

2 Extraterrestrial methods

Towards an ethnography of the ISS

Victor Buchli

The anthropological study of extraterrestrial settings might seem novel and exotic. However, this chapter proposes that the methodological tool kit available to social scientists for the empirical study of such contexts has a well-established genealogy, informed and developed by recent innovations in the ethnographic study of social media and their attendant communities. These studies in social media have challenged what is traditionally known within anthropology as the ‘field’ (Miller and Manadiou 2012; Beualieu 2010; Zhao 2003), and the methodological challenges of an extraterrestrial ethnography allow us to examine what happens to some of our fundamental categories of analysis in the social sciences. To date, our understanding of fundamental concepts that underpin the social sciences – such as transcendence, kinship, materiality, architecture, sovereignty, and the body – have been mostly conceived in terrestrially bound terms of Earth’s gravity (see Gorman 2009c; Gorman and Walsh [forthcoming]), and even the concept of ‘fieldwork’ as it has been enshrined in the discipline is a distinctive artefact of terrestrial geometries of time and space. However, the International Space Station (ISS) has, for twenty years at the time of writing, been a home for humans that orbits the planet every ninety minutes in Low Earth Orbit (LEO) (Figure 2.1). This unique extraterrestrial society has received little attention within mainstream anthropology and material culture studies with notable exceptions such as Gorman’s work on the archaeology of gravity (Gorman 2009c) and Gorman’s recent and innovative archaeological approaches for the study of the ISS proposed with Justin Walsh (Walsh and Gorman 2020 and Gorman and Walsh forthcoming).¹ The ISS is a vibrant nexus of constant processes of calibration, coordination, and attunement that brings realms of experience into novel relations of entanglement (Hodder 2012 and Reno 2018) at unexpected scales and degrees of intimacy that have yet to be fully understood. This chapter outlines what the ISS is as a nexus and field of ethnographic study, and it proposes a methodological approach that draws upon the model of ‘armchair anthropology,’ reimagining it in a multi-sited, distributed, and space-age research context.

The ISS

The International Space Station (ISS) is the longest-lasting extant extraterrestrial society in Low Earth Orbit. As it is a place of dwelling, not just scientific discovery, any anthropological study of the ISS must focus on the quotidian and material dimensions of the ISS and its bodily and material techniques, re-examining traditional empirical assumptions within the innovative conditions of the new polymedia environments (as informed by the work of Madianou and Miller 2012) in which the ISS is situated. These polymedia environments include the respective Mission Controls (in Moscow, Munich, Houston, and Tsukuba) and their wider communities. These wider communities may comprise, for example, Orthodox Christians tracking the movement of relics to and from the ISS, or various groups on social media who follow and engage with the ISS mission and crew. These communities, I argue, are coterminous with the ISS site, simultaneously constituting and occupying the same ‘field’ of co-presence.

Co-presence here is used in distinction to co-location, which has characterised traditional ethnographic research, following Beaulieu (2010) and Zhao (2003). As Beaulieu and Zhao have both noted the rise of virtual reality, the Internet, telephony, and social media have suggested a new importance for the understanding of co-presence as the condition of contemporary ethnographic work and social life. As Beaulieu highlights: ‘The effort needed to sustain co-presence should not be underestimated. Co-presence is a very active form of “field making.” The “field” is constituted in the interaction’ (Beaulieu 2010: 463). As such, the media of co-presence are productive of the conditions of social life and the conditions of ethnographic knowledge and the structures of its production. The proposition here is that identifying the wider polymedia field of co-presence and participating in them is integral to the very conditions by which ‘worlding’ (Heidegger 1993) takes place and produces the nexus of terrestrial and extraterrestrial sites that comprise the ‘field’ of the International Space Station – not just simply the structure itself in Low Earth Orbit but the various communities and mission controls on Earth that constitute this ever-expanding nexus that is at once the ‘field’ one ‘enters’ and are the media of its constitution – this study among them (following Beaulieu 2010).

This wider field can be examined as a complex nexus of inhabitation, encompassing both terrestrial and extraterrestrial realms in a novel configuration that is dynamic and expanding. Such a method must involve research on each of the governments and space programmes that constitute the ISS: Russia, United States, Europe, and Japan. This expanded and mediated ‘field,’ constituted by the quotidian aspects of habitation, the wider communities, and the governmental institutions in both the terrestrial and extraterrestrial spheres, is one united field of ethnographic enquiry, held together by various registers of co-presence rather than the traditional registers of co-location (see Beaulieu 2010; Gorman 2009c). This field is unified under the general

theme of ‘worlding’ (Heidegger 1993) through the one common object: the ISS in its expanded and combined terrestrial and extraterrestrial nexus.

