Is life what we make of it?

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Although astrobiological or SETI detections are possible, actual invasions of sentient extra-terrestrials or plagues of escaped alien microbes are unlikely. Therefore, an anthropological perspective on the question suggests that in the event of a detection, the vast majority of humanity will be dealing not with extra-terrestrial life itself (whether intelligent or not, local or distant), but with human perceptions and representations of that alien life. These will, inevitably, derive from the powerful influences of culture and individual psychology, as well as from science. It may even be argued that in most detection scenarios, the scientific data (and debates about their interpretation) will be nigh-irrelevant to the unfolding of international public reaction. ‘Extra-terrestrial life’ will, in short, go wild. From this premise, some key questions emerge, including: what can scientists reasonably do to prepare, and what should their responsibilities be, particularly with respect to information dissemination and public discussions about policy? Then, moving beyond the level of immediate practicalities, we might also ask some more anthropological questions: what are the cultural substrates underneath the inquiries of Western science into extra-terrestrial life? In particular, what are the stories we have been told about discovery of rare life, and about contact with other beings, and do these stories really mean what we think they do? Might a closer look at those narratives help us gain perspective on the quest to find extra-terrestrial life, and on our quest to prepare for the consequences of detection?

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1. Preliminaries

It might sensibly be asked what, exactly, an anthropologist is doing weighing in on issues of astrobiology, SETI and society. Indeed, I have been asked this often enough since I became involved in SETI and astrobiology meetings 5 years ago, so some initial contextualizing seems in order.

I began my graduate studies in archaeology, and grew increasingly interested in philosophical questions involving how we think we know what we think we know about the past, how secure our knowledge is about life long ago, and the academic culture of researching distant Others. Five years after completing my

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One contribution of 17 to a Discussion Meeting Issue ‘The detection of extra-terrestrial life and the consequences for science and society’.
PhD in archaeology and prehistory, I became involved in discussions about SETI and astrobiology when I was asked to join a workshop on interstellar message construction. The idea was that archaeologists and anthropologists have some sense of how difficult it is to decipher messages from distant intelligences, and I was quickly drawn into this fascinating world of scientific practice and speculation [1]. So, where I can, I contribute to the endeavours of SETI and astrobiology by feeding anthropological perspectives into these fields, on everything from the evolution of intelligence and civilization, to the social consequences of detection [2–5].

I also study the field from an outside perspective, looking at debates about the theoretical prevalence or hypothetical characteristics of extra-terrestrial societies, why we have not heard from them and whether or not we should engage in active transmission projects to try to make contact [6]. It is very interesting to see how scientists reason about big and intractable questions when the data are absent or ambiguous, and how they compensate by drawing on Earth-based analogies or theories about universalities. So, in the end, this is not far from thinking about archaeology: the way we imagine societies long ago is very much like the way we imagine societies far away. Interestingly, this is not a coincidence; it is a result of how our heads are wired [7].

The foregoing is just context for the observations that follow. My goal in this paper is to make a few short practical points, and then two longer, oblique observations about how we might anthropologically approach the big picture of the implications of detecting extra-terrestrial life. My aim here is to use an anthropological perspective to generate questions about how the scholarly community is considering the detection of extra-terrestrial life and the consequences for science and society.

2. Practicalities

The premise of this meeting is that detections are coming, that these detections will have consequences for science and society, and that we need to be prepared. I think it is a nice idea to be prepared, but I do not believe it is possible. I think we can, and must, prepare to the best of our ability, but that we must do so in the knowledge that we cannot ever ‘be prepared’—we cannot predict all the consequences, and cannot pre-empt all the undesirable ones. So, what can we do?

What scientists who work in astrobiology and SETI can do is share information about their activities with other scientists and researchers of all kinds, with journalists and with the public. Of course, they do this already, but if indeed we believe that a detection of extra-terrestrial life is coming, and that this is important, then we need to do this better and better, mindful, for example, of the worlds of science journalists and what we can all do to help them do their jobs well. I mention this because of a recent report from the Cardiff University School of Journalism, Media and Cultural Studies [8], which discusses the decimation of the science press in the USA, and the working conditions for science journalists in the UK. The UK numbers are holding steady, but only just, and workloads have increased to the point that only two-thirds of science journalists surveyed felt confident that they had enough time to sufficiently check the facts in the stories they publish, let alone really independently research a
story. Accordingly, researchers who rely upon the science press to share our ideas with a wider audience owe it to them to help make their jobs easier, however we can.

