



# HOMEOMORPHISM IN THE FIRST LANGUAGE OF NEURAL REALITY

- PART 2



### Neural Reality - Definition:

While Actual Reality has long been discussed and debated, contemporary culture and its advancing science has now introduced us to Virtual Reality (VR), Augmented Reality (AR), Synchronized Reality (SR) and Expanded Reality (XR) via fascinating new technologies. Within this promising domain, there also exists a Neural Reality (NR). Perhaps playfully, Neural Reality could be considered as "Virtual Reality Turned Inside Out".

Neural Reality is the interface between primal unconscious activities and common cognition with the senses. It is the realm of experience that, by metaphor, is

the zone that unites the surface of the ocean and the deep dark hidden waters. It is the "bridge".

Neural Reality is both old and new. Old in that, as the physiological and existential basis of The First Language, it has been appreciated in a wide variety of traditional and spiritual practices since mankind's earliest days. New in that, with ingeniously crafted new technologies and new findings in neuroscience, it is an element of today's most advanced explorations and applications in wellness and consciousness.

First Language Light & Sound - Examples of Traditional Homeomorphism:

In anthropological research, there is a significant school of

thought that considers much of paleolithic and megalithic cave art as potent examples of homeomorphic First Language expression. (5) The prevailing theory expects that early humans experienced internal visual geometric patterns as a result of numerous overlapping sources of stimulation including long periods of darkness, hallucinatory plant ingestion, extreme fatigue and illnesses among others. In a more formal expression, there are striking examples in the Hindu Tantric tradition. The audio forms of "mantra" and the visual forms of "yantra" are excellent examples of homeomorphism refined over centuries of empirical spiritual science.



Classic "seed syllable" mantras to be chanted in order to evoke particular states of consciousness.



Classic yantras to be gazed upon in order to evoke particular states of consciousness.

### First Language Light & Sound - First Modern Scientific Steps in Homeomorphism:

Setting aside now the bountiful range of examples of First Language Light & Sound homeomorphic expressions in traditional spiritual and cultural practices, we shall focus here on a limited

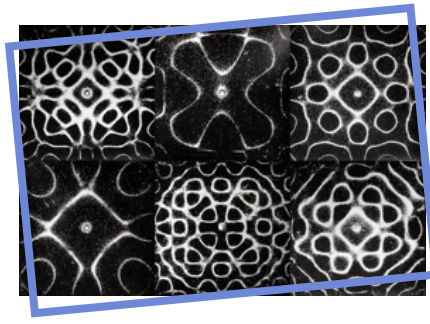
sketch of early scientific explorations into Neural Reality Light & Sound.

Recall that the homeomorphic principle is based on the appreciation that all of Nature shares a common basis of physical laws and behaviors that are the guiding factors in the formation of First Language signaling.

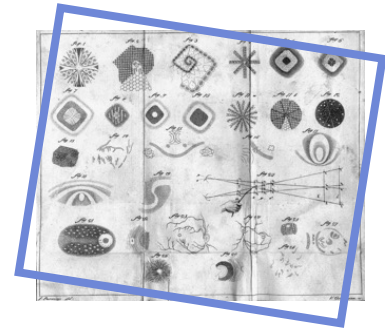
As a point of reference, we can mark the modern era as beginning with Purkinje with Light and Chladni for Sound. In 1819, Jan Purkinje described swirling geometric visual patterns stimulated by diffuse flickering light. (3) Chladni's best-known achievement was inventing a technique to show the various

modes of vibration on a rigid surface. When resonating, a plate or membrane is divided into regions that vibrate in opposite directions, bounded by lines where no vibration occurs (nodal lines). The experiments were first published in 1787 in his book Discoveries in the Theory of Sound. (4)

