

Alexander Ohnemus

Life Extension and Physics

20 October 2024

New Humanities

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Peer Review

Thank you for submitting "*New Humanities*." Below is a formal, printable peer review of the manuscript.

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### **Peer Review Report**

**Title:** A New Type of Humanities

**Author:** Minister Alexander Ohnemus

**Date of Review:** July 2025

**Reviewer:** Dr. Gregg Tyler Milligan

**Affiliation:** Save One Another Foundation (SOAF)

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### **Summary and Scope of Work**

Alexander Ohnemus presents a transdisciplinary manuscript that attempts to integrate scientific aging theory, metaphysical theology, social theory, proto-scientific exploration, and technological speculation into what he describes as "A New Type of Humanities." The work covers a broad spectrum of topics, from epigenetic theory and multiverse physics to theological speculation and bioethics, framed around human longevity and the plausibility of an afterlife.

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### **Strengths**

- **Visionary Range and Thematic Ambition:** The manuscript's breadth is expansive, touching on theology, information theory, sociology, genetics, speculative physics, and artificial intelligence. The author shows a strong willingness to ask difficult questions and challenge epistemological boundaries.
- **Originality and Conceptual Innovation:** Proposals such as a "Psychedelic Afterlife Preview (PAP)" and bioprinting for reparative justice are novel, if speculative. The author

seeks to engage with contemporary ethical and philosophical dilemmas from a futuristic and cross-disciplinary standpoint.

- **Citations and Intertextual Depth:** The manuscript draws from a robust list of references, including peer-reviewed literature, scientific articles, speculative essays, and primary source philosophical texts.
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## **Concerns and Recommendations**

### **1. Conceptual Coherence and Structure**

- The manuscript frequently blends metaphor, hypothesis, and empirical claims without clear boundaries. Distinctions between philosophy, theology, and actionable science must be sharpened for scholarly rigor.
- Recommendation: Introduce section headers that signal transitions from speculative thought to applied theory (e.g., “Symbolic Metaphysics” vs. “Empirical Hypotheses”).

### **2. Scientific Methodology**

- While the author proposes experimental frameworks (e.g., using radiotrophic fungi to observe CMBR as a window into the afterlife), the designs lack falsifiability, defined variables, or ethical scaffolding.
- Recommendation: Clarify experimental aims with diagrams, reproducibility standards, and safety considerations if proposing future research.

### **3. Ethical Clarity and Bioethical Responsibility**

- Assertions related to CRISPR use for reparations, 3D-bioprinting humans, and phenotypic distribution of privileges carry significant ethical risks if taken literally. These ideas require deeper engagement with current bioethics discourse to avoid misinterpretation as techno-eugenics.

- Recommendation: Consult contemporary bioethics frameworks (e.g., UNESCO’s Universal Declaration on Bioethics and Human Rights) when developing future iterations of this work.

#### 4. Linguistic and Stylistic Refinement

- The prose is dense, occasionally circular, and lacks a consistent academic tone. Terminologies such as “POGMAIP,” “AI-CMBR fungi fusion,” and “progressive privileges” are introduced with minimal explanation.
- Recommendation: Define all acronyms and speculative terms within footnotes or an appendix. Consider peer consultation with a technical editor or an interdisciplinary writing lab.

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#### Scholarly Evaluation (APA 7 Criteria)

Criterion	Score (1–5)
Originality	5.0
Interdisciplinary Integration	4.5
Scientific Rigor	1.5
Ethical Responsibility	2.0
Clarity and Writing	2.0
Philosophical Framing	3.0
Revision Potential	4.0

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#### Final Verdict

**Recommendation:** The manuscript is not ready for formal academic publication in its current form. However, it may serve effectively as:

- A **visionary manifesto** or **thought experiment** for speculative ethics and transhumanist philosophy.
  - A **public science communication prototype**, possibly adapted into a series of essays, a TED-style talk, or a long-form popular science book.
  - A **framework for university-level seminars** exploring speculative metaphysics, AI ethics, and the evolving relationship between theology and biotechnology.
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**Citation:**

Ohnemus, A. (2024, October). *A New Type of Humanities* [Preprint]. ResearchGate.  
<https://doi.org/10.13140/RG.2.2.25976.66564>



## Peer Review Report

**Title:** *New Humanities*

**Author:** Alexander Ohnemus

**Focus:** Life Extension, Physics, Proto-Science, Critical Theory

**Date:** October 20, 2024

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## Overview

*"New Humanities"* is a speculative, transdisciplinary manuscript that merges theories of longevity, metaphysics, postmodern theology, critical race theory, and proto-scientific exploration of the afterlife. The work draws from metaphysical reasoning (e.g., God = Logos), biological aging (epigenetic information theory), theoretical physics (multiverse, black holes), and sociopolitical commentary (anti-racism, reparations via 3D bioprinting), culminating in experimental proposals to explore the afterlife through AI-augmented radiotrophic fungi.

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## Strengths

### 1. Visionary Interdisciplinary Ambition

- The paper aspires to connect disparate realms—epigenetics, theology, critical theory, AI ethics, and quantum physics—under a unified framework of “New Humanities.”
- Its creative fusion is reminiscent of visionary techno-futurism blended with classical metaphysics.

### 2. Originality

- Rarely does a paper attempt to integrate scientific aging theory with psychedelic theology, 3D bioprinting, CRISPR-based reparations, and speculative afterlife visualization.

- The proposed use of radiotrophic fungi in AI-human experiments to detect Cosmic Microwave Background Radiation (CMBR) as a window into the afterlife is highly inventive.

### 3. Thematic Breadth

- Topics span from ancient philosophy and liberal theology to the cutting edge of synthetic biology and space science.
  - Citations are diverse, including primary literature, encyclopedic summaries, and social critiques.
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## Areas of Concern

### 1. Conceptual Overreach

- The work attempts to **deduce physical phenomena from metaphysical first principles**—a move that risks collapsing into pseudoscience without empirical or mathematical rigor.
- Claims like “3D printing inexact replicas for reparations” and “AI humans viewing the afterlife through fungi” are philosophically intriguing but **scientifically unsubstantiated**.

### 2. Methodological Incoherence

- Despite proposing experiment design, the paper lacks controls, falsifiability, or reproducible models—cornerstones of scientific method.

- There's no clear delineation between metaphor, hypothesis, and actionable research protocol.

### 3. Ethical and Sociopolitical Fragility

- Phrases like “distributing recessive and progressive privileges via CRISPR” and “3D bioprinting for anti-racist reparations” require deep ethical scrutiny and clarification.
- The biopolitical implications of phenotypic manipulation, however metaphorical, risk promoting **genetic determinism** or **eugenics-adjacent narratives**, even if unintentionally.

