Reflections on the Structure of the Universal Number Continuum

Abstract: I am not currently associated with any institution. My work is a result of private correspondence with Dr. Marie Louise von Franz, former director of the Jungian Institute in Zurich before her death in 1999. You see a problem is that a large bulk of the subjects of my studies are not taught in our traditional educational systems. My work is a result of independent study related to materials, the basis of which lies outside our standard curricula. The following document addresses the basis of what I had hoped to share and which I have been working on since 1988.

It is shown through a novel method of generation that number corresponds to form as a "becoming continuum" indicating specific forms apply to the first ten integers and through the process of explication we are required to consider related issues including dimensionality and growth. The work describes the spatial nature of the "archetypal" characteristics of the natural integers, and it is concluded that there exists what may be understood as a "Universal Number Continuum," which is represented through a pure projective geometry in a fifth dimensional framework, incorporating a Hypercube or Tesseract and where the basis of the fifth dimension here corresponds precisely to the characteristics of the nature of the fifth dimension as it is explicated in the Kaluza-Klein theory of Relativity. The desire being to lend a mathematically sound basis for the the fifth dimension and the qualities it possesses supportive of the Kaluza-Klein theory is much desired in the scientific community. Please be aware this was written as a preliminary discussion concerning the proposed publication of a document which purports to explicate a new theory related to mathematical philosophy and where overwhelming evidence exists in favor of the proposition, but where remain yet unresolved aspects related to special dimensionality and complex symmetry seen as relational subjects.

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Please consider broad tolerance for my unfamiliarity with proper procedures or form… As this had not been intended for formal review I have not followed any standard method for the reference of citations. Really, I'm just a philosopher of ancient maths and felt others more qualified should have a look and perhaps conclude a basis where within a framework of mathematically consistencies where number and form relate to dimensionality, yet; in my "Number Continuum" hypothesis there occurs a fourth axis which can be shown to be at right angles to each of the other three (when reduced to a two dimensional plane projection). While within the context of inter-dimensional projection the relationship satisfies the requirement for a fourth axis as being at right angles to the primary, secondary and tertiary axes as a condition of dimensionality, yet in truth, it is the sole symmetry element that occurs not purely as a manifestation of dimensionality in the "Number Continuum," as currently understood, but as a secondary symmetry element of the second of a pair of reciprocal three dimensional bodies. Questions I've left unanswered and continue to work through. The compelling conclusion, however; seems to require showing how the fourth axis may function not merely as a symmetry

element as it may appear to be, but rather as a dimension - for there is significant justification for advocating that the "Structure of the Universal Number Continuum" conforms readily with the notion of the five dimensions specified in the Kaluza-Klien theory of Relativity. Other problems remain to be resolved before moving to final publication, but this is the fundamental dilemma I find myself moved to apprehend, a resolution that can rectify the matter: lending justification to the concept of "The Universal Number Continuum" as I have been able to explicate it, rectifying the relationship between elements of symmetry and spacial dimensionality that is implied by the consistencies of the theory, then to lend a basis of justification for the Kaluza-Klien theory of Relativity where there may be established a mathematical foundational basis and correspondence to the precise notion of the Five dimensions as elucidated in the Kaluza-Klein theory which renders it more elegant and simplified, yet which lacks justification for the admission of the fifth dimension and the peculiar qualities it possesses.

Individuals of wise intellect may exist to offer insight into resolution of all conflicting information both known and unforeseen, before further efforts to explicate formally what is here in essence to be proposed. To those individuals I have invitation to contact me personally with any fanciful whim at all and with all the gratitude in my heart for your gifted talents. I have not written this document in a formal proposal designed to lead you from the beginning to the end of my work and to summarize its current status; not at this time. Rather, this is given as a summary and proposal as it was best conceived for this purpose. Ideally, all that is needed to be known by you to evaluate it will be given in context. A great deal is not said. Of course, if you're wise, you know that. If any of my statements, descriptions, propositions, etc., raise questions for you; or if you otherwise wish to pose any questions and are sincerely interested in assisting, please contact me personally at your convenience by your preferred method of choice.

First, in an informal discussion it is related how there came to be a prior unpublished paper written concerning the hypothesis and further elucidation including more formal explication relates how this hypothesis has been expanded warranting another publication of the work, with the summary of the theoretical foundations and additional findings all addressed in the course of the discussion.

A federal court injunction against a major telecommunications company affected my business affairs years ago and created an opportunity for having time available to take an extended vacation during 1988. I chose to dust off some old manuscripts of mine and began some new studies related to Alchemy. During this period I applied an axiom I'd read from an appendix in Sir Walter Scott's Hermetica: "One who has come to know oneself ought not to set right by means of magic that which is thought to be amiss or to interfere with the operations of fate. One should seek to know ones self and God and let Destiny deals with the clay that belongs to her." I communicated a proposal to a few persons around that time that it could theoretically be possible to demonstrate the actual existence of the Philosopher's Stone based upon my original proposition that the term was a veiled or allegorical reference to the Pythagorean doctrine of Sacred Geometry, while engaged in the study of writings of both Dr. Carl Jung. and Dr. Marie Louise von Franz. I did receive a personal reply from Dr. von Franz back in 1990 when I first articulated this proposal.

In 1995 I felt it important to communicate in essence my proposition as I then understood the

basis of the work and so wrote a short note to Dr. von Franz describing to her the basis for the method of my approach, believing she would be able to know all that was necessary from my short statements to duplicate the work as I had it in mind at the time, in its entirety, given sufficient time. But my description of the method wasn't seemingly enough and she requested a much more detailed exposition. At the time I felt it might be several years before I would be ready to commit any words to paper. Still, she was very compelling, and so I found myself writing a singular paper of a preliminary nature during the course of one particular night (Vernal Equinox, 1995) intended for her benefit. My work continues today as a consequence of that original preliminary thesis.

I am now prepared to propose the introduction of an innovative mathematical proposition involving a novel method for the generation of number and form, whereby the series of the natural integers are generated from the Monad to a formal Decad, containing within themselves a strong theoretical foundation to support the Pythagorean spirit and notion of the revolution of the Decad in the context of considering complexity and simplicity, even as regeneration speaks of the construction of higher orders of magnitude and complexity. Pythagoras always did say that Ten became one again... I posit this suggests strong evidence for the decimal basis of enumeration that could not be hazarded where the traditional and somewhat primitive notion of a one dimensional number line concept remains the sole option of consideration.

I propose that what I intend to describe is the discovery of something (taken in its entirety) that is both completely novel, and yet which is unique enough that notions have been derived from a mass of various sources and pressed into service for the necessity of such an explication. For lack of a better term we could refer to this discovery best as "The Philosopher's Stone" and yet this would be historically unfitting for a wide variety of reasons and would lead to misdirection. Thus, my formal treatment will most likely be entitled:

"Reflections on the Structure of the Universal Number Continuum"

A Brief Outline:

An integration of the natural integers in their most functional representations, as numerical elements within a greater function of transformation in the construction of form where individually they relate to one another as archetypal transcendent transformational processes presenting concretely as discrete units as they occur within a becoming continuum of which they are conjoined. Functions of mathematics and principles of geometry are to be understood, read into or gleaned from such work that may be presented as those who are predisposed do usually in relation to such.

The Universal Number Continuum can be constructed only by an appropriate method of generation with appropriate regard for the archetypal characteristics of the natural integers and their proper forms, such as we are able to establish these, and by combining elements of both Eastern and Western concepts of mathematics. While Newton's own translation of the Tabula Smaragdina gave some inspiration to this hypothesis and he is known to have both written voluminously on the subject of Alchemy and to have had a trunk full of notes dealing exclusively with numerology which was purchased at auction by Sir John Maynard Keynes. It is also

interesting to note that it was Liebniz who first introduced concepts of the I-Ching to the West and which plays an integral role in the methodology I use to approach the subject. I may tend to adopt certain alternate terms where their use may seem fitting not conforming to usual notions. For example, the interchangeable use of the terms vertex and vertices or vortex and vortices has a thorough philosophical discussion in Sir Thomas Heath's version of "The Thirteen Books of Euclid's Elements."

The manner in which dimensionality may properly be incorporated likely lies in an understanding of proper relationships between spatial dimension and complex symmetries. This work suggests that any mathematical abstraction that does not refer specifically to either forms corresponding to the three dimensions known to Euclidean geometry, or where there exist geometrical forms capable of being represented through projective geometry of a higher spatial dimension should be termed mathematical abstractions. The wide misappropriation of the term dimensionality has rendered the original context of its use meaningless.

All the symmetry elements which are the basis of modern crystallography are comprehended in the construction, having a unique relationship with dimensionality; as well, every body that exists within the universe of solid state physics is represented within an elegant framework wherein it is shown that all five of the Platonic Symmetrical Solids are represented as they are concentrically contained one within the other and encompassed in a Hypercube or Tesseract suggesting strong conformity to a required condition of mathematical philosophy related to higher dimensionality that all bodies must be conformably contained within the boundaries of the dimensions which transcend them. At every stage in the generation of the Archetypal Number Forms, the entirety of the form represented within the context of the geometrical representation, is resolved delightfully into triangles. In due course it is thus we determine the true beauty of that great star that is the Macrocosm formed as the manifestation of the preformation contained within the Microcosm. For the "Universal Number Continuum" arises as a natural progression of singularity giving rise to multiplicity. All bodies of any dimension must be conformably contained within the boundaries of those dimensions which transcend them. This is both a required mathematical proposition and appears to be a consistent condition of the number continuum. This definition may be most important for resolving certain dilemmas that remain relating to the question of the relationship between complex symmetry elements and spacial dimensionality.

My work first indicates that the author of the Tabula Samagdina was unfamiliar with the dodecahedron and icosahedron, both discovered by Pythagoras. This necessitates a strong disinclination to consider it of any age newer than that time preceding Pythagoras. I will suggest that the Tabula Smaragdina, a document whose colorful history might best be believed as originating in the account of it being found in an ancient Egyptian tomb after all, because clearly its author is unfamiliar with the formalized concept of the four elements.

The Greek classical elements (Earth, Water, Air, Fire, and Aether) date from pre-Socratic times but were formalized by Empedocles. It does not appear to me that this author was familiar with Greek Philosophy of that period but even in translation from its supposed original Phoenician the concepts it elucidates suggest origins that to me seem rather more ancient. For, in the time of the author they had not either formalized the elements as had the Greeks, but instead would represent

them by the force they ascribed as the active function of the "element." Describing them instead by the force that is the active function of that ""element" is patently apparent, revealing a much older conceptional understanding of those "elements." Where specifically in the absence of a suitable term to describe air for example thus again this fragment would be more likely to represent an individual with a less sophisticated philosophical view of these "elements" than where later the conceptualization of air represents a relatively large growth in abstract philosophical reasoning than possessed by our author. Though indiscernible, it occurs to the philosophers of Greece to consider the abstract hypothesis of a fluidic mass of invisible matter which, by the time of the rise of the Greek Philosophical period, the clear distinction of the abstract concept of air demonstrates a more advanced, and abstract understanding. Such a recognition represents a philosophical maturity surpassing the author of the Tabula Smaragdina for whom the only ascription of that "element" is the active force of its emanation and which is recognized and known by its Symbolic representation as an active principle of nature that is Wind.

