

Review of: "Necessity Was the Mother of Human Cultural Invention"

Gottfried Hohmann¹

¹ Max Planck Society

Potential competing interests: No potential competing interests to declare.

Necessity was the mother of human cultural invention.

The manuscript presents what looks like a verbal model of how human cultures have evolved. It proposes a scenario in which the emergence of cultural inventions requires suppression of behavioural instincts. To support the hypothetical construct, the manuscript uses data from neurosciences, psychology, physiology, and behavioural ecology. Emphasizing the power of instinct for non-human species, the author highlights the advantages of adaptations that are culturally transmitted and offer room for individuality, plasticity, and adaptation. This leads to a dichotomy that separates *Homo sapiens* from all other organisms. Highlighting the uniqueness of humans propagates anthropocentrism and a biased understanding of evolution. Given that the manuscript is a verbal pamphlet rather than data-driven, I restrict my comments to the rationale as the author presents it.

The core of the construct is that „suppression of instinct makes the invention and learning of cultures necessary“. This view collides with the fundamental paradigm that evolution is blind to the future. The manuscript does not make any effort to explain what makes organisms suppress instinct and how organisms with suppressed instincts could survive if culture and learning have not yet evolved in instinct-suppressed populations. Apart from the idea that evolution is something visionary, the use of terminology, namely instinct, will possibly convince only a very naive reader. The author does not dare to define the term instinct – admittedly a monster in academic terminology – nor the evolutionary trajectories that propagate morphologic, physiologic, and social plasticity. After distinguishing humans from non-humans in an arbitrary way, readers are confronted with ambiguous statements such as „Many of the ... social behaviors invented by *Homo sapiens* have precedents in other species..., but an individual species usually expresses only one or a small subset of these behaviors, while humans are capable of all of them“. Readers remain uninformed of what „all of them“ and „highly labile social behavior“ may refer to.

Following the conceptual outline, the author presents cases that – according to him – exemplify the suppression of instinct: „Humans start to crawl automatically but then suppress crawling to learn bipedal locomotion...“. This statement ignores the neuronal, sensory, and anatomical developments that are required to shift from quadrupedal to bipedal locomotion, as well as the fact that the shift in locomotion is usually highly rewarded by the response of parents and others – a strong force of social facilitation that is based on the responses of a neuro-physiologic system of the child and makes humans (and dogs) sensitive to rewards. The putative loss of humans in detecting/responding to pheromones depicts a general trend in primate evolution but has no explanatory value with regard to the proposed evolutionary

scenario. There is tremendous variation with regard to the expression of sensual sensitivity across species, and there are convincing biological explanations of why a given species is more sensitive to smell and others more sensitive to temperature, auditory, or visual signals. Child rearing is presented as another example of the emancipation of humans from instincts. Yet, the text makes clear that the physiologic responses of mothers and fathers, which are certainly not learned or culturally transmitted, persist in spite of the cultural elements of parenting.

Remaining unconvinced of the evolutionary scenario and the examples that intend to support the claims, the final section is getting provocative. “The effects of incompletely suppressed instinct are likely to be negative if they promote behaviours that are anathema to the invented culture”. Such a statement could easily be misunderstood as an invitation to eliminate members of a society that do not fit normative standards. The statement „Cultures whose inventions maximize benefits and minimize adverse consequences in the long run will appear to be fit and might become prevalent as a result of being adopted by or imposed upon societies with less fit cultures“ could be understood as an argument that intends to stratify the value of different cultures as well as a justification of cultural hierarchies. Finally, readers are left with an anachronistic statement that the world population of Homo sapiens is dwindling.