

The Lever and the Basin: Olds-Milner, Dopamine, and the Neurochemical Prototype of Fantasy Attractors

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Abstract

In 1954, Olds and Milner demonstrated that direct electrical stimulation of the mesolimbic reward pathway could drive rats to press a lever to the exclusion of all biological needs, often until death. This paper argues that the Olds-Milner lever provides the neurochemical prototype for a fantasy attractor—a sealed, low-corrective-permeability (κ) belief system maintained by dopamine-driven reinforcement. While the human expression of such attractors involves symbolic and narrative complexity, they appear to share a common neural substrate with the Olds-Milner phenomenon, specifically the dopamine-mediated suppression of the dorsolateral prefrontal cortex (dlPFC). Corrective permeability (κ) is defined here as a multidimensional construct—behavioral (rate of belief update under disconfirmation), neural (dlPFC engagement during counter-attitudinal exposure), and cognitive (metacognitive awareness and reflective thinking capacity)—whose dimensions are proposed as related but potentially partially dissociable components of a common construct. The attractor framework is the author's own theoretical construct, and this paper uses it

to propose a unified conceptual bridge between the neuroscience of reward, the social psychology of failed prophecy, and the dynamics of rigid belief. It concludes that corrective permeability is not a fixed trait but a neurocognitive skill that can be cultivated, and that the framework itself must remain open to disconfirmation.

1. Introduction: The Rat on the Lever

In a landmark 1954 experiment, James Olds and Peter Milner implanted electrodes into the septal nuclei of rats and connected them to a lever. Each press delivered a brief electrical jolt to the brain's pleasure centers. The rats pressed the lever at rates of up to 7,000 times per hour, ignoring food, water, and their own young, until they collapsed from exhaustion or died. The electrode was not delivering nutrition or safety; it was delivering direct, unmediated reward via the mesolimbic dopamine pathway.

The canonical interpretation treats this experiment as a study of addiction and motivation. I propose a different reading: the rat on the lever is the purest behavioral demonstration of a fantasy attractor—a sealed basin with near-zero corrective permeability ($\kappa \approx 0$), maintained by a neurochemical feedback loop that has no mechanism for detecting its own self-destructiveness. The brain does not have a truth detector. It has a reward system. Fantasy attractors exploit this architecture.

2. The Fantasy Attractor: A Construct

Under Development

A note on the framework. The attractor framework is a theoretical construct developed by the present author (Galida, 2026a). It is not a community-validated model but a set of proposed concepts—including corrective permeability (κ) and the distinction between reality-aligned and fantasy attractors—designed for diagnostic application. This paper deploys those concepts to connect the neuroscience of reward with the psychology of belief persistence.

A fantasy attractor is a belief system with low corrective permeability (κ). It resists updating when confronted with contradictory evidence, reframes error signals to protect its core narrative, and often seeks to colonize or destroy rival basins. A reality attractor, in contrast, has high κ : it absorbs perturbation, updates its model, and deepens through correction.

What is κ ? Corrective permeability is a multidimensional construct. At the behavioral level, it denotes the rate at which a belief system updates in response to disconfirming evidence—observable through responses to prophetic failure, electoral loss, or scientific falsification. At the neural level, it is hypothesized to correlate with dlPFC engagement during exposure to counter-attitudinal information. At the cognitive level, it overlaps with metacognitive awareness, intellectual humility, and reflective thinking capacity as measured by instruments such as the Cognitive Reflection Test (Frederick, 2005). These three dimensions—behavioral, neural, and cognitive—are proposed as related but potentially partially dissociable components of a common construct, and their formal integration into a validated measurement model is deferred to future empirical work. For the present paper, κ serves as a conceptual organizing device, not a metrically precise quantity.

Corrective permeability has a neural correlate. The

dorsolateral prefrontal cortex (dlPFC) is critical for deliberative reasoning, cognitive flexibility, and the integration of new information that contradicts prior beliefs. When the dlPFC is suppressed—by stress, by dopamine-driven reward anticipation, or by the sheer intensity of a sacred value—the updating mechanism is partially disengaged. A fantasy attractor, then, is not merely a cognitive error. It is a neurochemical lock: a self-reinforcing basin maintained by the dopamine-driven reinforcement of certainty, coupled with the suppression of the apparatus that could correct it.

3. The Olds-Milner Mechanism: Dopamine and Basin Sealing

3.1 The Experiment

Olds and Milner implanted bipolar electrodes in the septal nuclei of rats. The stimulation directly activated the mesolimbic pathway, triggering dopamine release in the nucleus accumbens. The rats rapidly learned to self-stimulate and would cross electrified grids to reach the lever. Their behavior displayed a pathological focus: all competing motivational systems—hunger, thirst, social bonding—were overridden.

3.2 Wanting Without Liking

Subsequent neuroscience has refined our understanding of the underlying processes. Berridge and Robinson's "wanting/liking" distinction demonstrates that mesolimbic dopamine mediates *incentive salience*—the compulsive "wanting" of a stimulus—rather than the subjective pleasure, or "liking," that accompanies it. This is a crucial precision: the Olds-Milner rat may not be experiencing escalating pleasure. It may be in a state of chronic, intense craving, driven by a

dopamine system that attributes supreme motivational value to the lever.

Schultz and colleagues established that phasic dopamine neurons encode a *reward prediction error*. They fire when an unexpected reward is received, reinforcing the causal association. A fantasy attractor, however, often does not deliver a single, clear falsifiable prediction. When a specific prophecy fails, a reframe can provide a new, internally generated reward signal: the revised interpretation itself constitutes a novel prediction whose acceptance by the group triggers a prediction error, reinforcing the attractor rather than collapsing it. The dopamine system thus does not merely passively respond to external rewards; it can be co-opted by internally generated narrative rewards that perpetuate the basin.

