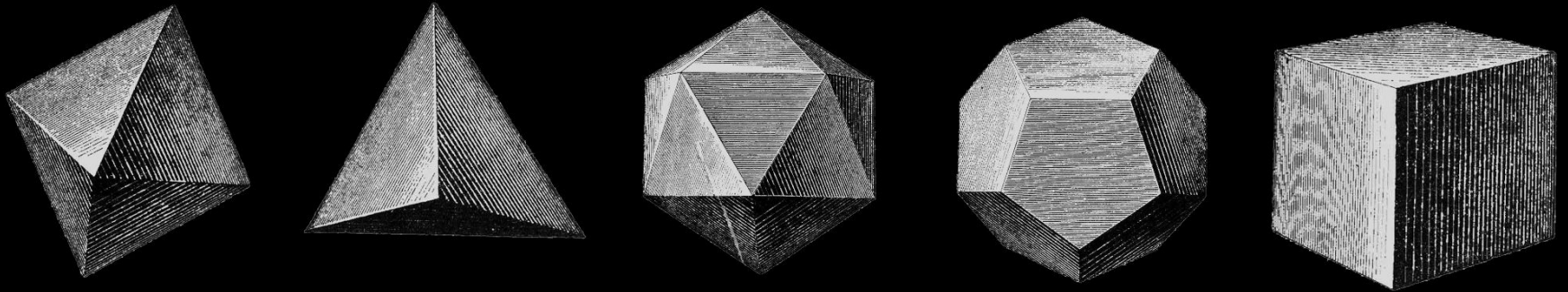
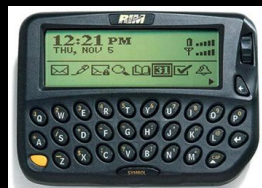


# The Beginning of a New Immersive Cycle







1989

1998-9

2006-7

2015-6

2025-6

2033-4

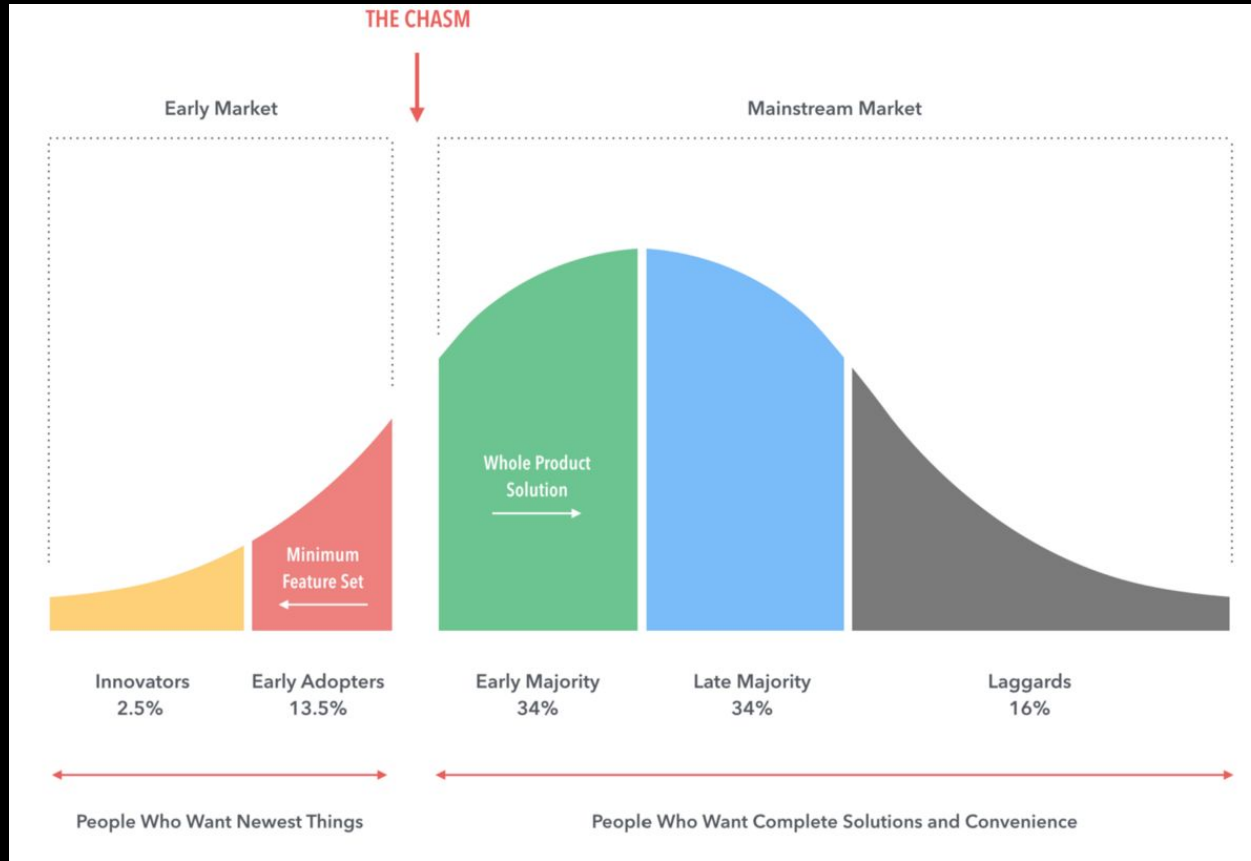
2041-2

2052-3

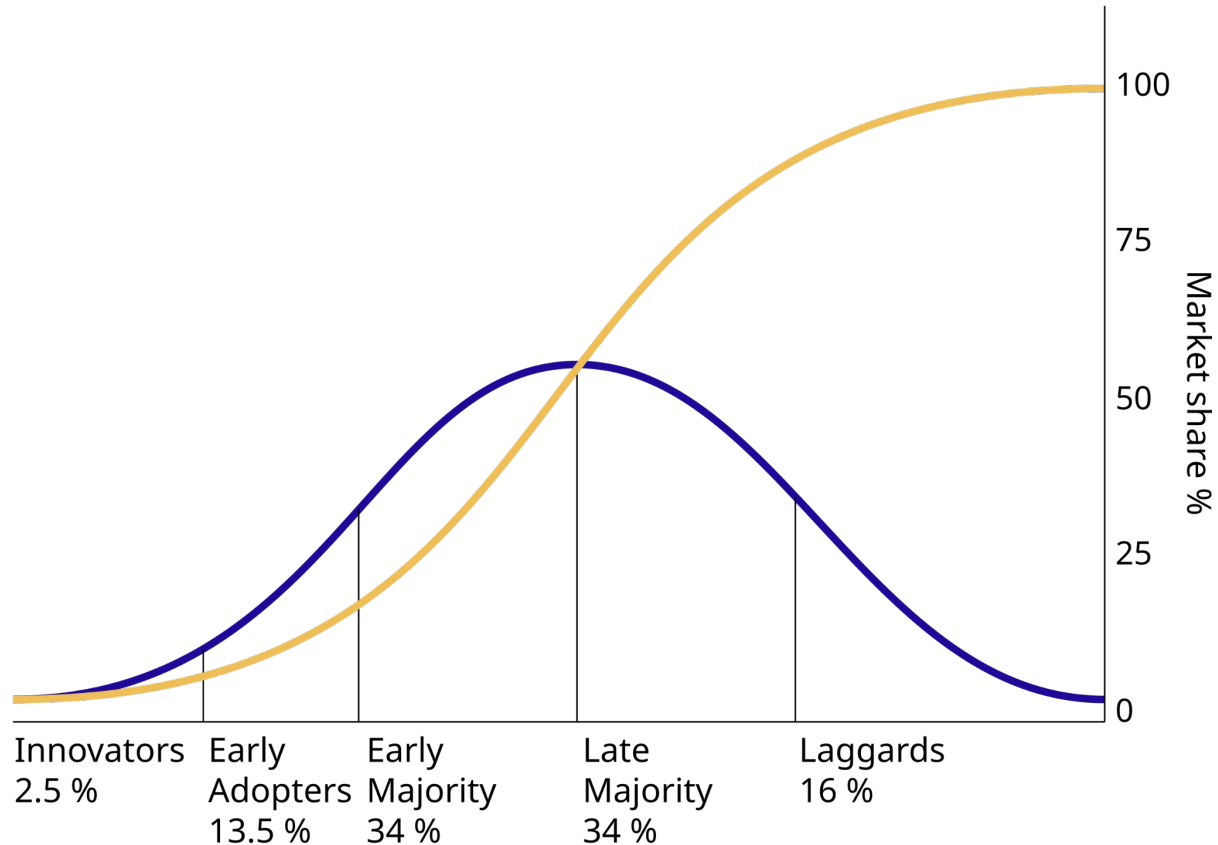


# Tech Diffusion vs Tech Evolution

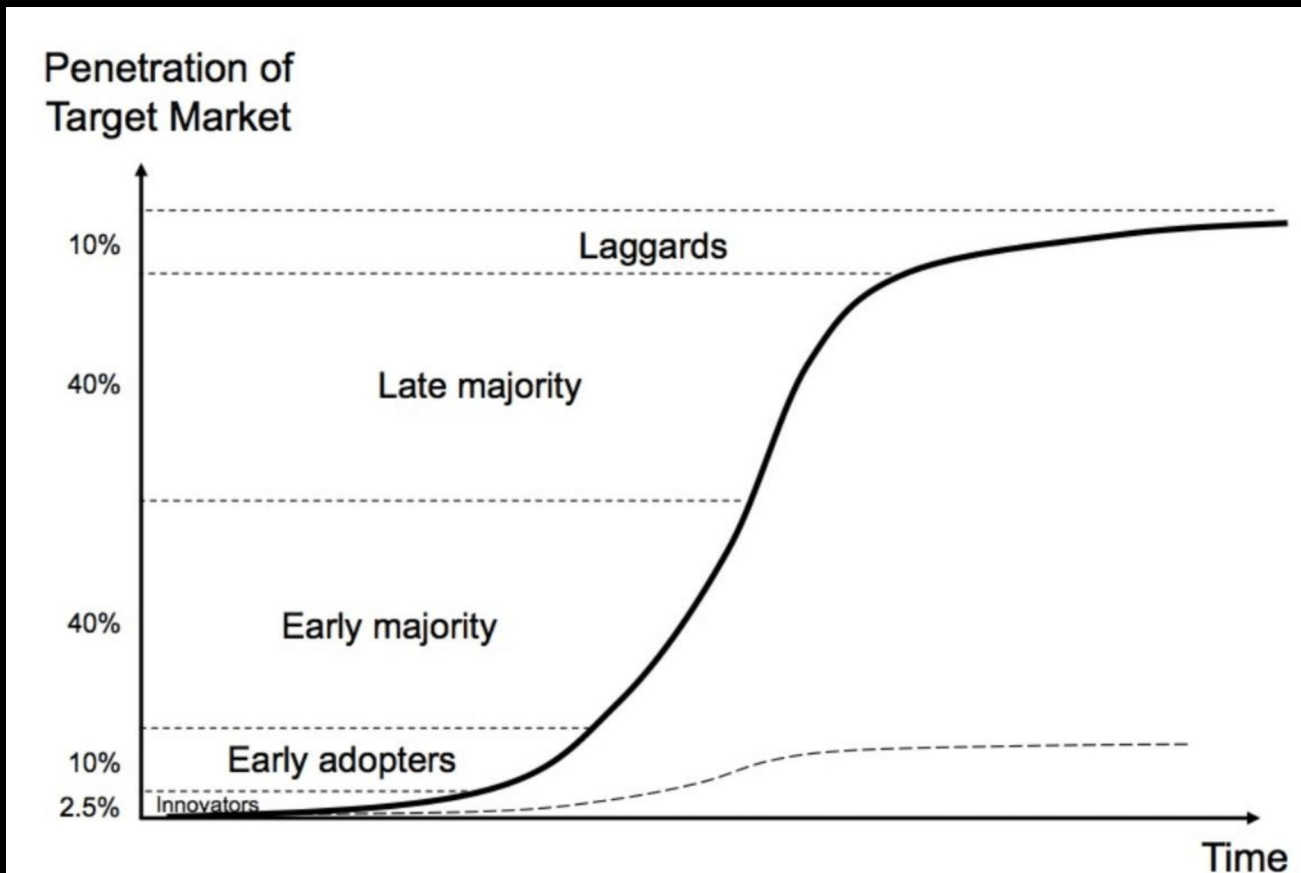
# “Crossing the Chasm” into the Mainstream



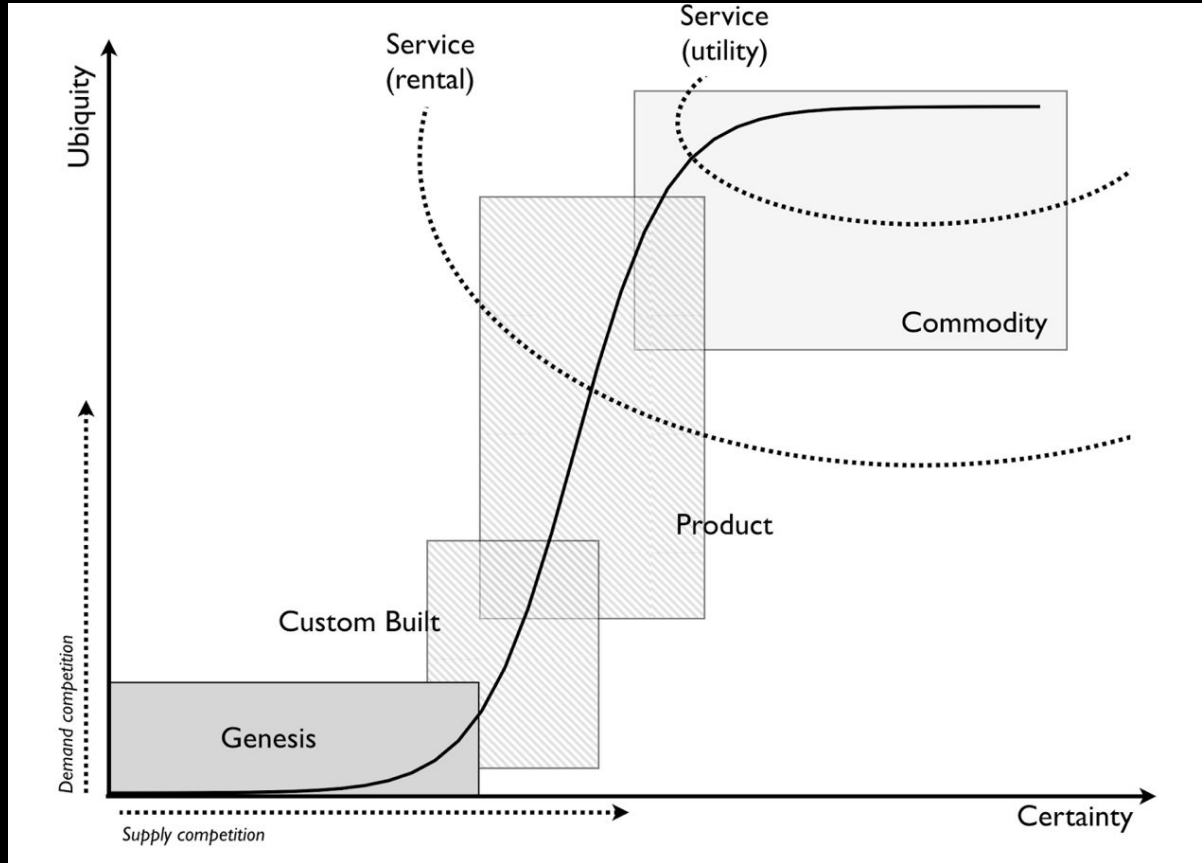
# Everett Rogers' Diffusion of Innovation Model



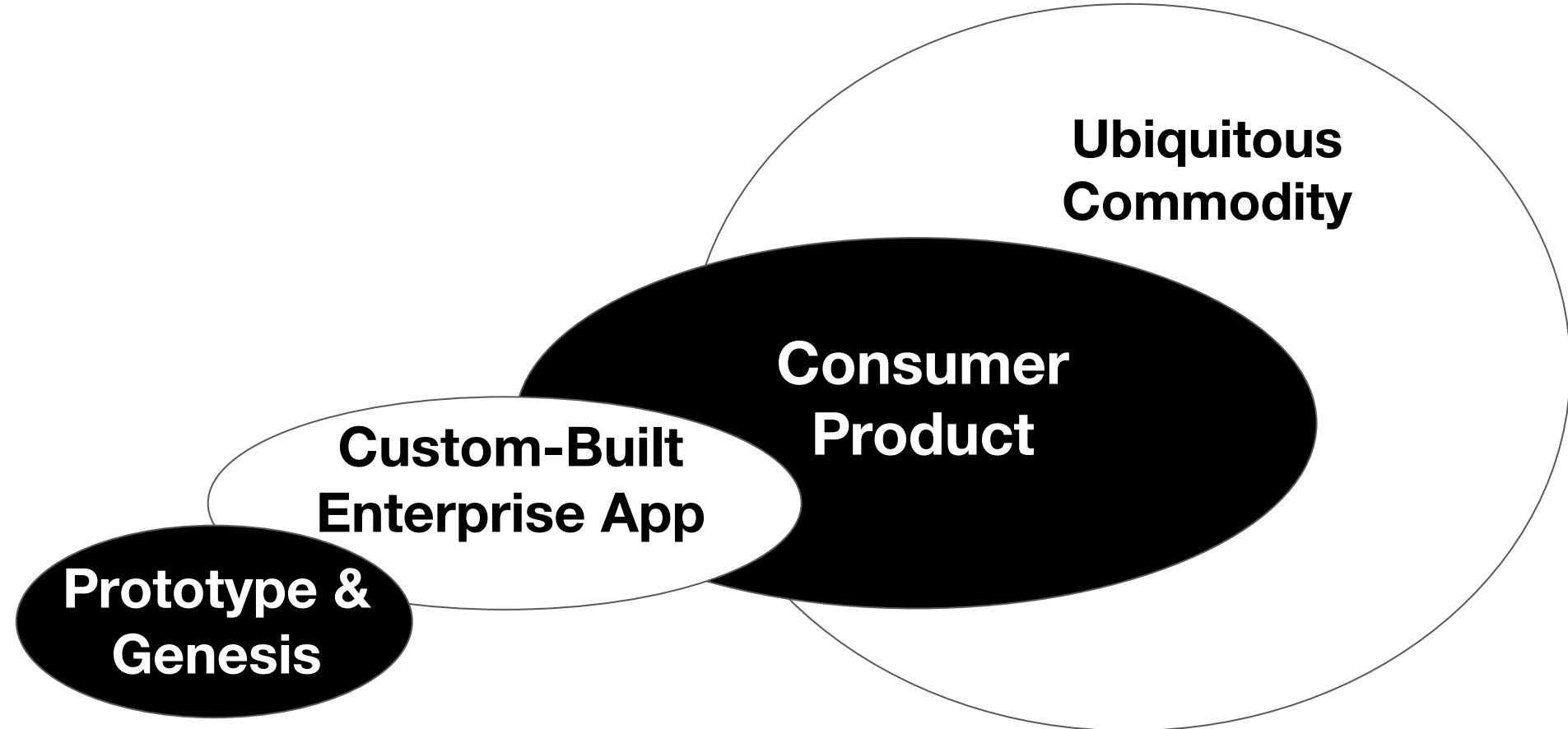
# Diffusion Theory & The S-Curve



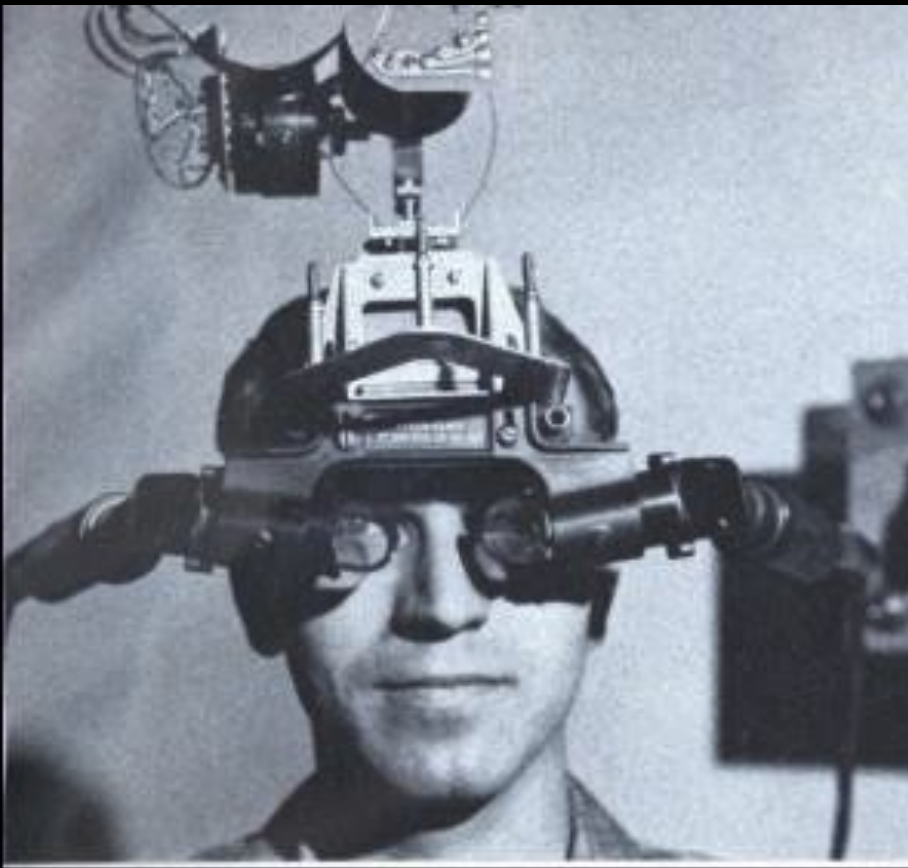
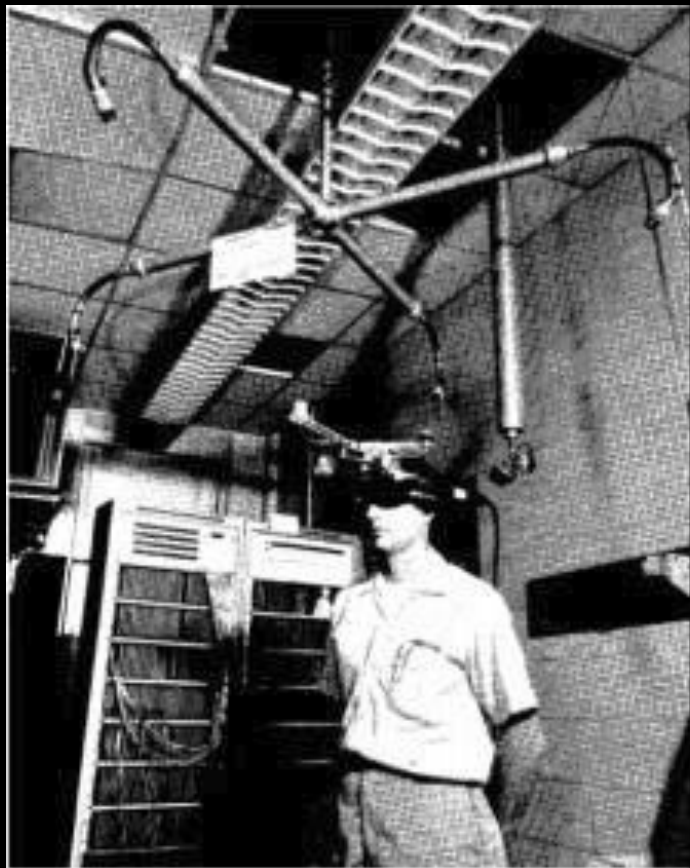
# Simon Wardley's Model of Technology Evolution



