Technological intelligence or social wisdom? Promiscuous sociality, things and networks in human evolution.

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*Introduction*

Famously, humans as a species are named for our perceived wisdom: *Homo sapiens*, wise man. However, in general study of the evolution of distinctively human cognition has tended to focus first and foremost on intelligence, and while the distinction between the two remains a little opaque, it is a significant one. The Oxford English Dictionary defines intelligence as 'the ability to acquire and apply knowledge and skills', while wisdom is defined more in terms of 'The quality of having experience, knowledge and good judgment … the body of knowledge and experience that develops within a specified society or period'. More succinctly, perhaps, a poster on reddit.com recently suggested the distinction was best characterised as, 'Intelligence is being able to clone a dinosaur, wisdom is stopping and asking "hey, is this really a good idea?"' (*jsabo* on reddit.com; https://www.reddit.com/r/AskReddit/comments/325uep/what_is_your_favorite_example_of_wisdom_vs/). While wisdom requires and is predicated on intelligence, it is intelligence tempered by experience: the application of that intelligence based on deep and rich understanding of the world in which one lives. In this paper, I would like to explore how the concept of human intelligence can be re-framed as human wisdom in the study of human evolution.

In particular, I will focus on the contrast between human *technological* intelligence, and human *social* wisdom. Traditionally, hominin intelligence and its evolution has long been related to ideas about the development of technological capabilities: witness the fascinating insight into broader cultural narratives of human evolution offered by the many variations on those all-too-familiar cartoons of the march of human evolution. Empty-handed monkeys on the left progress through shambling caveman carrying early stone tools: fully modern humans exiting on the right, burdened with examples of complex technologies such as computers, mobile phones and gaming handsets and consoles as well as well-made spears and guns (to list just a few examples picked randomly from an internet search). Technological complexity here becomes a visual shorthand for the evolution of intelligence and cognitive prowess, highlighted by a recent rash of versions in which the anatomically humans morph into robots or prosthetically enhanced 'post'humans clearly reflects a burgeoning (though far from recently hatched) concern over the potential of the entanglement of human biological and technological evolution to change the very nature of our species. Likewise, the famous *2001: a space odyssey* seguing shot of the make-shift bone tool flung up by the early hominin undergoing a dramatic leap forward in technological intelligence morphing seamlessly into a space station similarly appeals to a perception of human evolution as synonymous with technological evolution. Multiple other examples

immediately spring to mind that demonstrate the linking of physiological and technological evolution is pervasive in contemporary thought.

Less obviously - but equally pervasive - this picture of the steady progress of the human intellect and technological skill is part of a much broader narrative of human origins which links stages of technological change firmly to human socio-cultural development, derived from the social evolutionist schemes of the 19th century. For example in the influential scheme of Lewis Henry Morgan, 'savagery' is synonymous not only with fire, bow and pottery technology but also with hunting and gathering; 'barbarism', in contrast, co-occurs with metalworking as well as agricultural technologies and farming, while the pinnacle of human achievement, 'civilization', comes with the technologies of industrialization and of the alphabet and writing (Morgan 1877).

Such social evolutionist schemes, while long-since formally repudiated by contemporary archaeologists and anthropologists, were fundamental in the development of the very earliest chronological and conceptual frameworks for studying the past and have long since passed into the lay cultural narrative about human evolution. As a result, they have inevitably retained a hold – however slight - on the ways in which palaeoanthropologists and archaeologists view the long durée of human evolution. The study of technology (whether as stone tools, as pottery, as metalwork etc.) remains one of the most significant areas of specialism in archaeology. This is not in itself problematic: stone tools are a major class of evidence for early hominin behaviour (being one of the few traces of hominin activity to survive such long time-depths), and technology - and material culture more generally - do clearly play a hugely significant role in human lifeways past and present. Indeed, it could be argued that other disciplines do not pay enough attention to the kinds of information that can be gleaned from studying technology (e.g. Shea 2017). The danger comes when the alluringly over-simplified, linear schemes of technological development lurking in our subconscious from broader cultural narratives about human 'progress' are allowed to shape the understandings of human evolution we claim are entirely objective and scientific.