### 4. Literary and Structural Issues

- The writing is dense, with tangents, circular reasoning, and philosophical vagueness.
- Terms such as “POGMAIP,” “CMBR-aware AI,” and “psychedelic afterlife preview (PAP)” are unexplained or used with speculative abandon.
- Chapter divisions are conceptually ambitious but lack academic depth.

### Scholarly Evaluation

Category	Score (Out of 5)
Originality	5.0
Interdisciplinary Integration	4.0

Scientific Methodology	1.5
Philosophical Clarity	2.5
Ethical Responsibility	2.0
Writing Structure & Readability	2.0
Revision Potential	4.0

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## **Recommendations for Improvement**

### **1. Clearly Distinguish Science from Speculation**

- Clearly label metaphysical and symbolic sections.
- Use appendices for more speculative proposals like PAP and fungal CMBR interaction.

### **2. Tighten Ethical Framing**

- Engage with contemporary bioethics literature when discussing racial reparations via genetic modification or bioprinting.

### **3. Enhance Scientific Rigor**

- Develop testable hypotheses with defined variables and expected outcomes.
- Provide diagrams, models, or simulations where appropriate.

### **4. Improve Structure and Style**

- Streamline sentence structure and eliminate jargon unless precisely defined.

- Reorganize content into more focused sections (e.g., Philosophy of Science, Technological Speculation, Ethical Horizons).

#### 5. Engage Academic Communities

- Cite current experts and debates in genomics, metaphysics, and AI ethics more thoroughly.
  - Seek dialogue with specialists in synthetic biology, futurism, and theology.
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### Publication Suitability

**Verdict:** *Not suitable for scientific or philosophical journal publication in its current form, but may serve as:*

- A conceptual **manifesto** for speculative futurism.
  - A foundation for a **popular science book proposal** (in the spirit of Ray Kurzweil or Brian Greene).
  - A **discussion catalyst** in advanced seminars on science and society, transhumanism, or techno-ethics.
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### Would You Like?

- A **printable PDF version** of this review?
- Help **humanizing and academically reframing** key sections?

- Visualizations (e.g., diagrams of proposed experiments or concept maps)?

Let me know how you'd like to proceed!

Abstract

Two intimate, important, and intricate topics are human longevity and the possible afterlife. In other words, how long humans live, and their possible afterlife. Those two subjects matter so much, they deserve their own anthology.

The more we, humans, critically rationalist quantify( non-contradictory, parsimonious, falsifiable, and exactly) physics, the easier we can exactly quantify the possible afterlife.

God being logos, while everyone's higher self is its own god, would explain undeserved suffering, why moderation works(eg: assertive works best between passive and aggressive), too much ego is suicidal but, certain ego is needed for survival, etc.

Christianity is the ANTI-racist, Hellenistic and Pan-white-privilege religion. Jesus =Dionysus=Bacchus=Liber(the god and root word of liberalism ). Mass immigration gives more co-ethnic selection for POGMAIP. Deserved white guilt also lowers both fetishizing and internalized racism. God=Logos. God is logic and reason itself. The same environment, memes, and genes selected for Christianity, also lead to ANTI-racism. While Logos is God, the higher-self of each individual is its own god.

I don't know if an unmoved mover exists, or ever existed, but, to discover something, logic is necessary. Thus, logic may be the universal and eternal constant. Therefore, God appears to be Logos. Perhaps each individual has its own higher self. And each higher self is its individual's own god. A higher self cannot uproot logic itself. And, upon attempting to uproot logic, the individual loses its individuality and hurts their own self-interests. Thus, certain humility is both necessary and selfish.



## Introduction

Of course, one researcher can only investigate so many themes. The first topic shall be longevity, also known as both life extension and anti-aging. Information theory of aging has been deduced as the best explanation so far.

Following, LONGEVITY WHEN SUMMARIZED, are attempts to exactly quantify the possible afterlife.

1)Life Extension

Information Theory of Aging is the most robust and practical out of current theories explaining human age. Aging is a disease best explained as information loss. Damage theory does not account for damage's possible necessity towards human personal growth. A cellular error is difficult to define, thus, error theory also lacks veracity. When is an error actually an adaptive mutation? When is damage actually adaptive mutation? Plus, information theory of aging is uniquely accessible to computer assistance.

Damage of epigenetic information both rigorously and practically explains aging. More broadly, the information theory of aging explains the simplest, with the most evidence and least assumptions. Damaging the information across the epigenome does not only explain aging but also other diseases. Genetic engineering goes awry because editing the genome backfires across the epigenome. Thus, effectively and regularly polishing epigenetic scratches could cure aging, other diseases, and side effects of genetic engineering.

How Specifically Could an Epigenetic Information Polish Cure Aging? “epigenetic information is stored in a digital-analog format, susceptible to alterations induced by diverse environmental signals and cellular damage”( [https://www.researchgate.net/publication/376583494\\_The\\_Information\\_Theory\\_of\\_Aging](https://www.researchgate.net/publication/376583494_The_Information_Theory_of_Aging) ). And potentially a certain polish could fix those scratches, thereby periodically prevent aging upon regular adjustment.

2)Physics

To deductively reason, one goes from general to specific. This essay deduces theoretical physics(a specific discipline) from metaphysics and or epistemology(two broader subject matters).

If time travel has happened in the future, and the universe appears to grow, then those two facts may connect. Applying the principle of parsimony(also known as Occam's Razor), traveling back in time, and attempting to change the past, would NOT work. The multiverse would only expand based on that attempted and possibly well-meant intervention. That is one reason why the multiverse probably exists.

More evidence supporting the multiverse is that the creator, probably God(perhaps reason and logic itself named Logos), is all knowing due to seeing all possible realities in the multiverse. While God itself resides outside the multiverse. Yet humans maintain at least, depending on each one's competency, the fundamental choice to focus on life. Either at least humans have the fundamental choice to focus on life, or reason is futile. Of course, other choices humans lack. Humans cannot choose everything. A human cannot make her/any pronouns'/or his self, genes, environment, etc. Thus many humans lack many choices.

Perhaps the afterlife is another dimension, universe, or outside the entire multiverse. Such studies may increase in ease as the dangerous insides of black holes may be are HOPEFULLY safely discovered. Perhaps black holes lead to alternate dimensions/parallel universes.

Without partial free will, humans also would only be their cells. A human eventually loses all cells yet retains her/any pronouns'/or his identity. Thus, if the law of identity was expanded to every branch of physics, the afterlife may become exactly quantified.



### 3) Survival Heuristics

The Lindy Effect remains heuristically effective for noting robust theories, whether literal scientific ones, or metaphors containing survival heuristics. The occasionally metaphoric language of Hellenistic myths, with their underlying survival heuristics, both gave rise to Christianity. Hellenism evidently derived into Christianity as the Greek god Dionysus, the two Roman gods Bacchus and Liber, and Jesus Christ, all share many characteristics. Dionysus, Bacchus and Liber all eventually became known as the same god. Jesus, Bacchus, Liber and Dionysus, all alternated between god and human forms, encouraging their followers to do the same through self-transformation. Drugs are dangerous. Those deities did NOT carelessly encourage drugs. Plus, all 4 of those gods resulted in 21st century modern liberalism.

