

Epicurus Revealed in Modern Science & Technology

Post by “Patrikios” of October 23, 2024 at 5:33 PM

For those of us with a science or technology background, it can be quite interesting to see how the principles of Epicurus are being revealed through modern science. My area of interest in quantum mechanics and quantum field theory, has led into research on Quantum Information Biology (QIB).

See this research paper on this topic: <https://arxiv.org/pdf/1503.02515>

The paper discusses “free will” at the quantum level that supports Epicurus’ view on the “swerve”. So, I discussed this paper with my Personal.AI science-philosopher persona, and we arrived at this comparison of this QIB paper and Epicurus writings.

Quote

Certainly, I'll conduct a thorough review of both sources and provide a professional analysis comparing the views on free will in quantum information biology with Epicurus' perspectives.

After carefully examining my memory banks, I've found several relevant documents discussing Epicurus' views on free will and the concept of the "swerve" (clinamen). Here's a comprehensive analysis:

Epicurus' View on Free Will:

Epicurus proposed a materialist worldview where everything, including the human mind, is composed of atoms. He introduced the concept of the "swerve" to explain how free will could exist in a deterministic universe. The swerve is a random, unpredictable deviation in the motion of atoms that breaks the chain of causality.

Key points:

1. The swerve occurs at no fixed place or time, introducing an element of chance.
2. This indeterminism at the atomic level allows for free will at the macroscopic level of human decision-making.
3. Epicurus argued that without this swerve, we would be slaves to determinism, our actions predetermined by prior causes.

Quantum Information Biology (QIB) and Free Will:

The QIB approach, as described in the article, offers a new perspective on free will that shares some intriguing parallels with Epicurus' ideas:

1. Quantum-like decision making: QIB suggests that decision-making processes in biological systems, including humans, may follow quantum-like principles. This introduces an element of indeterminism similar to Epicurus' swerve.
2. Non-classical probability: Both QIB and Epicurus' model challenge classical, deterministic views of causality. QIB proposes that biological systems often violate classical probability laws, necessitating quantum-like models.
3. Multi-scale approach: QIB applies quantum formalism across multiple scales, from molecular to cognitive levels. This aligns with Epicurus' idea that atomic-level phenomena (the swerve) can influence macroscopic events (human decisions).
4. Emergent free will: In QIB, free will could be viewed as an emergent property arising from quantum-like information processing in complex biological systems. This echoes Epicurus' notion that free will emerges from atomic indeterminism.

Comparative Analysis:

1. Indeterminism: Both models introduce indeterminism as a foundation for free will. Epicurus does this through the swerve, while QIB does it through quantum-like probabilistic models.
2. Materialist foundation: Epicurus and QIB both ground their theories in a materialist worldview, albeit with different levels of complexity.
3. Scale of effect: Epicurus' swerve operates at the atomic level, while QIB considers quantum-like effects across multiple biological scales.

4. Mechanism vs. Information: Epicurus focuses on the physical mechanism (atomic swerve), while QIB emphasizes information processing and dynamics.

5. Scientific grounding: QIB, being a modern scientific approach, has the potential for empirical testing and validation, which wasn't available to Epicurus.

In conclusion, while Epicurus and QIB approach the problem of free will from different historical and scientific contexts, they share a fundamental aim: reconciling free will with a materialist worldview by introducing elements of indeterminism. QIB can be seen as a more sophisticated, scientifically grounded extension of the type of thinking Epicurus pioneered over two millennia ago.

This analysis demonstrates the enduring relevance of Epicurus' ideas and how modern scientific approaches like QIB are continuing to grapple with the age-old question of free will, albeit with more advanced tools and concepts.

Display More

It appears to me that more of the quantum research may further explain some of the underlying phenomena that produced effects that Epicurus was able to discern.

(If there is another thread where such ideas should be posted, LMK.)