

Temporal Resonance

Terence McKenna

Author and explorer Terence McKenna has spent the last twenty years in the study of the ontological foundations of shamanism and the ethnopharmacology of spiritual transformation. He is the author of *The Invisible Landscape* and *Psilocybin: The Magic Mushroom Growers' Guide*. A talking book of his Amazon adventures, *True Hallucinations*, has also been produced. He is the originator of the Time Wave Zero software. Currently he lives in Hawaii with artist Kathleen Harrison McKenna and their two children, where he is the founding secretary-treasurer of Botanical Dimensions, a tax-exempt, non-profit research botanical garden and germ plasm repository devoted to the collection and propagation of plants of ethnopharmacological interest.

Computer implementation of the timewave theory was done by Mr. Peter Meyer. Preparation of the illustrations accompanying this article was by Kathleen Harrison McKenna.

The Newtonian-Einsteinian description of nature is the Ur myth of our civilization. Yet it is at variance with perceived experience in an important area. I refer to its description of the temporal dimension. Time, for Newton, was represented by a line; it was pure duration, a domain necessary for the description of events. Einstein added the possibility of slight and smooth curvature of the space/time continuum. Both points of view overlook a property of reality that my theory has taken very seriously: the phenomenon of the conservation of connectedness, which we encounter at the very beginning of the universe and which is conserved and concentrated throughout the entire subsequent history of space and time.

An interesting thing about this concatenation of connectedness is that each stage of its condensation took place more rapidly than the stages that preceded it. Most scientists believe that, at its birth, the universe was pure plasma; there were no atomic systems. There was so much energy within the system that electrons either did not yet exist or were unable to settle into stable orbits. Then as the universe cooled, atomic systems began to form; stars condensed and, through nuclear chemistry, cooked up heavier elements, from which eventually developed a carbon-based chemistry. This led to molecular chemistry—new realms of connectedness—a new proliferation of opportunity for novelty, which, in turn led to life, to higher animals, to culture, and eventually and comparatively recently to epigenetic coding systems such as language, and even more recently, to writing. The legacy of the conservation of connectedness is the meta-connected chaostrophy of 20th century planetary culture. My theory has sought to unify all of these diverse phenomena and to treat them as manifestations of a single set of laws—laws that describe the ingression of novelty (i.e., the density of connectedness) into time and its conservation and concentration in ordinary space/time and ordinary immediate experience.

This idea differs from orthodox cosmology in that orthodox physics is very concerned with the very early history of the universe, which is imagined as a succession of brief epochs, each with its own special boundary constraints and species of physics, declensions from a singularity that precedes any physics. My notion reverses this procedure and places the compressed epochs of ultra-connectedness leading to singularity at the end of the cosmologic event precisely where the standard model has the universe running down into an entropic heat death. The standard theory treats biology as so epiphenomenal as to be unworthy of even being mentioned.

In seeking the basis for a new model of time outside the "pure-duration" model of Western science, I naturally examined Eastern approaches that seem more in tune with subjective intuitions and immediate felt experience. The experience that we have of time is much more closely related to the description that we inherit from a tradition such as Taoism. Indeed the *Tao Te Ching* opens with the observation that "*The Way that can be told of is not an unvarying way.*"

The idea that time is experienced as a series of identifiable elements in flux is highly developed in the *I Ching*. Indeed the temporal modeling of the *I Ching* offers the only well developed alternative to the "flat-duration" point of view. The *I Ching* views time as a finite number of distinct and irreducible elements in the same way that the chemical elements compose the world of matter. For the Taoist sages of pre-Han China, time was composed of 64 irreducible elements. It is upon relations among these 64 elements that I have sought to erect a new model of time that incorporates the idea of the conservation of novelty and recognizes time as a process of becoming.

The earliest arrangement of the hexagrams of the *I Ching* is the King Wen sequence. It was this sequence that I chose to study as a possible basis for a new model of the relationship of