Scientists should also be careful to recognize when their work is moving from research into the realm of exopolitics, and be prepared to at least engage with the idea that all of humanity should have a voice on matters that could dramatically affect the Earth as a whole. We must always remember that there are entirely different classes of discussion included within the topic of astrobiology/SETI and society. There are debates that are purely abstract and speculative (e.g. about the characteristics of extra-terrestrial societies), and then there are the policy questions concerning the wisdom of seeking contact with such societies (e.g. about active transmission projects), and how to handle information flow if a detection occurs. There are debates about what, ideally, should be done with a celestial body with evidence of past or present life, and then there are discussions about who the interested parties will be, their economic imperatives and the legal codes to which they are bound, or not. These are different sorts of discussion, and have different objectives, and require different sorts of expertise. To work effectively on these problems, we need good interdisciplinarity, at a minimum, and awareness that we cannot solve all problems with a single approach.

In turn, what researchers into human society can do is to ask questions and do research about belief systems, about human behaviour and reaction to new information, about humanity’s repertoire in contact scenarios, about science education and the public understanding of science. There is quite a lot of this scholarship already (e.g. [9–11]). Indeed, this topic is not new; people were considering what contact with life from another world would be like, long before we had the scientific means to actually search for it. Of course, this deep history of speculation about ‘other life’, and our interaction with it, continues to influence us today [12,13].

There has recently been a florescence of meetings dealing with post-detection issues, including major workshops from the NASA Astrobiology Institute/SETI Institute, the Vatican and the Royal Society, not to mention many conference sessions. There has also been abundant previous work too, including decades’ worth of publications, for example, on the urgent need for guidelines concerning astrobiological detections, and on planetary protection (e.g. [14,15]). And yet, there has been a certain lack of connection between the various groups interested in post-detection issues, and people are not always aware of previous scholarship in the area.

Accordingly, as part of these practical notes, it is appropriate to mention two current capacity-building initiatives. One is a virtual resource centre, including a database of work already done on post-detection/social implications, to be launched in 2011. I am undertaking this project with a small team at York University, in collaboration with Paul Davies and Arizona State, and with Margaret Race and Douglas Vakoch of the SETI Institute. Second, Margaret Race and I will soon launch a focus group on ‘Astrobiology and Society’, within the NASA Astrobiology Institute, to provide some multi-year structure and space for long-term collaboration on post-detection topics among others.

These are the kinds of activities I think we need to do more of, and do better, in the name of preparation for a detection. But we should never believe that in so doing, we will truly be prepared.
3. The anthropologist’s task

I perceive that my job as an anthropologist is to make cultural observations—but not necessarily the ones that people expect or want to hear. I suspect that many readers might like it best if I offered detailed predictions about how global society will react to an announcement of the detection of extra-terrestrial life, or provided a few hypotheses that maybe we will get to test someday.

But I do not believe I can do that in a meaningful way, because the scenarios are too many, the timeline is too indistinct and the global canvas is too vast: are we talking about a detection of life just like our microbes on Mars, or an intelligent, comprehensible message from somewhere else in our galaxy, or something in between? Are we talking about the year 2010 or 2110? Are we talking about factory workers in Xinjiang Province or about university students in Bristol? What else is going on in the world at the same time that the news breaks? This is a vast matrix of variables. So, all I can accurately say is that people will react to the information, whatever it is, in ways that are consistent with their culture, their community’s values, their history of previous new encounters, their individual psychology, their economic and political situation and their religion or spirituality. And that is actually a more precise and important statement than it initially sounds, because it underscores that the actual scientific data will be refracted through many lenses. Life will be what people make of it.

Accordingly, the cultural observations I will make here will not be exactly about how the world will react to a detection. Rather, they are about the larger human context within which this work is taking place. Scientists are people too, and not all of this is about logic and data, and exploratory science is not just about an inexorable march towards truth. Myths of many kinds affect the way we understand the work of searching out new life. In pointing these things out, I do not intend to be irreverent about science, or unsupportive of SETI or astrobiology. I value these endeavours immensely. I do intend, however, to underscore the humanity of this enterprise. I hope that by the end it will be clear, through illustration, what I think an anthropological perspective can bring to the questions before us.

