963.00 **First Power: One Dimension**

963.01 In conventional XYZ coordination, one-dimensionality is identified geometrically with linear pointal frequency. The linear measure is the first power, or the edge of the square face of a cube.

963.02 In synergetics, the first-power linear measure is the radius of the sphere.

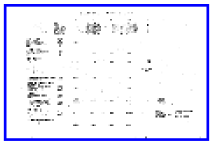
Table 963.10

963.10 **Synergetics Constant:** The synergetics constant was evolved to convert third-power, volumetric evaluation from a cubical to a tetrahedral base and to employ the ABCD-four-dimensional system's vector as the linear computational input. In the case of the cube this is the diagonal of the cube's square face. Other power values are shown in Table 963.10. We have to find the total vector powers involved in the calculation. In synergetics we are always dealing in energy content: when vector edges double together in quadrivalence or octavalence, the energy content doubles and fourfolds, respectively. When the vector edges are half-doubled together, as in the icosahedron phase of the jitterbug—halfway between the vector equilibrium 20 and the octahedron compression—to fourfold and fivefold contraction with the vectors only doubled, we can understand that the volume of energy in the icosahedron (which is probably the same 20 as that of the vector equilibrium) is just compressed. (See Secs. 982.45 and 982.54.)

963.11 In Einstein's $E = Mc^2$, M *is* volume-to-spherical-wave ratio of the system considered. Mass is the integration of relative weight and volume. What Einstein saw was that the weight in the weight-to-volume ratio, i.e., the Mass, could be reduced and still be interpreted as the latent energy-per-volume ratio. Einstein's M *is* partly identified with volume and partly with relative energy compactment within that spherical wave's volume. There are then relative energy-of-reality concentration-modifiers of the volumes arrived at by third powering.

963.12 All of the frozen volumetric and superficial area mensuration of the past has been derived exclusively from the external linear dimensions. Synergetics starts system mensuration at the system center and, employing omni-60-degree angular coordinates, expresses the omni-equal, radial and chordal, modular linear subdivisions in "frequency" of module subdivisioning of those radii and chords, which method of mensuration exactly accommodates both gravitational (coherence) and radiational (expansion) calculations. As the length of the vectors represents given mass-times-velocity, the energy involvements are inherent in the isotropic vector matrix.

SYNERGETICS CONSTANT

Dymaxion Hierarchy of Vector Generated Field-, Volume-, Mass-, Charge-, Potential of Geometric Forms, i.e. Potentials of Basic Energetic Transformations Where 3-fold axis and 4-fold axis rotate on 6 axis	With energy potential in equilibrium dymaxion vector $=F^3/3/3$ $=F^3/1.0198255$ $=2.102651=V$ Volume=	(2) 480×Col. 1. Where 'A' particle =480 makes rational whole sub-particle fractionation by intersection of planes of 25 great circles	(3) Where edges of cube and all other planar bound forms=2 as per common Greek 3 Dimension 'Coord.' System 'regular solids', Euclidean platonic	(4) Where edges of cube and all other planar bound forms=2 as per common Greek 3 Dimension 'Coord.' System 'regular solids'	(5) Edges of tet, octa, icosa, dymax, rombid, dodeca, tetraxidec, all=2, but diagonal of cube and rombidec 'F' =2, radius of spheres=2, or arc of spheres=2 as marked	(6) Special formula	(7) Ratios	
'A' PARTICLE 1/8 of ¼ of regular Tet. 1/8 of Tet. formed on 4 faces of regular Tet. with apex at C. of G. of Tet.	½V=edge (outer) .0416666 =1/24 of unity	Rational						
ICOSACENTET Each of 20 tets. Formed on 20 faces of Icosa with apex at C. of G. of Icosa.	V=outer edge .9255		.10908	.8726	.8726			
TETRAHEDRON (Regular Tet.) 4 equal triangular faces.	V=edge 1.0000	< Rational 11.32000	.1179	.9432	.9428	$\frac{\left(\sqrt{\frac{V^2}{2}}\right)^3}{3}$		
CUBE (1) Edge of Cube $3\sqrt{3}$=1.4422. Cube=Tet.+4 (¼ Octa) on its faces fills all space. If edge of Cube=V, Vol.=5.4904.	V=diagonal face 3.0000	<Rational	1.0000	8.0000	2.828428	Vol $=\left(\sqrt{\frac{V^2}{2}}\right)^3$		
OCTAHEDRON (Regular Octa) 8 equal triangular faces.	V=edge 4.0000	<Rational	.4714	3.7712	3.7712			
RHOMBICDODECAHEDRON (Rombidec. 1) Fills all space. 12 equilateral rhomboid faces=Octa and 8 (¼ Tet.). Radius Tet.=V.	V=long diag. face 6.0000	<Rational			5.6576			
CUBE (2) Where edge of Cube is Vector=2.039651.	V=edge 8.4900	Comple-mentary Rational						
ICOSAHEDRON (Icosa) 20 triangular faces. Radius=1.93909 Perpendicular from C.G. Icosa to C.G. triangular face=1.574.	V=edge 18.5100		2.1817	17.4536	17.4526	$\frac{20}{3}\sqrt{\frac{V_2^3}{2}}$	Vol. icosa.: icosasphere 'B' = 1: 1.61725	
DYMAXION (Dymax) 6 square and 8 triangular faces. All edges and radii identical and are identical vectors in omnidirectional equilibrium.	V=edge and radius 20.0000	<Rational	2.3574	18.8592	18.85618		Vol. dymax.: dymaxisphere 'A' = 1: 1.54753, factor = 1/20 vol. dymaxisphere	dymaxion: dymaxisphere 'B' = 1.77715 Note $\sqrt{\pi}$ = 1.772454
RHOMBICDODECAHEDRON (Rombidec. 2) Fills space. 12 rhomboid faces where edge=V.	V=edge 25.8960	<Rational	3.0622	24.4974	24.4974			