The Representations of Celestial or Divine Universal Forces signify deep Symbolic importance for they are represented concretely as the Sun, Wind, Moon and Earth. While not having yet formalized the "elements" surely the author, having established an earthly and more abstract understanding of fire and earth as ordinary physical principles, suggestively even represents an apparent understanding of the Pneuma as their reference to the subtle and gross and which defines ALL four "elements" consciously within a range of purity from dense to rare. But here a more ancient view of nature is revealed, one where the author clearly remains in touch with the archetypal elements of the unconscious by which is seen in the imagery of Sun and Moon primary concrete objects which we may regard as having for them a Symbolic nature of the highest order. This reveals an emerging consciousness, emerging awareness and sensitivity to the archetypal influences that influence the origin of such conscious associations. Such meaningful associations may arise through natural intuitions as the signs of awareness of a hidden order in back of the universe. Above all, this reveals in action the active employment of the symbol making function, whereby the roots of metaphor and analogy give rise to the content of early myths, as well as primitive philosophical understandings. For one with such a level of conscious development this would tend to leave a muddled mystical understanding where such associations may be occasionally perceived. Regarded metaphorically or poetically such psychic correlations seem imbued with a certain magical potency, calling forth energies from the well of untapped psychic forces deep within the unconscious by awakening conscious recognitions of archetypal patterns. They clearly see the semblance of the eternal life force of the spirit emanating from the sun and recognize the life force in the both the universe as in themselves. Together the collection of observations represents a very early attempt to describe a view of their natural Universe whose focus is on rudimentary notions that occur to consciousness just emerging into a state of awareness. The unlikely descriptions found in the fragment, particularly the concrete content associated with highly symbolic root notions suggest to me that the tablet's origin is not likely to be more recent than from a time that is older than the related Greek Philosophical period. And perhaps, very ancient indeed. There was a necessity in the most ancient of times for teachings to be concise. Based on the culture in which their concepts and language exist such teachings often appear to be related largely in terms that are highly symbolic such that a greater detail of meaning is related through the information. Another reason for brevity preceding written language was in order to insure that the teaching could be remembered and thus related precisely.

Still, Pythagoras having asserted that the earth was round must have gotten his ideas from a prior source along his many wanderings. Since none but Pythagoras of his time are said to have conceived of the circular earth I must conclude this statement likely hearkens back to a more ancient time of origin as well in the clear absence of familiarity with other contemporary Greek philosophical understandings.

In my interpretation of the Tabula Smaragdina they consider something which may have been regarded as anything from the notion of the void to the mystical axis that connects earth and heaven, but which seemingly correlates fully with my concept of the fifth dimension as "the force, the most powerful of all forces, for it transcends every subtle thing and penetrates every solid." If it represents, as I maintain, the entrance into our reality of the fifth dimension -- the representation at the root of the default basis in the universe for mirror symmetry, that somehow the notion that everything which exists is essentially turned inside out through a principle of inversion as some manifestation of how the physical universe was formed; this satisfies once again the proposition that all bodies must be contained within dimensions that transcend them. Thus it would indeed be the mighty Dragon Ouroborus that encircleth the universe and swallows his own tail. Also, the proverbial Hen to pan - 'The One, the All.'

On his death bed Jung said the answer to his search for the source of the archetypes of the collective unconscious was in the simple whole numbers and outlined the mathematical structure of the first four integers for Dr. von Franz who wrote a book called "Number and Time" as the result. While I was considering Sir Isaac Newton's Translation of The Tabula Smaradina along with my other studies of Jung, I was also studying all that was known of the theories and mathematics of the Pythagoreans. I chose to approach my study of the archetypal nature of number and its qualitative characteristics pursuing a novel method. Dr. von Franz did a great job on her book but I had the misfortune to know most of its contents before I read it. It seems that I had needed to create much of it for myself beforehand as a framework to address the question of number in space, or geometry (specifically the generation of the archetypal number forms). I found flaws and wide disagreement from the best available literature on how number might correspond to form, beginning with the number three. Little information in this context allowed that this association of number was related to discrete separate units. Pythagoras taught that number was of two kinds: "Intellectual," and "Sciencial," The Intellectual kind of number enters into the numbers' symbolic interpretation. The symbolic interpretation of numbers is derived from the Pythagorean notion that the natural integers signify far more than they represent as quantitative signs. Sciencial Number enters into their mathematical treatment, which Pythagoras defined as: The extension and production into act of the seminal reasons which are in the Monad... or a progression of multitude beginning from [the] Monad, and a regression ending in [the] Monad. David R. Fideler suggests that the qualitative characters can be intuited by studying the archetypal characteristics of the natural integers as they may appear in arithmetic (number in itself), geometry (number in space) and harmonics (Number in time).

I couldn't get beyond the number three from available literature drawn upon at the time in my exploration of number in space and how number is related to form. But the tetrahedron, one of the important forms of the quaternary order is able to be rotated in space such that it can be represented as a square on a two dimensional plane, and a method is to be mentioned herein to

allow distinction between inter dimensional forms in projection where their common or corresponding lines are corresponding in the plane of projection. My work, that portion referred to here, is based upon the Tabula Smaragdina which first occurs in the "Secreta Secretorum" along with a statement by an alchemical author with the nom de plume: "Pseudo Aristotle," in which he states, "Oh Alexander, I wish to reveal to you the greatest of all secrets, and it behooves you to conceal this Arcanum and to perfect the proposed work of this stone of art, which is no stone, which is found in every man and in every place and in every time and which is called the goal of all philosophers." It is from that time forward in Medieval Alchemy that there even exists a reference to a Philosopher's Stone. That Pythagoras himself invented the term "Philosopher," saying I am not a sage, I am not "one who knows," I am a philosopher, I am "one who is seeking to find out," may have escaped the attention of some, but to me the notion that the "Philosopher's Stone" so-called was a veiled or allegorical reference to the Pythagorean Doctrine of Sacred Geometry was clear at once. A quick read of the first few chapters of Jung's "Mysterium Coniunctionis" should be sufficient to anyone that the problem which must be solved before anyone can begin upon this proposed quest to discover or create the Philosopher's Stone is that one must first identify and isolate the First Matter or "Prima Materia," considered philosophically as the one thing out of which everything else in the universe is created. Rather than looking at subatomic particles I chose the symbolic approach and selected the geometrical point.

It is a matter that occupied philosopher's and physicists for so many ages that I will tell you my private speculation: Although the atom resolves into four fundamental particles before going to the subatomic, I believe the following: that like Liebniz' concept of space and time as being relational, being related to one another by analogy and other notions I've related of Kant and his manner of regarding time and space as being identical except where the parts of time are successive the parts of space are coexistent, I'll confess that, as the Planck length is merely the smallest measuring rod we've got and that matter can be divided down to a level of that size at least, then, like space and time, I contend matter to be a continuum.

I'll go one step further. My work shows that there appear to be five dimensional elements of symmetry the first four of which are intersecting axes, of which I have demonstrated that the four can be shown to be perpendicular to one another: where the fourth axis is perpendicular to the primary, secondary AND tertiary axis. The perpendicular axes of the three dimensions for example, where the octahedron with its three perpendicular axes is projected onto a two dimensional plane, where there is generated a fourth axis in the transformation of the octahedron to the cube, in that context the fourth axis exists at a right angle to each of the other three. One notion might be that the analogy should be capable of extension, such that the four axes being represented in projection in a three dimensional space, a fifth axis should be able to be shown to exist at right angles to each of the other four. But the fifth dimensional element of symmetry is not an axis in any formal sense, and is altogether a more complex extension "into an unknown space." This is the symmetry element described as the non performable operation of inversion through the center. Please dismiss any descriptions referring to the Planck Length as applied to the fifth dimension as it contracts into the center within the Kaluza-Klein theory of Relativity for the reason that Michio Kaku's description of the Kaluza-Klein theory of relatively rather expresses best how the fifth dimension curls up into the center and disappears. Again, bearing in mind that the Planck length is merely our smallest measuring rod. But the question of why the

fifth dimension curls up into the center and disappears in the Kaluza-Klein theory has always been a subject of intense interest and is one the main arguments against this explication.

That's where "The Structure of the Universal Number Continuum" may be able to provide a sound foundation for a mathematically viable basis where the notion of five dimensions has a character conformable to current valid notions of higher dimensionality and which alone offers forms which can be shown through projective geometry to intersect with and transcend the lower dimensions as geometrically representational spacial forms and not mere mathematical abstractions. Further, it offers an explanation of the manner in which the fifth dimension is of a qualitative character which requires that this basis for the fifth dimension as disappearing within the center is necessary and based upon a wholly sound principle which explains why this should be indeed a necessary characteristic of a fifth dimension conforming exactly to the description as it is encountered within the Kaluza-Klein theory of Relativity.

A problem I faced early on is that the definitions of the elements in Euclidean Geometry are dependent upon the intuition of three-dimensional space, and whose characteristics are derived a posteriori through the negation of the characteristics of the three dimensions. It has been argued that by an examination of the analogical relations of the first three dimensions to one another through geometrical propositions we may discover the manner in which a higher dimension may naturally transcend the three we know and can represent, and the manner or direction in which its extension might lie in relation to the other three. The problem is that ordinary geometry which is derived a posteriori from an intuition of three dimensional space is conditional upon its three perpendicular axes, and this is the basis of our ordinary definition of spatial dimensionally. Obviously ordinary geometry is incapable of describing a space that it is not naturally contained within it. However, the relationship of these dimensions may provide one manner in which we may realize the entrance of "higher space" into those we can represent, based on the foundational principle that the forms which the three dimensional space contains may have corresponding representations on a two-dimensional plane and which is explicable through principles of a "pure projective geometry."

My conclusion was to allow Dr. Von Franz' Concept of all number as being reflections of the "one continuum" and build upon this premise. When one takes the primal unity and applies each of the four principle functions of mathematics upon it, the only way forward in progression is simple addition. A novel method for the generation of number and form was eventually discovered and which necessitated the inclusion of concepts elemental to the I-Ching, the Kabala and of course Euclid's Elements, but there were other points to be defined as well. While the methods I will collectively be using to describe the generation of the archetypal number forms as I approach formal publication may appear simple in essence there are likely issues that remain overlooked or unresolved, nevertheless: the methods used are sufficient to establish a viable foundation within which to conduct this exploration and which yield mathematically consistent results. The basis of the presentation is one of demonstration, being of the nature of a "pure projective geometry" unconcerned with the actual measure of the elements which are arbitrary and may as well be considered infinite as indefinable. The basis of the presentation is one of demonstration based upon the proposition of Aristotle that within mathematics those things such as the first principles which are capable of demonstration may be subject to definition but are not required to be proven. Thus it is maintained that it is sufficient unto itself to demonstrate "The

Structure of the Universal Number Continuum" to establish its valid basis mathematically, without the necessity of proof, for the proof per se is provided by the mere capability of its demonstration.