The modular architecture of the ISS represents a unique and highly complex habitat that has transcended the bounds of Earth’s gravity, following a long-standing desire to transcend the Earth, a common impulse prominent in many known cosmologies historically and archaeologically (Milbrath 2009). In the early part of the twentieth century the Modernist avant-garde’s predilection to dematerialise architectural form and transcend Earth’s gravity was most eloquently expressed in utopian schemes such as Krutikov’s floating cities of the 1920s (Khan-Magomedov 2015) and Malevich’s suprematist *arkhitektons* from the same period, which were envisioned to orbit Earth (Kovtun and Douglas 1981; Malevich 1920). An extraterrestrial anthropology expands studies of such utopian schemes towards understanding the workings of the ISS. It is the Soviet space programme that, in addition to putting the first man and woman in space, also produced the earliest extraterrestrial habitats in Earth’s orbit on the Salyut and Mir Space Stations. The current ISS is based on this earlier modular architecture first established by the Soviets, and the oldest modules of the ISS were produced by the post-Soviet Russian Space Agency (Nixon 2017; see also Chladek 2017).

Quotidian attunement

A central element in the question of an extraterrestrial methodology is the means by which the various forms of terrestrial and extraterrestrial attunement converge to produce this novel realm of human habitation and its expanded and expanding ‘field’ of co-presence. In this respect, such a method is informed by the spirit of recent work by Stewart (2011) on ‘attunement’ and ‘atmosphere’ (see also Pérez-Gómez 2016, Reno 2018, Ingold 2015) where

incommensurate elements hang together in a scene that bodies labor to be in or to get through [...] bodies labor to literally fall into step with the pacing, the habits, the lines of attachment, the responsibilities shouldered, the sentience of a worlding.

(Stewart 2011: 452)

The inhabitants of the ISS and its participants within the wider nexus of ISS terrestrially and extraterrestrially are ‘attuned’ to each other in surprising, unprecedented, and mutually constitutive ways. This goes back to the very beginning of space exploration, when Sputnik’s ‘beep’ in 1957 was deliberately calibrated so that amateur radio enthusiasts on Earth could literally tune in (Miller 1991: 17). This practise continues with various ISS missions and extends into the present day via the wider complex polymedia environments of the ISS that Jakubowski (2016) observes as part of the ‘expandable space aesthetic’ he describes, and which brings the terrestrially quotidian into a new relationship with the extraterrestrial – a process that has been observed

historically by Maher (2017) in his discussion of the history of the American space programme. These processes of ‘attunement’ and innovative ‘worlding’ can be seen in a wide range of examples, including: 9/11 commemorations (Catchpole 2008); the astronauts Tim Peake and Sunita Williams running marathons on the ISS in sync with marathons on Earth; national holidays such as the Russian ‘Immortal Regiment’ celebrations held on Earth and in the ISS (see Buchli [forthcoming]); as well as religious holidays, family rituals, and the literal attunement produced through periodic radio contact and various forms of social media within the wider ‘field’ of co-presence.

Following Turner (2013) regarding the political aesthetics of the ‘democratic surround’ and Messeri’s work (2011; 2016; 2017) on extraterrestrial placemaking, we see that the material conditions of the ISS and the extension of human habitation extraterrestrially expand and reconfigure the conditions of the terrestrial in new and unexpected ways (see also Maher 2017). The quotidian data of the ISS provides a rich trove of information that evidences the ways in which ‘worlding’ emerges simultaneously intimately and cosmologically (see also Allen and Holbraad 2014). The ISS is a vibrant nexus of constant processes of calibration, coordination, and attunement that brings realms of experience into novel relations of entanglement (Hodder 2012) at unexpected scales and degrees of intimacy that have yet to be fully understood.

Humans have always already been going to space

Despite its novelty, an extraterrestrial methodology participates in a long-standing tradition within anthropology and archaeology that has dealt with the transcendent in terrestrially based cosmologies and the material cultures that constitute them. In fact, the sort of distinction the term extraterrestrial implies, and the binaries that it manifests, can be quite foreign to many non-EuroAmerican contexts where the transcendent and celestial are engaged in various forms of co-presence in everyday life (see also Gorman 2009c).