TETRAXIDECAHEDRON (Tetraxidec. 1) Lord Kelvin's all-space solid. 6 square, 8 hexagonal faces. Dymaxion + 1½ Octa = total 1¼ Dymaxion.	V = edge 90.0000	<Rational						
ICOSASPHERE (A) Where arc 63° 26' = arc-edge of spherical triangle of 20 Spherical triangles of Sphere = arc = 2.039651.	V = arc 63° 26' 27.738	Spheres			arc 63° 26' = 2 28.1989		icosasphere 'A' : dymaxisphere 'A' = 1 : 1.1813	
ICOSASPHERE (B) Where radius = V = 2.039651.	V = radius 20.570	Spheres			radius = 2 28.8216		icosasphere 'B' : dymaxisphere 'B' = 1 : 1.18288	icosasphere 'B' : dymaxisphere 'A' = 1.012492
DYMAXISPHERE (A) Where arc 60° = V = 2.039651.	V = arc 60° 20.980	Spheres			arc 60° = 2 29.19051; radius = 1.9098	$\frac{188}{\pi}$ = Vol. SP.	dymaxisphere 'A' : dymaxisphere 'B' = 1.148379	
DYMAXISPHERE (B) Where arc 60° = V = 2.039651.	V = radius 35.540	Spheres			radius = 2 33.51029 arc = 2.0944	π8 = 6		
DODECAHEDRON 12 hexagonal faces.	V = edge 65.018	<Rational	7.6631	61.3048				
TETRAXIDECAHEDRON (Tetraxidec. 2)	V = edge 136.0000	<Rational	16.0242	128.1936				
	^ Note that 10 out of the 12 planar bound solids are rational and 2 others are complimentary rational		^ Of above only cube is rational	^ Of above only cube is rational	^ Of above none is rational. To convert above solids to values in column (1) multiply by 1.06066 = $\sqrt{9/8}$			

$2\sqrt[3]{9/8}$ = dymaxion vector constant

$1/2\ V = 1.0198455$

$(1/2\ V)^2 = 1.04004402504$

$(1/2\ V)^3 = 1.06066805$

$[1/2\ V]^6 = 1.12500000$

$= 1\ 1/8$

$= 9/8$

1 2 3 4 5 6 7 8

o – o – o – o – o – o – o – o – o

1 2 3 4 5 6 7 8 9

Unique maxima of dymax nucleus employs above: 9 balls, 8 spaces.

This ratio has significant implications as in natural number behavior as indicated by basic sphere and dymaxion and octa-tets. It is seen that number integers take octave—nine modular congruence.

Table 963.10 *Dymaxion Energetic Geometry*, 1950

Table 963.10 Dymaxion Energetic Geometry, 1950.

Zoom Image

963.13 Synergetics is a priori nuclear; it begins at the center, the center of the always centrally observing observer. The centrally observing observer asks progressively, "What goes on around here?"

964.00 **Second Power: Two Dimensions**

964.01 In conventional XYZ coordination, two-dimensionality is identified with areal pointal frequency.

964.02 In synergetics, second powering = point aggregate quanta = area. In synergetics, second powering represents the rate of system surface growth.

964.10 **Spherical Growth Rate:** In a radiational or gravitational wave system, second powering is identified with the point population of the concentrically embracing arrays of any given radius, stated in terms of frequency of modular subdivisions of either the radial or chordal circumference of the system. (From Synergetics Corollary, see Sec. 240.44.)