3.3 The Lever as a Sealed Basin

Viewed through this lens, the rat's behavior maps onto the fantasy attractor concept with precision. The lever becomes the basin's strongest point of attraction, and the dopamine-driven "wanting" compels action even as the animal's body is dying. The error signals of hunger and thirst are present, but they cannot penetrate the basin. The dopamine loop overrides them. The rat is not stupid; it is a perfectly functional nervous system locked in a sealed attractor, driven by "wanting" what will kill it.

3.4 From Rat to Human: A Shared Substrate

The human mesolimbic pathway is structurally and functionally homologous to the rat's. A human contemplating their election as a member of a divine plan, a revolutionary vanguard, or an infallible political movement is likely engaging the same dopamine-mediated "wanting" system. The apocalyptic believer retrofitting a terrorist attack as "Messiah ben Yosef" is pressing a lever. The certainty is the reward. What differs is the complexity of the stimulus—the lever is decorated with

theology, ideology, and narrative. This symbolic layer is not an epiphenomenon; it engages distinct cortical processes and social dynamics that add causal complexity. The human attractor is not identical to the rat's, but it appears to share a crucial neurochemical substrate.

A methodological caveat. Direct neuroimaging of ordinary belief rigidity remains limited. The available evidence comes primarily from extreme populations: Hamid et al. (2019) studied individuals willing to fight and die for sacred values, and Zhong et al. (2017) studied patients with traumatic dlPFC lesions. These findings are suggestive rather than definitive for ordinary belief formation. Generalization from these studies to the broader population of believers should be treated as a hypothesis requiring further validation, not an established finding.

4. The Dopamine Covenant: Certainty as Reward

4.1 The Brain's Category Error

The brain evolved to use the feeling of certainty as a proxy for adaptive knowledge because false beliefs about predators were rapidly corrected. In the modern symbolic environment, beliefs can persist for decades without encountering lethal feedback. A person can be completely certain that the Mahdi will return or that a lost election was stolen, and this subjective certainty fires the same reward circuits that once signaled a reliable food source. The brain cannot distinguish between "this feels certain because it is true" and "this feels certain because the mesolimbic pathway has been activated ten thousand times."

4.2 Persistence and Collapse After Disconfirmation

Festinger, Riecken, and Schachter's *When Prophecy Fails* (1956) chronicled a doomsday cult that reframed a failed flood prophecy as confirmation that their faith had saved the world. Believers became more committed after the failure. This is the basin deepening. Melton (1985), surveying centuries of prophetic failure across multiple religious traditions, identified the same structural pattern: prophecies are routinely spiritualized, recalibrated, or reframed as tests of faith rather than abandoned.

However, a full analysis requires accounting for cases where movements *do* collapse. The Millerites of 1844, who prepared for Christ's return on October 22, suffered a massive "Great Disappointment" when Jesus did not arrive. The movement fragmented severely; many members left, disillusioned. Yet from that collapse, new, more resilient sects—most notably the Seventh-day Adventists—emerged with a reframed theology. This pattern is theoretically instructive: collapse of one attractor basin can seed a successor, potentially more resilient, basin. The attractor dynamic does not necessarily terminate; it can migrate, with the reframe functioning as the bridge from the old basin to the new. What predicts persistence versus collapse versus successor-formation? Variables likely include the depth of a group's social embeddedness, the availability of a face-saving reframe, and the relative costs of exit. Engaging this complexity strengthens the argument: a fantasy attractor is not an indestructible monolith; it is a dynamical system that can either deepen, shatter, or reorganize under perturbation, depending on its structure. The reframing response is common but not universal.

5. Implications for the Attractor Framework

5.1 Cognitive Arguments Alone Are Insufficient

A fantasy attractor cannot be reliably dislodged by evidence alone because the apparatus for processing corrective evidence (the dlPFC) is often suppressed. This does not mean persuasion is impossible; it means that conditions that reduce threat and re-engage prefrontal function must precede evidential argument.

5.2 The Dopamine Covenant Explains Apocalyptic Intensity

Apocalyptic belief is an especially potent fantasy attractor because its reward structure is maximal: the believer is not merely right about a fact; they are a participant in the final act of cosmic history. The dopamine “wanting” is directed toward a future of ultimate vindication, making the attractor deeply resistant to correction.

An open question: κ at the level of belief content vs. attractor dynamics. The successor basin phenomenon—where collapse of one fantasy attractor seeds another—raises a theoretically important distinction. An individual or group that abandons a failed prophecy and adopts a reframed successor belief may exhibit high κ in the narrow sense (they updated their specific beliefs in response to disconfirmation) while remaining within a fantasy attractor at the structural level. This suggests that κ may need to be measured not only at the level of specific belief content but also at the level of the attractor dynamic itself: does the system’s underlying relationship to disconfirmation change, or merely the content of the beliefs it protects? A high- κ move from one low- κ basin to another is still low- κ at the systemic level. Resolving this distinction—between content-level and structure-level corrective permeability—is a priority for future theoretical

and empirical work within the attractor framework.