4. Unicorns and the meaning of life

To think about what people make of life, we might start with an example from history—particularly, an example from long enough ago that we can see it as unfamiliar and strange, and yet one that tells a story that we all, in some way, know.

The Hunt of the Unicorn, a medieval tapestry sequence, is one such entry point. This tapestry encapsulates rather neatly our society’s traditional take on exotic life. Even if one does not know the Hunt of the Unicorn tapestry, one knows the general story, because it is a narrative woven not just in cloth, but right into our worldview. A noble visionary few go in search of something rare

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1The Hunt of the Unicorn tapestry may be viewed at the Metropolitan Museum of Art (or online at www.metmuseum.org/explore/Unicorn/hunt_unicorn.htm).
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and beautiful that may not even exist; they find it; it resists capture; there is a drama of some sort (in this case the death and resurrection of the beast); they deliver it to the ruler who rather fancies rare and beautiful things that no one else has; and then the beast lives happily ever after in blissful contentment in captivity, utterly tamed [16].

Of course, we all know now that this is not really how life works. We have centuries of experience with things like: large-scale monoculture; genetic modification of crops; deliberate introductions of creatures into new lands and the subsequent havoc they wreak as invasive species; the constant race for new antibiotics; expensive veterinary bills for beloved sick cats who may not really like us anyway; chimpanzees and tigers who eventually maim the people who think they own them; and knowledge of the difficult and often miserable lives of intelligent social animals in zoos. All of these tell us that other life forms have their own agendas, and that while we may sometimes be able to contain life and use it for our own purposes, we rarely run the show completely or happily, or for long.

And of course, this is made more interesting by the fact that the story of the unicorn is only partly about life anyway. It is mostly about people, about conflicts between belief systems, about pagans and churches and maidens and men and desire.

So, we have two sets of reasons to reject the relevance of the unicorn story. Our own data and observations about other life indicate that it does not really stay tidily corralled. And we understand that the story is only partly about animals. And yet, this narrative of humanity's dominion over other life persists, as does its logic. And it is still a story that those who seek out new life are playing through, a story that prefigures modern science but has not been completely replaced by it.

It is just one example of the vast cultural repository of narratives and tropes, myths and metaphors, concerning life and our relationship to it, which will inevitably be drawn upon, mostly unconsciously, in the event of a detection of something less smart than we are. And this is just one example from Western civilization. There are other tales of human–animal relationships from elsewhere in the world that would not be familiar to most Western readers—stories of ducks that created the world, tales of humans and animals sharing souls, drunken rabbits on the moon—and those are the stories that people in other societies will draw upon in the event of a detection. Their understandings of the relationship of human beings to other life forms may be different at their very core, and this will have effects.

The great literary scholar Thomas King said ‘The truth about stories is that that’s all we are’ [17]. He did not mean that there is no world out there, no science or no way of knowing objective truths. He meant that what our minds do with all those pieces of information is weave stories—stories by which we live and die. In the same way, there may be truths about other life, but our ability to deal with those as a species is compromised by the fact that we are cultural beings for whom stories about life have been integral to our social realities since before human beings could talk.

So, even if we can hunt life and then triumphantly capture it, and keep it in a cage, domesticate it ... beware of thinking that we can do that with life's meaning, as well. The idea that we can predict what a detection of other

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life will mean to the world, we can use our cleverness to control what that
information will do in the world, that we call those shots ... this is the stuff
of fairytales.

Now, for a real story about what happens when life meets life.

5. A story about contact

It is often supposed that anthropologists and archaeologists have expert
knowledge of what has happened in human history when two different cultural
groups have encountered each other for the first time. We do, and yet, as is the
case for many experts, we also have a finely honed appreciation of the fragility,
evolution and social construction of that knowledge. Things are rarely quite as
they seem, and this is particularly the case for contact. Put simply, the stories
that most people believe about what really happened when the Old World met
the New, after Columbus sailed the ocean blue, are only partly true. At best.
Contact is a profoundly mythologized human process. Indeed, we might ask, how
could it really be otherwise? These are, after all, the bedtime stories that empires
tell their children.