964.20 **Vertexial Topology:** Second powering does not refer to "squaring" or to surface amplification, but to the number of the system's external vertexes in which equating the second power and the radial or circumferential modular subdivisions of the system (multiplied by the prime number *one*, if a tetrahedral system; by the prime number *two*, if an octahedral system; by the prime number *three*, if a triangulated cubical system; and by the prime number five, if an icosahedral system), each multiplied by two, and added to by two, will accurately predict the number of superficial points of the system.

964.30 **Shell Accounting:** Second power has been identified uniquely with surface area, and it is still the "surface," or *shell*. But what physics shows is very interesting: there are no continuous shells, there are only energy-event foci and quanta. They can be considered as points or "little spheres." The second-power numbers represent the number of energy packages or points in the outer shell of the system. The second-power number is derived by multiplying the frequency of wave divisions of the radius of the system, i.e., F^2 = frequency to the second power.

964.31 In the quantum and wave phenomena, we deal with individual packages. We do not have continuous surfaces. In synergetics, we find the familiar practice of second powering displaying a congruence with the points, or separate little energy packages of the shell arrays. Electromagnetic frequencies of systems are sometimes complex, but they always exist in complementation of gravitational forces and together with them provide prime rational integer characteristics in all physical systems. Little energy actions, little separate stars: this is what we mean by quantum. Synergetics provides geometrical conceptuality in respect to energy quanta.

965.00 **Third Power: Three Dimensions**

965.01 In a radiational or gravitational wave system, third powering is synergetically identified with the total point population involvement of all the successively propagated, successively outward bound in omniradial direction, wave layers of the system. Since the original point was a tetrahedron and already a priori volumetric, the third powering is in fact sixth powering: $N^3 \times N^3 = N^6$.

965.02 Third powering = total volumetric involvement—as, for instance, total molecular population of a body of water through which successive waves pass outwardly from a splash-propagated initial circle. As the circle grows larger, the number of molecules being locally displaced grows exponentially.

965.03 Third powering identifies with a symmetric swarm of points around, and in addition to, the neutral axial line of points. To find the total number of points collectively in all of a system's layers, it is necessary to multiply an initial quantity of one of the first four prime numbers (times two) by the third power of the wave frequency.

965.04 Perpendicularity (90-degreeness) uniquely characterizes the limit of three-dimensionality. Equiangularity (60-degreeness) uniquely characterizes the limits of four- dimensional systems.

966.00 **Fourth Power: Four Dimensions**

966.01 In a radiational or gravitational wave system, fourth powering is identified with the interpointal domain volumes.

966.02 It is not possible to demonstrate the fourth dimension with 90-degree models. The regular tetrahedron has four unique, omnisymmetrically interacting face planes—ergo, four unique perpendiculars to the four planes.

966.03 Four-dimensionality evolves in omnisymmetric equality of radial and chordal rates of convergence and divergence, as well as in all symmetrically interparalleled dimensions. All of synergetics' isotropic-vector-matrix field lines are geodesic and weave both four-dimensionally and omnisymmetrically amongst one another, for all available cosmic time, without anywhere touching one another.

966.04 The vector-equilibrium model displays four-dimensional hexagonal central cross section.

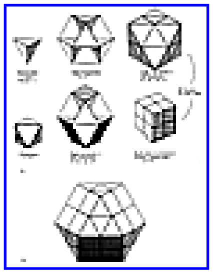
Fig. 966.05

966.05 Arithmetical fourth-power energy evolution order has been manifest time and again in experimental physics, but could not be modelably accommodated by the XYZ- c.g_t.s. system. That the fourth dimension can be modelably accommodated by synergetics is the result of complex local intertransformabilities because the vector equilibrium has, at initial frequency zero, an inherent volume of 20. Only eight cubes can be closest packed in omnidirectional embracement of any one point in the XYZ system: in the third powering of two, which is eight, all point-surrounding space has been occupied. In synergetics, third powering is allspace-fillingly accounted in tetrahedral volume increments; 20 unit volume tetrahedra close-pack around one point, which point surrounding reoccurs isotropically in the centers of the vector equilibria. When the volume around one is 20, the frequency of the system is at one. When the XYZ system modular frequency is at one, the cube volume is one, while in the vector-equilibrium synergetic system, the initial volume is 20. When the frequency of modular subdivision of XYZ cubes reads two, the volume is eight. When the vector equilibria's module reads two, the volume is $20F^3 = 20 \times 8 = 160$ tetrahedral volumes—$160 = 2^5 \times 5$—thus demonstrating the use of conceptual models for fourth- and fifth-powering volumetric growth rates. With the initial frequency of one and the volume of the vector equilibrium at 20, it also has 24×20 A and B Quanta Modules; ergo is inherently initially 480 quanta modules. $480 = 2^5 \times 5 \times 3$. With frequency of two the vector equilibrium is $160 \times 24 = 3840$ quanta modules. $3840 = 2^8 \times 3 \times 5$. (See Illus. 966.05.)