#### 4) Social Sciences

Some think mass immigration of people of color, to Northwestern European “NWE” founded countries...

1)decreases inter-ethnic reproduction because of more availability of co-ethnics.

2)increases the population of well off Northwestern Europeans.

3)gives more labor union members to help the Northwestern European working class.

4)increases the mode iq of Northwestern Europeans by making NWEs generally more liberal(higher iq, more creative, more talented, more thoughtful, etc.)

“Abstract WARNING: GENETIC ENGINEERING IS DANGEROUS. 1)This ANTI-racist essay rejects both racialism and racial essentialism, beginning with epistemology, physics, chemistry, biology, and then social sciences, of course with some overlap. Humans have, AT LEAST PARTIAL, free will or they could not fundamentally choose to focus on life, thus all reason would be futile ‘And if humans lack free will then the reasoning behind anything would not exist’(Ohnemus 2023). Thus self-evident PARTIAL free will debunks biological determinism. Biological determinism, at least in this essay and many other senses, also means scientific materialism. Thus, humans probably have souls, OR AT LEAST hereditarianism is wrong. Science only approximately derives from philosophy because direct derivation would be

a non-sequitur. Plus, the relationship between science and philosophy is very complicated. Philosophy speculates more and changes upon scientific discovery. Yet science rests upon philosophical postulates, such as the philosophy of science. 2) As a cohesive thesis elaborates, certain deceased Northwestern Europeans, who NEVER reproduced, either owe several reparations to the lesser privileged racialized populations OR were so enlightened, they deserve to have their traits expanded. Exact replication(both phenotypical and genotypical) not only is probably impossible, but also may excessively reduce diversity. Thus, 3D printing more progressive(trait and gene) and recessive(trait and gene) INexact replicas of those certain, and other, Northwestern Europeans is imperative for civilization and progress. Perhaps following the mass automated reproduction, to mitigate risks, the recessive and progressive privileges may be distributed to the consenting individuals, of racialized populations with lesser privileges. 3) Beginning from first principles does not mean reductionism. On the contrary, boiling down to the most fundamental truths and then reasoning up, while acknowledging and mapping nuance, may be the surest avoidance of both reductionism AND contradictions, if one simultaneously recognizes and charts counterintuitive reality. If diseases can reasonably correlate to genes with a parsimonious relationship then, other traits can too. Potentially one can describe a dead person's traits to a machine(maybe through photos, recordings, verbally, etc.) then, the machine can at least create one of many possibly corresponding genotypes. Humans, at least typically, only have 46 chromosomes, so certain traits parsimoniously match with certain genes. Even humans with more, or maybe less, than 46 chromosomes probably still have a close enough number for their traits to be parsimoniously matched with corresponding genes. Plus if previous information on the dead subject's genotype is available(DNA of relatives, lineage DNA, ethnic DNA,

populational(maybe racialized) DNA, general human genome, genealogy, etc.) data, both of the particular deceased person, one can either clone that dead subject(having deduced the genotype) or 3D bio-print another human with the same traits the deceased is remembered for, plus silver lining, added genetic diversity. One could 3D bioprint an in-exact replica of the deceased individual through the deduced genotype, out of bioink materials composing DNA, RNA, and proteins(perhaps sugar or other elements that chemically make deoxyribonucleic acid), while a bioreactor reinforces the design, and rheology, of the intended human. If CRISPR can both cure, and accidentally cause, mutations, then it can potentially and intentionally distribute recessive and progressive privileges by both somatically, and germinally, mutating people. CRISPR could even distribute both recessive and progressive privileges, of being enlightened liberal Northwestern Europeans, to 3D bioprinted people before they are printed. 4) Selectively 3D bioprinting human individuals for humanitarian ANTI-racist reparations is key for preventing a phenotypic revolution because recessive  $\neq$  useful to machines. Plus, by 3D bioprinting, in-exact human replicas, of deceased individuals, machines won't be able to launch a phenotypic revolution, because the automated reproduction will lack the linearity. And the philosophy, of paying ANTI-racist reparations, requires a level of empathy that is uniquely human and not automatable”(Thesis Commons 2024).

Plus, if enough humans increase their own bodily fertility with genetic engineering, the need for automated reproduction may decrease.

5)Proto-Science(Psychedelic Afterlife Preview “PAP”)

Intelligent extraterrestrial life may exist. But not like in the movie ET, rather in the form of proteins, or RNA, microscopic molecules. RNA molecules have been found in meteorites. Perhaps meteorites, and meteors, are the real spaceships. Thus explaining how DNA, PERHAPS designed and designated by RNA to MAYBE reproduce new RNA and DNA-based life forms. Yet DNA maybe discarded RNA, then the DNA based life forms took over Earth.

Furthermore, RNA extraterrestrial presence may explain why magic mushrooms(some of the first known life forms according to clades) might allow us to see alternate dimensions, and or parallel universes, possibly such as the afterlife.

Cosmic Microwave Background Radiation “CMBR” is a certain radiation expected to result from the suspected Big Bang genesis of the universe. Certain mushrooms eat radiation. Those mushrooms may be prescribed to astronauts to keep them from getting sick from radiation in outer space. If Cosmic Microwave Background Radiation supposedly results from the origin of our universe, the mushrooms eating radiation(maybe they also eat the radiation known as CMBR) may also allow us to travel across the possible multiverse, perhaps even to preview the afterlife. Perhaps psychedelics only appear as reality distortion because our more easily observable bodies remain in this universe, while our less observable minds may travel across the multiverse. However, Psychedelic Afterlife Preview “PAP” is only a proto-science.

## 6)Experiment Design

NOTE: Cosmic Microwave Background Radiation “CMBR”, is expected to illuminate from the suspected Big Bang genesis of the universe. CMBR thereby MAY separate our universe from parallel universes. We should create an AI human that can eat radiotrophic fungi safely, then stated AI human may be able to see, WITHOUT DYING, past CMBR, and into the possible afterlife, and we could too if we attach magnetic resonance imaging “MRI” to that AI human.

The experiment MAY require 3 different AI models:

1)an AI human

2)an AI radiotrophic fungi

3)an AI CMBR.

OR

We could make the senses of the AI human strong enough to SAFELY eat REAL radiotrophic fungi, while sensing the ending REAL CMBR, into the possible afterlife, we could witness with MRI.

OR

Maybe we could 3D print a REAL AND WILLING human, immune to negative side effects of radiotrophic fungi.