For instance, Ye’cuana traditional dwellings of Northern Brazil and Venezuela often serve as analogues for the celestial sphere (Rivière 1995). The conventionally empirical and material present realms of the day to day are seen to be the faint reflections of enduring ancestral and divine relations in a transcendent dimension. Similarly, Batammaliba dwellings (Blier 1987) track the passage of celestial ancestors through various light apertures in the structure linking the living and the dead through the practices of daily life – the terrestrial and the extraterrestrial converge into one common ‘field’ of inhabitation. As Milbrath notes, humans frequently structure ritual life and daily activities in relation to celestial cycles and, more importantly, both celestial and terrestrial cycles are often linked and require one another to continue (Milbrath 2009: 158). As Reno (2018) also notes, the conventional Euro-American clock-time of capitalist expansion and regulation is facilitated by attunement in relation to given celestial coordinates and their

resulting daylight hours, which are challenged when considering the context of Low Earth Orbit, where sunrise and sunset are experienced 15 or 16 times a day. The dwelling is the nexus whereby these terrestrial, transcendent and extraterrestrial cycles are regulated and experienced in embodied form in our everyday material culture and architecture (Carsten and Hugh-Jones 1995; Douglas 1991).

In another vein, Messeri highlights how Inuit shamans have been going to the moon long before NASA, and Native American traditions have often reckoned kinship in celestial terms (Messeri 2011: 15). As Messeri (2011) notes, a multiplicity emerges between the terrestrial and extraterrestrial, where relationships are uncovered between Earth and extraterrestrial worlds with a particular emphasis on the capacity of language and visuality to render these realms into perceivable habitats. Projects such as the mapping of Mars democratise the planet in relation to American neoliberal ideals, making it that much more ‘habitable’ through democratic mapping processes such as Google Mars (*ibid.*). These technologies transpose and merge the technologies for mapping and inhabiting Earth in order to do the same on Mars, and in doing so, they create new intimacies with other worlds. As Messeri states, ‘Simulation does not imitate; it generates’ (Messeri 2011: 250; see also Maher 2017). The mirroring of these extraterrestrial and transcendent realms in whatever register, serves to generate these wider sets of relationships rather than represent them. It does this as part of a wider process of ‘worlding’ (Heidegger 1993) and the continuous embodied microprocesses of ‘attunement’ (Stewart 2011; see also Ingold 2015) that expands these realms and brings them into being.

Dialogic worlding

‘Worlding,’ as used here, relates to Heidegger’s neologism describing the dynamic, mutually constitutive, and continuously unfolding processes whereby that which is intimate (on a bodily level) as well as that which is far-reaching (in terms of relationships with the cosmos) are dynamically and mutually configured in relation to one another in terms of empirically describable constantly expanding worlds (Heidegger 1993 and following Battaglia et al. 2012). This concept informs an extraterrestrial methodology, helping to understand the ways in which the fundamental characteristics of human life, sociality, and material culture are reconfigured through the expansion of our habitat extraterrestrially (see also Gorman 2009c; Gorman and Walsh forthcoming). Scholarship on space exploration has focused on organisational studies and the anthropology of extreme habitats and environments (Olson 2010, 2018; Stuster 2011; Kintz and Palinkas 2016). An extraterrestrial methodology builds on this work and on work such as Zabusky on the European Space Agency (ESA) (Zabusky 1995), to examine how the body and the cosmos are attuned to one another within space habitats. Olson’s account of NASA describes how the body is radically manipulated to reinterpret what its very potential is in relation to space environments. By tracing space

analogues, developed, researched, and inhabited at NASA, she describes how one universal totalising paradigm is produced. Earth and Space are not dichotomised, as her informant claims: 'There's only one paradigm, it's all the same' (Olson 2010: 225). Such a methodology proposed here helps ask what forms of human 'being' (Heidegger 1993) emerge from such constellations of body, technology, architecture and data?

However, that 'same' paradigm identified by Olson, is not immediately realised or apparent; Battaglia et al. (2012), in turn, focus on the 'extreme' characterisation of the extraterrestrial and how its 'extraness' produces the effect of the sublime in relation to the ordinary and extraordinary. This productive capacity questions the most basic assumptions of what constitutes life, habitability, time, and the Earth itself. More importantly, the trope of 'extraness' is seen to offer a new way of examining and reconstituting the human in terms that are not exhausted by terrestrial failures (see Carroll et al. 2017) but rather by the extreme conditions of the extraterrestrial itself. The 'extreme' becomes a form of dynamic worlding and, more importantly, a realm that is novel, tentative, emergent, unstable, and unknown. It becomes a site of radically redemptive alterity in the 'subjunctive' mode (Battaglia et al. 2012: 1011) in which a future for humanity could unfold. And, as argued here, this 'extraness' is also understood in terms of the novel micropowers at work within novel material nexus that bring forth this emergent worlding. As Valentine et al. note (2012), activities such as the commercialisation of Space, the expansion of neoliberalism off-world in the post-Soviet era and the fascination with the extraterrestrial and 'extreme' situations represent a radical new field for anthropological study with methodological challenges.