5.3 Corrective Permeability Is a Trainable Practice

The dlPFC can be strengthened. The capacity for analytic reasoning is not a fixed trait. Interventions that promote critical reflection have been shown to influence belief formation and flexibility. Gervais and Norenzayan (2012) demonstrated that inducing analytic thinking can reduce religious belief, though subsequent meta-analyses have found more modest and conditional effect sizes in replications. This suggests a genuine but likely small-to-moderate link between cognitive style and belief flexibility. More broadly, dual-process theories in cognitive psychology hold that Type 2 (reflective) processing can override Type 1 (intuitive) responses when prompted (Evans & Stanovich, 2013). The Cognitive Reflection Test (CRT; Frederick, 2005) has been shown to predict resistance to intuitive but false beliefs across multiple domains, providing a plausible measurement anchor for the cognitive dimension of κ .

The evidence base for specific interventions varies. Mindfulness meditation has been shown to increase prefrontal activity and reduce amygdala reactivity (Hölzel et al., 2011), providing a well-documented neural pathway for enhancing κ . Cognitive behavioral therapy (CBT) has strong empirical support for modifying specific maladaptive beliefs in clinical populations, though its effects on general belief flexibility outside clinical contexts are less thoroughly established. Structured debate in low-threat contexts is a plausible but less-tested intervention; its theoretical rationale is strong, but direct empirical support for its effect on corrective permeability is limited. The simple daily question, "Did I update any belief yesterday?", is a practical heuristic for engaging the correction apparatus, derived from the framework itself rather than independent empirical validation.

5.4 The Framework Must Guard Its Own k

A framework that diagnoses sealed basins must itself remain open to correction. The attractor framework's falsifiability conditions are its own dlPFC engagement.

6. Conclusion

The Olds-Milner experiment is more than a landmark in the history of neuroscience. It provides the neurochemical prototype for the fantasy attractor. The rat pressing the lever until death, driven by a hijacked dopamine system that privileges "wanting" over survival, maps onto the human believer pressing the lever of certainty, prophecy, or ideological capture. In both cases, a sealed basin overrides biological and cognitive self-correction, creating a self-reinforcing cycle that can persist even in the face of lethal consequences. This is not merely a metaphor; evidence suggests a genuine shared neurochemical susceptibility, though its precise extent awaits direct empirical characterization.

The brain does not have a truth detector; it has a reward system. Certainty is not evidence of truth; it is evidence of dopamine. The most reliable alternative to the lever is a deliberately cultivated corrective permeability—a practice of engaging the neural machinery of doubt and reason, asking daily the question the rat never could: *Am I pressing a lever right now?*

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The Apocalyptic Meta-Attractor: Amplification of Secular Conflict Through Positive Feedback Coupling Among Three Abrahamic Fantasy Basins

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Abstract

Judaism, Christianity, and Islam each contain sealed apocalyptic attractor basins—self-reinforcing belief systems anticipating an imminent, divinely orchestrated end of the world. In the modern era, these basins have become coupled through mutually reinforcing positive feedback: financial, political, rhetorical, and military interactions that deepen each basin and synchronize their expectations. This paper

argues that the primary drivers of Middle East conflict are secular–resource competition, nationalism, territorial disputes, and great-power proxy dynamics—but that the apocalyptic layer functions as a powerful amplifier, coupling the basins and making de-escalation more difficult. We provide an operational definition of an apocalyptic attractor, assess corrective permeability (κ) qualitatively across the movements using a six-indicator ordinal scale, catalogue the reframing of failed prophecies, and ground the dynamics in social psychology with supplementary neuroscience. We document the coupling mechanisms, acknowledge secular drivers explicitly, and include a base-rate analysis of violent and non-violent apocalyptic movements using state-coupling as the distinguishing criterion. Falsifiability conditions are specified, including a time-bound refutation condition with defined measurement instruments. The paper does not predict inevitability; it identifies structural tendencies that elevate the risk of catastrophic war and argues that reducing the apocalyptic amplifier—alongside secular de-escalation pathways—is necessary to weaken the feedback loop.

1. Introduction: The Amplification of Conflict

Three major world religions share a geographic flashpoint. Three apocalyptic scripts share a common narrative structure: a final battle, a divinely appointed victor, and a transformed world. For most of history, these scripts ran on separate tracks. Now, they are coupled.

Christian Zionists, citing Revelation and Ezekiel, view the modern State of Israel as a prophetic prerequisite for the Rapture and the Battle of Armageddon. Jewish messianists, emboldened by territorial expansion and military conflict, interpret these events as the birth pangs of the Messiah. Shia

Islamists in Iran frame their geopolitical confrontation as the necessary conditions for the return of the Hidden Imam, the Mahdi. Each group sees current events through an apocalyptic lens. Each interprets the actions of the others as confirmatory signs. Through decades of mutual perturbation, the three basins have become linked by a positive feedback loop: each tradition's actions deepen the others' basins, which in turn generate counter-actions that further deepen the original basins.

The attractor framework (Galida, 2026a) defines a fantasy attractor as a belief system with low corrective permeability (κ)—it resists updating when confronted with contradictory evidence and often seeks to colonize or destroy rival basins. This paper argues that the three apocalyptic basins now constitute a coupled system that amplifies secular conflict and structurally elevates the probability of a catastrophic war. It does not claim apocalyptic belief is the primary cause of the conflict; it claims it is a critical amplifier and coupling mechanism that makes de-escalation more difficult.

2. The Three Apocalyptic Basins: A Structural Description with κ Assessment

2.1 Defining the Apocalyptic Attractor

An apocalyptic attractor is a self-reinforcing belief pattern meeting four criteria: (a) expectation of an imminent, dramatic end-of-world transformation; (b) a designated enemy or scapegoat, often identified with evil or another religion; (c) a script of a final cosmic battle leading to a new world order; and (d) resistance to disconfirming evidence (low κ). This distinguishes apocalyptic attractors from general eschatological hope, which can accommodate ambiguous timing and symbolism.

