HPS208 – How we think about life

Animal Sentience

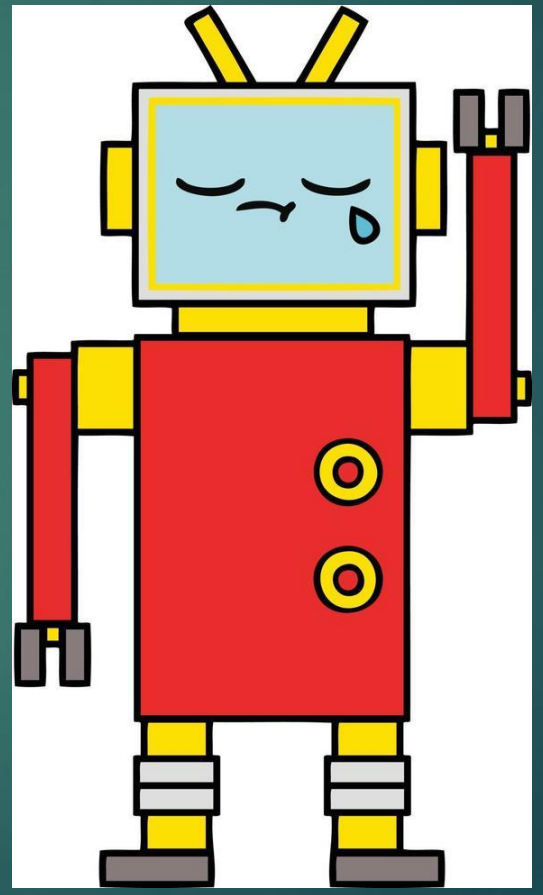
- This week we will look at the question of animal sentience, particularly as it relates to animal welfare policy
- Our reading by Browning and Birch surveys the state of several connected conversations on these topics
- It was produced as part of the ASENT project, which looked at various aspects of animal sentience from science, philosophy, and policy angles

What is sentience?

- On a broad definition, it means there is *something that it is like to be* that thing
- On a narrow definition, it means that a creature is capable of positive or negative experiences, like pain, fear, joy, etc.

Sentience and moral questions

- We could easily imagine a robot that is programmed to display pain behaviour, like avoidance, crying out, etc.
- But let's assume our robot is not sentient
- There is a sense in which we don't really care about the robot's supposed pain, because it doesn't really care



Feelings you care about

- Consider the case of a human being who is exposed to pain they don't care about at all
- There is a sense in which that person is not suffering
- Similarly, imagine a normally positive feeling which a person has no emotional reaction to
- In a sense, their happiness is not increased by it

Feelings you care about

- What distinguishes the mere firing of pain receptors from suffering is then the integration of pain into a larger system of emotion and cognition
- It is tempting to say: pain without suffering is not morally relevant
- And suffering in this sense is a condition of the whole organism

Pain vs Suffering

- “The Blessed One said, “When touched with a feeling of pain, the uninstructed run-of-the-mill person sorrows, grieves, & laments, beats his breast, becomes distraught. So he feels two pains, physical & mental. Just as if they were to shoot a man with an arrow and, right afterward, were to shoot him with another one, so that he would feel the pains of two arrows, in the same way, when touched with a feeling of pain, the uninstructed run-of-the-mill person sorrows, grieves, & laments, beats his breast, becomes distraught. So he feels two pains, physical & mental.”
- The Arrow Sallattha Sutta (SN 36:6)

Which animals are sentient?

- So if sentience is what matters in deciding which animals get legal protections, how do we decide which animals are sentient?
- How do we even begin working out what the criteria for sentience are?

