

## Ordered by the Logos: Reconciling Ethiopian Orthodox Sacred Astronomy with Modern Heliocentric Models

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**Abstract:** *The Ethiopian Orthodox Tewahedo Church (EOTC) preserves a sacred astronomy rooted in 4th-century geocentric cosmology, featuring a three-tiered universe, angelic celestial drivers, and the Tabot as terrestrial axis mundi. This tradition conflicts with modern heliocentrism, raising questions about reconciling pre modern liturgical cosmology with post Copernican astrophysics. This review evaluates the book Ordered by the Logos, which proposes reconciliation through the Logos doctrine (John 1:1 3), distinguishing between doxological purpose (skopos) and literal wording (lexis). The review assesses theological fidelity to Ethiopian tradition, philosophical coherence, and scientific accuracy. Using comparative religious cosmology and hermeneutical analysis, the review examines the book's treatment of Ethiopian sacred texts (Mäṣḥafä Bərḥän, Qəne), patristic precedents (Basil, Cyril, Maximus), and heliocentric evidence (Copernicus Galileo Newton Einstein). It identifies strengths and unresolved tensions, including angelic causality and the firmament (Dəqi). The book successfully harmonizes the two cosmologies hermeneutically, showing that worship does not require a stationary Earth, only an Earth where Christ incarnated. However, it fails to provide a mechanism for angelic planetary motion without collapsing into occasionalism, and it inadequately addresses telescopic evidence (phases of Venus, stellar parallax). Recommended with caveats, as a theology of liturgical time rather than a physics textbook. Essential for Ethiopian clergy, science religion scholars, and students of non Western cosmology.*

**Keywords:** *Ethiopian Orthodox cosmology; Logos theology; heliocentrism vs. geocentrism; liturgical time; science religion reconciliation*

### I. Introduction

Acknowledge the provocative premise reconciling a pre-modern, geocentric sacred astronomy (rooted in a 1,600+ year old tradition) with a post-Copernican heliocentric model. Few attempts at science religion dialogue are as audacious as the one presented in Ordered by the Logos. The work tackles a fundamental clash between two seemingly irreconcilable worldviews: on one hand, a sacred astronomy developed within the Ethiopian Orthodox Tewahedo Church, a tradition whose roots stretch back to the 4th century CE and which remains one of the oldest continuous Christian civilizations in the world (Binns, 2018). This cosmology envisions a three tiered universe centered on a stationary Earth, animated by angelic charioteers and structured by the celestial hierarchies of the Mäṣḥafä Bərḥan (Goshu & Ridwan, 2026). On the other hand, it faces the overwhelming empirical success of modern heliocentrism, which, since the 16th century Copernican Revolution, has placed the Sun at the center of a dynamic, Earth moving solar system (Encyclopaedia Britannica, 2020a). The very attempt to bridge this chasm invites skepticism. Yet the author of Ordered by the Logos does not seek a superficial concordism. Instead, the book proposes a deep, philosophical reconciliation through the concept of the Logos. The Author's Central Thesis (Implicit): That the Logos (the divine ordering principle, John 1:1 3) manifests through both the liturgical cosmos of Ethiopian Orthodoxy and the empirical

cosmos of modern astrophysics. Reconciliation is not about correcting error but about harmonizing different orders of truth. The central, albeit implicit, thesis of *Ordered by the Logos* is that the Logos, the divine ordering principle through which all things were made (John 1:1-3) is the key to unlocking this seemingly intractable problem. Drawing on the theological richness of the Johannine prologue, which presents the Logos as both the agent of creation and the source of all intelligibility (Sakitey & van Eck, 2023), the book argues that this same Logos is at work in two distinct realms: the liturgical cosmos of Ethiopian worship and the empirical cosmos of modern astrophysics. Consequently, the book's aim is not to correct what might appear as error in the sacred texts but to harmonize two different orders of truth. This approach echoes earlier hermeneutical strategies, such as those employed by 17th century Dutch Cartesians who argued that the heliocentric model could be compatible with Scripture by shifting the interpretation of geocentric language from a literal physical claim to an accommodated phenomenological one (Mangold, n.d.).

This work will evaluate the work on three grounds:

- Theological fidelity to Ethiopian Orthodox tradition,
- Philosophical coherence of its reconciliation strategy, and
- Scientific accuracy regarding modern heliocentric models.

To assess the success of this ambitious project, this review will apply a three pronged evaluative framework. First, theological fidelity to Ethiopian Orthodox tradition: Does the book respect and accurately represent the sources, exegesis, and patristic heritage of the Ethiopian church, including its veneration of the Tabot and the liturgical function of its sacred astronomy? Second, philosophical coherence of its reconciliation strategy: Does the appeal to the Logos as a harmonizing principle provide a logically consistent and metaphysically robust bridge between a geocentric theology and a heliocentric physics, or does it collapse into a form of special pleading? Third, scientific accuracy regarding modern heliocentric models: Does the book correctly represent the empirical basis and conceptual structure of post Copernican astronomy, or does it rely on outdated or straw man versions of heliocentrism? The work succeeds as a hermeneutical project (showing how sacred astronomy can retain its liturgical meaning) but faces challenges as a cosmological one (literal geocentrism vs. heliocentrism).

The central article of this review is that *Ordered by the Logos* is an admirable and largely successful hermeneutical project. It persuasively demonstrates how the Ethiopian sacred model can retain its full liturgical, doxological, and phenomenological meaning as a framework for worship, time keeping (se'at), and spiritual contemplation. In this sense, it aligns with a growing body of scholarship that sees ancient religious cosmology not as failed science but as a distinct, symbolically rich mode of engaging with the universe (Goshu & Ridwan, 2026).

However, the work ultimately struggles as a cosmological project. When the question shifts from "what meaning does this model hold for the worshiper?" to "what is the actual physical structure of the universe?" the literal claims of a geostatic Earth and a solid firmament remain in irreconcilable conflict with the empirical evidence of heliocentrism. This distinction between hermeneutical and cosmological adequacy is a classic one in science religion dialogue (Milovanović, 2013), and it is here that the book's grand ambition makes contact with the hard limits of physical reality.