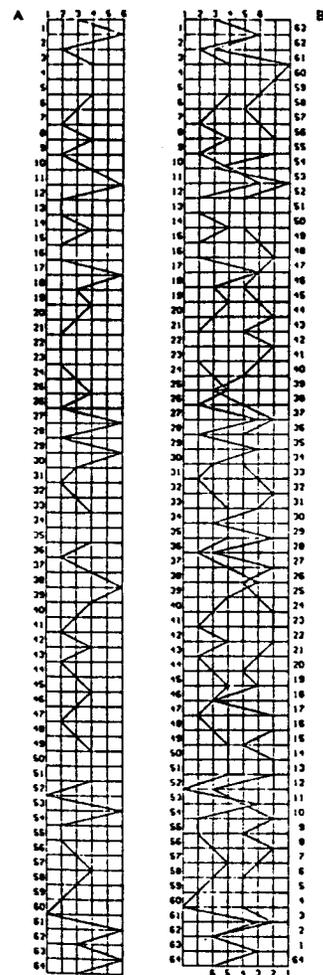
time to the ingression and conservation of novelty. In studying the kinds of order in the King Wen sequence of the *I Ching*, I made a number of remarkable discoveries. It is well known that hexagrams in the King Wen sequence occur in pairs. The second member of each pair is obtained by inverting the first. In any sequence of the 64 hexagrams, there are 8 hexagrams that remain unchanged when inverted. In the King Wen sequence, these eight hexagrams are paired with hexagrams in which each line of the first hexagram has become its opposite, (yang changed to yin and vice versa).

The question remains as to what rule or principle governs the arrangement of the 32 pairs of hexagrams comprising the King Wen sequence. My intuition was to look at the first order of difference; that is, how many lines change as one moves through the King Wen sequence from one hexagram to the next? The first order of difference will always be an integer between 1 and 6. When the first order of difference within pairs is examined, it is always found to be an even number. Thus, all instances of first order of difference that are odd occur at transitions from one pair of hexagrams to the next pair. When the complete set of first order of difference integers is examined they are found to fall into a perfect ratio of 3 to 1, three even integers to each odd integer. The ratio of 3 to 1 is not a formal property of the complete sequence but was a carefully constructed artifact achieved by arranging hexagram transitions between pairs to generate 14 instances of three and 2 instances of one. Fives were deliberately excluded. The 14 threes and 2 ones constitute 16 instances of an odd integer occurring out of a possible 64. This is exactly a 3 to 1 ratio.

In addition when the first order of difference of the King Wen sequence is graphed, it appears random or unpredictable. However, when an image of the graph is rotated 180° within the plane and superimposed upon itself, it is found to achieve closure at four adjacent points.

While this closure might logically be expected anywhere in the sequence, it actually occurs at the conventional beginning and end of the sequence. While an arrangement with closure might have placed any two hexagrams opposite each other, what we find is that the hexagrams opposite each other are such that the numbers of their positions in the King Wen sequence, when summed, are always equal to 64.

Figure 1



Graphing the first order of difference of the King Wen Sequence displays a similarity: the first and last three positions have similar values. Thus closure occurs at both ends of the graph when it is rotated in two dimensions and placed next to itself.

Over 27,000 hexagram sequences were randomly generated by computer (all sequences having the property possessed by the King Wen sequence that every second hexagram is either the inverse or the complement of its predecessor). Of these 27,000 plus sequences, only four were found to have the three properties of a 3 to 1 ratio of even to odd transitions, no transitions of value five, and the type of closure described above. Such sequences were found to be very rare, occurring in a ratio of 1 in 6,750.

For these reasons, I was led to view the King Wen sequence as a profoundly artificial arrangement of the 64 hexagrams. Look carefully at Figure 1. Review in your mind the steps from the King Wen sequence that led to it. Notice that it is a complete set of the 64 possible hexagrams, running sequen-

Figure 2

Permutations of I Ching Hexagrams

Base	Multiplier	Multiplicand	Astronomical unit
64 days (number of hexagrams in the <i>I Ching</i>)	× 6 (number of <i>yao</i> in a hexagram)	384 days	13 lunations
384 days	× 64 (number of hexagrams in a sequence)	67 solar years 104.25 days	6 minor sunspot cycles 11.2 years
67 solar years 104.25 days	× 64 (number of hexagrams in a sequence)	4306+ solar years	2 Zodaical Ages 1 per trigram each 2200 years approx.
4306+ solar years	× 6 (number of <i>yao</i> in a hexagram)	25,836 solar years	1 complete precession of the equinoxes

tially both forward and backward. Because it is composed of 64 hexagrams of 6 lines each, it is composed of 6 × 64 or 384 lines or *yao*. One might make an analogy and say that Figure 1 is to the King Wen sequence as a cube is to a square. Figure 1 is composed of the same elements as the King Wen sequence but it has more dimensions.

It is my assumption that the oracle building pre-Han Chinese viewed the forward-and backward-running double sequence of Figure 1B as a single *yao* or line and that it is therefore open to the same treatment as lines are subject to in the *I Ching*, namely multiplication by 6 and 64. Since a hexagram has six lines, I visualized six double sequences in a linear order. But a hexagram is more than lines; a hexagram also contains two trigrams. Thus, over the six double sequences I overlaid two double sequences, each three times larger than the six double sequences. A hexagram also has an identity as a whole so that over the six and the two double se-

quences, a single, larger double sequence is projected. The sets of double sequences of each level share a common point of origin and all return to a single end point. The resulting figure, too complex to show here, is to the original double sequence as a tesseract is to a cube, for again more dimensions have been added. This figure itself can then be imagined as a single hexagram, but one of a set of 64.