Criteria of Sentience

- Let's consider what this could look like from a neurological standpoint
- This is a report also produced by the ASENT project on cephalopods and decapods
- Cephalopods include octopuses, among other species
- And decapods include lobsters, crayfish and shrimp, among others

Proposed Criteria

1) possession of nociceptors;

2) possession of integrative brain regions;

3) connections between nociceptors and integrative brain regions;

4) responses affected by potential local anaesthetics or analgesics;

5) motivational trade-offs that show a balancing of threat against opportunity for reward;

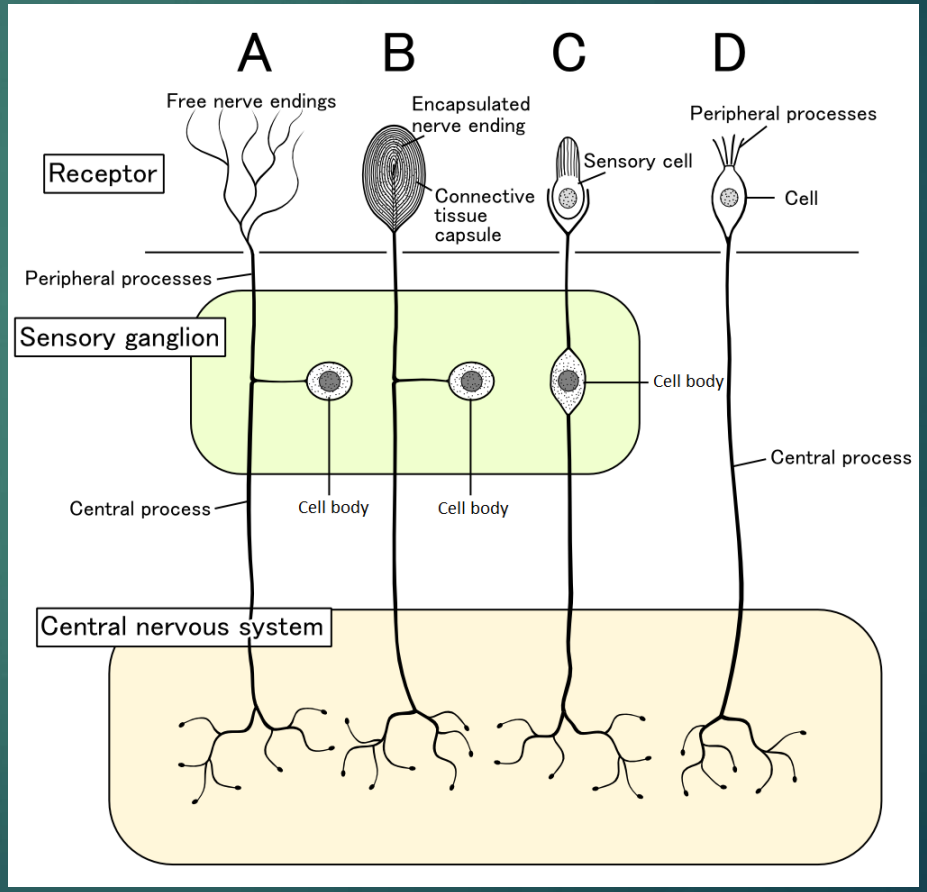
6) flexible self-protective behaviours in response to injury and threat;

7) associative learning that goes beyond habituation and sensitisation;

8) behaviour that shows the animal values local anaesthetics or analgesics when injured.