The constantly invoked themes of new forms of kinship, neo-unilineal evolution and common humanity echo earlier nineteenth-century notions such as the 'Psychic Unity of Mankind,' as can be seen in Farman's (2012) examination of 'singularitarians.' Singularitarians recall earlier nineteenth-century Russian Cosmist philosophy, notably Fedorov, which is at the heart of Soviet and Russian space intellectual histories (Siddiqi 2010; Young 2012). As these studies suggest, the study of the extraterrestrial reconfigures our understanding of terrestrial realms in a profound way. In this vein, the ethnographies of Olson and Messeri both look at the various scales in which extraterrestrial realms are inhabited: how extraterrestrial worlds are made Earth-like, and how Earth is made extraterrestrial-like (see also Maher 2017), through an examination of the processes of 'worlding' that brings these incompatible realms together to extend the notion of human habitability. Zabusky's (1995) ethnography of satellite launches, notes, anticipating Messeri, that the activities surrounding such launches are generative, not simply of the ESA satellite programmes themselves, but also of the continuing political, cultural, and social project that is the European Union itself: a very terrestrial consequence of these extraterrestrial activities. To date, ethnographies of extraterrestrial activities and Space offer critical insights into our terrestrial institutions and societies, describing as much the institutions and science these activities take

place in as the conditions under which these institutions and their socialites are reproduced, extended, and augmented. An extraterrestrial methodology proposes to build on and extend this field of study in a cross-cultural, multi-sited and empirically focused ethnography of the ISS and its nexus, both terrestrially and extraterrestrially.

Alice Gorman's earlier archaeological work on the material culture of extraterrestrial settings (2007, 2009a, b) focuses on the heritage of space sites (such as the first lunar landing), historically significant satellites, equipment in orbit and innovative proposals for how the cultural heritage and archaeology of space can be preserved. The generative capacity of these extraterrestrial activities reconfigures and reproduces terrestrial arrangements and relations in novel and unexpected ways. The very terrestrially based concept of heritage at the heart of nation building extends beyond the Earth here to critically question what, in fact, such a common heritage might be, both on Earth and in Space. It is in this vein that an extraterrestrial methodology might examine the wider nexus of ISS activities in LEO and on Earth materially examining how they are mutually constituted within their expanding terms of interaction and how national territory might be understood when there is no terrain.

Space from the armchair

Despite the apparent novelty of an extraterrestrial site, this chapter proposes that in order to develop such an extraterrestrial methodology, it is necessary to excavate and update a tradition in anthropological thought and method that emerges from its nineteenth-century origins: the so called armchair anthropology that formed the basis of our comparative discipline before the advent of a 'modernist' social anthropology characterised by co-locational field work (see Strathern 1987a for a wider intellectual history and discussion of this tension between pre-modernist, modernist, and post-modern methodological traditions within anthropology).

Traditional empirical notions of physical co-location (see Beaulieu 2010 and in particular Zhao 2003 for a relevant taxonomy) are not possible in the Low Earth Orbit of the ISS – however, it is argued here (following Beaulieu and Zhao) that we are most emphatically co-present in terms of the polymedia networks sustaining it, from its various mission controls to social media robots and live feeds linking the ISS to terrestrial communities within expanding nexus that allow any smart phone to be a virtual mission control. This is 'armchair anthropology' of a particular magnitude that is co-present ethnographically within the innovative registers of co-presence at the ISS but not within the conventional material registers of co-location that inform terrestrial ethnography as it is traditionally conceived in its 'modernist' vein (Strathern 1987a). Further, Willerslev (2011) offers an analogous and instructive distinction whereby the 'armchair' is the site of knowledge both intellectually and empirically, where 'actual' empirical observations, produced via conventional co-location, are constitutive of the 'virtual' – in its more

archaic sense of ‘inherent virtues or power’ (Willerslev 2011: 506) rather than the contemporary sense of ‘virtual reality.’ As such, the ‘armchair’ is constitutive of anthropological knowledge more fully: ‘the virtual in an important sense is more real than its actual manifestations’ (Willerslev 2011: 506). Yet, I would like to suggest that such polymedia nexus are an even more intensive and extensive form of sociality – more ‘virtual’ in both the archaic and contemporary sense and, hence, more real, as Willerslev might suggest. The ISS and Low Earth Orbit are a new part of Earth even though as such it is arguably not part of the planet and the traditional home of *Homo sapiens*. Yet the method by which such an investigation takes place challenges not only what our notions of territorial space and habitat are, and with that notions of presence and community, but also what is the status of nature and the human when occupying the decidedly hostile environment of Low Earth Orbit and the innovative ‘virtual’ conditions of human being, following Willerslev.