*How unique is technology?*

Of course, in recent decades increasingly detailed and rich primatology has established that use and even reliance on technology is not a uniquely human trait. It is only relatively recently that human origins researchers have challenged the privileged status of the genus *Homo* as the only hominin toolmakers (e.g. Heinzelin et al. 1999; Backwell and d'Errico 2001; McPherron et al. 2010; Kivell et al. 2011; Harmand et al. 2015; Skinner et al. 2015). Many other primates are now known to use tools in a variety of ways and settings. Most notably, our closest great apes relatives the chimpanzees make extensive use of stone and organic tools; to a slightly lesser extent, orang-utans and gorillas have also been documented using tools (see e.g. Musgrave and Sanz 2017 for a recent review). However, other primate species much more distantly related to us are also skilled tool-users, particularly capuchin monkeys and macaques (Ottoni 2017). And indeed, a variety of other non-primate and even non-mammalian species have now also been documented as using tools: elephants (documented using tools from branches to paintbrushes); dolphins (sponges used to cover sensitive noses when foraging among sharp coral); sea otters (rocks to crack open shellfish); octopuses (shells); a variety of bird species, most notably New Caledonian

crows (twigs to ‘fish’ insects from trees) and even some fish (see e.g. Shumaker et al. 2011 for review and references).

Early responses to these revelations that tool-use is not unique to the human lineage tended to focus on ‘policing the boundaries’ (Roebroeks 1995), i.e. integrating this new evidence without allowing it to challenge the doctrine of human exceptionalism, by simply refining the definitions that continued to categorise humans as *Homo technologicus*. First, it was suggested that perhaps tool use in other species was genetically ‘hard-wired’, rather than learned and culturally transmitted, as among humans; we now know this is not the case. Perhaps, then, tool-use in these species was incidental, rather than habitual – i.e. it was an added extra, but not something that was a fundamental part of non-human primates’ lifeways. Again, however, it is becoming increasingly difficult to argue this for chimpanzees, perhaps also for orang-utans and even for the much more distantly related capuchins. Perhaps, then, the Rubicon between non-human and human tool use lay in the *manufacture* of tools, rather than the use of natural objects as tools? Again, further work has undermined this distinction too: primates and indeed some other species such as New Caledonian crows put in the work necessary to modify raw materials before use (see e.g. Seed and Byrne 2010 for review).

The most recent distinction drawn between human and non-human tool use is that among extant species only humans practice *deliberate production of sharp stone flakes in the wild* (e.g. Haslam et al. 2009, 341). Chimpanzees like Kanzi are clearly perfectly capable of percussive flaking in captivity (e.g. Toth et al. 1993; Schick et al. 1999), but in the wild the breaking of stones is rare and apparently accidental, occurring during use (McGrew 1992). However, even this suspiciously fine distinction has now fallen, with capuchin monkeys from Serra da Capovara National Park in Brazil having been documented practising deliberate percussive flaking of stones (Proffitt et al. 2016). Futhermore, such inter-species similarities would seem to apply not only to tool *manufacture* but also to tool use, with other species habitually using tools to access cryptic foodstuffs and even on occasion hunting with tools (Pruetz and Bertolani 2007). Certainly it does seem clear that even very early hominins expended considerably more energy on finding favoured materials (Stout et al. 2005) than other primates (Boesch and Boesch 1984) and that they may have been more skilled at exploiting those raw materials for sharp edges (Delagnes and Roche 2005). Overall, however, advances in ‘ethnoprimatology’ have significantly undermined arguments for human exceptionalism based on our technological prowess.

Such an argument may seem disingenuous. After all, I am currently sitting on a chair at a desk, using a computer to write this paper, surrounded by a plethora of books, papers, empty soda cans, phones, photos, security cards, a range of variably kitsch souvenirs, several different types of coffee-maker and a host of other items. Even as it is possible to gently mock the boundary-policing processes enacted by palaeoanthropologists, it is also abundantly clear that modern humans’ (and certainly profligate westerners’) enormous reliance on technology and material culture more generally is markedly greater than that of other species. The tension between the fact that, on the one hand, there clearly is something distinct and interesting about human technology, and that on the other it is incredibly difficult, when comparing human tool use with those of other tool-using species, to specify precisely what that difference is, suggests that perhaps we need to reconsider what it is about human tool behaviours that is unique.