Mirror symmetry is considered as the default condition of symmetry in the universe, except for special cases. This fully supports Dr. Van Franz' primary conjecture that all mathematical units can, when one considers that the mathematical structure of the archetypal characteristics of all of the natural integers can be understood qualitatatively as mathematical reflections of the "One Continuum.“

Please bear in mind that I write on the fly next without reference to any books or papers at this point, having had my non-digital library is storage for several years. Although, I assure you that I have taken every advantage since 1998 to acquire a digital library where my attempts at acquisition of desired publications through national inter-library loan via my local universities had already reached a point of exhaustion.

In the formal method of the generation of the archetypal number forms as I have circulated notes concerning in the preliminary discussion referred to written on the night of the Vernal Equinox of 1995, at its foundation, the major and most functional approach was discovered to involve the generation of a successive series of bipolar axes where the numbers are generated as a series of pairs of opposites. It is clear that the numbers are pure and simple mirror reflections, non-superposible and thus as the a priori basis of symmetry in the universe all pairs of opposites when generated in the binary represent mirror symmetry. It is given through clear suggestion that the only way that a mirror symmetry may be transformed from its original form into that of its opposite is through the process of being turned inside out, also called inversion through the center, and which in crystallography is considered a non performable symmetry operation. Representation of a Fifth Dimensional element as demonstrated in my own work is strongly regarded as evidence that there is a geometrically representable entrance into our space of a higher dimensional region corresponding to the fifth dimension, for it is representable upon spaces of lesser dimensions in projection and whose boundaries are mathematically describable only by the principle of either infinity or the infinitesimal. Clearly the entrance or intersection into our known space of a body of a higher dimension would represent only that portion of which within the context of our frame of reference must conform to this condition. If a cross section of a higher dimensional form intersects with a lower dimensional space, the only aspect of that higher dimensional form that is describable is the conjunction points of its intersection and these must necessarily be limited to a presentation of form which can only be measured as the infinitely irreducible aspect of an irregularity without dimension for it can have no extension in the space upon which it is projected. That is to say, it has no dimension in our space. Just as a point is represented without dimension, then the point at the center of a sphere is also dimensionless, even as the sphere while from an external perspective presenting as a surface has no dimension in thickness, but is merely a uniformly bounded region of space, which; if considered as an ideal form being infinite even as the center is infinitesimal then the reality of it even having existence as a surface is only a matter of symbolic representation. For it is the boundary of all that is within it and transcends all of the physical dimensions and those forms it contains. As the surrounding boundary of all that is contained within it, it has no extension into those lower spaces.

The formal proposition intended to be presented will follow certain principles and notions which were discovered inherently or which were necessary, to establish required generational methods unique to the demonstration of the generation of the Universal Number Continuum so as to properly represent the archetypal characteristics of the natural integers as they exist spatially in physical geometrical forms as proposed. Necessity prompted the establishment of certain mathematical consistencies as necessary conditions suitable to the application and which apply with anticipated mathematical consistency. One important example was allowing that every point be connected to every other by a geometrical mean or line. First, in exploring the mathematical nature of the archetypal characteristics of the natural integers and as these mathematical natures were used as a basis to extrapolate the nature of the form representing their mathematical characteristics, examination revealed a variety of meaningful correspondences. To take the number four for example and to perform basic mathematical analysis upon it, one can do so through traditional abstract mathematical methods or, in analogous ways, actual representation of the functions performed abstractly can be represented by various physical analogies as well given that the number is represented in its natural form. Further, it was determined that indices connecting each of the vertices established special relationships of a descriptive relational nature to every other one with which it was associated. In a limited sense this type of connectivity has become formalized within a modern theoretical principle of correspondences whose formalization rids the traditional intuitive views of inherent flaws and errors while establishing multiple "signatures" that define the interrelationship of a given set of units according to universally consistent orderliness when applied as templates for the analysis of conformable subjects. These "signatures" are one way to express that relationships exist between the qualitative characteristics of the elements associated to the coordinates assigned to the elements subjected for analysis and that these orders as formal principles of a modern theory of correspondences are universally consistent within their individual context. Thus it was early on deemed necessary to maintain such bonds of relation when considering how individual units of successive natural integers related to one another in very much the same way that mathematical properties must apply also to the analysis of digits being made up of discrete mathematical unities, and these units must maintain their cohesiveness in order that all mathematical conclusions can be drawn from any type of analysis such as arithmology. Typical results are identical as analyzed in such a way.

Such mathematical considerations of individual units comprising a given numerical value are identical through considering their interrelationships when regarded from a purely mathematical standpoint, However in the context of their geometrical forms and symmetries, deeper insights through analogous physical methods of analysis may be available to the mathematician.

Later a method to distinguish between inter dimensional forms in projection was required where the study of forms of different kinds had elements with corresponding plane projections. In order to define a point of perspective for distinguishing between inter dimensional forms of different kinds in perspective where elements of the two forms correlate to elements of one another on which they lie or project, it was given that all internally connecting indices may be represented by broken lines, and that externally connecting indices may be represented by solid lines. This interchangeability of broken and solid lines to represent "perspective" of the projection of three dimensional objects on a plane is a familiar convention to distinguish lines forming planes in the

foreground as solid and in the background as broken in order to define a point of perspective where without such a device lines could permit the involuntary shifting of visual perspective for certain forms which present such an optical illusion as we are able to see with the Necker Cube. Although such a form must be identical through a plane of bisectional mirror symmetry where projection in the reflection plane applies. I have borrowed this convention of the use of this alternate type of line line for a specialized purpose. A third form of line could be used for the former purpose as necessary. Actual projections utilizing "perspective" represents that those lines lying in the background of an object shrink toward a vanishing point. In the I-Ching broken lines represent the principle of Yin and solid lines represent the principle of Yang. This conforms particularly well where the space between broken lines such as those crossing in the face of a plane create the appearance of a white dot in the center. Like the white and black stones that originally symbolize Yin and Yang, in fact these broken lines represent weak points and vertices in potentia where, through generational transformation, such broken lines are transformed and becoming solid, the replacement of white dots with black dots represent vertices where new form has been created in the same space through dynamic transformation. Characteristics typically ascribed to the description of Yin and and Yang corresponding to those forms to which they apply here are found to apply with highly accurate characteristics and properties befitting of the traditional natures of the opposing principles they represent.

I dismissed common propositions that failed to justify the use of certain limiting practices. For plane numbers, one convention specifies that each point be connected merely to its adjacent neighbor defining an endless array of polygons ad infinitum. Again, where plane numbers begin from three, it is specified that each point should be connected only to adjacent points of every third or fourth interval etc., generating an endless array of possible spirograms. Examples such as these were found to be restrictive and selective representations. I thus accepted all form to be generated within the circle as is customary manner according to G.W. Liebniz and to which I supplanted that every point was required to be connected to every other point by a geometrical mean or line.

When I was left without any means of accounting for the construction of the three lateral planes of symmetry which fraction the cube or the sphere I was eventually moved to the unusual introduction of a principle of gyroscopic dynamics. I find that it becomes a necessary and indispensable principle needed to explain how the series of axes being generated as described were constructed concomitantly with the corresponding planes of symmetry that circle round them. This adoption and imitation of a natural principle presented a self-directed method whereby they became engendered together. This principle, as should be true with all self-consistent propositions concerning any mathematical subject occurs in the instance of the first generation and so establishes a clear example of how this principle has a basis of incorporation from the beginning.

The position of the points within the circle of generation are, when considered as static, stable and uniform relative to one another are determinable by either one of two certain notions. Unlike plane numbers, the base element of linear numbers is measured by the length of the interval given as an extension of measure between the first two points of the number line. With plane numbers the length of the intervals are shortened in proportion to the number of angles generated. To retain the unit segment it becomes necessary to assign to unity an arbitrary base

unit of force whereby all the points of our plane numbers may be arranged equidistantly around the circle of generation. Otherwise we are forced to describe this equidistant arrangement of the points of our plane numbers as a consequence of the unconscious projection of man's intuition of order in space into our geometry rather than as an actual condition of our geometry itself. In a more familiar framework, by allowing every point to be circumscribed by a sphere (circle) equal in diameter to the original sphere (circle) we may otherwise support that we attain equidistant arrangement in a similar fashion should their boundaries suggest attractive forces but this would only apply in the case of closely packed spheres. But we may conveniently describe the distance between individual points as a condition where the circumscribed spheres represent as negative tensions or repulsive forces that are only equalized where their close packed boundaries merge, suggesting attractive forces being assigned to the inscribed points whereby they would tend to merge until the boundaries becoming closely packed prevent closer proximity, for the points then are the basis for their association or aggregation. We could describe then from the beginning two optional bases for interpretation of the existence of forces in the form of tensions representing the principles of attraction and repulsion. Both forces are comprehended for all of the multitude of the units that arose from unity so that while they are unified as bound up through attraction and connectivity as a single unifying whole combined in the order of their natural arrangement, all the individual units comprising it yet remaining uniformly separate.

It would help you to understand how there was a problem with the pentagram. I followed here instructions that had been given by one of my mentors concerning an unrelated matter from about a decade earlier. I followed the instructions for different reasons and purposes but because it was now that I appeared to be missing something and those instructions applied clearly and reasonably to the situation I faced at this time. Having come to the conclusion that the number five could be represented based on representations from a pentagon to a pentagram to a pentacle or even a pyramid and finding myself confused, I just went ahead and followed the original instructions. For the longest time I could never find anything significant from this exercise no matter how hard I tried. But I persisted. Over the course of about 5 weeks I just sat there drawing pentagrams over and over and over in every possible way I could conceive of, and spent so much time staring and staring at them all before FINALLY I saw something in a new way and found something I was looking for. Neither the pentagon nor the pentacle alone, but only combined together as the pentagram may be regarded as the complete and therefore proper symbolic representation of the fundamental form of structure of the fifth integer. Furthermore, it should be well noted, that the Pentagram may be regarded as being a two dimensional projection in perspective of a three dimensional four sided pyramid through the application of a pure projective geometry. Our Euclidean Geometry treats it purely as a two dimensional polygon.

Questions that remain may relate to how well we might be able to understand the relationship of the symmetry elements and the unfolding of dimensions where we have specified this not as a one dimensional number line but as a becoming continuum. While there remain a few curious questions there are yet also certain mysterious conjunctions.

One special situation that I believe requires a good deal more consideration: The symmetry elements between the cube and octahedron are reciprocal. "A cube has eight vertices, six faces and twelve edges. The vertices lie by fours in the face; the faces meet by threes in the vertices; the edges lie by four in the faces and pass by threes through the vertices. An octahedron has eight

faces, six vertices and twelve edges. The faces meet by fours in the vertices, the vertices lie by threes in the faces; the edges pass by four through the vertices and lie by threes in the faces. "

The generation of the fourth axis of symmetry may be regarded to occur at a right angle to each of the other three as they lie in the plane of projection within the circumscribed octahedron. In this generation all of the internally connecting indices lying within the boundaries of the surrounding hexagon in the plane of projection experience a complete reversal of characteristic: Yin becoming Yang and Yang becoming Yin. It is such that the form within the hexagon transforms from the octahedron with its three internal perpendicular axes into the cube and star (hexagram). The complete reversal of Yin and Yang suggests that there are weak points at all of the reciprocal locations where energy may pursue the path of least resistance and it is this nature of Yin and Yang being reversed that suggests to me the possibility of some additional functions of transformation accomplished but unseen during the course of this transformation. While we might imagine the transformation of 6 into 8 as the octahedron becomes the cube yet we are only able to represent the octahedron on the one hand and the cube and star pattern on the other (and indeed these are the only current geometrical representations I am aware of) these are the sole representations of the function of a dynamic metamorphosis of which we are able to represent only the point before it occurs and the point after it has occurred but have no means of deeper insight into what precise transformational processes might be occurring. This is as far as I as I understand the unusual nature of the situation at this point.

