

# Harmonics and Fractal History: A Synthesis of Cyclical Models in Understanding Temporal Structure

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## Abstract

This essay explores the convergence of two ambitious theoretical frameworks: Ray Tomes' Harmonics Theory and the fractal historical model proposed by Constable (Arthur ten Wolde). Both theories attempt to discern underlying mathematical patterns governing temporal phenomena, from economic cycles to cosmic evolution. By synthesizing these approaches, we uncover striking parallels that suggest a potential unified framework for understanding cyclical processes across multiple scales of reality. This analysis reveals how combinatorial mathematics, wave mechanics, and historical pattern recognition might converge to predict phase transitions in human civilization, with particular focus on the predicted 2025-2027 transition period.

## Introduction

The search for underlying patterns in historical and natural phenomena has captivated scholars across disciplines for millennia. From the ancient Chinese concept of cyclical time to modern econometric modeling, humanity has sought to discern order within apparent chaos. Two contemporary theories offer particularly sophisticated approaches to this challenge: Ray Tomes' mathematically rigorous Harmonics Theory, which derives cosmic structure from wave mechanics, and Constable's fractal historical model, which identifies self-similar patterns across temporal scales.

The convergence of these frameworks presents an opportunity to examine whether seemingly disparate cyclical phenomena might emerge from common underlying principles. This synthesis is particularly timely given both theories' prediction of a significant phase transition in the mid-2020s, coinciding with widespread global disruption and transformation.

## Theoretical Foundations

### Ray Tomes' Harmonics Theory

Tomes' theory begins with a deceptively simple premise: "The Universe consists of a standing wave which develops harmonically related standing waves and each of these does the same." From this axiom, derived from the non-linearity inherent in Maxwell's electromagnetic equations under General Relativity, emerges a complex mathematical structure governing energy distribution across all scales of reality.

The theory's mathematical foundation rests on calculating  $C(H)$  - the number of ways any harmonic  $H$  can be factorized into its constituent prime factors. This combinatorial approach reveals that certain frequencies naturally accumulate more energy than others, creating a hierarchy of "outstanding harmonics" that correspond to stable structures in nature. The pattern exhibits

remarkable similarities to musical scales, with ratios of 2, 3, 5, and occasionally 7 dominating the strongest harmonics.

Critically, Tomes' calculations extend to numbers with over 50 digits, revealing persistent patterns across more than 170 octaves of frequency. This mathematical tour de force suggests that the harmonic structure underlying reality operates at scales far beyond current observational capacity, implying a universe vastly older and larger than Big Bang cosmology suggests.

## Constable's Fractal Historical Model

Constable's approach synthesizes multiple cyclical theories into a coherent framework based on the classical five-element system (Fire, Water, Earth, Air, Space/Ether). His model identifies three primary cyclical scales:

1. **Economic cycles** (Kondratieff, ~50 years)
2. **Cultural cycles** (Bakhtin, ~1250 years)
3. **Cosmological cycles** (Precession, ~25,800 years)

The elegance of Constable's model lies in its consistent 5x scaling factor between levels, creating a self-similar fractal structure. This approach allows for the integration of diverse predictive models - from Ingo Piepers' military conflict cycles to the Club of Rome's World-3 economic model and IPCC climate projections - within a unified temporal framework.

Constable's analysis suggests that humanity is currently transitioning from the Kali Yuga (age of materialism and darkness) toward a new Golden Age, with the transition period centered around 2025-2027. This prediction emerges from the convergence of multiple independent cyclical models, suggesting a phase transition comparable to the emergence of what he terms the "Global Brain."

## Synthesis and Convergence Points

### Mathematical Harmonization

When Tomes' combinatorial mathematics is applied to Constable's cyclical frequencies, striking patterns emerge. The 50-year Kondratieff cycle corresponds to  $H=50$  in Tomes' notation, yielding  $C(50) = C(2 \times 5^2) = 8$  factorization pathways. The 1250-year cultural cycle gives  $C(1250) = C(2 \times 5^4) = 32$  pathways, while the 25,800-year precession cycle yields  $C(25800) = C(2^3 \times 3 \times 5^2 \times 43)$ , producing hundreds of factorization pathways.

This mathematical analysis reveals why Constable's longer cycles exhibit greater stability and influence - they correspond to Tomes' "main line harmonics" that naturally accumulate energy from shorter-period oscillations. The 5x scaling factor between Constable's levels creates a particularly stable harmonic structure, as multiples of 5 consistently appear among Tomes' strongest harmonics.

### Resonance and Phase Transition

Both theories predict that certain temporal convergence points generate exceptional energy concentrations. In Tomes' framework, these occur when multiple harmonic families intersect, creating "outstanding harmonics" that dominate their frequency range. Constable's model identifies similar convergence points where economic, cultural, and cosmological cycles align.

