

Engaged Observers: connection and entanglement in the practice of amateur astronomy¹

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'One never simply looks.' (Grasseni 2004:47)

Introduction

In this paper I seek to explore how amateur astronomers connect to their environment through the practice of observation. Scientific observation is often framed as an act of detachment and separation (Cobb 2006:119), but I will argue that this is an incomplete understanding. Grounded in ethnographic material collected during a summer of fieldwork among amateur astronomers, this paper will argue that the astronomical observer is not a detached observer, but is involved in a continual process of active engagement with the celestial bodies that they observe. By examining the act of observation we can see that the observer and observed are in some sense connected: both are caught up in webs of relations, effects and processes that challenge this notion of separation. Located within a complex bio-social-material 'meshwork' (Ingold 2011:63) of entangled relations and effects, the observer does not stand apart from their environment but lives and observes from within it. I critique the 'normative dichotomization of detachment and engagement' (Candea 2010:243) often implicit in discussions of scientific practice, advocating a shift towards an understanding of detachment and engagement not as polar opposites but as natural complementarities.

I conducted my fieldwork with the Birmingham Astronomical Society (BAS), an amateur astronomy interest group who meet weekly in a set of club rooms on the roof of Aston University in the centre of Birmingham. In the last few years members of the society have installed and furnished their own small observatory and alongside this have ample room on the roof to set up 3 or 4 telescopes. At the meetings I was able to conduct interviews with the astronomers and observe them setting up and using telescopes. Before I started my fieldwork I read the following quote from Heidegger in Tim Ingold's *Being Alive* in

¹ This paper is based on research done for my undergraduate dissertation, and was originally presented in a form similar to this at the RAI Undergraduate Conference 2013 held in St Andrews.

which Heidegger discusses the first photographs of the earth from space with an interviewer:

I do not know whether you were frightened [...] but I at any rate was frightened when I saw pictures coming from the moon to the earth... This is no longer the earth on which man lives. (Ingold 2011:113)

Heidegger's sense of alienation seems to stem from the assumption that the planetary perspective offered by these images is not compatible with a sense of the earth as a place in which we can dwell. Obviously this assumption has implications for the practice of astronomical observation, in which this planetary perspective is crucial. Through my fieldwork I came to see that this planetary perspective does not signify alienation for the astronomers I worked with, but rather stands for a deep sense of connection with and belonging to their environment. I will illustrate this with a selection of excerpts from my fieldwork, and will then proceed to consider how we might most effectively re-frame the complex relationship between engagement and detachment.

Observation as entanglement

Quite early on it became clear that in order to participate fully within the group I would also have to take part in observations. During my fieldwork I learned about the frustrations and failures of observation, as well as personally experiencing the almost numinous effect observing could sometimes create. By participating in the act of observing, I was also able to appreciate how much the substances of the earth and the air actually affect the quality of observations. The following excerpt from my field notes shows just how powerful even the tiniest drop of dew can be:

It is early September, and I have joined a dozen or so members of the society on a trip down to Herstmonceux Observatory for a three day astronomy festival. We set up our tents on a large square of grass in front of the striking observatory domes, and the astronomers busy themselves setting up their equipment. Telescopes and mounts are unpacked from big black cases. It is a beautiful clear afternoon, and looks like the conditions will be great for observing later. Steve, one of the most experienced members of the group, has brought a tall slim tent (it looks a bit like

an outhouse) with him. I ask him what it's for. "Keep the dew off my scope" he says [...] Later when it is dark I return to the campsite to find Steve. The night is incredibly clear – the faint white band of the milky-way can be seen with the naked eye – but through my walk around the site I discover that almost all of the astronomers have been unable to observe because their scopes have been fogged up by dew. A few are working away on the lenses trying to dry them with tiny hair-dryers , but most seem to have accepted that they will not be able to use their scopes, and are sat on folding chairs wrapped up in blankets looking up. I walk past the tents of the other society members and through the dark see that they too are all sat down away from their telescopes, gazing upwards and occasionally taking sips from thermos flasks. I get my chair and jumper and join them.