Still, I feel this is important to consider for a few reasons. Because: By generating the cube an unstable structure was produced having only a stable external frame and which resulted in the implosion through the center whereby the crosses in the faces with white dots became the black dots of the regenerated octahedron, even as the three perpendicular axes and three lateral planes of symmetry were in the same action regenerated. Further, six pyramids whose bases form the faces of the cube were delineated and it is here where it may become important to ask ourselves again the importance of this reciprocal nature of the octahedron and the cube. For, it is only through such regeneration that now the basis of the reciprocation of the two forms can be more elegantly expressed: The cube has 3 axes of fourfold symmetry, 4 axes of threefold symmetry, 6 axes of two-fold symmetry, 9 planes of reflection symmetry and a center of inversion. These symmetry operations are now identical in the inscribed octahedron. Thence the octahedron can be said to be contained within the cube and this is necessary as we proceed to satisfy the requirement that all bodies be contained within the dimensions that transcend them.

There remain curious questions and yet other mysterious conjunctions. It is possible to divide unity taken as a spherical volume through a process of division with no more than exactly nine concentric intersecting planes of partition. The lateral symmetry planes divide unity individually in the same manner in which Yin and Yang are divided to become the four and then the eight. Taken in two pairs each, the six diagonal planes perform the remaining divisions yielding a total of 64 partitions of space. As Dr. von Franz said: There are four base pairs that make the 64 possible codons of the Human DNA. This seems significant for the common occurrence of recurring patterns from the I Ching, but seems more greatly significant where key concepts from the I-Ching have been shown to serve as important key mathematical principles related to the series of transformations.

The first argument I have regards where the fifth generation represented implosion, or inversion through the center, one must ask oneself the importance of the preceding operation and its function in the alignment of the reciprocal bodies coming before through regeneration to thus permit this subsequent alignment to even occur at all. It has been mentioned how this is incidentally consistent with the philosophical principle that all bodies must naturally be contained within the dimensions that transcend them.

Now we have to ask the question about why there exist other inconsistencies which seem not to matter but let us consider the first two dimensions because here is an inconsistency. There are no physical bodies that are made up of only two dimensions. How important will this matter be to the consideration of the remaining problems and of any possible suggestions for rectification?

In my paper on Structure of Time wherein I outline a descriptive principle of metaphysics by formalizing a modern theory of correspondences, I describe how the first axis is bound up in the very notion of time as seen by Kant: where parts of time are considered as successive while parts of space are contiguous, and by Leibniz: where time and space are considered "relational," that is, related to one another by analogy, and which can be seen by even the most rudimentary of scholars for in considering the line as the first extension in space all motion takes place in time.

This then brings us to the disturbing dilemma of the mysterious fourth axis. Being both the second example of an axis of a third dimensional body, one which can be shown to satisfy the requirements of a fourth axis suitable to representing a fourth dimension, it remains the only axis that functions strictly as a symmetry element and does not give rise to a higher plane of dimensionality as we understand the "Number Continuum." But is it just a spare? I'm sure we must give it some credit for capacitating the transformation of the octahedron into the cube possibly involving dynamic forces and processes outside the sphere of what our geometrical representations may present. For in a dynamic state I would hypothesize that such a dynamic transformation would have taken place with respect of forces represented at intersectional angles to the planes of both the original octahedron and the cube being generated. Forces, perhaps, such as could be compared to those of electromagnetism and their corresponding field forms. I smell something going on here and it does smell strongly of electromagnetism. The octahedron is the ideal crystalline structure of gold, an excellent conductor of electricity and the body centered cubic structure is the ideal crystalline structure of many magnetic mediums. The cube itself made up of 6 four sided square based pyramids, the ideal crystalline structure of magnetite, and it does tend to make one wonder when one considers how these forces of electricity and magnetism are always in nature at right angles to one another -- the electricity flowing along the poles of the interior dynamic electrical field, the magnetism locked statically in the convex magnetic field container that seems to always surround the electrical core...

What some might be asking themselves is how we've just used the Philosopher's Stone to produce "gold." Others might be aware that the mystery spoken of in The Hermetica of Hermetic Spiritual Regeneration is worded largely as follows: : Life is in the Spirit, the Spirit is in the Mind, the Mind is in the Soul and the Soul is in the Body. And the way of the Spirit is Life, while the way of the Body is Death. Thus it is proper that the Soul should love only the Knowledge of Light and Life from the Spirit, and not to become ensnared by the temptations of the flesh which may imprison the Soul in the Body even as the mortal body is subject to physical

death. But it does beg us to answer the question of how it is that the great Hermetic mystery of Regeneration as referenced in the Appendices of Sir Walter Scott's Hermetica appears as a necessary function in the construction of the so-called "Philosopher's Stone" and why is the structure of the gold at the heart of regeneration identical to the hierarchical order described by the old alchemists?

The last amazing bit is that just like that the extension of the first axis doesn't mean anything but time, because nothing can occur that does not take place in time, now we're stuck with the consequences of attempting to understand the full meaning of this unfathomable fifth dimensional transformation of inversion through the center, or implosion, where there yet remain subjects here we have yet to address. Seemingly important things. Things such as how this fifth dimension or inversion through the center conforms analogically well with our notion of the way in which the mass of the planet is inverted from the exterior through the center in such a way that it establishes a so-called gravity well wherein matter will fall, accelerating at a rate of 9.8m/s2 down toward the center of the Earth. As the flexibility of time, based on General Relativity is also variable along this axis, we must ask ourselves if this "fifth Dimensional" aspect of matter's involution doesn't appear to be the symmetry element most closely resembling the dimension of time in Einstein's theories.

Proposition:

In this representation, the "fifth Dimension" is represented by the non-performable operation of "inversion through the center." It can be represented on a piece of paper as a sphere with a singularity in center. It can be reasonably justified to correspond as a fifth "axis." Representing the fifth dimension as a sphere with a point in the center on a two dimensional piece of paper appears to be one true way to represent it. And yet in appearance it truly looks just like the first dimension. But consider how in the beginning there was first the female nature of the circle within which is the primordial unity, contained in potentia as a vortex of explosion. Where the circle of generation may be regarded quite clearly as zero for it precedes even the potential one within it. Explosion initiates an inevitable chain of events once generation first occurs, and there is a factor of growth which is underscored by the sexual relationship of the numbers as qualitatively opposite gender, such that there is the generation of the first axis being double in nature as it is divided by a reflection plane. But growth doesn't occur until there is a sexual relationship. Consider it an explosion by whatever analogy you wish, but it is through the basic sexual inequality qualitatively of the equal opposites that the potential energy represented by such a condition of imbalance initiates growth in the system and further imbalance initiating an inevitable chain of events with successive repercussions.

Proposition:

The generation of the fourth axis of symmetry may be regarded to occur at a right angle to each of the other three as they lie in the plane of projection within the circumscribed octahedron. The analogy should be capable of extension such that the four axes being represented in projection in a three dimensional space, the fifth axis could be able to be shown to exist at right angles to each of the other four. But the fifth generation of symmetry is of an altogether different order, of circumstances other than we have encountered with the previous four generations, because it

takes us to the boundaries of infinity and back. It describes the limiting boundaries of our universe. The fifth "axis," however; can be considered as having two poles: consisting of a uniform surface and a singularity whose "axis" doesn't seemingly pass though known space and, as before, this last "axis" arises again through center. Some conformable notion may be derived to satisfy the continuation of the analogy. According to Plato, now that the center has become redefined as the center of ALL the possible directions of generation, then, the only possible opposite to THAT vortex, according to common knowledge, would be the boundary of the sphere. Such an "axis" may not need to traverse known space at right angles to any of the prior axes. It may be of a higher order such that it passes through all space between it's two poles. The only other analogy I'm presented with is that of the Eastern Mystical notion of an axis that connects earth to heaven where earth is represented as the spinning wheel of time.

The natural integers are both represented as pairs of opposites and as a set of imbalanced scales suggesting that opposites in nature are not the same because their polarity is not one of charge, but of gender, and that when not considering them as purely quantitative characters that this is the principle qualitative character that should be taken into account. In another manner of generation not previously discussed, each of the prior units may extend along a presubscribed line of force, converging in one point and so the entire method to access the generation of the number forms is not only that of the binary axis, but this first intuitive method cannot get you past the octahedron. But I will point out that the vortices of the endpoints of the binary axes are definitely enantiomorphic, and so they're likely generating charges, spinning in opposite directions. Oddly, this method of generation occurred to me when I'd read from one of Dr. Von Franz's books where at Fermi Labs Enrico had asked Goppert Meyer if there was any possibility there of spin orbit coupling when suddenly the telephone rang and within several hours the first early model of the shells of the atom described by her "magic numbers" was well along to completion. It was this that I was dwelling on then when my phone rang and it was then that I suddenly asked myself the same question, thinking in terms of a rotating axis and it was then that I realized I had completely overlooked thinking in sexual terms and thus quickly conceived of the fully functional generation method of explosion and rotation which is the one thing that has allowed progressive forward inquiry sufficient to offer a provisional response to Dr. von Franz in 1995, and remains the basis for why contemplation has continued.

Based upon an early belief that through persistence a proper method of finding a manner in which the application of analogy could be utilized to achieve forward momentum where P.D. Ouspensky remained mired in useless speculation in his "Tertium Organum" because he could not find the right method and did not see the way out of his box, I have considered to remind readers of the following: In 1827 August Ferdinand Mobius proved that the "Necker Cube" could be turned into its mirror image by rotation through a fourth dimension. So remember that as analogy represents a substantial part of this work, that it may still be the method holding answers to issues unresolved.

THE PROBLEM OF GROWTH:

One thing I sadly overlooked in my initial preliminary proposition was the principle of growth. I observed it but couldn't quite capture a valid description of it at the time. The best way I can express this observation is that in every generation there exists what is essentially a process of

doubling through a process of extension and reflection along a presubscribed axis even though this is not a precise description. We can best understand it in the way that the equilateral triangle could become the square when counterbalanced by a second triangle within the uniform boundary (or it could alternately become a tetrahedron). Consider in much the same sense where the pyramid, in a process of duplication and the attainment of equilibrium in symmetry through reflection along a presubscribed axis becomes the octahedron.

