, discussed in Plato's *Republic*, written around 360 BC. Gyges discovers a ring that makes him invisible; the advantage this bestows helps him to win a kingdom. Ancient etymology indicates that the name of Hades, Greek god of the underworld, means ‘invisible’ and in mythology, a helmet, rather than a ring, enables Hades to escape detection (Roman & Roman, 2009: 182). More recently, H.G. Wells warned of its dangers,

exploring the suspicion and havoc invisibility can wreak; Queen have sung about its appeal; and Harry Potter dons an invisibility cloak to vanquish dark forces in the first book. In philosophy, at least for Merleau-Ponty and Derrida, albeit in different ways, the possibility of perception relies on the difference between the visible and invisible (see Reynolds, 2004). After Adam Smith, economists refer to the 'invisible hand' of the market: indicating a supposedly self-regulating entity. In terms of identity politics the invisible is used as a marker of the marginalised and voiceless – unrecognised by the state or society and without power, they are *effectively* invisible. Ralph Ellison's *Invisible Man*, for example, begins: 'I am an invisible man. No, I am not a spook like those who haunted Edgar Allan Poe; nor am I one of your Hollywood-movie ectoplasms. I am a man of substance, of flesh and bone, fibre and liquids - and I might even be said to possess a mind. I am invisible, understand, simply because people refuse to see me' (1952: 1). As a result of all this cultural activity around the invisible, the strangeness, the absence, the alterity that attracts us, and encourages us to find ways to represent invisibility through existing paradigms, is undoubtedly domesticated.

The trope of invisibility clearly has creative, political, epistemological and cultural force. But invisibility is not just a cultural trope: it is a physical state from which these other uses borrow meaning. Invisible matter is that which neither reflects nor absorbs light. It is a state that assumes its full resonance in relation to a human viewer: invisibility is nothing more than that which lies outside the visible spectrum (although we will need to consider the role of technology in the enhancement of vision and detection). In this respect, invisibility is not a positive

property of the matter observed, but a limitation in, or manipulation of, the observer's visual apparatus. Such a description works just as well at the metaphorical level - whether we are referring to cultural limitations, as with Ellison's white folk, or psychological limitations in which the psyche refuses to face certain events or truths - as it does in reference to the physiological limitations of the human eye.

Of course, it is not the case that we have the physical state of invisibility as a scientific object on the one hand, and cultural attempts to represent it on the other. Science, too, seeks ways to represent that which is invisible. It is highly concerned with how to make invisible matter visible (or at least visible enough for us to secure proof of existence). In this joint concern, both science and culture (if we can even separate these realms at all) mediate our understanding of the invisible. Language is one apparatus used to bring the invisible into what we can only metaphorically refer to as the 'line of vision', whether this be the trick of creative representation, access to God through religious texts and images, consciousness raising of marginalised human experience through written testimony, or the writing up of scientific experiments. Some phenomena require ways of 'seeing' which are less about visibility than cognition. Take 'dark matter', for example - a term Fritz Zwicky invented in the 1930s to refer to the missing mass of galaxies - which can only be hailed by mathematical calculation. These calculations estimate the non-baryonic mass present given the gravitational influence on the motion of gas and stars in galaxies and galaxies within clusters.

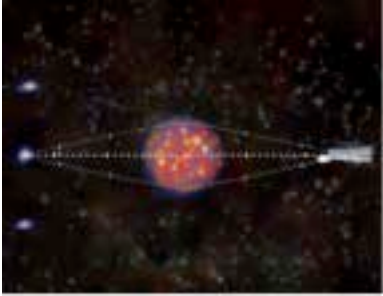


Fig 1: Dark Matter Lensing

'Gravitational lensing can be used to determine the location of mass in a galaxy cluster. Gravity from mass in the galaxy cluster distorts light from background galaxies. In the idealized case shown here, two distorted images of one background galaxy are seen above and below the real location of the galaxy. By looking at the shapes of many different background galaxies, it is possible to make a map showing where the gravity and therefore the mass in the cluster is located. This technique can show where dark matter resides.' (NASA, 2006)

Through recording the effects of gravitational lensing (See Fig. 1) astronomers continue in their attempts to visualise the invisible. Much interest has been generated by this '3D dark matter map' (see Fig.2), for example.