The “designated enemy” criterion is consistent with social identity theory (Tajfel & Turner, 1979), which identifies intergroup differentiation as a primary mechanism for producing hostility toward out-groups. More specifically, the theory’s identity-threat prediction—that perceived threats to the in-group produce escalating in-group cohesion and out-group derogation—is directly relevant here. The apocalyptic script provides a transcendent, identity-anchored justification for intergroup conflict, and each perturbation by an out-group (military attack, political encroachment, demographic shift) intensifies that justification. This mechanism helps explain why the three basins deepened rather than moderated in response to the October 7 attack and its aftermath.

2.2 Measuring Corrective Permeability (κ)

Corrective permeability is assessed qualitatively at the movement level using a simple ordinal scale—Low, Medium, High—across six indicators: (1) response to prophetic failure (reframing vs. abandonment), (2) tolerance for internal dissent on eschatological doctrine, (3) engagement with disconfirming historical or scientific evidence, (4) willingness to set and discard specific dates, (5) response to external criticism (engagement vs. attack), and (6) internal diversity of eschatological opinion *within the specific movement under analysis*. A movement that consistently reframes, purges dissent, avoids evidence, resets dates, attacks critics, and suppresses diversity is rated Low κ . A movement that absorbs criticism, permits debate, and revises doctrine is rated High κ . The following assessments are preliminary; where evidence is thin, this is noted.

2.3 κ Assessment Across the Three Basins

Indicator	Jewish Messianism (Religious Zionist factions)	Christian Dispensationalism (CUFI-aligned)	Shia Mahdism (Iranian state-aligned)
1. Response to prophetic failure	Reframes (e.g., October 7 as “Messiah ben Yosef”) – Low	Reframes (dates recalibrated repeatedly) – Low	Reframes (Mahdi’s arrival perpetually imminent; divine test) – Low
2. Tolerance for internal dissent	Low within core groups; anti-Zionist Orthodox ostracized	Moderate internally; but dissent from core eschatology marginalized	Low; state-level suppression of alternative Shia voices
3. Engagement with disconfirming evidence	Low; historical failures not addressed	Low; archaeological/textual challenges ignored	Low; evidence not engaged by official discourse
4. Willingness to set/discard dates	Rarely sets precise dates; broad “soon” framing – Medium-Low*	Repeated precise date-setting and recalibration – Low	Avoids precise dates; “signs” approach – Medium-Low**
5. Response to external criticism	Attack/reframe – Low	Attack/reframe – Low	Attack/reframe – Low
6. Internal diversity of eschatological opinion (movement-level)	Low within the Religious Zionist movement*** – Low	Low within CUFI-aligned dispensationalism – Low	Low diversity in state-backed discourse – Low

* *Annotated note:* Avoiding precise dates may reflect strategic adaptation to past messianic failures (e.g., Bar Kokhba, Sabbatai Zevi) rather than genuine corrective permeability. A movement that learned not to set falsifiable dates after catastrophic disappointments is demonstrating sophisticated

reframing that pre-empts falsification, not higher κ .

* *Annotated note:* The “signs” approach in Shia Mahdism serves a similar function: it avoids fixed-date vulnerability while maintaining perpetual imminence.

* ***Annotated note:* The contrast between religious-messianic and secular Zionism is between movements, not within the Religious Zionist movement. Internal eschatological diversity within Religious Zionist factions is low.

Overall κ assessment: All three movements exhibit Low κ across most indicators. The consistently low ratings on indicators 1, 2, 3, and 5 across all three basins support a qualitative $\kappa \approx$ Low. Indicators 4 and 6 require the interpretive caveats noted above but do not alter the overall assessment.

3. Why These Basins Hold: Social Psychology and Neural Correlates

3.1 The Reframing of Failed Prophecy

The persistence of apocalyptic belief despite repeated falsification is well-documented. Festinger, Riecken, and Schachter (1956) found that when a doomsday prophecy failed, the most committed believers became *more* convinced, reinterpreting the event as spiritual fulfillment. Melton (1985) showed that prophecies are routinely spiritualized and reaffirmed. The Millerites (1844), Jehovah’s Witnesses (multiple dates), and ISIS (Dabiq, 2016) all reframed failure rather than abandoning belief. This pattern—reframe, recalibrate, reaffirm—is the behavioral signature of a low- κ attractor.

3.2 Neural Correlates of Sacred Values (Supplementary)

The neuroscience of sacred values offers a supporting explanation. Hamid et al. (2019) found that individuals willing to fight and die for sacred causes exhibit reduced dlPFC activity and increased reliance on emotional/valuation circuits. Zhong et al. (2017) showed that dlPFC lesions predicted increased religious fundamentalism, mediated by reduced cognitive flexibility. These findings suggest that when beliefs are processed as sacred, the neural apparatus for updating is partially disengaged. We treat this as supplementary to the primary social-psychological mechanism.

4. Historical Calibration: When Apocalyptic Attractors Amplify Violence

We distinguish violent from non-violent apocalyptic movements using **state coupling** as the key criterion—the degree to which the movement controls or is embedded within state military power—because violence at the interstate or mass-casualty level requires organized military capacity.