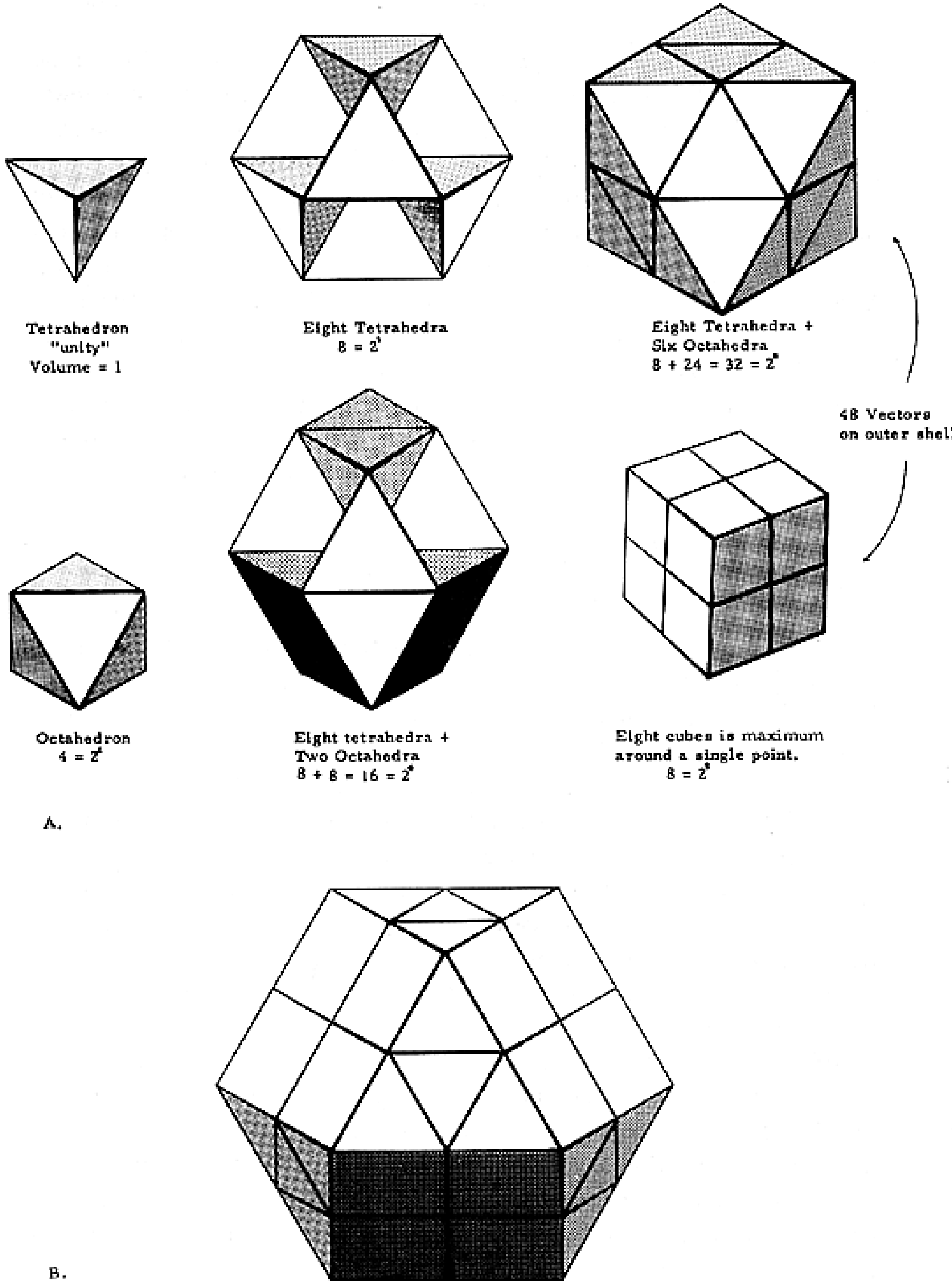

Fig. 966.05 Tetrahedral Modelability of 2nd, 3rd, 4th, and 5th Power Relationships:

A. Polyhedral assemblies around a single point having volumes that are integral powers of two when referred to tetrahedron as unity volume.
B. Two-frequency vector equilibrium: $5 \times 2^5 = 160$.