The predicted 2025-2027 transition represents precisely such a convergence. Multiple Kondratieff waves (technological, economic, and geopolitical) reach critical points simultaneously, while the

cultural transition from materialism to ecological consciousness accelerates, all within the context of the precession-based transition from Pisces to Aquarius.

## Energy Flow and Structural Hierarchy

Tomes' theory describes energy flowing from fundamental frequencies to their harmonics, creating a top-down organizational principle. This directly parallels Constable's observation that cosmological cycles influence cultural patterns, which in turn affect economic rhythms. The mathematical relationship  $C(H) \propto H^{1.7323}$  suggests that longer cycles inherently dominate shorter ones, explaining why Constable's precession-scale patterns can override seemingly more immediate economic or political forces.

## Implications and Predictions

### The 2025-2027 Critical Period

The synthesis of these theories yields specific predictions for the current decade:

1. **Harmonic Convergence:** Multiple independent cycles simultaneously reach critical points, creating unprecedented resonance effects
2. **Phase Transition:** The accumulated energy from cycle convergence triggers a qualitative transformation in human organizational structures
3. **Fractal Manifestation:** The transition exhibits self-similar characteristics across scales, from individual consciousness to global institutions

### Long-term Projections

Beyond the immediate transition, the combined model suggests:

- **Stabilization Phase (2030-2050):** Integration of new organizational principles following the turbulent transition
- **Golden Age Architecture (2050-7000):** Establishment of stable civilizational forms based on ecological and consciousness-centered values
- **Next Transition Preparation (6000-7000):** Gradual approach to the subsequent major phase transition

### Testable Hypotheses

The synthesis generates several testable predictions:

1. **Cycle Synchronization:** Independent cyclical phenomena should increasingly synchronize as the transition approaches
2. **Scale Invariance:** Patterns observed at one temporal scale should manifest at others with predictable frequency ratios
3. **Energy Concentration:** Measurable energy indicators (economic, informational, social) should show increasing concentration around predicted harmonic frequencies

## Critical Analysis and Limitations

### Methodological Considerations

Both theories face significant methodological challenges. Tomes' mathematical approach, while rigorous within its assumptions, depends critically on the initial premise that reality consists entirely of standing waves. This assumption, while consistent with quantum mechanics, represents a considerable departure from mainstream physics.

Constable's synthesis, though compelling in its comprehensiveness, relies heavily on pattern recognition that may be subject to confirmation bias. The human tendency to perceive patterns, even where none exist, poses a constant interpretive challenge.

## **Empirical Validation**

The ultimate test of any predictive theory lies in empirical validation. The 2025-2027 period offers a crucial testing ground for both frameworks. However, the complex, multi-scale nature of the predicted phenomena makes definitive validation challenging. How does one measure the transition from a "Kali Yuga" to a "Golden Age"?

## **Integration with Established Science**

Both theories struggle with integration into established scientific paradigms. Tomes' rejection of Big Bang cosmology places his work outside mainstream astrophysics, while Constable's incorporation of mystical and astrological elements challenges conventional academic discourse.

## **Future Research Directions**

### **Mathematical Development**

The harmonics approach requires further mathematical sophistication, particularly in:

- Extending calculations beyond 50-digit numbers
- Refining detrending formulas for very large harmonics
- Developing more precise methods for predicting energy flow between harmonic levels

### **Empirical Studies**

Systematic investigation should focus on:

- High-resolution analysis of economic cycle synchronization
- Cross-cultural validation of the 25,800-year precession patterns
- Development of quantitative metrics for civilizational phase transitions

### **Interdisciplinary Integration**

The synthesis suggests productive collaborations between:

- Mathematicians and historians for pattern validation
- Physicists and economists for energy flow modeling
- Anthropologists and systems theorists for civilizational transition studies

## **Conclusion**

The synthesis of Tomes' Harmonics Theory with Constable's fractal historical model reveals a potentially profound framework for understanding temporal patterns across multiple scales of

reality. While both theories remain highly speculative, their mathematical rigor and empirical correlations suggest avenues for serious investigation.

The convergence of their predictions around 2025-2027 provides an immediate opportunity for validation or refutation. Whether these models accurately describe underlying reality or merely reflect human pattern-seeking tendencies, they offer valuable tools for organizing our understanding of complex temporal phenomena.

As we navigate an era of unprecedented global transformation, such frameworks may prove essential for comprehending and responding to the challenges ahead. The ultimate measure of these theories will not be their mathematical elegance or historical correlations, but their capacity to guide humanity through the turbulent transitions they predict.

The quest to understand time's deeper patterns continues, and these ambitious syntheses represent significant contributions to that eternal human endeavor. Whether they herald new scientific paradigms or serve as intellectual curiosities, they remind us that the universe may yet harbor mathematical harmonies we are only beginning to perceive.

