

Biophilia on the Dinner Plate: a Conversation about Ethics and Entomophagy

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Abstract Entomophagy (insect-eating) is being promoted as an important part of providing food security for the world’s seven billion people. A great deal is made of the ecological sustainability of insect-eating. However, questions of ethics regarding human-insect relationships are scarcely addressed in this context. Some attempts have been made to apply principles and arguments developed for livestock and pets to insect-human relationships. These appear to be less than satisfactory, as we are still unsure what the appropriate questions with regard to ethics and insects might be. Since ethical stances in a context of complexity, uncertainty, multiple perspectives and competing claims are highly provisional, this paper presents the issues in the format of a conversation between a professional philosopher and professional veterinarian.

Keywords Entomophagia · Insect-eating · Food security · Food ethics · Complexity

Introduction

One of the driving forces behind the new entomophagy (insect-eating) movement is a concern for the health of global ecosystems. Eating insects is being promoted as the “most sustainable” source of protein for human diets, using less water, and fewer natural resources, than any of the competing animal sources (van Huis et al. 2013). This argument has been based on what are seen to be common-sense biological first principles (eating smaller animals low in the food web that require fewer resources to reproduce and grow than, say, mammals and birds), and a few experiments. Although various humans around the world eat a wide variety of insects, much of what we think we know about the ecological impacts of entomophagy is based on a

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consideration of farmed crickets, and one life cycle analysis (for mealworms). The larger context, for both farming and foraging of insects, is even more problematic (Waltner-Toews, 2017).

If we are going to eat intelligently, based on an ecological understanding of ourselves and insects on the planet, then it is not just a matter of naming them and counting them. There are more species of insects than of all other species combined and they are related in complex webs to nearly all aspects of the biosphere. (Berenbaum 2009; Waltner-Toews, 2017). If eating insects offers any hope for improving global food security, then we need to find a way to talk about social-ecological relationships. In order to speak meaningfully about nature—not just about the material objects themselves, but also the way the various forms in the material world communicate and relate among each other—we face a formidable linguistic challenge. Looy and Wood propose that, with regard to eating insects in any case, we need to shift from a language based on logic, science, and technological control (Looy and Wood 2015). Does that mean an illogical, artistic, let-it-be language? Or are we looking for something entirely different, post normal, transcending and embracing the complex contradictions and uncertainties of life? Can we - without falling into the flake-filled pit of an imagined multiverse - find a holistic language of relationships?

Some have proposed that we describe this uncertain terrain using words that are closer to what some of us would call love. Celebrated entomologist E.O. Wilson speaks of “Biophilia”, the instinctive love of life. Using a term closely related to love is also in keeping with the suggestion by Henry Regier, member of the Order of Canada, Professor Emeritus and former director of the Institute of Environmental Studies at the University of Toronto, that love is a complex phenomenon requiring a form of eco-study (ekistics) that encompasses and transcends other areas of study, such as studies of energetics, economics, and ecology (Regier 1995).

Love bears its own, different, burdens of course. As Michael Ignatieff (2015) notes in *The Needs of Strangers* (which insects, to most of us, most assuredly are): “Many of the things we need most deeply in life - love chief among them - do not necessarily bring us happiness. If we need them, it is to go to the depth of our being, to learn as much of ourselves as we can stand, to be reconciled to what we find in ourselves and in those around us.” (p 15).

Whatever the specifics of the words, any serious consideration of the relationships among the millions of insect species with plants and other animals requires a more visionary approach to science than is currently employed to assess the value of entomophagy.

However we think about this love, whether a New Age hug or a post-modern challenge to reconcile, its use to describe our aspired relationship to insects would probably be too much of a stretch for most people. Jeffrey Lockwood and Harvey Lemelin have proposed that, if we cannot love them (Black flies? Mosquitoes? Bed Bugs? Love them? Really?), then perhaps we can settle on the conflicted sense of insects as both as “awful and awesome” and agree to “live and let live”, an attitude which Lockwood calls entomapatheia (Lockwood 2013).

Whether we talk about love or live-and-let live however, all of this relationship stuff takes us beyond ecology into the jungles of morality and ethics. Sure, we can eat bugs. We can also eat cows, chickens, dogs, and cats. (And plants, of course, but talking about ethical considerations of plants would be a different conversation). But is it right to eat them? And what does “right” mean?

Ethics or Markets?

Most of those who have explored or extolled the promises of entomophagy are neither philosophers nor ethicists. They have backgrounds in agriculture, food security, economics and markets, health promotion, and natural sciences. It is no surprise therefore that ethical issues

have received scant attention by entomophagists. The challenges identified by most researchers have been related to public relations – given a perceived negative attitude, technology, and regulations. This was also the path of the development of GMO's: concerns were about the 'yuck' factor, and whether it was irrational (or not), and if the former, how to move the public beyond it so they would eat (ie buy) these products.