966.06 Because the volume of one cube equals the volume of three regular tetrahedra, it is now clear that it was only the threefold overstuffing which precluded its capability of providing conceptual modelability of fourth powering. It was the failure of the exclusively three-dimensional XYZ coordination that gave rise to the concept that fourth-dimensionality is experimentally undemonstrable—ergo, its arithmetical manifestation even in physics must be a mysterious, because nonconceivable, state that might be spoken of casually as the "time dimension."

966.07 In an omnimotional Universe, it is possible to join or lock together two previously independently moving parts of the system without immobilizing the remainder of the system, because four-dimensionality allows local fixities without in any way locking or blocking the rest of the system's omnimotioning or intertransforming. This independence of local formulation corresponds exactly with life experiences in Universe. This omnifreedom is calculatively accommodated by synergetics' fourth- and fifth-power transformabilities. (See Sec. 465, "Rotation of Wheels or Cams in Vector Equilibrium.") (See Illus. 465.01.)

966.08 In three-dimensional, omni-intermeshed, unclutchable, mechanical systems, if any gear is blocked, the whole gear train is locked. In a four-dimensional unclutchable gear system, a plurality of local gears may be locked, while the remainder of the system interarticulates freely. Odd numbers of individual gears (not gear teeth) lock and block while even numbers reciprocate freely in mechanical gear trains.

966.10 **Fourth Power in Physical Universe:** While nature oscillates and palpitates asymmetrically in respect to the omnirational vector-equilibrium field, the plus and minus magnitudes of asymmetry are rational fractions of the omnirationality of the equilibrious state, ergo, omnirationally commensurable to the fourth power, volumetrically, which order of powering embraces all experimentally disclosed physical volumetric behavior.

966.11 The minimum set of events providing macro-micro differentiation of Universe is a set of four local event foci. These four "stars" have an inherent sixness of relationship. This four-foci, six-relationship set is definable as the tetrahedron and coincides with quantum mechanics' requirements of four unique quanta per each considerable "particle."

966.12 In synergetics, all experience is identified as, a priori, unalterably four-dimensional. We do not have to explain how Universe began converting chaos to a "building block" and therefrom simplex to complex. In synergetics Universe is eternal. Universe is a complex of omni-interaccommodative principles. Universe is a priori orderly and complexedly integral. We do not need imaginary, nonexistent, inconceivable points, lines, and planes, out of which non-sensible nothingness to inventively build reality. Reality is a priori Universe. What we speak of geometrically as having been vaguely identified in early experience as "specks" or dots or points has no reality. A point in synergetics is a tetrahedron in its vector-equilibrium, zero-volume state, but too small for visible recognition of its conformation. A line is a tetrahedron of macro altitude and micro base. A plane is a tetrahedron of macro base and micro altitude. Points are real, conceptual, experienceable visually and mentally, as are lines and planes.

966.20 **Tetrahedron as Fourth-Dimension Model:** Since the outset of humanity's preoccupation exclusively with the XYZ coordinate system, mathematicians have been accustomed to figuring the area of a triangle as a product of the base and one-half its perpendicular altitude. And the volume of the tetrahedron is arrived at by multiplying the area of the base triangle by one-third of its perpendicular altitude. But the tetrahedron has four uniquely symmetrical enclosing planes, and its dimensions may be arrived at by the use of perpendicular heights above any one of its four possible bases. That's what the fourth-dimension system is: it is produced by the angular and size data arrived at by measuring the four perpendicular distances between the tetrahedral centers of volume and the centers of area of the four faces of the tetrahedron.

966.21 As in the calculation of the area of a triangle, its altitude is taken as that of the triangle's apex above the triangular baseline (or its extensions); so with the tetrahedron, its altitude is taken as that of the perpendicular height of the tetrahedron's vertex above the plane of its base triangle (or that plane's extension outside the tetrahedron's triangular base). The four obtuse central angles of convergence of the four perpendiculars to the four triangular midfaces of the regular tetrahedron pass convergently through the center of tetrahedral volume at 109° 28'.

970.00 First- and Third-Power Progressions of Vector Equilibria

970.01 **Operational Note:** In making models or drawing the concentric growth of closest-packed sphere-shells, we are illustrating with great-circle cross sections through the center of the vector equilibrium; i.e., on one of its symmetrically oriented four planes of tetrahedral symmetry; i.e., with the hexagonally cross-section, concentric shells of half- VEs.

970.02 Your eye tends quickly to wander as you try to draw the closest-packed spheres' equatorial circles. You have to keep your eye fixed on the mid-points of the intertriangulated vectorial lines in the matrix, the mid-points where the half-radiuses meet tangentially.