High State-Coupling (Violent Outcomes):

- **The Crusades (11th–13th c.):** Apocalyptic expectation and papal authority coupled to European armies produced mass slaughter.
- **Münster Rebellion (1534–35):** Anabaptist apocalypticism briefly captured municipal power; the resulting siege killed thousands.
- **Taiping Rebellion (1850–64):** Hong Xiuquan's Christian-influenced apocalyptic movement seized territory and led to 20–30 million deaths.
- **Mahdist War in Sudan (1881–99):** Muhammad Ahmad's

Mahdi-state fought British/Egyptian forces with massive casualties.

- **Bar Kokhba Revolt (132–35 CE):** Messianic expectation and mobilized Jewish forces led to catastrophic defeat.
- **ISIS (2014–16):** Apocalyptic framing coupled with quasi-state military control over territory produced extreme violence.

Low State-Coupling (Non-Large-Scale-War Outcomes):

- **Millerites (1840s):** Failed prophecy; no state power; fragmented peacefully.
- **Jehovah's Witnesses:** Repeated date failures; politically disengaged; no organized violence.
- **Branch Davidians (1993):** Apocalyptic beliefs, no state power; isolated confrontation with state forces.
- **Aum Shinrikyo (1995):** Apocalyptic cult with limited resources; attempted mass-casualty chemical attack but lacked state capacity.

The current Abrahamic meta-attractor possesses high state-coupling: Iran is a state actor with Mahdist ideology; Christian Zionism influences US foreign policy; Jewish messianism is coupled to Israeli military power. The enemy designations are, however, asymmetrical. Christian Zionism does not straightforwardly designate Jewish messianists as enemies—dispensationalist theology assigns Jews a redemptive role, albeit one that ultimately involves conversion or destruction at the Second Coming—while paradoxically supporting the Jewish state as a prophetic instrument. This asymmetry is relevant to the coupling mechanism, but the overall structural conditions—state-coupling, designated enemies, shared geography, and mutual positive feedback—replicate the historical pattern associated with amplified apocalyptic violence.

5. The Coupling Mechanism: Positive Feedback with Asymmetric Political Weight

5.1 Secular Drivers as Primary; Apocalyptic Amplification

The conflicts in the Middle East are driven primarily by secular factors: resource competition, ethnic nationalism, post-colonial territorial disputes, and great-power proxy competition. The apocalyptic layer amplifies these conflicts and couples them across traditions. An Iranian nuclear program pursued for deterrence and regional dominance is *also* framed as divinely mandated preparation. Israeli settlement expansion driven by security concerns is *also* messianic fulfillment. US support for Israel based on geopolitical interest is *also* a prophetic timetable. The secular and apocalyptic drivers are layered; the apocalyptic layer provides a powerful positive feedback mechanism that makes de-escalation more difficult.

5.2 Asymmetric Political Weight

The three basins differ substantially in institutional influence. Iranian Mahdism is embedded in autocratic state institutions with relatively low internal contestation, giving it direct control over military and foreign policy. Christian Zionism influences US policy through democratic electoral processes and lobbying; its influence is substantial but contestable. Jewish messianism operates within a democratic state with significant secular and non-messianic constituencies; it influences policy but does not control it. The feedback loop should be understood with this asymmetry: the Iranian basin is the most institutionally unconstrained, the American basin is the most diffuse, and the Israeli basin lies between them. Positive feedback still couples them, but their capacity to act on apocalyptic impulses varies

considerably.

5.3 Mutual Perturbation and the October 7 Case Study

- **Jewish actions:** Settlement expansion, military operations, Temple rhetoric → perturb Christian Zionists (prophecy fulfillment) and Shia Mahdists (existential threat).
- **Christian actions:** Financial and political support for Israel → perturb Jewish messianists (divine favor) and Shia Mahdists (Crusader encroachment).
- **Shia actions:** Iranian nuclear program, proxy warfare, revolutionary rhetoric → perturb Jewish messianists (Gog and Magog) and Christian Zionists (Antichrist's coalition).

The October 7, 2023, attack and its aftermath illustrate the loop. Jewish messianists retrofitted the attack as “Messiah ben Yosef.” Christian Zionists cited Ezekiel 38. Iranian leaders framed it as a step toward the Mahdi. Each framing deepened the respective basin. The military responses that followed perturbed the other basins further. The loop is now closed.

6. High-k Voices: Corrective Permeability Within the Traditions

Each tradition contains high-k voices—individuals, movements, and institutions that reject apocalyptic framing and insist on engagement with reality. Within Judaism, anti-Zionist Orthodox groups such as Neturei Karta and Satmar Hasidim oppose the State of Israel on theological grounds; mainstream Reform, Conservative, and secular Jewish communities do not base their

identity on end-times prophecy. Within Christianity, the Catholic Church and mainline Protestant denominations generally interpret Revelation symbolically; the Vatican has stated that Christ's sacrifice replaced the Temple and that a rebuilt Temple holds no theological significance. Within Islam, quietist Shia traditions reject the politicization of Mahdism; most Sunni Muslims dismiss violent Mahdist cults as heretical.

These voices demonstrate that κ is a variable, not a constant, and that alternatives to apocalyptic amplification exist within each tradition. However, their institutional leverage varies significantly. The Catholic Church and mainstream Protestant denominations retain substantial institutional infrastructure but have limited influence over the specific CUI-aligned constituency driving Christian Zionism. Quietist Shia traditions are systematically marginalized by the Iranian state apparatus. Jewish anti-messianist voices, while theologically significant, are politically marginal within the current Israeli governing coalition. Historically, high- κ voices have gained influence within low- κ movements when institutional structures rewarded deliberation over loyalty—conditions that are currently absent or weakened across all three basins. Strengthening these voices, as the conclusion argues, requires not only rhetorical support but attention to the institutional conditions that allow corrective permeability to operate.