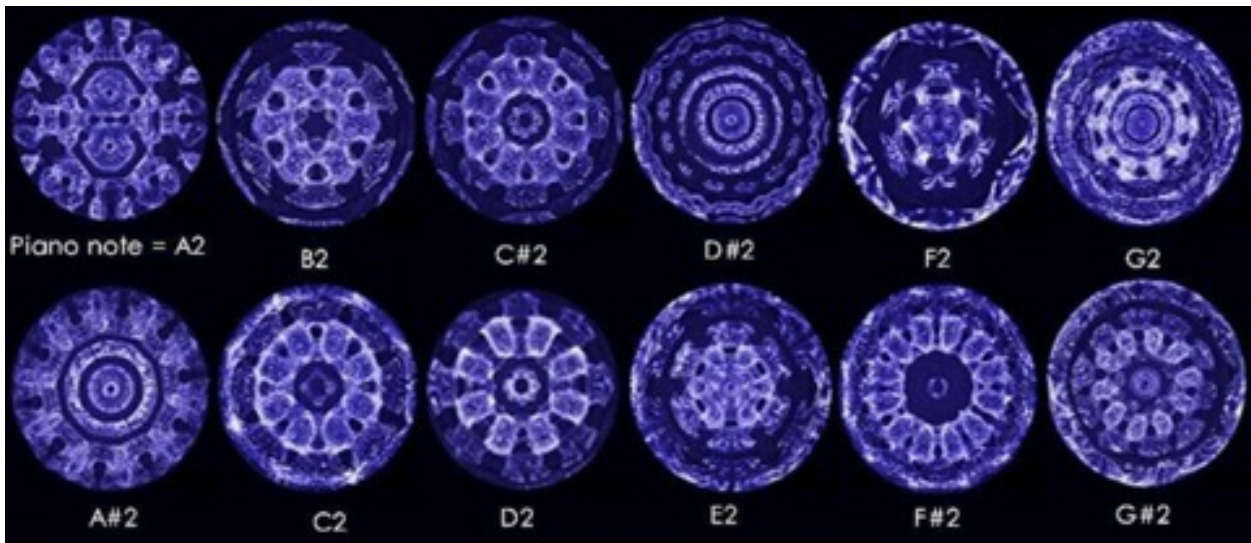
Although from dramatically different experiments, both Purkinje and Chladni were successful in exhibiting First Language



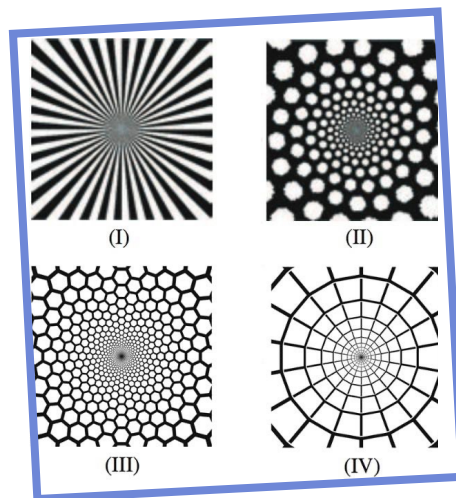
Chladni Sound patterns created by vibrating a flat metal plate with sand using a violin bow to express different frequency notes.