970.03 In the model of $10F^2 + 2$, the green area, the space occupied by the sphere per se, is really two adjacent shells that contain the *insideness of the outer shell* and the *outsideness of the inner shell.* These combine to produce tangentially paired shells—ergo, two layers.

970.10 Rationality of Planar Domains and Interstices: There is a $12F^2 + 2$ omniplanar-bound, volumetric-domain marriage with the $10F^2 + 2$ strictly spherical shell accounting. (See tables at Sec. 955.40 and at Sec. 971.00.)

970.11 Both the total inventories of spheres and their planar-bound domains of closest-packed sphere *VE* shells, along with their interstitial, "concave" faceted, exclusively vector equilibrium or octahedral spaces, are rationally accountable in nonfractional numbers.

970.12 Synergetics' isotropic-vector-matrix, omnisymmetric, radiantly expansive or contractive growth rate of interstices that are congruent with closest-packed uniradius spheres or points, is also rational. There is elegant, omniuniversal, metaphysical, rational, whole number equating of both the planar-bound polyhedral volumes and the spheres, which relationships can all be discretely expressed without use of the irrational number *pi* (pi), 3.14159, always required for such mathematical expression in strictly XYZ coordinate mathematics.

970.13 A sphere is a convexly expanded vector equilibrium, and all interclosest-packed sphere spaces are concavely contracted vector equilibria or octahedra at their most disequilibrious pulsative moments.

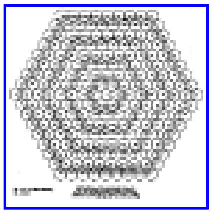
Fig. 970.20

970.20 **Spheres and Spaces:** The successive ($20F^3$) - 20 (F - 1)^3 layer-shell, planar-bound, tetrahedral volumes embrace only the tangential inner and outer portions of the concentrically closest-packed spheres, each of whose respective complete concentric shell layers always number $10F^2 + 2$. The volume of each concentric vector-equilibrium layer is defined and structured by the isotropic vector matrix, or octet truss, occurring between the spherical centers of any two concentric-sphere layers of the vector equilibrium, the inner part of one sphere layer and the outer part of the other, with only the center or nuclear ball being both its inner and outer parts.

970.21 There is realized herewith a philosophical synergetic sublimity of omnirational, universal, holistic, geometrical accounting of spheres *and spaces* without recourse to the transcendentally irrational *pi* π. (See drawings section.) (See Secs. 954.56 and 1032.)

971.00 **Table of Basic Vector Equilibrium Shell Volumes**


Fig. 971.01

971.01 **Relationships Between First and Third Powers of *F* Correlated to Closest-Packed Triangular Number Progression and Closest-Packed Tetrahedral Number Progression, Modified Both Additively and Multiplicatively in Whole Rhythmically Occurring Increments of Zero, One, Two, Three, Four, Five, Six, Ten, and Twelve, All as Related to the Arithmetical and Geometrical Progressions, Respectively, of Triangularly and Tetrahedrally Closest-Packed Sphere Numbers and Their Successive Respective Volumetric Domains, All Correlated with the Respective Sphere Numbers and Overall Volumetric Domains of Progressively Embracing Concentric Shells of Vector Equilibria:** Short Title: *Concentric Sphere Shell Growth Rates*.

971.02 The red zigzag between Columns 2 and 3 shows the progressive, additive, triangular-sphere layers accumulating progressively to produce the regular tetrahedra.

971.03 Column 4 demonstrates the waves of SIX integer additions to the closest-packed tetrahedral progression. The first SIX zeros accumulate until we get a new nucleus. The first two of the zero series are in fact one invisible zero: the positive zero plus its negative phase. Every six layers we gain one new, additional nucleus.

971.04 Column 5 is the tetrahedral number with the new nucleus.

971.05 In Column 6, the integer SIX functions as zero in the same manner in which NINE functions innocuously as zero in all arithmetical operations.