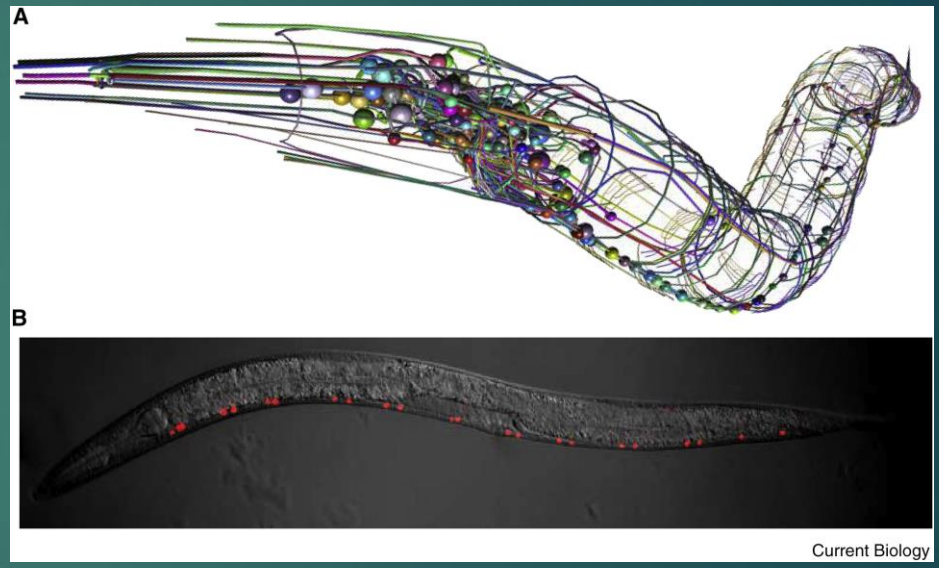
Neurological Criteria

- "1) possession of nociceptors;
- 2) possession of integrative brain regions;
- 3) connections between nociceptors and integrative brain regions" (p.7)
- A "nocioceptor" is a sensory neuron that responds to damage or injury



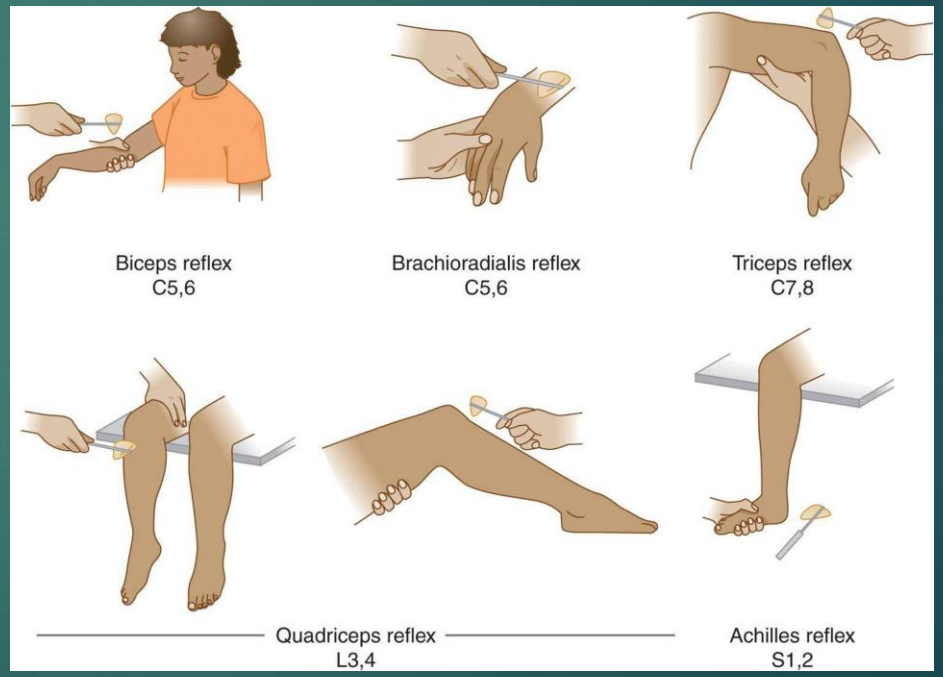
Integrative Brain Regions

- Integrative brain regions connect various parts of the nervous system and coordinate the overall behaviour of the organism
- So why should it matter whether the nociceptors connect to integrative brain regions?



Behaviour vs Reflexes

- Part of the justification for requiring integrated brain regions as part of the behavioural loop is to exclude mere reflexes
- While we can certainly suffer as a consequence of a reflex response, the reflex itself doesn't seem to imply sentience
- E.g., you can still get some reflexes to fire after an animal is dead



4) responses affected by potential local anaesthetics or analgesics;

- This criterion is a modification of a previous set developed by Smith and Boyd (1991):
  - "Receptors for opioid substances found in the central nervous system, especially the brain."
- The idea in both cases is that behavioural cues should show that the organism cares about their own pain

5) motivational trade-offs that show a balancing of threat against opportunity for reward