# Simon Wardley's Model of Technology Evolution



# Initial Prototype: Sword of Damocles (1968)



# Custom Bespoke Apps: VPL Research (1985-1992)



# Consumer VR (2013–2019)



Watts, S. (2019, October 29). #VR headsets:top shelf: Oculus DK1 > DK2 > CV1 > Quest. Vive VK1 > Pre > Pro > Focus. 2nd row: Gear VRS > Oculus go. Pico Neo. Acer WMR > Samsung WMR. 3rd row: Dead mobile VR hmnds. OSVR. Fove. Pico G2. Twitter. Retrieved December 17, 2021, from [https://twitter.com/vr\\_sam/status/1189169806198693892](https://twitter.com/vr_sam/status/1189169806198693892)

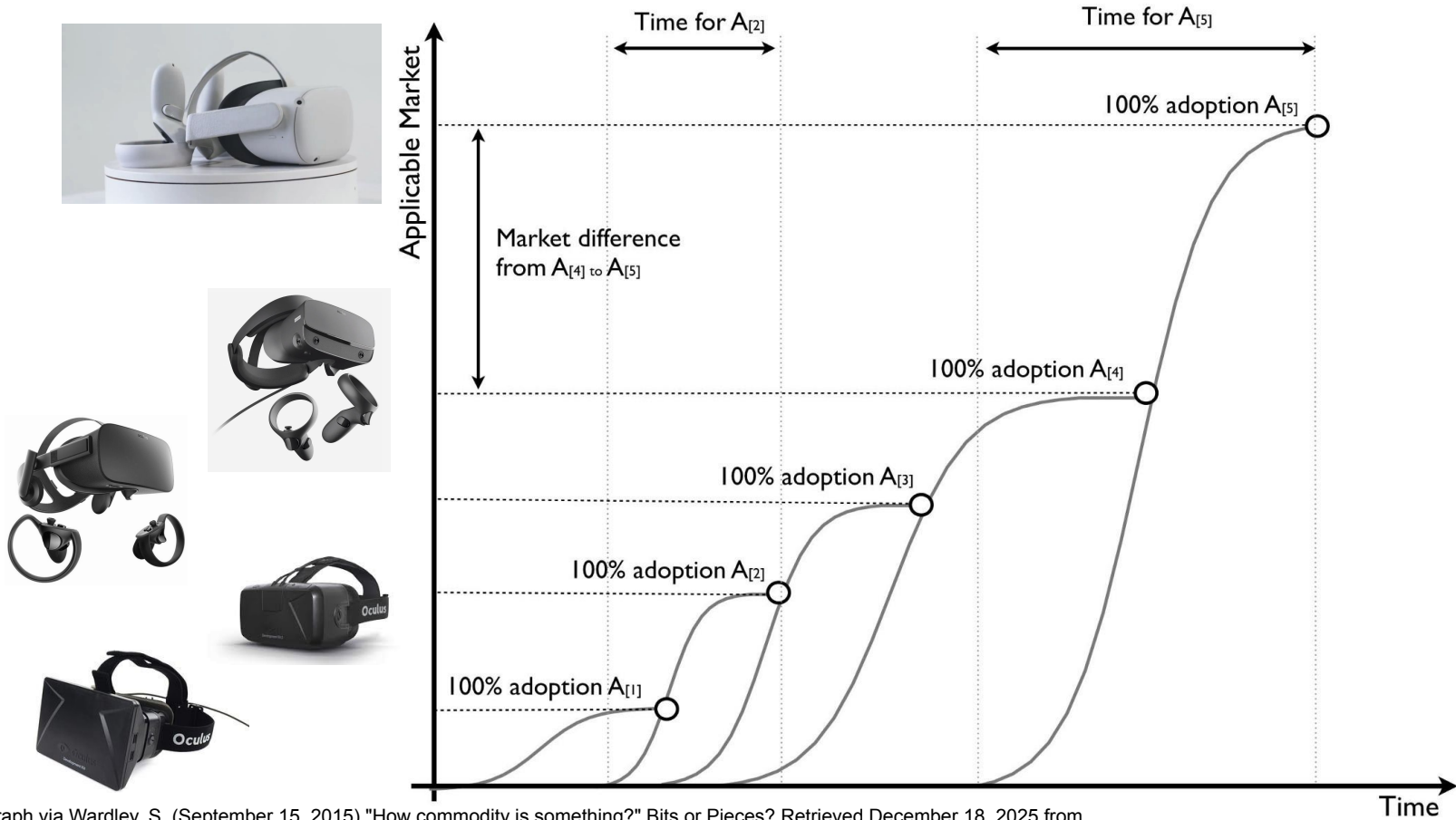
# Ubiquitous Commodity (By 2033? Or 2042?)



# Technology Evolves Iteratively – Oculus VR 2013–2020



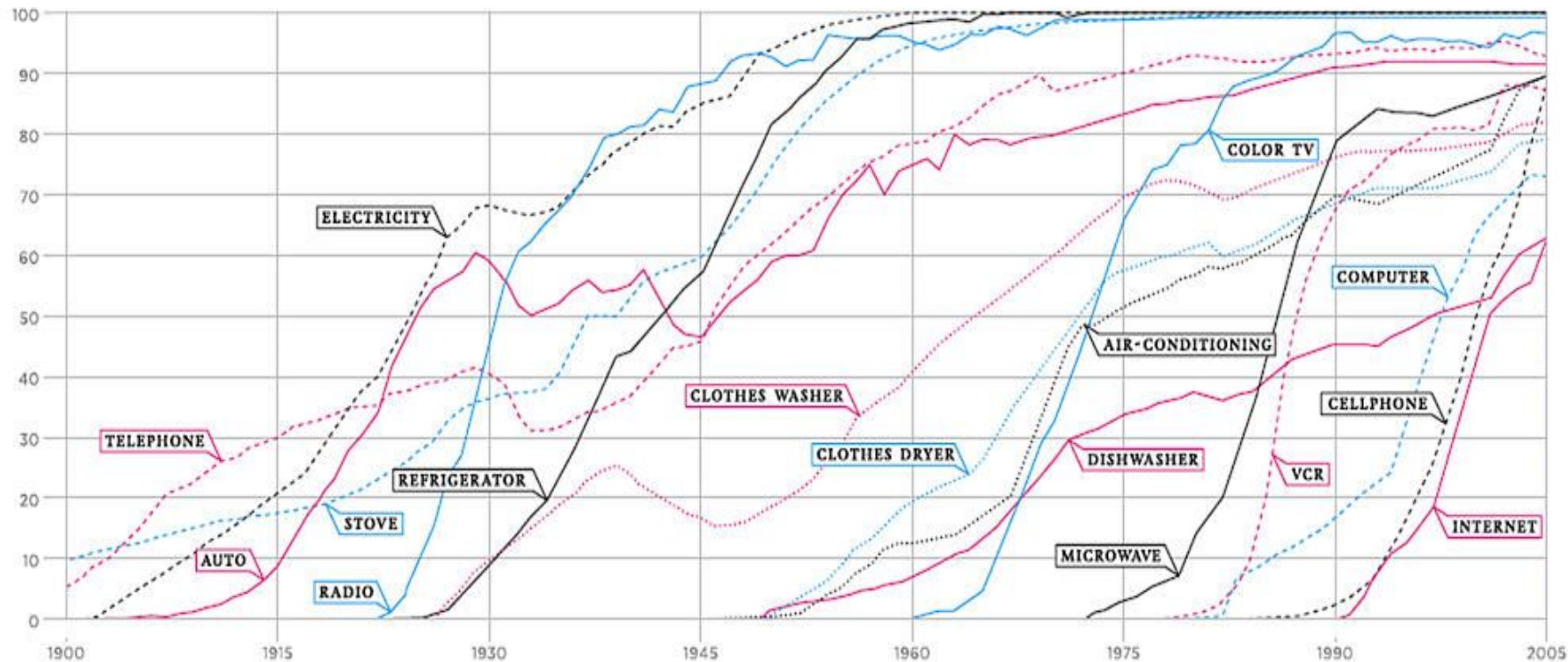
# Each Iteration Has a New Wave of Diffusion



Graph via Wardley, S. (September 15, 2015) "How commodity is something?" Bits or Pieces? Retrieved December 18, 2025 from <https://blog.gardeviance.org/2015/09/how-commodity-is-something.html>

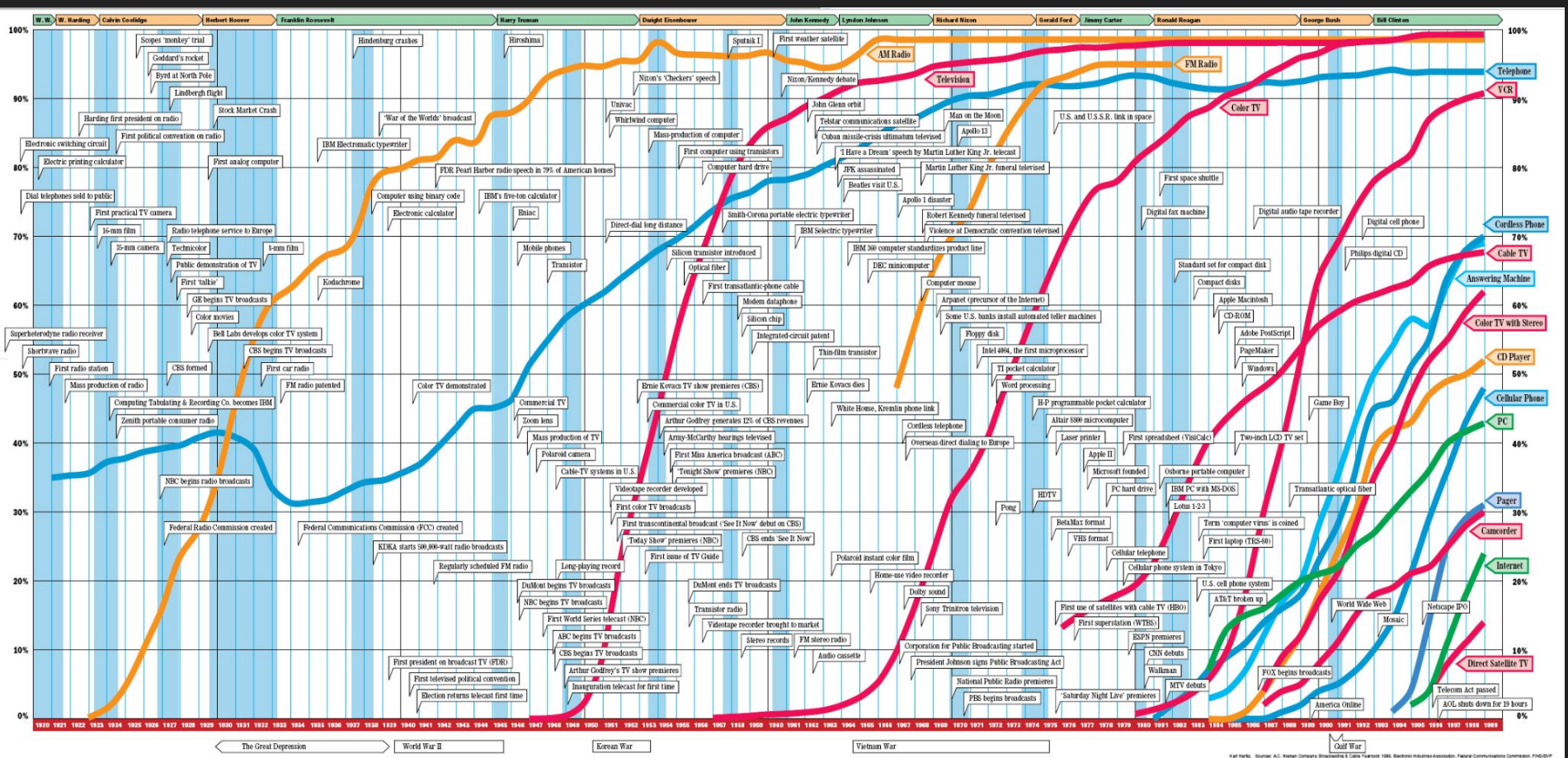
# A Century of Technology Diffusion (1900–2005)

PERCENT OF  
J.S. HOUSEHOLDS



Nicholas Felton

# Technology Diffusion (1920-1999)



Lee, V. (2009, March 12). *Opportunities in the Digital Arena for independent bookstores: An action plan for the american booksellers association*. The American Booksellers Association. Retrieved December 17, 2021, from <https://www.bookweb.org/news/opportunities-digital-arena-independent-bookstores-action-plan-american-booksellers-association>

**"It is really true what philosophy tells us,  
that life must be understood backwards.  
But with this, one forgets the second  
proposition, that it must be lived  
forwards."**

**- Søren Kierkegaard**

# When Will XR Reach Ubiquitous Commodity (By 2033? Or 2042?)



**What is time?**

OXFORD  
ARISTOTLE  
STUDIES

# TIME FOR ARISTOTLE

*Physics* IV. 10–14

URSULA COOPE

Aristotle also invokes the relation of following to explain what he calls ‘the before and after’ (219a 14–19). Some explanation of what it is to be before or after is obviously needed in any account of time. In Aristotle's account, this explanation is of particular importance, as he is going to define time as ‘a number of change with respect to the before and after’ (219b 1–2).

# Diurnal Rotation of Earth Relative to Sun = 1 day



# Relation of Moon to Earth ~ 1 Month



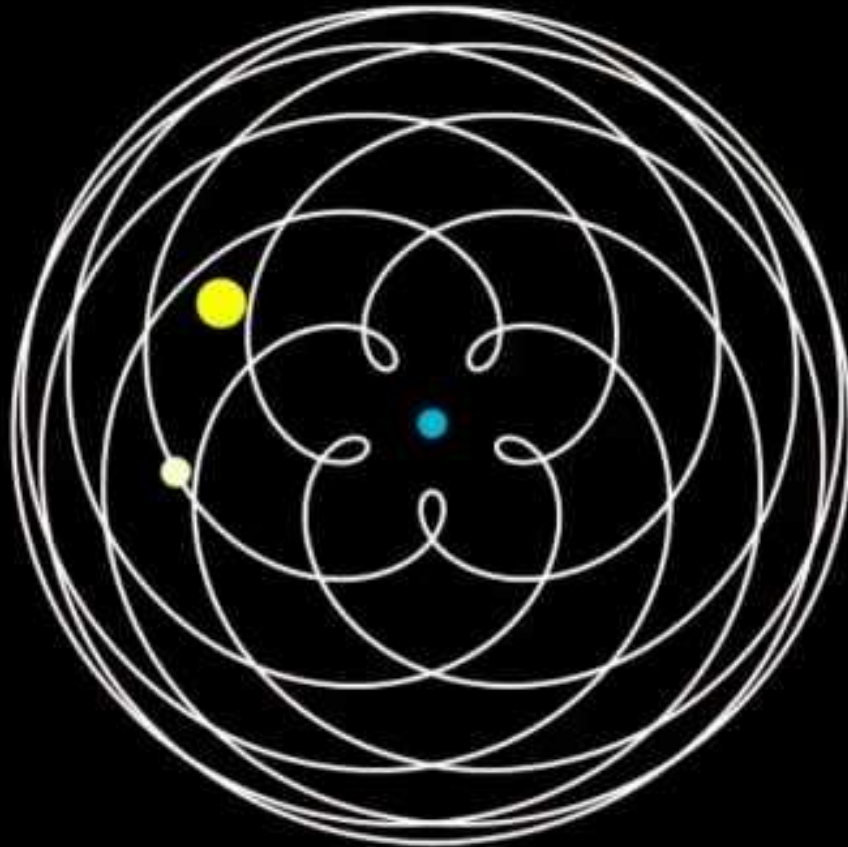
# Relation of to Earth to Sun = 1 Year



NASA Goddard. (2011, June 15). NASA | Moon phase and libration. YouTube. Retrieved December 10, 2021, from [https://www.youtube.com/watch?v=3f\\_21NDwcX8](https://www.youtube.com/watch?v=3f_21NDwcX8).

*The Earth's orbit around the sun.* Earth Space Lab – interactive 3D animations 🌍. (n.d.). Retrieved December 24, 2021, from <https://www.earthspacelab.com/app/earth-revolution/>

# Relation of to Venus to Earth = 8 Years



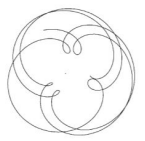
**8** Earth Solar orbits  
for every

**13** Venus Solar orbits  
= 7.995927106 years

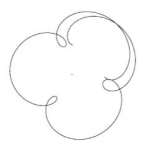
$13 - 8 =$  **5** Synodic Periods

# Relational & Spatial Representations of Time

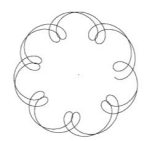
## DANCES OF THE PLANETS



MERCURY - VENUS



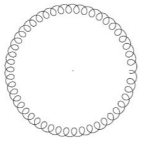
MERCURY - EARTH



MERCURY - MARS



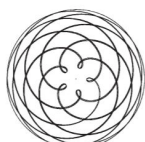
MERCURY - CERES



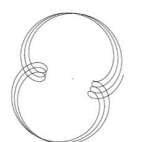
MERCURY - JUPITER



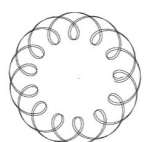
MERCURY - SATURN



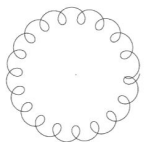
VENUS - EARTH



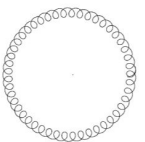
VENUS - MARS



VENUS - CERES



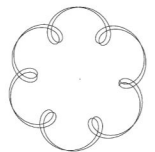
VENUS - JUPITER



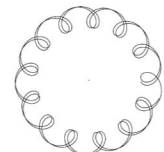
VENUS - SATURN



EARTH - MARS



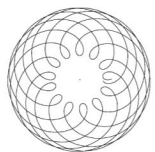
JUPITER - URANUS



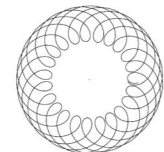
JUPITER - NEPTUNE



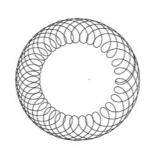
JUPITER - PLUTO



SATURN - URANUS



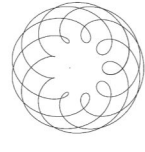
SATURN - NEPTUNE



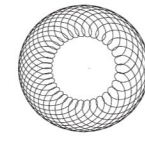
SATURN - PLUTO



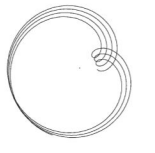
CHIRON - URANUS



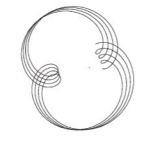
CHIRON - NEPTUNE



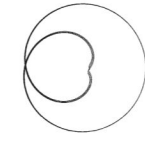
CHIRON - PLUTO



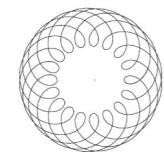
URANUS - NEPTUNE



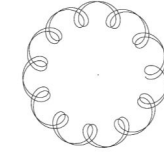
URANUS - PLUTO



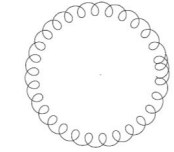
NEPTUNE - PLUTO



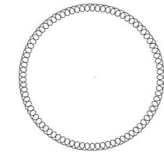
EARTH - CERES



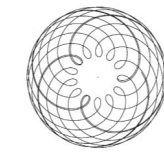
EARTH - JUPITER



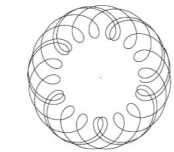
EARTH - SATURN



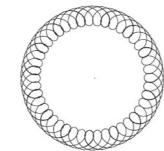
EARTH - URANUS



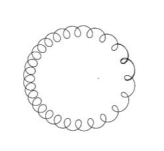
MARS - CERES



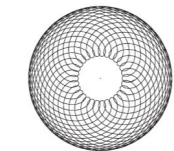
MARS - JUPITER



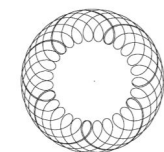
MARS - SATURN



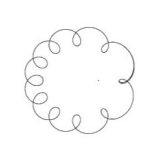
MARS - CHIRON



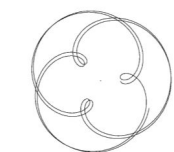
CERES - JUPITER



CERES - SATURN

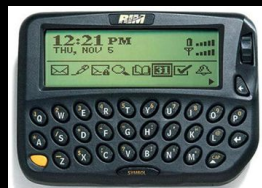


CERES - CHIRON



JUPITER - SATURN

We are at the beginning of a new cycle



1989

1998-9

2006-7

2015-6

2025-6

2033-4

2041-2

2052-3



by the author of  
THE PASSION OF THE WESTERN MIND

COSMOS

AND

PSYCHE

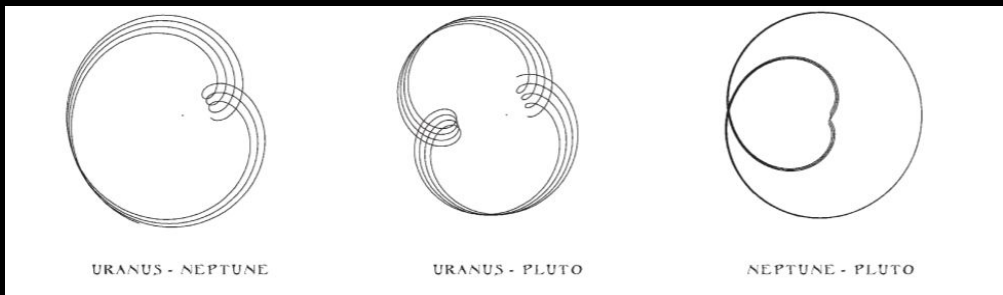
INTIMATIONS OF A NEW  
WORLD VIEW

"A marker for an entire generation."—Christopher Bache

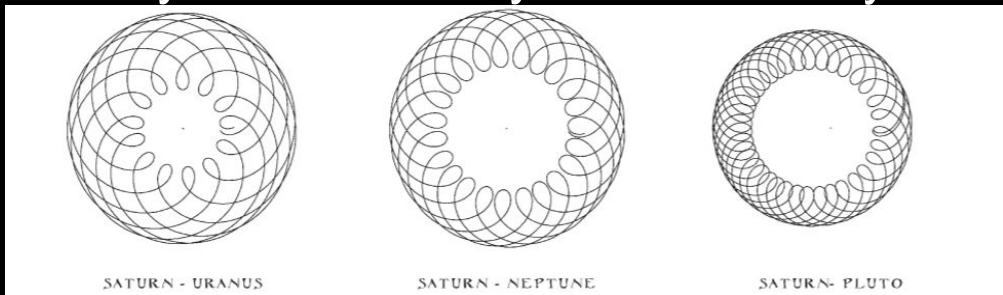
RICHARD TARNAS

# Outer Planetary Cycles Represent Longer Cycles

Uranus-Neptune 170-171 years    Uranus-Pluto 111/143 years    Neptune-Pluto 494-497 years