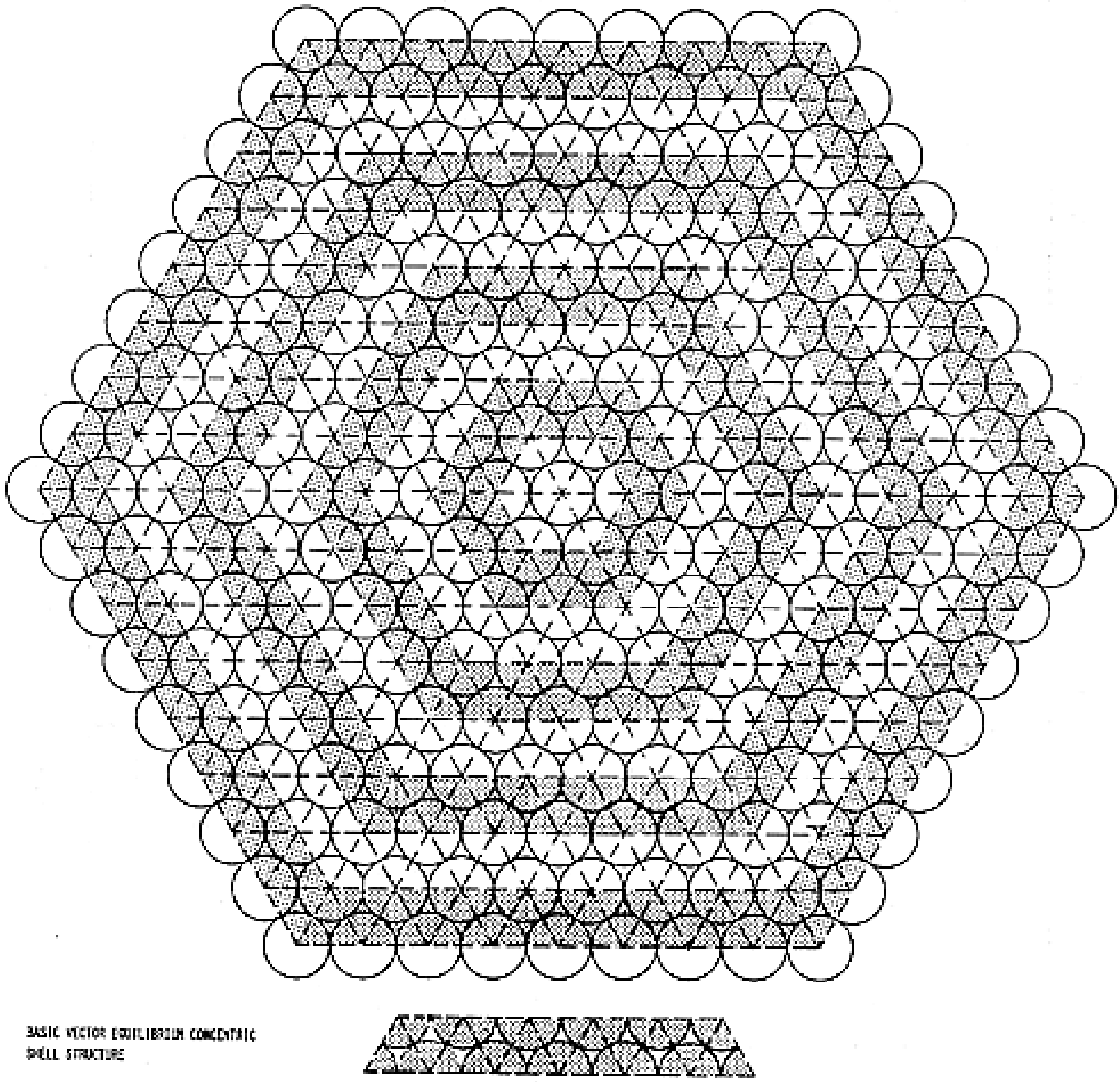

Fig. 970.20 Basic Vector Equilibrium Concentric Shell Structure: The legend at the bottom illustrates the interstitial between-sphere spaces.