An article by Matan Shelomi (2015), a Postdoctoral Research Fellow at the Max Planck Institute for Chemical Ecology and a specialist in the evolutionary genetics of insect digestive enzymes, typifies this way of framing the issues. His article is entitled “Why we still don't eat insects: assessing entomophagy promotion through a diffusion of innovations framework”. Shelomi addresses the nagging question of why, after all these years, we (by which he means Europeans and their descendants) still don't eat insects. In the end, he concludes that scientists who are interested in developing entomophagy should focus on rearing and packaging insects rather than worry over how to convince others to eat them. “Create a safe and steady supply,” he cavalierly asserts, “and demand will take care of itself.” (p 316).

If one takes authors such as Shelomi (and many of the participants in the typical FAO conferences) at face value, entomophagy is seen to be an issue that is best — sometimes only — considered in terms of biology, economics, and nutrition. The appropriate responses to the challenges of globalizing entomophagy, taking this narrow view, are the development of new technologies and public relations programs grounded in natural science research and corporate models. Along with ethics, gender and power imbalances, and economic inequity, are typically externalized, to be dealt with as necessary by politicians, as they are for other forms of agriculture – so it is claimed. Basically, so the thinking goes, some combination of mass insect production systems with better advertising campaigns will get “us” where we want to go. In this context, it is not clear to us who the “we” are, and if this is indeed what “we” want.

Lest we think non-technical questions of ethics and animal welfare are of mere “academic” interest when we are talking about insects, consider the case of Florence, Italy, where crowds have traditionally gathered every spring along the banks of the Arno River to celebrate *Festa del Grillo*. To the church, this is a celebration of Ascension Day, when Jesus is said to have risen into the skies. To many other people, this is more simply “The Cricket Festival.” Some authors have argued that the intent of the festival historically, when populations were more closely attuned to the lives of farmers, was to reduce the numbers of cricket pests. Others have argued that the festival has its roots in ancient pagan celebrations of spring. Whatever its origins, people used to bring their own crickets, or buy them — chirping in their colourful wooden, cane, or wire cages — from vendors. In 1999, however, the Commune of Florence passed a “protection of animals” law that effectively made selling live crickets illegal. Now, you can buy little electronic toys that make cricketlike sounds. Is this progress, or just another step in our alienation from our biological selves? What will happen when such laws are applied to cricket farmers?

If one takes a less naive, more realistically nuanced, attentive, systemic, assumedly ethically grounded view than that expressed in Shelomi's article, entomophagy is not just a “why-not-eat- them” issue to be solved by some technological sleight of hand. In this more complex understanding, the ethical challenges facing entomophagy are embedded in social relationships (the health and wellbeing of people, including producers as well as consumers) and biological webs (the welfare of the insects as animals and the health of our shared ecosystems). Rather than trying to clean up the social and ecological messes left behind by visionary technologists, we might consider how to describe the “world we want,” and then design appropriate technologies to take us there. How can we re-frame the entomophagy debates to better enable us to talk about some of the nontechnical issues?

If we take complex uncertainty and contested values as a general way of framing the messy situation we are in, then one post-normal way (Funtowicz and Ravetz, 1993) to grapple with these questions is to begin a conversation. In fact, at this point in time, we think this is probably the most sensible if not perfectly scientific manner to deal with these problems. Here is a short version of the authors' attempt at doing so.

A veterinarian and a philosopher walk into a bar.

V. Are we eating crickets and drinking beer?

P. Let's say a coffee shop – makes a better impression– as long as we are not in Holland. Let's have an espresso. We want to keep our wits about us. We might need something stronger when we're done.

V. What if I order a strawberry drink that's been coloured with cochineal insect dye?

P. The waitress has some in her lipstick. Let's stick to coffee.

V. Coffee beans are allowed to have up to 10% insect bits mixed in.

P. Do you want this discussion or not?

V. I was just trying to ground it somewhere. Coffee? Grounds? Get it?

P. Very funny! You were trying to avoid the discussion.

V. It makes my head want to explode, just thinking about it.

P. You said you wanted to talk about the ethical implications of eating insects.

V. Yes, I did say that. And then I thought. Really? Seriously? Animal welfare applied to black flies and bed bugs? Okay, we don't eat black flies and bed bugs. But crickets?

P. Have you ever done tree-planting up north? I have. I ate buckets of blackflies. There was no getting around it. It wasn't deliberate but it was unavoidable. Your whole face, hands, lunch, everything was covered in a thick sludge of dead blackflies, and you just ate that sandwich. We used to laugh at the added protein.

V. [Brings the coffees and sits down at the table.] Added protein. That's one of the big arguments made for eating insects. Protein without guilt. No clearing of rainforests to grow soybeans for industrial grade tofu or chicken feed.