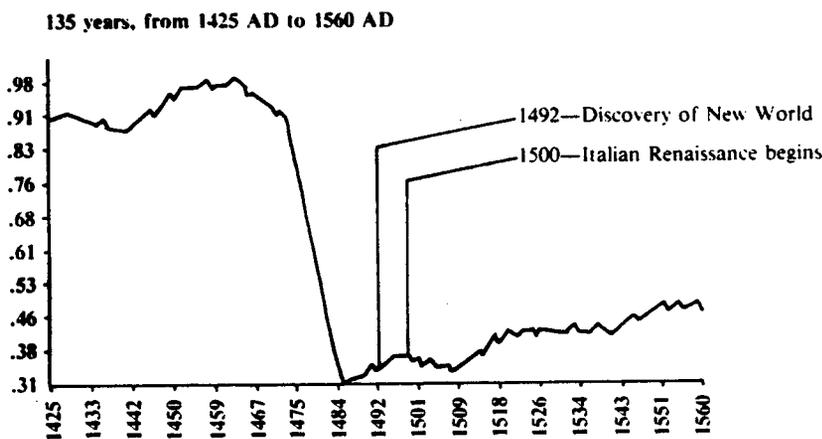
The closure at the beginning and end of this figure suggested that it might be useful to model process. Its 384 subunits imply a calendar. Can it be coincidence that the length of a lunar month, 29.53 days, times 13 is 383.89? I believe that what we have here is a 384-day lunar calendar with resonances to other naked eye astronomical phenomena known to be of interest to the ancient Chinese.

Using standard techniques, the modular hierarchy I constructed out of Figure 1 by the method described can be mathematically collapsed into a self-similar or fractal curve that can be used to map the unfolding of temporal variables and their resonances on all levels of duration.

In order to demonstrate this assertion it was necessary to write computer software that would allow easy manipulation of the fractal timewave and the quick comparison of various locations within it. Figure 3 shows a period of time familiar to most of us, the late 15th and early 16th centuries, a time distinguished by the invention of printing and the discovery of the New World.

The time wave is shown by the wandering line. Clearly this line represents the ebb and flow of some process. But what process? My contention is that novelty is what is being portrayed. As the line moves toward the bottom of the figure, novelty is increasing; upward movement toward the top of the figure indicates a decrease of novelty. Novelty is a

Figure 3



The values on the left of each graph are a numerical quantification of novelty. The maximum novel situation has a value of zero; hence, values tend toward zero as the end date is approached. In these graphs, the end date is assumed to be Dec. 22, 2012 AD.

Figure 4

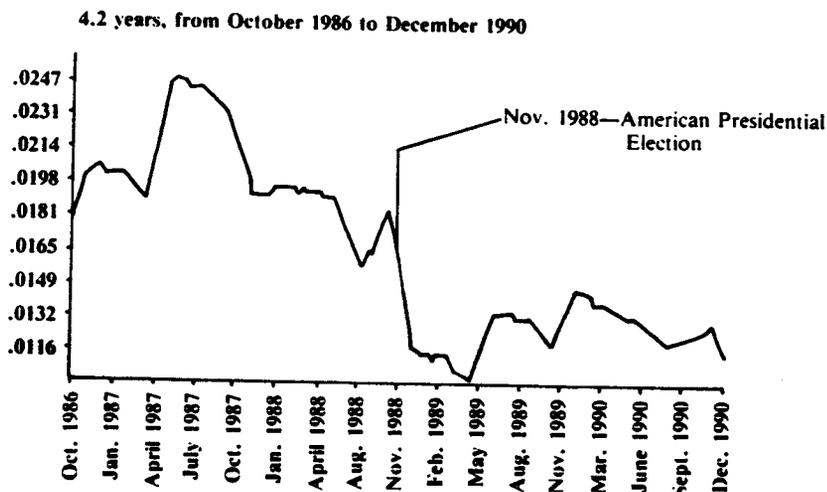
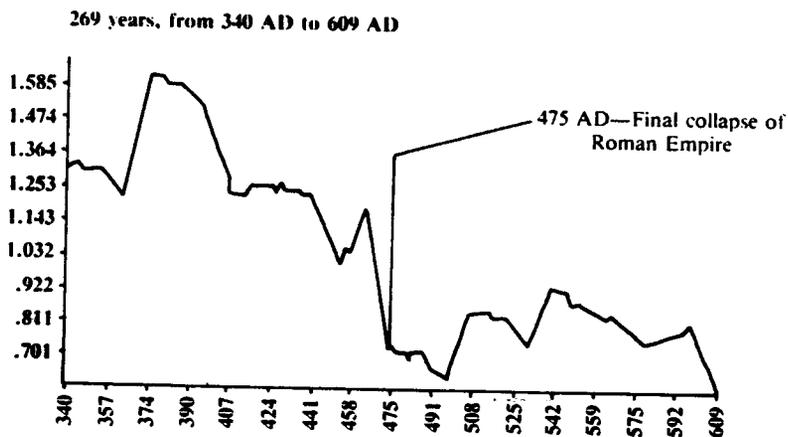