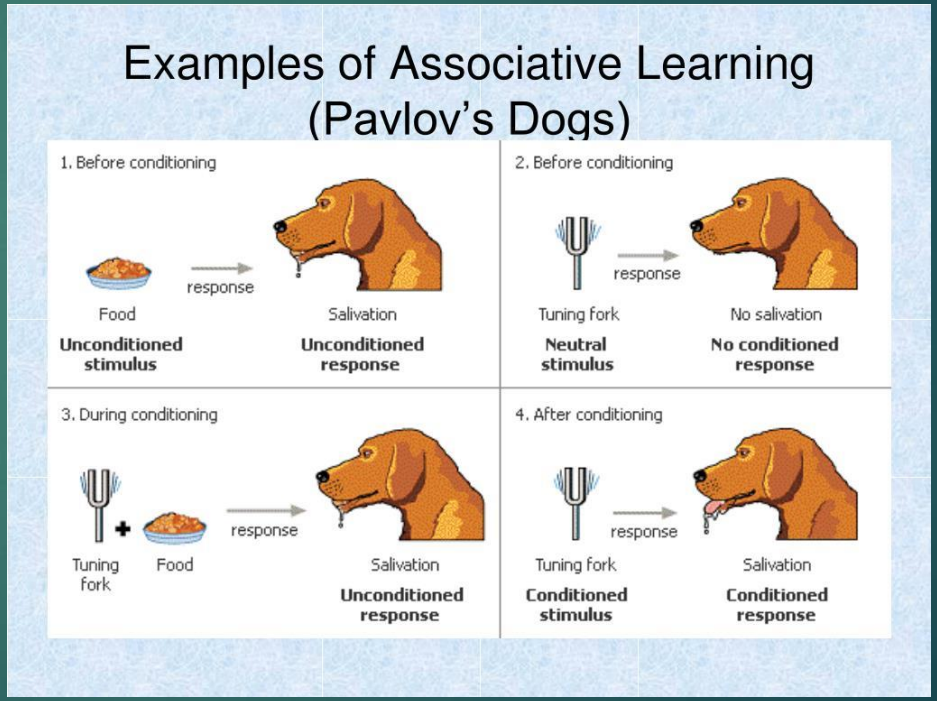
- B&B give an example (p.4) of hermit crabs who will resist leaving a shell, despite mild electric shocks, but only if it's a particularly nice shell
- This is more evidence that pain is being integrated into a more complex picture of things

6) flexible self-protective behaviours in response to injury and threat

- Again, this looks like evidence that the organism cares about its own safety and well-being
- It is interesting to note the requirement that the behaviours be flexible
- Mere reflexes do not count

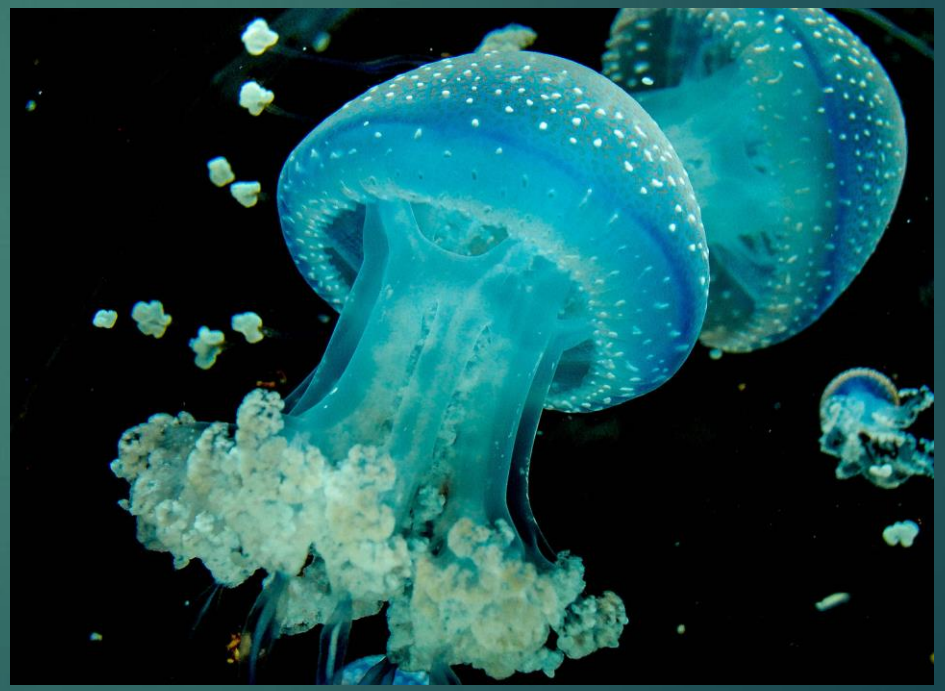
7) associative learning that goes beyond habituation and sensitisation;