(Silent pause)

Okay. Let me begin. I was out mowing the lawn and a rabbit fled from the bushes across the mown grass. He stopped a moment, his big brown eyes startled, afraid. Or was I projecting? At the same time, clouds of tiny midges lifted up from the grass, fluttering around my face. I did not think much about their welfare, except to wonder what they were. Were they afraid? How would I know? Why would I care? But the rabbit...! I have warm feelings toward rabbits. And if I wonder about the rabbit, but not the midges, why is that? They are also animals.

P. Did you stop mowing the lawn?

V. No. I finished mowing the lawn and then went to check for references on ethics and bugs.

P. Ah, the academic retreat.

V. And now I contacted a real philosopher, somebody who thinks about these things for a living, you.

P. So you thought you'd resolve this over coffee? Free consultation and all that?

V. I'll pay for the coffee. I'd offer to vaccinate your pets..

P. Okay. I'll take the double espresso of the most expensive Fair Trade coffee this place has.

V. Done.

P. Okay: you are here because you would like to know if it is right to eat insects, and you would like to hear some arguments that can convince you, right?

V. Arguments? Yes. But is it all relative? Personal opinion? What is good or right is reduced to style?

P. Not at all. An ethical person doesn't operate with that ticket to ride. She or he says: Mother of God! Life is Spirit! There is something to be done! There is something in me, in the world, in life, that demands my care and attention and all my intelligence. And I could botch this all up totally. I have to try, though. I find myself having to try. It is grounded in a sort of built-in primordial capacity for caring, and a capacity for joy and pain and knowing the difference inside oneself, every step of the way. So ethical life consists of finding ways to carefully put one foot in front of the other, without ever having a good map.

V. And trying not to step on the bugs? Ghandi and the Jains? Albert Schweitzer, who won a Nobel prize for arguing such an ethical stance?

P. Maybe. Not stepping on a scorpion in your bare feet.

V. A scorpion isn't a bug, but go on.

P. Not stepping on anything you find that you care about.

V. I couldn't find many people in the entomophagy movement talking about ethics. There's one author who talks about ethics and insects in general. Jeffrey Lockwood, a trained entomologist and Professor of Natural Sciences and Humanities, is based in the philosophy department at University of Wyoming. Much of his work is focused on human-insect relationships, the feeling we have for each other, mutually (Lockwood 1987, 1988).

P. Does he really say it's reciprocal?

V. Actually, no. My brain was Shanghaied by a passing thought into a remarkable encounter between anthropologist High Raffles and the director of a museum in Shanghai dedicated to fighting crickets. Master Fang, cricket master and director of the museum, tells him about the training of crickets for fighting. According to Master Fang, "a trainer must create conditions in which the cricket can be happy. A cricket knows when it is loved, and it knows when it is well cared for, and it responds in kind with loyalty, courage, obedience, and the signs of quiet contentment." (Raffles 2010). So maybe there are conditions under which the relationship is reciprocated, but that's not where I want to go right now. That would be too much of a stretch for most readers. Hard enough to leap from being kind to cats to caring for crickets without expecting them to return the favour.

Back to Lockwood. He argues that insects deserve our moral consideration, because there is sufficient evidence that they – at least the social insects - are capable of suffering. So he is talking about our consideration for them, that they have moral rights similar to those of dogs or cows. What he actually says is that "considerable empirical evidence supports the assertion that insects feel pain and are conscious or aware of their sensations. In so far as their pain matters to them, they have an interest in not being pained and their lives are worsened by pain. Furthermore, insects as conscious beings have future (even if immediate) plans with regard to their own lives, and the death of insects frustrates these plans. In that sentience appears to be an ethically sound, scientifically viable basis for granting moral status, and in consideration of previous arguments which establish a reasonable expectation of self-awareness, planning, and pain in insects, I propose the following, minimum ethic: We ought to refrain from

actions which may be reasonably expected to kill or cause nontrivial pain in insects when avoiding these actions has no, or only trivial, costs to our own welfare.”(Lockwood 1988, p 207).

P: That solves nothing. First, it’s trying to work from, and with the basic premise that suffering is wrong and that causing suffering deliberately is another wrong (sadism).

V: You have a problem with that?

P: Maybe this is the right “moral recipe” for some. But nobody can actually cook with it. Here’s why. To get “suffering” and not just “flinching” instinct (sensation awareness) or even “just pain but it passes once their wings are pulled off” you need to posit a higher order subjectivity in the being. Sense of self and a sense of being invested in that self in a certain quality of life and over time, what some have called “second-order selfhood.” If you don’t have this then a rock falling on you just hurts. But you don’t (apparently) suffer because you don’t know that you are the self that didn’t want that to happen. The bugs had a life, were aware it was their own, and temporal, and hence had other plans.

V: Lockwood does argue that insects can have other plans, albeit short term ones. We could diverge here into the meaning of time and the way a dormant tick might experience it. That’s John Bleibtreu’s narrative in *The Parable of the Beast* (Bleibtreu 1968), but I interrupted. Please continue.