"Beautiful night, ent it?" Steve says, everyone murmurs agreement. I look up, and the view is incredible. There are hundreds of stars visible, and as well as the milky-way we see one or two shooting stars and dozens of satellites. It is beautiful. We sit watching in absolute hushed silence for twenty minutes or so, and then have to get up and move because of the cold. (Field note entry - 7/09/12)

We might say that the various substances of the earth impede perception of the night sky, even as the earth itself provides the necessary base for this observation. Ingold's concept of a 'meshwork' (Ingold 2011:84) may be useful here; seeing the astronomical observer as caught up in an expanding web of relations, effects and processes allows us to more fully appreciate the fluid and dynamic nature of the act of observation. The space between the *here* and *there* of observing is not empty, but rather is characterised by a number of different elements that are dynamic, often intrusive, and sometimes chaotic. In all their practices, from the positioning and frequent repositioning of their telescopes to their interpretation of the celestial objects that they see, the astronomer always bears this fundamental dynamism – that of both the stars and the earth on which the astronomer stands – in mind. Located within this meshwork, the astronomical observer does not stand apart from that which they observe but is fundamentally caught up *within* it. The recognition of this meshwork makes it problematic to speak of detachment as the defining characteristic of astronomical observation; rather it is underpinned by, and to a large extent

depends upon, a series of complex and dynamic connections between observer and observed.

Connection in astronomy

It has been argued that the cosmology of modern astronomy is inherently 'disenchanting', devoid of any great emotional meaning or connection (Tarnas 2006:185). Yet the astronomers I worked with often spoke of their own emotional responses to the phenomena they observed. When asked what first drew them to astronomy almost all of my informants cited moments in their childhood when they recalled looking at the moon or the milky way and feeling wonder. Like the environmentalists that Milton (2002:63-64) interviewed, my informants had come to enjoy and be interested in the night sky through direct observation and, crucially, because of a strong emotional response to what they saw. And when asked what motivated them to continue doing astronomy – despite the poor conditions and frequent equipment failure – they again spoke in these more emotional terms, describing senses of connection or relationship with the sky. During one of the sessions, BAS members Lloyd and Sasha² described this feeling. Lloyd told me:

I suppose I have a kind of-a sort of relationship with the sky. If you could call it that...Actually, I-I shout at it a lot! You know, out of frustration. Like, "why are you doing that?! Stop clouding over, you're wrecking my photo!" [laughing] No, it is really amazing. Fantastic. I have an absolute love affair with Mars actually. So beautiful.

While Sasha spoke less of a sense of a 'relationship', and more in terms of a 'connection':

There is definitely a connection between us and the stars. It's incredible but, like, we are made of the same stuff. Maybe it's weird but...I feel a kind of connection. It feels amazing.

One member described how her practice of astronomy had played a part in helping her deal with depression by strengthening her sense of connection to the rest of the world, and others spoke of the integral part their practice had played in enabling them to deal with grief. It seemed very clear to me that, for many of the astronomers, this sense of an

² I have used pseudonyms to maintain informant confidentiality.

emotional connection was a significant aspect of their practice. This insistence upon seeing science as fundamentally detached and incapable of engagement is not only inaccurate but unhelpful, hindering dialogue between the social sciences and natural science, and limiting our ability to understand the depth of scientific practice.

Of course scientific practice does rely on a certain degree of detachment and abstraction, and it is not my intention to downplay this. Rather I argue that we need to look for a new understanding of the interplay between engagement and detachment, not treating them as opposed or incompatible, but as ‘fundamental complementarities’ (Candea 2010:244), constantly interacting and interweaving in our engagement with the environment.

Conclusion

I have argued that the planetary perspective that so frightened Heidegger is not an image of alienation, but of connection for astronomers, who recognise that they are involved in a continual process of active engagement with the celestial bodies that they observe. The dynamic and extensive nature of this relationship may not be apparent in the products of astronomical observation – where the processes of translation and inscription can erase these embodied aspects – but the ethnographic material detailed here challenges this absence. The astronomical perspective is not a view from nowhere (Nagel 1986) but is located within a complex bio-social-material meshwork of relations and effects, wherein astronomers can be seen to:

‘live in the thick of things, in a symmetric, decentred process of the becoming of the human and the non-human’ (Pickering 2008:8)

An appreciation of the entanglements within which scientific practices (as much as any human practices) are located is essential if we wish to develop more comprehensive ethnographies of science. To paraphrase Ingold, it is necessary that we reconnect our analysis of scientific *knowing* with *being* (Ingold 2011:75). Such an approach would not deny the significance of ideas of abstraction and detachment in astronomy. Those of my informants who were interested in the scientific side of astronomy engaged in it with all the necessary rigour and discipline, and were intensely committed to principles of scientific practice. It has not been my intention to try to deny this but to emphasise that these

aspects of astronomical observation can co-exist with a sense of vision that is skilled, embodied and entangled, and that this second aspect cannot simply be 'inscribed away' (Grasseni 2004:52). Through the ethnographic examples presented here I have illustrated some of the ways that astronomers can be seen to engage with their wider environment, and have argued for a recognition of the complementarity of engagement and detachment in scientific practice. As Candea says: 'detachment emerges as the constant counterpart and complement of engagement, not as its radical alternative' (Candea 2010:244).

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