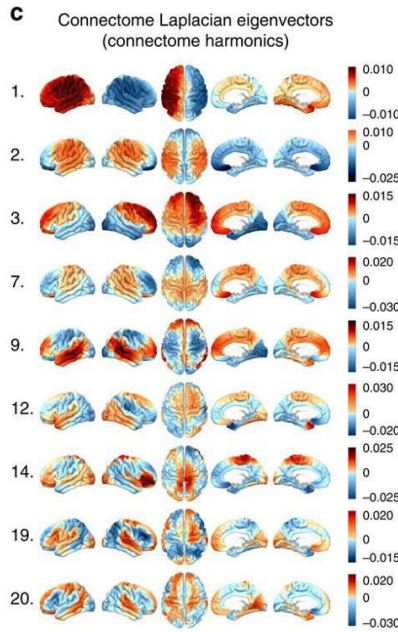
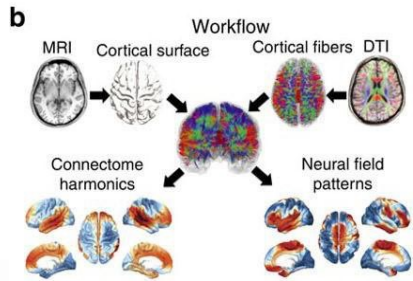
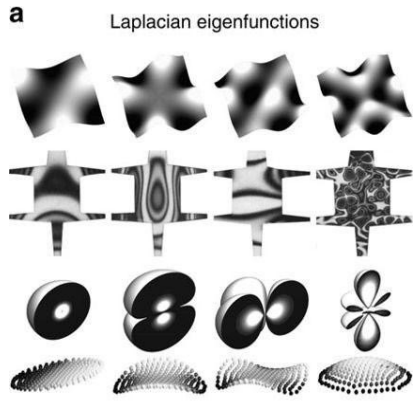
Purkinje Light patterns (original subjective recreations) created by diffuse flickering light of different rates/frequencies before the eyes.



**Cymatics**, (from Greek: κύμα, meaning "wave"), is a subset of modal vibrational phenomena. The term was coined by Hans Jenny (1904-1972), a Swiss follower of the philosophical school known as anthroposophy. In Cymatics, various sound notes or tones are applied to a flat plate covered with a fine powdery substance. It was discovered that each specific note produces a highly defined and repeatable "yantra" or mandala-like pattern (as seen above in the image).

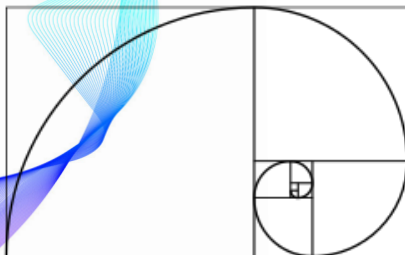


Heinrich Klüber at the University of Chicago in the 1930's, discovered and classified four categories of visual geometric patterns which have become known as Klüber's Form Constants. He used a combination of electrical stimulation and ingestion of the psychedelic mescaline.



When applying the calculations found in Laplacian eigenfunctions to the original pattern characteristics of the Chladni processes, surprisingly, one discovers that with a varied form template such as the four-legged torso of a mammalian animal, the original patterns are transformed (homeomorphism) into the characteristic pelt patterns of known animal species.

Furthermore, when applying the same calculations to the curved convex shape of the human brain cortex, the original patterns are now transformed into the neurologically identified Harmonic Connectomes of the Resting State Networks of our human brain. (12)

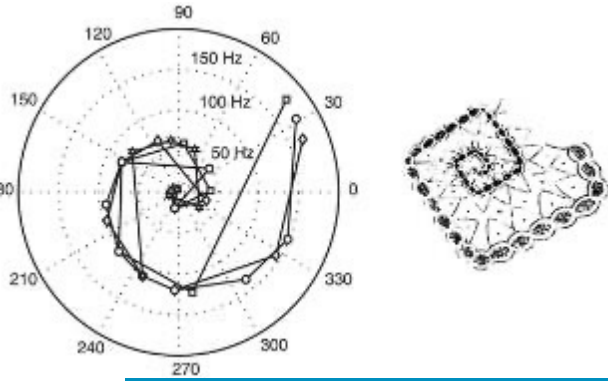


The Golden Mean or Golden Ratio as a mathematical expression.