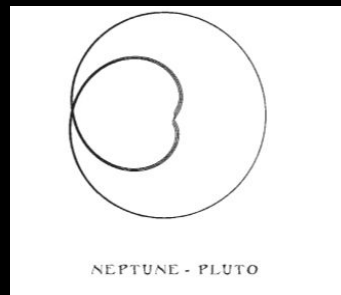


Saturn-Uranus 44-46 years    Saturn-Neptune 35-37 years    Saturn-Pluto 31-38 years

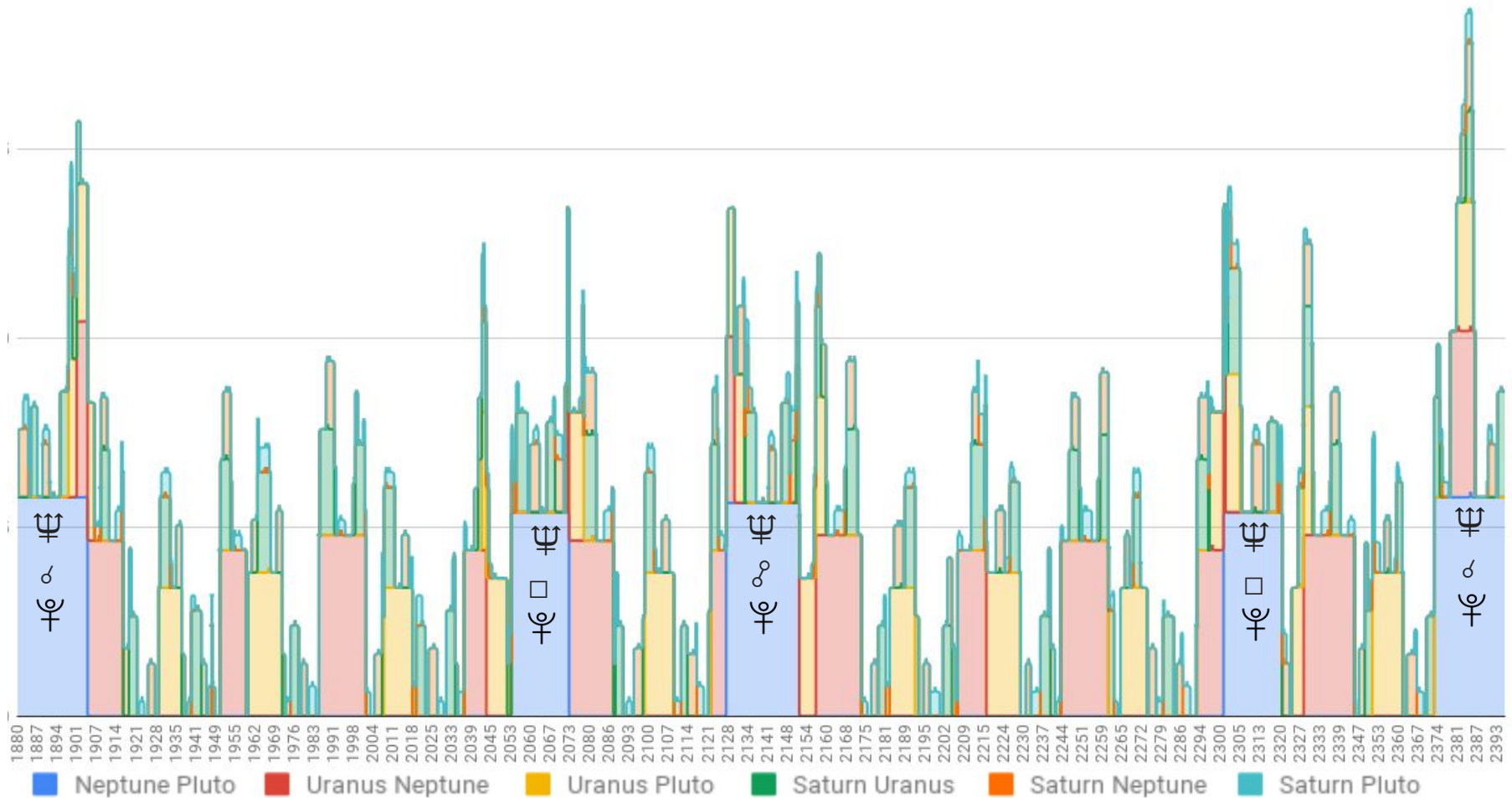


# Outer Planetary Cycles Represent Longer Cycles

Neptune-Pluto  
494-497 years

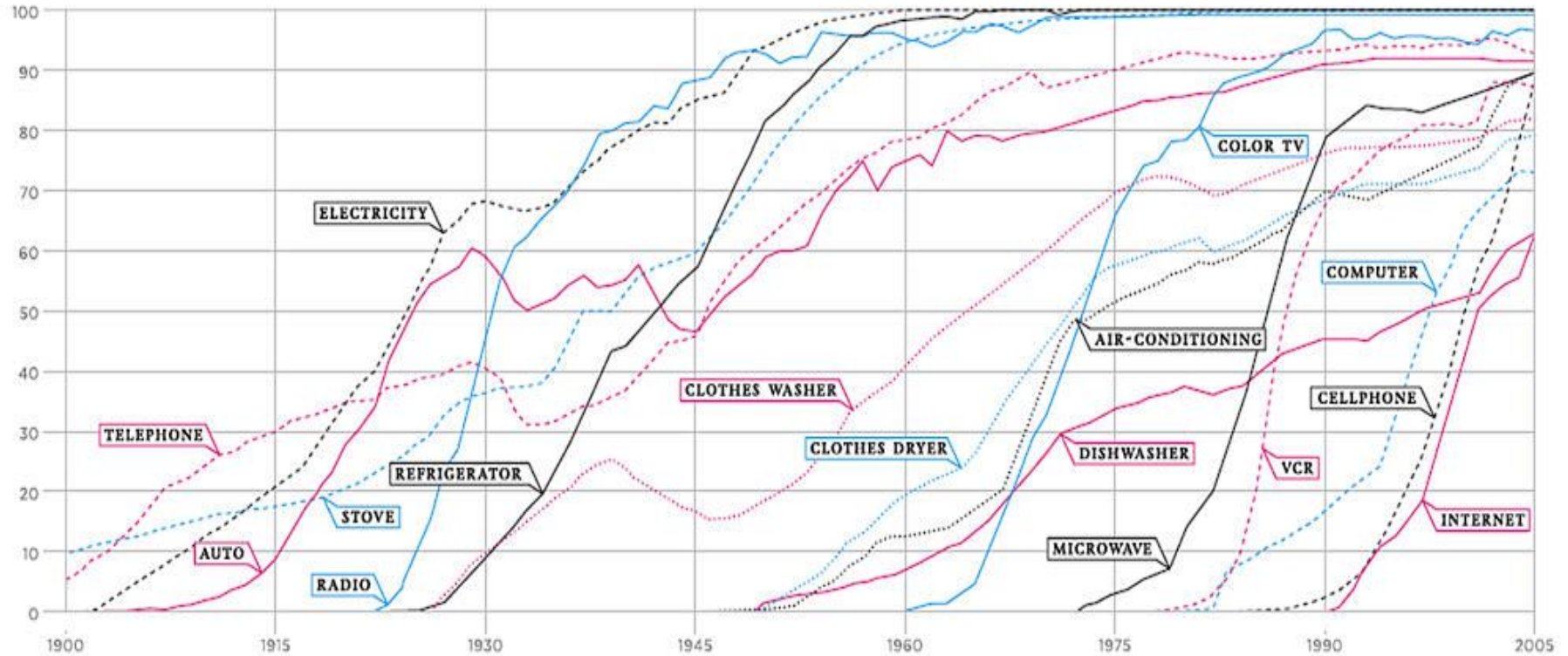


# Outer Planet Transits 1880-2397 (1x ♃♀)



# A Century of Technology Diffusion

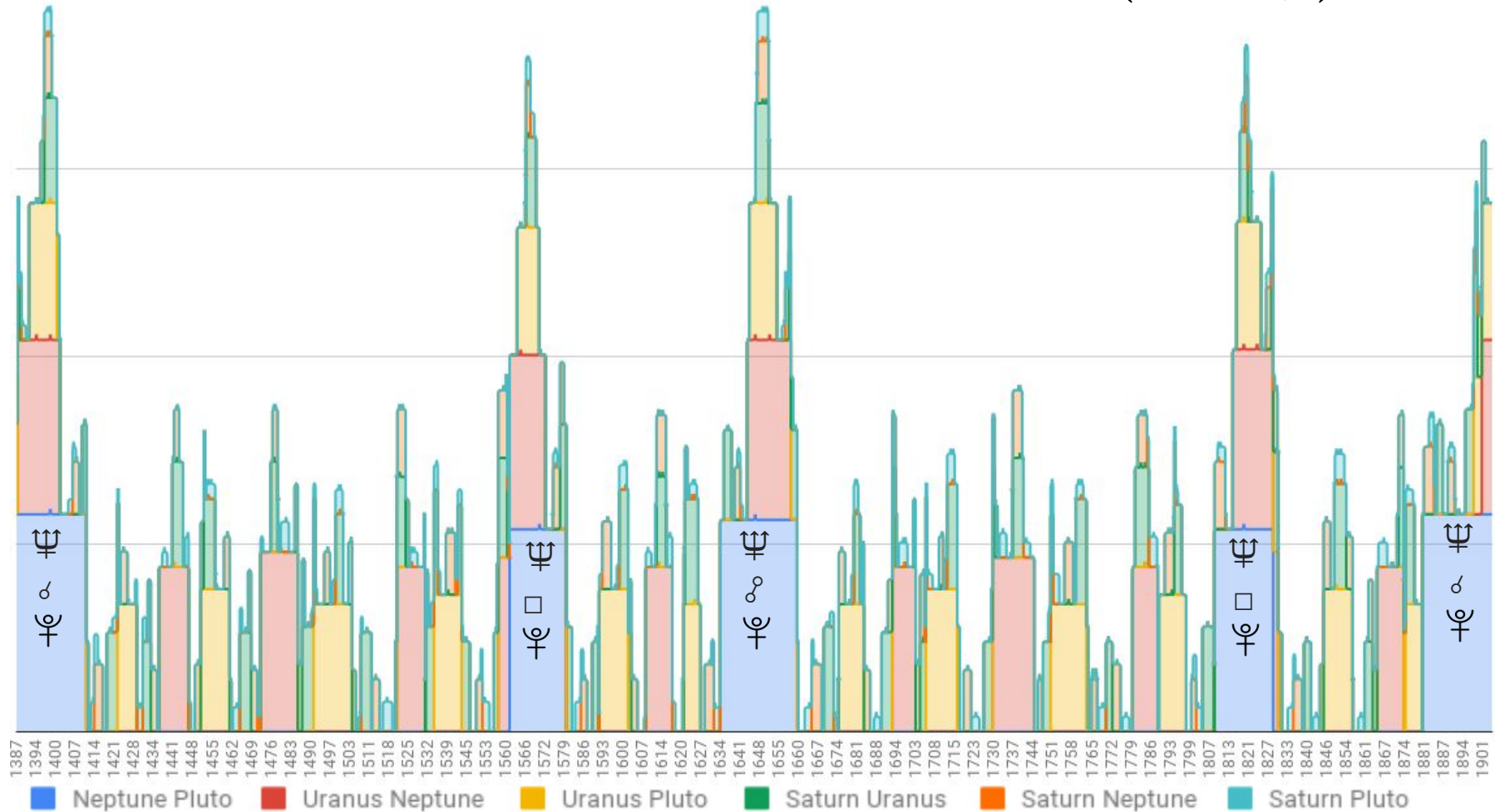
PERCENT OF  
J.S. HOUSEHOLDS



Nicholas Felton

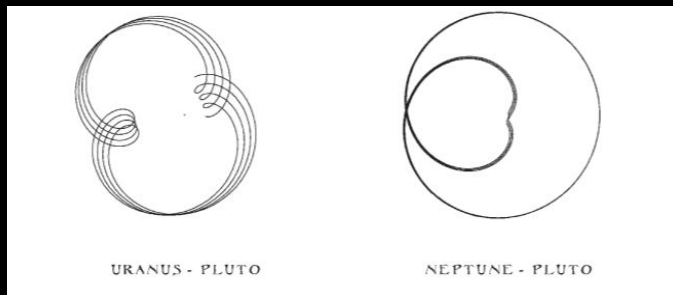
Graphic by Nicholas Felton as cited within Cox, W. M., & Alm, R. (2008, February 10). *You are what you spend*. The New York Times. Retrieved December 17, 2021, from <https://www.nytimes.com/2008/02/10/opinion/10cox.html>

# Outer Planet Transits 1387-1904 (1x ♃♀♄)

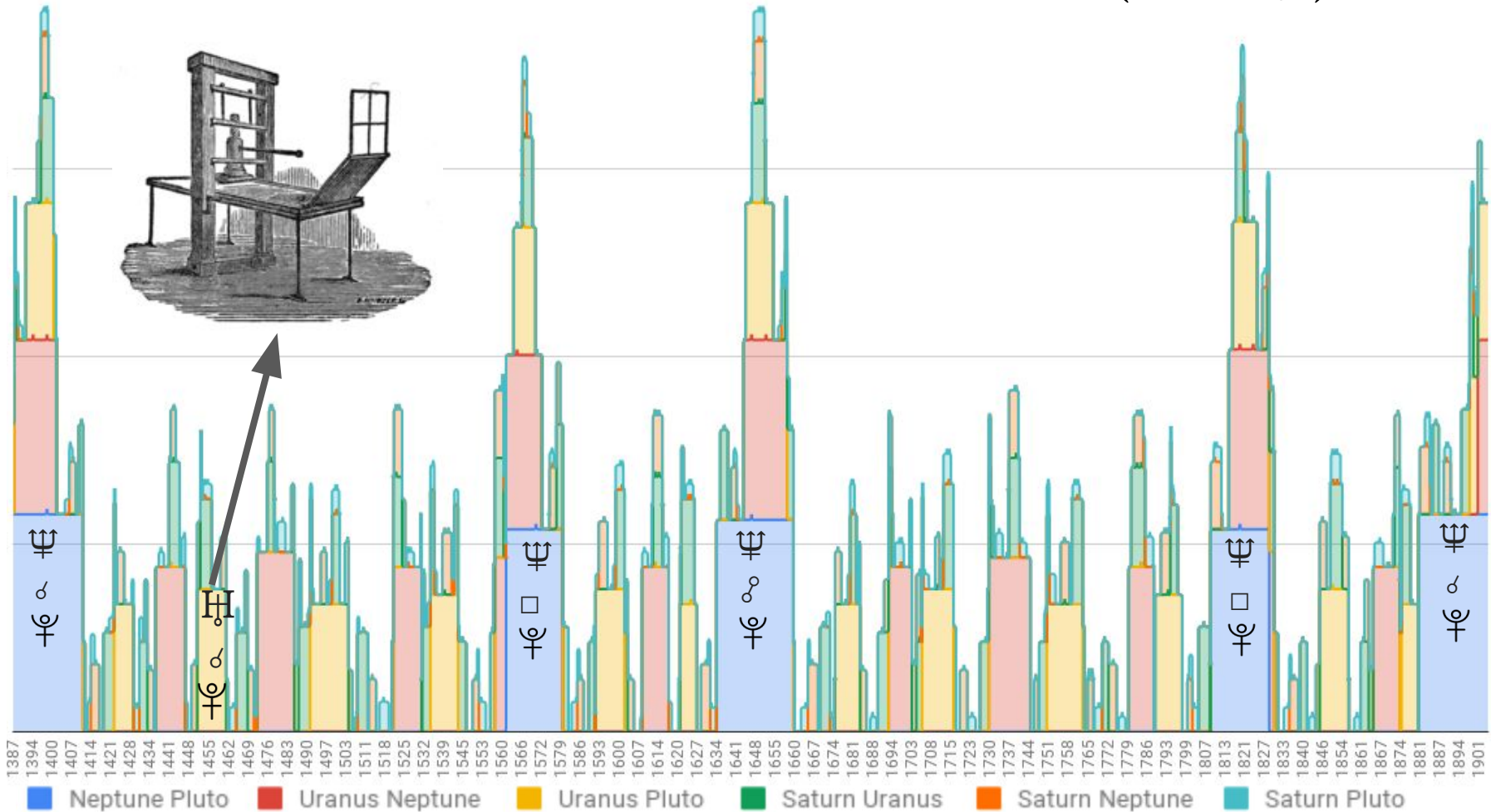


# Outer Planetary Cycles Represent Longer Cycles

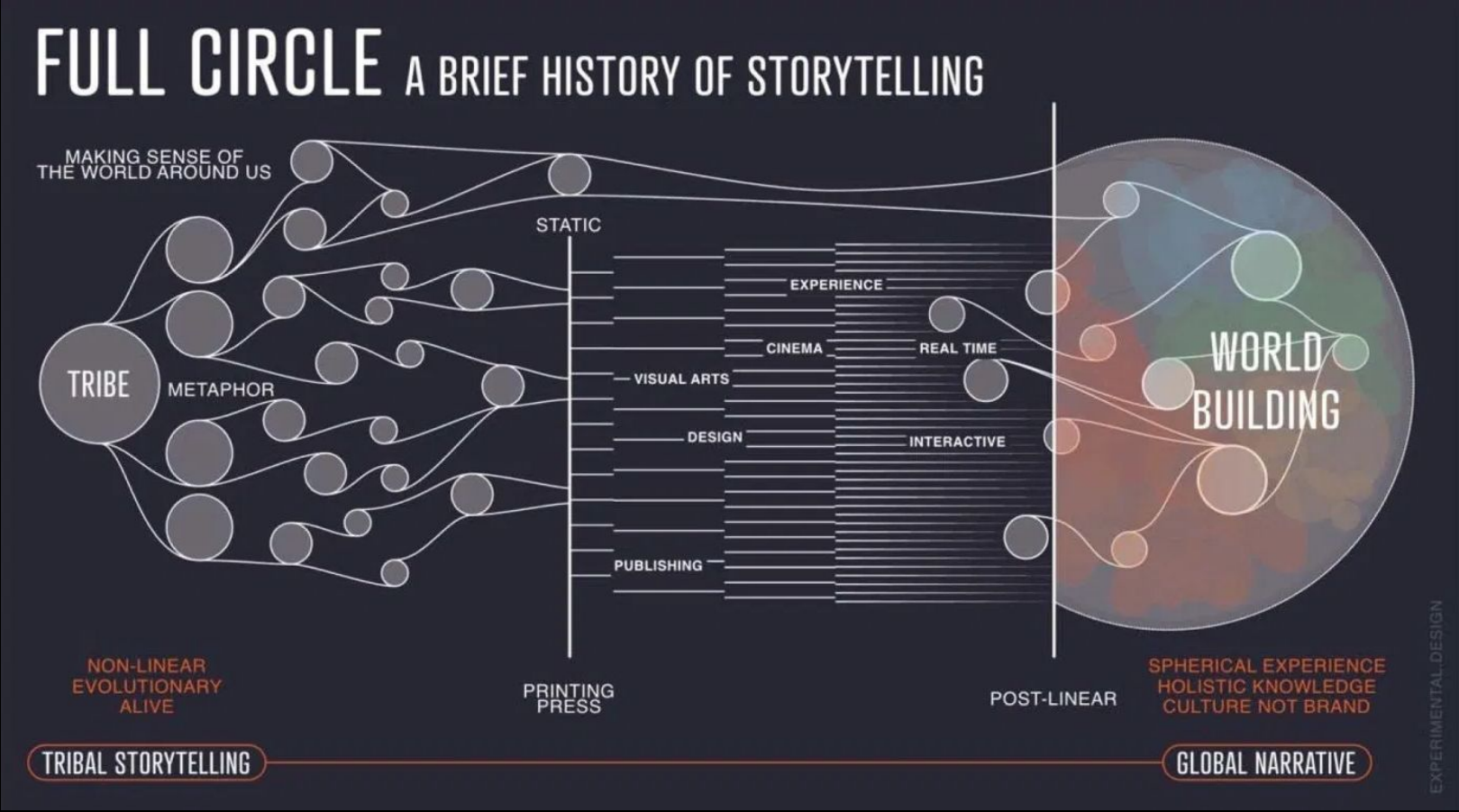
Uranus-Pluto    Neptune-Pluto  
111/143 years    494-497 years



# Outer Planet Transits 1387-1904 (1x ♃♀)



# Alex McDowell's Brief History of Storytelling



McDowell, A. (March 2019). *Storytelling Shapes the Future*. Journal of Futures Studies. 23(3): 105–112. [https://doi.org/10.6531/JFS.201903\\_23\(3\).0009](https://doi.org/10.6531/JFS.201903_23(3).0009).