- Habituation is when a response to a stimuli simply decreases over time, and sensitization is the opposite
- Associative learning is making novel connections between stimuli, and organization new behaviours around those connections



7) associative learning that goes beyond habituation and sensitisation;

- They don't think habituation and sensitization are good criteria for sentience because you see those responses in organisms with no central nervous system, e.g., jellyfish



8) behaviour that shows the animal values local anaesthetics or analgesics when injured.

- This integrates some of the previous criteria
- It's flexible behaviour, balancing motivational trade-offs, which demonstrates the organism cares about its own pain

	Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Criterion 6	Criterion 7	Criterion 8
Octopods (Octopoda)	VH	VH	H	H	M	VH	VH	H
Cuttlefish (Sepiida)	H	VH	H	L	M	M	VH	L
Other coleoids (squid, all orders)	H	VH	H	L	M	L	H	L
Nautiloids	H	L	L	L	L	L	M	VL
True crabs (Brachyura)	H	VH	L	VH	L	VH	H	VL
Anomuran crabs (Anomura)	H	VH	L	L	M	H	L	VL
Astacid lobsters/crayfish (Astacidea)	H	VH	L	VH	L	L	M	VL
Spiny lobsters (Achelata)	H	VH	L	L	L	L	M	VL
Caridean shrimps (Caridea)	H	VH	L	M	L	M	L	VL
Penaeid shrimps (Penaeidae)	H	L	L	M	L	L	L	VL

Who passes the test?

- These criteria are not meant as either/or questions
- And none is necessary or sufficient for passing
- Birch et al. rate various species from very low to very high confidence on each