I first overlooked this in my original paper in 1995. It was later that I observed that in each generation there was a growth factor. What I discovered around 2000 was that this principle, consistent in all prior generations was absent in the last generation that is the fifth explosion... While I had diligently endeavored to apply with rigor established principles and believed I was aware of what these were, this startling omission took me quite by surprise. Thus I will share with you the consequences taking effect upon the rectification of this unforeseen oversight.

Conformably bound within the constraints of the generational environment, what was overlooked was that in a manner of attained equilibrium extension continued along the path of extension after inversion through the center, duplication producing at a point of equilibrium, a cube within a cube, each containing their regenerated octahedra. From another point of view, this is also regarded as a Hypercube or Tesseract. Where the regeneration of the octahedra including their three perpendicular axes occurs, the regeneration of the lateral planes of symmetry which are fundamental aspects of their forms are automatically precipitated. I had always regarded interstitial divisions of symmetry to represent divisional planes that had no basis of union solely with the objects within the sphere with which they conformed, but rather with the boundary of the sphere in which they were contained. In applying that same judgment here there were created points around the border of the circle where contact occurred with the conjunction of the circle with the planes of section. It was discovered then that when every point was connected to every other point (as was given as a principle from the foundation) now it was discovered that what had been missing and presumed lost had been discovered and was now found. For the result describes the icosahedron containing the dodecahedron and within these all the rest are contained.

One last consequence of the explosion which represents the fundamental growth of the Monad as it is born through the revolution of the Decad and now as the representation of the Unus Mundus, no longer does the rule pertaining to the conformity of number and form being based upon a correspondence between the number of points and the quantity represented persist. For the generation of the archetypal number forms from the Monad to the Decad has, through the transcendence of itself, proven that there was far more to discover than the archetypal structure of the natural integers in the discovering of the structure of the Universal Number Continuum. But now we have given firm reason for a base ten numbering system as a natural feature of the universe that should be considered as a foundational principle for it conforms to the nature of the numbers themselves, not the quantitative lengths taken from stiff rulers to apply uniform values and by which alone we tend to represent them, intended to be used always as the same old cold quantitative characters whose natures as such are known only to the mind of a mathematician, for in general, that is the only part of their language such a one has been taught to understand. Perhaps now that we can free the little quantities from the limited definitions of a one dimensional number line we can learn more of the language they speak and the knowledge

contained therein.

The more simple a theory is, and the more that it explains, the greater the likelihood of it being true. I have described with my own insufficient words and with my poor soul's ability what aspect I can see of the work I pursue that reveals hidden knowledge from the Mind of God. I seek to know what I can of it as it may be seen in nature and as it is written upon the human soul. All misunderstandings and errors related to my effort to communicate are wholly my own.

This is the form of the Tabula Smaragdina I used as a basis of reference, being the translation of Sir Isaac Newton:

Translation of Issac Newton c. 1680.
1) Tis true without lying, certain most true.
2) That wch is below is like that wch is above that wch is above is like yt wch is below to do ye miracles of
one only thing.
3) And as all things have been arose from one by ye mediation of one: so all things have their birth from this
one thing by adaptation.
4) The Sun is its father, the moon its mother,
5) the wind hath carried it in its belly, the earth its nourse.
6) The father of all perfection in ye whole world is here.
7) Its force or power is entire if it be converted into earth.
7a) Separate thou ye earth from ye fire, ye subtile from the gross sweetly wth great industry.
It ascends from ye earth to ye heaven again it decends to ye earth and receives ye force of things superior
inferior.
9) By this means you shall have ye glory of ye whole world thereby all obscurity shall fly from you.
10) Its force is above all force. for it vanquishes every subtile thing penetrates every solid thing.
11a) So was ye world created.
12) From this are do come admirable adaptations whereof ye means (Or process) is here in this.
13) Hence I am called Hermes Trismegist, having the three parts of ye philosophy of ye whole world.
14) That wch I have said of ye operation of ye Sun is accomplished ended.
The Emerald Tablet of Hermes.
[Dobbs 1988: 183−4.]

I have rather more relied upon an epitome from our own more recent time based on my own comparison of the various versions, but with Newton's rendition in mind:

Tabula Smaragdina (The Emerald Tablet) of Hermes Trismegistus

Firstly. I speak not of that which is false, but of that which is certain and most true.
Secondly. That which is above is the same as that which is below, and that which is below is the same as that which is above, for the performance of the miracles of the One Thing.

Thirdly. And as all things were generated by the one Word of one Being, so all things are a part of the same thing through adaptation.

Fourthly. Its father is the sun, its mother is the moon, the wind has carried it in its belly, the earth is its nursery.

Fifthly. This is the father of every perfection in the whole world.

Sixthly. Its power is integrating if it be turned into earth.

Seventhly. Separate the earth from the fire, and the subtle from the gross with great ingenuity and skill. The power ascends with the greatest sagacity from earth to heaven and then again descends to earth.

Eighthly. Unite together the power of that which is superior and that which is inferior, thus you have the glory of the whole world and all obscurity flees before you.

Ninethly. This is the power, most powerful of all powers for it transcends every subtle thing and penetrates every solid.

Tenthly. Thus was the world formed. -

Eleventhly. Hence proceed all wonderful adaptations of which this is the manner.

Twelfthly. Therefore am I called Hermes Trismegistus, having the three parts of the philosophy of the whole world.

Thirteenthly. That which I had to say concerning the operation of the sun is completed.

"[The Arabic Text] differs from the Latin in a few points of emphasis. The major variation between the two is in Sentence 10, which in the Arabic reads: 'Thus the microcosm was framed on the macrocosm.' The words that translate 'of the operation of the Sun' in Sentence 13 can also mean 'of the work of gold' (de operatione solis), emphasizing the double interpretation that is possible." -- Henry Cornelius Agrippa, Donald Tyson, Ed. Three Books of Occult Philosophy (St. Paul: Llewllyn, 1993) App.1.709.

Disregarding the circuitous logic that suggests that there is a relationship between the qualitative characters of the natural integers and the concepts elucidated in The Tabula Smaragdina, (as this would require volumes of suggestive inquiry) may we disregard for the moment the original inspiration for the proposed novel method of generating form? Suggesting then, that it has been established that number does indeed correspond to form and in a very unique and highly important way as is elucidated in the original proposal is anyone prepared to comprehend the overview of the hypothesis sufficiently to address the inquiries I've made concerning it?

The circle of generation may be regarded on a two dimensional piece of paper as a plane of section or reflecting plane intersecting the center of a circumscribed sphere represented in the plane as the circle within which form is generated. The primal unity exists as a central axial point and a vortex of explosion, such that the primal unity in potentia may be represented as a white dot. As a solid dot it represents the explosion of the first axis and a suitable rotation allows its representation on the two dimensional plane as a bisecting line, broken by the primal unity, existing again in potentia as a vortex of explosion. From there the generation of number and form as a series of successive explosions and rotations can proceed in the manner described. I've provided this as a general description that may establish a more familiar frame of reference in which to explore the notion of the generation of the archetypal number forms, if you haven't managed to find where to begin.

The definitions of the elements in Euclidean geometry are dependent upon the intuition of three-dimensional space and are derived a posteriori through the negation of the characteristics of the three dimensions. Whereas there is in fact no other basis for the in admission of higher space except as to derive definitions of the elements in "The Elements" through negation, it may be profitable to explore the notion of the prior admission of higher space for the purpose of the explication of the archetypal characteristics of the forms of the natural integers. The interchangeable use of the terms vertex and vertices or vortex and vortices has a thorough philosophical discussion in Sir Thomas Heath's version of "The Thirteen Books of Euclid's Elements."

Where the frame of reference I proposed actually is functional for the purpose of commencing this exploration and reveals results that are mathematically consistent, let us not hesitate to start there. If you have another basis of explanation for the field or background within which this generation of form takes place please also volunteer it.

I have further proposed to depict a diagram of the structure of the Universal Number Continuum in its completed form. I explained that this would necessarily be a two dimensional depiction and that it would be difficult to distinguish what one was looking at, largely due to the fact that many of the lines would be self-corresponding in projection because everything was symmetrical.

While readily available diagrams properly representative of the forms described are simply not available without doing our own construction as they do not conform to the conditions laid down at the foundation: concerning the proposition that every point be connected to every other, that internally connecting indices are represented by broken lines and that all form is generated within a circle; certain explanatory clarifications may be usefully demonstrated by reference to simple diagrams.

....
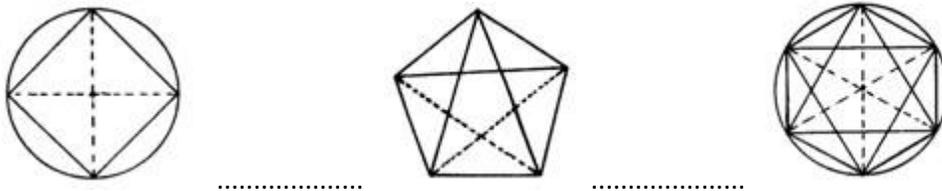
For example, when I considered the octahedron with its three internal axes and the cube with its body centered structure and diagonal crosses in the faces, it seemed clear that the planes of symmetry were already self-described. Consider the octahedron represented properly then, with all three of the perpendicular axes represented by broken lines, and the suggestion of the three planes of symmetry are observed. It was thus that I introduced a principle of gyroscopic dynamics to explain the coming into being of the first three planes of symmetry corresponding to the generation of the first three primary axes, and gave supporting arguments for the apparent nature of this being a condition of the function for the generation of form in this context. In this context then, while it may be simpler to represent the forms diagrammatically without these encumbrances, the planes of symmetry referred to could be represented by shaded lines crossing between the boundaries of the circle through the center at all the

medial interstitial points. Thus, in the generation of the first pair of digits as a primary axis, upon rotation and representation in the plane of projection, the principle of gyroscopic dynamics suggests that the corresponding plane of symmetry is at a right angle to this and could be represented by a shaded line.

It was through this more thorough representation of forms in working with all of the interstitial lines depicting the planes of symmetry that at one early point I had been exploring tessellations and by which I later made the final connections I will attempt to describe in the following discussions:

It was described how in progressive generations I had observed a principle of growth, essentially a doubling of mirrored images along the generative axis and then we discussed the problematic generation of the cube from the octahedron:
I have already explained how I had borrowed the conventional use of representing lines that lie in the foreground as solid and lines that lie in the background as broken for the specialized function of distinguishing between inter dimensional forms in projection, thus for the former purpose yet another type of line could be designated such as by using a different color or by using thinner lines for example. For this explanation I will remind you that the diagram represented here would properly be represented on the left side with the external indices being represented by solid lines, the three perpendicular axes being the internal indices would be represented by broken lines and that by the reversal of broken and solid lines within the hexagon in the plane of section (a reversal of their polarities of yin and yang) the cube is generated.
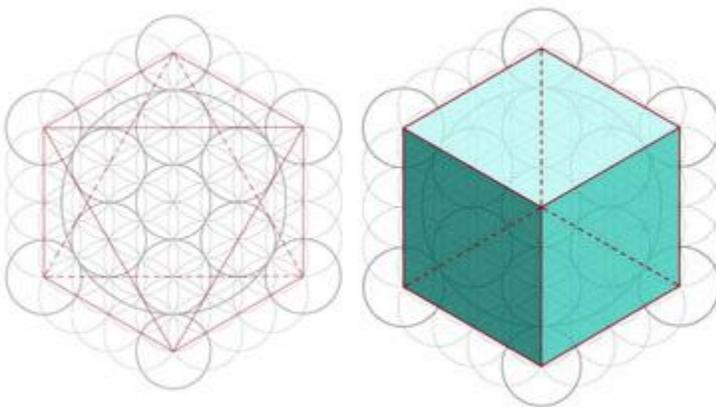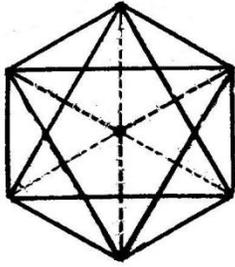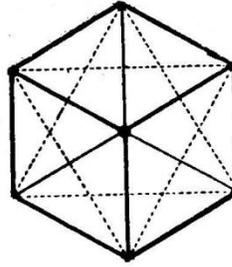
Octahedron.   Seven points make the Cube and the Star.