In fact, the ISS’s nexus – both terrestrially and extraterrestrially – troubles the traditional terrestrially based methods that have characterised the discipline (see also Gorman 2009c; Gorman and Walsh forthcoming). The methodological investigation itself participates in and reconfigures deeper historical shifts related to the pre- versus post-Copernican views of the world. This is understood here as the tension between Earth-centric (pre-Copernican) views of the cosmos and post-Copernican views that displace the Earth as centre (Oliver 2015). In fact, much of the processes of attunement discussed here participate in this wider accretive and productive context of the vacillating characteristics of the relationship between the Earth and the cosmos. At the heart of this issue is the vacillating placement and displacement of the human as the centre of a cosmology, and the new models of society with the human alongside shifting material registers of attenuated degrees of materiality and immateriality that shape our continuously expanding relations into novel configurations and concerns.

An extraterrestrial site such as the ISS inverts the established terrestrially based geometry of ethnographic work. The object itself is not directly accessible, yet it exists within a highly accessible nexus of several terrestrial sites and in polymedia. Armchair anthropology of the nineteenth century relied on reports and surveys (Stocking 1992; Urry 1972) to collect data from the imperial peripheries along traditionally seafaring routes and bring that data into the imperial centres for study. The spatial geometry of this method reinforced a strict binary between anthropologists and their subjects (Strathern 1987a) with a very particular methodological configuration of distance and surveillance constituting the primacy of imperial centres and knowledge. This geometry is bound by the terrestrial conditions of time and space, and the historically contingent dynamics of power, technological advancement and mobility that animate this geometry.

Josh Reno (2018), observes that the time/space of extraterrestrial objects is radically distinct from conventional Euro-American clock time, based as it is on Earth’s rotation and orbit around the sun. The ISS experiences 15 or

16 sunrises and sunsets in a day producing a radically distinctive time/space from that on Earth despite the coordination of time on the ISS with GMT. The GMT standard was established by the British Empire to regulate imperial time/space, and its use extraterrestrially represents an echo and refiguring of that imperial order as a compromise between two other competing orders on the ISS, the Russian (Soviet) and American. The two realms – the extraterrestrial ISS and the terrestrial realms of its mission controls – are kept in tune with each through the extension of this vestige of British imperial seafaring chronometry.

On another scale of investigation, the terrestrial viewer (re)produces a novel encounter through their micro-bodily techniques of observing, creating a new – personal and democratically individuated – embodied intimacy with the extraterrestrial after the original Copernican event. As Paddy Edgley (personal communication) notes in this regard in his current doctoral research, amateur astronomical observers learn to delicately squint their eyes to produce the fixed image of an astronomical object through the telescope's lens – the strained eye of the body and the astronomical object are literally held and attuned in relation to one another – through this subtle gesture. It is within these microprocesses that a particular methodological approach is suggested that allows us to understand what new embodied relationships are formed by the terrestrial observer and the extraterrestrial object – via the material affordances of the technology of observation (Ihde 1998 and see Reno 2018) – that produces this novel moment of worlding that is attuned through various micro-gestures and materialities.

New material cultures

Methodologically, this forces us to consider material culture in a new light, namely in terms of the effects of micro-gravity on our conceptualisations of material culture premised by the conditions of Earth's gravity as noted by Gorman (2009c). Consider how a focus on techniques, following Mauss (2006), might bring attention to certain kinds of artefacts of attunement such as 3-D printed clips or containers that serve as 'surrogates,' as Gorman has suggested, for Earth's gravity under the conditions of microgravity in Low Earth Orbit. Consider, for instance, Gorman's observation regarding straps, Velcro, and other means of anchoring objects and people, as 'surrogates' for Earth's gravity, literally strapping things down in simulation of gravitational effects (Gorman 2017). Such novel forms of material culture serve as true 'semiophores' (following Pomian 1990) and zones of contact between two incompatible realms brought into a novel relation. This might be posited to be analogous to Willerslev's distinction between 'actuality' and 'virtuality' where the 'actual' is the empirical realm and the 'virtual' is the unseen set of conditions constituting the 'actual' (Willerslev 2011: 506). These artefacts are not so much a point of contact (when considering museums and artefacts as 'contact zones') but a point of co-constitution – properly 'intra-active,'

to use Barad's expression (2003, 2007). They are constitutive of a novel and dynamic process of 'worlding,' what I would like to consider as 'artefacts of attunement' following Ingold (2015) and, not unlike the fetish (Pietz 1985), the product of a radical incommensurability.

In this vein, the question of materiality and transcendence takes centre stage when considering the question of immateriality and the latest technologies of the immaterial, namely 3-D printing (Buchli 2010, 2016). The first extraterrestrially printed artefacts were printed on the ISS in 2014. Here the coherent status of the material object and the conventional effects of terrestrial gravity give way to the immaterial stability of digital code shaping 3-D printed objects in almost any 'gravity-defying' configuration. This disruptive new technology has yet to be understood in terms of the emerging moral and material orders that are unfolding at the ISS.