Nautilus Sea Shell





Right) Purkinje optical image  
 (Left) Mathematical graphing  
 of phosphene expression  
 dependent on specific frequencies  
 and phases of flickering light  
 stimulation

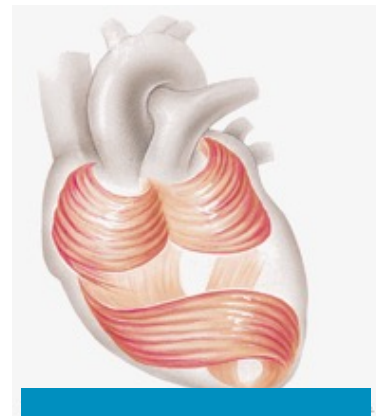


8. Spiral or Shell  
 Whorl

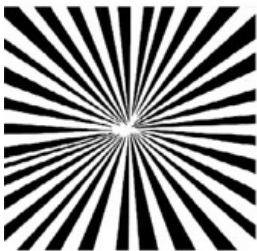
Spiral pattern  
 of typical human  
 fingerprint pattern



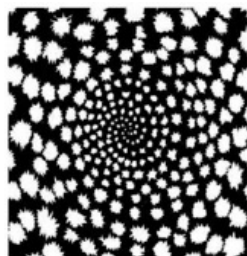
Spiral pattern of  
 aloe vera plant



Spiral pattern of  
 heart muscle



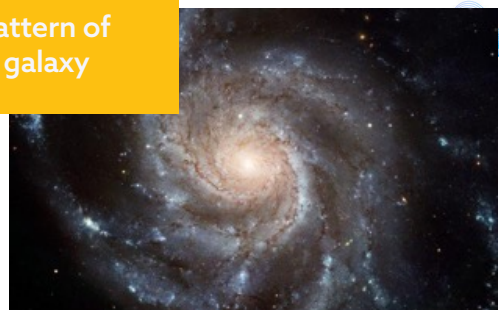
(I)



(II)

(Right) Spiral pattern  
 of optical hallucination  
 evoked by mescaline and  
 electrical stimulation -  
 one of four Kluver