# Printing Press Connected to the Uranus–Pluto Cycle

“Even going back as far as the Uranus-Pluto conjunction of the 1450s and the development of the Gutenberg press, we see another version of this theme: the unprecedented unleashing of both historical forces and the creative forces of the human spirit that took place in the wake of the printing press, which proved to be a crucial precondition for many of the most important cultural and technological developments of the modern era.”

# Dates for Turning Points of the Uranus–Pluto Cycle

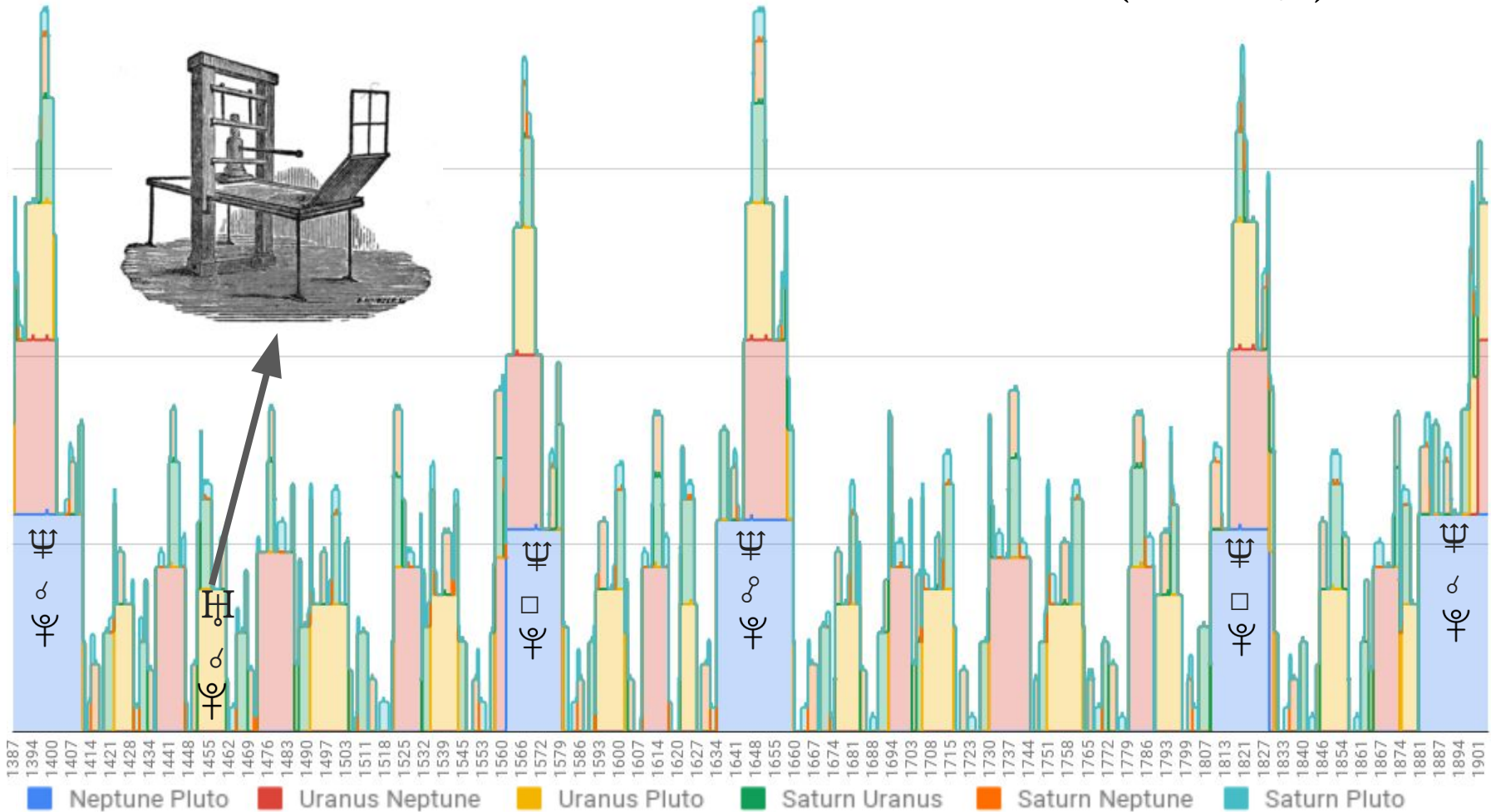
## THE URANUS-PLUTO CYCLE

### Axial alignments since 1450

15° orb		Exact alignment <1°
1450–1461	<i>conjunction</i>	1455–56
1533–1545	<i>opposition</i>	1538–40
1592–1602	<i>conjunction</i>	1597–98
1643–1654	<i>opposition</i>	1648–49
1705–1716	<i>conjunction</i>	1710–11
1787–1798	<i>opposition</i>	1792–94
1845–1856	<i>conjunction</i>	1850–51
1896–1907	<i>opposition</i>	1901–02
1960–1972	<i>conjunction</i>	1965–66

Dates given represent first and last times planets were positioned within stated orb. 20° orb adds one to two years before and after dates given for 15°.

# Outer Planet Transits 1387-1904 (1x ♃♀)



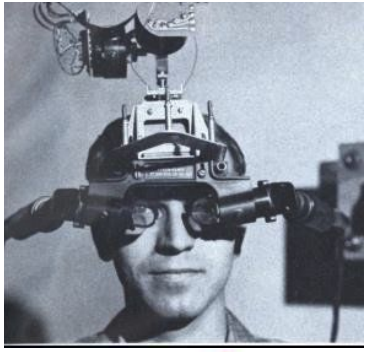


# Planetary Cycles Corresponding to Archetypal Cultural Cycles

“I was encouraged to examine the possible existence of historical correlations with planetary cycles when I encountered a number of highly suggestive patterns in which certain cyclical alignments between the outer planets coincided with major historical events and cultural trends of a distinctive character, as if the specific archetypes associated with those planets were emerging on the collective level in periodic cycles...

One of the first such instances was the decade of the 1960s. By all accounts the Sixties were an extraordinary era. Intense, problematic, and seminal, the entire decade seems to have been animated by a peculiarly vivid and compelling spirit—something “in the air”—an elemental force apparent to all at the time, that was not present in such a tangible manner during the immediately preceding or subsequent decades, and that in retrospect still sets the era apart as a phenomenon unique in recent memory. Early in the course of my research I noticed that during the entire period of this decade, specifically from 1960 to 1972, there took place a conjunction of two outer planets, Uranus and Pluto, that occurs relatively rarely. Indeed, this was the only conjunction of these planets in the entire twentieth century.”

# First Wave of VR



1960

1972

1960  
1962  
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2020

# Tarnas on Making Archetypal Predictions

“I gradually came to recognize that, contrary to its traditional reputation and deployment, such an astrology is not concretely predictive but, rather, archetypally predictive... the essential structure of this emerging astrological paradigm appeared to be focused not on the prediction of specific concrete outcomes but rather on the precise discernment of archetypal dynamics and their complex unfolding in time.”

# Archetypal Description of the Uranus–Pluto Cycle

“The resulting archetypal complex seemed to express itself quite dramatically during those specific historical eras in which Uranus and Pluto were in axial alignment, as evidenced by such phenomena as widespread radical social and political change and often destructive upheaval, massive empowerment of revolutionary and rebellious impulses, and intensified artistic and intellectual creativity. Other distinctive themes of these historical periods included unusually rapid technological advance, an underlying spirit of restless experiment, drive for innovation, urge for freedom in many realms, revolt against oppression, embrace of radical political philosophies, and intensified collective will to bring forth a new world. These impulses and events were typically mixed with massive demographic shifts and a general ambiance of fervent, often violent intensity combined with the excitement of moving rapidly towards new horizons.”

# The Archetypal Cycles of Virtual Reality

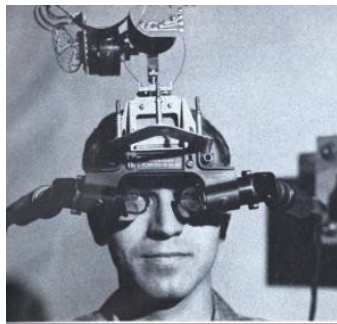
**K**ent Bye

From *Archai* Issue 6, 2017

Virtual reality is a new immersive computing paradigm that can hack our senses and convince our brains that computer-generated experiences are real, which raises fundamental questions about our understanding of reality. VR provides a direct experience of how our reality is mediated through our perceptions, which blurs the boundary between subjective and objective reality. In this article, I will analyze major outer-planet astrological cycles since the 1960s to track the evolution of virtual reality technologies, as well as to gain insight into the transformative potential of this new communication medium.

To read the rest of this article please see: ["The Archetypal Cycles of Virtual Reality"](#)

# Three Waves of VR



1960

1972



1985

2001

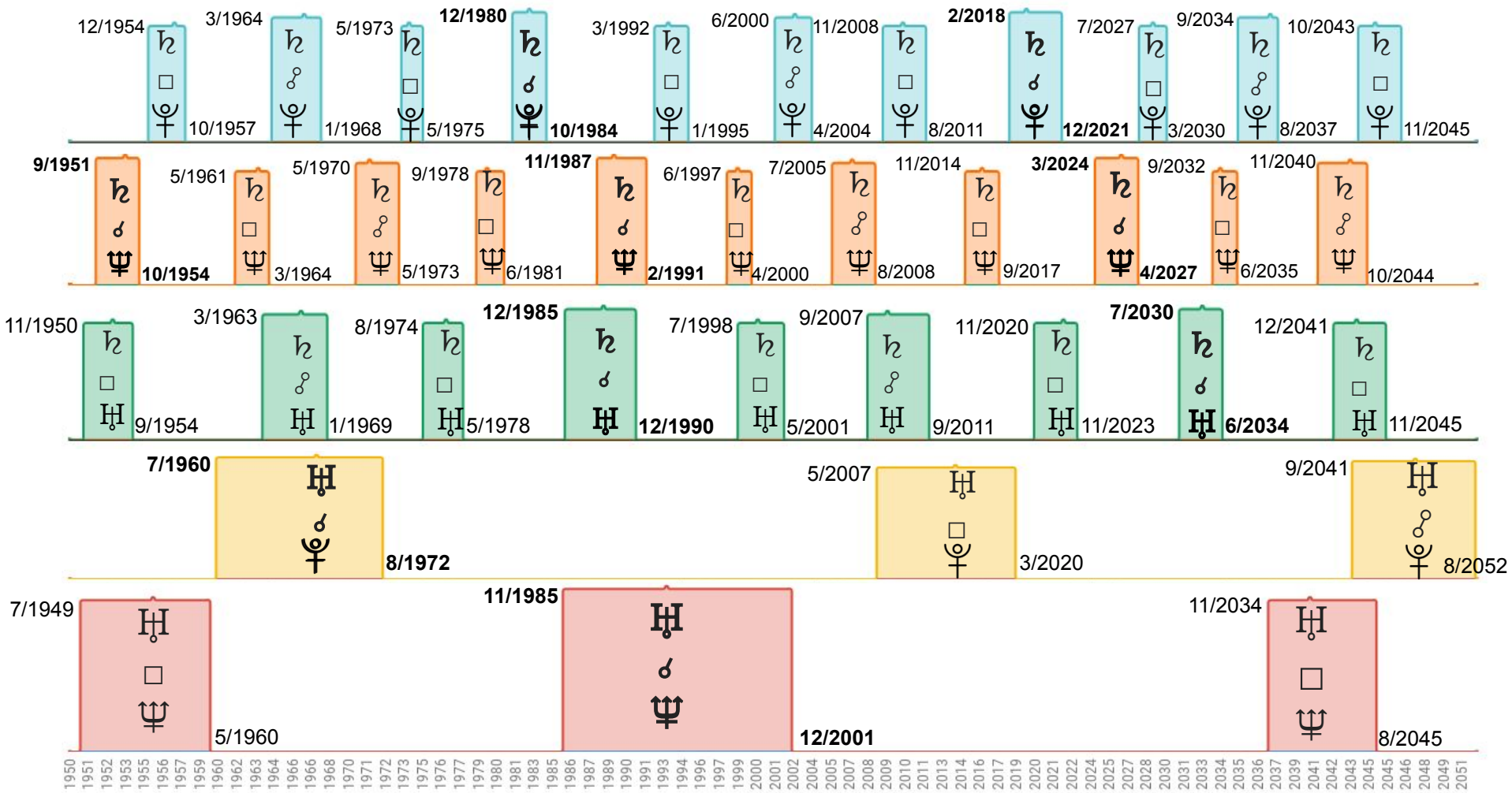


2007

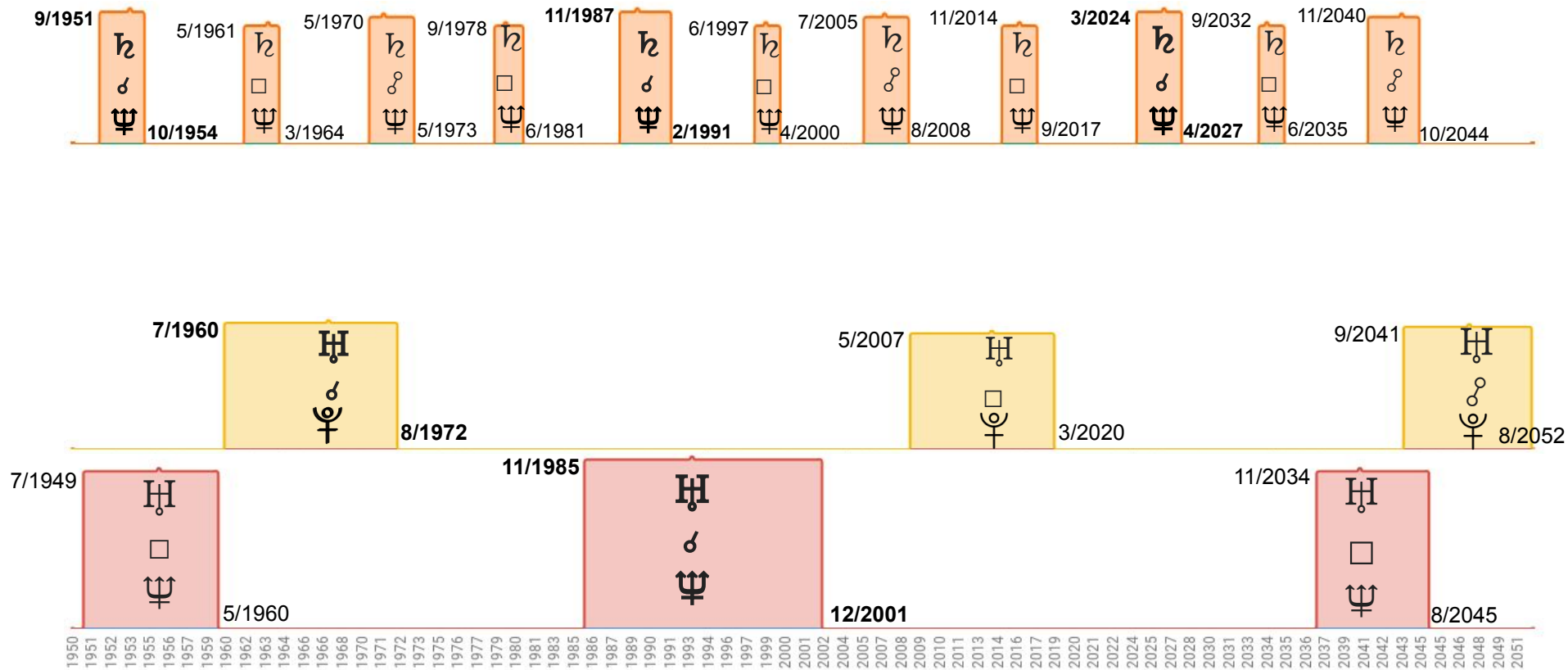
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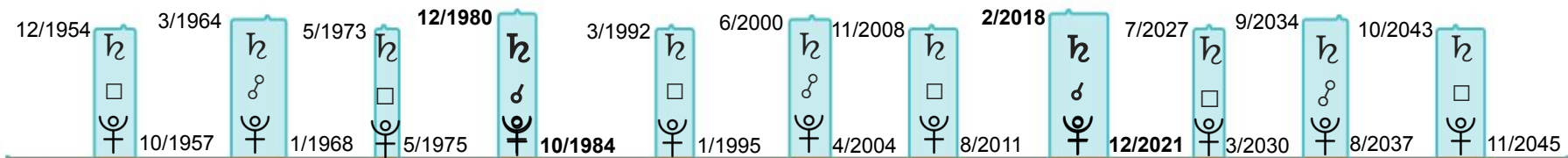
# Outer Planet Transits 1951-2051 (15° orb for ♄ & ♅, 10° orb for ♃)



# Outer Planet Transits 1951–2051 (15° orb for $\delta$ & $\wp$ , 10° orb for $\square$ )

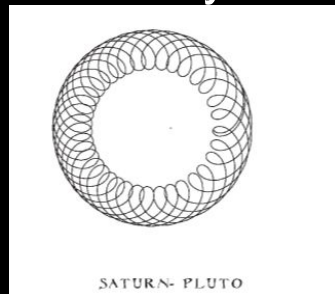


# Outer Planet Transits 1951-2051 (15° orb for ♄ & ♅, 10° orb for ♃)

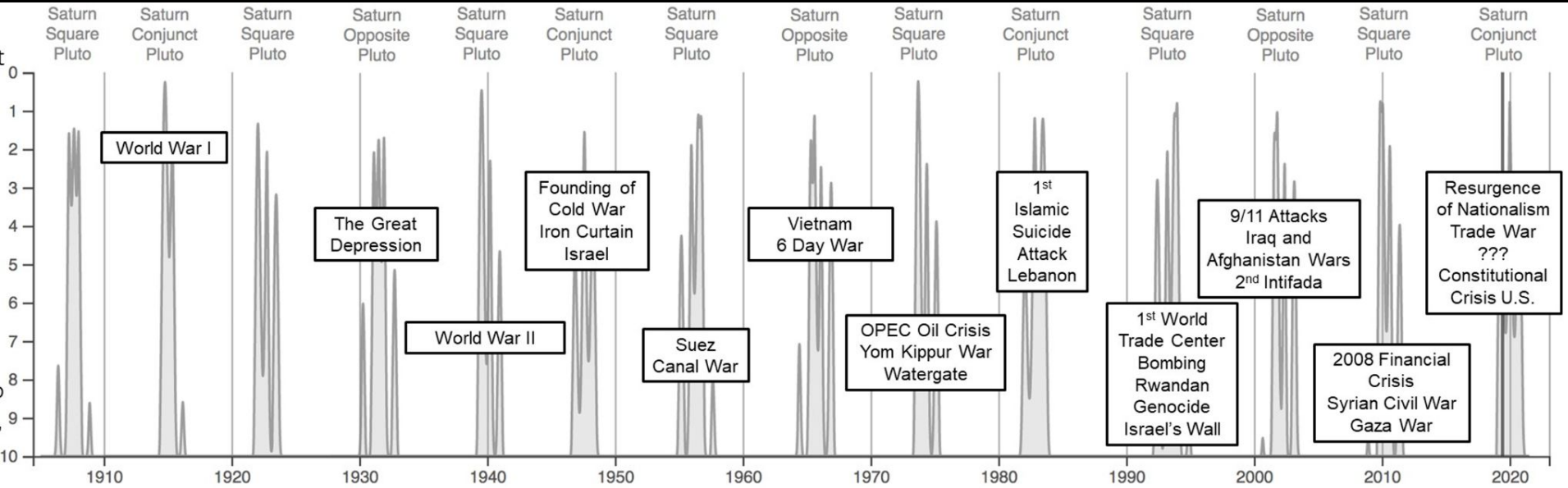


# Outer Planetary Cycles Represent Longer Cycles

Saturn-Pluto  
31-38 years



# Visualization of Tarnas' Saturn Pluto Cycles (Harris, 2019)



Harris, C. (2019, June 25) *Evolution of Consciousness and the Psychological Individuation of Humanity [Poster]*. The Science of Consciousness, Interlaken, Switzerland.