Click on the image to view it at its original size

This principle of growth may then be verified by the observation of the doubling of the interpenetrating tetraheda comprising one interpretation of the two forms, and here mirroring one another, again, along the generative axis. In geometry, a tetrahedron is a polyhedron composed of four triangular faces, three of which meet at each vertex. A regular tetrahedron is one in which the four triangles are regular, or "equilateral," and is one of the Platonic solids.

The interior of the compound of two dual tetrahedra is an octahedron, and this compound, called the stella octangula is its first and only stellation. The stellated octahedron, or stella octangula is the only stellation of the octahedron. It was named by Johannes Kepler in 1609, though it was known to earlier geometers. Four diagonally opposite vertices of the cube form the vertices of the tetrahedron, and in fact two equal tetrahedrons may be positioned inside a cube touching all 8 vertices of the cube.
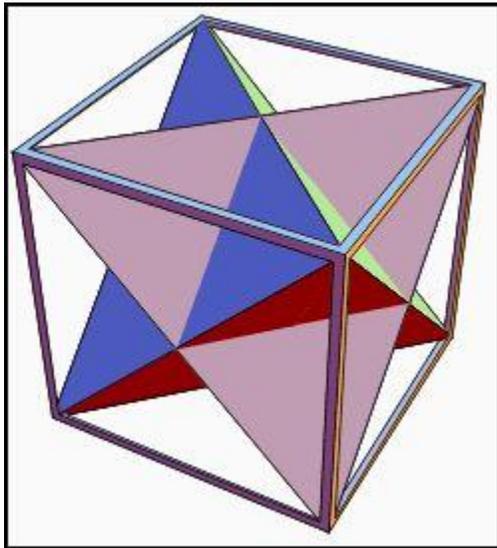
Here in Dr. Robert J Moon's model of the nucleus, a nesting of four of the five Platonic solids similar to that conceived by Johannes Kepler to describe our solar system. Even though this model does not show the tetrahedron as the inner platonic, we know that every cube implies a tetrahedron.

Duality

Interestingly enough, if you take a Platonic solid and connect the centers of adjacent faces with line segments, those segments will be the edges of another Platonic solid. This relationship is known as duality. It has many interesting properties. For instance: The dual of a tetrahedron is another tetrahedron. For this reason, we call the tetrahedron self-dual.

The cube and the octahedron are duals, so connecting the centers of the faces of a cube gives an octahedron and vice-versa. Cubes have the same number of faces as octahedra have vertices, and vice-versa. Cubes and octahedra have the same number of edges. Also, the number of faces at each vertex of a cube is the same as the number of edges on each face of an octahedron, and vice versa.

The icosahedron and the dodecahedron are duals, so connecting the centers of the faces of an icosahedron gives a dodecahedron and vice-versa. Icosahedra have the same number of faces as dodecahedra have vertices, and vice-versa. Icosahedra and dodecahedra have the same number of edges. Also, the number of faces at each vertex of an icosahedron is the same as the number of edges on each face of a dodecahedron, and vice versa.

Note that the number of edges of two duals is the same, and the number of vertices of one dual is the number of faces of the other dual.

In fact, every polyhedron has a dual polyhedron. For example, the dual of a triangular prism is a triangular biyramid (2 triangular pyramids with their bases attached).
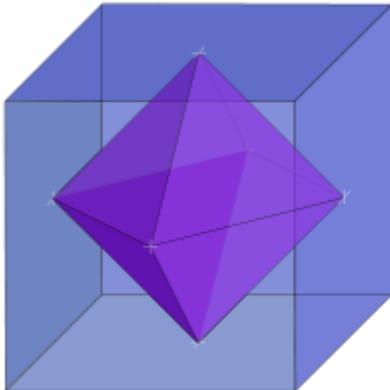
Now we must proceed to the explanation of the fifth generation, being the fifth element of symmetry or "dimensional element of symmetry," being implosion; that Is; inversion through the center. In this process we observe that all of the internally connecting indices represented by broken lines as well as the vertices or "vortices" in the faces of the cube alternate between their yin and yang polarities becoming solid points and lines and in consequence reconstructing the cube, with the regeneration of the octahedron, the six pyramids delineating the body-centered cubic structure, six of the planes of reflection symmetry and all thirteen axes of symmetry, including the remaining three lateral axes of symmetry. Again we are limited by not having diagrams readily available to properly delineate what we describe as they are not founded upon the initial postulates concerning conditions for this method of generation.

What remained to delineate was the three lateral planes of symmetry. It was thus that I had introduced

the concept of a principle of gyroscopic dynamics so that these came into being concomitantly with the generation of the first three perpendicular axes. Otherwise, it was already described how the observation of the octahedron with the three perpendicular axes, and the body centered cubic structure with diagonal crosses in the faces already suggested these planes and axes of symmetry. If, under either basis, we accept that the last three lateral planes of symmetry come into being as a process of this method of generation we have nearly completed the general description of the processes observed during this generational operation.
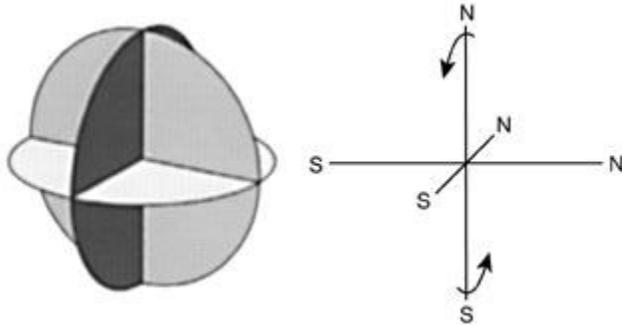
Symmetries of a Cube
The center of the cube is a symmetry center.
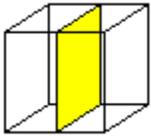
The cube has nine symmetry planes.
Three planes lie parallel to the side squares and go through the center (picture).
Six planes go through opposite edges and two body diagonals. They divide the cube into prisms.

You can find 13 rotation axes. If you turn around one of these axes, the cube goes back to itself. The following picture illustrates these facts. The numbers under the cubes indicate the number of turns.
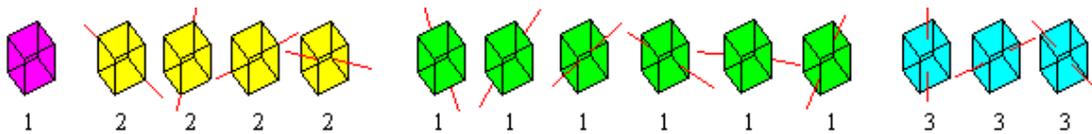
Click on the image to view it at its original size

-- "Mathematische Basteleien"

It was later that the problem of growth having been a condition in all the prior generations which had been observed that it thus became an issue here with the fifth generation. The problem of growth remained to be explained. The principle had been demonstrated clearly enough, that we have observed

what is essentially a process of duplication along the axis of generation resulting in duplication essentially based upon a plane of reflection.
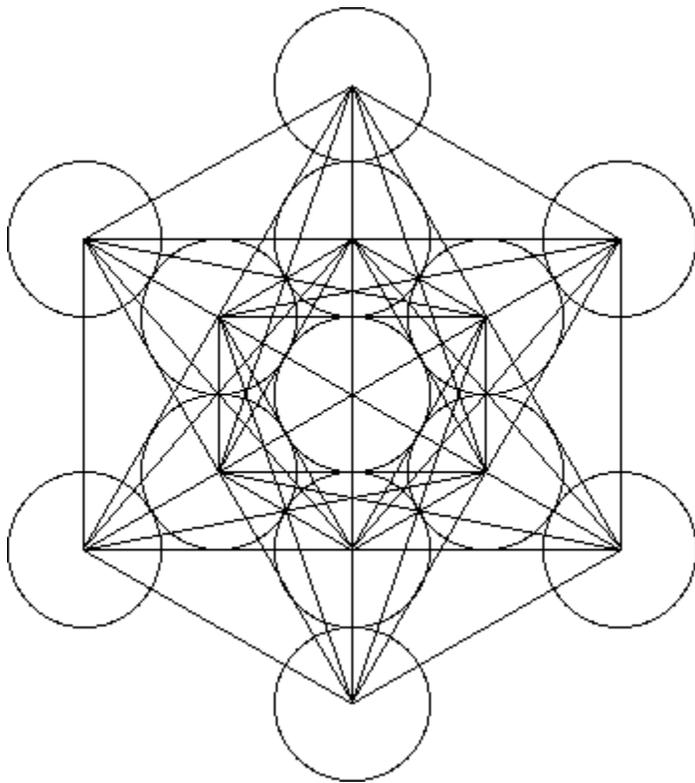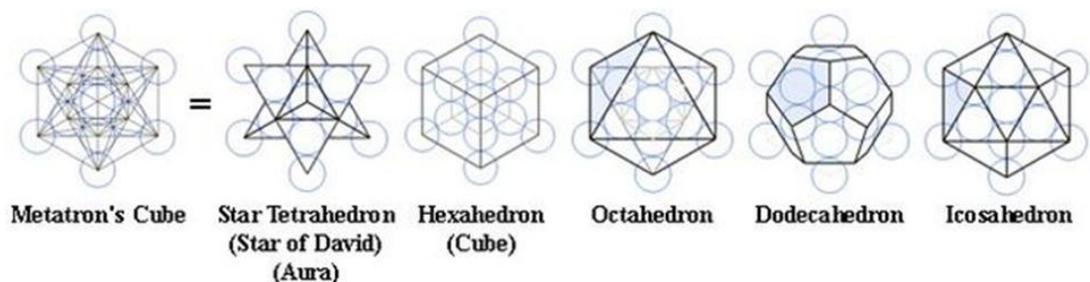

Metatron's Cube is a figure in the Euclidean plane created from 13 equal circles with lines from their centers extending out to the other 12 circles. Six circles are placed in a hexagonal pattern around a central circle, with six more extending out along the same radial lines. This pattern shares 2 dimensional resonance with the "Flower of Life" and the first three Platonic solids, although if additional lines are drawn the other two platonic solids can be found as well. It is a Sacred Geometry figure. Metatron (from Greek Meta+Tron meaning Beyond+Matrix). Metatron is an Archangel in Judaism, some branches of Christianity and Islamic tradition. In Kabbalic symbology, the Archangel Metatron is considered to be the most supreme of angelic beings, and is associated with the pinnacle of the Tree of Life, with is the sphere of Kether, the Crown. He is seen as the highest of the "recording angels" in his capacity of maintaining the "eternal archives of the Lord." Therefore Rabbis explain that Metatron was allowed to sit because of his function as the Heavenly Scribe, writing down the deeds of Israel, much as Thoth was the Egyptian scribe. Metatron is thus sometimes equated with Thoth or Hermes, author of the Emerald Tablet.