## Annotated Bibliography and Further Reading

### Primary Sources

**Tomes, Ray.** "Harmonics Theory - The Physics and Maths." Website: <https://ray.tomes.biz/maths.html> The definitive exposition of Harmonics Theory, featuring detailed mathematical derivations and calculations extending to 50-digit harmonics. Essential reading for understanding the combinatorial approach to universal structure. Tomes provides downloadable datasets and calculation methods for researchers.

**Constable (Ten Wolde, Arthur).** "History and Future are a Fractal Process." Website: <https://constable.blog/2024/11/07/history-is-fractal-process/> Comprehensive presentation of the fractal historical model, integrating economic, cultural, and cosmological cycles. Particularly valuable for its synthesis of multiple predictive frameworks and its detailed timeline predictions through 2050.

**Ten Wolde, Arthur.** "How to Prevent a Global System Crisis." Website: <https://circular-future.eu/about-nieuw/publications-and-presentations/blogs/column-corona-fall-of-the-roman-empire/> Crucial essay connecting military conflict models (Piepers), economic collapse models (Club of Rome), and climate crisis projections. Provides policy recommendations based on cyclical convergence analysis.

### Historical and Mathematical Foundations

**Dewey, Edward R.** *Cycles: The Mysterious Forces That Trigger Events* (1973) Foundation text for modern cycle research. Dewey's systematic cataloging of cyclical phenomena across disciplines provides empirical support for universal cyclical principles. His identification of common periods and synchronization patterns remains influential.

**Dewey, Edward R. and Og Mandino.** *Cycles: The Science of Prediction* (1971) More accessible introduction to cycle theory with practical applications. Excellent for understanding how cycle analysis can be applied to economic and social forecasting.

**Foundation for the Study of Cycles Archives** Website: <https://cyclesstudies.com/> Extensive database of cyclical research spanning decades. Contains thousands of documented cycles across disciplines, providing raw material for pattern analysis. Essential resource for empirical validation of cyclical theories.

## Economic and Cultural Cycles

**Perez, Carlota. *Technological Revolutions and Financial Capital* (2002)** Seminal work on technological-economic cycles. Perez's identification of 50-year innovation waves provides crucial support for Kondratieff-type cyclical patterns. Her work on the current "Information Age" transition directly relates to the predicted 2025-2030 transformation.

**Modelski, George. *Long Cycles in World Politics* (1987)** Comprehensive analysis of geopolitical cycles spanning centuries. Modelski's work on hegemonic transitions provides historical context for understanding how major phase transitions manifest in international relations.

**McWhinney, Will. *Paths of Change: Strategic Choices for Organizations and Society* (1992)** Theoretical framework for understanding organizational transformation patterns. The "Paths of Change" model's four worldviews (plus the "Heart" center) directly influence Constable's elemental framework.

## Physics and Cosmology

**Wheeler, John A. and Richard P. Feynman. "Interaction with the Absorber as the Mechanism of Radiation" (1949)** *Reviews of Modern Physics, Vol. 21, No. 3* Foundational paper for understanding matter as standing wave phenomena. Wheeler and Feynman's work on advanced and retarded waves provides physical basis for Tomes' wave-only universe hypothesis.

**West, Geoffrey. *Scale: The Universal Laws of Growth, Innovation, Sustainability, and the Pace of Life* (2017)** Mathematical analysis of scaling laws across biological, urban, and economic systems. West's work on scaling relationships provides empirical support for fractal patterns in complex systems.

**Barrow, John D. *The Constants of Nature* (2002)** Exploration of fundamental physical constants and their role in universal structure. Relevant for understanding how harmonic relationships might emerge from basic physical principles.

## Alternative Cosmological Models

**Steinhardt, Paul J. and Neil Turok. *Endless Universe: Beyond the Big Bang* (2007)** Presents the cyclic universe model as alternative to Big Bang cosmology. Directly relevant to Tomes' oscillating universe hypothesis and provides mainstream physics perspective on cyclical cosmic evolution.

**Penrose, Roger. *Cycles of Time: An Extraordinary New View of the Universe* (2010)** Nobel laureate's proposal for cyclical cosmology through "conformal cyclic cosmology." Offers respectable physics framework potentially compatible with harmonic universe theories.

## Historical and Anthropological Perspectives

**Kaulins, Andis. *Stars Stones and Scholars* (2003)** Archaeological analysis linking ancient monuments to astronomical cycles. Provides evidence for sophisticated cyclical knowledge in prehistoric civilizations, supporting the long-term validity of precession-based models.

**Frawley, David.** *Astrology of the Seers (2000)* Scholarly examination of Vedic astronomical and temporal concepts. Essential for understanding the Yuga cycle framework and its relationship to precession astronomy.