And so I will here, instead, tell a lesser known story of intercultural contact half
a world away from the Royal Society in London, which took place in California,
neat a mountain at the southern end of the Cascades range.2 Almost 100 years
ago, in the summer of 1911, some of the butchers of the little town of Oroville had
put in a long day supplying meat to the construction crews building the Western
Pacific Railroad. At quitting time, they found a strange man by a tree next to
their dairy.

Roughly clothed, clearly disoriented, hungry, profoundly alone and apparently
in his fifties, the man could not speak English, and appeared to be Native
American ... which surprised the people of Oroville because it had been some
40 years since there had been ‘wild Indians’ in the hills nearby. By this point,
it was believed, all the native people within the USA’s new borders were either
extinct, in the process of assimilating, or living on reservations to which they
had been forcibly relocated. James Fenimore Cooper’s popular novel Last of the
Mohicans had been published in 1826 and had already been read by several
generations of American settlers and their descendants. California already had
‘cars, telephones, factories and paved highways’ ([18], p. 33). So, who was
this anachronism?

We will never know his real name, for he would not tell, but the anthropologists
who ended up becoming his guardians and friends named him ‘Ishi’, which, we
think, means ‘man’ in his native language, Yahi. And he became known as ‘the
last wild Indian in America’ or ‘Ishi the last Yahi’. He was first put in jail, until
the locals figured out what to do with him, and then when it was clear that
he meant no harm but was not equipped to blend into society, he was released
to the anthropologists at Berkeley, who were just starting their department of
this new social science. There Ishi lived for 5 years at the museum, working
part-time as a janitor, patiently teaching the ecstatic anthropologists about his
culture and language, and good-naturedly doing demonstrations of his various

2My synthesis of this story is derived from multiple sources, including [18–20].
skills for appreciative museum audiences who thronged to see him at weekends. He became a national celebrity, adored by the masses, and much loved by the anthropologists and their families, not to mention the neighbourhood children. His new friends took him to the opera in San Francisco, whereupon he turned his chair around to look at the spectacle of the audience instead of the stage. And when he saw an airplane for the first time, he just shook his head and laughed at the white men up in the sky. He spent his days exploring this new world, working at the museum, and volunteering at the University of California hospital, where he showed the empathy and care of a traditional healer, and where he died in 1916, of raging tuberculosis. Then, unsurprisingly, despite the fact that the doctors and anthropologists were his friends, and despite his known horror of dissection, he was completely and unnecessarily autopsied, and his brain was put in a jar on an anthropologist’s desk until it was sent to the Smithsonian, while the rest of his body was buried with a vague approximation of appropriate rites [19].

Ishi was, it seemed, the last survivor of his tribe, the Yahi, who had been driven from their territory by ranchers, poisoned by settlers, kidnapped and sold by slavers. As a child, he had seen his people slaughtered in scores by bounty hunters, as the wilderness they had lived in for thousands of years was being cut through by the railroad, as trees were felled, and the Earth was mined. He had emerged out of the woods and into history, his hair burned short in mourning, because his last family members had died, and he was alone. He fully expected to be killed upon contact that day in Oroville, and was deeply surprised instead to be adopted by anthropologists, and to become a national celebrity, invited to things like the celebrations of the completion of the Panama Canal. He became part of the story of America, a story that is deeply mythologized. His was the last chapter in a tale of Manifest Destiny, with American civilization taking over the continent in a relentless march west. Best-selling books were written about Ishi, and feature films made.

But how could it ever be possible to really understand this story? To really understand what the processes of contact entailed? How can we ever strip away the layers of ideology and lies and national myths, to learn the real truth of what happened to Ishi’s people?

For example, it has taken historians, anthropologists and archaeologists most of a hundred years to understand what the surviving Native people of California probably always knew: that Ishi was not the last Yahi at all, for two reasons. First, he was not simply Yahi—the Yahi people were already decimated and had blended in with survivors of other similarly devastated tribes. Second, Ishi probably has relatives alive today among the many Native or part-Native people still living in California—a group of survivors hundreds of thousands strong. So, even these basic components of Ishi’s story have been mythologized and misunderstood.

