1021.10 **Convexity and Concavity of Tetrahedron**

1021.11 The outsides of systems are convex, and their insides are concave. While convexity diffuses radiation impinging upon it, concavity concentrates radiation impinging upon it; ergo, convexity and concavity are not the same.

1021.12 For every tetrahedron, there is one convex and one concave. Because the tetrahedron is inherently the minimum structural system of Universe, it provides the minimum omnicoexisting convexity and concavity condition in Universe.

1021.13 For every tetrahedron, there is an inside tetrahedron and an outside tetrahedron. For every convex spherical polyhedral geodesic system, there is a concave spherical polyhedral geodesic system. One cannot exist without the other either in special case or in sizeless eternal generalization. Spherical arrays and compound curvature begin with the tetrahedron.

1022.10 **Minimum Sphere**

1022.11 The transcendentally irrational constant pi (π) is irrelevant to spherical geodesic polyhedral array calculations because the *minimum sphere* is a tetrahedron. We have learned that a sphere as defined by the Greeks is not experimentally demonstrable because it would divide all Universe into outside and inside and have no traffic between the two. The Greek sphere as defined by them constituted the first and nondemonstrable perpetual-motion machine. Because there could be no holes in it, the Greek sphere would defy entropy. A sphere with no holes would be a *continuum* or a *solid,* which are physical conditions science has not found. We could dispense with all Universe outside the Greek sphere because Universe inside would be utterly conserved and eternally adequate to itself, independent of the rest of Universe outside.

1022.12 What we do have experimentally as a sphere is an aggregate of energy-event foci approximately equidistant in approximately all directions from one approximate energy-event focus. This is a system in which the most economical relationships between embracingly adjacent foci are the greatcircle chords, and not the arcs. This is why pi (π) is operationally irrelevant. Physics finds that nature always employs the most economical means. Being shorter, chordal distances are more economically traversed than are detouring arcs. All the chords between external points of systems converge with one another concavely and convexly, i.e., with the angles around each external point always adding to less than 360 degrees. They do not come together, as do radii in a plane, with 360 degrees around each point.

1022.13 The chords of an omnidirectional system always come together with concavity on one side and convexity on the other. The angles never add up to 360 degrees, as do those formed on a plane by lines converging radially upon a point. This is why the long-held working assumption of mathematics—that for an infinitesimal moment a sphere is congruent with the plane to which it is tangent—is invalid. Therefore, spherical trigonometry, with its assumption of 360 degrees around a point, is also invalid. Greek spheres cannot be scientifically demonstrated. Almost-spherical polyhedra are the nearest approximation. It can only be treated with as polyhedral—as an aggregate of points in which the most economical relationships are chords; ergo, geodesics .

1022.14 If you find all the connections between all the points, the system is omnitriangulated. A spherical polyhedron is a high-frequency geodesic polyhedron. Its symmetric base may be tetrahedral, octahedral, or icosahedral; but it may not be hexagonal, i.e., with angles adding to 360 degrees around each external point of the system. The sum of all the angles around all the external points of the superficially seeming spherical systems will always add up to 720 degrees less than the number of external vertexes when each is multiplied by 360 degrees.

1022.15 In every geodesic sphere, you can always take out 12 pentagons. These 12 pentagons each drop out one triangle from the hexagonal clusters around all other points. Assuming the dropped-out triangles to be equiangular, i.e., with 60-degree corners, this means that $60 \times 12 = 720°$, which has been eliminated from the total inventory of surface angles. You can always find 12 pentagons on spherically conformed systems such as oranges, which are icosahedrally based; or four triangles with 120-degree corners if the system is tetrahedrally based; or six squares where the system is octahedrally based.

1023.10 **Systematic Enclosure**

1023.11 If we get too semantically incisive, the reader may lose all connection with anything he has ever thought before. That might not be a great loss. But we assume that the reader can cope with his reflexes and make connections between the old words and new concepts with the new and more apt words. For example, since physics has found no continuums, we have had to clear up what we mean by a sphere. It is not a surface; it is an aggregate of events in close proximity. It isn't just full of holes: it doesn't have any continuum in which to have holes.

1023.12 The word *polyhedron* has to go because it says "many-sided," which implies a continuum. We don't even have the faces. Faces become spaces. They become intervals. They become nothing. The Einsteinian finite Universe—an aggregate nonsimultaneous Universe—is predicated only on the absolute finiteness of each local energy-event package and the logic that an aggregate of finites is itself finite.