# Dates for Tarnas' Saturn Pluto Cycles

## THE SATURN-PLUTO CYCLE

### Quadrature alignments since 1914

15° orb for conjunctions and oppositions  
10° orb for squares

Exact alignment <1°

August 1913–June 1916	<i>conjunction</i>	October 1914–May 1915
October 1921–October 1923	<i>square</i>	January–October 1922
January 1930–October 1933	<i>opposition</i>	February–December 1931
March 1939–March 1941	<i>square</i>	June 1939–April 1940
June 1946–September 1948	<i>conjunction</i>	July–August 1947
December 1954–October 1957	<i>square</i>	December 1955–October 1956
March 1964–January 1968	<i>opposition</i>	April 1965–February 1966
May 1973–May 1975	<i>square</i>	August 1973–June 1974
December 1980–October 1984	<i>conjunction</i>	October 1982–July 1983
March 1992–January 1995	<i>conjunction</i>	March 1993–January 1994
June 2000–April 2004	<i>opposition</i>	July 2001–June 2002
November 2008–August 2011	<i>square</i>	November 2009–August 2010
January 2018–December 2021	<i>conjunction</i>	December 2019–January 2020

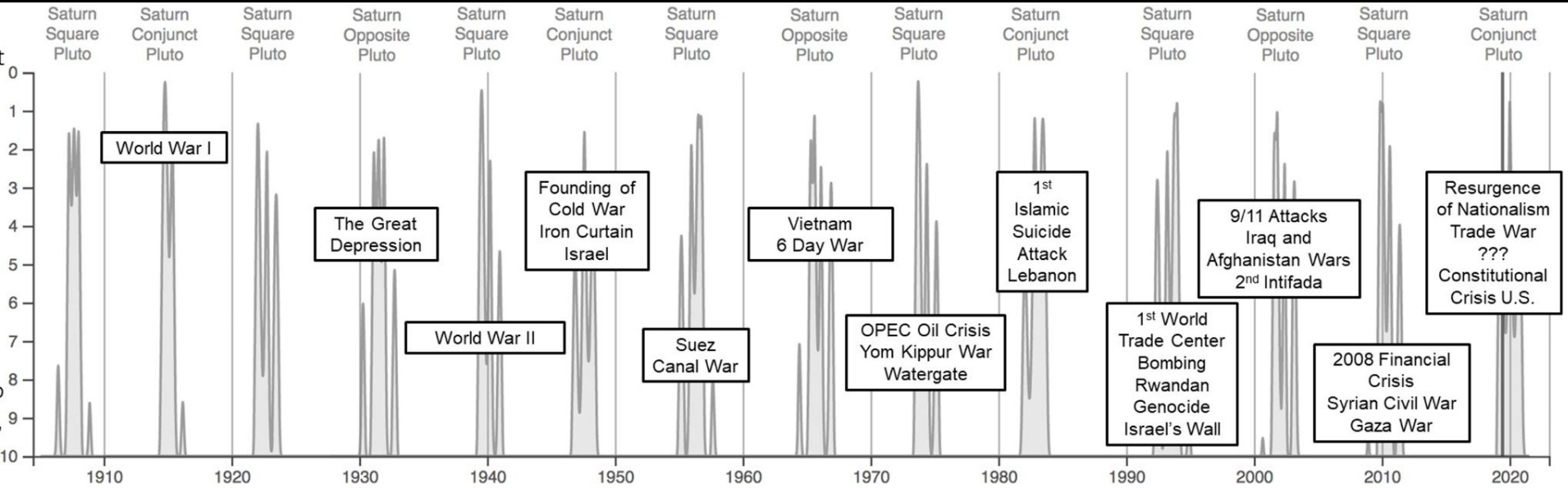
For conjunctions and oppositions, 20° orb generally adds two months before and after dates given for 15°, occasionally up to eleven months. Likewise, for squares, 15° orb adds two to eleven months before and after dates given for 10°.

# What Tarnas Says about the Saturn–Pluto Cycle

“The vivid complex of qualities, emotions, and meanings connected with those grave events — the beginning of the two world wars, September 11 and its aftermath, and many other such events during the periods of Saturn-Pluto alignments — fits with remarkable precision the synthesis of archetypal principles associated with those two planets in combination, expressed in their most extreme form, both negatively and positively:

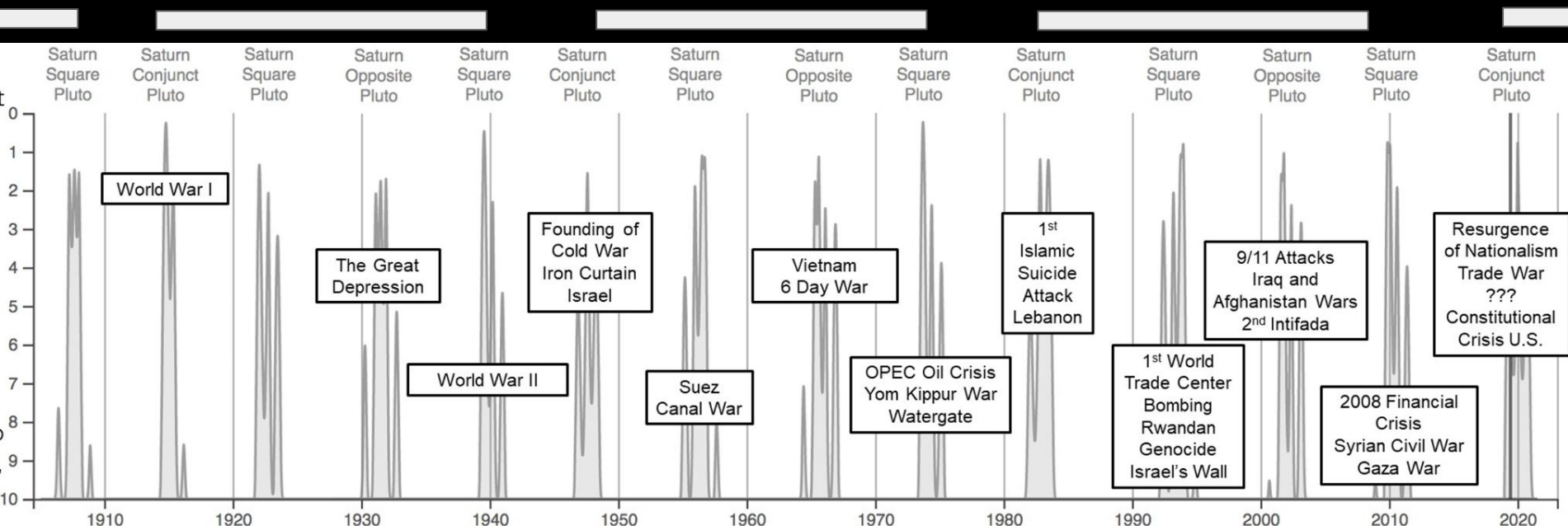
- profoundly weighty events of enduring consequence;
- violence and death on a massive scale;
- the irrevocable termination of an established order of existence;
- collective intensification of division, antagonism, and hostility;
- the deployment of massive, highly disciplined, carefully organized destructive power;
- and a widespread sense of victimization and suffering under the impact of cataclysmic and oppressive forces of history.

# Visualization of Tarnas' Saturn Pluto Cycles (Harris, 2019)



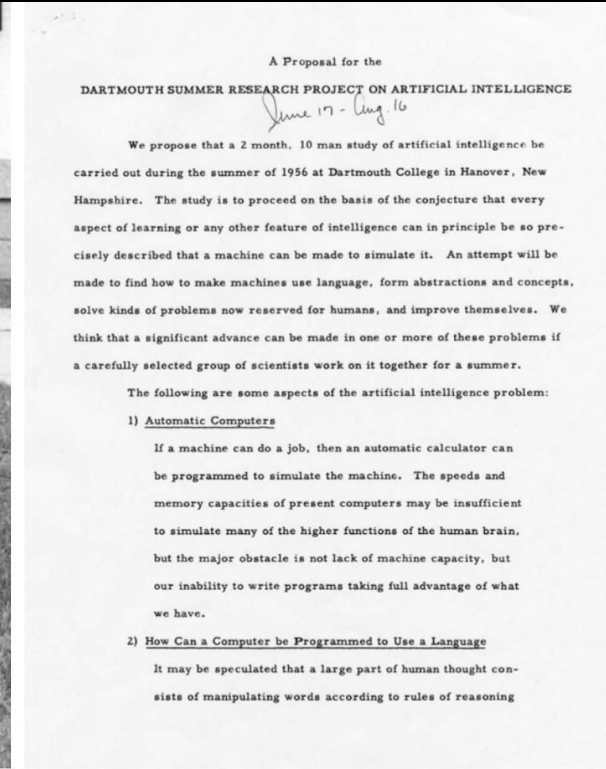
Harris, C. (2019, June 25) *Evolution of Consciousness and the Psychological Individuation of Humanity [Poster]*. The Science of Consciousness, Interlaken, Switzerland.

# Visualization of Tarnas' Saturn Pluto Cycles (Harris, 2019)



Harris, C. (2019, June 25) *Evolution of Consciousness and the Psychological Individuation of Humanity [Poster]*. The Science of Consciousness, Interlaken, Switzerland.

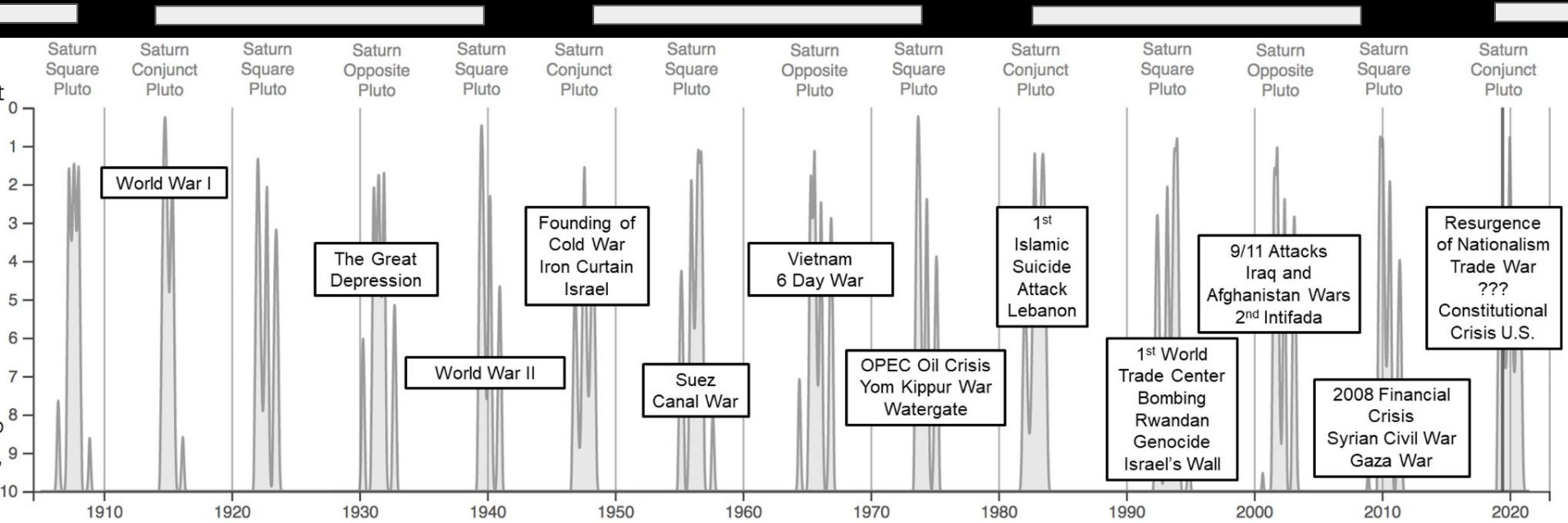
# Dartmouth Summer Research Project on Artificial Intelligence (Jun-Aug 1956)



• Wikimedia Foundation. (2023, April 14). *Dartmouth Workshop*. Wikipedia. Retrieved April 20, 2023, from [https://en.wikipedia.org/wiki/Dartmouth\\_workshop](https://en.wikipedia.org/wiki/Dartmouth_workshop)

• Image via Veisdal, J. (2023, February 19). *The Birthplace of AI*. Medium. Retrieved April 25, 2023, from <https://www.cantorsparadise.com/the-birthplace-of-ai-9ab7d4e5fb00>

# Visualization of Tarnas' Saturn Pluto Cycles (Harris, 2019)



Harris, C. (2019, June 25) *Evolution of Consciousness and the Psychological Individuation of Humanity [Poster]*. The Science of Consciousness, Interlaken, Switzerland.

## THE BRILLIANT BESTSELLER

"The most lucid and concise presentation I have read, of the grand lines of what every student should know about the history of Western thought. The writing is elegant and carries the reader with the momentum of a novel....It is really a noble performance!"  
—Joseph Campbell

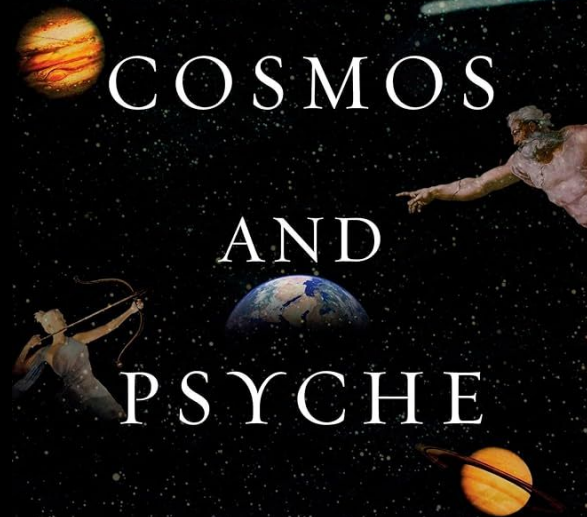


# *The* PASSION *of the* WESTERN MIND

*Understanding the Ideas That  
Have Shaped Our World View*

RICHARD TARNAS

by the author of  
THE PASSION OF THE WESTERN MIND



# COSMOS

# AND

# PSYCHE

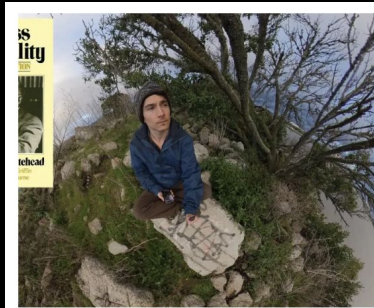
INTIMATIONS OF A NEW  
WORLD VIEW

"A marker for an entire generation."—Christopher Bache

RICHARD TARNAS

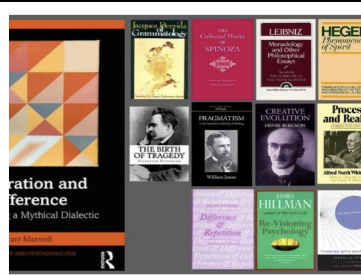
- Tarnas, Richard (1993). *The Passion of the Western Mind: Understanding the Ideas That Have Shaped Our World View*. New York: Ballantine Books.
- Tarnas, R. (2007). *Cosmos and psyche: intimations of a new world view*. Plume.

# My Process Philosophy Episodes



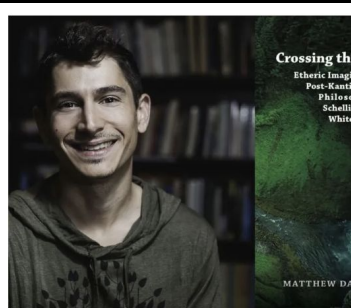
## #965: Primer on Whitehead's Process Philosophy as a Paradigm Shift & Foundation for Experiential Design

by kentbye // December 10, 2020



## #1147: Thirteen Philosophers on the Problem of Opposites: Grant Maxwell's Integration & Difference Book & Archetypal Approaches to Character

by kentbye // October 27, 2022



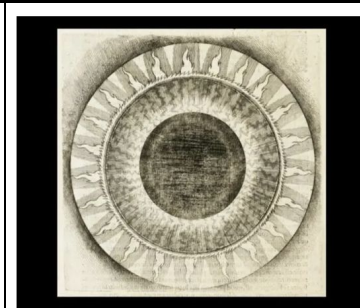
## #1183: From Kant to an Organic View of Reality: Scaffolding a Process-Relational Paradigm Shift with Whitehead Scholar Matt Segall

by kentbye // March 9, 2023



## #1568: A Process-Relational Philosophy View on AI, Intelligence, & Consciousness with Matt Segall

by kentbye // June 4, 2025

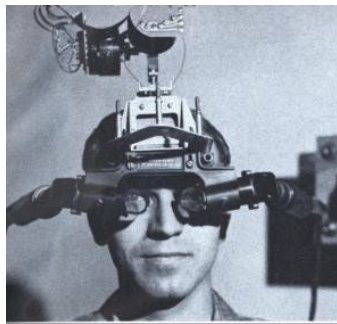


## #1708: How Process Philosophy Centers Experience. A Prismatic Tour of "Whitehead's Universe" by Andrew M. Davis

by kentbye // December 6, 2025

- Bye, K. & Segall, Matt. (2020, December 10). #965: Primer on Whitehead's Process Philosophy as a Paradigm Shift & Foundation for Experiential Design. Voices of VR Podcast. Retrieved on May 10, 2024 from <https://voicesofvr.com/primer-on-whiteheads-process-philosophy-as-a-paradigm-shift-foundation-for-experiential-design>.
- Bye, K. & Maxwell, G. (2022, October 27). #1147: Thirteen Philosophers on the Problem of Opposites: Grant Maxwell's Integration & Difference Book & Archetypal Approaches to Character. Voices of VR Podcast. Retrieved from <https://voicesofvr.com/1147-thirteen-philosophers-on-the-problem-of-opposites-grant-maxwells-integration-difference-book-archetypal-approaches-to-character>.
- Bye, K. & Segall, M. (2023, March 9). #1183: From Kant to an organic view of reality: Scaffolding a process-relational paradigm shift with Whitehead scholar Matt Segall. Voices of VR. Retrieved May 10, 2024, from <https://voicesofvr.com/1183-from-kant-to-an-organic-view-of-reality-scaffolding-a-process-relational-paradigm-shift-with-whitehead-scholar-matt-segall/>.
- Bye, K. & Segall, M. (2025, June 4). #1568: A Process-Relational Philosophy View on AI, Intelligence, & Consciousness with Matt Segall. Voices of VR Podcast. Retrieved Dec 10, 2025 from <https://voicesofvr.com/a-process-relational-philosophy-view-on-ai-intelligence-consciousness-with-matt-segall/>
- Bye, K. & Davis, A.M. (2025, Dec 6). #1708: How Process Philosophy Centers Experience. A Prismatic Tour of "Whitehead's Universe" by Andrew M. Davis. Voices of VR Podcast. Retrieved Dec 10, 2025 <https://voicesofvr.com/1708-how-process-philosophy-centers-experience-a-prismatic-tour-of-whiteheads-universe-by-andrew-m-davis/>.

# Three Waves of VR



1960

1972



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2001



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# What Tarnas Says about Neptune

“[Neptune] is considered to govern the transcendent dimensions of life, imaginative and spiritual vision, and the realm of the ideal. It rules the invisible and intangible ground of experience, shaping awareness beyond the usual causal mechanisms. Its characteristic influence is one of dissolving boundaries and structures, merging that which was separate. It favors the unitive over the divided, the timeless over the temporal, the immaterial over the material, the infinite over the finite.

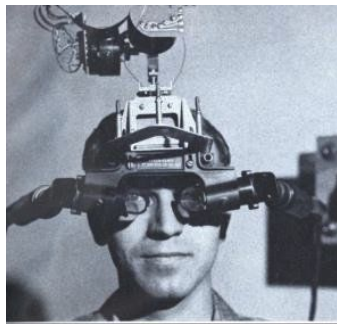
“The Neptune archetype is also associated with illusion and delusion, deception and self-deception, confusion, ambiguity, projection, maya. It rules both the positive and negative meanings of enchantment — both poetic vision and wishful fantasy, mysticism and madness, higher realities and delusional unreality. It informs all that is paradoxically united. It transcends and confuses attempts to maintain strict boundaries, definitions, and dichotomies. It is the archetypal principle of the multidimensional and the metaempirical, the metaphorical and multivalent.”

# What Tarnas Says about Uranus–Neptune

"Here we can briefly note a few major themes that clearly reflect the combination of Uranus and Neptune: the synthesis of technological innovation with radical changes in consciousness, the unprecedented speeding up of the flow of information and the internal experience of life, the ceaseless stream and instantaneity of communication produced by email, the sense of unlimited interconnectivity, the accelerated dissolving of boundaries (relational, global, economic, epistemological). The experiential dimension of these changes clearly reflects the Uranus-Neptune complex in the sudden, liberating and, to many, bewildering opening up of unlimited networks of connections and access to new sources of data. So also the addictive, druglike, trance-inducing aspect of Internet use.

"Equally suggestive of this archetypal gestalt are such characteristic terms and metaphors as “cyberspace,” the “World Wide Web,” “surfing the datastream,” “hypertext,” and the dynamic and nonlinear amorphous “sea” of virtually infinite sources of information, complexly interconnected through hypertext links, all mediated by genie-like search engines that have revolutionized the search for and transmission of knowledge. The many allusions to the Internet as facilitating the emergence of a “global mind,” “Gaia mind,” the “Teilhardian noosphere,” and “Indra’s net,” with Internet connections, high-speed fiber-optic cable (much of it undersea), and wireless technology that can potentially link every individual node of consciousness to every other on the planet, clearly reflect the Uranus-Neptune archetypal complex. We can also recognize the distinctive signs of this planetary combination in the widespread utopian, even mystical aspirations that emerged during these years in direct connection with the new technologies."