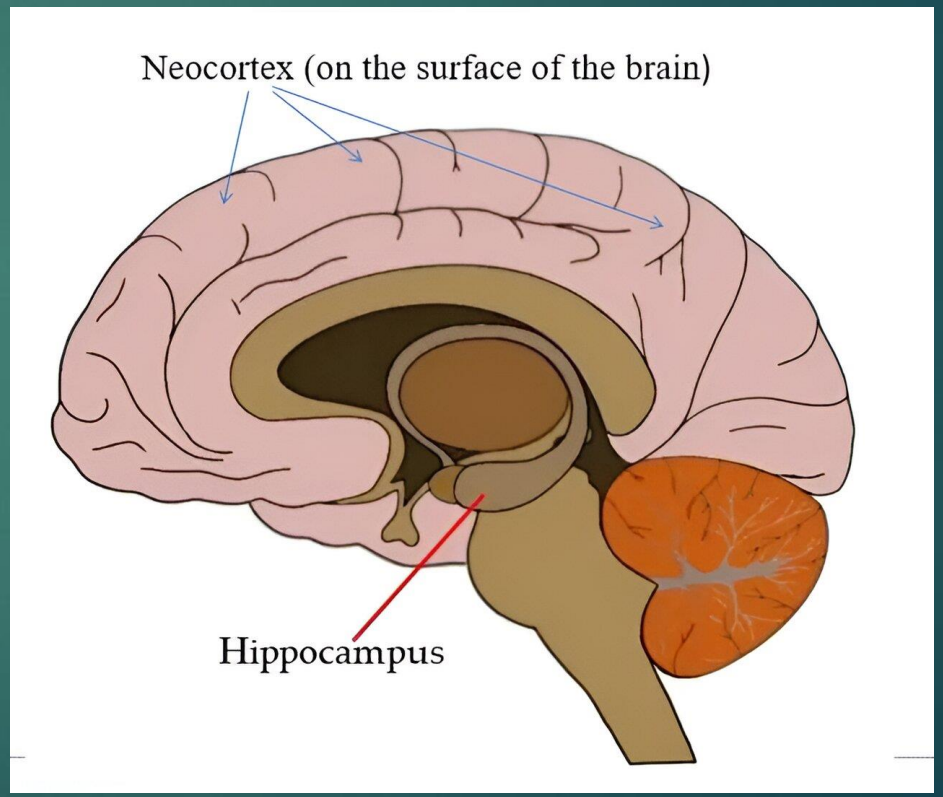
Insects

- B&B report that the evidence for sentience in insects is "mixed"
- "insects will continue normal feeding and mating behaviours even when severely injured (Eisemann et al., 1984)" (p.4)
- This recalls Heidegger's example in his *Fundamental Concepts of Metaphysics* meant to show insects are "poor of world"
- Apparently, a bee with an incision in its abdomen will continue to eat honey indefinitely while it flows out the hole

No Cortex No Cry

- Key (2016) argues that likely fish do not "feel" pain
- In humans, we can compare self-reports of pain with brain scans
- The pattern of activity which correlates with experienced pain happen in the neocortex
- Similar patterns appear in the cortex of e.g., mice
- But fish do not share this neural structure

- Key, B. (2016). Why fish do not feel pain. Animal Sentience, 1(3), 1.



Multiple Realizability

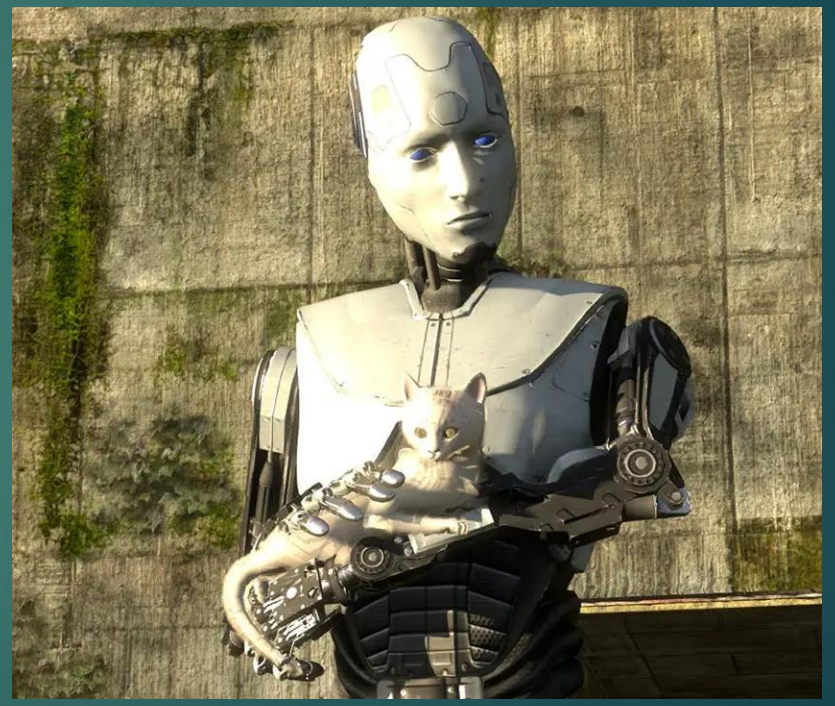
- The reply from critics of this view is that there is no reason to believe that any given function could not be realized in multiple different ways
- Octopuses last had a common ancestor with humans more than 500 million years ago, with radically different neural anatomy
- Yet they can problem solve in ways analogous to humans, communicate, etc.
- If intelligence is multiply realizable, why not suffering and joy?

But how Multiply?

- B&B note that single celled organisms like paramecia do things like avoid noxious substances and other dangers, as well as approach food
- In humans we would happily interpret this as evidence of feelings
- But is this too far?