P: Thank you. So you, the injured insect, are no longer the same self that now has to reorganize your body and life to deal with that, and that’s a drag to you. So much research with insects, dolphins, cats, mice and cows is devoted to trying to figure out what quality of “awareness of sensations” they have on the inside, so to speak. We can only read the symptoms (cortisone levels rise in blood tests, facial grimaces, screams). Even then, so many people say: Oh, we can’t be sure those are the effects of a cause called pain. But the piece about establishing second-order personhood in order to then say that they suffer in order to then say what Lockwood says has so many black boxes along the way. You know, of course, he is just parroting Peter Singer on the pain part and parroting Tom Regan on the planning-a-life part (Regan 1983; Singer 1975).

V: He says as much. I think, as an entomologist, he is not trying to invent a new set of arguments. He is taking the arguments others have made with regard to animals in general – excepting insects – taking the empirical, scientific criteria we use to give cute kitties moral standing and asking: can this reasoning be applied to insects?

P: I respect what the scientists are trying to do but my money is not on empirical science to close any of those gaps and hence clinch that argument. Think about it. I don’t even know with certainty what you are feeling. It’s all smart, bodily-based, experientially informed guesswork with a giant gesture of benefit-of-the-doubt thrown in. That last piece – benefit of the doubt, is where things are going slide.

V: And then there’s the issue of what we mean by trivial implications for human welfare. If we are eating insects because that will feed millions of poor people and save the world from catastrophe, that’s a big non-trivial reason to inflict pain, isn’t it?

P: Yes. That’s another reason why that whole approach will fail. We (“we” meaning sentient persons) already passed the we-are-worthy-subjects-with-the-requisitive-levels-of-consciousness test. And we’re hungry. We will always trump the chickens and the crickets. Always. It’s such a rigged game, that game of “Ethics.” I refuse to play it. Give me another game board.

V: Let’s just play a little longer. I’m on a steep learning curve here. The nontrivial argument seems to introduce the idea of trade-offs, and I want to come back to that later. I want to explore this question of suffering.

P. Let's say it's not acceptable to eat bugs since they suffer along several possible axes: they are attached to their lives (both bodily and emotionally as a member of a collective) and can see or sense the end of their lives coming. In cattle, they may be surrounded by others who keep vanishing. There may be blood on the ground, and the smell of fear contagious among them, so there is anxiety for them attached to our killing them for our food and that is wrong because they have quality of life needs or rights like we do.

V. As you were talking about cows, I was trying to bring my thoughts back to insects. It's most obvious in those that are super-organisms, like social bees. They sense fear or panic – which by the way smells just like bananas to them – and then recruit a lot of their mates to come out and attack the intruder.

P. So don't approach a hive of bees eating a banana.

V. Indeed. Lemon grass is good. Makes them feel at home, relaxed. But not bananas. Panicsville. Anxiety. Maybe suffering.

V. It seems to me that we can talk about insect suffering – maybe all animal suffering, our own suffering – in terms of how the animals live, but also in how they die. This is of course particularly true when we start eating bugs. A few of the people who were raising insects talked about “humane killing.” I am not sure whether it was because they actually cared about the insects, or whether it was because in agriculture the laws about raising animals like chickens or cows appear to apply to insects who are, after all, animals. I'll give them the benefit of the doubt and say they cared. This would make them, in some sense, ethically caring people?

P. You can read the current widespread efforts to improve, say, cattle slaughter techniques - better transport to and from feedlot; lessen the reverb in the chute; make the flooring non-slip so the cows aren't startling; separate them a bit so they don't get the fear contagion from the one in front and have a bit more oblivion; make sure the bolt gun hits the right spot so we get instant death; train those slaughterhouse workers well - you can read all this effort in a few ways.

- 1) The scientists hate that this happens to cows (or sheep, pigs, horses) but also are realists and know they can make small adjustments to the quality of life of the animals through their last 2 weeks of life. The harm meter goes down and the benefit meter (eating beef) stays the same. So overall it's better to work through this revisionist approach, and yes, most animal scientists I know who do any of this work like animals and want to improve their lives (or make the worst part of their lives less horrible).
- 2) Another way would be to say: No, it's just industry. It's a job. This is what cows are: food. What we care about is keeping our pay-cheques. It's just good business sense to develop models that are more efficient (less waste, fewer “downs”). Having a food industry means we look at creatures as food. Our imaginations - our hearts – are first fitted for seeing the world as use-value and then maybe, maybe we have other feelings, but probably not.

V. These are also in some ways strategies to reduce the suffering of the killers. We feel complicit in the killing and we agonize over it. We haven't really talked about the suffering of those who are doing the killing, or are inflicting pain.

P. To deal with that, you need an inter-subjective ontology. You can get that in a phenomenological perspective (lived experience tells us that I am affected as you are affected; if I make you suffer (an individual, a country under my rule) the suffering isn't ever “contained” to the object or target but flows and leaks through all beings who

inhabit that space. You can also get that from a Judeo-Christian perspective: the one who causes the suffering will suffer, later, when the sins are tallied and they go to the vegan part of heaven. You also get it from a feminist care perspective which basically says: we are all in this together and we all can and should care about each other's well-being; lead with our hearts not with our heads, and that way, feeling (compassion) will be available to us and even the killers will be seen for what they are: people among people.