# Three Waves of VR



1960

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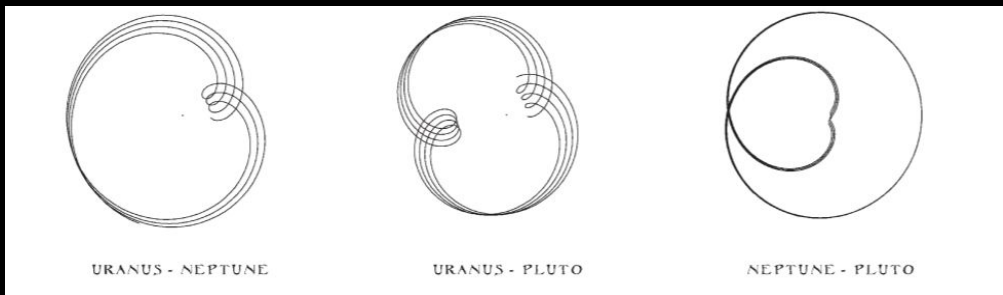
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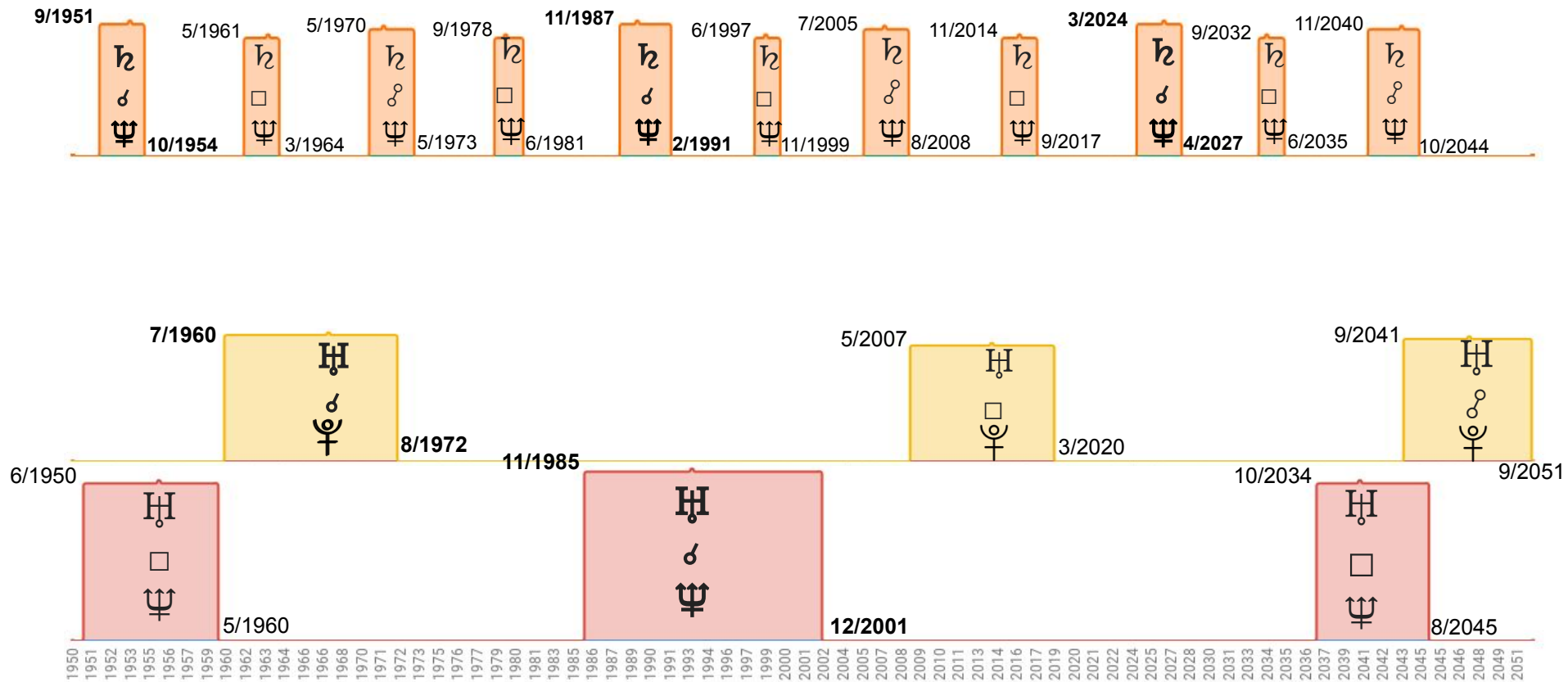
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# Outer Planetary Cycles Represent Longer Cycles

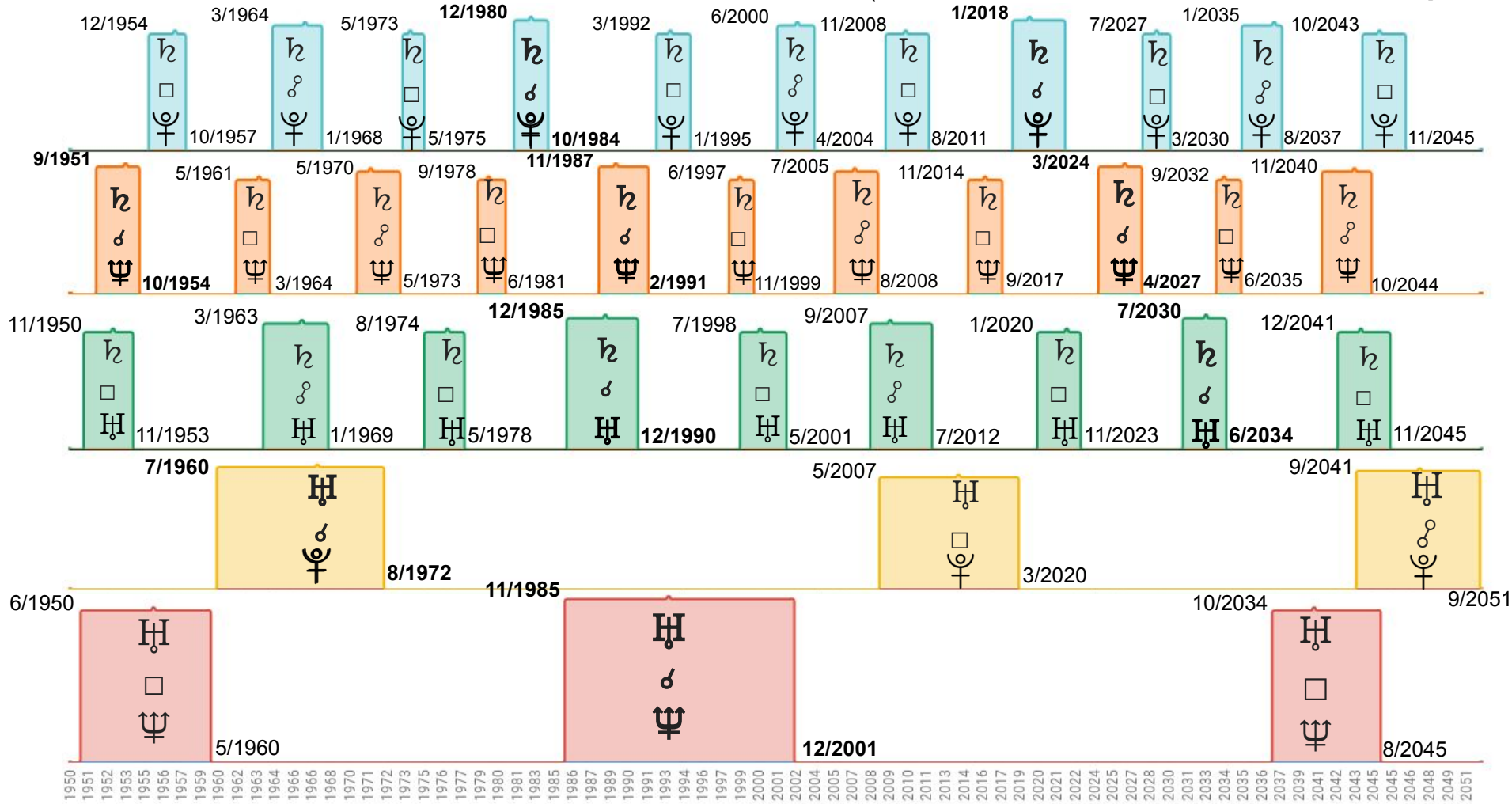
Uranus-Neptune    Uranus-Pluto    Neptune-Pluto  
170-171 years    111/143 years    494-497 years



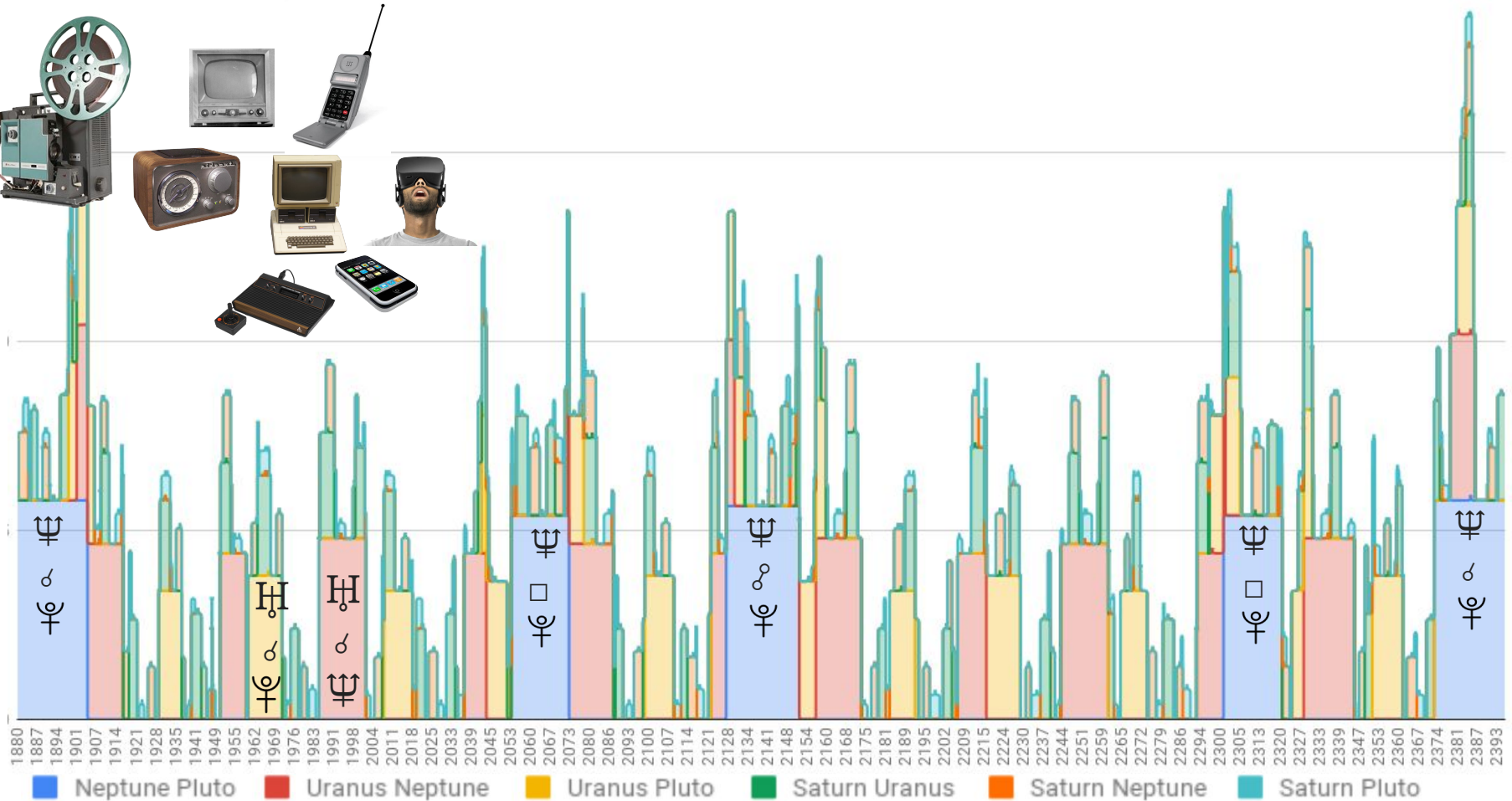
# Outer Planet Transits 1951–2051 (15° orb for $\delta$ & $\wp$ , 10° orb for $\square$ )



# Outer Planet Transits 1951-2051 (15° orb for ♄ & ♅, 10° orb for ♁)

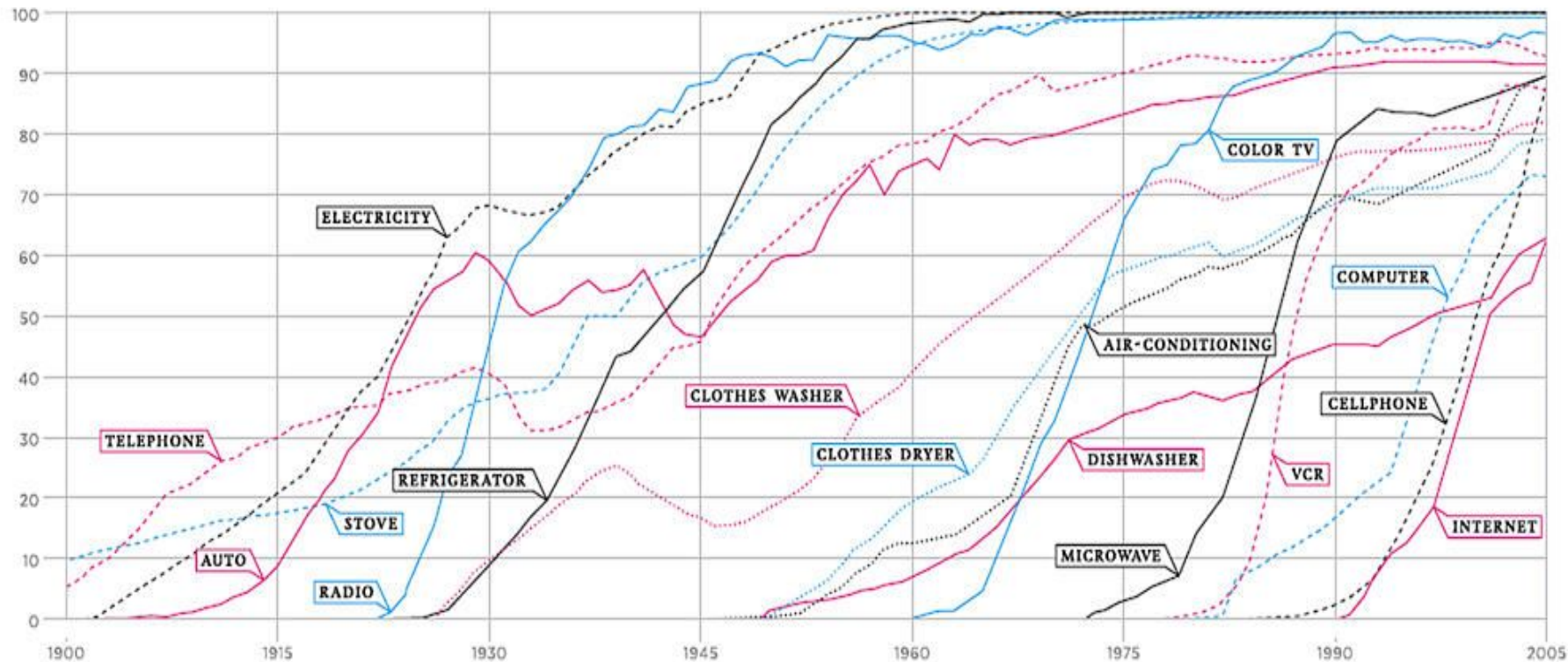


# Outer Planet Transits 1880-2397 (1x ♃♀)

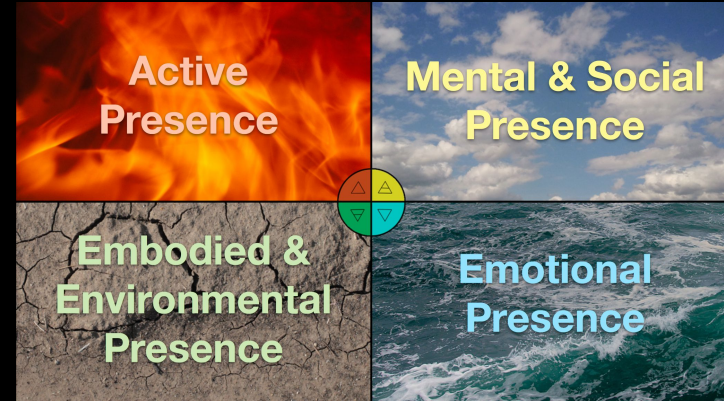
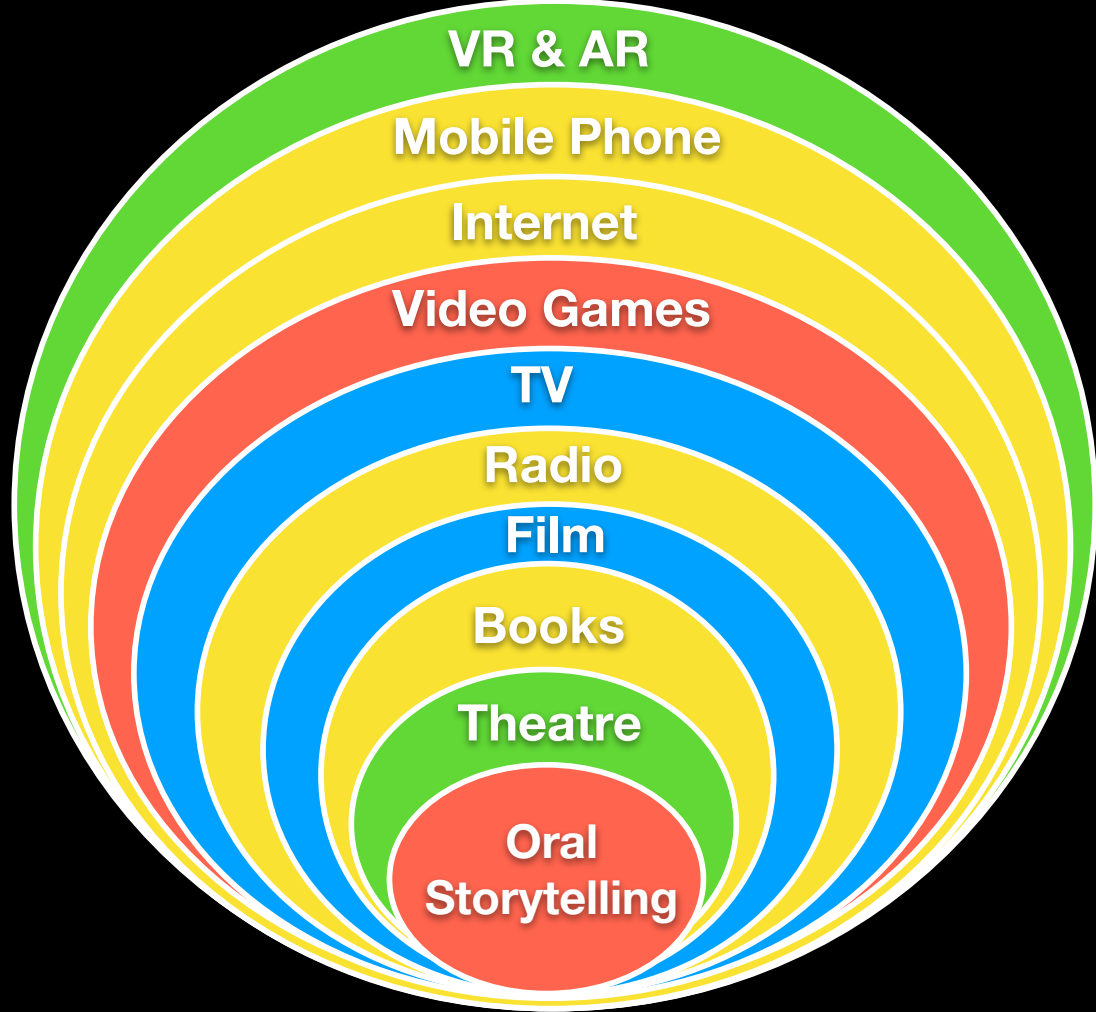