The Archangel Metatron has been depicted in later times holding a cube. This, however; did not occur until after the time it was discovered by Italian mathematician Leonardo Pisano Bigollo (c. 1170 – c. 1250) , Leonardo Fibonacci, or, most commonly, simply Fibonacci. It is conjectured that it was so titled Metatron's Cube due to Fibonacci's familiarity with Sacred Geometry and it is established within the 13 circles that are within what Charles Gilchist calls the 4th consecutive circle of "Natures First Pattern,"

and which is otherwise said to derive from the "Flower of Life" and referred to as the "Fruit of Life," a concept of Sacred Geometry described thus: The Flower of Life is a geometrical figure composed of evenly-spaced, overlapping circles, arranged so that they form a flower-like pattern. Each circle has a six-fold symmetry like a hexagon, i.e. the middle of each circle is intersected by six other circles of the same size or diameter. The oldest example of this shape found so far is in The Temple of Osiris in Egypt. Other examples can be found in Phoenician, Assyrian, Middle Eastern, and European medieval art. The design of the Flower of Life contains the basis of Metatron's Cube, and the five forms we know as the Platonic Solids are derived from this shape.

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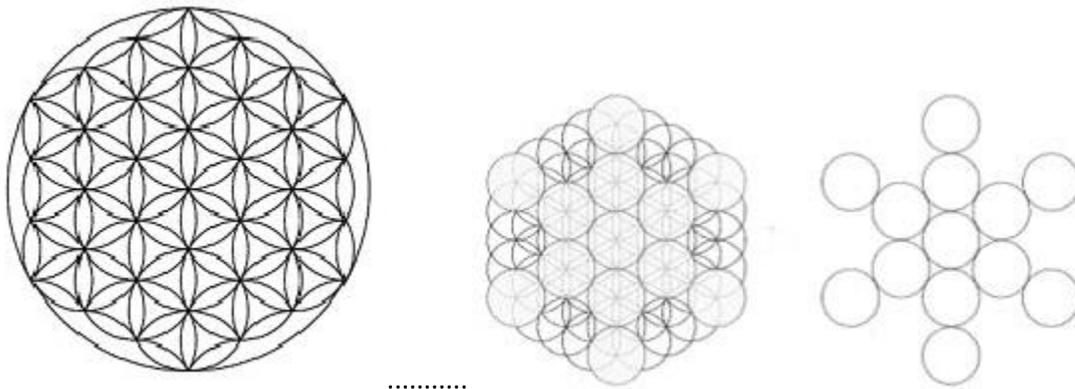
Leonardo Pisano discovered that you could create the illusion of all five of the Platonic symmetrical solids in this graphic he had discovered. Connecting the edges of four equilateral triangles creates the tetrahedron. Connecting the edges of six squares creates the Hexahedron, or cube. Connecting the edges of eight equilateral triangles creates the octahedron. Connecting the edges of twelve pentagons creates the Dodecahedron. Connecting the edges of twenty equilateral triangles creates the illusion of the icosahedron. When you study this you discover that the first three Platonic solids: the tetrahedron, the hexahedron and the octahedron are perfectly blueprinted within the two dimensional pattern. But when you study the icosahedron and dodecahedron you find that they are not perfectly blueprinted in Metatron's Cube. For the dodecahedron, six additional short lines must be added in order to complete the form. The icosahedron is an illusion that is definitely NOT an accurate blueprint inside the pattern. This has caused many investigators and students of Sacred Geometry to negate the significance of Metatron's Cube. The key, according to Charles Gilchrist is that by examining tessellations of the pattern, within this greater context, one can observe perfect representations of these five important geometrical forms.

Metatron's Cube   Star Tetrahedron   Hexahedron   Octahedron   Dodecahedron   Icosahedron
   (Star of David)   (Cube)
                     (Aura)

Click on the image to view it at its original size

I believe it is a simple matter of iteration. As I stated the problem of growth remained to be explained. The principle had been demonstrated clearly enough, that we have observed what is essentially a process of duplication along the axis of generation resulting in duplication essentially based upon a plane of reflection. It is just in such a manner that the cube within the cube generated at an identically proportional interval between the center and the surrounding sphere reflect one another when generation has produced growth through extension along the "axis" or vector of symmetry here. The cube has 3 axes of fourfold symmetry, 4 axes of threefold symmetry, 6 axes of two-fold symmetry, 9 planes of reflection symmetry and a center of inversion. All of the symmetry elements coincide for both the circumscribed and inscribed cubes and are identical in their regenerated octahedra.

Delos Problem (problem of cube duplication)

The ancient Greeks could get rid of the plague after an answer of the oracle of Delos, if they doubled the volume of its cube altar. (This is one version of the legend.)

The problem of the cube duplication goes to the equation $2a^3 = x^3$ and the solution $x = a * 2^{(1/3)}$. This was no solution to the old Greeks, because the distance x had to be found from the length only with circle and ruler . Now we know that this problem is unsolvable, because only terms with square roots are possible to be constructed. Circles and straight lines lead to linear and quadratic equations, which $x^3 = a^3$ does not belong to.
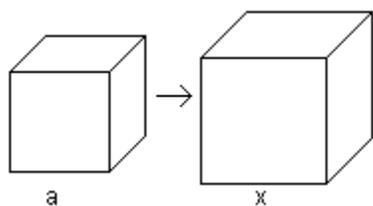
Two other problems also are unsolvable for the same reason: The conversion of the circle into a square with the equal area ("squaring the circle") and the division of any angle in three equal parts ("three-

division of an angle"). --"Mathematische Basteleien"

HYPERSPACE
One dimensional space consists of the points along a line, only one number is required to uniquely describe any position in a 1D world.


Two dimensional space consists of all the points on a plane, two numbers are required to uniquely describe any position in a 2D world. The two numbers used to describe any point can be considered to be positions on two noncolinear one dimensional axes, the particular axis system from all the possible combinations is usually chosen to be the one where the two axes are perpendicular to each other.
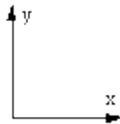
For three dimensional space we add another axis perpendicular to the two used for the two dimensional space. This is what we use to represent the universe we live in, three numbers uniquely describe any point in our 3D universe and they are usually given the symbols x,y, and z.
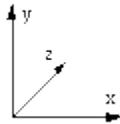
In four dimensions we "simply" need to add another coordinate axis that is perpendicular to the three axes used for 3D space. Most people have difficulty visualizing this but there is no problem mathematically and we can approach higher dimensions in the same way (although we won't do so here). We will use the symbol w to represent the coordinate axis of this 4th dimension. Any point then in four dimensional space can be represented by the four numbers w,x,y, and z.
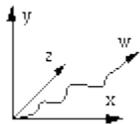

– Hyperspace, User Manual, Paul Bourke.

From left to right, the square, the cube, and the tesseract. The square is bounded by 1-dimensional lines, the cube by 2-dimensional areas, and the tesseract by 3-dimensional volumes. A projection of the cube is given since it is viewed on a two-dimensional screen. The same applies to the tesseract, which additionally can only be shown as a projection even in three-dimensional space.
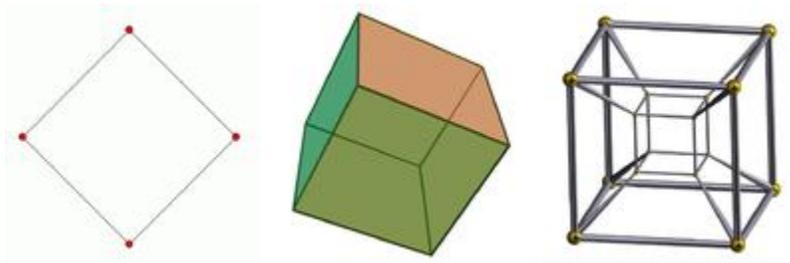
Metatron's Cube represents a box within a box or a cube nested within a cube. The Tesseract represents a process in which one might peer into the fourth dimension. The drawing of the Metatron's Cube and the Tesseract are basically the same geometry except that the Tesseract is tilted so you might better define the six sections.


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Fig. 19.—The Tesseract.
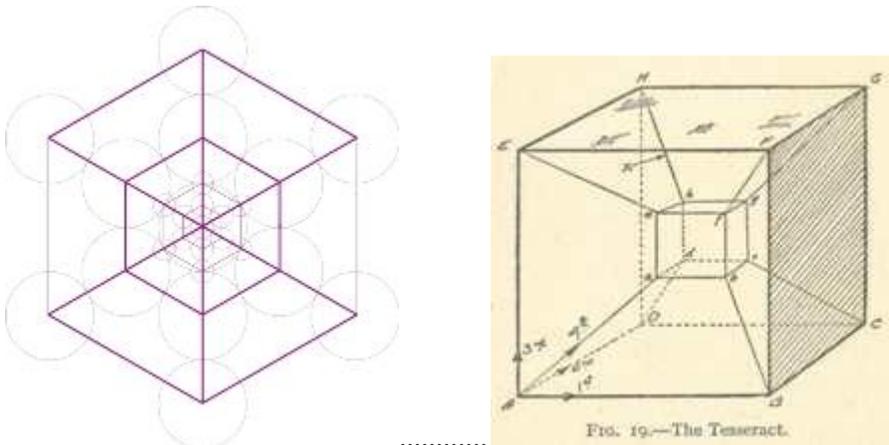
Among other elements missing in Metatron's Cube, that are depicted in the Universal Number Continuum, and what is supplied by the completion of the construction of the Universal Number Continuum through the fifth and final generation is the construction of points at which the three lateral planes of reflection symmetry of the regenerated octahedron correspond with the edges of the circumscribed cube and which consists now of nineteen closely packed spheres of identical size, whose centers represent points corresponding to the intersections of lines in the completed diagram in the sphere within which the form is projected. From the conjunction of the three perpendicular reflection planes with the boundaries of the circumscribed cube as they present within the boundaries of the circle of generation that is our plane of projection we derive twelve points, double the previous number, the first group of which coincide with the boundary of the circumscribed circle. It is from these that the construction of all of the nested Platonic Symmetrical Solids can proceed. The icosadhedron the dodecahedron and all of the elements of the Universal Number Continuum, which naturally comprises every element of which Metatron's Cube consists are all thus contained within the boundaries of the circle in which they have been generated.
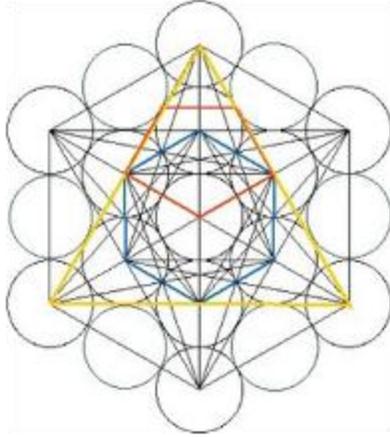
As depicted in "The Geometry of Art and Life," by Matila Ghyka, who describes in chapter four the five Platonic symmetrical solids inscribed within one another and who states that, "Those affinities between the five regular bodies were mentioned by Campanus of Novara (thirteenth century), as also the fact that the Golden Section which directs the symmetry of the two "higher" ones (dodecahedron and icosahedron – this presence of the Golden Section is natural, as dodecahedron and icosahedron together constitute the projection in three dimensions the pentagon and its properties) seems to dominate the morphological relations between the five bodies.1

1 Campanus of Novara states in a subtle verbal antithesis that the Golden Section (proportionem habentem medium douque extrema) brings together the five regular bodies in a logical way (rationabiliter) but by a symphony ruled by an irrational (geometrical) proportion (irrationali symphonia).