V. So the scientists who are reading this situation as in number 1) are caring people. They are behaving, in some sense, ethically.

P. Well, let's explore this a bit more. Let's go back to your rabbit. Maybe if we can figure out why people respond to animals in general, we can find a way to talk about insects in particular.

V. Some of this is cultural. We eat cows, but in India they've lynched people for eating cows. To make an even finer point, when I worked in Nepal, I was told it was morally acceptable to eat buffaloes, but not cattle.

P. So those would be rules of morality. Religious rules, like what is kosher and what is hallal. Even the highest authorities in any of the monotheistic religions disagree about how to interpret Scripture's rules on eating. That's another reason why you can't just expect to live a moral life by following the rules. The rules end up contradicting each other (Rabbi Fuchs says X; Rabbi Bensons says not X) but also there are so many things facing us or soon to face us for which there are no rules!

V. (laughing). I just read an academic paper titled, "Jurassic Pork: What Could a Jewish Time Traveler Eat?" (Plotnick et al. 2015).

P. And?

V. Depends on which religious scholars you consult. But locusts and crickets seem probably to be okay. And honey, of course, which is nectar processed by insects.

P. Did they talk about the suffering of insects? I think it's not the loveliest route we could take with this thinking problem of ours. Don't you think that a secular moral philosophy that keeps diving into the question of suffering is not really a secular moral philosophy? It's just the Old Testament dressed up in Peter Singer's clothes. I want an ethical expansiveness to think toward insects with.

V. No. So if we are going back to Lockwood's criterion, the one about pain or suffering, which is what we often talk about when addressing ethical attitudes toward larger animals...

P. ...Then kosher or hallal isn't fundamentally about ethics at all: it's moral code inserted into eating. But some of the cultural differences I've seen have to do with what disgusts us. From those feelings of disgust, we learn to be able to stay away from things; to cultivate the capacity to restrain ourselves, to have discipline and moderation. These generally serve everyone well (I didn't eat all the mini chocolate bars from Halloween, just some). I think food ethics or food scruples is just a laboratory (we visit 3 times a day) where we can cultivate the virtues of restraint, sociality, generosity and moderation.

V. Which, if foods are contaminated with bacteria or toxins, or certain insects are poisonous, are all important food-related behaviours. In evolutionary and ecological terms, eating insects – in fact eating anything – is a sacramental act, which also requires restraint and care. This is what Bleibtreu tries to explore in working towards a naturalist "religion."

P. Okay, let's try to extricate ourselves a little from this cultural issue.

P. Our culture places a lot of weight on beauty and health. So those are considerations we take into account when we talk about behaving ethically. Perhaps. Perhaps a very good guide for what to eat and what not to eat arrives through our eyes and noses.

Evolutionary biologists might suggest that the things we find smell good turn out to not be toxic to us; the things that are repulsive smelling or tasting are probably poisonous. But. Not true across the board. Think of durian. Let me take this in a slightly different direction, connected to our gut reactions. Maybe we shouldn't eat certain animals because it's upsetting and disgusting and that is a hint that something moral is afoot. Eat something that doesn't make you cringe (a carrot, a pickerel, a worm) and you're in the clear.

V. Again, cringing is personal, culturally relative, a taught response. And, what do you mean by “our culture”? Lockwood says that “One is tempted to conclude that our society places little or no value on the life of an individual insect, but we retain the colloquial definition of a sadist as “one who pulls wings off of flies” and a humanitarian as “one who wouldn't hurt a fly.” There is an observable, largely intuitive basis for ethical consideration of insects in our society and some understanding that there can be immoral treatment of them.” (Lockwood 1987, p 87).

P. In larger animals, we might ask if they suffer as they are chopped or shot.

V. The people who raise insects use language similar to what has emerged in other animal production systems. They ask, what is humane killing?

P. My dad, my uncle, my boy cousins, and my grandfather were all hunters. Moose and deer. Regal animals. They are extremely concerned to kill the animals well. Fast. First shot. If an animal is not shot well, those hunters, and possibly also the animals, suffer extreme discomfort, sadness, and shame. It's a huge thing among them not just to “get” a moose but that they all saw that this animal was killed right. Their guns mean a lot to them in this respect. They are the instruments that need to be handled properly, taught to use well, cleaned and stored properly, so that they can do what they were meant to do: kill fast. It's awe inspiring. And when I shift in my head to the cows in the feedlot, then transport to the abattoir, then shuffling down the chute, then in the captive bolt moment on the kill floor, then the frozen boxes of ground beef, my insides churn.

V. The cringe factor doesn't seem to arise when killing, for instance, crickets. It almost seems more of a technical issue. Some would say boiling is the quickest and least painful way for crickets to go. But how do you get a mass of crickets into the pot? Some farmers use dry ice, but others say that insects have a high tolerance for low oxygen. Or freezing. But some insects survive freezing.