What a real answer looks like

- Ultimately the answer to these questions should take the form of a scientific theory of sentience
- If we had a full theory of how sentience is realized biologically across species, this conversation would be done
- But we're pretty far away from that point now



Some Theoretical Leads

- Let's set aside the most abstract questions about conscious experience (qualia, etc.)
- There are some researchers who think we can make incremental progress on questions about what sentience is *for* biologically
- Why did it evolve? What benefit does it provide?
- If we can answer that, maybe we can determine when it evolved, and where

Multisensory Maps

- Feinberg and Mallatt (2019) propose that conscious experience plays a role in organizing and synthesizing different streams of sensory information
- A "unified simulation" (p.5) of reality provides organisms with a sense of what is important, and its behavioural options in novel situations

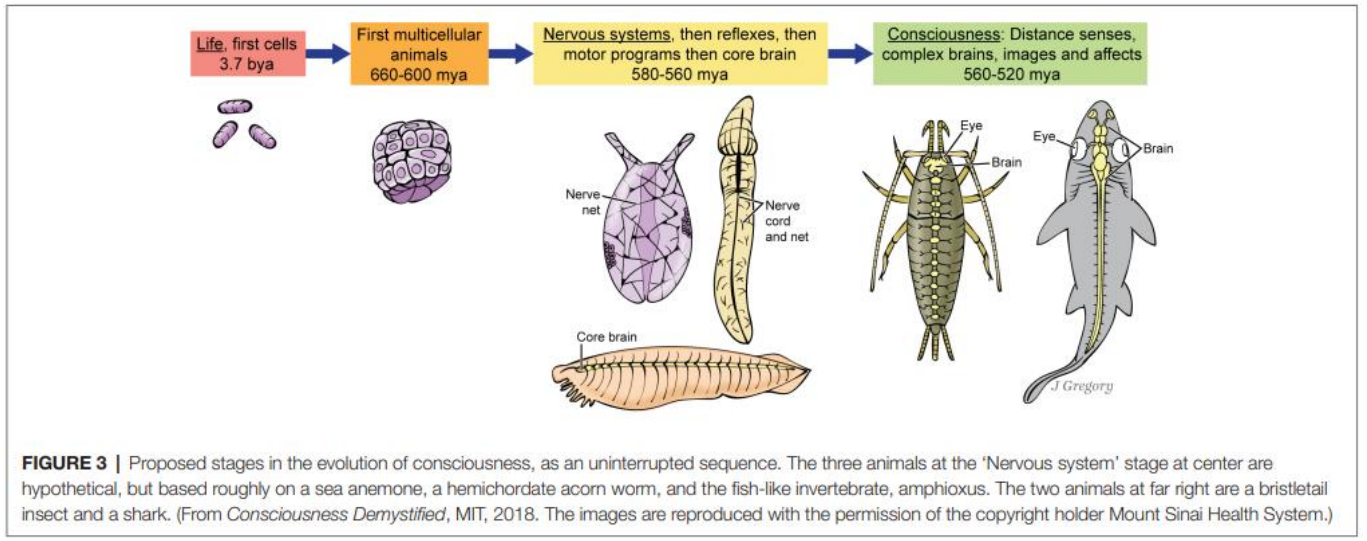
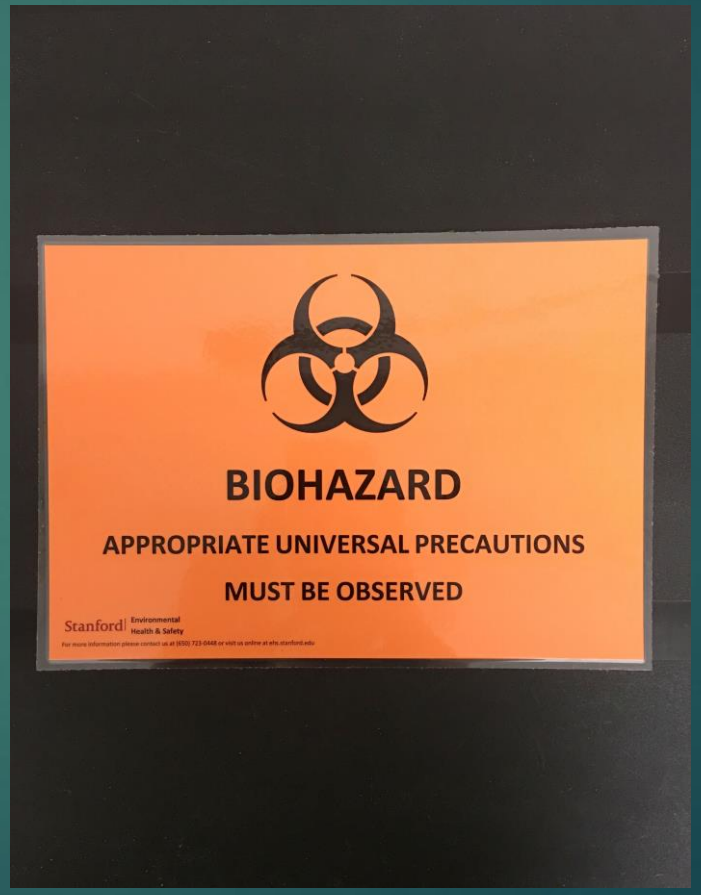