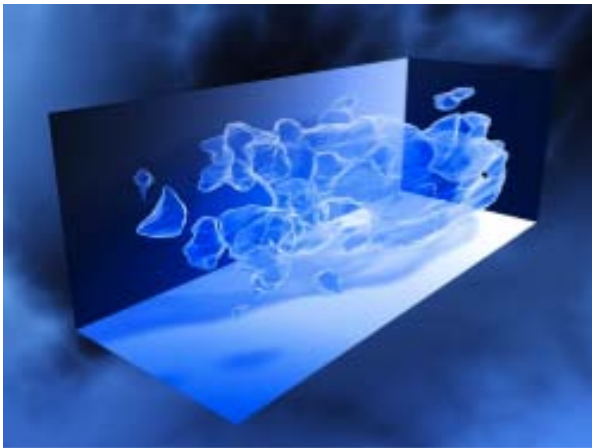


Fig. 2. The Distribution of Mass in the Hubble Space Telescope COSMOS Survey

What we see in this visualisation is the transformation of radically invisible matter, matter that does not interact with light in any wavelength, into a visual mode. This is not a *representation* of the invisible, for this invisible matter has never presented itself to us before (it is not now invisible after having been visible, it is not a modified version of visibility). Rather, all this visualisation can show is an hypothesis – a possible presentation – the one which makes most sense given the data available. Our understanding of the universe becomes dependent upon this invisible element. We cannot make sense of the universe, we cannot make it visible without the invisible. (In a similar vein, we could consider how scientists at the **Large Hadron Collider** suspect they have caught the first ‘glimpse’ of the ‘missing’ particle known as Higgs boson [or more controversially, the ‘God particle’], thought to give mass to the basic building blocks of nature [see Sample, 2011].)

Understanding, accountability, visibility and visibility have arguably never been more connected in the public sphere, beyond the confines of the science lab. We are told today that transparency, for example, is the key to not only understand financial markets, government agencies, and private corporations but prevent malfeasance in these arenas too. Off the record encounters are reconfigured as conspiracy. A liberal notion of privacy is tolerated, but secrecy generates nothing but suspicion. Though this drive for openness and transparency is positioned as a democratic good, we can also read it as a disciplinary

technique of surveillance that privileges only certain criteria of inclusion into the official record (akin to forms of audit culture).

Gary Hall argues that this drive for openness is more a mechanism of Deleuzian societies of control than the panoptical model of surveillance associated with Foucault's disciplinary societies. Hall points out that while disciplinary societies allowed for moments of resistance, societies of control are: 'able to consume the minds and bodies of individuals completely: to the point where no aspect of life - work, leisure, play - escapes organization and exploitation by capital. Witness, to provide some 21st century examples, the way in which increases in computer power and the availability of large, complex data sets are enabling a degree of data mining and pattern recognition to be achieved that makes it possible to automatically anticipate and predict – and thus control, albeit in a comparatively open flexible fashion that is immanent to both the social field and to subjectivity – actions on the part of the subject before they actually take place' (2011). The imperative for governments, data, subjects, motives, feelings (matter, even) to be transparent and visible leaves no space for resistance to take hold. Moreover, this imperative is enabled by a dispersed, techno-human assemblage that we cannot simply oppose because of our role within, and acquiescence to, it. We may have access to an unprecedented amount of data through open government initiatives and e-search engines, but we are a constitutive element of that data and have already been analysed, categorised, interpellated by commercial, political and cultural (new) mediators that have more effective means of mining (our) data.

Besides, data is now subject to a demand that extends beyond mere visibility. The visible must now be aesthetic; it must be visual, it must be, as the title of [David McCandless' bestselling book](#) suggests, beautiful (2010). It is not enough, that is, to make data available, one must draw it out of the shadows of the deep web's darkest archives and use it to produce attractive data visualisations. The drive is evident in recent initiatives by journalists, the digital humanities, the sciences, and the transparency movement.

Yet, the assumed link between visibility and the concept of transparency in public, cultural, commercial and political life is not unproblematic given the scientific properties of transparent matter. Gases are invisible rather than visible precisely because they are transparent (wavelengths of visible light can pass easily through their loosely arranged atoms). Obviously, the cultural trope of transparency works on the idea that we can see into, if not through, a transparent organisation, say.

Transparency in an organisation is supposed to help us see that organisation more clearly (its codes and conduct, its culture and finances etc.). But in material terms, transparency might help the observer to see the context or environment within which transparent matter operates, just as our knowledge of transparent matter helps us to understand how light waves work, but transparency in this context does nothing to help us see the 'thing' itself (in fact transparency secures the impossibility of this). Seeing through is not the same as seeing. Transparency – strictly, or scientifically speaking – is invisibility. These two contradictory meanings co-exist – transparency as visibility; transparency as invisibility.