1023.13 The spheric experience is simply an ultrahigh frequency of finite event occurrences in respect to the magnitude of the tuning perceptivity of the observer. (High frequency to the human may be low frequency to the mosquito.)

1023.14 If we get rid of the word *polyhedra*, then what word do we have in its place? A high-frequency, omnidirectional, spheric event system. Polyhedra are finite system enclosures. They are topologically describable, finite *system enclosures.* They are Universe dividers. They are not linear dividers, but omnidirectional Universe dividers dividing outside from inside, out from in. A mosquito has macro-micro cosmos system perceptivity at a different level from that of the whale's. Probably each observer organism's stature constitutes its spontaneous observational level of macro-micro subdividing: bigger than me; littler than me; within me; without me.

1023.15 We relinquish the word *polyhedra* to reemploy our new term *systematic enclosure,* which can be generalized to serve creatures of any size— i.e., a tetrahedron big enough for a mosquito or big enough for a whale. Faces are spaces, openings. The four vertexes plus four faces plus six lines of the tetrahedron must become four somethings plus four nothings plus six relations. We add convergence *to something* and divergence *to nothing*—completely independent of size. Since there are no "things," there is no "something." We are talking of an event in pure principle. We have events and no-events. Events: novents: and relationships. Nature employs only one or another of the most equieconomical relationships. The most economical relationships are geodesic, which means most economical relationships. Ergo we have events and novents: geodesics and irrelevance. These are the epistemological stepping-stones.

1023.16 The spheric experience is a high-frequency, omnidirectional complex of events and their relatedness. Since it is concerned with the most economical relatedness, we can also speak of it as a geodesic spherical experience. This is where the importance of chords comes in. A chord is abstract, yet tensive. A chord has pull: we would probably not think about the connections unless there was some pull between them. The function of the chords is to relate. The event is the *vertex.* The reaction is the *chord*, the pulling away. And the resultant is the inadvertent definition of the nothingness of the *areal and volumetric spaces.* The sequence is: Events; chords; no-events. No-events = novents. Areas do not create themselves; as with celestial constellations, they are incidental to the lines between the events. The faces are the bounding of nothingness. Areas and volumes are incidental resultants to finding the connections between events of experience.

1023.17 Not only can there be no awareness until there is otherness to be aware of, but there can be no *magnitude awareness* with only one otherness. You need two otherness experiences with an interval between them in order to have a sense of distance. (Otherwise, you might just be looking at yourself in a mirror.)

1023.18 You can have no sense awareness of shape with just one otherness or two othernesses. *Shape awareness* commences only with three othernesses where the relationship of three as a triangle has finite closure. Shape is what you see areally, and until there is closure, there is no area of otherness .

1023.19 Not until we have four othernesses do we have macrocosmic volumetric awareness. Four is required for substantive awareness.

1023.20 *System awareness* begins when we find the otherness surrounding us, when we are omnidirectionally enclosed. The volume sense is only from inside. From outside, four points can look like one point or they can look flat. Not until we turn a tetrahedron inside out do we have microcosmic awareness. Not until we swallow the otherness do we have microcosmic volumetric awareness. We become the outside. At first, we were just the inside. In the womb. In the womb, we had tactile, sensorial awareness of volumetric surroundment by the otherness, but no visual, aural, or olfactoral awareness of the otherness surroundment. The child develops otherness awareness only as outside volumetric surroundment within which he finally discovers *me* the observer, and *me's* hand.

1024.10 **What Is a Bubble?**

1024.11 What is a bubble? When oil is spilled on water—unfortunately, an increasing phenomenon—it spreads and spreads as a result of gravity pulling and thinning it out. It thins out because the molecules were piled on top of one another. Gravity is pulling it into single-molecule-thickness array. The individual molecules are mass-interattracted, but the attraction can be focused on the nearest molecules. Molecules can therefore be tensed and will yield in such a manner as to thin out their mass, which can be stretched as a sheet or stretched linearly—for each molecule holds on to only those other molecules within critical proximity.

1024.12 As one floating molecule is surrounded by six other floaters and the six are surrounded by 12, or the next perimeter of 18, pulling on one molecule distributes the pull to six, and the six distribute the pull to 12, and the 12 distribute the pull to 18, and therefore the original pull becomes proportionally reducible and the relative distance between the molecules varies from one surrounding hexagon to the next. This relative proximity brings about varying tension, which brings about varying density. Varying density, we learn in optics, brings about varying refraction of light frequency, ergo, of light as color, which accounts for the rainbow spectrum differentiating witnessed as sunlight strikes oil-covered waters. By passing light through clear plexiglass structural models, the structural strains as distributed throughout the plastic mass are visually witnessable by the red, orange, yellow, green, blue, violet rainbow spectrum.