Figure 5



primary term necessary to a description of any temporal system much in the way that spin, velocity, and angular momentum are primary terms necessary to the description of any physical system. Synonyms for novelty are degree of connectedness or complexity. Note that these are not terms that make a moral judgment. Novelty is not "good" while entropy is "bad." Novelty is simply a situation of greater connectedness or complexity, whereas entropy is the opposite of these qualities; it is less organized, less integrated, less complex.

I have deliberately chosen to use the world novelty for this concept in order to anchor these ideas in the metaphysics of Alfred North Whitehead, as presented in his *Process and Reality*.

Creativity is the principle of novelty. Creativity introduces novelty into the content of the many, which are the universe disjunctively. The creative advance is the application of this ultimate principle of creativity to each novel situation which it originates. The ultimate metaphysical principle is the advance from disjunction to conjunction, creating a novel entity other than the entities given in disjunction. The novel entity is at once the togetherness of the "many" which it finds and also it is one among the disjunctive "many" which it leaves; it is a novel entity, disjunctively among the many entities which it synthesises. The many become one, and are increased by one. In their natures, entities are disjunctively "many" in process of passage into conjunctive unity . . ." Thus the "production of novel togetherness" is the ultimate notion embodied in the term concrescence. These ultimate notions of "production of novelty" and "concrete togetherness" are inexplicable either in terms of higher universals or in terms of the components participating in the concrescence. The analysis of the components abstracts from the concrescence. The sole appeal is to intuition. (p. 26)

This notion of the ebb and flow of an invisible quality that integrates and dis-integrates entities into the world is well established in Eastern thought as the idea of the Tao. What is unusual, if not unique, in this approach is the effort to give a formal mathematical description of the ebb and flow of the quality. I might have called it Tao but chose instead to call it novelty to stress the fact that it is process growing toward concrescence.

Within the time wave, a variety of "resonance points" are recognized. Resonance points can be thought of as areas of the wave that are graphically the same as the wave at some other point within the wave, yet differing from it through having different quantified values. For example, if we choose an end date or zero date of December 22, 2012 AD, we find that the time we are living through is in resonance with late Roman times and the beginning of the Dark Ages in Europe.

Implicit in this theory of time is the notion that duration is like a tone in that one must assign a moment at which the damped oscillation is finally quenched and ceases. I chose the date December 22, 2012 AD as this point because, with that assumption, the wave seemed to be in the "best fit" configuration with regard to the recorded facts of the ebb and flow of historical advance into connectedness. Later I learned to my amazement that this same date was assigned as the end