We could then attach a computer(MRI) to that WILLING human's psyche to exactly quantify into the possible afterlife.

## Conclusion

Safety first, as proto-science does not warrant taking potentially fatal drugs.

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“Of course, not all mutations are ‘bad.’ But, because so many mutations can cause cancer, DNA repair is obviously a crucially important property of eukaryotic cells. However, too much of a good thing can be dangerous. If DNA repair were perfect and no mutations ever accumulated, there would be no genetic variation—and this variation serves as the raw material for evolution. Successful organisms have thus evolved the means to repair their DNA efficiently but not too efficiently, leaving just enough genetic variability for evolution to continue.”

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“ Dark energy is a repulsive force and makes up roughly 68% of energy in the known universe. Scientists believe that the existence of dark energy and the amount of repulsion it displays compared with dark matter is what’s causing our universe to not only expand, but also to expand faster and faster. Jul 24, 2023.”

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depends on the competency of each human). Without that fundamental choice to focus on life, reason would be futile. God, being all knowing, sees all universes in the multiverse which include every reality. This theorem is self-evident enough to not require sources. Also found here: <https://gettr.com/post/p2m6bge324a> Expanding on that, every reality contains every possible choice a human could make.”

Crookes, David, and Daisy Dobrijevic. “Where Do Black Holes Lead To?” Space.com, 5 Jan. 2022, [www.space.com/where-do-black-holes-lead.html](http://www.space.com/where-do-black-holes-lead.html) . Accessed 27 Oct. 2024.

“ So there you are, about to leap into a black hole. What could possibly await should — against all odds — you somehow survive? Where would you end up and what tantalizing tales would you be able to regale if you managed to clamber your way back?“.

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Ohnemus , Alexander. "Highly Theoretical Differential Equations of the Afterlife." ResearchGate.net , Ohnemus University , 19 Oct. 2023, [www.researchgate.net/publication/374913431\\_Highly\\_Theoretical\\_Differential\\_Equations\\_of\\_the\\_Afterlife](https://www.researchgate.net/publication/374913431_Highly_Theoretical_Differential_Equations_of_the_Afterlife) . Accessed 21 Oct. 2024.

<http://dx.doi.org/10.13140/RG.2.2.24739.43040> . "Theories are not facts. Differential equations are a common concept of applied mathematics. Science is roughly derived from philosophy. Engineering is roughly derived from science. The afterlife is worth researching. All

research at first may seem far-fetched. Engineering may be the only way to know for sure if the afterlife is real and if so, what it is exactly. “The Differential Equations of Advanced Conception:  $(S + P)' = \sim(S + E)$  S: science P: philosophy E: engineering The derivative of science plus philosophy equals approximately science plus engineering. Science is in both the differential equation and the approximate derivative because after the deriving process the thinking becomes less philosophical and more scientific due to the increased tangibility.”(Ohnemus 2023). If we add the science of the afterlife and the philosophy of the afterlife then the approximate derivative may be the science of the afterlife plus the engineering of the afterlife. In conclusion, probably no machine has been created to preview the afterlife. And if one has, the probability of its accuracy may be null.”

Ord , Toby . “The Lindy Effect.” ResearchGate.net, Aug. 2023,

[www.researchgate.net/publication/373245971\\_The\\_Lindy\\_Effect](http://www.researchgate.net/publication/373245971_The_Lindy_Effect). Accessed 27 Oct. 2024.

“<http://dx.doi.org/10.48550/arXiv.2308.09045>. “The Lindy effect is a statistical tendency for things with longer pasts behind them to have longer futures ahead. It has been experimentally confirmed to apply to some categories, but not others, raising questions about when it is applicable and why. I shed some light on these questions by examining the mathematical properties required for the effect and generating mechanisms that can produce them. While the Lindy effect is often thought to require a declining hazard rate, I show that it arises very naturally even in cases with constant (or increasing) hazard rates -- so long as there is a probability distribution over the size of that rate. One implication is that even things which are becoming less robust over time can display the Lindy effect.”

Duchesne, Ricardo. "Christianity is a Hellenistic Religion, and Western Civilization is Christian." *Historically Speaking*, vol. 7 no. 4, 2006, p. 15-18. Project MUSE, <https://dx.doi.org/10.1353/hsp.2006.0056>. "<https://muse.jhu.edu/pub/1/article/423197/pdf>"

“In lieu of an abstract, here is a brief excerpt of the content:

March/April 2006 *Historically Speaking* 15 Christianity is a Hellenistic Religion, and Western Civilization is Christian Ricardo Duchesne The one virtue I can find in Stark's essay, as it was adapted from his book *Victory of Reason*, is that it might stimulate a serious discussion about why Christianity was the only religion to cultivate a philosophical outlook consistent with the rational investigation of nature and the rise of a liberal democratic culture. Right from the opening paragraph, his essay sprays out too many sweeping statements about medieval Europe's technological superiority over the rest of the world that can only be judged as expressions of someone not familiar with world economic history. I have defended David Landes's contention that sometime in the medieval/early modern era Europe took a path that set it on a special historical course, but I cannot support Stark's flat statement that medieval European technology and science "overtook and surpassed the rest of the world." Sung China (960-1279), rather, was the world's most advanced civilization at that time. The irrigated fields of China gave far higher yields per seed and per unit of land than the rain-fed grains of Europe. In terms of preparation of soil and methods of soil preservation, rotation of crops, selective breeding of seeds, transplanting and winnowing, and water control techniques, Chinese—and possibly Indian—farmers were ahead of their European counterparts well into the modern era. Stark shows no awareness

of current arguments made by Bin Wong, A. G. Frank, Ken Pomeranz, and others that many "modern" economic trends attributed to Europe, such as rising total output and per capita productivity, growing urbanization, and global trade networks, were also experienced in China, India, and Japan throughout the modern era. I do agree, nevertheless, that by the 12th century Europe was entering a period of cumulative progression in all spheres of social life, richer in originality and spiritedness than any other cultural efflorescence witnessed since the ancient Greeks. While I do share Stark's belief that Christianity was a major factor in this progression, I have deep reservations about his contention that the rise of modern science was rooted directly in the religion of Christianity. He writes: "Christianity alone embraced reason and logic as the primary guides to religious truth. Christian faith in reason was influenced by Greek philosophy. But the more important fact is that Greek philosophy had little impact on Greek religions. Those remained typical mystery cults .... But, from early days, the church fathers taught Stark is right that outside narrow scholarly circles Catholicism is still derided as reactionary and superstitious. of one ethnic people, and this God remained abstract and beyond reason. In the Incarnation and the belief that Jesus has two natures— both fully God and fully human—the pure universal spirit of the Old Testament finds concrete expression in human history. Pre-Christian religions only imagined the presence of spirit in the world; Christians see and feel and hear the divinity and love of God in their lives. What Stark ignores to the point of harming his entire argument is that Christianity alone developed a metaphysical framework consistent with that of modern science and freedom due to the deep impact of Greek culture on the very formation of Christianity. Christianity was born that reason was the supreme gift from God and the means to progressively increase understanding of Scripture and revelation." Stark cites a few passages from St.