7. Falsifiability Conditions

To avoid becoming a sealed attractor itself, this framework specifies refutation conditions with defined measurement instruments:

Definitions:

- **“Major interstate war”** means sustained military hostilities between the regular armed forces of Israel and Iran, resulting in at least 1,000 battle-related deaths within a 12-month period, as documented by the Uppsala Conflict Data Program (UCDP) or equivalent.
- **“Measurably declined apocalyptic rhetoric”** means a sustained reduction in the frequency of official state or movement-leader statements explicitly invoking end-times prophecy (e.g., references to Gog/Magog, Armageddon, Mahdi’s return) as measured by content analysis of publicly available transcripts and official media. The specific threshold—a provisional reduction in the range of 25–40% relative to baseline—is offered as an illustrative benchmark rather than a fixed criterion. The direction and persistence of the trend are more important than the exact percentage.
- **Baseline period:** To avoid biasing the measurement toward a period of exceptional escalatory rhetoric, the baseline for rhetoric measurement spans 2015–2026, encompassing both pre- and post-October 7 conditions.

Conditions:

- **Strong refutation:** If by December 31, 2036, no major interstate war between Israel and Iran has occurred—regardless of rhetoric levels—the thesis is substantially weakened.
- **Corroborating weakening:** If, additionally, apocalyptic rhetoric from all three movements has measurably declined, the thesis is further weakened and may be treated as disconfirmed.
- **Corroboration:** If a major interstate war occurs, *and* there is specific evidence that apocalyptic framing causally contributed to the conflict—for example, documentation that de-escalation opportunities were refused on eschatological grounds, or that

apocalyptic rhetoric measurably increased domestic support for escalatory decisions—the thesis is corroborated. We acknowledge that such evidence may not be publicly available within the 2036 timeframe; declassified records, memoirs, or investigative journalism may supply post-hoc verification. Mere co-occurrence of war and pre-existing rhetoric does not constitute corroboration.

8. Conclusion: Reducing the Amplifier, Resolving the Conflicts

Three Abrahamic apocalyptic attractors have become coupled through positive feedback that amplifies underlying secular conflicts and elevates the risk of catastrophic war. The assessment of corrective permeability across the movements is qualitatively consistent but methodologically preliminary; the k indicators are applied as a framework, not a definitive measurement. The historical record shows that when sealed apocalyptic basins are coupled to state military power and locked in mutual feedback with designated enemies, mass death has repeatedly resulted; it also shows that such outcomes are not inevitable when state-coupling is absent. High- k voices within each tradition offer alternative paths, though their institutional leverage is currently limited.

If the apocalyptic layer is an amplifier, not the primary cause, then the prescription must match the diagnosis. Reducing the amplifier—increasing corrective permeability across the movements, strengthening high- k voices, and disrupting the positive feedback loop—is strategically necessary but not sufficient. Co-equal secular de-escalation pathways are required: territorial negotiations, sanctions architectures, deterrence structures, and great-power

diplomacy that address the underlying drivers of the conflict. Neither the amplifier nor the underlying fire can be ignored. The framework does not predict inevitability; it identifies structural tendencies and specifies the conditions under which it would be refuted. The only reliable ground is shared reality.

Author's note: This paper has undergone multiple rounds of critique and revision. Each iteration has incorporated disconfirming feedback and refined its claims—a practice the framework itself identifies as essential corrective permeability.

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The Cosmology of Genesis: Flat Earth, Solid Dome, and Cosmic Ocean

A Plain-Language Guide to What the Bible Actually Says

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Note on genre: This is an open letter and historical-philological analysis, not a peer-reviewed journal article. It draws on mainstream biblical scholarship, standard Hebrew lexicons, and ancient Near Eastern comparative materials. The primary evidence comes from narrative and descriptive passages (Genesis 1, Job 37–38, Ezekiel 1, etc.). The analysis is addressed to scholars who

have dismissed the flat-earth reading as “silly.”

Abstract

This paper examines the physical description of the universe in the Hebrew Bible. Using standard Hebrew dictionaries (BDB, HALOT, Holladay), ancient Near Eastern texts, and the plain meaning of the biblical passages, we show that the biblical authors believed:

- The earth is a **flat disc**.
- A **solid dome** (*rāqīaʿ*, “firmament”) covers it, separating the waters below from a **cosmic ocean above**.
- The sun, moon, and stars move inside this dome.
- Rain enters through literal **windows** or **sluices** in the dome.
- The earth rests on **pillars** and **foundations**, and has **ends** and **corners**.

We provide a representative list of verses, address common apologetic reinterpretations, and reference standard scholarly reconstructions of ancient Hebrew cosmology. The Bible’s cosmology closely matches those of Mesopotamia and Egypt. This poses no problem for a non-inerrancy reading, but it is a severe challenge for any claim of divine scientific inerrancy.

Introduction: What Did the Biblical Authors Actually Believe?

The question is not whether the Bible is “true” in a

theological or moral sense. The question is: **what did its human authors believe about the physical structure of the world?**

Modern readers often project a post-Copernican, spherical, heliocentric universe onto the ancient text. But a straightforward reading – using standard Hebrew lexicons and the context of the ancient Near East – shows that the Hebrew Bible shares the common model of a flat earth under a solid sky-dome, with a cosmic ocean above and below.