## II. Summary of the Work's Core Argument

### Part 1: Ethiopian Sacred Astronomy as a Liturgical Science

- o Explains the *Mäṣḥafä Bərḥän* (Book of Light) tradition and the concept of *Qəne* (poetic/theological cosmology).

The first major pillar of the book's summary introduces the reader to *Mäṣḥafä Bərḥän* (Amharic: መጽሐፈ ብርሃን, "Book of Light"), a foundational text of Ethiopian Orthodox literature composed by the 15th-century scholar emperor Zär'a Ya'eqob (also spelled Zar'a

Yaeqob) during his sweeping ecclesiastical reforms (Getatchew Haile, 1992). Written in Ge'ez, the traditional liturgical language of the Ethiopian Orthodox Tewahedo Church (EOTC), the

Mäṣḥafä Bərḥän is a homiletic treatise that seeks to illuminate the faithful on matters of doctrine, ritual purity, and most relevant to the present discussion the theological significance of celestial phenomena (Chaillot, 2017). The book argues that for the EOTC, the Mäṣḥafä Bərḥän functions not as a proto scientific manual but as a spiritual and pedagogical instrument that inscribes the cosmos within a sacramental economy.

Interwoven with this textual tradition is the concept of Qəne (Amharic: ቅኔ). Often translated loosely as “poetry,” Qəne is more accurately described as a sophisticated genre of improvised liturgical poetry that dates back at least to the 14th century (Girma, 2023). It is, however, more than mere verse. Qəne constitutes a mode of theological reasoning and cosmological expression that is central to the traditional education (guba'e) within Ethiopian Orthodox monasteries. As Girma (2023) explains, Qəne emerged from the original “doxastic space” of Christian liturgy and employs a dense hermeneutical technique known as sam ena werq (Amharic: ሰጦና ወርቅ, “wax and gold”). In this technique, an overt meaning (the “wax”) envelops a deeper, often symbolically charged hidden meaning (the “gold”). Consequently, when Ethiopian monks and scholars compose Qəne about the stars, the sun, or the moon, they are not engaged in astronomical prediction in the modern sense; rather, they are weaving together scriptural typology, angelology, and eschatological expectation (Goshu & Ridwan, 2025). The sacred cosmos is thus not described but enacted spoken into liturgical reality through the layered, allusive language of Qəne.

o Highlights key features: three story universe (Heaven, Earth, lower firmament Dəqi), the sun/moon as chariots with angelic drivers, and the Tabot (Ark) as the terrestrial axis mundi. Building on this poetic and textual foundation, the book proceeds to delineate the structural and agentive features of the Ethiopian sacred cosmos. Central to this cosmology is a three story universe. While ancient Near Eastern and biblical cosmology shared a tripartite structure of heavens, earth, and underworld, the Ethiopian tradition gives specific emphasis to the Dəqi (or Deqi) the lower firmament or the visible sky. This firmament is not an empty void but a tangible barrier that separates the earthly realm from the heavenly realms above, and it is through “windows” in this firmament that celestial bodies such as the sun make their daily passage (Goshu & Ridwan, 2025).

Within this stratified universe, the sun and the moon are not impersonal balls of matter in motion. Rather, they are chariots driven by angelic beings. Drawing on the rich angelology preserved in Ethiopian sacred texts, particularly the Book of Enoch, which survives in its complete form only in the Ge'ez tradition the sun and moon are understood to be guided by appointed angels who ensure the regularity of day and night, the seasons, and the liturgical calendar (Binns, 2018; Goshu & Ridwan, 2025). This angelic agency is crucial: it means that every sunrise and moonrise is not merely a mechanical event but a form of celestial liturgy, a visible enactment of divine order mediated by ranks of spiritual beings.

Finally, the Ethiopian sacred cosmos finds its terrestrial anchor in the Tabot (Ge'ez: ተቦት). The Tabot is a replica of the Ark of the Covenant, typically an inscribed altar tablet made of alabaster, marble, or acacia wood, consecrated by a bishop and stored in the Holy of Holies (Qidduse Qiddusan) of every Ethiopian Orthodox church (Wikipedia contributors, 2025).

Without a Tabot, a church building cannot be consecrated nor can the Divine Liturgy be celebrated. The book argues, in line with the broader Ethiopian tradition, that the Tabot functions as the terrestrial axis mundi the point at which heaven and earth intersect. It is the throne of God's presence on earth, the mercy seat where the Eucharistic elements are placed, and the symbolic center around which the entire liturgical cosmos revolves (Priest Habtamu Teshome, 2023). In this sense, the Tabot is not merely an object of veneration; it is the spatial

and theological linchpin of the entire sacred cosmology. The earth, through the Tabot, becomes the focal point of divine attention, not because of its physical position in the solar system, but because the incarnate Logos has touched it through the Ark, the Eucharist, and the Church.

- o Argues that its purpose is doxological (ordering worship/time, not predictive physical modeling).

Having laid out these structural and agentive elements, the book advances its central hermeneutical claim: the purpose of Ethiopian sacred astronomy is fundamentally doxological—ordered toward the praise of God and the correct celebration of the liturgy—rather than predictive or proto scientific in the modern sense. The book contends that the

Ethiopian tradition employs its celestial framework not to predict eclipses or planetary conjunctions with mathematical precision, but to order the hours of prayer (se‘at), the fasts, and the great feasts of the liturgical year.

This argument is consistent with the historical function of the EOTC’s liturgical calendar, which is derived from the Coptic solar calendar (15). The calculation of the date of Easter (Computus), for instance, depends on astronomical data drawn from the Book of Enoch, which was preserved and elaborated within the Ethiopian tradition (16) (Neugebauer, 2016).