Spiral pattern of  
 cosmic galaxy



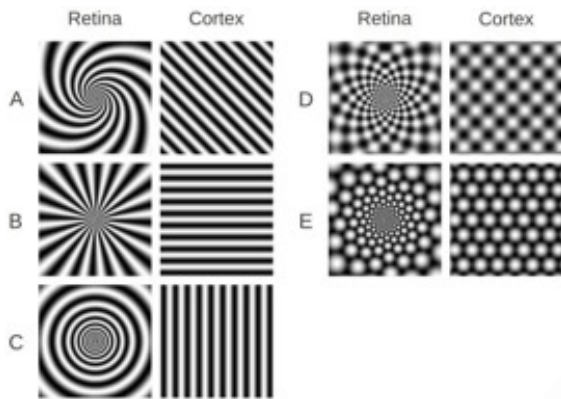


## Computational & Mathematical Pattern Generation:

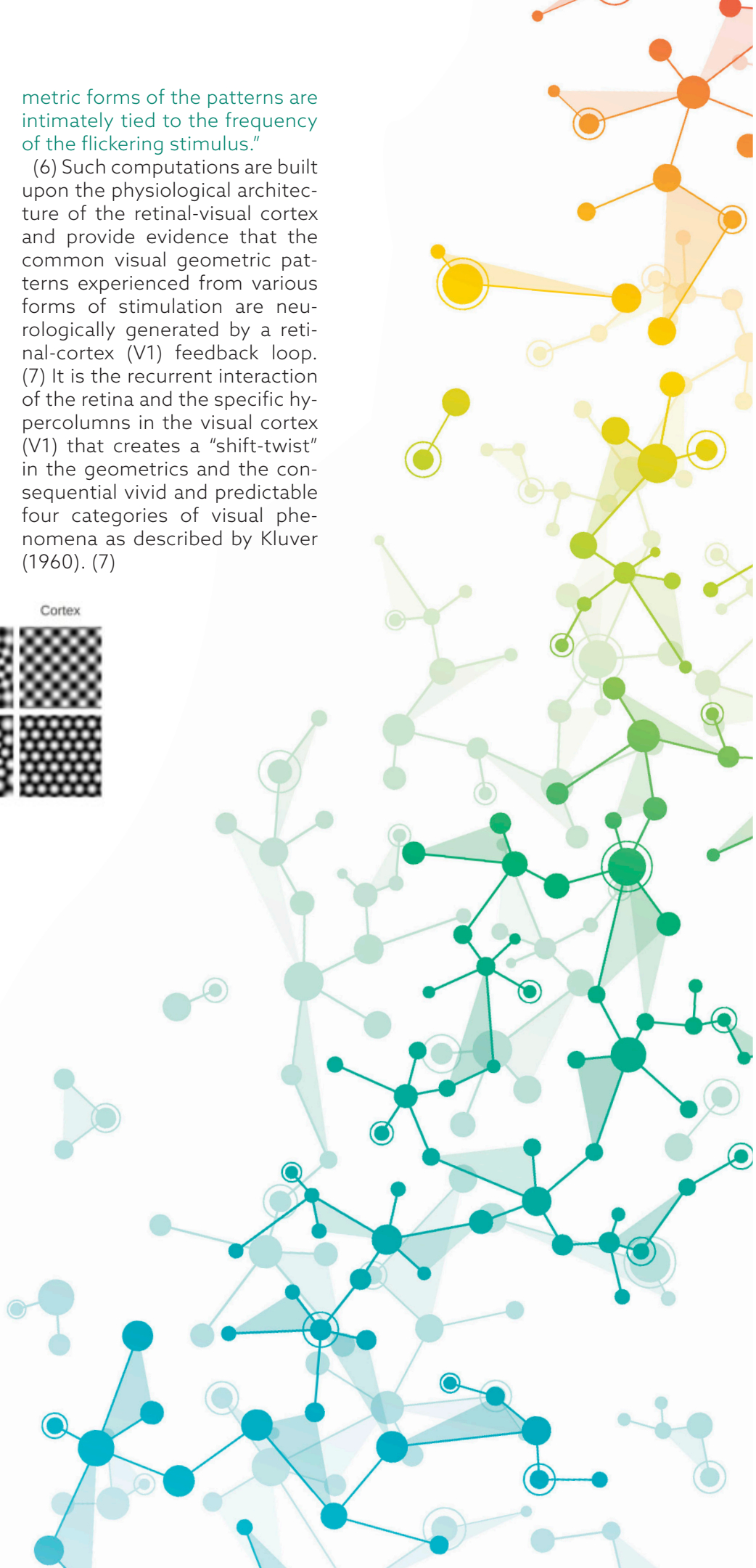
"When the human visual system is subjected to diffuse flickering light in the range of 5-25 Hz, many subjects report beautiful swirling colorful geometric patterns. In the years since Jan Purkinje first described them, there have been many qualitative and quantitative analyses of the conditions in which they occur. Here, we use a simple excitatory-inhibitory neural network to explain the dynamics of these fascinating patterns. We employ a combination of computational and mathematical methods to show why these patterns arise. We demonstrate that the geo-

metric forms of the patterns are intimately tied to the frequency of the flickering stimulus."

(6) Such computations are built upon the physiological architecture of the retinal-visual cortex and provide evidence that the common visual geometric patterns experienced from various forms of stimulation are neurologically generated by a retinal-cortex (V1) feedback loop. (7) It is the recurrent interaction of the retina and the specific hypercolumns in the visual cortex (V1) that creates a "shift-twist" in the geometrics and the consequential vivid and predictable four categories of visual phenomena as described by Kluver (1960). (7)