FIGURE 3 | Proposed stages in the evolution of consciousness, as an uninterrupted sequence. The three animals at the 'Nervous system' stage at center are hypothetical, but based roughly on a sea anemone, a hemichordate acorn worm, and the fish-like invertebrate, amphioxus. The two animals at far right are a bristletail insect and a shark. (From *Consciousness Demystified*, MIT, 2018. The images are reproduced with the permission of the copyright holder Mount Sinai Health System.)

Precautionary Reasoning

- Still, we're a long way from having specific and testable answers here
- B&B suggest "precautionary reasoning", which in it's broadest sense just means being careful in the face of uncertainty
- A very rough formulation would be that we should assume sentience until we have evidence of its absence
- But the details matter a lot here!



Precautionary Principle(s)

- The strongest version of the principle says: act as though the harm exists until you're sure it does not
- A weaker version would be: prevention of harm should be prioritized under uncertainty, but with a view to the cost

Precautionary Principle(s)

- Consider the possibility that insects are sentient, combined with the fact that huge numbers are killed because of agriculture
- Do we stop farming?

Legal Changes

- The UK recently expanded the scope of their laws on animal protection, at least partly due to the ASENT report
- Their Animal Welfare (Sentience) bill was expanded to include cephalopod molluscs and decapod crustaceans

LSE Philosophy research leads to change in UK animal welfare law

The scope of the UK's Animal Welfare (Sentience) Bill is to be extended to include octopuses, crabs and lobsters, in response to a report by LSE Philosophy's Foundations of Animal Sentience project.

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Animal Welfare laws in Canada

- Under federal law in Canada, animals are considered property
- It is illegal to cause "unnecessary pain, suffering or injury to an animal or a bird"
- But the law doesn't specify what counts as "necessary"
- Some categories of animals get additional protection (e.g. service animals)
- But wild animals have much fewer protections than ones protected as "property"
- https://laws-lois.justice.gc.ca/eng/acts/C-46/FullText.html?txthl=animals#h-123192

Animal Welfare laws in Canada

- In early 2024, British Columbia amended their family law legislation to include pets as, in some important senses, members of the family rather than mere possessions
- A federal ban on cosmetic testing on animals took effect in late 2023
- Discussions are taking place about banning the captivity of elephants and great apes, in the same way captivity of cetaceans was banned in 2019
- https://www.canadianlawyermag.com/news/opinion/animal-law-progressed-significantly-in-canada-last-year/383183

Who are the animals?

- An odd feature of Canadian animal welfare laws is that they do not seem to define 'animal' anywhere (though possibly I missed it)
- If we take "animal" to be equivalent to the kingdom animalia, then everything from microscopic insects to blue whales count
- As a term it seems to be taken to be obvious in extent

Key Terms

- ASENT
- No Cortex No Cry
- Sentience
- Multisensory Maps

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Hindu Environmental Ethics