

Edward O. Wilson (2017). *The Origins of Creativity*. New York: Liveright Publishing Corporation.

Edward O. Wilson, a world-renowned entomologist and more generally a naturalist, like Eric Kandel, is steeped in the arts and humanities, and he is very supportive of efforts to integrate these fields with the sciences, particularly with biology. He suggests that this union might be accomplished via the social sciences, particularly paleontology, psychology, evolutionary biology, and neurobiology. Additionally, he believes that this union would be facilitated if artists and humanists understood animal perceptual abilities that differ from those of humans. He hopes that such knowledge would ameliorate the anthropocentrism that has characterized the humanities. The exclusive focus on humans does not allow an understanding of how the perceptual and cognitive abilities of our species have come about in the course of evolution. He would like to connect humanity with its evolutionary roots, its prehistory. For example, it might help to know what humans can't do. Humans, like all living things, exist in an Umwelt which is the environment that we can perceive with our senses. Our sensory abilities are those which we evolved in order to survive in that Umwelt. But those abilities also limit us. We are very visual species, but our vision is still limited to a very narrow portion of the electromagnetic spectrum. Our auditory abilities pale in comparison to those of bats, dogs, and other animals. With regard to smell, our olfactory sense is vastly weaker than those of other animals; thus, "our minds are accordingly limited. Our hope for a full self-understanding depends on knowledge not just of ourselves but of the specializations of other systems around us" (65). Wilson asks, "is there a place for creative arts in the invisible codes and rhythms of millions of species that share the

planet with us? Perhaps in music and in the visual arts?" (65). He observes, "for the moment... we are physically trapped inside the humanities bubble and worse, remain unconscious of its limitations" (66)

I think Wilson has made a very interesting and valuable proposal. Our species is indeed a product of evolution by natural selection. I have been arguing that a good deal of our Umwelt is composed of nonphysical/nonmaterial aspects of the symbolosphere, and the humanities and the arts that are characteristic of our species come from and remain in that largely nonphysical world. Thus, we are a biological species that somehow evolved to use language where word-word symbolic reference allows us to live in an nonphysical Umwelt as well as a physical one. We are products of both. Wilson, I believe, grasps this implicitly, noting that "the most exclusive contemporary content of the humanities [are] the creative arts, linguistics, history, jurisprudence, philosophy, moral reasoning and theology" (7), and certainly, the last four fit our conception of the symbolic.

Wilson argues that all phenomena in the arts and sciences have "a physical basis ultimately explainable by the scientific method." (186). He goes on to say, "where scientific observation addresses all phenomena existing in the real world, scientific experimentation addresses all possible real worlds, and scientific theory addresses all conceivable real worlds, the humanities encompass all three of these levels and one more, the infinity of all fantasy worlds" (187).

Where Wilson uses the word "real", I would use, "physical". The symbolosphere incorporates the arts and humanities which contain nonphysical entities that are real to humans; they are just not material. If we are going to understand humanity, we must understand what may be real for many humans (eg. transubstantiation, parthenogenesis, and racial superiority). What may be real, then, are ideas and concepts as well as the fantasy worlds of fiction, myth, and imagination.

Wilson's book, *The Origins of Creativity*, was published in 2017. In that same year Stephen T. Asma published a book called *The Evolution of Imagination*. Are these two books about the same thing (creativity and imagination) or about different things or perhaps closely related things? I would consider these words symbolic terms because we can't point to creativity as a concept. We might be able to point to some activity or something that we consider a product of creativity. Similarly, we cannot point to imagination, but we can point to some things that we interpret to be products of the concept, imagination. Does creativity have a biology independent of a biology that may subserve imagination. Could we also say of something that we consider creative also to be imaginative and vice versa? We are in the symbolic world now where creativity can get its meaning from the word imagination and the other way around. Do all languages in the world have exact or close translations for these two words? If a scientist is able to describe, in accurate detail, the evolution and current neurobiology of creativity, would she have also described the evolution and current neurobiology of imagination?

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CREATIVE (adjective): inventive, innovative, experimental, original, artistic, expressive, inspired, visionary, enterprising, resourceful.

IMAGINATION (noun): creativity, vision, inspiration, inventiveness, invention, resourcefulness, ingenuity, originality, innovation, innovativeness.

[The underlined words indicate the shared word web for the concepts, creativity and imagination. *Concise Oxford American Thesaurus*, Oxford University press, 2006]

FIGURE 1

Creativity and imagination are symbolic constructs. They get their meaning from their associations with other words, not with physical entities in the world (see Figure 1). The scientific method was developed to explain the physical world. Is it adequate to explain the nonphysical world of nonmaterial symbolic entities? We may someday be able to explain fully the biological basis of symbolic concepts that characterize the humanities, but as Wilson notes, "the humanities have a further reach... the infinity of all fantasy worlds" (187). I would suggest that it is not just fantasy worlds, but it is nonphysical symbolic concepts in general that are generated in the humanities and in the social sciences. It will be important for scientists who study the physical world (particularly evolutionary biology and neuroscience) to understand that labels they use to identify mental states and processes may not have an origin in the brain,

but may have been put there by humans. The brain is quite promiscuous; it will process and store all relevant stimuli, including nonphysical symbolic constructions.

If the notion that humans live, in part, in a non-physical symbolosphere is correct, and if we wish to establish a union or at least a much closer association between the arts/humanities and the sciences, it will probably be necessary for scientists of the natural world to understand how words, symbols, and signs work. The physicalist orientations of the natural scientists seem to impose an essentialism on concepts as though they were physical entities (like the amygdala, neocortex, ventral tegmentum, prefrontal cortex). It is actually a bit trickier. Such essentialism is powerful among humans, and natural scientists haven't escaped it. In their defense, it may be much more difficult for them to avoid because they are most often working in the physical world. (See Barrett, 2015 on essentialism in the study of emotion). Ortega (2017) has observed that among modern linguists "language is thought to construct meaning (rather than to carry it), iteratively out of recurrent social activities, yet often incompletely, unpredictably, and on-the-fly. This allows for individual grammars [and lexicons] that are diverse and heterogeneous. Language is viewed as existing only as a process of communicating; something we do, not something we have. This prioritizes the idea of semiotic repertoires rather than knowledge of subsystems within a larger system. And language is located in social activity which is distributed among social actors, rather than in any individual brain. This makes it possible to obviate the metaphor of complete grammars and ..., legitimate owners of a language [or lexicon]" notice (7).

Reference

Ortega, L. (2018). SLA in uncertain times: Disciplinary constraints, transdisciplinary hopes. *Working Papers in Educational Linguistics* 33:1-30, 2018 //www.gse-upenn/wpel.