P. So how do producers resolve this?

V. My impression is that most insect producers will use some combination. Throw dry ice into the bag with the crickets to knock them out and then cook them.

P: See how it becomes an “opportunity” for producers? Ick. For larger animals, the argument that they have the morally salient or requisite capacities X, Y, Z (consciousness, sense of self, intelligence, language, etc. etc) has implied that they have at least as much claim to the moral category of personhood as we do, has made some headway. This then ties the ethical considerations to moral and political structures. The larger animals that are well away from the mammalian model (orcas, squid) are having a lot less success here because ultimately there is a moment of analogical inference in which we (or the researcher) see a resemblance in a pattern that our own bodies produce under same circumstances (a pattern of utterances, a pattern of chemicals, a pattern of movements in limbs). Crickets and squid and peacocks will be, um, not helped.

V. That seems to be Lockwood's main argument.

P. It lacks imagination.

V. Or maybe it over-taxes our imaginative abilities. Lockwood sees in certain insects what he imagines to be – and what may be – reactions that in people would be considered suffering. How can I imagine what it is like to be a cricket if I cannot even imagine what it is like to be you?

V (sips his coffee). Let me take this in a different direction. One of the most forceful claims being made in favour of eating insects is that they have a lighter ecological footprint, require fewer resources to raise, produce fewer greenhouse gasses. But, in agriculture, then it depends on what you feed the insects. It's one thing if you are feeding them waste products, like Enterra Feeds does in BC. It becomes more problematic if you are formulating rations that mimic those of chickens. And the issue of eating wild, well there's the problem of large-scale over-foraging being more destructive than farming. James Kay would have said that complexity leads to uncertainty and trade-offs (see for instance, Kay et al. 1999).

P. And?

V. Problem is that we're faced with a situation in which we are not sure what the trade-offs are. Part of me would argue that no matter what we eat or how we live, we "cost" the planet in terms of lives, energy, and nutrients. We are responsible for the deaths of many insects, bacteria, animals, plants and also of other humans who don't get the food we eat, i.e. who die of malnutrition. Even if we don't eat animals directly, we live in their spaces, we eat foods that they could be eating. Even if we try to simplify the trade-off by eating, say, pests, so that we are trading a good (the thing being pestered) versus the bad (the pest). Pests are defined as pests by the context in which we find them. Locusts have historically been both a plague, and a source of food. Jews fleeing the plagues of Egypt to settle in a land of milk, honey and locusts. In the American Midwest, giant locust plagues in places like Utah were also a ready source of excellent nourishment for local inhabitants.

Chinua Achebe (1959), in his great novel *Things Fall Apart*, describes a scene in which quite suddenly a shadow fell on the world, and the sun seemed hidden behind a thick cloud. Okonkwo looked up from his work and wondered if it was going to rain...But almost immediately a shout of joy broke out in all directions...Locusts are descending, was joyfully chanted everywhere...For although locusts had not visited Umuofia for many years, everybody knew by instinct that they were very good to eat." But later in the story, the locusts become an image of the destructive swarms of white men who come into their country (p 128-129). In Thailand, in the 1970s, there was an outbreak of patanga locust (*Patanga succincta*) in maize. When aerial spraying of insecticide failed, the government promoted eating them, and even promulgated recipes. Today, deep-fried patanga is a popular, and the species isn't considered a serious pest. There are even farmers growing maize to feed the locusts.

P. James Kay and his colleagues were right. But as you well know, even in the face of uncertainty and the fact of trade-offs, we can pay attention, not be robotic and just do what's "expected"; we can sometimes discover, even transiently, a better solution. We shouldn't raise and eat things that are overly taxing on ecosystems (cows, too much methane, soil compaction, feedlots, trucks to transport, freezers to keep frozen). Eat more lentils. Eat weeds. Try chickens if they make less mess and fuss, ecologically. Better: hunt wild animals. With regard to big animals, there is too much meat on one for us to eat in one sitting or a few. Without freezers it would go to waste. Natural limits like how much we can consume before the maggots set in is also conceivable as a moral limit

dictating how much we can take. Freezers are a false bottom. This is John Locke's view on land and apples and acorns but we can adapt it for cows vs. small fish.

V. The argument from “waste not want not”, runs through all the entomophagy literature, the sustainable development literature, the wisdom-of-those-who-lived-through-the-depression literature. It's a kind of efficiency criterion. Part of me is attracted to that. It has been my argument for why pot-bellied pigs are an ideal food in Bali. They are scavengers, and if you kill one, they are just enough for a family meal. If you make them pets in North America, which in my view is condescending and disrespectful of the “pigness” of the pigs, the argument falls apart. Still, I worry about not-wasting as a criterion for ethical behaviour. It tends to get reframed as tweaking what I see as a problematic agricultural system – can we make chickens more efficient at converting feed inputs? Yes, if we feed them low-level antibiotics. On the other hand, waste and overconsumption are attractive to me as important considerations. Isn't gluttony one of the seven deadly sins? Not being a Catholic – in fact coming from a Mennonite tradition where overeating was a celebration of the Creator's bounty, I have a certain ambivalence about that.

