

Recensioni

Daniel C. Dennett**From bacteria to Bach and back. The evolution of minds**

W. W. Norton & Company, New York/London 2017

Pages: 477; \$ 27,50

The latest book by Daniel Dennett, *From bacteria to Bach and back. The evolution of minds* (2017), is the umpteenth proof of his scholarship. It is more than an essay: it is the final *reflection* of a philosopher who seems to come to the final thesis in a lifelong work in the philosophy of mind and life. Probably no one, not even his enemies, wishes to witness the final step in Dennett's career; however, with this book, he looks set to define his theoretical testament and philosophical legacy.

As he has, on several occasions, remarked, the Austin B. Fletcher Professor of Philosophy at Tufts University indulges his passion for alliteration in the title, which hints at the tripartite plot of the book. Thus, a caution is in order if you read the Italian edition: the title, although a good translation, unfortunately leaves out the final "...and back" of the English original. This is, indeed, surprising, because it deprives the Italian version of the title's original meaning.

In a few words: everything significant on the face of this planet finds its origins in bacteria. Provided with the proper physical and chemical conditions, bacteria can develop into very sophisticated forms of life. These forms of life may also reach certain peaks of development, where they acquire the capacity to monitor themselves. It is probably by following this trend that the most sophisticated forms of life – human beings, in particular – develop a very special system for self-monitoring: minds, which, in some cases, can be identified as *conscious*. This is the leading topic in part 1 of the book, which considers the evolution of bacteria. Dennett is a master at depicting this multicolored, compound, and complete *story* (as he calls it) that is both deeply coherent and rational. This story appears extremely reasonable thanks to the theoretical framework he adopts: evolutionary darwinism. In short, Dennett embraces explanatory naturalism.

Even though evolutionary explanations enable us to make sense of the story of *natural* life; they do not account for what is more intrinsically human: culture and cultural phenomena. This has been a traditional objection to Darwinian naturalism. Yet Dennett employs the second part of his book (part 2) building the argument that culture and cultural phenomena can essentially be treated in the same way. How? He extends the notion of the "meme", which he explicitly borrows from Richard Dawkins, in a rather original way. He proposes the meme be considered the cultural coun-

terpart of a gene, in order to clarify the mechanisms of diffusion followed by certain structures of information: *free floating rationales*, namely, basic, independent, information structures which, because of certain (lucky) circumstances, are successful, or more successful than others. As humans became more and more complex along their evolutionary path, they needed to develop ever greater agility in implementing information. Thus, their brains became ever more complex along with their minds. This growing complexity forced human beings to improve how they managed information. The natural step for a community of animals who are highly interactive and who deal with a huge amount of information is to share it. In order to share information, they have to develop a complex system for communication. The *memetic* units that humans use to spread and to extract information from their environment work as catalysts for their communicative needs: thus, language enters the scene, as an optimal vehicle for the optimal organization of memes (Dennett thinks of words as memes). Human culture hinges on just such a trick: more memes, more complexity, more communication, and so on ... until we find our world as it is and has been for the last two or three thousand years. And then, a certain German kid pops out in Eisenach and, again, making use of this and that meme, composes Cello Suite no. 1 in G major – that's Bach.

That is, roughly, Dennett's recipe for life and mind, which is properly suited to an evolutionary and naturalistic style of explanation for most, if not all of the phenomena that philosophers have been contending with since the beginning of philosophy. This general framework is nowadays a fairly consolidated approach, shared by Richard Dawkins, Kim Sterelny, Peter Godfrey-Smith, as well as several others. Dennett also adds a third part to the book that reads like a broad review – indeed, those who do not feel like reading the whole book could just start at page 336 and read a few pages to get a general idea. However – this third section can be considered to address the way *back* mentioned in the title – also includes a number of considerations that make Dennett's bold naturalist attitude seem a little less forceful. The memetic strategy works best when accounting for a civilized world, with memes described as patterns of information that spread in an autonomous way; our deeply artificial and technological world is an optimal environment for their proliferation. In fact, as Dennett points out, here and there, especially in chapter 15, memes could proceed with a life of their own, escaping the grip of our understanding, while remaining darwinistically oriented. This is the scenario for a potential *de-darwinization*, a trend that, in some cases, seems

to reverse the natural evolutionary path. It is within this scenario that human life could put the whole world at risk and, consequently, endanger itself. And it is mainly because of the inability of human beings to understand their own artifacts (the most complex ones) that mankind runs this risk of extinction, though this need not necessarily be our fate: «civilization is a work in progress, and we abandon our attempt to understand it at our peril» (p. 410). Such a disquieting scenario resembles some of Heidegger's later speculations. Some continental critics of the naturalist trend of much of anglophone, post-analytic philosophy, might consider these afterthoughts with a certain interest.

Maybe the juxtaposition of the dennettian doctrine, an evolutionary doctrine, and the luddite disapproval of progress and technology expressed by Martin Heidegger is somewhat provocative. Yet, Daniel Dennett is open-minded enough that he will not be appalled by the analogy. The real issues he considers to be at stake are others.

Indeed, so ambitious, so broad, and so comprehensive is the book that there are many topics worthy of discussion; they are too many and too complex for a quick and light review. Yet, there are some crucial questions that, though debated at some length by the author, are never definitively clarified.