*Alternatives to the technological model of human wisdom: the Social Brain Hypothesis*

More recently the search for clear definitions of the dividing line between humans and non-humans has re-focused elsewhere than technology: most notably, on sociality. A range of different approaches now argue that the really distinctive elements of human 'nature' relate less to our technology per se, and primarily to the complexity of our social worlds (see e.g. Dunbar and Shultz 2017 for a recent review). All primates, especially great apes, have very complex social lives: they engage in individualized interactions, are able to comprehend the nature of specific relationships between themselves and others between others, remember the histories of those interactions and relationships, navigate complex social hierarchies etc. However, the *scale* of these interactions in both space and time is an order of magnitude more restricted than the social worlds of modern humans.

The close relationship between primates' brain size (or, more specifically, the size of their neocortices) and the size of the social group in which they live has been used to suggest that brain size and social group size are closely related to one another evolutionarily, perhaps because of the increased cognitive demands of living in larger groups (Dunbar 1998). The 'Social Brain Hypothesis' (SBH) argues that increasing group sizes may have occurred in response to some other selective pressure – for example, predation pressure, or for the benefits of co-operative foraging etc. - but indirectly selected for larger brains: as numbers of individuals in a social group increase in a linear fashion, the number of potential dyadic relationships any individual can engage in – and that others can engage in - increases exponentially, and that tracking this explosion in the number of relationships takes an increasing amount of brainpower. Increasing brain size is one solution, but of course larger, more energetically expensive brains are subjective to significant negative selection pressure. The answer to this problem was for individuals' social networks to become increasingly hierarchized: relatively small numbers of other individuals are the focus of frequent, more intimate and valuable interactions, while increasingly larger proportion of other individuals in the group are interacted with less frequently and intimately. The allies, coalitions and cliques at the smaller, more intense levels of this hierarchized social network seem to help offset some of the social stresses of living with increasing numbers of other individuals – as well as the increased potential intra-species competition – allowing individuals to enjoy the benefits of living in larger groups, while interactions with socially 'distant' members of more fragmented social networks pose other cognitive challenges that imposed further selective pressures on brain evolution (see e.g. Coward 2016 for discussion and references).

Hence, the SBH (and other 'social' hypotheses for brain expansion/human evolution more generally) emphasise the fundamentally *social* selective context for brain evolution. Proponents argue that, as a result, not only does primate social life *demonstrate* intelligence, but complex social lives are a major selective pressure driving the evolution of intelligence – and further, that complex social lives actually shapes the *nature* of that intelligence. In short, human intelligence is fundamentally social in nature, resulting evolutionarily in peculiarly *social* forms of intelligence such as Theory of Mind (arguably unique to humans: (Penn and Povinelli 2007; Call and Tomasello 2008; though cf. Krupenye et al. 2016. The wisdom of *Homo sapiens*, in this reading, is a wisdom fundamentally shaped by our sociality.

The SBH is not universally accepted, but the demonstrably strong correlation of neocortex with group size provide strong evidence in its support. According to this correlation, *Homo sapiens* should have a group size of ~150, and indeed many analyses on both traditional and western societies (Dunbar 1993; Zhou et al. 2005; Hamilton et al. 2007) suggest that this figure is a significant one, describing at least one significant level of human social grouping that can be observed widely across different culture and even among 'post-geographic' samples such as social media networks (Gonçalves *et al.* 2011; Arnaboldi *et al*. 2013; Dunbar et al. 2015), providing further support for the SBH.

*Technology and social wisdom*

However, in many of these analyses - especially those looking at contemporary western samples – it is also clear that there are grouping levels *above* the (in?)famous 'Dunbar's number' of ~150 individuals. If social group size is constrained by neocortex size, then how are such larger-scale groupings maintained? I would argue that the unique relationship between humans and technology (and material culture more generally) offers one potential explanation: that this *social* basis of cognition not only structures how we think about relationships with conspecifics, but also how we engage with other things – objects, material culture and technology, my focus here, but also other animals and perhaps even places and landscapes (e.g. Mithen 2007). Sociality, in short, is *promiscuous* and has come to provide the basis for how humans think about and engage in all kinds of interactions, not simply those between themselves and other humans.