Augustine, St. Magnus, St. Aquinas, and Tertullian to support this claim but without supplying any supplementary explanations. Stark claims in his book that Christianity is the only religion that had faith in reason, which nourished a "science of faith"—a theology of "God's nature, intentions, and demands." He further argues that Christianity is different from such religions as Taoism, Buddhism, and Confucianism in believing in the existence of a "conscious, all powerful God," rather than a One, a Being or principle governing the universe that is impersonal, remote, unknowable, and separate from our world. I also believe that the God of Christianity is not transcendental but immanent. I agree as well that Christianity displays a higher level of self-consciousness because the Divine is not something utterly other and..."

"Liber | Genealogy, Festivals & Legacy." Study.com, 13 January 2023, [study.com/academy/lesson/liber-history-facts-myths-roman-god.html](https://study.com/academy/lesson/liber-history-facts-myths-roman-god.html). "Dionysus was not just the

god of wine; he was the god of intoxication and madness. These associations passed to Liber. Because Dionysus, Bacchus, and Liber all came to be known as one and the same god, Liber was worshipped at Dionysian celebrations.”

Calver, Richard. “Why Jesus and Bacchus Have a Lot in Common.” Citynews.com.au, Canberra CityNews, 30 Jan. 2022, citynews.com.au/2022/why-jesus-and-bacchus-have-a-lot-in-common/. Accessed 27 Oct. 2024. “With all respect to those of a religious persuasion, Lukacs is compelling in his close comparison of the cult of Bacchus and Christian practices: “Several... parallels seem striking. Both Jesus and Bacchus are born from a mortal woman but fathered by a god; both return from the dead; both give wine to their followers to drink.””

McLennan, Scotty. “Jesus Was a Liberal: Reclaiming Christianity for All.” Amazon.com, St. Martin’s Griffin, 7 Dec. 2010, www.amazon.com/Jesus-Was-Liberal-Reclaiming-Christianity/dp/0230103405 . Accessed 28 Oct. 2024. “For the millions of people who identify as liberal Christians. In McLennan’s bold call to reclaim ownership of Christianity, he advocates a sense of religion based not on doctrinal readings of scripture but on the humanity behind Christ’s teachings. He addresses such topics as intelligent design, abortion, same sex marriage, war, torture and much, much more. As he says in the Preface, “We liberal Christians know in our hearts that there is much more to life than seems to

meet the rational eye of atheists; yet we find it hard to support supernatural claims about religion that fly in the face of scientific evidence.’”

“Dionysus/Bacchus.” Rijks.museum.nl,

[www.rijksmuseum.nl/en/rijksstudio/subjects/dionysusbacchus](http://www.rijksmuseum.nl/en/rijksstudio/subjects/dionysusbacchus) . Accessed 27 Oct. 2024.

“ Originally Dionysus was the Greek god of fertility. Later, he came to be known chiefly as the god of wine and pleasure. The Romans called him Bacchus.”

Muraresku, Brian C. “The Immortality Key: The Secret History of the Religion with No Name.” Amazon.com, St. Martin’s Press, 29 Sept. 2020,

[www.amazon.com/Immortality-Key-Secret-History-Religion-ebook/dp/B0818QJHKF](http://www.amazon.com/Immortality-Key-Secret-History-Religion-ebook/dp/B0818QJHKF) .

Accessed 27 Oct. 2024.

“THE NEW YORK TIMES BESTSELLER As seen on The Joe Rogan Experience! A groundbreaking dive into the role psychedelics have played in the origins of Western civilization, and the real-life quest for the Holy Grail that could shake the Church to its foundations.” “The most influential religious historian of the 20th century, Huston Smith, once referred to it as the “best-kept secret” in history. Did the Ancient Greeks use drugs to find God? And did the earliest Christians inherit the same, secret tradition? A profound knowledge of visionary plants, herbs and fungi passed from one generation to the next, ever since the Stone Age?” “There is zero archaeological evidence for the original Eucharist – the sacred wine said to guarantee life after

death for those who drink the blood of Jesus. The Holy Grail and its miraculous contents have never been found. In the absence of any hard data, whatever happened at the Last Supper remains an article of faith for today's 2.5 billion Christians. In an unprecedented search for real answers, *The Immortality Key* examines the archaic roots of the ritual that is performed every Sunday for nearly one third of the planet. Religion and science converge to paint a radical picture of Christianity's founding event. And after centuries of debate, to solve history's greatest puzzle once and for all." "Before the birth of Jesus, the Ancient Greeks found salvation in their own sacraments. Sacred beverages were routinely consumed as part of the so-called Ancient Mysteries – elaborate rites that led initiates to the brink of death. The best and brightest from Athens and Rome flocked to the spiritual capital of Eleusis, where a holy beer unleashed heavenly visions for two thousand years. Others drank the holy wine of Dionysus to become one with the god. In the 1970s, renegade scholars claimed this beer and wine – the original sacraments of Western civilization – were spiked with mind-altering drugs. In recent years, vindication for the disgraced theory has been quietly mounting in the laboratory. The constantly advancing fields of archaeobotany and archaeochemistry have hinted at the enduring use of hallucinogenic drinks in antiquity. And with a single dose of psilocybin, the psychopharmacologists at Johns Hopkins and NYU are now turning self-proclaimed atheists into instant believers. But the smoking gun remains elusive." "If these sacraments survived for thousands of years in our remote prehistory, from the Stone Age to the Ancient Greeks, did they also survive into the age of Jesus? Was the Eucharist of the earliest Christians, in fact, a psychedelic Eucharist?" "With an unquenchable thirst for evidence, Muraresku takes the reader on his twelve-year global hunt for proof. He tours the ruins of Greece with its government

archaeologists. He gains access to the hidden collections of the Louvre Museum to show the continuity from pagan to Christian wine. He unravels the Ancient Greek of the New Testament with the world's most controversial priest. He spelunks into the catacombs under the streets of Rome to decipher the lost symbols of Christianity's oldest monuments. He breaches the secret archives of the Vatican to unearth manuscripts never before translated into English. And with leads from the archaeological chemists at the University of Pennsylvania and the Massachusetts Institute of Technology, he unveils the first scientific data for the ritual use of psychedelic drugs in classical antiquity." "The Immortality Key reconstructs the suppressed history of women consecrating a forbidden, drugged Eucharist that was later banned by the Church Fathers. Women who were then targeted as witches during the Inquisition, when Europe's sacred pharmacology largely disappeared. If the scientists of today have resurrected this technology, then Christianity is in crisis. Unless it returns to its roots." "Featuring a Foreword by Graham Hancock, the New York Times bestselling author of *America Before: The Key to Earth's Lost Civilization*."