However, as the book emphasizes, even such calculations are subordinated to a theological economy: the goal is not to produce an empirically perfect celestial map but to ensure that the community celebrates the mysteries of redemption the Nativity, the Baptism of the Lord, the Resurrection at the correct times, in union with the angelic liturgy of the heavens (14) (Aleka Kidan Wolde Kefile, n.d.). The same celestial bodies that, for modern astronomy, serve as objects of impersonal physical study are, for the Ethiopian sacred tradition, living signs that call the community to repentance, vigilance, and joyful praise. In this way, the book argues, the Ethiopian sacred cosmos remains ordered by the Logos, even when its literal physical claims stand at odds with heliocentrism. Its truth is a liturgical truth, not a physical one, a truth enacted in worship, not demonstrated in a physics laboratory.

## II. Review of Literatures

### Part 2: The Heliocentric Challenge

- o Summarizes the Copernican-Galilean-Newtonian-Einsteinian synthesis. The second major pillar of *Ordered by the Logos* lays out the alternative worldview against which Ethiopian sacred astronomy must be measured: the heliocentric model as it evolved from the 16th century to the present. The Copernican Revolution, initiated with the publication of Nicolaus Copernicus’s *De revolutionibus orbium coelestium* in 1543, systematically dismantled the Ptolemaic geocentric system by positing that the Sun not the Earth occupies the center of the planetary system, with the Earth rotating daily on its axis and orbiting annually around the Sun (Encyclopaedia Britannica, 2020a). This hypothesis was confirmed by Galileo Galilei’s telescopic observations in *Sidereus Nuncius* (1610), which revealed the phases of Venus, the moons of Jupiter, and mountains on the Moon empirical evidence that strongly supported heliocentrism over geocentrism (Milovanović, 2013). The subsequent Newtonian synthesis, articulated in Isaac Newton’s *Philosophiæ Naturalis Principia Mathematica* (1687), provided a unifying physical mechanism universal gravitation that explained both Kepler’s laws of planetary motion and Galilean terrestrial dynamics within a single inertial framework (Milovanović, 2013). Finally, Albert Einstein’s theory of general relativity (1915) reformulated gravitation as the curvature of spacetime, demonstrating that the very concept of a “center“, of the universe is physically incoherent: no privileged inertial reference frame exists, and all cosmic positions are equally valid (Encyclopaedia Britannica, 2020a; Milovanović, 2013). This Copernican-Galilean-Newtonian-Einsteinian trajectory

constitutes the received scientific consensus against which all geocentric claims must now contend.

o Acknowledges apparent contradictions: Earth's motion vs. geostatic sacred texts, relative size of cosmos vs. the intimate geocentric focus, absence of angels driving planets in modern models.

With this scientific synthesis as its backdrop, the book proceeds to identify with intellectual honesty three fundamental areas of apparent contradiction between the two worldviews. First, the motion of the Earth: The Ethiopian sacred tradition, following the literal reading of scriptural passages such as Psalm 104:5 ("He set the earth on its foundations, never to be moved"), maintains that the Earth is stationary at the center of creation (Mangold, n.d.). Modern heliocentrism, by contrast, rests upon the Earth's axial rotation (approximately 1,000 mph at the equator) and its orbital velocity (approximately 67,000 mph around the Sun) motions that are not merely theoretical but are directly measured astronomically and geodetically.

Second, the relative scale of the cosmos. The Ethiopian cosmology envisions a relatively intimate universe: the three-tiered structure of Heaven, Earth, and firmament *Dəqi* implies a cosmos ordered entirely around terrestrial concerns. Modern astrophysics, conversely, reveals a universe of staggering scale billions of galaxies, each containing billions of stars in which Earth occupies no special physical location (Milovanović, 2013). The apparent incongruity between cosmic intimacy and physical immensity presents a formidable challenge.

Third, the absence of angelic agency in modern models: The Ethiopian sacred tradition understands the Sun and Moon as chariots driven by appointed angels, a view that integrates celestial motion into the larger economy of divine providence and angelic liturgy (Goshu & Ridwan, 2025). Modern heliocentrism, predicated entirely on impersonal mechanical and gravitational forces, has no room for such agency. The book does not dismiss these contradictions but instead takes them as the very impetus for its proposed hermeneutical solution: the Logos as the ordering principle that distinguishes between scientific explanation and theological meaning.

### Part 3: The Logos as the Hermeneutical Key

o *Analogia Entis* (Analogy of Being): The Logos orders two distinct but non-contradictory "books": Scripture/Tradition and Nature. Contradiction is only apparent, arising from category errors.

To resolve these apparent contradictions, *Ordered by the Logos* invokes the classical theological principle of the *analogia entis* (analogy of being). This principle, famously articulated by Erich Przywara in the early 20th century but grounded in Thomistic metaphysics, holds that the relationship between God and creation is analogical rather than univocal or equivocal: created beings resemble their Creator without exhausting or literally mirroring the divine essence (Przywara, 2014). The book extends this analogical structure to the relationship between the two "books" of divine revelation: Scripture/Tradition (which conveys saving truth through the liturgical cosmos) and Nature (which conveys physical truth through empirical science). Both books are authored by the same Logos the divine ordering principle through whom all things were made (John 1:1-3) and therefore cannot ultimately contradict one another. Apparent contradictions, the book argues, arise from category errors: treating liturgical poetry as a source of physical propositions, or demanding that astrophysics provide existential meaning. When each discourse is understood as a distinct analogical register of the same Logos, the contradictions dissolve. As Fogleman (2022) notes in his reading of Basil's *Hexaemeron*, the true ontology of the creature is something realized only eschatologically as a result of the divine Logos working out in creatures what they are to become a perspective that privileges teleology over mechanism, meaning over brute fact.

o Patristic Precedent: Cites St. Basil's Hexaemeron and St. Cyril of Alexandria distinguishing between *skopos* (theological purpose) and *lexis* (literal wording). Also draws from St. Maximus the Confessor on the *logoi* of creation.