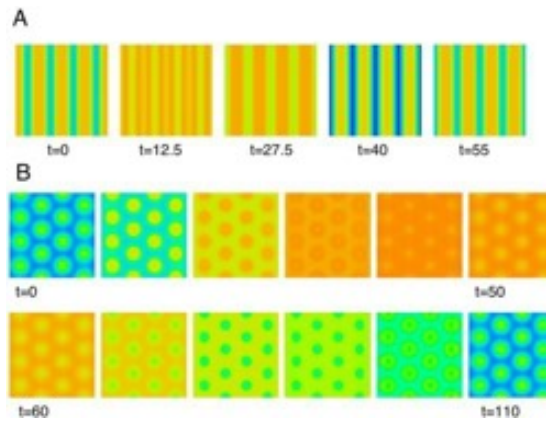


The phosphenes reported by subjects vary tremendously, but among them are the commonly seen so-called form constants (Klüver, 1960), which are simple regular geometric patterns. These include spirals, targets, light rays, honeycombs, and checkerboards. The images above are mathematically derived patterns and illustrate idealized versions of many of the reported patterns during flicker stimulation. Figures B, C are very typical and are the phosphenes reported when the visual system was stimulated at 15 Hz as well as over a range of frequencies between 15 and 20 Hz. Spirals (A) and honeycombs





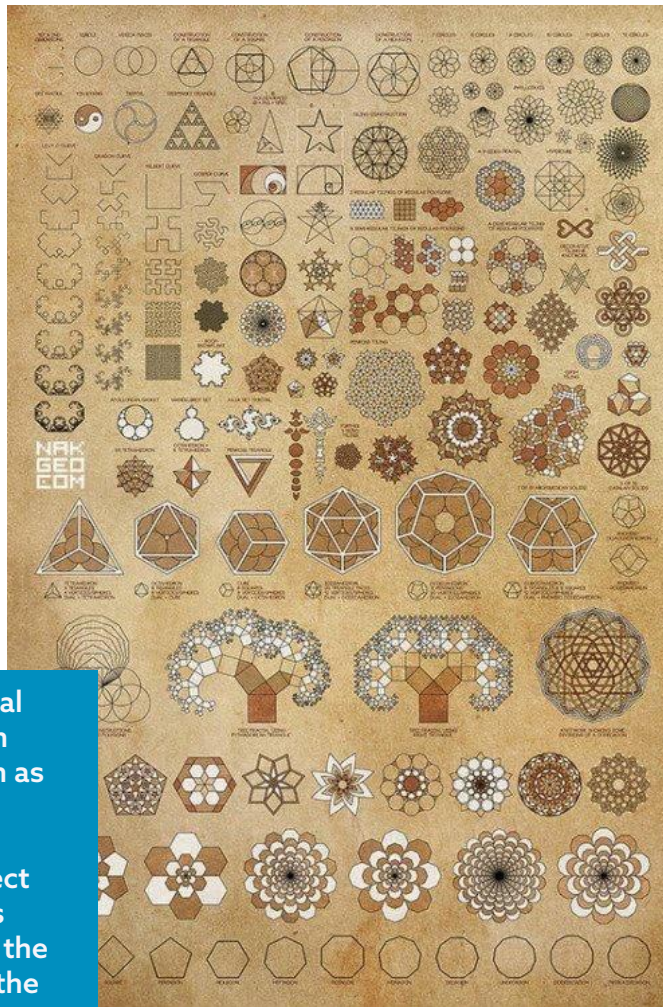
(possibly figure 1E) were also reported in this frequency range. "Rectangles" (possibly interpreted as the checkerboard pattern, (D) were reported to occur at lower frequencies (around 10 Hz). (6)



Time frames for different frequencies of stimulus.  
 (A) high frequency stimulation (18.2 Hz); (B) low frequency (9.1 Hz) stimulation. Note that in (A) after one temporal cycle of 55 msec, the pattern is shifted by one half of a spatial cycle. (6)

Geometric visual hallucinations are seen in many situations, for example: after being exposed to flickering lights (Purkinje, 1918; Helmholtz, 1925; Smythies, 1960), after the administration of certain anaesthetics (Winters, 1975), on waking up or falling asleep (Dybowski, 1939), following deep binocular pressure on one's eyeballs (Tyler, 1978), and shortly after the ingesting of drugs such as LSD and Marijuana (Oster, 1970; Siegel, 1977). Patterns that may be hallucinatory are found preserved in petroglyphs (Patterson, 1992) and in cave paintings (Clottes & Lewis-Williams, 1998).