Figure 6

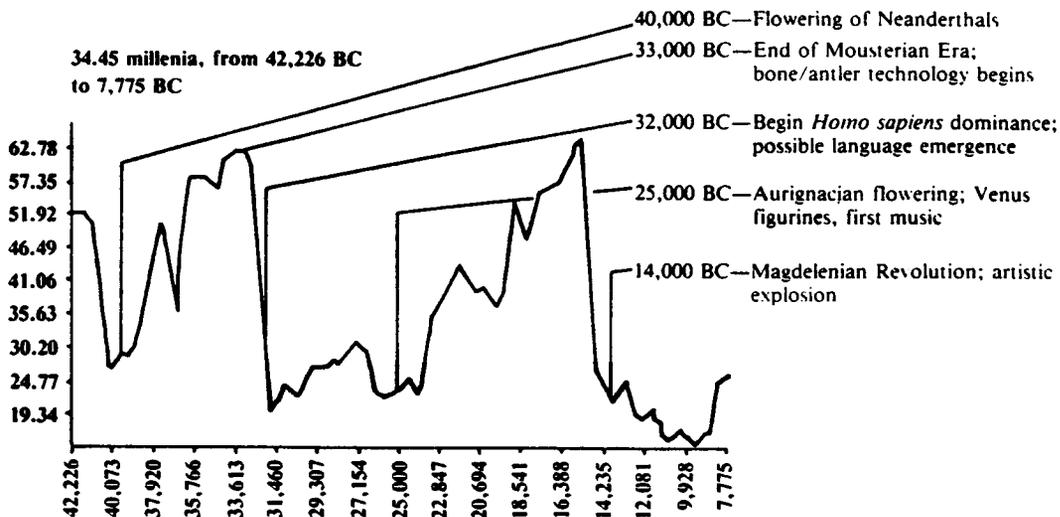


Figure 7

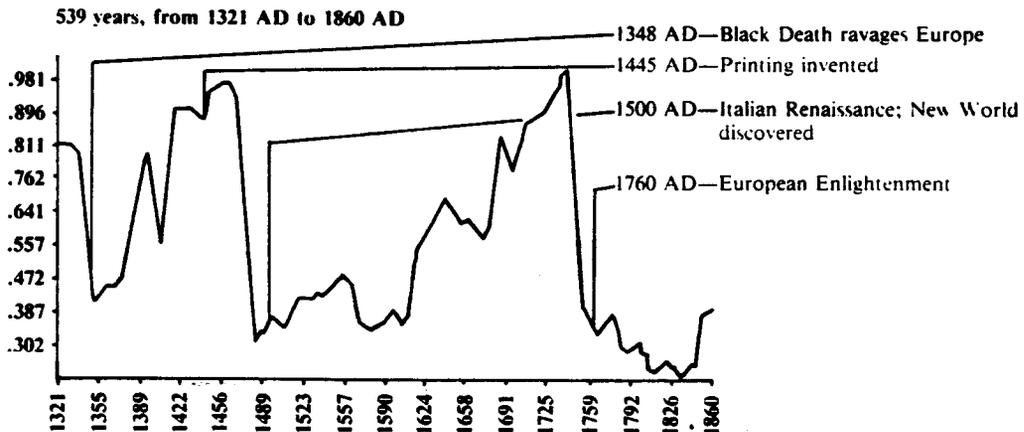
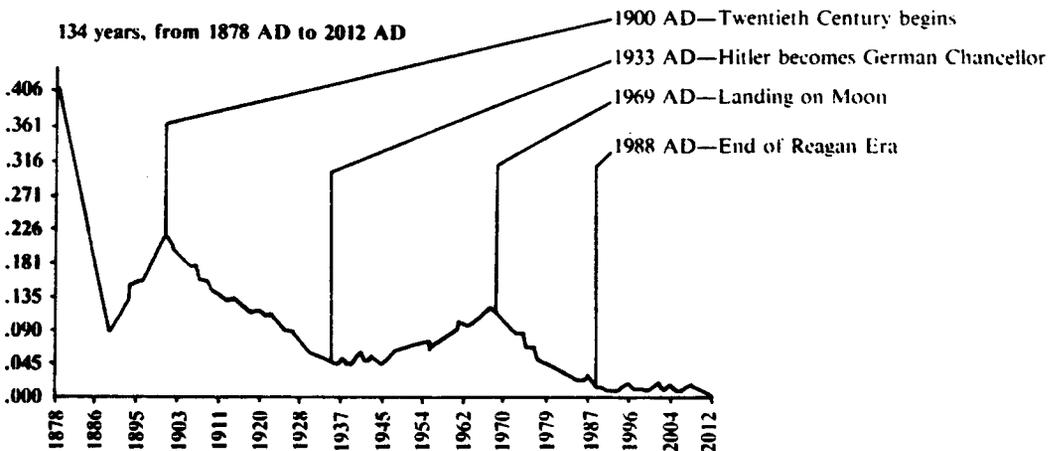


Figure 8



of their calendrical cycle by the classic Maya, surely one of the world's most time-obsessed cultures.

To see why I believe December 22, 2012 AD is a good candidate for the zero time, look at the wave signature for two rather long durations of time and pay special attention to the congruence of the episodes of novelty during each duration and the way in which they are shown to be in very convincing resonance when December 22, 2012 AD is the common zero point.

Naturally one cannot look at such wave signatures without wondering what the sig-

nificance of the zero point is. My interpretation of the zero point is that it is the point at which the ingress into novelty and the degree of interconnectedness of the separate elements that comprise the concrescence will be such that the ontological nature of time itself will be transformed. History will end and the transcendental object that has drawn Being into ever deeper reflections of itself since the first moments of the existence of the universe will finally be completely concrescent in the three-dimensional space/time continuum. As Plato dreamed, the moving image of time will have found itself in Eternity.

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