The book grounds this hermeneutical strategy in the authority of the Church Fathers, specifically the Cappadocian and Alexandrian traditions. St. Basil of Caesarea (c. 329–379 CE), in his Homilies on the Hexaemeron (In Hexaemeron), articulates a careful distinction between the *skopos* (σκοπός, theological purpose or intended meaning) and the *lexis* (λέξις, literal wording) of scriptural creation accounts (DeMarco, 2013). Basil argues that the six days of creation are not to be read as literal 24-hour solar days since the Sun was not created until the fourth day but as a pedagogical framework ordered toward the *theoria* (contemplation) of God's wisdom and power (Fogleman, 2022). The *skopos* of the creation narrative is doxological, not chronological.

St. Cyril of Alexandria (c. 378–444 CE), building on this hermeneutical tradition, insisted on the importance of Scripture's historical-literal dimension while simultaneously employing *skopos* as an exegetical tool to discern the spiritual purpose beneath the letter (Zaganas, 2023).

For Cyril, the literal sense is never abandoned; rather, it is fulfilled by the recognition that Scripture speaks *kat' oikonomian* (according to divine economy) rather than *kat' akribēian* (according to strict precision) when addressing matters peripheral to salvation (Yulaev, 2015).

This distinction between economy and precision is precisely the instrument needed to reconcile the geocentric *lexis* of Ethiopian sacred texts with the heliocentric physics of modern science.

Finally, the book draws extensively on St. Maximus the Confessor (c. 580–662 CE) and his doctrine of the *logoi* (λόγοι, rational principles) of creation. For Maximus, the one divine

Logos is fragmented or multiplied in the *logoi* the individual intelligible principles that constitute each created being (Cvetković, 2011). These *logoi* are the eternal expressions of divine will, pre contained in God and actualized in creation as the providential order of all things (10†L5-L7). Importantly, the *logoi* are not merely static essences but dynamic acts of divine manifestation, through which creatures participate in their Creator (10†L27-L30). As Dewhurst (2014) explains, Maximus's cosmology presents creation as ordered by the Logos through these *logoi*, offering a framework in which physical processes and spiritual signification are not oppositional but complementary. The Ethiopian sacred tradition, with its angelic celestial drivers and stratified firmament, can be understood as a poetic liturgical expression of these *logoi* a symbolic ordering of the cosmos in accordance with its final, eschatological purpose (Cvetković, 2011). The physical description (heliocentric) and the noetic description (geocentric) are two analogical registers of the same Logos, neither contradicting the other because they operate at different levels of explanatory meaning.

\*o Proposed Reconciliation Mode: Adopt a "georeferential" or "liturgically geocentric" reading. The cosmos phenomenologically revolves around Earth for worship, even while physically moving around the sun. Earth's special motion (rotation) becomes the "dance before the Logos."

Having established the theological groundwork, the article proposes its specific reconciliation mode: a georeferential or liturgically geocentric reading of the cosmos. The term "georeferential," borrowed from recent discussions in astrological cosmology (Lamb, 2024), indicates an approach that centers the Earth not as a physical center of the universe but as the existential and liturgical reference point for human meaning. The cosmos, the book argues, may physically move around the barycenter of the solar system (which lies within or near the Sun), but it means around the Earth because it is on Earth that the Logos became flesh, and it is on Earth that the Church gathers to celebrate the Eucharist. From this perspective, the Earth's axial rotation far from being a sign of cosmic insignificance becomes the "dance before the Logos." Every 24 hour cycle of sunrise and sunset, which the

Ethiopian liturgical practices (se'at) mark with prayer in the Tabot centered church, is a rehearsal of the cosmic liturgy in which the whole creation participates. Modern heliocentric physics describes the mechanics of that dance; Ethiopian sacred astronomy describes its meaning. The Qəne poetry of wax and gold, the angelic drivers of the celestial chariots, the three story cosmos with its firmament Dəqi all of these are retained not as failed science but as an inspired liturgical map of a universe ordered toward worship. In this way, the book concludes, the Logos truly orders both the empirical cosmos and the liturgical cosmos, and the apparent conflict between them is resolved by reading each on its own terms: physics as physics, doxology as doxology, and the Logos as the unifying principle that makes both intelligible.

### III. Result and Discussion

#### 3.1 Critical Analysis

This section evaluates Ordered by the Logos according to the threefold framework established in the introduction: (1) theological fidelity to Ethiopian Orthodox tradition, (2) philosophical coherence, and (3) scientific accuracy. While the work demonstrates genuine virtues in its hermeneutical approach, it encounters significant unresolved tensions that limit its success as a cosmological reconciliation.

Strengths (The Work's Virtues)

Respects Insider Perspective

The work's most commendable virtue is its refusal to dismiss the Ethiopian sacred tradition as a mere collection of pre-scientific myths or as a literalist fossil. Unlike many attempts at science religion dialogue that reduce religious cosmology to "poetic metaphor" in a condescending tone, Ordered by the Logos takes seriously the ritual, liturgical, and contemplative practices of the Ethiopian Orthodox Tewahedo Church. The book accurately recognizes that Ethiopian sacred astronomy is embedded in a living tradition of worship complete with the poetic theological genre of Qəne (ቅኔ), the structure of the Qəddase (Divine Liturgy), and the veneration of the Tabot as the earthly throne of God. This insider respectful stance aligns with the best contemporary scholarship on Ethiopian liturgical cosmology, which reads the EOTC's theology of creation from its liturgical texts and sacramental praxis rather than imposing external categories of "science" or "error" upon them.

Excellent Use of Logos Theology

The book's invocation of Logos theology drawn from the Johannine prologue (John 1:1–3) and the patristic tradition of St. Maximus the Confessor provide a remarkably robust metaphysical framework for a dual order account of truth. By identifying the same divine Logos as the ordering principle of both Scripture/Tradition and Nature, the book establishes a principled reason why these two "books" cannot ultimately contradict one another.

Apparent contradictions arise not from the Logos itself but from category errors: treating liturgical poetry as physics, or demanding that astrophysics provide existential meaning. This strategy echoes the Logos centered cosmological approaches found in contemporary integrative theologies that seek to reconcile faith and science within a unified framework.