**Bi-Directional First Lan-**



Examples of First Language visual patterns and constructs found in various systems collectively known as Sacred Geometry. Following the principle of Homeomorphism, one would expect to find evidence of such patterns throughout Nature including within the intrinsic, archaic First Language of the human Central Nervous System.



### **guage Communication:**

It has been established that certain frequencies of stimulation to the brain will reliably produce certain categories of subjective First Language geometric patterns and colors (see above).

Considering the principle of Homeomorphism and the dissolving of strict "inside/outside" boundaries, it should not be surprising that the flow of information is not restricted to one-way messages. In fact, there is clear evidence that the flow of information is such messaging is, in fact, "bi-directional". (8)

What this means, in simple terms, is that if a stimulus of 12 Hz (for example) acts to produce a subjective set of certain color and geometric pattern combined with a predictable conscious state then, by perceiving the same color and geometric pattern, in a bi-directional feedback loop, will create the same 12 Hz signal in the brain with the same associated conscious state.

This is the principle of "bi-directional" information processing found in Homeomorphic First Language dynamics.

### **The Brain as a Prediction Device:**

It has been a longstanding mystery in neuroscience as to how the brain can process so many streams of simultaneous of data and come up with a unified time-sensitive perception. The key to this extraordinary feat may well be the brain's ability to "jump to conclusions". Put differently, our brain is an efficient "prediction machine". (9)

Our brain seeks out signal in the noise and pattern in the apparent randomness. With ongoing exposure comes increased learning. And this learning allows for (more or less) accurate predictions. For example, if I were to speak out

"1, 2, 4...1, 2, 4...1, 2, 4" repeatedly and then speak "1, 2..."; you would immediately think "4" as a reasonable prediction of what will come next.

So, with First Language and Homeomorphism in mind, consider that there are basically two sources of information that will supply the "prediction machine" with patterns allowing some reasonable degree of correct forecasting. One source is the ever-increasing collection of experiences in day to day life. The other is, in fact, the innate storehouse of First Language Light and Sound homeomorphic information. This "instinct" or "intuition" allows for uncanny "precog" insights and understandings that may seem to come "out of nowhere" and defy your personal library of collected experiences. In here, we may find credible access into what Jung called "the Collective Unconscious".

### **Perception, Interoception and First Language:**

Perception is the process of interpreting external stimulation via the five special senses of sight, hearing, touch, taste and smell. Interoception is the process of interpreting internal somatic sensations that originate within the organism. (10) The First Language experiences in Neural Reality are interoceptive messages that have the capacity of being interpreted as being the qualia of perception. In a way, the First Language dynamics turn perception "inside out".

### **Beauty & Homeomorphic First Language:**

Lastly, persons experiencing First Language colors and geometric patterns from any number of stimulation sources invariably describe them as beautiful and other-worldly. The colors and patterns seem saturated with indescribable attractive qualities.





It is possible that the mysterious aesthetics of the First Language Neural Reality experience may be a factor of the “universal Homeomorphic” characteristics that are innate to the information and a natural reflection of their core conscious values. (11)

### Summary:

Homeomorphism, as postulated by William James over 100 years ago, recognizes that all life forms evolving on Planet Earth were shaped by the very same influences and consequently share the imprints and dynamics of these influences in common. To serve all organisms regardless of the degree of complexity, these formative influences must exist and function at the most basic, primitive levels. Furthermore, as organisms evolve into increasing degrees of complexity, these primitive formative influences are retained and integrated into the higher influences as foundational dynamics.

As integral factors in self-organization, these primitive formative influences develop into adaptive feedback communication systems with a bi-directional capacity of information sharing and reinforcement. The consequence of this development is the emergence of a First Language at a level of Neural Reality. In the human being, there exists an intrinsic or innate archaic “language” incorporated into the Central Nervous System (CNS – Cranial Brain and Spinal Cord).