1024.13 Comprehending the mass-attracted, intertensed integrity of molecules and atoms, witness how the blacksmith can heat his metals in the red-hot condition and hammer the metal into varying shapes, all permitted by the mass-interattraction of the atoms themselves and their geometrical, methodical yielding to rearrangement by forces greater than their local surroundment interattractions. The heating is done to accelerate the atoms' electrons to decrease the relative-proximity interattractiveness and accommodate the geometrical rearranging of the atoms. The cold metals, too, can be hammered, but the energy-as-heat facilitates the rearranging. When metals are reshaped, they do so only as the absolute orderly intertransformative geometry of closest packed atoms permits.

1024.14 Because the atoms and the molecules are subvisible in magnitude to man, he fails to detect the exquisite geometrical orderliness with which they yield to rearrangement while retaining the total interattractiveness occasioned by their initial aggregation within the critical limits of mass-attraction where the attractive force overcomes the individual orbiting integrity. The relative interattraction increases as the second power of the rate at which the interdistances diminish.

1024.15 The atomic proximity within the metals is of such a high order as to give high tensile strength, which is resistance to being pulled or put asunder. Exquisite magnitudes of interattractive proximities have nothing to do with pressure. The phenomenon is coherent density. Density is a pulling together. (The error of reflexing is here comparable to humans' misapprehending the wind's "blowing" when we know that it cannot blow; it can only be sucked.) Man is always thinking he can push things when they can only be pulled. Men are pushers. Women are attracters.

1024.16 These principles of interattractive strengths and orderly geometrical yielding to stresses are employed to a high degree in the manufacturing of thin transparent plastic sheets, such as all society is becoming familiar with as a use product.

1024.17 Children are familiar with bubble gum. They are accustomed to seeing the bubble blown until suddenly it becomes transparent. The membrane is yielding circumferentially and tensilely to the pressure differential between the outside atmosphere and the multiplying molecules of gas inside literally hitting the skin, trying to escape. When the molecules of the bubble gum have rearranged themselves in a geometrically orderly manner so as to get the isotropic-vector matrix trussing thinned down finally to a single layer, then it has become transparent. Between the finite Milky Way array, the atoms are in sufficient proximity to hold their single-layer triangulation array of hexagons within hexagons. In this condition, bubbles show the same color differentiation that reflects the tensile variations: what humans have learned to call surface-tension integrity.

1024.18 In the way children blow up small rubber balloons, you can almost see the layers of molecules yielding as if unfolding like an accordion, opening up angle after angle as the balloon yields to stretch. The child witnesses nature yielding to his own internal pressures as nature thins out the atomic and molecular arrangement with the most exquisite delicacy of uniform thickness throughout the stretching. The atoms and molecules distribute the load superbly and open up the many layers to one single layer with a dimensional accuracy inherent in the unique prime geometrical magnitudes of the nucleus-electron orbit frequencies differentiating one chemical element from the other in absolute spectroscopic detectability throughout the so-far-observed Universe. The dimensional integrities are topological and vectorial relative to all the characteristics with which synergetics is concerned.

1024.19 Even as a child blows his bubble gum, the manufacturer of plastic film first extrudes plastic wire; in its most plastic state, its end is conically pierced centrally while a machine blows air into the pierced core (cone) of the wire, which then yields in its absolute geometrical orderliness of intermolecular and interatomic integrities so that the intruded gas stretches the progressively pulled-around and conically intruded wire into a thin, monometrically single-molecule thickness—or a plurality of molecular thicknesses directly and geometrically proportional to the pressure. As the gas is introduced through the apex of the piercer of the wire (like a micro-cratered cone with a compressed air "volcano" erupting from within it), it stretches the wire into a bubble expanding at 180 degrees from the gas-introducing point; the now transparently thin-skinned bubble is led into and flatteningly gathered between metal rolls, which progressively close to flatten the bubble into a cylinder form until the whole cylinder of thin

film is cut, split, and finally opened up to a single film: the evenness of the bubble stretching has turned the skin of the cylinder into a single sheet. The consistency of the chemical aggregates that nature allows chemists to produce in various chemical situations provides varieties of thicknesses. Mylar polyester, for instance, is inelastic and permits no further yielding; it is not subject to secondary deformation —stretching—such as occurs with rubber. There eventually comes a limit of the orderly rearrangeability of the atomic and molecular structuring beyond which it will no longer flex and at which point it breaks, i.e., disconnects because exceeding its critical-proximity interattraction limits. The relative proximity of the atoms is far more exquisite than that of molecules.