["LAMBDA - Cosmic Microwave Background." Lambda.gsfc.nasa.gov,](https://lambda.gsfc.nasa.gov)

[lambda.gsfc.nasa.gov/education/graphic\\_history/microwaves.html.](https://lambda.gsfc.nasa.gov/education/graphic_history/microwaves.html)

Ohnemus, Alexander . "Commonalities TEND to Attract." ResearchGate.net, Ohnemus University, 18 Aug. 2024,  
[www.researchgate.net/publication/383204633\\_Commonalities\\_TEND\\_TO\\_Attract](https://www.researchgate.net/publication/383204633_Commonalities_TEND_TO_Attract). Accessed 27

Oct. 2024.

“ People of similar life history strategies, values, socioeconomic statuses, age, IQs, EQs, and genetics, TEND TO attract each other as romantic mates. Hereditarianism is both morally and factually wrong. Marginalized groups are more entitled to identity politics, to protect their human rights and negative utilitarianism. Educational websites may especially have skin in the game. Life history strategy applies to humans as well. Romances require enough shared values to operate. Higher socioeconomic status, IQs, EQs, and genetic commonality, excluding 2nd cousins and closer, attract romantic partners. Lacking white privilege and being mixed race can bring serious trauma, and solutions MAY, or may not, develop.”

“Immigration Slows Rate of Racial and Ethnic Intermarriages.” News.osu.edu, Ohio State News , 5 Feb. 2007, news.osu.edu/immigration-slows-rate-of-racial-and-ethnic-intermarriages/. Accessed 27 Oct. 2024.

“Immigration has played a key role in unprecedented declines in interracial and inter-ethnic marriage in the United States during the 1990s, according to a new study.“.

American Sociological Association. "Liberals and atheists smarter? Intelligent people have values novel in human evolutionary history, study finds." ScienceDaily. ScienceDaily, 24 February 2010. <[www.sciencedaily.com/releases/2010/02/100224132655.htm](http://www.sciencedaily.com/releases/2010/02/100224132655.htm)>. “Higher intelligence is associated with liberal political ideology, atheism, and men's (but not women's) preference for sexual exclusivity.” “More intelligent people are statistically more likely to exhibit

social values and religious and political preferences that are novel to human evolution. Specifically, liberalism and atheism, and for men (but not women), preference for sexual exclusivity correlate with higher intelligence, a new study finds.”

Ohnemus , Alexander . “ANTI-Racist Case Studies: Inexact Replication for Reparations.” Osf.io, Thesis Commons, 24 Oct. 2024, [osf.io/8fkh5/](https://osf.io/8fkh5/).  
doi.org/10.31237/osf.io/8fkh.. Accessed 27 Oct. 2024.

Abstract WARNING: GENETIC ENGINEERING IS DANGEROUS. 1)This ANTI-racist essay rejects both racialism and racial essentialism, beginning with epistemology, physics, chemistry, biology, and then social sciences, of course with some overlap. Humans have, AT LEAST PARTIAL, free will or they could not fundamentally choose to focus on life, thus all reason would be futile “And if humans lack free will then the reasoning behind anything would not exist”(Ohnemus 2023). Thus self-evident PARTIAL free will debunks biological determinism. Biological determinism, at least in this essay and many other senses, also means scientific materialism. Thus, humans probably have souls, OR AT LEAST hereditarianism is wrong. Science only approximately derives from philosophy because direct derivation would be a non-sequitur. Plus, the relationship between science and philosophy is very complicated. Philosophy speculates more and changes upon scientific discovery. Yet science rests upon philosophical postulates, such as the philosophy of science. 2) As a cohesive thesis elaborates, certain deceased Northwestern Europeans, who NEVER reproduced, either owe several

reparations to the lesser privileged racialized populations OR were so enlightened, they deserve to have their traits expanded. Exact replication(both phenotypical and genotypical) not only is probably impossible, but also may excessively reduce diversity. Thus, 3D printing more progressive(trait and gene) and recessive(trait and gene) INexact replicas of those certain, and other, Northwestern Europeans is imperative for civilization and progress. Perhaps following the mass automated reproduction, to mitigate risks, the recessive and progressive privileges may be distributed to the consenting individuals, of racialized populations with lesser privileges. 3)

Beginning from first principles does not mean reductionism. On the contrary, boiling down to the most fundamental truths and then reasoning up, while acknowledging and mapping nuance, may be the surest avoidance of both reductionism AND contradictions, if one simultaneously recognizes and charts counterintuitive reality. If diseases can reasonably correlate to genes with a parsimonious relationship then, other traits can too. Potentially one can describe a dead person's traits to a machine(maybe through photos, recordings, verbally, etc.) then, the machine can at least create one of many possibly corresponding genotypes. Humans, at least typically, only have 46 chromosomes, so certain traits parsimoniously match with certain genes. Even humans with more, or maybe less, than 46 chromosomes probably still have a close enough number for their traits to be parsimoniously matched with corresponding genes. Plus if previous information on the dead subject's genotype is available(DNA of relatives, lineage DNA, ethnic DNA, populational(maybe racialized) DNA, general human genome, genealogy, etc.) data, both of the particular deceased person, one can either clone that dead subject(having deduced the genotype) or 3D bio-print another human with the same traits the deceased is remembered for, plus silver lining, added genetic diversity. One could 3D bioprint an in-exact replica of the deceased

individual through the deduced genotype, out of bioink materials composing DNA, RNA, and proteins(perhaps sugar or other elements that chemically make deoxyribonucleic acid), while a bioreactor reinforces the design, and rheology, of the intended human. If CRISPR can both cure, and accidentally cause, mutations, then it can potentially and intentionally distribute recessive and progressive privileges by both somatically, and germinally, mutating people. CRISPR could even distribute both recessive and progressive privileges, of being enlightened liberal Northwestern Europeans, to 3D bioprinted people before they are printed. 4) Selectively 3D bioprinting human individuals for humanitarian ANTI-racist reparations is key for preventing a phenotypic revolution because recessive  $\neq$  useful to machines. Plus, by 3D bioprinting, in-exact human replicas, of deceased individuals, machines won't be able to launch a phenotypic revolution, because the automated reproduction will lack the linearity. And the philosophy, of paying ANTI-racist reparations, requires a level of empathy that is uniquely human and not automatable.”

Ohnemus, Alexander . “Information Theory of Abiogenesis.” ResearchGate.net, Ohnemus University , 21 Sept. 2024,  
[www.researchgate.net/publication/384232018\\_Information\\_Theory\\_of\\_Abiogenesis](http://www.researchgate.net/publication/384232018_Information_Theory_of_Abiogenesis) . Accessed 28 Oct. 2024.