In part 1, Dennett provides a – by now – well-known account of the development of entities with minds, which hinges on the notion of “competence without comprehension”. There are no special elements which are constitutive of the mind, contrary to the beliefs held by those who have inherited the legacy of Descartes (what Dennett calls “Cartesian gravity”). Every cognitive competence is the result of practices that just happened to favor one living being among many, whose survival contributed to the success of its lineage. And competences, including cognitive ones, are traits carved by the forces of natural selection and acquired mechanically thanks to a genetic code. These cognitive endowments, even among human beings, remain largely obscure, below or beyond comprehension. Of course, it has taken an enormous intellectual effort to get rid of our conviction that our mind is qualitatively different from our brain. Our mind, instead, *is* our brain; better, it is the activity that is implemented by our brain. In order to finally grasp this point along the history of human thought, Dennett claims that we had to absorb at least two basic general inversions of reasoning. One is Darwin's *dangerous idea* that there is no need to appeal to a *superior mind* to explain the extraordinary level of design revealed by the nature and function of human beings. Natural evolution employs dumb and efficient tricks, based on replication, spread, and selection, which refine this design without any need for an (intelligent) designer. The other inversion of reasoning is the intuition of Alan Turing: some

mechanisms work better without ever understanding what they are doing at all. Turing conceived of a machine that can perform procedures that solve computational problems in a strictly mechanical way, without any comprehension. Thus, we know that most of our capacities are the inheritance of our species and we do not need to have special ingredients for such competences to arise, even at higher levels. So far, so good; but then how do we come to *understand* our experience, and why? The answer that Dennett provides is not particularly exhaustive. Civilization and culture are involved as determinant factors that are complementary to natural evolution, but here the explanation becomes progressively blurrier. Technology (a product of civilization and culture) is embodied in the environment in which we live; it interacts with human beings and they interact with it. The world is saturated with information that is structured in such a way that humans are affected by and affect it. However, the terms of this interaction and how it conditions the human mind and cognition are not clear. For sure, human beings require a powerful tool to deal with an environment that has to be endowed with meanings and that has to be semantically interpreted: language.

Yet, language and its origins present another weak spot in the explanatory story told by Dennett. He advises the reader that «A bird's-eye view is all we need ...» when addressing language (p. 249). Then, after maintaining that «... a necessary precursor of language had to be *some* kind of pre-linguistic cultural transmission supported by some kind of genetic adjustment...» (p. 251), our philosopher rather hastily declares language to be the «... *launching pad* of human cognition and thinking» (p. 261). Likely, by *launching pad*, he means the outstanding cognitive human capacity to create *well-formed formulas* in a recursive way: the sentences of our language; but how did we reach this *launching pad* from *the necessary precursor of language*? Dennett, again, gives us only a rough idea (for the whole of chapter 12), although he appeals to a quite extensive literature on the theme. He is one singer in a choir, however, and his sketch of an explanatory narrative is in any case preferable to the current alternatives. As he notes, the hypothesis – put forward by the father of Generative Grammar, Noam Chomsky – that a single great special mutation afforded human linguistic competence, is simply not plausible. As Dennett puts it: «The idea that a random mutation can transform a species in one fell swoop is not a remotely credible just so story; it has more in common with comic book fantasies like the Incredible Hulk and all the other action heroes whose encounters with freak accidents grant them superpowers» (p. 279-280).

What is most commendable in this book by Dennett is his attempt to establish a coherent connection between natural evolution (based on

genes) and cultural evolution (based on memes). The account of life, mind, and world, he develops based on this link is broad and reassuring: it covers all the bases, with no flaw ... or so it seems. There is, in fact, a price to be paid for this well-packed evolutionary parcel. The *real patterns* with which Dennett articulates this story are themselves memes. Memes are non-natural units of structured information that are successfully transmitted. So, what are memes, exactly? Dennett straightforwardly defines memes as ways of doing things, which are spread through experiences (differing in this respect from genes). Thus, memes are greetings, kisses, dance steps, practices used to fish out termites with a stick, refrains... it seems that memes are anything that propagates without being encoded in the nucleotide sequences in DNA or RNA: most probably, a meme is what a gene is not. This liberal characterization of a meme enables Dennett to provide his story with a coherent theoretical framework; but he uses a theoretical notion that, because of its generality, tends to trivialize those aspects of evolutionary explanations which, instead, require significant specificities (particularly with respect to phenomena which are neither natural nor obviously cultural).

A last consideration is what role *comprehension* might play in any system, be it natural or, possibly, artificial. As Dennett suggests, comprehension, namely, the understanding of oneself as a whole sub-

ject, although composed by several parts, is not necessary but complementary. Yet in one of the last sections of his book ("What will happen to us?", chap. 15) he welcomes comprehension, because it may turn out to be crucial for monitoring the whole system (or item, or collectivity) and for repairing it, in case of a breakdown: «The distribution of partial comprehension is not optional» (p. 408). Thus, can a system do without comprehension or not? Of course, it depends on the system, and if the system is complex enough, comprehension *is* necessary. This means that it cannot be considered facultative; it is *not optional*, as Dennett himself admits. Therefore, comprehension should not be underestimated, as he sometimes allows it to be.

In conclusion, the last work by Dennett provides an excellent recapitulation of all of his earlier theses and includes some refinements with respect to his previous major works, thereby making his global picture more robust. It is most likely the best (as well as the most recent) introduction to his philosophy: a great landscape fresco portraying a variety of philosophical evolutionism. It is definitely worthwhile reading but, as in all landscape frescos, some (relevant) details are blurred.

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