I want to propose that culture represses this second meaning because of an anxiety generated by invisibility. As nature abhors a vacuum, culture might abhor invisibility: to accept invisibility (as in the case of dark matter discussed above), to not desire to translate and draw it into the visible spectrum, runs counter to the still pervasive project of the Enlightenment. In this narrative, the invisible merely presents a challenge: it is positioned as an obstacle to overcome. Nothing is purely or radically invisible (even dark matter). If we cannot see something, it is just that we have not yet found a way of seeing it. Invisibility is thus considered a temporary state to overcome. Its dissolution – our desire and determination to overcome it, to translate it into visibility – is written into our understanding of the invisible. Invisibility is always defined etymologically in reference to what it lacks: it is a negative state. Invisibility is thwarted visibility; visibility in waiting.

Technology – microscopes, telescopes, night vision goggles - has become enlisted in the service of this drive to render objects/matter/phenomena observable, to overcome the limitations of human vision and conquer invisibility. Our techno-sopic endeavours have led to atomic force microscopes that can produce images of a strand of DNA. **The Hubble Space Telescope**, launched 20 years ago, has enabled us to see the **deep field**, **Crab Nebula** and **Eagle Nebula**. Its younger sibling, Spitzer, sees in infrared. Hubble's successor, the **James Webb Space Telescope**, will, if current funding issues can be overcome, have seven times the collecting power. Layering (cultural notions of) transparency upon visual capability, NASA provides a **webcam** of the JWST being built. In this way, users of home computers can view the efforts of techno-

scopic science so that it's not just scientists who have a monopoly on seeing. Vision is seemingly democratised, even when the issue of who gets to set the frame and the conditions of visibility or visuality are firmly a matter of power. (I will return to this issue below.)

Despite this strong desire to draw the invisible into the visible realm, a pull in the opposite direction is also evident. Science is as concerned with how to make the visible invisible as it is the invisible visible. By creating metamaterials that can manipulate the index of light refraction, an 'invisibility cloak' is becoming increasingly possible. The first breakthrough in 2006 at Duke University created a 'cloak' that deflected microwave beams to flow around an object, making it appear invisible in the microwave frequency. Ironically, the objects rendered invisible in this and other similar experiments are too small to be visible to the naked eye anyway (Cai & Shalaev, 2011: 33). Physicists at Cornell are developing time-space cloaks – so rather than cloaking an object, they seek to cloak an event – hence the term 'temporal cloaking' (McCall & Kinsler, 2011: 35-38). In terms of real world applications, invisibility is a valuable commodity in modern warfare. Military camouflage is entering a new phase as scientists at BAE Systems create e-ink camouflage that displays images on the side of a vehicle which reflect the environment - and which change in real time. The military is also interested in acoustical cloaking as sound waves might be easier to manipulate than lightwaves (Leonhardt, 2011: 26). By developing materials that absorb radar signals stealth technology creates aircraft that are effectively 'invisible' to radar. In situations where remaining undetected is the key to survival, invisibility is highly desirable.

At first, the quest for invisibility (as opposed to attempts to render the invisible visible) seems the more 'radical' challenge as it interrupts the scopic privilege of Enlightenment science. A success in the physics of invisibility would produce nothing to see: it would resist the logic of revelation. Invisibility also challenges a binary logic that suggests matter is either present or absent. As wavelengths are manipulated and our ability to see an object obscured, the object is coterminously present and not present in a highly ambivalent state of existence. (This is what makes invisibility a philosophical as well as scientific subject.) And yet, the teleological narrative of scientific advancement – whereby the state of invisibility is seen as a goal to achieve – plays down the undecidable ontology of invisibility. This might just be a demystification of the sort rationality and reason have administered for hundreds of years. But to set up invisibility as the positivistic goal of a quest (many reports on invisibility cloaks describe it as a 'holy grail') renders it knowable, desirable, 'visible' through projection, desire, narrative, metaphor before it is allowed to be truly invisible. As with the desire to make invisible matter visible (discussed above), the quest to make visible matter invisible also ensures that the invisible is never pure: it is inflected by the visible before it is invisible in this context.

Though hard won in reality, the state of manufactured invisibility has been easily realised in fictive worlds. In H.G. Wells' *Invisible Man*, Griffin – a maverick physicist – stumbles across 'an idea that might lead to a method by which it would be possible to, without changing any other property of matter - except, in some instances, colours - to lower the refractive index of a substance, solid or liquid,

to that of air' (Wells, 1897/2005: 89). He designs a method to lower the refractive index of the human body, of himself, and bleaches his blood to achieve invisibility.