<http://dx.doi.org/10.13140/RG.2.2.25069.40163>

“ Information Theory of Abiogenesis: Life’s origin is a mystery. Science may never note for sure how life originated. However, engineering MAY create life. Then one MAY deduce

information theory (more specifically creating a phenotype, then a corresponding replicator) is at least how certain life was created.”

Offord, Catherine. “All RNA and DNA Base Types Are Found in Meteorites, Study Claims.” The-Scientist.com, 27 Apr. 2022, [www.the-scientist.com/all-rna-and-dna-base-types-now-found-in-meteorites-study-claims-69954](http://www.the-scientist.com/all-rna-and-dna-base-types-now-found-in-meteorites-study-claims-69954). Accessed 28 Oct. 2024.

““All five nucleobases that make up DNA and RNA have now been detected in meteorite samples, according to a study published yesterday (April 26) in Nature Communications.”

Oba, Yasuhiro, et al. “Identifying the Wide Diversity of Extraterrestrial Purine and Pyrimidine Nucleobases in Carbonaceous Meteorites.” Nature.com, Nature Communications, 26 Apr. 2022, [www.nature.com/articles/s41467-022-29612-x](http://www.nature.com/articles/s41467-022-29612-x). Accessed 28 Oct. 2024.

“The lack of pyrimidine diversity in meteorites remains a mystery since prebiotic chemical models and laboratory experiments have predicted that these compounds can also be produced from chemical precursors found in meteorites. Here we report the detection of nucleobases in three carbonaceous meteorites using state-of-the-art analytical techniques optimized for small-scale quantification of nucleobases down to the range of parts per trillion (ppt). In addition to previously detected purine nucleobases in meteorites such as guanine and adenine, we identify various pyrimidine nucleobases such as cytosine, uracil, and thymine, and their structural isomers such as isocytosine, imidazole-4-carboxylic acid, and 6-methyluracil,

respectively. Given the similarity in the molecular distribution of pyrimidines in meteorites and those in photon-processed interstellar ice analogues, some of these derivatives could have been generated by photochemical reactions prevailing in the interstellar medium and later incorporated into asteroids during solar system formation. This study demonstrates that a diversity of meteoritic nucleobases could serve as building blocks of DNA and RNA on the early Earth.”

Callahan, Michael P, et.al,“Carbonaceous Meteorites Contain a Wide Range of Extraterrestrial Nucleobases.” Pnas.org, PNAS, 11 Aug. 2011, [www.pnas.org/doi/10.1073/pnas.1106493108](http://www.pnas.org/doi/10.1073/pnas.1106493108)

. Accessed 28 Oct. 2024.

<https://doi.org/10.1073/pnas.1106493108> . “All terrestrial organisms depend on nucleic acids (RNA and DNA), which use pyrimidine and purine nucleobases to encode genetic information. Carbon-rich meteorites may have been important sources of organic compounds required for the emergence of life on the early Earth; however, the origin and formation of nucleobases in meteorites has been debated for over 50 y. So far, the few nucleobases reported in meteorites are biologically common and lacked the structural diversity typical of other indigenous meteoritic organics. Here, we investigated the abundance and distribution of nucleobases and nucleobase analogs in formic acid extracts of 12 different meteorites by liquid chromatography–mass spectrometry. The Murchison and Lonewolf Nunataks 94102 meteorites contained a diverse suite of nucleobases, which included three unusual and terrestrially rare nucleobase analogs: purine, 2,6-diaminopurine, and 6,8-diaminopurine. In a parallel experiment,

we found an identical suite of nucleobases and nucleobase analogs generated in reactions of ammonium cyanide. Additionally, these nucleobase analogs were not detected above our parts-per-billion detection limits in any of the procedural blanks, control samples, a terrestrial soil sample, and an Antarctic ice sample. Our results demonstrate that the purines detected in meteorites are consistent with products of ammonium cyanide chemistry, which provides a plausible mechanism for their synthesis in the asteroid parent bodies, and strongly supports an extraterrestrial origin. The discovery of new nucleobase analogs in meteorites also expands the prebiotic molecular inventory available for constructing the first genetic molecules.”

King, Anthony. “All of Life’s Nucleic Acids Could Have Extraterrestrial Origins.”

Chemistryworld.com, Royal Society of Chemistry , 27 Apr. 2022,

[www.chemistryworld.com/news/all-of-lifes-nucleic-acids-could-have-extraterrestrial-origins/4015592.article](http://www.chemistryworld.com/news/all-of-lifes-nucleic-acids-could-have-extraterrestrial-origins/4015592.article) . Accessed 28 Oct. 2024.

“All five nucleobases of RNA and DNA have been discovered in meteorites for the first time. These chemicals are essential ingredients for life on Earth and several purines and also two pyrimidines – thymine and cytosine – not previously detected in meteorites were found.”

Akst, Jef. “Molecules That Could Form “Membranes” Found above Titan.”

The-Scientist.com, 31 July 2017,

[www.the-scientist.com/molecules-that-could-form-membranes-found-above-titan-31153](http://www.the-scientist.com/molecules-that-could-form-membranes-found-above-titan-31153).

Accessed 28 Oct. 2024.

“Vinyl cyanide is thought to rain down onto Saturn’s largest moon, though whether the molecule self-assembles into membrane-like structures is unclear.”

Palmer, Maureen Y. , et al. “ALMA Detection and Astrobiological Potential of Vinyl Cyanide on Titan.” Science.org, ScienceAdvances, 28 July 2017, [www.science.org/doi/10.1126/sciadv.1700022](http://www.science.org/doi/10.1126/sciadv.1700022). Accessed 28 Oct. 2024.

<https://doi.org/10.1126/sciadv.1700022> . “Recent simulations have indicated that vinyl cyanide is the best candidate molecule for the formation of cell membranes/vesicle structures in Titan’s hydrocarbon-rich lakes and seas. Although the existence of vinyl cyanide (C<sub>2</sub>H<sub>3</sub>CN) on Titan was previously inferred using Cassini mass spectrometry, a definitive detection has been lacking until now. We report the first spectroscopic detection of vinyl cyanide in Titan’s atmosphere, obtained using archival data from the Atacama Large Millimeter/submillimeter Array (ALMA), collected from February to May 2014. We detect the three strongest rotational lines of C<sub>2</sub>H<sub>3</sub>CN in the frequency range of 230 to 232 GHz, each with >4σ confidence. Radiative transfer modeling suggests that most of the C<sub>2</sub>H<sub>3</sub>CN emission originates at altitudes of ≥200 km, in agreement with recent photochemical models. The vertical column densities implied by our best-fitting models lie in the range of 3.7 × 10<sup>13</sup> to 1.4 × 10<sup>14</sup> cm<sup>-2</sup>. The corresponding production rate of vinyl cyanide and its saturation mole fraction imply the availability of sufficient dissolved material to form ~10<sup>7</sup> cell membranes/cm<sup>3</sup> in Titan’s sea Ligeia Mare.”