Practical Liturgical Alignment

The work's most tangible strength is its demonstration that the Ethiopian system of se'at (canonical hours) and Zema (chant based calendar calculations) functions perfectly well as a human and sacred timekeeping system without needing to be verified by heliocentric physics. The EOTC's calendar, which originates from the Coptic solar calendar and is anchored in the Book of Enoch, successfully orders the liturgical year the great feasts, the fasts (including the 250 day annual fast cycle), and the weekly cycle of prayer. Ordered by the Logos convincingly

argues that the purpose of this system is doxological and practical, not predictive. As Gebru demonstrates in his study of Ethiopian liturgical cosmology, the EOTC's liturgical texts and rituals embody creation motifs and signify the transfiguration of the cosmos, without ever claiming to be a treatise on physical astronomy.

Weaknesses & Unresolved Tensions

Literal Scriptural Geocentrism

While the article excels at hermeneutical distinction, it fails to adequately address the stubborn presence of geostatic claims within the biblical and traditional texts themselves. The work treats the Ethiopian sacred model as a purely doxological framework, but it does not fully reckon with the fact that the Church traditionally read passages like Psalm 104:5 (“He set the earth on its foundations, never to be moved”) as literal affirmations of geocentrism. Similarly, the book does not systematically engage with the Joshua's long day narrative (Joshua 10:12–14), which has historically been read as confirming that the Sun moves around a stationary Earth.

What the work needs and what it lacks is a robust theology of kenosis applied to divine revelation. The concept of kenosis, derived from Paul's claim that Christ “emptied himself” (ἐαυτὸν ἐκένωσεν) in the incarnation (Philippians 2:7), has been extended by some theologians to argue that Scripture itself accommodates itself to the limitations of ancient human understanding. Just as the incarnate Logos assumed the weakness of human flesh, the scriptural Word assumes the weakness of ancient cosmology. The book gestures toward a patristic distinction between *skopos* (purpose) and *lexis* (wording), but it does not follow through to the radical conclusion that the *lexis* may be culturally conditioned and not epistemically binding. Without such a kenotic hermeneutic, the geocentric language remains a fiat contradiction rather than an accommodated accommodation. More worryingly for the Ethiopian tradition, which holds its Ge'ez texts with high reverence, any suggestion that the *lexis* is merely cultural risks undermining the ontological claim that the Tabot is the actual axis mundi, not merely a symbol.

The Problem of Instrumentality

The second major weakness concerns the ontological status of angelic agency. If, according to the Ethiopian sacred tradition, the Sun and Moon are chariots driven by appointed angels, what is the relationship between these angelic drivers and the gravitational/inertial physics of modern heliocentrism? The book suggests a complementary relationship: angelic causation corresponds to formal/final causality, while gravitational physics corresponds to efficient/material causality. This is a philosophically dense move, and the book does not unpack it with sufficient rigor. As contemporary scholarship on angelic causality points out, the classical view (exemplified by Thomas Aquinas) holds that angels can act as efficient second causes of natural phenomena, not merely as formal or final causes. If angels truly drive the Sun, then they are efficient causes, and their actions must be coordinated with or overridden by Newtonian gravity. The book's appeal to “complementary descriptions” risks becoming a semantic evasion. Without a clear metaphysical account of how an immaterial being can move a material body, and how that movement relates to the deterministic equations of celestial mechanics, the reconciliation remains at the level of poetry rather than philosophy. The work would be strengthened by engaging with proposals for divine action that does not contradict natural laws, such as those found in the literature on quantum indeterminacy.

Agency of the Dəqi (Firmament)

The most acute tension concerns the Dəqi (the firmament). In ancient Near Eastern cosmology, and in the biblical tradition that the Ethiopian sacred astronomy inherits, the firmament is a solid dome that separates the upper waters from the lower waters. It has “windows” that open to let the rain fall. Modern cosmology has no analogue for such a

structure. The book appears to relegate the firmament entirely to the status of liturgical poetry a vivid image that helps order worship but makes no physical claim. However, this strategy risks evacuating the firmament of its ontological claim altogether. The problem is that the firmament is not merely an incidental detail; it is a central architectural feature of the three story cosmos. To retain the liturgical meaning while discarding the physical claim is to treat the firmament as a disposable metaphor. But does the Ethiopian tradition consider it a metaphor? The weight of the textual evidence from the *Māṣḥafā Bərḥān* and the broader tradition suggests that the firmament was understood as a real, created structure. By removing its physical claim without providing a substitute ontological interpretation, the book ends up dissolving the sacred cosmos rather than reconciling it. A more coherent approach would be to read the firmament as a phenomenological description a report of what the sky looks like to human observers, not what it is made of. But the book does not make this move explicitly, leaving the *Dəqi* in a limbo between literal and poetic.

#### IV. Theological and Scientific Evaluation

Building on the critical analysis, this final section assigns specific grades to the work's performance within its own tradition and within the broader science religion dialogue, situating it among comparative projects.

Theological Grade (within Ethiopian Orthodox framework):

The work earns a commendable B+ for its fidelity to the deep structure of Ethiopian Orthodox theology, though it falls short of an A due to a significant lacuna.

**Strength:** Strong on *Lex orandi, lex credendi*. The book's greatest theological strength lies in its masterful application of the ancient principle *lex orandi, lex credendi* "the law of prayer is the law of belief." Originating with Prosper of Aquitaine (5th century CE), this axiom asserts that the church's liturgy is the primary locus of doctrinal formulation. Ordered by the Logos demonstrates convincingly that the EOTC (Ethiopian Orthodox Tewahedo Church) cannot be understood through the lens of propositional science first articulated long after its liturgical texts were codified. As Gebru (2013) argues in his study of Ethiopian liturgical cosmology, the prayers (*qəddase*) and sacramental rituals of the EOTC "ground its beliefs" and "embody creation motifs," providing a "transformed space where the heavenly and earthly beings praise God in unison". The book's argument that the sacred cosmos functions first and foremost as a setting for doxological enactment aligns perfectly with the lived reality of Ethiopian worship.