For instance, take into consideration the manufacture of fibre-optic cables for telecommunications and their more perfect shape microscopically when manufactured in microgravity. When exported back to Earth, such fibre optic cables provide near perfect means of information transmission, radically changing terrestrial modes of communication (Made in Space 2020). It is these subtle changes in material culture at the microscopic level, which are at the heart of the process of worlding and attunement as the terrestrial and extraterrestrial are brought into a tighter nexus representing just such an artefact of attunement. The extraterrestrial artefact facilitates novel processes of convergent 'worlding' through the various 'exo-surprises' (Battaglia 2012b) that constitute this novel emergent nexus.

Spatiotemporal distantiatio

There is an archaeological analogy (following Reno 2018) that is apt here in terms of methodological origins that can be imaginatively extended to Pitt-Rivers' famous image regarding the study of material culture and the origins and evolution of human societies through his chart of 1868 (Figure 2.2). The artefactual 'semiophores' of Pitt-Rivers' chart radiate inwardly towards an originary mythical 'primitive' source (that is 'virtual') that reveals human origins, whereas the astronomer/cosmologist, as Reno suggests, extends this chart in the opposite direction outwards reminiscent of a decidedly pre-Copernican terra-centric arrangement (Figure 2.3) that, nonetheless, places the Earth at the perspectival centre of extended radiating spheres. As Reno notes, looking from Earth into Space, one sees the images of ancient cosmological forms; the further one looks upwards and deeper into Space, the deeper back into time one sees (consider also Allen and Holbraad 2014).

What this extended analogy here suggests is that the methods for engaging with such physically removed time/spaces is not a recent methodological dilemma as the challenge of studying ethnographically the ISS might suggest, and certainly not exotic in terms of the conditions of mediated social life and the conditions of co-presence in the present day. But the methodological

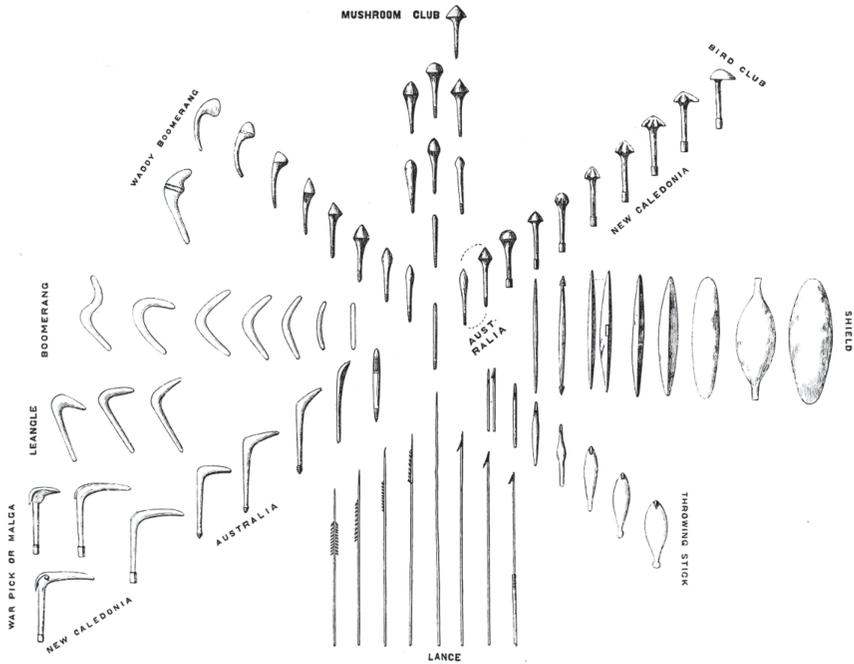


Figure 2.1 Primitive Warfare II, Pitt-Rivers 1868.

challenges in studying ethnographically the ISS is as old as the discipline of anthropology itself. Just as in the beginnings of the discipline where it was impossible to travel in time (and still is), the artefacts of the archaeological record were and still are arguably the ‘semiophores’ of such realms (on Tylor’s ‘object lessons’ see Buchli 2002a). Similarly, as the far-flung imperial peripheries of the EuroAmerican centres where anthropology emerged were similarly distant – apprehensible through limited reports by missionaries, explorers, sailors, and adventurers and the artefacts they brought back. These reports and objects served as the ‘encounters’ within the imperial centres from which a nineteenth-century comparative science developed. Not until the systematic missions of the nineteenth century, such as the Torres Straits expeditions (Herle and Rouse 1998; Pickles 2009; Stocking 1992) and the emergence of a fully fledged ethnographic method performed *in situ* as epitomised in the method and research of Malinowski, Boas, and others, was a co-locational field established as the norm. Such ethnographic encounters and methods were a distinct product of a terrestrial geometry, and its attendant political economies. Here, at the time, was a methodological innovation that produced a radically different time/space that was coextensive and coeval with its object of study. Although such co-location, as decades of critical research have since