# A Century of Technology Diffusion (1900–2005)

PERCENT OF  
J.S. HOUSEHOLDS

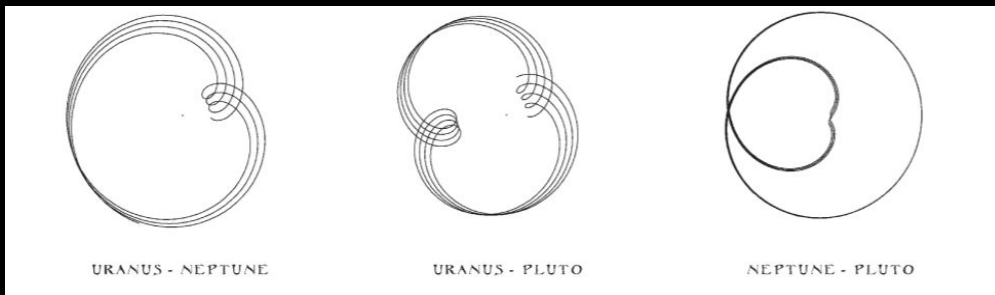


Nicholas Felton

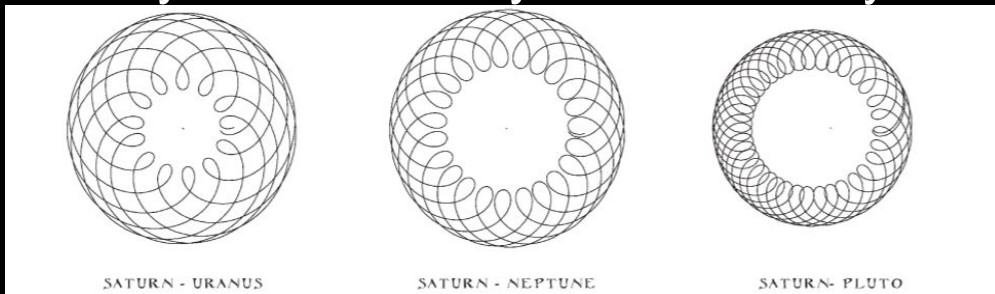


# Outer Planetary Cycles Represent Longer Cycles

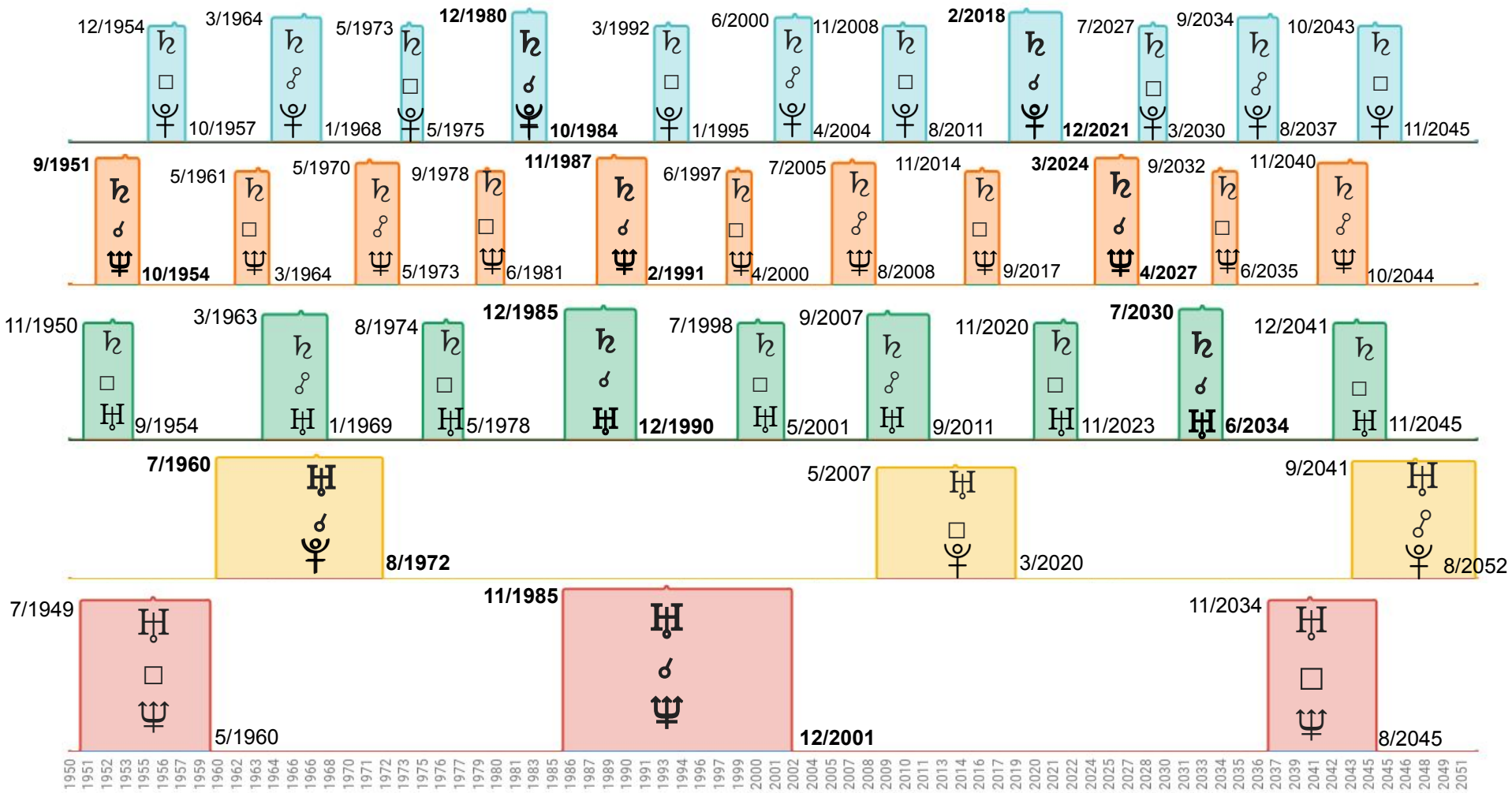
Uranus-Neptune 170-171 years    Uranus-Pluto 111/143 years    Neptune-Pluto 494-497 years



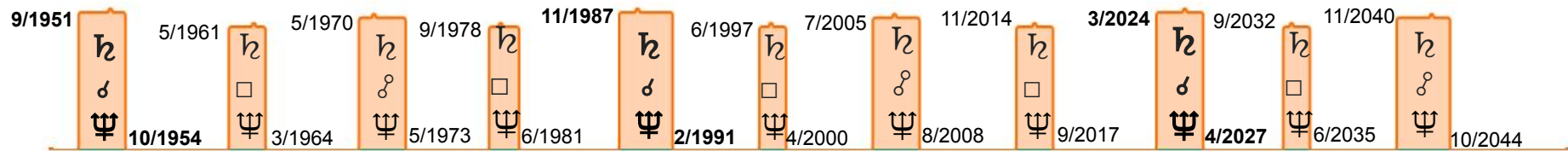
Saturn-Uranus 44-46 years    Saturn-Neptune 35-37 years    Saturn-Pluto 31-38 years



# Outer Planet Transits 1951-2051 (15° orb for ♄ & ♅, 10° orb for ♃)



# Outer Planet Transits 1951–2051 (15° orb for ♄ & ♅, 10° orb for ♁)



# The Archetypal Cycles of Virtual Reality

**K**ent Bye

From *Archai* Issue 6, 2017

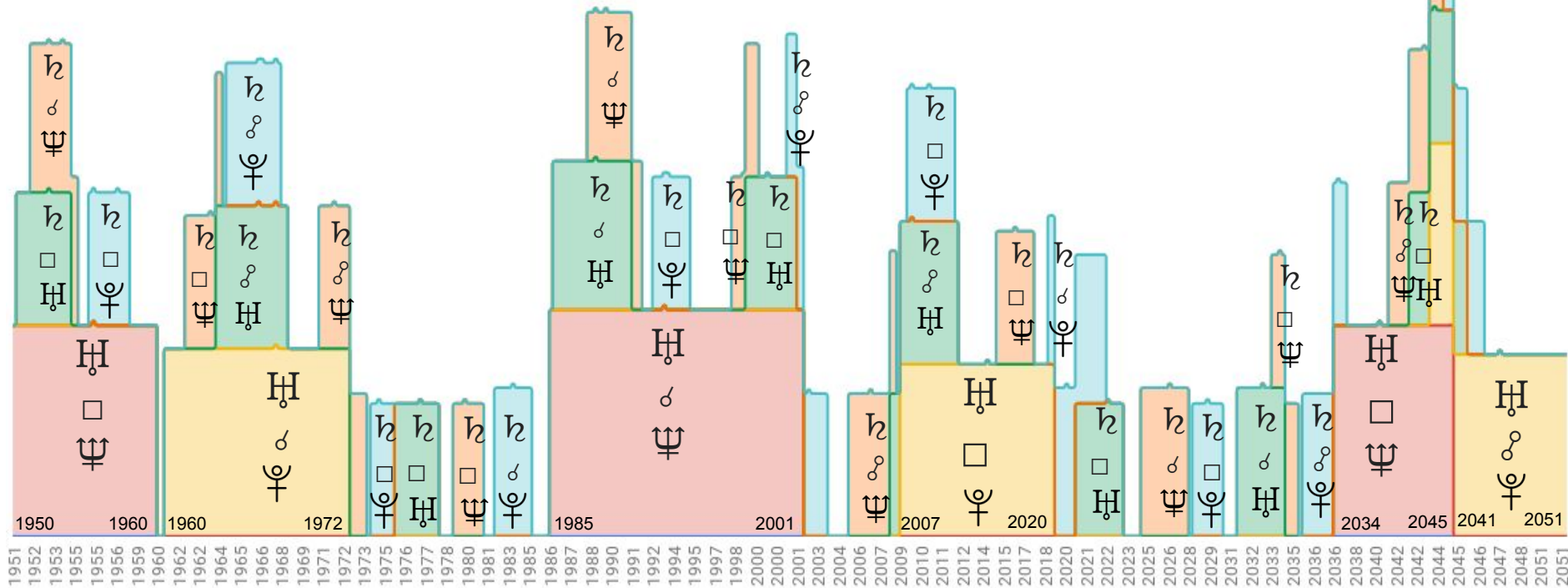
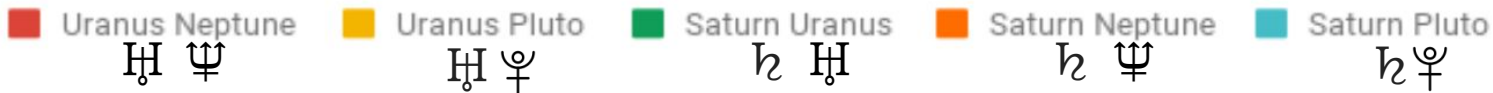
Virtual reality is a new immersive computing paradigm that can hack our senses and convince our brains that computer-generated experiences are real, which raises fundamental questions about our understanding of reality. VR provides a direct experience of how our reality is mediated through our perceptions, which blurs the boundary between subjective and objective reality. In this article, I will analyze major outer-planet astrological cycles since the 1960s to track the evolution of virtual reality technologies, as well as to gain insight into the transformative potential of this new communication medium.

To read the rest of this article please see: ["The Archetypal Cycles of Virtual Reality"](#)

## **Conclusion: The Future of VR and the Path Toward Commoditized Utility**

The story of virtual and augmented reality technologies has a clear correlation to the unfolding of the major outer-planet transits over the past sixty years. I have traced above the development of VR through those transits as it has gone from invention to custom-built systems to consumer products moving toward mass ubiquity. It is very difficult to predict when VR is going to achieve this phase of mass ubiquity. I suspect that immersive and ambient computing technologies will reach a level of maturity and mass ubiquity in either eight more years coincident with the first exact alignments of the Saturn-Neptune conjunction and the Uranus-Pluto trine in the summer of 2025, or it could be another twenty-eight years when Uranus opposes Pluto in 2045.

# Outer Planet Transits 1951-2051



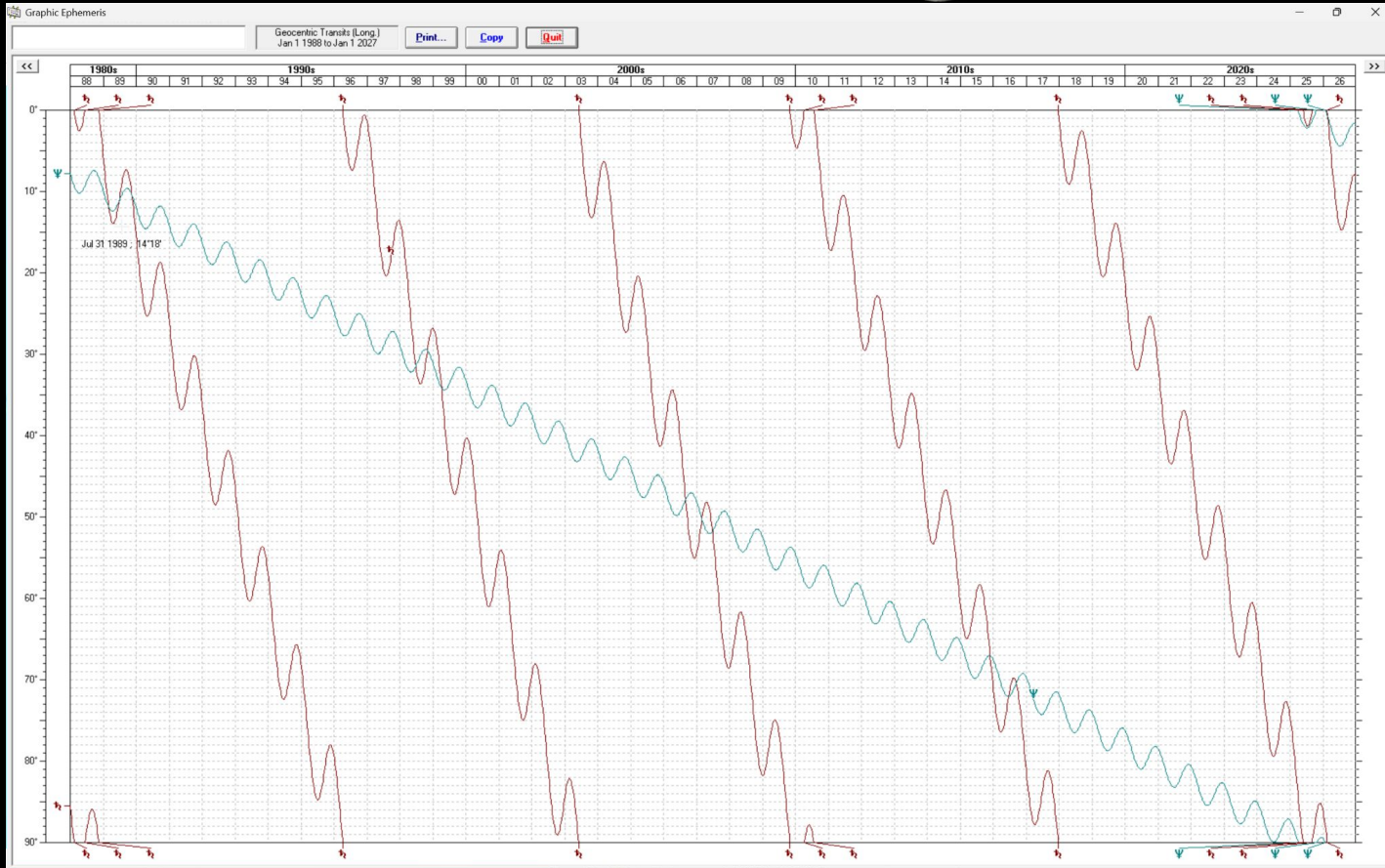
1989

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2006-7

2015-6

2025-6



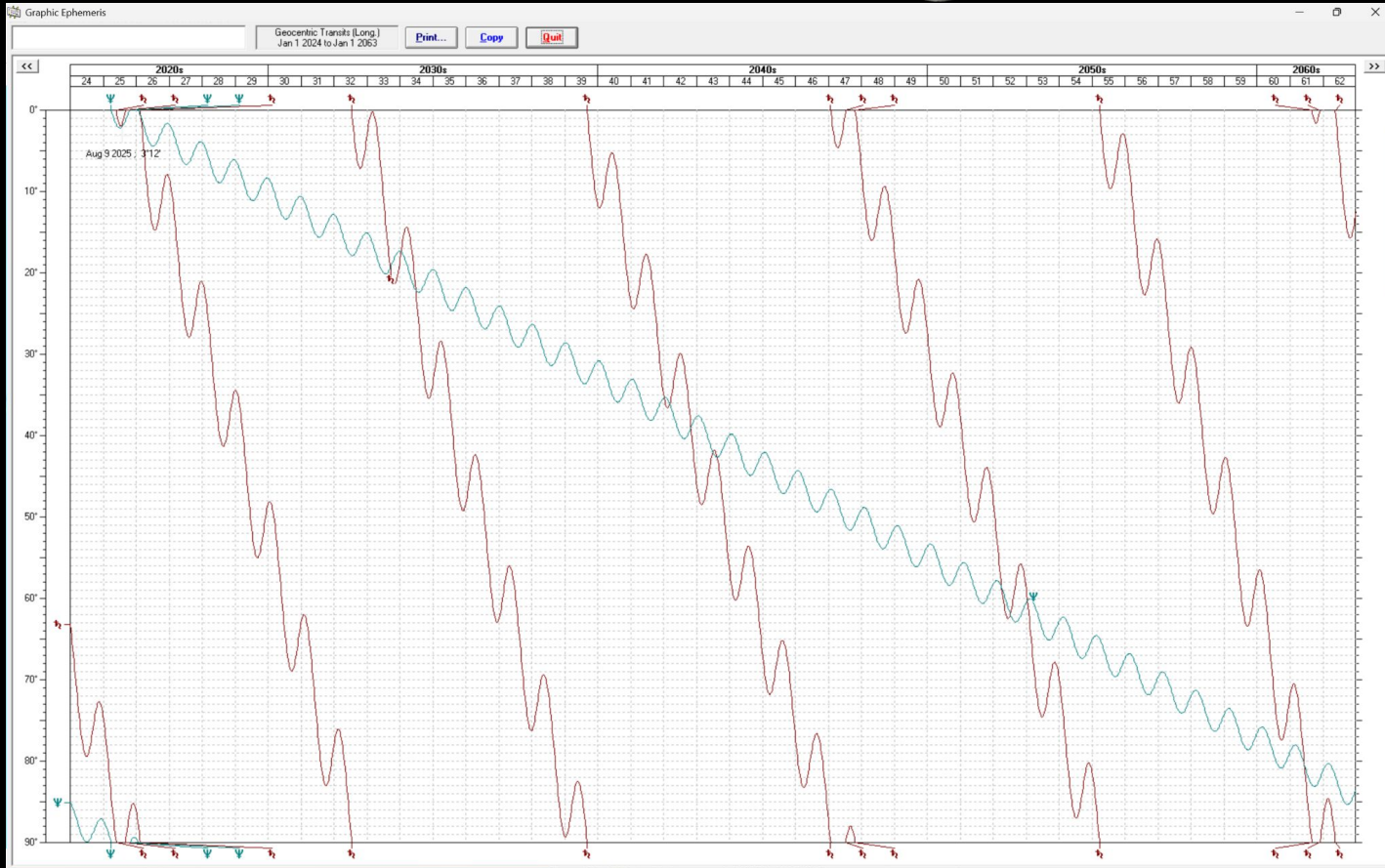
2025-6

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2061



# What Tarnas Says about Saturn–Neptune

“A characteristic motif of Saturn-Neptune eras is a heightened tension and dialectic between ideals, hopes, and beliefs on the one hand and the hard realities of life on the other. The same complex can express itself in the form of heightened conflicts between religion and secularism—“belief and facts,” “faith-based and reality-based” (and in the United States, “red states” and “blue states”)—each side perceiving the other to be living in a state of delusional self-deception. Intensified secular skepticism towards religious beliefs of any kind tends to be constellated at the same time as intensified commitment to conservative religiosity, which often takes the form of anti-scientific biblical literalism (“God vs. science”)... Issues surrounding skepticism generally—the discernment of truth and illusion, and the confronting of deception and delusion—frequently emerge.”

# What Tarnas Says about Saturn–Neptune

“There is also a tendency during Saturn-Neptune eras to experience a subtle but pervasive darkening of the collective consciousness, sometimes as a diffuse and difficult-to-diagnose social malaise, at other times as a direct response to deeply discouraging or tragic events. Reflecting the complex in its most intense form, such eras are frequently marked by collective experiences of tragic loss, the defeat of ideals and aspirations, the death of a dream, which are accompanied by a sense of profound sorrow.”




1989



1998-9




2006-7




2015-6



2025-6




2025-6



2033-4



2041-2



2052-3



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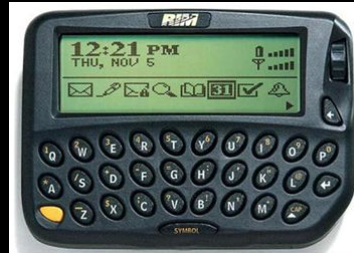


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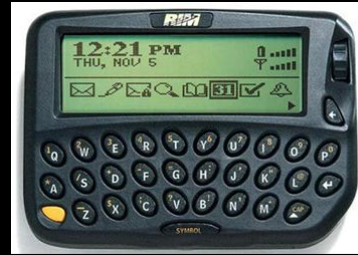


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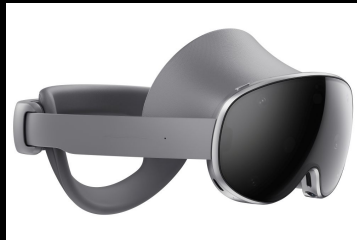


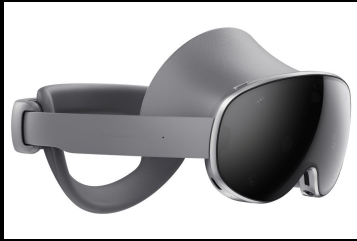
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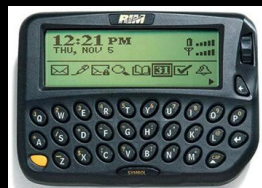
2052-3

2033-4

2025-6







1989

1998-9

2006-7

2015-6

2025-6

2033-4

2041-2

2052-3



# Deep Blue Beats Kasparov (1996)



Schulz, A. (2021, February 11). *25 years ago: Deep Blue beats Kasparov*. Chess News. Retrieved April 20, 2023, from <https://en.chessbase.com/post/25-years-ago-deep-blue-beats-kasparov>

# NVIDIA GPU (1999)

## NVIDIA History

### A Timeline of Innovation



1993

#### 3D Graphics

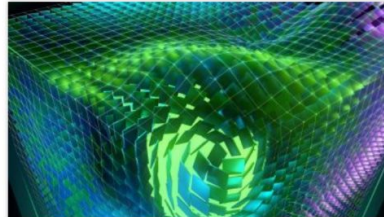
Founded on April 5, 1993, by Jensen Huang, Chris Malachowsky, and Curtis Priem, with a vision to bring 3D graphics to the gaming and multimedia markets.



1999

#### GPU

Invents the GPU, the graphics processing unit, which sets the stage to reshape the computing industry.



2006

#### CUDA

Opens parallel processing capabilities of GPUs to science and research with unveiling of **CUDA**® architecture.