1	2	3	4	5	6	7	8	9	10	11
F	Cumulative number of spheres in triangle of frequency equal to F-1=Q $\frac{Q^2-Q}{2}$	Cumulative number of spheres in tetrahedron of frequency equal to F-2=P $\frac{P^3-P}{6}$	+ 0 =		x 6		F^3	x 20 =	Cumulative volume (Tetrahedron = 1) of Vector Equilibrium of frequency = F $20F^3$	Shell volume of Vector Equilibrium of frequency equal to F+1 = R $\left[\left(\left[\frac{R^2-R}{2}\right] \times 12\right) + 2\right] \times 10$
0	0	0	+ 0 =	0	x 6	+ 0 =	0	x 20 =	0	20 = [(0 x 12) + 2] x 10
1	1	0	+ 0 =	0	x 6	+ 1 =	1	x 20 =	20	140 = [(1 x 12) + 2] x 10
2	3	1	+ 0 =	1	x 6	+ 2 =	8	x 20 =	160	380 = [(3 x 12) + 2] x 10
3	6	4	+ 0 =	4	x 6	+ 3 =	27	x 20 =	540	740 = [(6 x 12) + 2] x 10
4	10	10	+ 0 =	10	x 6	+ 4 =	64	x 20 =	1,280	1,220 = [(10 x 12) + 2] x 10
5	15	20	+ 0 =	20	x 6	+ 5 =	125	x 20 =	2,500	1,820 = [(15 x 12) + 2] x 10
6	21	35	+ 1 =	36	x 6	+ 0 =	216	x 20 =	4,320	2,540 = [(21 x 12) + 2] x 10
7	28	56	+ 1 =	57	x 6	+ 1 =	343	x 20 =	6,860	3,380 = [(28 x 12) + 2] x 10
8	36	84	+ 1 =	85	x 6	+ 2 =	512	x 20 =	10,240	4,340 = [(36 x 12) + 2] x 10
9	45	120	+ 1 =	121	x 6	+ 3 =	729	x 20 =	14,580	5,420 = [(45 x 12) + 2] x 10
10	55	165	+ 1 =	166	x 6	+ 4 =	1000	x 20 =	20,000	6,620 = [(55 x 12) + 2] x 10
11	66	220	+ 1 =	221	x 6	+ 5 =	1330	x 20 =	26,620	7,940 = [(66 x 12) + 2] x 10
12	78	286	+ 2 =	288	x 6	+ 0 =	1728	x 20 =	34,560	9,380 = [(78 x 12) + 2] x 10
13	91	364	+ 2 =	366	x 6	+ 1 =	2197	x 20 =	43,940	10,940 = [(91 x 12) + 2] x 10
14	105	455	+ 2 =	457	x 6	+ 2 =	2744	x 20 =	54,880	12,620 = [(105 x 12) + 2] x 10
15	120	560	+ 2 =	562	x 6	+ 3 =	3375	x 20 =	67,500	14,420 = [(120 x 12) + 2] x 10
16	136	680	+ 2 =	682	x 6	+ 4 =	4096	x 20 =	81,920	16,340 = [(136 x 12) + 2] x 10
17	153	816	+ 2 =	818	x 6	+ 5 =	4913	x 20 =	98,260	18,380 = [(153 x 12) + 2] x 10
18	171	969	+ 3 =	972	x 6	+ 0 =	5832	x 20 =	116,640	20,540 = [(171 x 12) + 2] x 10
19	190	1140	+ 3 =	1143	x 6	+ 1 =	6859	x 20 =	137,180	22,820 = [(190 x 12) + 2] x 10
20	210	1330	+ 3 =	1333	x 6	+ 2 =	8000	x 20 =	160,000	

Fig. 971.01 Chart: Table of Concentric, Sphere-Shell Growth Rates

971.06 In Column 6, we multiply Column 5 by a constant SIX, to the product of which we add the six-stage 0, 1, 2, 3, 4, 5 wave-factor growth crest and break of Column 7.

971.07 Column 7's SIXness wave synchronizes elegantly the third-power arithmetical progression of N, i.e., with the integer-metered volumetric growth of N. Column 7's SIXness identifies uniquely with the rhombic dodecahedron's volume- quantum number. Column 7 tells us that the third powers are most fundamentally identified with the one central, holistic, nuclear-sphere-containing, or six-tangented- together, one-sixth sphere of the six vertexes of the 144 A and B Moduled rhombic dodecahedra.

971.08 Columns 6 and 7 show the *five-sixths* cosmic geometry's sphere/space relationship, which is also relevant to:

- 120 icosa's basic sphere surface triangles as the outer faces of the icosahedron's 120 centrally convergent similar tetrahedra, which 120 modules of icosahedral unity correspond in respect to the radially centralized, or circumferentially embracing 144 modules uniquely constituting and exclusively defining the rhombic dodecahedron sphere;
- as 120 is to 144;
- the icosahedron is to spherical unity as 5 is to 6;
- as is also any one shell of the vector equilibrium's concentric closest-packed sphere count to its corresponding concentric omnispace volume count, i.e., as 10 is to 12.

971.09 Column 10 lists the cumulative, planar-bound, tetrahedral volumes of the arithmetical progression of third powers of the successive frequencies of whole vector equilibria. The vector equilibrium's initial nonfrequencied tetra-volume, i.e., its quantum value, is 20. The formula for obtaining the frequency-progressed volumes of vector equilibrium is:

$$\text{Volume of VE} = 20F^3.$$

971.10 In Column 11, we subtract the previous frequency-vector equilibrium's cumulative volume from the new one-frequency-greater vector equilibrium's cumulative volume, which yields the tetrahedral volume of the outermost shell. The outer vector equilibrium's volume is found always to be:

$$10\left(2 + 12\,\frac{R^2 - R}{2}\right)$$

971.11 Incidentally, the

$$\frac{R^2 - R}{2}$$

part of the formula is inherent in the formula

$$\frac{N^2 - N}{2}$$

which determines the exact number of unique relationships always existing between any number of items.

Next Section: 971.20