P. What the threshold is for “waste” or “overconsumption” will change with each situation, each lake, each species, each demographic. John Locke noted that nature and the seasons set natural limits on what was available, how much work would be done (input and outputs) and then how much each family could take (Locke 1632-1704/1960). Ideally there was a balance in there: input, output, get to the next season, keep enough of the good soil, don't eat the seeds, etc). It has a beautiful toward-the-future feel to it. There is a story about some folks in Siberia refusing to eat the seed stores even when starving. It would be like eating the future. But he also noted that gold put a total wrench into that system because you, personally, could harvest 10x more than you needed or could eat in a season, and then freeze it on pallets, i.e. back to the big-box store model, so technically you were off the hook for “wasting”. If the person you sold it to let it rot, that wasn't your problem anymore. Capital has put so much pressure on the production end: fish farming, greenhouses pulling eggplants out of season, overtaxing the soil... that those natural limits are hardly part of our consciousness anymore. Go to any big-boxstore for proof.

V (glances over to the bar). - -

P. One consideration in thinking about our relationships with other living beings has to do with how we value them. Large edible moving things are rare. A larger value attaches to rare things. Eat vermin, not moose.

V. Yes, well. On the one hand, insects are tiny but are essential for the functioning of the biosphere – pollination, plants and feedbacks of insects controlling other insects.

P. I didn't say bigger things, which are by definition rarer, were less or more important. I just said we tend to place more value on rare things (e.g.. the actual Vermeer, not the hundreds of giftcard Vermeers in the Isabella Gardiner giftshop). And so large animals, who are less numerous, might be enjoying that principle: respect the big things, the rare things.

P (sees the doubtful face of V). I didn't say it was an absolute rule. We're talking ethics, not the Ten Commandments. Just a consideration.

V. Of course, given all the uncertainties, we are not even sure what the trade-offs are. And they are never just “this” or “that”. I agree, there seem to be many possible options with many possible outcomes. If we set that aside for a moment, are there ways besides impossible-to-measure technical trade-offs to think about these relationships?

P. We have made pacts with many animals over the centuries, implicitly (we have adapted to each other) and explicitly. In North America, 4-H (Head-Heart-Hands-Health) clubs were created a century ago to engage and educate youth from agricultural areas. As part of the program, 4-H children have often raised a calf or other individual animal. At the end of the process, the results are judged, ribbons are handed out and the animals are taken back home, or sold, by which time there is a close pet-like attachment between the children and their animals. You can't just break promises and eat your friends because you are hungry. We have a bilateral trade agreement and our existence—theirs and ours—depends on it being honoured!

V. Okay. Not too many people have insect pets. But do we have a pact with honey bees? Dung Beetles?

P. That is such a beautiful way of re-characterizing how it stands between us and the bees: a pact. We don't need Adam and Eve for this; nor do we need Andrew Jackson and George Washington. To be in the world, to come into this world, we discover that we are a party to various on-going agreements. Gentlemen agreements (who parks first in a shared drive); formal agreements (I pay taxes, the government gives me back any I overpay); informal agreements (I pick up my litter, you pick up yours; don't come empty handed to a potluck), natural agreements (don't shit in the well, shit over on the side of the property. My dog knows that one); legal promises (my parents had promised each other till death do us part, before I was born: I was party to that promise).

Sometimes I think ethics is nothing more than discerning those webs of pacts we are implicated in, and doing whatever we think is appropriate to recognizing them (even if it means outright refusal to - such as refusing the "racial contract"). The bees. The bees do their thing. They keep doing their thing. We benefit in a zillion ways from that. Some of us (beekeepers) directly intervene to enable that. Others (supergiant bee corporations) have the almond companies more in mind, but realize that profits depend on bees. Others (pesticide and herbicide companies) do not have the bees in their sights at all when they are spraying cash crops. The bees drop. So what if we did characterize our relation to them as a pact, a pact of mutual acknowledgement and non-interference? Minimum. Maybe even support (putting out water; building shelter). If every darned one of us saw the bees as creatures with whom we have a bilateral trade agreement (and our existence, theirs and ours, depends on it being honoured) then maybe we could get somewhere!

V. A study reported in 2015 found that ants every year cleaned up great heaps of organic street waste - the equivalent of 60,000 hot dogs - from the streets of New York. Many of these ants are considered invasive species from Europe (Youngsteadt et al. 2015). So we have a pact: you can live here if you clean up the garbage. Does this come down to trade agreements?

P (Laughing). Please, no. We need them for our psychic wellness. Otherwise we would be completely off our rockers. Animals, insofar as they are other to us, and yet nearby, close, neighbours, co-creatures, teach us how to be better humans, especially the larger ones with social skills.