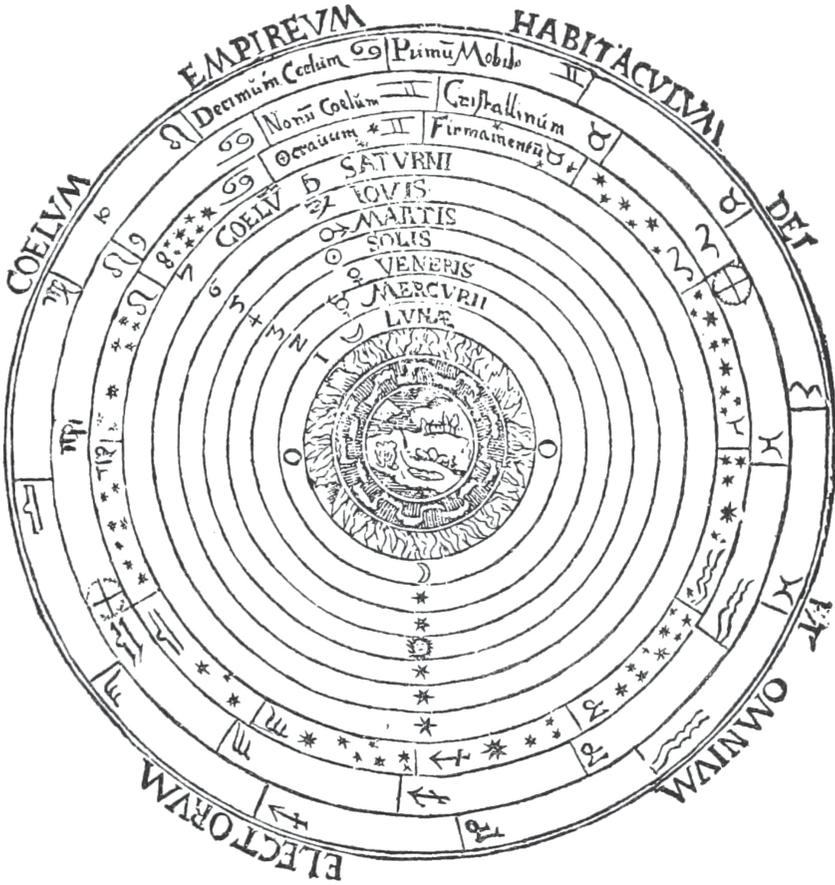


Figure 2.2 Cosmographia, Peter Apian 1539.

demonstrated, is epistemologically and ethically fraught, the reader was theoretically made virtually present (co-present) through the rhetorical tropes employed by the ethnographer. The reader is co-present in the register of a textual ekphrasis, and, even though not co-local, is able to experience a given society (The ‘full flavor of native life’ Malinowski 1988: 48).

The illusion of an adequate method here is long-rehearsed (see Clifford and Marcus 1986). However, the deeper history of such encounters and the methods they engendered as regards evidently and radically distinctive material time/spaces suggest the conditions under which novel forms of relationality and materiality begin to emerge. An extraterrestrial anthropology speaks to the seemingly incompatible realms of material time/space and evidences the distinctive ways such realms ‘world’ distinctive social and material life into



Figure 2.3 Artist's rendering of ISS above earth, passing over the Straits of Gibraltar. NASA ID 9802668.

being; to use Heideggerian language – they serve to ‘gather’ seemingly incommensurate realms within an expanded field of ‘worlding.’

As material culture studies itself emerged from a reconsideration of these artefactual ‘semiophores’ the ‘object lessons,’ described by Tylor, which formed the core of the revaluation of the study of material culture in the wake of British Social Anthropology and the rise of ethnoarchaeology within archaeology in the post-war period (Buchli 2002a) – so, too, here, so-called armchair anthropology with its distinctive and divergent time/spaces mediated by artefactual ‘attunement’ provides a useful point of analogical comparison (cf. Strathern 1987a) and development in terms of the distinctive, though by no means exotic, conditions of the ISS, as I have argued.