And it took 90 years to understand that human remains should be treated with dignity and respect, no matter whose they are, and for the Smithsonian to release Ishi’s brain to his relatives for interment with the rest of his mortal remains, in an undisclosed location. And it took decades to understand that anthropology is deeply implicated in colonialism of all kinds, and that the cultural knowledge it has produced is not neutral. And it took decades to understand that when he was asked about the history of his people, and replied with a five-hour story about a
wood duck, Ishi was not being evasive, but being accurate, and true to a way of thinking that relies on oral history, which preserves information from generation to generation through distinctive narrative forms.

And this is from a case of contact where the prime witness, the subject of scrutiny, was cooperative and amiable, and was studied up close and in person by the best professional anthropologists of their generation, for 5 years. This is as good as it gets, and yet, every layer of our understanding has been confounded by myth . . . . And if we really think we have now, finally, put the myths behind us, that maybe we finally buried them around the same time that Ishi’s brain was reunited with his body, we need to think again.

By extension: if we think we understand contact, we have to think again.

Does it matter? Do we really want to know what happens in contact scenarios? Do we really want to use all the Earth data that we have at our disposal, to best understand at least how the human side of the equation of contact might look? If so, then we cannot just keep playing around with the ‘standard versions’ of history. It is not good enough, and we can do better [2].

There are many stories like Ishi’s. I chose his partly because it is poetic: a man risks death to join a society of enemies rather than live out his days alone, and because he is thought to be the last of his kind, he is no longer hunted, but honoured and respected. It is a bizarrely human tale of contact, rife with irrationality.

But I chose Ishi’s story for another reason too, because there is a strange historical resonance here.

Right before the last of his immediate family died, before he walked into Oroville, Ishi lived in the shadow of Mount Lassen. And, because Mount Lassen is a volcano (which last erupted in 1915), it is also the location for a programme that trains aspiring young astrobiologists in the study of Earth-bound extremophiles. Funny how things go.

But more specifically, Ishi lived in the Deer Creek area of Mount Lassen later in his life, but he had grown up a few miles away, the next stream over, at Mill Creek. Just on the other side of the mountain, near Hat Creek, today there is a radioastronomy observatory, with the Allen Telescope Array, which may stand the best chance yet of finding a signal from intelligent life from another world and ushering us into a new era of contact (www.seti.org/ata). A short walk from where Ishi and his people lived a century ago, avoiding all contact with others for as long as they could, knowing that their world was ending through a relentless invasion, and that they were powerless to change it . . . there, today, scientific teams muster all their resources and technical skills to seek out others, to end our isolation.

6. By way of ending . . .

This business with Mount Lassen is all just a coincidence, of course, with no inherent significance. Worlds end and begin every day, after all. Each of us must make of it what we will. But I think it gives perspective. It says something about how every story has at least two sides, and that when people are deciding how to live and what to seek, the stories of how other people lost are not as important as the stories of how their own people won. It says something about time, and
how much can change in a hundred years on a single mountain, and how we
neither fully understand what lies behind us, nor what lies before us. It says
something about the capriciousness of history and the way that long-range plans
do not necessarily work the way we think they will. It says something about the
intersection of science and humanity’s deepest desires and fears. And it makes
me wonder: if Ishi were alive today, what would he say? Would he still laugh at
airplanes, at the white men reaching up to touch the sky? Maybe ... or maybe
not. What would he think of our ongoing voyages and dreams of discovering new
beings and conquering new worlds? I do not know. If we asked him, perhaps he
would maintain a diplomatic silence. Or perhaps he would tell us a long story—
a story about life, a story with talking thinking animals, a story that told us
everything we needed to know ... a story that we would not understand.

As noted at the beginning, I believe an anthropological perspective can make
many contributions to the study of potential social implications of detection
of extra-terrestrial life: anthropological study of human behaviour in analogous
situations (e.g. contact on Earth) can provide some predictive insights, and an
anthropological perspective on the structure of intractable debates about science
and policy can sometimes be of assistance. But I now suggest that the greatest
contribution an anthropological perspective can make to this discussion may be
in helping us go beyond these attempts at prediction and policy-making—that is,
in helping us to look instead at the biggest possible picture of the culture within
which we live and work, helping us recognize and question the stories about new
life and about contact that are so imbued within our culture that we forget how
much we live by them, and helping us to remember that Western scientists share
this world with myriad other human beings who think differently, and whose
voices also matter. Life will be what we all make of it.

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