### References:

- 1) James, William; *Briefer Course*, Harvard University Press, Cambridge, 1892.
- 2) Sayin, HU; *Neuroquantology*, Sept. 14, Volume 12, Issue 3, Pg. 427-445.
- 3) Rule M, Stoffregen M, and Ermentrout B. *A Model for the Origin and Properties of Flicker-Induced Geometric Phosphenes*, *PLoS Comput Biol*, 2011 Sep; 7(9): e1002158.
- 4) Chladni, Ernst, Wikipedia.
- 5) J. D. Lewis-Williams, T. A. Dowson, Paul G. Bahn, H.-G. Bandi, Robert G. Bednarik, John Clegg, Mario Consens, Whitney Davis, Brigitte Delluc, Gilles Delluc, Paul Faulstich, John Halverson, Robert Layton, Colin Martindale, Vil Mirimanov, Christy G. Turner II, Joan M. Vastokas, Michael Winkelman and Alison Wylie; *The Signs of All Times: Entoptic Phenomena in Upper Paleolithic Art*, *Current Anthropology*, Vol. 29, No. 2 (Apr., 1988), pp. 201-245
- 6) Michael Rule, Matthew Stoffregen, and Bard Ermentrout, *A Model for the Origin and Properties of Flicker-Induced Geometric Phosphenes*
- 7) Paul C. Bressloff, Jack D. Cowan, Martin Golubitsky Peter J. Thomas and Matthew C. Wiener, *Geometric Visual Hallucinations, Euclidean Symmetry, and the Functional Architecture of Striate Cortex*, *Phil. Trans. Roy. Soc. (Lond.) B* (2001) 356, 1-32
- 8) Federica Mauro, Antonino Raffone, and Rufin Van Rullen, *A Bidirectional Link between Brain Oscillations and Geometric Patterns*, *The Journal of Neuroscience*, May 20, 2015 • 35(20):7921-7926 • 7921.
- 9) Andreja Bubic, D. Yves von Cramon, and Ricarda I. Schubotz, *Prediction, Cognition and the Brain*, *Front Hum Neurosci*, 2010; 4: 25.
- 10) Hugo Critchley, Stefan Wiens, Pia Rotstein, Arne Ohman, Raymond Dolan; *Neural Systems Supporting Interoceptive Awareness*; *Nature Neuroscience*, 2004.
- 11) Akihiro Kubota, Hirokazu Hori, Makoto Naruse and Fuminori Akiba; *A New Kind of Aesthetics –The Mathematical Structure of the Aesthetic*; *Philosophies*; Published: 30 June 2017.
- 12) Selen Atasoy, Isaac Donnelly, Joel Pearson; *Human brain networks function in connectome-specific harmonic waves*; *Nature Communications*, Vol. 7, Article number 10340 (2016).





## About Garnet Dupuis



*Garnet was born and raised in Canada and is a naturalized USA citizen. He is an Integrative Health and Wellness expert, teacher & inventor with specialties in inter-disciplinary methodologies. With a wide experience in advanced technologies, Garnet has taught neuromodulation applications in major USA universities, professional sports teams, the Marine Corp and Naval Hospitals and lectured in European and Asian countries.*

*Garnet has a broad education including college, university and graduate trainings in Classical and Clinical Homeopathy, Oriental Medicine, Massage Therapy/Bodywork, Hydrotherapy, Remedial Exercise, Biofeedback, Psychology and English Literature.*

*Garnet is co-founder of Lucid Studios/neuroVIZR, Thailand. He currently resides in the tropical mountain rainforest in Northern Thailand. He is a life-long meditator and practitioner of Tibetan Dzogchen. Garnet is active in wild animal rescue and conservation and has built, manages and funds a sanctuary for SE Asian apes.*

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