This insight has significant implications for how we think about human evolution. As noted above, much of the traditional narrative about hominin technological evolution comes from a long tradition of research that has historically mainly been focused on tool manufacture and *typology*, an approach firmly rooted in an only thinly disguised and ultimately sterile culture-historical/social-evolutionist perspective (Bisson 2000; Clark 1997, 2001; Shea 2017). Only in the last few decades has that focus broadened to take in questions about broader *technological* practices and the incorporation of technologies into human lifeways: Dobres, for example, has argued for the reconsideration of technology as 'techné'; more focused on the embodied 'performance' of the everyday activities that constitute lifeways and personhood (Dobres 2000; see also Sinclair 2000; Stout 2002). Concepts such as the chaîne opératoire and object biography emphasise flexible, creative, problem-solving technologies embedded within wider behaviours such as mobility, subsistence practices and interaction that among humans are inherently social; this reframing has been argued to represent a shift from *connaissances* – knowledge - to *savoir-faire*, or know-how (Pelegrin 1991). Here 'technology' is viewed less as instantiated solely in objects themselves but as a particular structure of knowledge and skill communicated between people primarily through practical and oral practical traditions that are fundamentally social in nature (Ridington 1999; Dobres 2000, 2001). Following the definitions sketched above, we might see this as moving from a perspective focused on technical intelligence towards one considering instead socio-technological *wisdom*, which recognises the 'embeddedness' of technological practice in social interaction and a fundamentally social lived experience.

Such a viewpoint does not, however, relegate things themselves to the background. In modern human societies, material culture plays an extremely important role in social

relationships. Primates, relying almost entirely on grooming to form and sustain social relationships, are thus restricted in the number of relationships they can enjoy – only two individuals can groom one another at any one time, and only a limited number of other individuals can be groomed in 24 hours, while still also leaving time for eating and sleeping. Dunbar has suggested that the incorporation of vocal forms of communication – ultimately becoming language – into social interactions was selected for at least in part in order to overcome this constraint: directing communications at multiple other individuals at once allows individuals to 'service' more relationships in the same amount of time (Dunbar 1993). However, of course there are limits to just how loudly any individual can speak, and hence how large even networks supported by vocalisations can grow: the incorporation of material culture into these relationships relaxes these constraints still further.

Material culture is separable from the people from whom it is associated (its maker; owner; gifter …) and is also divisible, so that multiple fragments of the same whole can be circulated over potentially global scales. Furthermore, material culture is persistent. While obviously the length of time an object can survive depends on the raw materials from which it is made, objects made of some materials (stone; bone; metal; pottery …) can survive over potentially inter-generational timescales. Thus the mnemonic and metaphoric associations objects have with their originators/places/occasions of origin, and with brother and sister objects comprised of other fragments of the same whole, can hold over much greater time depths than grooming, vocalizations or unaided memories of those activities. Acting as souvenirs or *aides memoires*, objects can 'presence' other people, times, events and places days, months, years or even generations after their origination, thus scaffolding the scaling-up of social networks beyond the immediate physiological reach of any one individual.

However, in arguing for the significance of the role played by material culture in human social networks I am not arguing that objects are simply the passive transmitters of social information. Rather, objects become part of social networks by being profoundly social beings in and of themselves: if the SBH is right in arguing that human social intelligence – our social *wisdom* – is fundamentally social, refined and honed for intra-species interaction, then this promiscuous social wisdom does not stop at the 'boundaries' of the species, and other-than-human entities may also become fully incorporated into human social networks in a way that makes us unique.

*Promiscuous social wisdom and material things*

After all, objects offer very fertile ground for a wisdom that is at heart fundamentally social and by default establishes mutual relationships as the basis for engagement. Like other humans, objects demonstrate complex life-cycles, from the locating of raw materials, through initial manufacture, use, reworking, curation, exchange, trade, gift or sale, inheritance, abandonment, destruction and mourning, each stage indivisibly entangled with human activity, life-stages and interaction. The classic anthropological example of material social networking is of course that of the Kula ring, in which objects become both the mechanism and embodiment of social networks, linking people together and in the process acquiring rich histories – biographies, in fact - that affect the future relationships they go on to instantiate (Malinowski 1920, 1922). Perhaps a fuller example is supplied by Gosden and Marshall's discussion of a Fijian necklace made of sperm whale teeth and strung on coconut fibre, from

the Pitt Rivers Museum. Gosden and Marshall show how this object's history extends back to traditional Fijian systems of social exchange in which the transactions and exchanges between people that circulated it were incorporated into specific objects' personal histories (and indeed its very materiality) – to the extent that, in the rapidly expanding social networks of the nineteenth century, the necklace transacted beyond Fiji and moved into new systems of ritualized exchange and gifting in the British Empire, continuing to exercise its agency even after its admission to the Pitt Rivers Museum, for example via a cameo in a novel by P.D. James (Gosden and Marshall 1999). As Gosden and Marshall argue, the specificity and richness of objects' histories, and the extent to which those histories are bound up with those of humans – not so much provenances or histories as *biographies* - make them obvious analogies for persons in their own right.