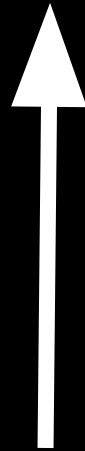
2012

#### AI

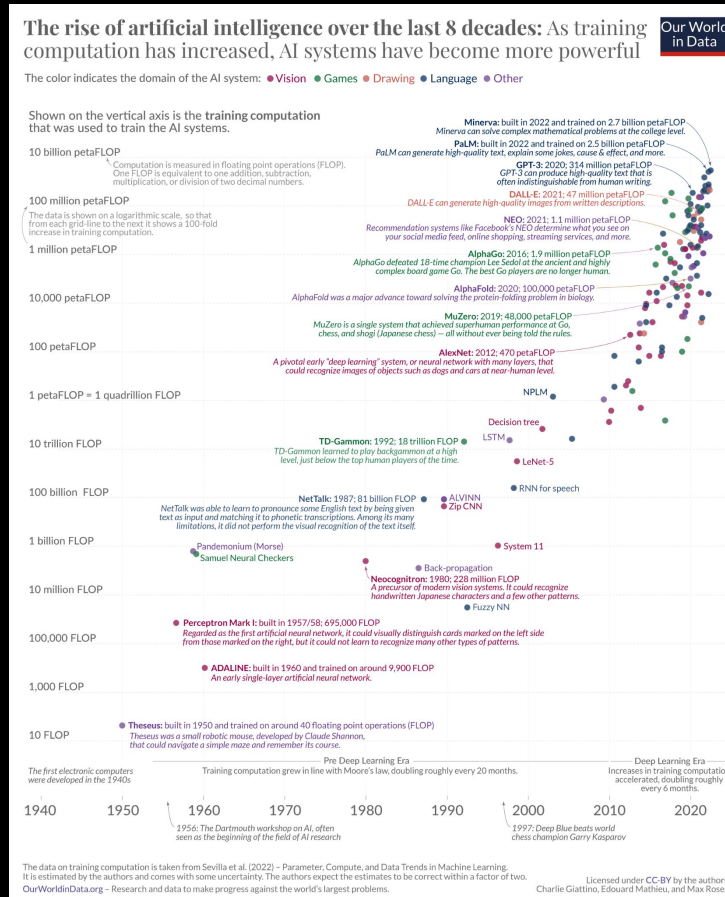
Sparks the era of **modern AI** by powering the breakthrough AlexNet neural network.

# Rise of AI as Computation Increases

10 billion petaFLOP



10 FLOP



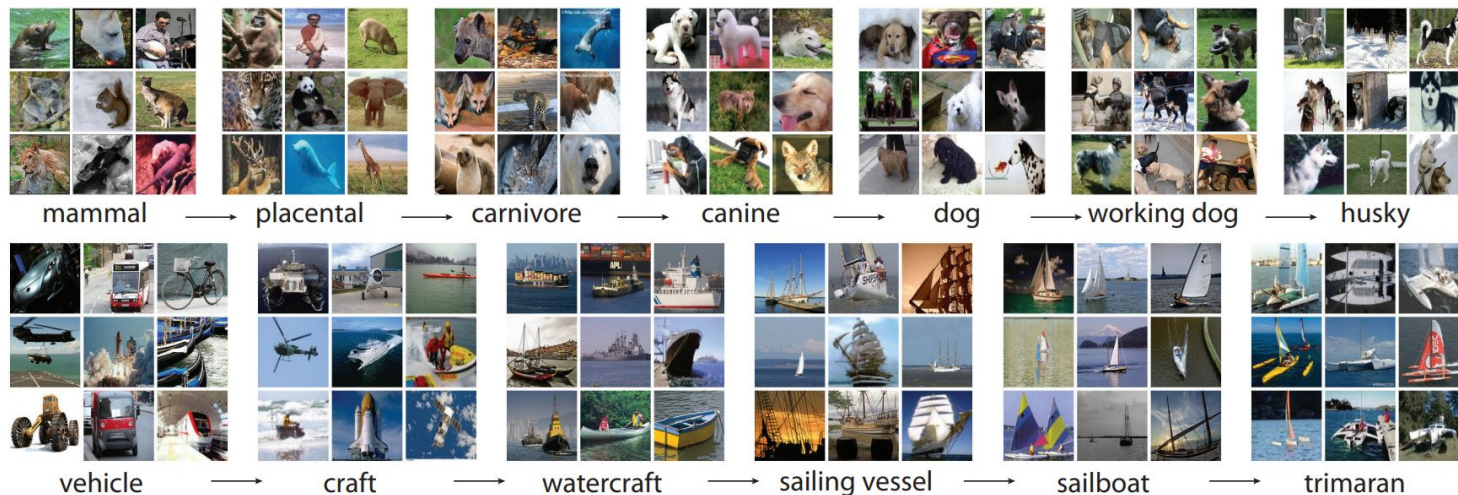
# ImageNet Paper & Database (2009)

## ImageNet: A Large-Scale Hierarchical Image Database

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# Deep Learning Revolution Starts (2012)

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## ImageNet Classification with Deep Convolutional Neural Networks

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### Abstract

We trained a large, deep convolutional neural network to classify the 1.2 million high-resolution images in the ImageNet LSVRC-2010 contest into the 1000 different classes. On the test data, we achieved top-1 and top-5 error rates of 37.5% and 17.0% which is considerably better than the previous state-of-the-art. The neural network, which has 60 million parameters and 650,000 neurons, consists of five convolutional layers, some of which are followed by max-pooling layers, and three fully-connected layers with a final 1000-way softmax. To make training faster, we used non-saturating neurons and a very efficient GPU implementation of the convolution operation. To reduce overfitting in the fully-connected layers we employed a recently-developed regularization method called “dropout” that proved to be very effective. We also entered a variant of this model in the ILSVRC-2012 competition and achieved a winning top-5 test error rate of 15.3%, compared to 26.2% achieved by the second-best entry.

# AlphaGo Beats Sedol (2016)



# Large Language Models Emerge (2018–2020)

List of large language models [\[edit\]](#)

List of large language models						
Name	Release date <sup>[a]</sup>	Developer	Number of parameters <sup>[b]</sup>	Corpus size	License <sup>[c]</sup>	Notes
BERT	2018	Google	340 million <sup>[24]</sup>	3.3 billion words <sup>[24]</sup>	Apache 2.0 <sup>[25]</sup>	An early and influential language model, <sup>[11]</sup> but encoder-only and thus not built to be prompted or generative <sup>[26]</sup>
GPT-2	2019	OpenAI	1.5 billion <sup>[27]</sup>	40GB <sup>[28]</sup> (~10 billion tokens) <sup>[29]</sup>	MIT <sup>[30]</sup>	general-purpose model based on transformer architecture
GPT-3	2020	OpenAI	175 billion <sup>[10]</sup>	499 billion tokens <sup>[29]</sup>	public web API	A fine-tuned variant of GPT-3, termed GPT-3.5, was made available to the public through a web interface called ChatGPT in 2022. <sup>[31]</sup>

## Language Models are Few-Shot Learners

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Jared Kaplan† Prafulla Dhariwal Arvind Neelakantan Pranav Shyam Girish Sastry  
Amanda Askell Sandhini Agarwal Ariel Herbert-Voss Gretchen Krueger Tom Henighan  
Rewon Child Aditya Ramesh Daniel M. Ziegler Jeffrey Wu Clemens Winter  
Christopher Hesse Mark Chen Eric Sigler Mateusz Litwin Scott Gray  
Benjamin Chess Jack Clark Christopher Berner  
Sam McCandlish Alec Radford Ilya Sutskever Dario Amodei  
OpenAI

### Abstract

Recent work has demonstrated substantial gains on many NLP tasks and benchmarks by pre-training on a large corpus of text followed by fine-tuning on a specific task. While typically task-agnostic in architecture, this method still requires task-specific fine-tuning datasets of thousands or tens of thousands of examples. By contrast, humans can generally perform a new language task from only a few examples or from simple instructions – something which current NLP systems still largely struggle to do. Here we show that scaling up language models greatly improves task-agnostic, few-shot performance, sometimes even reaching competitiveness with prior state-of-the-art fine-tuning approaches. Specifically, we train GPT-3, an autoregressive language model with 175 billion parameters, 10x more than any previous non-sparse language model, and test its performance in the few-shot setting. For all tasks, GPT-3 is applied without any gradient updates or fine-tuning, with tasks and few-shot demonstrations specified purely via text interaction with the model. GPT-3 achieves strong performance on many NLP datasets, including translation, question-answering, and cloze tasks, as well as several tasks that require on-the-fly reasoning or domain adaptation, such as unscrambling words, using a novel word in a sentence, or performing 3-digit arithmetic. At the same time, we also identify some datasets where GPT-3's few-shot learning still struggles, as well as some datasets where GPT-3 faces methodological issues related to training on large web corpora. Finally, we find that GPT-3 can generate samples of news articles which human evaluators have difficulty distinguishing from articles written by humans. We discuss broader societal impacts of this finding and of GPT-3 in general.

arXiv:2005.14165v4 [cs.CL] 22 Jul 2020



🎉 Congratulations to the GPT-3 team for earning a Best Paper Award this morning at #NeurIPS2020! [openai.com/neurips-2020/](https://openai.com/neurips-2020/)

9:33 AM · Dec 7, 2020

276 Retweets 58 Quotes 1,553 Likes 51 Bookmarks

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- Brown, T. B., Mann, B., Ryder, N., Subbiah, M., Kaplan, J., Dhariwal, P., Neelakantan, A., Shyam, P., Sastry, G., Askell, A., Agarwal, S., Herbert-Voss, A., Krueger, G., Henighan, T., Child, R., Ramesh, A., Ziegler, D. M., Wu, J., Winter, C., Amodei, D. (2020, July 22). *Language models are few-shot learners*. *Advances in neural information processing systems*, 33, 1877-1901. Retrieved April 20, 2023, from <https://arxiv.org/abs/2005.14165>
- OpenAI. (2020, December 7). 🎉 *Congratulations to the GPT-3 team for earning a best paper award this morning at #neurips2020!* <https://t.co/gvc5brkz5z>. Twitter. Retrieved April 25, 2023, from <https://twitter.com/OpenAI/status/1336000843368210432>

# Famous Stochastic Parrots Paper by AI Ethicists (2021)

## On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?

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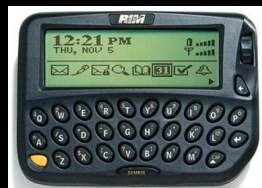
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The Aether

### ABSTRACT

The past 3 years of work in NLP have been characterized by the development and deployment of ever larger language models, especially for English. BERT, its variants, GPT-2/3, and others, most recently Switch-C, have pushed the boundaries of the possible both through architectural innovations and through sheer size. Using these pretrained models and the methodology of fine-tuning them for specific tasks, researchers have extended the state of the art on a wide array of tasks as measured by leaderboards on specific benchmarks for English. In this paper, we take a step back and ask: How big is too big? What are the possible risks associated with this technology and what paths are available for mitigating those risks? We provide recommendations including weighing the environmental and financial costs first, investing resources into curating and carefully documenting datasets rather than ingesting everything on the web, carrying out pre-development exercises evaluating how the planned approach fits into research and development goals and supports stakeholder values, and encouraging research directions beyond ever larger language models.

alone, we have seen the emergence of BERT and its variants [39, 70, 74, 113, 146], GPT-2 [106], T-NLG [112], GPT-3 [25], and most recently Switch-C [43], with institutions seemingly competing to produce ever larger LMs. While investigating properties of LMs and how they change with size holds scientific interest, and large LMs have shown improvements on various tasks (§2), we ask whether enough thought has been put into the potential risks associated with developing them and strategies to mitigate these risks.

We first consider environmental risks. Echoing a line of recent work outlining the environmental and financial costs of deep learning systems [129], we encourage the research community to prioritize these impacts. One way this can be done is by reporting costs and evaluating works based on the amount of resources they consume [57]. As we outline in §3, increasing the environmental and financial costs of these models doubly punishes marginalized communities that are least likely to benefit from the progress achieved by large LMs and most likely to be harmed by negative environmental consequences of its resource consumption. At the scale we are discussing (outlined in §2), the first consideration should be the environmental cost.



1989

1998-9

2006-7

2015-6

2025-6

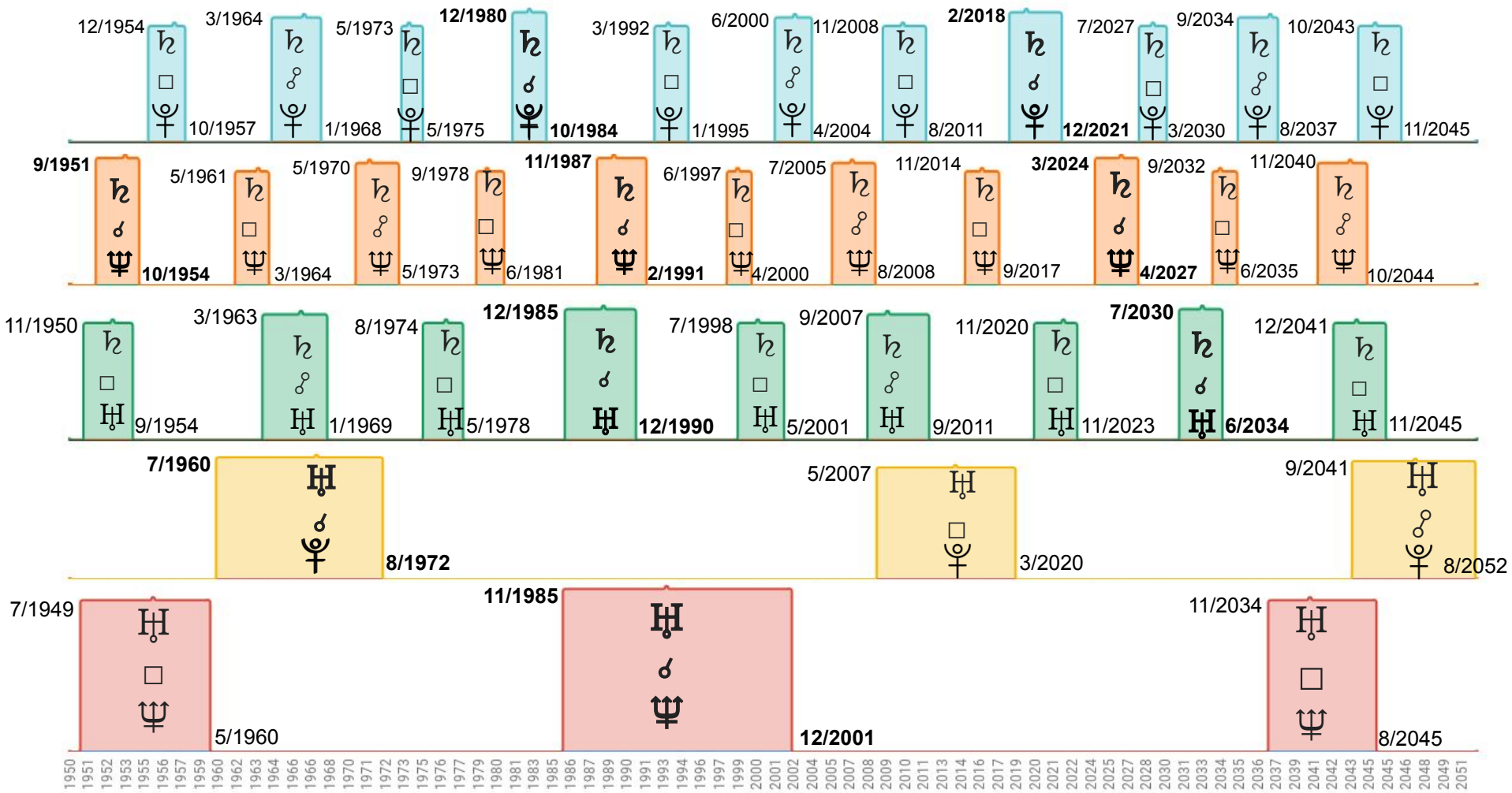
2033-4

2041-2

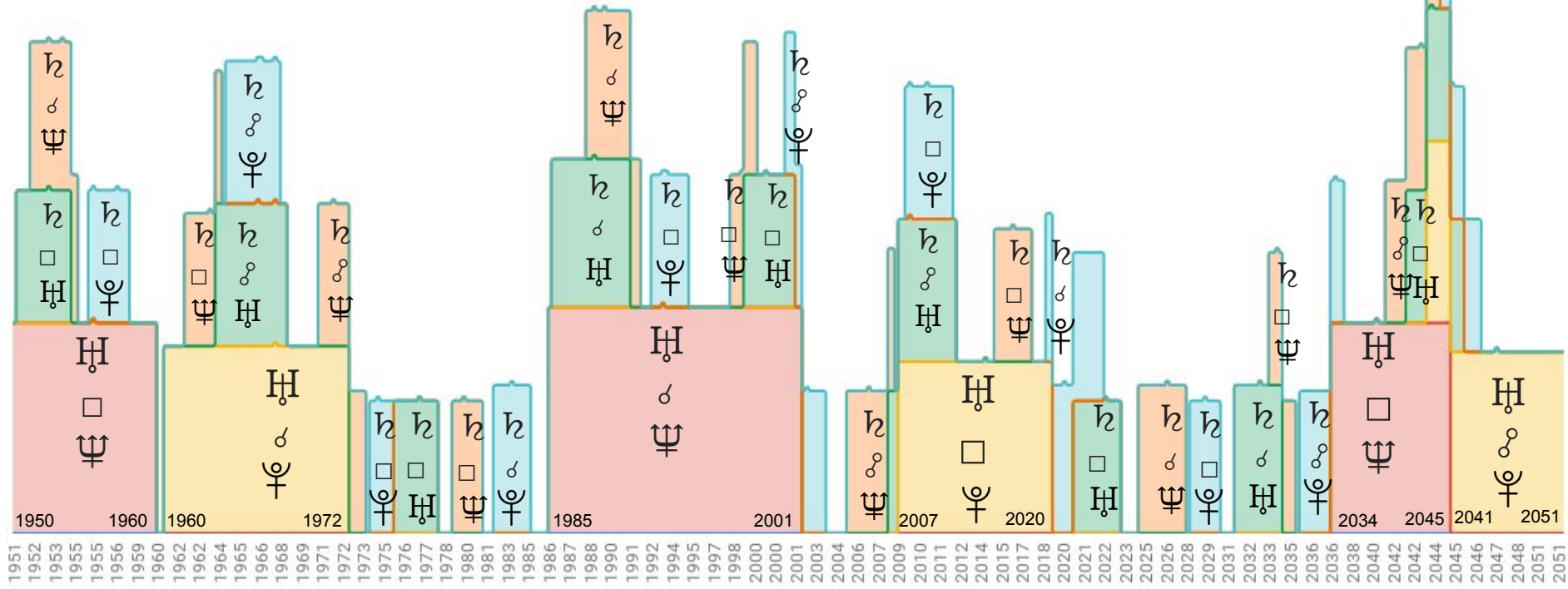
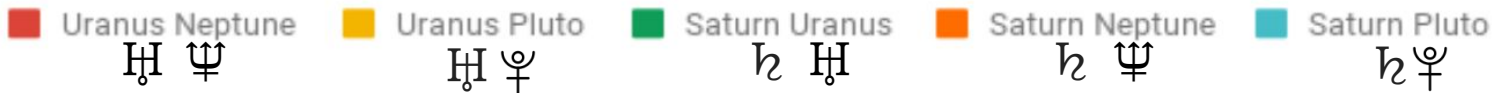
2052-3



# Outer Planet Transits 1951-2051



# Outer Planet Transits 1951-2051





# What Tarnas Says about Saturn (♄)

- Saturn the principle of limit, structure, contraction, constraint, necessity, hard materiality, concrete manifestation
- time, the past, tradition, age, maturity, mortality, the endings of things
- gravity and gravitas, weightiness, that which burdens, binds, challenges, fortifies, deepens
- the tendency to confine and constrict, to separate, to divide and define, to cut and shorten, to negate and oppose, to strengthen and forge through tension and resistance, to rigidify, to repress, to maintain a conservative and strict authority
- to experience difficulty, decline, deprivation, defect and deficit, defeat, failure, loss, alienation
- the labor of existence, suffering, old age, death
- the weight of the past, the workings of fate, character, karma, the consequences of past action, error and guilt, punishment, retribution, imprisonment, the sense of “no exit”
- pessimism, inferiority, inhibition, isolation, oppression and depression
- the impulse and capacity for discipline and duty, order, solitude, concentration, conciseness, thoroughness and precision, discrimination and objectivity, restraint and patience, endurance, responsibility, seriousness, authority, wisdom
- the harvest of time, effort, and experience
- the concern with consensus reality, factual concreteness, conventional forms and structures, foundations, boundaries, solidity and stability, security and control, rational organization, efficiency, law, right and wrong, judgment, the superego
- the dark, cold, heavy, dense, dry, old, slow, distant
- the senex, Kronos, the stern father of the gods.

# What Tarnas Says about Neptune (♆)

- Neptune is associated with the transcendent, spiritual, ideal, symbolic, and imaginative dimensions of life
- with the subtle, formless, intangible, and invisible
- with the unitive, timeless, immaterial, and infinite
- with all that which transcends the limited literal temporal and material world of concretely empirical reality: myth and religion, art and inspiration, ideals and aspirations, images and reflections, symbols and metaphors, dreams and visions, mysticism, religious devotion, universal compassion.
- It is associated with the impulse to surrender separative existence and egoic control, to dissolve boundaries and structures in favor of underlying unities and undifferentiated wholes, merging that which was separate, healing and wholeness
- the dissolution of ego boundaries and reality structures, states of psychological fusion and intimations of intrauterine existence, melted ecstasy, mystical union, and primary narcissism
- with tendencies towards illusion and delusion, deception and self-deception, escapism, intoxication, psychosis, perceptual and cognitive distortions, conflation and confusion, projection, fantasy
- with the bedazzlement of consciousness whether by gods, archetypes, beliefs, dreams, ideals, or ideologies
- with enchantment, in both positive and negative senses.