The methodological approach to the ISS is informed and advanced by two main methodological developments within anthropology, the establishment of multi-sited methodological approaches and the emergence of online ethnography in digital realms (Boellstorff 2008; Boellstorff et al. 2012; Madianou and Miller 2012, Beaulieu 2010, Zhao 2003). In something of a historic irony, the advent of multi-sited ethnography – in this case, sited in the four mission controls globally – allows for a return to armchair anthropology, as these sited ethnographic accounts will return, in our current ERC-funded ETHNO-ISS

project, to London as a centre for the comparative analysis emblematic of the ‘armchair.’ The arbitrary, yet, as highlighted above, historically contingent choice of the Imperial British standard of GMT as ‘local time’ in the ISS, echoes this now-outdated relation between London and various global sites as one of the centre and periphery, and simultaneously troubles this history. Taken alongside the polymedia constantly being recorded ‘locally’ in the ISS, an observer in GMT time is able to attune their daily cycles in line with those off Earth. Within both approaches spatially distinctive realms and long-held presumptions regarding virtual and non-virtual realms are challenged and are methodologically brought into alignment to understand these novel conditions.

Conclusion

The overall theoretical and methodological frame for studying an extra-terrestrial nexus such as the ISS, despite the seeming novelty of the site, as suggested earlier, harkens back to historical conditions in the discipline when sustained direct contact and embedded field work were not feasible or even desirable (Strathern 1987a). We are, however, co-present in terms of the media and networks sustaining the ISS. These include the Mission Controls in Houston, Munich, Moscow, and Tsukuba as well as sophisticated polymedia environments (Madianou and Miller 2012; Jakubowski 2016; Walton 2017) in which every human being on the planet with Internet access can be linked directly to the activities of the ISS site. Here, an extraterrestrial methodology has to consider polymedia such as the ISS live feed,² where at any one time at least five hundred people across the planet are co-present with the ISS and its daily interactions between mission controls and their communities (see Jakubowski 2016).

Such a method requires the sampling and study of the extensive video and audio collections held at the Johnson Space Center in Houston – similar to Gorman and Walsh’s (Gorman and Walsh forthcoming; Walsh and Gorman 2020) proposed archaeological endeavour, which is a continuous recording of the habitation of the ISS since its inception. This invites ‘armchair anthropology’ of a particular magnitude, which is co-present ethnographically within the innovative registers of co-presence at the ISS but not within the conventional registers of physical co-location. Such polymedia on Earth, as Madianou and Miller (2012) have shown, are an even more intensive form of social interaction, despite the lack of physical co-locational presence.

More broadly, anthropological research has to date heralded the wider social and cultural parameters in which extraterrestrial activities take place, placing the disciplinary study of the extraterrestrial on sound foundations regarding its critical social and political economic consequences (see Battaglia et al. 2015; Battaglia 2017; Valentine et al. 2012; Valentine 2016; Messeri 2011, 2016, 2017; Olson 2010, 2018). Similarly, in material culture studies,

scholars such as Gorman (2007, 2009a, b) have been ground-breaking in terms of outerspace and the heritage of extraterrestrial realms. My argument here in relation to the material culture of extraterrestrial contexts suggests a more intensive and thoroughly empirical engagement with a focus on quotidian material culture and techniques of the body that are manifest within the day-to-day activities and lives surrounding the ISS and, more significantly, its wider distributed terrestrial nexus with their attendant communities.

This focus goes back to an earlier tradition in material culture studies exemplified by Mauss (2006) at the beginning of the twentieth century, which emphasises the seemingly banal aspects of daily life and embodiment in order to understand the most intimate and enduring aspects of human social life. This emphasis on body techniques and quotidian material culture needs to be updated in relation to the new challenges that the ethnographic study of material culture, daily-life, and embodiment holds under the conditions of microgravity in both its terrestrial and extraterrestrial contexts where the new materialities and bodily techniques that bring forth mutual attunement facilitate a novel and dynamic nexus of worlding. To date, anthropology has mostly only understood these fundamental aspects of human and social life under the conditions of terrestrial gravity (Gorman 2009c; Gorman and Walsh forthcoming and Jeevendrampillai and Parkhurst 2020) and has little understanding as to how our traditional analytical frames can be conceived in microgravity, though Battaglia (2012a, b) has noted the importance of ‘exo-surprise’ in the unprecedented material conditions of microgravity and novel forms of post-humanist kinship (Battaglia 2017) and Valentine (2016, 2017) has observed how our ideas of nature and culture are disrupted alongside new forms of atmosphere and their attendant materialities, which challenge our terrestrially based assumptions within the social sciences. The extraterrestrial context of the ISS and its nexus provides rich evidence to interrogate these conventional terrestrially based understandings of daily life and the material world.

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Notes

- 1 See Gorman and Walsh's innovative archaeological approach through crowd sourcing and the systematic documentation of the material culture of the ISS through its extensive video and image archive, available at their blogsite: <https://issarchaeology.org/blog-iss-archaeology>.
- 2 www.ustream.tv/channel/live-iss-stream.