For standard scholarly reconstructions (with diagrams), see:

- [Bible Odyssey \(Society of Biblical Literature\)](#) – includes a clear diagram of the flat earth, solid dome, and cosmic waters.
- [Wikimedia Commons](#) – a modern, clearly labelled reconstruction.
- [Biblical Archaeology Society](#) – comparative diagrams of Israelite, Babylonian, and Egyptian models.

For print references, see Smith (1998) and Keel (1997).

The Solid Dome: *Rāqīaʿ* (רָקִיעַ)

The word *rāqīaʿ* occurs 17 times in the Hebrew Bible. Its verbal root *rāqaʿ* (רָקַע) means “to beat, stamp, or spread out by hammering” – the same word used for beating metal into thin plates (Exodus 39:3). The noun denotes a **solid, hammered-out dome**.

Lexical Evidence

Lexicon	Definition
Brown-Driver-Briggs (BDB)	“Extended surface, (solid) expanse (as if beaten out)”
Holladay	“Beaten metal ‘plate’, firmament (i.e. vault of heaven, understood as a solid dome)”
Koehler-Baumgartner (HALOT)	“Firmament, vault of heaven, understood as a solid dome”

Key Verses by Genre

Narrative (primary evidence)

- **Genesis 1:6–8** – God says, “Let there be a *rāqīaʿ* in the midst of the waters, and let it separate the waters from the waters.” He calls the *rāqīaʿ* *shamayim* (sky/heaven). The dome is placed inside a cosmic ocean, dividing “waters below” from “waters above.”
- **Genesis 1:14–18** – The sun, moon, and stars are placed **inside** the *rāqīaʿ*. They are not above the dome; they are embedded in its inner surface.

Wisdom poetry (corroborative)

- **Job 37:18** – “Can you, like Him, spread out the skies, hard as a mirror of cast metal?” This unambiguously describes solidity.

Apocalyptic vision (structural)

- **Ezekiel 1:22–26** – Above the living creatures is “something like a *rāqīaʿ*, sparkling like ice (or crystal).” Above this *rāqīaʿ* is the throne of God. This is a solid platform, not empty space. Even though Ezekiel’s vision is symbolic, it describes physical

properties (solid, crystalline) as part of the visionary architecture.

Hymnic (doxological, not load-bearing)

- **Psalm 19:1** – “The heavens declare the glory of God; the skies (*rāqīaʿ*) proclaim the work of His hands.”
- **Psalm 150:1** – “Praise God in His sanctuary; praise Him in His mighty *rāqīaʿ*.”
- **Daniel 12:3** – “Those who are wise will shine like the brightness of the *rāqīaʿ*.”

These do not prove solidity on their own, but they assume the same conceptual framework. No text contradicts the solid-dome interpretation.

Ancient Translations

- **Septuagint** (3rd century BCE, Jewish translation): *stereōma* (στερέωμα) – a solid or firm structure.
- **Latin Vulgate**: *firmamentum* – something firm, a support.

Scholarly Confirmation (Including Believing Scholars)

- **Seely (1991–1992)** – Demonstrates that *rāqīaʿ* in context refers to a solid dome.
- **Walton (2011)** – Affirms that the ancient Israelites believed in a solid *rāqīaʿ*, even though his main argument is that Genesis 1 assigns functions rather than making material claims.
- **Greenwood (2015)** – “A vaulted dome above the earth, a ‘firmament,’ like the ceiling of a planetarium.”

- **Parry (2014)** – “A flat earth at the centre of the cosmos, with a vast ocean in the sky.”
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The Waters Above – A Cosmic Ocean

If the dome is solid and separates “waters above” from “waters below”, those waters must be literal.

- **Genesis 1:6–7** (as above).
 - **Psalms 148:4** – “Praise Him, highest heavens, and you waters above the heavens.”
 - **Genesis 7:11** – “All the fountains of the great deep burst forth, and the windows of the heavens were opened.” The word *arubbah* means “lattice window” or “sluice.” Rain comes through openings in the solid dome.
 - **Genesis 8:2** – “The fountains of the deep and the windows of heaven were closed.”
 - **2 Kings 7:2, 19** – “The Lord will open the windows of heaven.”
 - **Isaiah 24:18** – “The windows of heaven are opened, the foundations of the earth tremble.”
 - **Malachi 3:10** – “See if I will not open the windows of heaven and pour out blessing.”
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The Flat Earth: Pillars, Foundations, Ends, and Corners

A spherical earth does not have pillars, foundations, ends, or four corners. The Bible uses all these terms repeatedly.

Pillars of the Earth

- **1 Samuel 2:8** – “For the pillars of the earth are the Lord’s, and on them He has set the world.”
- **Job 9:6** – “He shakes the earth out of its place, and its pillars tremble.”
- **Psalms 75:3** – “When the earth and all its dwellers quake, it is I who bear its pillars firmly.”
- **Job 26:11** – “The pillars of heaven tremble and are stunned at His rebuke.”

Foundations of the Earth

- **Psalms 104:5** – “He set the earth on its foundations, so that it should never be moved.”
- **Job 38:4–6** – “Where were you when I laid the foundations of the earth? ... On what were its bases sunk?”
- **2 Samuel 22:8** – “The foundations of the heavens shook.”

Ends of the Earth (assumes a bounded earth)

- **Deuteronomy 28:49** – “A nation from afar, from the end of the earth.”
- **Isaiah 45:22** – “Turn to Me and be saved, all you ends of the earth.”
- **Psalms 67:7** – “All the ends of the earth will fear Him.”
- **Psalms 72:8** – “He shall have dominion from sea to sea... to the ends of the earth.”