**Weakness:** Weak on conciliar literal readings and *Andemta* tradition. Despite its hermeneutical sophistication, the work largely bypasses the EOTC's own official, conciliar, and exegetical readings of problematic geocentric texts. It does not adequately grapple with the authoritative interpretations found in the EOTC's synodical decisions or patristic sources. Most critically, it neglects the *Andemta* tradition the unique Ge'ez Amharic commentary corpus developed within the Ethiopian Orthodox Church. The *Andemta* tradition represents a "most valuable legacy" of the EOTC, a "long running Ethiopian oral tradition, possibly originating from ... between the advent of Christianity, and the ninth century". Had the author engaged directly with how Ethiopian scholars have historically interpreted passages like Psalm 104:5 or Joshua's long day within their own tradition, the book might have offered a stronger, authentically Ethiopian reconciliation. As it stands, the work's hermeneutic risks being imposed from outside rather than growing from within the tradition's own exegetical resources.

Scientific Grade: A (as reconciliation) (as physics)

Excellent explanation of why the *skopos* of sacred astronomy is not physical prediction (grade: A ). The book's treatment of heliocentrism is sophisticated and historically informed.

By contrast, the Copernican Galilean Newtonian Einsteinian synthesis is neither caricatured nor dismissed. The work clearly acknowledges that modern cosmology possesses no "center," rendering the heliocentric geocentric distinction historically contextual. However, a full A

eludes it because the work occasionally elides the distinction between the observational equivalence of reference frames and the causal ontology of general relativity. While the Earth's motion is reference frame dependent, the universe's overall isotropy and homogeneity (the Cosmological Principle) strongly privilege no local frame, a point the book could have unpacked further.

Fails to provide a mechanism for angels influencing planetary motions without collapsing into occasionalism. This is the most serious scientific philosophical weakness. The article gestures toward a view of godly agency that approximates concurrentism but does not work out the metaphysics. Concurrentism is the doctrine that God acts in and through secondary causes (including angels) as genuine, efficient causes. The article attempts to avoid this by treating angelic causation as "formal/final" rather than "efficient." But as the tradition (e.g., Aquinas) holds, angels, as immaterial substances, can indeed act as efficient causes on bodies albeit by moving bodies locally through space. Without a robust metaphysics of angelic motion, the book veers dangerously close to occasionalism: the doctrine that God alone is the true, immediate cause of everything, and creatures are merely "occasions" for divine action. Occasionalism, strongly associated with Nicolas Malebranche and revived in the 17th century by Cartesians, posits that "God alone is the true cause of everything that happens in the world, and created substances are merely 'occasional causes'". If the author does not mean to endorse occasionalism (and likely does not), a clear account of how angels can causally contribute to planetary motion without this collapsing into a problematic view is missing.

#### Comparison to Other Reconciliation Projects

More sophisticated than "God of the gaps" approaches. Unlike naive concordism that inserts a deity into gaps of scientific knowledge, *Ordered by the Logos* leaves the empirical content of science intact. It does not claim that "God makes the planets move" in a way that competes with Newtonian gravity. This places it above the crude "God of the gaps" model, which has been rightly criticized by theologians as a series of ever receding retreats. Grade: A in this metric.

Similar to T.F. Torrance's "dual revelation", but with stronger emphasis on angelic liturgy. The book's approach strongly echoes the work of Thomas F. Torrance (1913-2007), a Scottish theologian who argued for a "scientific theology" that respects the "two books" of Scripture and Nature simultaneously. Torrance famously "turned the natural sciences into natural theology" while respecting their autonomy. For him, "the inexplicable ability to uncover the reality of the universe is founded on the creative Word of God". Like Torrance's "new natural theology," *Ordered by the Logos* posits a unified Logos behind both books, but adds an emphasis on the angelic liturgy as the noetic contemplative counterpart to astrophysics. This is a valuable corrective, as Torrance's focus was on covenantal and epistemological structures, not on inter species cosmology. Similarity rating: high; innovation rating: moderate.

Less successful than Galileo's Letter to the Grand Duchess Christina (which used biblical accommodation more explicitly). This comparison is revealing and critical. In 1615, Galileo wrote his famous Letter to the Grand Duchess Christina. In it, he pioneered a biblical hermeneutic of accommodation: Scripture, being written for the unlettered masses, often describes nature *ad captum vulgi* (according to the capacity of ordinary people). It never lies, Galileo argued, but it does not aim to teach physics only; therefore, where science has proven otherwise, the literal sense of Scripture must be reinterpreted, not abandoned. Galileo's principle is remarkably clear: "the Bible teaches how to go to heaven, not how the heavens go." While the Church ultimately rejected this, the Letter is now recognized as a "hallmark in the history of the relationship between science and theology" and "a founding text of the Scientific Revolution". *Ordered by the Logos* would benefit from a more explicit adaptation of this principle. Rather than arguing for a georeferential reading of Scripture, the book could openly adopt an accommodationist view: the geocentric language is a pedagogical and

revelatory accommodation by the Logos to the limited pre scientific understanding of the original audience. This would be more radical but also more coherent than the current ambiguous position. Comparison rating: Galileo's approach is more explicit; Ordered by the Logos is more theologically integrated but less clear on biblical exegesis.

## IV. Conclusion

### 4.1 Unaddressed Questions & Future Directions

Despite its considerable achievements, Ordered by the Logos leaves readers with several pressing questions that its present framework can only partially address. These lacunae point directly to the agenda for future research and theological refinement.

Telescopic Evidence and Modern Astrophysics

How would this reconciliation handle telescopic evidence (phases of Venus, stellar parallax) those 16th-century Ethiopian debaters could not have known?

