Made of Starstuff

Evolution has many faces: biological, quantum, cultural, tectonic, ideological, technological… This is the result of the expansion of the term *evolution*, once firmly rooted in biology and environmental science, now spreading to other fields and often becoming a synonym for *progress*. Today, even abiotic systems are said to *evolve* – even though the Universe, for instance, is not really evolving but regressing, slowly fading since the big bang entropy increases. It cannot even benefit from natural selection (as can, for instance, Wilkoń's peacocks, below), as there isn't anything to "select" from. Unless, perhaps, somewhere via black holes it tunnels through to other, possibly better, universes.

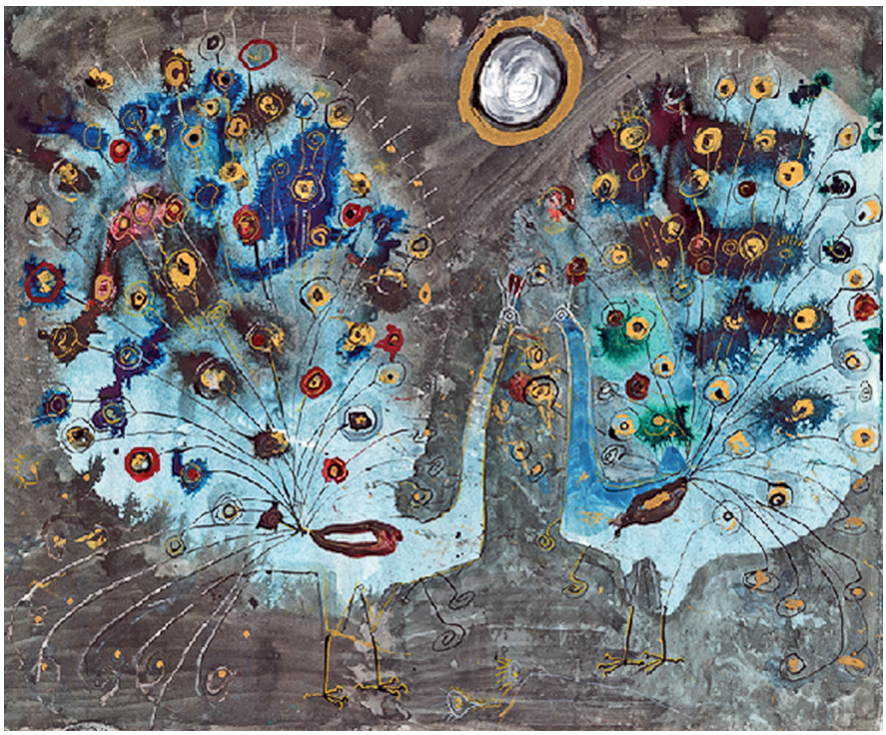
Here on Earth – the most important spot in the Universe (apologies, astronomers!) – natural evolution may be nearing its end. We humans are now at the helm, shaping the living world through genetic engineering. More and more genetically modified organisms are being created, such as fungus-resistant corn. Incidentally, when I see eggs advertised as "from hens fed non-GMO feed, " I give them a miss: I'll take GMO feed over fungicide-laced feed any day.

We're also building artificial intelligence (AI) systems that "evolve" through genetic algorithms, mirroring natural biological processes. In the not-so-distant future, AI might start digging through our genes, hunting for genotypes that can withstand a warming planet. One day it will spread a digitized version of human consciousness through the Universe

Carl Sagan once famously said, "We are made of starstuff." This scientific truth hints at a deep philosophical question: Has inanimate matter, after endless trials, finally found an effective way to comprehend itself? Evolution on Earth has played out over four billion years, culminating in a brain equipped with mathematical game theory. Comprehension is just a step away.

Humanity has achieved extraordinary evolutionary success. Over the past century alone, our numbers have exploded by more than six billion. Despite being a mere fraction of the planet's biomass, we've come to dominate plants and animals alike, consciously or unconsciously shrinking their populations and reducing biodiversity. In doing so, we have slowed natural evolution, to our own detriment. Eventually, it seems, we'll be left with artificial intelligence and artificial evolution…

Prof. **Marek Lewandowski**



"ARKA" FOUNDATION

Józef Wilkoń, *Peacocks*, 2022, mixed water technique

an acclaimed illustrator, painter, and sculptor, born in 1930 in Bogucice, near Wieliczka. A graduate of the Academy of Fine Arts in Kraków and the Jagiellonian University in art history, Wilkoń has illustrated over 200 books for children and adults worldwide, including classics like *Pan Tadeusz* (1973) and *Don Quixote* (2016).

THE MAGAZINE OF THE POLISH ACADEMY OF SCIENCES

nr 3/83/2024
Quarterly
issn 1731-7401
700 copies printed

Polish Academy of Sciences, Communications Department
PKiN, pl. Defilad 1,
00-901 Warsaw, Poland

www.pan.pl
www.academia.pan.pl
academia@pan.pl

Translation by
Sax Translations

Printed by
Agencja Wydawniczo-
-Poligraficzna Gimpo