Is it any wonder, then, that many objects assume a personhood comparable with that of humans, becoming cherished possessions or otherwise taking on 'lives of their own'? Woe betide the holidaying parent who forgets their children's prized soft toys; social media often seems to be full of photos of lost soft toys seeking their owners, or posted by the parents of bereft children begging to be reunited with their lost friends. Parenting forums regularly host threads in which parents confess to having spent hours searching for such lost 'best friends'; to tucking up dolls and soft toys in bed, worried they might be cold or uncomfortable; and to a host of other behaviours that from a 'rational' perspective seem ridiculous for being directed at inanimate objects. Small children hold dolls' tea parties, care for baby dolls, and comment on the happiness and wellbeing of their plush friends. Even some 'bigger children' have been known to get something in their eye at the end of the Toy Story saga, in which toys take on distinct personas and personhoods and over the course of multiple films become iconic characters.

Soft toys and dolls may seem like easy targets for such an argument, being often deliberately designed as 'persons' specifically in order to appeal to human social instincts. However, there is a stark contrast between human children and chimpanzee infants here; despite some intriguing anecdotal reports of chimpanzees curating and 'caring' for dolls, or hugging soft toys (Gómez and Martín-Andrade 2005, 146,153-161), such items are generally viewed with indifference. One might also argue that adults engaging in such behaviours are humouring their children to keep the peace: however, deliberately anthropomorphic or designed 'persons' are not the only items that become incorporated into social networks. Nor are such material engagements restricted to small children or even their parents, and incorporating objects into social networks in this way does not necessarily involve 'anthropomorphizing' them. I do not impute any kind of humanity to the necklace my partner gave me near the beginning of our relationship – nor, in fact, do I explicitly impute any personhood to it – but it has agency ('action or intervention producing a particular effect', according to the Oxford English Dictionary) in that it gives me a sense of being positioned within a particular set of social relationships – which almost certainly, consciously or not, affects my behaviour in some circumstances. Certainly its loss would affect me significantly – not purely monetarily, as it is by no means an expensive piece of jewellery.

More generally, while social anthropology has perhaps not traditionally been very interested in material culture *per se*, a 'material (or 'materiality') turn' in recent years across a range of disciplines (e.g. Mukerji 2015) has focused attention on human engagement with material culture not just in traditional societies but also among contemporary westerners, and overturns any simplistic conceptions of totemism and fetishism among traditional societies,

while items merely have ‘sentimental value’ among westerners (e.g. (Newell 2014). All manner of the incorporation of material things into social networks is encompassed, from mantelpiece arrangements (Hurdley 2006, 2013), betel bags, shrouds, spindles, drums and bottles, (Hoskins 1998), to mobile phones (Horst and Miller 2006) via laptops, collections of plastic ducks and Happy Meal plastic kitsch (Miller 2008). No episode of Antiques Roadshow is complete without a family saga and a dramatic struggle between commerce and sentiment/obligation: objects as familial obligation and as markers of memory (Money 2007), while attaching even fictitious social narratives to mass-market commodities increased their perceived ‘value’ several thousand-fold (Glenn and Walker 2012).

Moreover, work in other disciplines, most notably psychology, does seem to support the argument that, for humans – but arguably not for other animals - objects acquire agency and become entangled in human interactions. The controversial ‘endowment effect’ describes the phenomenon whereby, once an object has become the ‘property’ of someone (even just moments beforehand), they value it more highly than another identical object that is not ‘theirs’ (Kahneman et al. 1990). The Endowment effect is often explained as a simple by-product of loss aversion, i.e. primarily a product of economic self-interest and game theory (Morewedge et al. 2009). Others have questioned its existence at all and ascribe findings to biases introduced in laboratory, as opposed to real-world, experiments (Plott and Zeiler 2005). However, the effect has also been demonstrated in human children, arguably less attuned to the harsh truths of economics (e.g. Harbaugh et al. 2001), and has also been shown to be affected by cultural norms (Maddux et al. 2010), undermining any explanation of the effect as sheer economic self-interest (e.g. Franciosi et al. 1996; Morewedge, et al. 2009; Morewedge and Giblin 2015) and supporting arguments for a ‘mere ownership’ effect. It seems that ‘simply owning an object can activate an automatic association between the object and the self’ (Maddux, et al. 2010, 1910).