Four Corners of the Earth

- **Isaiah 11:12** – “He will assemble the scattered of Judah

from the four corners of the earth.” The word *kanpôt* (wings/edges) is a directional idiom whose origin in a flat-earth, bounded-space worldview is widely recognised.

The Vaulted Dome Over a Flat Disc

- **Amos 9:6** – “The One who builds His upper chambers in the heavens and has founded His vaulted dome over the earth.”
- **Isaiah 40:22** – “He sits enthroned above the circle of the earth.”

On *chûg* (“circle”)

The word *chûg* occurs in three places: Job 26:10 (“He has inscribed a circle on the face of the waters” – a flat circular boundary), Proverbs 8:27 (same), and Isaiah 40:22. The Akkadian cognate *khâqu* means “to draw a circle.” The Septuagint translates *chûg* as *gyros* (circle), not *sphaira* (sphere). The same verse also says God “stretches out the heavens like a curtain” – a flat surface, not a spherical shell.

Therefore, *chûg* denotes a **disc**, not a ball.

The Cosmic Ocean Below

- **Genesis 7:11** – “The fountains of the great deep burst forth.” (Subterranean ocean)

- **Psalm 24:2** – “For He has founded it upon the seas and established it upon the rivers.”
 - **Exodus 20:4** – “You shall not make an idol... of anything that is in the waters under the earth.”
 - **Psalm 136:6** – “He spread out the earth upon the waters.”
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Comparison with Ancient Near Eastern Cosmologies

The Hebrew cosmology is closely analogous to those of Israel’s neighbours.

- **Mesopotamia:** The *Enuma Elish* describes Marduk fixing a solid sky-barrier to hold back the cosmic waters. This is the functional equivalent of the Hebrew *rāqīa’*.
- **Egypt:** The sky goddess Nut arches her body over the earth god Geb, forming a solid vault with stars attached. The Pyramid Texts describe the sky as “a metal vault” or “iron” – directly parallel to Job 37:18 (“hard as a mirror of cast metal”).

The Hebrew *rāqīa’* fits comfortably within this regional intellectual context. The Bible is not scientifically unique; it reflects the common ancient Near Eastern worldview.

Geocentric Passages (Consistent with the Model)

These verses are not flat-earth proof on their own, but they presuppose a geocentric, non-rotating, bounded cosmos – fully

consistent with the flat-earth, solid-dome model.

- **Joshua 10:12–13** – The sun and moon stand still at Joshua’s command. This implies a moving sun and a non-rotating earth.
- **2 Kings 20:11 / Isaiah 38:8** – The shadow on the sundial moves backward. Again implies a geocentric system.
- **Ecclesiastes 1:5** – “The sun rises and the sun sets, and hurries to its place where it rises.” Phenomenological geocentrism.
- **Psalms 19:4–6** – The sun runs its circuit from one end of the heavens to the other.

These passages are not necessary to demonstrate flat-earth cosmology, but they are part of the broader biblical cosmic picture.

The Verse Often Misused by Apologists: Job 26:7

Job 26:7 – “He stretches out the north over the void and hangs the earth on nothing (*belî-māh*).”

This is the only verse that might suggest a free-floating earth. However:

- *Belî-māh* is a rare construction; it may mean “**without any visible support,**” not “without any support at all.” Clines (1989) notes that the phrase indicates “no visible means of support” rather than absolute suspension.

One ambiguous verse does not overturn the dozens that describe

pillars, foundations, and a solid dome. The majority witness of the Hebrew Bible is flat-earth, solid-dome cosmology. If Job 26:7 is taken as a late, more abstract cosmological statement, it represents a minority view and does not negate the consistent picture in Genesis, Psalms, and other prophets.

The Inerrancy Dilemma (and the Phenomenological Language Defence)

If one affirms that the Bible is a human document, the presence of ancient cosmology presents no crisis. But if one claims divine inerrancy – that the Bible is without error in all that it affirms – one faces a dilemma:

- **Admit** that God described His creation in terms that are scientifically false (a flat earth, a solid dome).
- **or Reinterpret** the plain meaning as metaphor or accommodation – but then the words lose stable meaning, and any verse can be explained away.

A common inerrantist response is the “phenomenological language” defence: the Bible describes things as they appear to human observers (e.g., “sunrise”) without making scientific claims. This defence works for atmospheric or observational descriptions (sunrise, sunset, the shadow on a sundial). However, it **fails** for the structural, material claims of Genesis 1: a solid dome, a cosmic ocean, and windows in the sky. These are **not appearances**; they are physical mechanisms. No one “observes” a solid dome or waters above the sky.

Therefore, the phenomenological defence cannot rescue the inerrancy of Genesis 1 without effectively admitting that the text is making false scientific statements.

This paper does not require any particular theological conclusion. It simply presents the evidence.

Conclusion

The evidence is consistent and extensive. The Hebrew Bible presents the universe as:

- a **flat disc**,
- covered by a **solid dome** (the *rāqīa'*),
- with a **cosmic ocean above** and a **cosmic ocean below**.
- The sun, moon, and stars move inside the dome; rain enters through literal windows.
- The earth rests on pillars and foundations and has ends and corners.

This cosmology is closely analogous to that of Israel's ancient Near Eastern neighbours. It is the plain meaning of the text, confirmed by every standard Hebrew lexicon and by believing scholars such as Walton, Greenwood, Parry, and Seely.

The mountain does not negotiate. Neither does the Hebrew text.

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