The Golden Section reemerges, in a striking coda, in Book XIII, The Elements' final book. The book begins with a group of propositions concerning the Golden Section's properties. It then describes the inscription of the five Platonic solids in a sphere. It is in the last two of these figures, the icosahedron and the dodecahedron, that Golden Section comes into play. And it is in Proposition 8, Book XIII, that identifies its conspicuous and potent role in the pentagon: If in an equilateral and equiangular pentagon straight lines subtend two angles taken in order, they cut one another in extreme and mean ratio, and their greater segments are equal to the side of the pentagon.
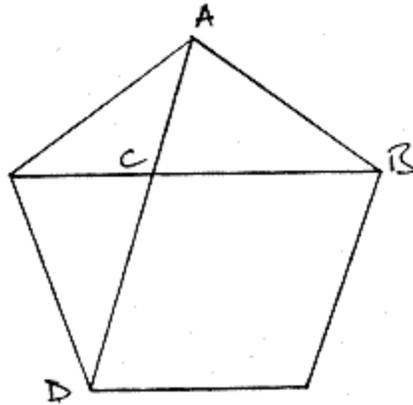
$$AB = CB = CD \quad AND \quad CD/AD = AC/CD = AC/AB$$

The number of regular polygons (characterized by the number of their sides) has no limit like the number of the integers. N being any integer number we can in theory, produce a regular polygon with N sides, of which we have seen only a certain number, satisfying the conditions set down by Gauss, can be constructed by a ruler and compass (in an "euclidean way"), but this number is also infinite. Curiously enough, this property has no correspondent in three dimensions; the number of regular polyhedra (solids with equal sides, equal regular faces, equal solid angles, inscribable in a sphere,) far from being infinite is limited to five, called since the time of the neo-pythagroreans the five "platonic" bodies. – Gyhyka Pg. 40.

A Platonic solid is a polyhedron, or 3 dimensional figure, in which all faces are congruent regular polygons such that the same number of faces meet at each vertex. There are five such solids: the cube (regular hexahedron), the regular tetrahedron, the regular octahedron, the regular dodecahedron, and the regular icosahedron. The tetrahedron has four faces, all of which are triangles. It also has four vertices and six edges. Three faces meet at each vertex. The cube has six faces, all of which are squares. It also has eight vertices and twelve edges. Three faces meet at each vertex. The octahedron has eight faces, all of which are triangles. It also has six vertices and twelve edges. Four faces meet at each vertex. The dodecahedron has twelve faces, all of which are pentagons. It also has twenty vertices and thirty edges. Three faces meet at each vertex. The icosahedron has twenty faces, all of which are triangles. It also has twelve vertices and thirty edges. Five faces meet at each vertex. It is easy to verify that all five Platonic solids satisfy Euler's polyhedral formula: The number of vertices, v, the number of sides, s, and the number of faces, f, are related in each polyhedron by *Euler's Formula v+f=x+2*.

Tetrahedron   Cube   Octahedron   Icosahedron   Dodecahedron
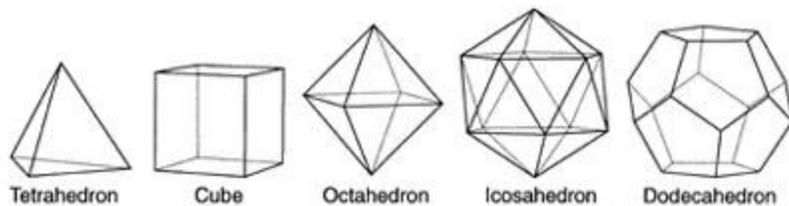
Where Metatron's Cube already was composed of most of the primary elements we've described in the construction of the Universal Number Continuum, and in the manner in which they are represented in projection is identical, I've elected to utilize this as a model to demonstrate the diagram of the completed form. Missing elements which were verified and added as necessary within the circumscribed cube and the inscribed cube were: The diagonal crosses in the faces of the cubes, the three lateral reflection planes with diagonal crosses in their faces and the inscribed octahedra corresponding to each cube. Additional elements NOT described in the generation of the archetypal number forms and the construction of the Universal Number Continuum have been here left untouched so that what is actually depicted here is a compound image of the Universal Number Continuum and Metatron's Cube.

Naturally the diagram is so complex that detailed analysis should be employed to insure it is depicted appropriately according to the Propositions of the generational method proposed. Further exploration based upon the consequences of our conclusions should move us to determine whether the objections of Gilchrist regarding the perfection of the blueprint of the Dodecahedron and Icosahedron still remain. Nevertheless; logically, we cannot deny that they do and must correspond, for where every point is connected to every other point... Well, for our purposes we may nevertheless at this point remain content ourselves to represent selectively only the primary vertices that correspond to the primary forms, elements and systems that are composites of the construct as we have described them or any of their components, as we may wish to represent, imagine or to otherwise consider them. To even grasp in our imaginations a vision of what it is that we see when it is represented before us we must mentally or physically break everything down into its various components and forms. From utter simplicity has arisen astounding complexity; produced as the natural function of the manner in which singularity has given rise to multiplicity through the generation of number and form:

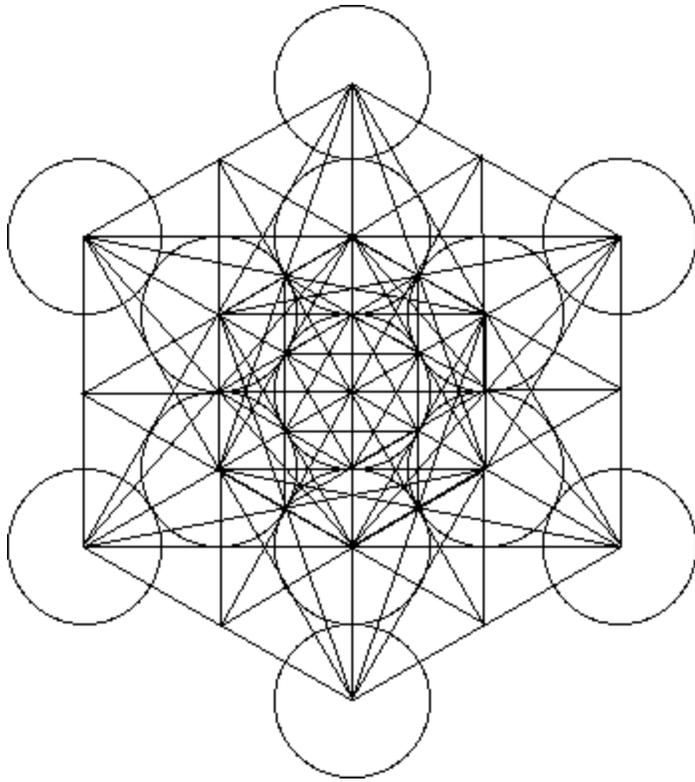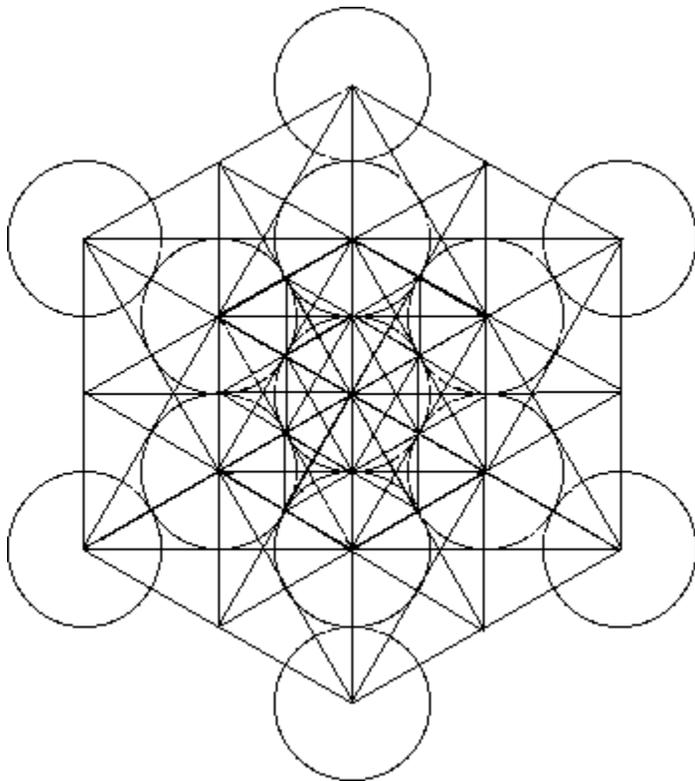**Compound Diagram of the Universal Number Continuum and Metatron's Cube**

Diagram of the Universal Number Continuum

Using Windows' Paint program I erased all the elements and redrew. If my work is correct, I've verified in both the circumscribed and inscribed cubes: The diagonal crosses in the faces of the cubes, the three lateral reflection planes with diagonal crosses in their faces and the inscribed octahedra corresponding to each cube. Using the tools I am able to work with easily, I ask that you provide by imagining the remaining 6 closely packed spheres and the circumscribed circle.

But it would be desirable at this point for those who are mathematically minded to comprehend the basis of the method of formal explication whose conditions are elaborated throughout my disparate postings and to undertake the process of the actual formal explication for themselves so that they might witness the overwhelming consistency with which the propositions produce the forms I've described. For such bears all the hallmarks of what is the fundamental basis of all mathematical subjects, that the results obtained are consistently true for all who apply the same principles. Insofar as this is determined by them who undertake the exercise, then this supports the validity of the subject. Just as in Western mathematics it is true for everyone using the same system that 1 + 1 = 2, and not otherwise.

"There are Ten ineffable Sephirot (points of light). Not One, not Nine, but Ten ineffable Sephirot -- that descend from Heaven like a lightning bolt." -- G.W. Leibniz

"Nothing occurs that does not present, to someone sufficiently enlightened, some sufficient reason for why it is so, and not otherwise." -- G.W. Leibniz