Though the central event in the pre-narrative of the novel is a scientific experiment, invisibility is not only a physical state here, it is also a potent metaphor. Griffin inspires suspicion in the first place not because he is invisible but because he is 'an unusually strange sort of stranger' (15). It's true that his attempts to make himself visible (by wrapping himself in bandages and wearing goggles) inspire unease, but it's also his resistance to social niceties that increases the anxiety of those who encounter Griffin. Mrs Hall, who manages the rooms Griffin takes at the Coach and Horses, attempts to make enquiries, to converse with him in a familiar manner, but such attempts fall flat. Even before the fact of his invisibility is realised, the invisible man is considered strange because he refuses to enter into the required social exchange, because he shirks the social contract. In fact, he proves himself to be aberrant even before he achieves invisibility – as he steals from his own father and stands unmoved by his suicide. Invisibility, here, stands for otherness. (We could also note that the film version of the *Invisible Man* directed by James Whale is not really about invisibility at all – rather it is about the medium of film exploring its own limits, its capacity to create special effects.)

In the novel, as in other fictional accounts – filmic, televisual and literary – invisibility raises moral and ethical questions. Griffin abuses his invisibility because he can. Unobservable violence proves too tempting. As Sydney Perkowitz reports, the fear of capture restrains

man's brutality and enforces a moral code (2011: 22). The current championing of transparency discussed above is also presented in moral terms: making an organisation's transactions visible is a way of fostering accountability and responsibility, or at least to appear to be proactive in this respect. Organisations want to be seen to be visible for the invisible carries with it the cultural taint of immorality.

This moral register, which operates on the level of individual responsibility, can be reframed as a question of state power. Scopic control has long been recognised as a matter of discipline – who and what is made visible to the state clearly has material effects. Beyond state models of surveillance, we can consider the relationship between vision and power in other contexts. For example, Laura Mulvey's 'male gaze' has dominated a discussion of gendered looking since she first used this phrase in the 1970s to describe the way the film apparatus supports the scopophilic viewer and the objectification of women. As noted above, there is a political economy at work that determines who has access to scopic apparatus (to render the invisible visible) and technical equipment and research facilities (to render the visible invisible). More than this, however, we can see how military interest in camouflage, stealth technology, and (more speculatively) visual and temporal cloaking means that visibility/invisibility research is embroiled in geo-political power (as well as the more quotidian issue of knowledge access that is a structural feature of research universities). It is not only the unlikelihood of a human achieving the state of invisibility that confirms *The Invisible Man* as fiction today, but that a lone maverick like Griffin, working without institutional support, should

achieve it.

While research institutes have a monopoly on ‘real life’ scientific invisibility, however, cultural invisibility can be employed as a resistant strategy by anyone (see Weate, 2003). While we can be made invisible by ideology (through racist, sexist, or western-centric discourse), we can also use it in order to make resistant political gestures or gains. Invisibility as secrecy has been a constant theme of left praxis: think of McCarthy-era Communist cells, the Zapatistas’ use of the balaclava, black bloc anti-capitalist masking (see Bratich, 2007: 49), the Guerrilla Girls’ assumption of pseudonyms and gorilla masks, or Bakunin’s recommendations for a secret brotherhood or alliance to take a few examples.

Elsewhere, I have called this a commons of the secret (Birchall, 2011) – but we can amend this here to a commons of invisibility. This democratisation seems to only occur in culture (for reasons of cost, training, facilities and access already acknowledged). This commons might only make sense in the cultural realm on a metaphorical level, whereby it is ‘as if’ someone/something were invisible. And yet, the availability of scientific research through open access archives, a fact that makes this Living Book possible in the first place, suggests if not a commons of invisibility then at least a commons of invisibility research. Though Griffin might not have access to the kind of facilities necessary to achieve the physical state of invisibility, he wouldn’t have to physically search for esoteric texts to understand the methodology needed. Invisibility research is widely available today – it has, we could say, never been more visible.

As this Living Book gathers scientific and cultural explorations into the unseen, it plays a small part in the democratisation of knowledge about invisibility. At the same time, the book also constitutes another attempt to harness and reduce the alterity at work in invisibility. How could we better do justice to invisibility? How could we more effectively align representations of invisibility and the state/condition itself? A blank page? A minute of static? Perhaps it is simply important to acknowledge the role that representation plays in not only mediating but creating the invisible. This introduction and the papers and websites that are included in this Living Book (whether of the sciences or arts) therefore play an active rather than passive role in our understanding of invisibility (see Barad, 2007; Kember & Zylinska, forthcoming).

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Introduction

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