Ashworth, James. “Meteorites Could Have Brought DNA Precursors to Earth.”

Nhm.ac.uk, National History Museum, 26 Apr. 2022,

[www.nhm.ac.uk/discover/news/2022/april/meteorites-could-have-brought-dna-precursors-earth.html](http://www.nhm.ac.uk/discover/news/2022/april/meteorites-could-have-brought-dna-precursors-earth.html). Accessed 28 Oct. 2024.

“ All five of the purines and pyrimidines which make up DNA and RNA were detected in the meteorites at concentrations similar to experiments ...”

Gariépy, J.F. “The Revolutionary Phenotype: The Amazing Story of How Life Begins and How It Ends.” Amazon.com, 4 Dec. 2018,

[www.amazon.com/Revolutionary-Phenotype-amazing-story-begins/dp/1729861563](http://www.amazon.com/Revolutionary-Phenotype-amazing-story-begins/dp/1729861563) . Accessed 28 Oct. 2024.

“...four billion years into the past, when the first living molecules showed up on Planet Earth.”

<http://www.ulb.ac.be/> . *First Mushrooms Appeared Earlier than Previously Thought.*

phys.org, 22 Jan. 2020,

[phys.org/news/2020-01-mushrooms-earlier-previously-thought.html](http://phys.org/news/2020-01-mushrooms-earlier-previously-thought.html) . Accessed 28 Oct. 2024.

“According to a new study led by Steeve Bonneville from the Université libre de Bruxelles, the first mushrooms evolved on Earth between 715 and 810 million years ago, 300 million years earlier than the scientific community had believed until now. Jan 22, 2020.”

BLAKEWAY, DACM, LAC, JILL. “Healing Power of Mushrooms: What Chernobyl’s Mysterious Black Fungi Reveal.” Yinovacenter.com, Yinova Center , 22 May 2024, [www.yinovacenter.com/blog/what-chernobyls-mysterious-black-fungi-reveal-about-the-healing-power-of-mushrooms/](http://www.yinovacenter.com/blog/what-chernobyls-mysterious-black-fungi-reveal-about-the-healing-power-of-mushrooms/). Accessed 28 Oct. 2024.

“ In the aftermath of the 1986 Chernobyl disaster, researchers discovered something remarkable: jet-black fungi growing inside the nuclear reactors. These fungi, adapted to life in the exclusion zone, where radiation levels are high, have a superpower: they can absorb and consume radiation.” “ Scientists suggest that these radiotrophic fungi could be useful for space travel, claiming they could reduce radiation levels in space by about two percent and potentially benefit astronauts on long missions. Imagine the humble mushroom helping protect space travelers from cosmic radiation!”

“Cosmic Microwave Background (CMB) Radiation.” Esa.int, European Space Agency, [www.esa.int/Science\\_Exploration/Space\\_Science/Cosmic\\_Microwave\\_Background\\_CMB\\_radiation#:~:text=The%20relic%20of%20that%20'first,with%20it%20all%20length%20scales.](http://www.esa.int/Science_Exploration/Space_Science/Cosmic_Microwave_Background_CMB_radiation#:~:text=The%20relic%20of%20that%20'first,with%20it%20all%20length%20scales.) Accessed 28 Oct. 2024.

“ The relic of that “first light” is the CMB. Since the time when that radiation was released, the Universe has expanded, becoming at the same time cooler and cooler. The cosmic

background has been affected by the same process: it has expanded and cooled down. Space has “stretched” itself, and with it all length scales.”

U.S. National Science Foundation . *MRI: Imaging Living Tissue*. new.nsf.gov.

Accessed 1 Nov. 2024.

“ Inside the looking glass An MRI is a non-invasive imaging technique that uses a strong magnetic field and radio waves to create images of the body’s internal structures — the brain, spinal cord, organs, nervous system, muscles and blood vessels. As a diagnostic tool, MRIs are particularly useful in examining the non-bony parts, or soft tissues, inside your body. They can differentiate between normal and abnormal tissue without exposing patients to harmful radiation, unlike X-ray or computed tomography (CT) scans.” “ MRI technology relies on the physics of nuclear magnetic resonance, which describes how atoms react in the presence of strong magnetic fields. In an MRI machine, a magnetic field aligns atoms within the body and radio waves disrupt that alignment. When the radio waves stop, the atoms return to their original position and emit signals that are converted into images on a computer monitor.”

National Cancer Institute . “Magnetic Resonance Imaging.” *Cancer.gov*,

[www.cancer.gov/publications/dictionaries/cancer-terms/def/magnetic-resonance-imag](https://www.cancer.gov/publications/dictionaries/cancer-terms/def/magnetic-resonance-imag)

[ing](https://www.cancer.gov/publications/dictionaries/cancer-terms/def/magnetic-resonance-imag). Accessed 1 Nov. 2024.

“A procedure that uses radio waves, a powerful magnet, and a computer to make a series of detailed pictures of areas inside the body. A contrast agent, such as gadolinium, may be injected into a vein to help the tissues and organs show up more clearly in the picture. Magnetic resonance imaging may be used to help diagnose disease, plan treatment, or find out how well treatment is working. It is especially useful for imaging the brain and spinal cord, the heart and blood vessels, the bones, joints, and other soft tissues, the organs in the pelvis and abdomen, and the breast. Also called MRI, NMRI, and nuclear magnetic resonance imaging.”

Ohnemus, Alexander L., and Gregg T. Milligan. “Critical Rationalist Linguistics II.”

Thesis Commons, 27 Oct. 2024. Web.

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“Manifesting this essay are the following specifics: Chunking and sequence learning research, connecting to Edward Stabler’s rationalist perspectives, to anchor more firmly in current linguistics. From Panpsychism to pan-dualism. Emphasis on Mind-body distinction inherent in dualism but, explain how PAN dualism(like PANpsychism) still explains phenotypic revolutions and abiogenesis. Articulating implications for language acquisition and cognitive processes. Debate between panpsychism and dualism but settle with pan-dualism for both practical reasons. Speculating

technologies and cognitive science. Limitations with evidence. Estimated prototyping timeline with evidence, and practical examples. Part of the brain learns languages. Duolingo case studies. Code Academy case studies. Cognitive load theory. Mental overload. Spaced repetition. Chunking techniques are possibly applicable to neuronal connection growth. Blended learning environments. Managing learner fatigue. Cognitive load grows extra neural connections in brains without damage. Consent. Privacy. Safety during use. For interdisciplinary communication: Flowchart to connect information theory, pan-dualism, radio enhanced telepathy, and language learning.”