**Steiner, Rudolf.** *An Outline of Esoteric Science (1909/1997)* Anthroposophical framework for understanding historical epochs and consciousness evolution. Provides alternative perspective on the historical patterns Constable analyzes.

## **Systems Theory and Complexity Science**

**Meadows, Donella H.** *Limits to Growth: The 30-Year Update (2004)* Updated analysis of the World3 model that features prominently in Constable's crisis predictions. Essential for understanding the mathematical basis of civilizational collapse scenarios.

**Lovelock, James.** *Gaia: A New Look at Life on Earth (1979)* Systems theory approach to planetary-scale feedback mechanisms. Relevant for understanding how large-scale cyclical processes might emerge from complex system dynamics.

**Mandelbrot, Benoit.** *The Fractal Geometry of Nature (1982)* Mathematical foundation for understanding self-similar patterns across scales. Provides theoretical basis for Constable's fractal historical approach.

## **Music Theory and Harmonics**

**Partch, Harry.** *Genesis of a Music (1949/1974)* Exploration of just intonation and natural harmonic relationships in music. Relevant for understanding why Tomes' mathematical harmonics correspond to musical structures.

**Beaulieu, John.** *Music and Sound in the Healing Arts (1987)* Investigation of harmonic relationships in natural and healing contexts. Provides bridge between mathematical harmonics and their potential biological/psychological effects.

## **Contemporary Applications and Validation**

**Herrington, Gaya.** "Update to limits to growth: Comparing the World3 model with empirical data" (2021) *Journal of Industrial Ecology, Vol. 25* Recent empirical validation of the World3 model, confirming its accuracy over five decades. Crucial for assessing the reliability of systemic collapse predictions.

**McCraty, Rollin.** "The Global Coherence Initiative" (2015) *Institute of HeartMath Research* Investigation of global electromagnetic coherence patterns. Potentially relevant for understanding how large-scale cyclical patterns might manifest in measurable physical phenomena.

## **Video Resources**

"**The Power of Ten**" (1977) - **Charles and Ray Eames** Classic visualization of scale relationships from cosmic to quantum levels. Excellent introduction to thinking about self-similar patterns across different scales.

"**Fibonacci Numbers in Nature**" - **SciShow (YouTube)** Accessible explanation of how mathematical relationships manifest in natural patterns. Good introduction to the concept that mathematical principles might underlie natural structure.

**Ray Tomes Lectures - Various YouTube channels** Tomes occasionally presents his work at conferences and workshops. These presentations provide valuable insight into his thinking process and responses to questions about the theory.

**"The Century of the Self" (2002) - Adam Curtis BBC** Documentary series examining cultural and psychological cycles in the 20th century. Relevant for understanding how consciousness shifts might manifest in historical patterns.

## Online Resources and Databases

**Cycles Research Institute Database** *Various archive sites* Collection of Edward Dewey's cycle research data. Invaluable resource for researchers seeking to validate cyclical patterns across disciplines.

**NASA Goddard Institute Climate Data** <https://data.giss.nasa.gov/> Long-term climate datasets relevant for validating climate cycle claims and understanding how environmental cycles might relate to human civilizational patterns.

**Federal Reserve Economic Data (FRED)** <https://fred.stlouisfed.org/> Extensive economic time series data for testing economic cycle theories and validating Kondratieff-type patterns.

**Internet Archive - Foundation for the Study of Cycles** <https://archive.org/> Digital archive of cycle research publications and data from the mid-20th century cycle research movement.

## Methodological and Critical Resources

**Taleb, Nassim Nicholas. *The Black Swan* (2007)** Critical examination of prediction methods and pattern recognition failures. Essential reading for understanding the limitations and pitfalls of cyclical prediction models.

**Kahneman, Daniel. *Thinking, Fast and Slow* (2011)** Analysis of cognitive biases that might affect pattern recognition and prediction. Crucial for maintaining critical perspective on cyclical theories.

**Popper, Karl. *The Logic of Scientific Discovery* (1959)** Foundational text on scientific methodology and the problem of verification versus falsification. Important for assessing the scientific status of cyclical theories.

## Integration and Synthesis

**Capra, Fritjof. *The Web of Life* (1996)** Systems theory approach to understanding life and consciousness. Provides framework for integrating physical, biological, and social cyclical patterns.

**Wilber, Ken. *A Brief History of Everything* (1996)** Integral theory approach to understanding developmental patterns across multiple domains. Offers framework for synthesizing different types of cyclical phenomena.

This bibliography provides comprehensive resources for readers seeking to explore the intersection of mathematical harmonics, historical cycles, and complex systems theory. The sources range from highly technical mathematical treatises to accessible popular science works, allowing investigation at various levels of sophistication. Readers are encouraged to maintain critical perspective while exploring these fascinating theoretical territories.