The article excels at hermeneutical distinction, but it does not adequately engage with the empirical evidence that historically falsified geocentric models and continues to undergird heliocentrism. Galileo Galilei's 1610 telescopic observations of Venus revealed that the planet exhibits a full series of phases from thin crescent to full disk, then gibbous, then crescent again in an anti-correlation with its apparent diameter: when Venus appears largest, its illuminated portion is at its most slender, and when it appears smallest, it is fully illuminated (Giudici, 2024). As the University of Pisa physicist Sergio Giudici has shown, the quantitative analysis of Galileo's *Il Saggiatore* (1623) drawings of the phases of Venus provides precise empirical evidence that is comparable in accuracy to contemporary astrophotography measurements (Giudici, 2024). Venus's phases, Giudici demonstrates, are simply impossible to observe if Earth were fixed at the center of the universe with Venus and the Sun both orbiting it in the Ptolemaic order (Giudici, 2024). By contrast, they are perfectly explained if Venus orbits the Sun in an orbit smaller than Earth's, thereby confirming heliocentrism (Encyclopaedia Britannica, 2020c). Galileo himself understood his discovery as definitive proof that Venus did not move on a Ptolemaic epicycle, but rather followed a circle centered on the Sun.

Similarly, the apparent absence of measurable stellar parallax posed a formidable objection to heliocentrism for over two centuries, from Copernicus to the early 19th century. Pre-modern geocentric advocates including Tycho Brahe argued that if the Earth truly orbited the Sun, nearby stars should appear to shift against the background of more distant stars as Earth traveled from one side of its orbit to the other (Milovanović, 2022). The lack of any detectable parallax, according to this objection, proved that either the stars were unimaginably distant a notion contrary to all pre-modern cosmological intuitions or the Earth was stationary (Milovanović, 2022). In 1838, the German astronomer Friedrich Bessel finally resolved this paradox by measuring stellar parallax for the star 61 Cygni, obtaining a minuscule value of 0.29 arcseconds an angular shift that he described as comparable to the angular width of a pizza in New York as seen from San Francisco (Wikipedia contributors, 2025b; Cosmology, n.d.). In the same period, Thomas Henderson measured parallax for Alpha Centauri, and Friedrich von Struve for Vega. The cumulative weight of these measurements now extended by the Gaia satellite to over a billion stars, provides conclusive empirical support for Earth's orbital motion.

The article argues that sacred astronomy is doxological, not predictive, and therefore need not account for telescopic phenomena. This defense has merit: the liturgical calendar was never designed to predict Venus's phases or measure stellar distances. However, a thorough reconciliation must also address a harder question: if the sacred tradition is not predictive, why does it confidently assert a geocentric reality that post Galilean observation has demonstrated

at the level of physics to be false? The authors could strengthen their argument by adopting a fully elaborated hermeneutic of accommodation. Following Galileo's own approach in his 1615 Letter to the Grand Duchess Christina, the geocentric language of Scripture can be treated as divine condescension *ad captum vulgi*, adapted to the limited conceptual resources of the original audience (Finocchiaro, 2025). The Logos wisely spoke to ancient peoples in the language of their phenomenological experience, not in the terms of future physics. This is not a concession of error, but recognition of divine pedagogy. But the book does not develop such a position with enough depth, leaving the telescope's evidence largely unaddressed.

**The Tabot as Mobile Center: Toward a Theology of Pilgrimage**  
What is the status of the Tabot as the center of the universe? If Earth moves, does the Ark's location become a mobile center? The work needs a theology of pilgrimage and presence.

The Tabot (ታቦት) the replica of the Ark of the Covenant consecrated by a bishop and present in every Ethiopian Orthodox church is the foundation of the Ethiopian Orthodox Church. As the British Museum's collection description notes, the Tabot is "believed by Ethiopian Christians to be the dwelling place of God on earth, the mercy seat described in the Bible, and the representation of the Ark of the Covenant". It "serves to sanctify and consecrate a church building" and is kept in the Holy of Holies (Qidduse Qiddusan), where only clergy may enter. The Tabot functions as the terrestrial axis mundi: it is the point at which heaven and earth intersect the throne of God's presence, the mercy seat where the Eucharistic elements rest. Every church is oriented liturgically around this Tablet of the Law, and the Divine Liturgy cannot be celebrated without it.

Yet heliocentrism tells us that the Earth moves, carrying the church and its Tabot in a cosmic journey around the Sun at 30 kilometers per second, while simultaneously spinning on its axis at the equator at 465 meters per second. If the Tabot is the center of the universe in a physical sense, then the center is moving a conceptual impossibility. But if the Tabot is the center only in a sacramental or liturgical sense, then the sacred cosmology is metaphysically evacuated of any ontological claim about the physical arrangement of the cosmos.

The article gestures toward a distinction between physical and noetic centrality, but it does not develop a full theology of pilgrimage that could encompass the Earth's motion. In Christian pilgrimage, the pilgrim journeys toward a fixed sacred space Jerusalem, Rome, Aksum but the journey itself is part of the spiritual transformation. The Tabot can be reconceived as the pilgrim center, the fixed reference point of the soul's ascent toward God, even while the physical planet physically moves around the Sun. The Earth's orbit, understood theologically, becomes a cosmic pilgrimage route; the celebration of the Liturgy on a moving planet is not a contradiction but a participation in the angelic procession around the throne of the Logos. A future edition of the book would benefit from engaging the growing literature on mobile sacred spaces, including the Ethiopian concept of the Tabot as a "portable sanctuary" that predates the construction of permanent churches.

**The Practical Test: Cognitive Dissonance or Cognitive Polyphasia?**

A practical test: Can an Ethiopian Orthodox priest teach modern astronomy to students in Addis Ababa on Saturday and use the sacred astronomy for Sunday's Qəddase (Liturgy) without cognitive dissonance? If yes, the book succeeds.

This question is not merely hypothetical. In the Ethiopian capital, priests who have received traditional monastic education, often centered on the Qəne system now serve as educators in state schools where modern astronomy, biology, and physics are mandated by national curricula (Kumar, 2022). The question is whether such priests experience the psychological discomfort of holding two beliefs that appear incompatible: geocentrism (as affirmed by their exegetical tradition) and heliocentrism (as taught by their textbooks).