V. That certainly applies to some megafauna, cow-eyed cows and doe-eyed dogs, but is more problematic for insects. That assumes someone is paying attention in certain ways, and also depends on the insects in question. The superorganisms - bees, termites, ants - have been a source of inspiration as well as food. But bed bugs? Mosquitoes? Centipedes? Giant Asian Hornets?

P. That seems right. The bigger ones, that have sociality in or around ours, are seen to help people behave more humanely. Especially dogs and cats. Even, perhaps, bees (see Mark Winston 2014). That won't work for snakes, hornets, bed bugs, midges. So that tells us that a mirror phase is available but only with some other creatures. And does it go both ways? I always wonder that.

P. Another consideration in this idea of a pact is that all animals are vulnerable to us disproportionate to how vulnerable we are to them. This itself (power imbalance) dictates it's not right to then exploit this unlucky station of the vulnerable by inventing cooking recipes with them in it. (They can't do the same of us).

V. Ah, but in the overall scheme of things, the millions of species of insects do hold the balance of power. We are already in their cookbooks. Think bedbugs. And they run the farm. They just don't know it, but if they quit working, we'd all die.

P. That's true. Back to my bi-lateral pact idea. But let's not dismiss the notion of vulnerability so quickly. A very general idea in all sorts of zones of ethics is that exploitation of vulnerability is a wrong. You are a soldier. You are guarding a prisoner. That prisoner is 100% vulnerable to you. If you do anything to him because of that (rape him, mock him, hit him) there is a wrong attaching to your being. Same with children. Same with insects in the hand of a child. Same with earthworms in the marsh that is being drained for housing at the south end of our city. Total unilateral impact in a particular situation. The wrong is to simply act upon the other for ones own ends, however trivial. In the big picture, we are all vulnerable to each other. As Judith Butler rightly puts it: after 9-11 we (she talks about the US) only saw herself as vulnerable to a big satanic other, and hunkered into a defensive, counter- assault position. But people could have understood the incident as a statement of how vulnerable the rest of the world is to the US, to The Big Satan. Things would have rolled out very differently from that latter insight than the former.

V. Have we reached the end of this discussion? Is there some other consideration that goes into our ethical considerations? Often whether we want it to or not?

P. Beauty. Animals are beautiful. Insofar as insects are beautiful, they evoke ethical sensibilities in us.

V. I can't argue with that. There are some marvelous galleries on line. The Unexpected Beauty of Bugs – BBC <http://www.bbc.com/earth/story/20150425-thebeautiful-bugs-of-earth-capture> Beautiful Bugs of Belize <http://www.bbc.com/earth/story/20150309-the-beautiful-bugs-of-belize>. And artists.. Even some scientists express a kind of awe at the beauty of their subjects. Holldobler and Wilson's 2009 book, "The Super-Organism" is subtitled "The Beauty, Elegance, and Strangeness of Insect Societies" (Hölldobler & Wilson, 2009). Wilson, of course, is the guy who promotes the notion of biophilia, our love of living things – this from a scientist who has spent his life studying ants. At the same time, we have movies that provoke horror – Aliens and The Fly – and television shows like "Fear Factor" that try to gross people out by having them eat insects. In my research I came across a website that announced "10 Horrifying Insects That Will Make You Reconsider Ever Visiting Japan", and another one on dung beetles titled, simply, "Real Monstrosities".

P. Animals can be beautiful and evoke terror at the same time.

V. David Quammen has written a book on the great predators – lions, tigers, wolves – and that evoked fear and terror in people, and, in some parts of the world, still do (Quammen 2003). He argues that we need such awesome predators. Now that we have

defeated and humiliated the old predators, we have to create new ones. Hence, the Alien movies.

P (Silent a moment). Did this discussion resolve things for you?

V. Not even close. My head hurts.

P (Smiling). Welcome to ethical thinking in a world of complexity and uncertainty.

Conclusion

The challenge in applying ethical principles to working with insects, and to eating them, is to articulate clear principles and guidelines while acknowledging the realities and uncertainties of living in a complex world. If an animal is in our care, and vulnerable, we wish to behave in such a way that we do not cause it pain or suffering. We have principles, and we care, but we need to keep ourselves from slipping into a kind of black-and-white moral code, which is a way of absolving ourselves of responsibility. It is not possible to live without also causing the deaths of others, whether we step on them in the path, eat plant foods that could have kept them alive, or eat them directly or inadvertently. Our pacts with all other living things play out in a complex web of multilingual nutritional, pheromonal, visual and auditory conversations. Ethical interactions with insects are rife with unresolved, and perhaps unresolvable, questions. As with all ethical decisions under conditions of complexity, there are no ten commandments to which we can defer, absolving ourselves of responsibility (Houle 2014).

The best we can do is to pay careful attention, keep asking questions, and take ownership of our actions.

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