The implication is thus that personhood is both contagious, rubbing off on objects in one’s possession (would you drink from ‘Hitler’s cup’?), and sticky, persisting as association with those objects – such an hypothesis clearly bears comparison with Mauss’ famous ‘spirit of the gift’, based on his study of the *hau* of Maori gifts (Mauss 1925). Mauss suggested that in many societies gifted items are ultimately ‘inalienable’: i.e. they cannot be fully detached from the giver, but carry something of that person’s personality with them – with, as Mauss, details, significant implications for the receiver’s future actions and for the relationship between them. Intriguingly, while the endowment effect has been demonstrated in other great apes (Kanngiesser et al. 2011) and in capuchin monkeys (Lakshminaryanan et al. 2008), among these species the effect is only demonstrated for food, and does not appear to translate to objects, and thus might be more easily explained by loss-aversion or economic rationalist approaches.

*Conclusion*

The contagiousness or stickiness of personhood among humans, and thus the incorporation of material objects into social networks, would therefore seem to be a uniquely derived phenomenon among humans. If so, perhaps this ‘entanglement’ of people and things (Hodder 2011) is at the heart of the uniquely human technologies that surround us today. It is also worth noting that although in this paper I focus almost exclusively on material objects,

many other forms of entity may also be drawn in to human social networks. The most obvious examples are of course other animals: even more obviously than for material objects, non-human animals share many traits with humans including obvious capacities for agency and interaction as well as (at least perceived) emotional engagement with humans. Whether as prey or predator, competition, pest, parasite, commensal or as pet, other animals continue to play important roles in human social networks which have been explored in detail elsewhere (e.g. Buller 2014). Such a perspective has, however, been less in the human origins literature (e.g. Jones and Richards 2003), 46), despite offering considerable potential (e.g. Coward 2005). The selective advantages of being able to amass a rich understanding of the other species sharing one's ecosystem are clear, and certainly among modern human groups today, the nature of that knowledge appears to be fundamentally *social*, being derived from ongoing interactions with actants often perceived explicitly as other forms of 'person' (e.g. Ingold 2000; Mithen 2007).

Likewise, another form of 'entity' commonly found entangled in traditional modern human groups' social networks are landscapes, especially natural 'features' and other such 'places'. Foregrounded by the events, interactions and activities which occur there, such places, like material objects (and indeed like humans) acquire histories or biographies rather than locations (Ingold 2000, 219). It is notable that they are often conceptualized among traditional peoples as inhabited by (or perhaps more accurately as materializing or presencing) more 'traditional' entities in the form of spirits (e.g. (Bird-David 1990), 190). 'Place', then, is distinguished from 'space' by virtue not solely of its role as point of intersection of trajectories of different entities but also because this, by its very nature, positions this as a node in human social networks in its own right.

What are the implications of such a viewpoint for human evolution research? Elsewhere I have sketched out a rough prehistory of hominin and human material engagement from the very earliest stone tools through to the adoption by some groups of sedentary and ultimately agricultural lifeways, arguing that the gradual incorporation of things into social networks was a mechanism allowing the expansion of human social worlds towards the globalized contemporary reality of today (Coward 2016). I argue that human origins research needs to be re-framed to allow consideration of prehistoric material culture as more than the sum of its parts, the techniques used to make and use it and even the activities within which it was used. Archaeologists working in other periods have no qualms about following anthropologists in ascribing social value and significance to such objects; Palaeolithic archaeologists are missing a trick in *not* routinely doing so. Not only do we have much to learn about early hominin lifeways and how they changed over the course of evolution in the hominin lineage by viewing Palaeolithic archaeology in this way, but we also have a unique and valuable opportunity to begin to investigate the very basis of this uniquely human promiscuous social wisdom, by which - paradoxically – it is our interactions with *other-than-human* entities which makes us *Homo sapiens*.

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