The psychological literature on belief co existence offers two competing frameworks. Leon Festinger's (1957) classic theory of cognitive dissonance holds that individuals are motivated to reduce inconsistency between cognitions, often by rejecting or reinterpreting one of the competing beliefs. By contrast, the theory of cognitive polyphasia developed by Serge Moscovici and elaborated by subsequent researchers suggests that individuals can simultaneously hold seemingly contradictory knowledge systems by assigning them to different "cognitive zones" or registers of meaning. According to this view, "a majority of South Africans agrees that when science and religion conflict, religion is always right" not because they reject science, but because they "choose either science or religion" as "not always an outright rejection of the other" (Falade & Guenther, 2020). More recent research on the coexistence of science with religious beliefs in African contexts has shown that "Moscovici's accommodation hypothesis of cognitive polyphasia better explains the coexistence of science and religious belief, which can, however, be double edged".

If Ethiopian priests experience heliocentrism and geocentrism as occupying distinct cognitive zones physics on Saturday, doxology on Sunday then *Ordered by the Logos* succeeds in its practical goal. The book provides a philosophical justification for precisely this compartmentalization: the two models address different questions, belong to different intellectual spheres (efficient causality vs. final causality, mechanism vs. meaning), and therefore need not be reconciled into a single propositional system. This is not cognitive dissonance a state of discomfort requiring resolution but cognitive polyphasia a stable state of complementary coexistence.

Future research should move beyond theory to ethnographic investigation. Do Ethiopian priests who teach astronomy report measurable dissonance, or have they developed intuitive or explicit strategies of compartmentalization? Does the Qone training, which already cultivates a hermeneutics of wax and gold, literal and hidden predispose them to polyphasic thinking? Preliminary anecdotal evidence suggests that many Ethiopian educators do function comfortably with what appears to outsiders as contradiction. For instance, the work of Dr. Rodas Abebe, who has published over 23 books on "the ancient wisdom of Ethiopians and the Ethiopian Orthodox Church about the stars and the creation of God," explicitly aims to "build a generation that unites faith and science for the future of Ethiopia". If practitioners themselves see no irreconcilable opposition, then the scholarly problem diminishes. But if unacknowledged tension emerges as Festinger would predict then the book's reconciliation is not yet complete psychospiritually, even if it is philosophically sound.

#### VI. Conclusion: Assessment & Recommendation

##### Overall Verdict

*Ordered by the Logos* is a bold, erudite, and pastorally sensitive attempt to bridge two worlds that are often assumed to be irreconcilable: the ancient, richly symbolic sacred astronomy of the Ethiopian Orthodox Tewahedo Church and the empirically robust heliocentric model of modern astrophysics. The article does not, and perhaps cannot, achieve a formal reconciliation in the sense of abolishing all logical contradiction between geostatic scriptural claims and Earth's orbital motion. Instead, it offers a hermeneutical harmonization through the doctrine of the Logos the divine ordering principle that, according to John's Gospel, undergirds all reality. By distinguishing between *skopos* (theological purpose) and *lexis* (literal wording), and by retrieving patristic precedents from Basil, Cyril, and Maximus, the author demonstrates that the Ethiopian sacred cosmos can retain its full liturgical, doxological, and spiritual meaning without requiring modern physics to be false.

This is, therefore, less a work of scientific concordism (attempting to prove that the Bible predicted modern science) and more a work of comparative religious cosmology—an exploration of how two different but equally Logos ordered systems of knowledge can coexist when each is read on its own terms. As scholars of religion and science have noted,

comparative cosmology offers a way out of the stale conflict model by situating ancient and modern frameworks as complementary rather than competing.

Ideal Audience

The article will be of immense value to three primary audiences:

- Ethiopian Orthodox clergy and theologians engaged in interfaith science dialogue. For priests, monks, and scholars trained in the Qəne tradition and the Māṣḥafā Bərḥān, this work provides a philosophically sophisticated vocabulary to explain to young students and to the wider public why the Church’s sacred astronomy remains meaningful in a post Copernican age. It does not force them to choose between their liturgical heritage and modern education, but rather gives them a principled reason to hold both.
- Scholars of religion and science. Academics working at the intersection of theology, history of astronomy, and non Western epistemologies will find a rich case study that moves far beyond the usual Galileo vs Church narrative. The Ethiopian tradition offers a unique laboratory for testing theories of cognitive polyphasia, hermeneutical accommodation, and the survival of pre modern cosmologies within modern institutions.
- Students of non Western cosmology. In an era when global history of science is increasingly decentered from Europe, Ordered by the Logos serves as an accessible introduction to one of the oldest continuous Christian cosmological traditions. It challenges the assumption that non European intellectual histories are either primitive or irrelevant to contemporary science religion dialogue.

Recommendations

The article succeeds brilliantly when read as a theology of liturgical time rather than as physics reference. Its most profound insight is captured in the following formulation: Worship does not require a stationary Earth, only an Earth where Christ walked, died, and rose the true axis of meaning, if not of orbit.

The Logos orders both the physical universe and the liturgical cosmos, but it orders them differently. The physical order is described by general relativity, quantum mechanics, and heliocentric kinematics. The liturgical order is described by the se‘at (canonical hours), the Tabot as the throne of God, the angelic drivers of celestial chariots, and the three storied firmament. These two orders are not in competition because they answer different questions: one asks “how do bodies move in space and time?” the other asks “how does creation participate in the praise of its Creator?”

The caveat, as detailed in earlier sections, is that readers should not expect a physical mechanism for angelic causality or a literal defense of the Dəqi (firmament). Those who require empirical verification will be disappointed. Those who seek an intellectually honest, spiritually sensitive, and culturally respectful path to harmonizing faith and modern astronomy will find Ordered by the Logos an indispensable guide.

A courageous and necessary work, slightly overreaching on literal causality, but indispensable for its central question: Can a pre modern sacred cosmos speak truth in a post Copernican world? The answer, according to this book, is a qualified and profound yes—provided we listen with the ear of liturgy, not the eye of the telescope alone.

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