1024.20 Children experience magnets geometrically as metal blocks with thickness, length, and breadth. The magnet blocks can hold together end to end, side to side, or even point to point. You can stand them on their sides as relatively structurally stable, like face- bonding. But they regain flexibility when edge-bonded, or even more so when point- bonded.

1024.21 The bubble gum, the wire film, or the balloon all display invisible pneumatics evenly distributing the tensive energy loads to produce films of uniform thickness. No man could hammer or roll a substance into such exquisite dimensional stability. The popular image has the blacksmith working his will on the semimolten metal, but it is not so. The great armorers and swordmakers found just the opposite; they discovered the way in which nature permits the metals to yield and still retain their integrity. Humans cannot see the rearrangements of mountain-reflecting lake waters in atomical and molecular "Between-the-Halves" marching maneuvers to halve at the state of ice; this was arrived at, however, in ever-orderly intertransforming, geometrical integrity, invisible-to-humans magnitude of perception and analysis.

1024.22 Man talks carelessly and ignorantly of such words as *chaos* ... *turbulence* ... *turmoil* ... and (the popular, modern) *pollution* ... where nothing but absolute order is subvisibly maintained by nature and her transformation arrangements unfamiliar to man. Universe does not have any pollution. All the chemistries of Universe are always essential to the integrity of eternal intertransformation and eternal self-regeneration.

Physicists invent nothing.

Chemists invent nothing.

... They find out what nature does from time to time and learn something of what her laws of rearrangement may be, and fortunate humans employ those rules to cooperate consciously with nature's evolution.

1024.23 All humans, endowed at birth with a billion capabilities beyond the knowledge of the parents, evolve in ways that are an utter mystery to them. The exquisite, myriadly endowed child employs that mysterious endowment and intuitionally apprehends itself as inventor of ways of using the orderly laws of Universe to produce tools, substances, and service integrities, to communicate and allow humans to participate in Universe's ever-transforming evolutionary events in an as yet preposterously meager degree, which has given rise to a nature-permitted variety of little humans on tiny planet Earth each becoming Mr. Big, with a suddenly mistaken sense of power over environmental transformations—participation in which permitted him to feel himself as a manager of inventories of logistical multiplicity which, at the most ignorant level, manifests itself as politically assured mandates and political-world gambling = gamboling = ideological warfare = national sovereignties = morally rationalizing public = body politic = individual nations as United Nations.

1024.24 Stress-producing metaphysical gas stretches and strains nature to yield into social-evolution conformations such as the gas-filled plastic tube of Universe. There is an a priori universal law in the controlled complexity that tolerates man's pressurized nonsense, as nature permits each day's seemingly new Universe of semifamiliarities, semiwonders, and semimystery, what humans might think of as history unfolding on this little planet. There is the Game of Cosmic History, in which Universe goes on approximately unaware of human nonsense while accommodating its omnilocal game- playing. Flies have their game. Mosquitoes have their game. Microbes have their game. Lion cubs have their game. Whatever games they may be playing, positive or negative, realistic or make-believe, all the games are fail-safe, alternate circuits, omniconsequential to eternally regenerative Universe integrity. It's all permitted. It all belongs.

1024.25 Only humans play "Deceive yourself and you can fool the world"; or "I know what it's all about"; or "Life is just chemistry"; and "We humans invented and are running the world." Dogs play "Fetch it" to please their masters, not to deceive themselves. The most affectionate of dogs do not play "Burial of our dead"—"Chemistry is for real." Only humans play the game of game of masks and monuments. Fictional history. Historical architecture. Crabs walk sideways; but only human society keeps its eyes on the past as it backs into its future. Madison Avenue aesthetics and ethics. Comic strips and cartoons ... truth emergent, laughing at self-deception ... momentary, fleeting glimpses of the glory, inadvertently revealed through faithful accuracy of observation— lucid conceptioning—spoken of as the music of the stars, inadequate to the mystery of integrity ...

All the poetry,.
all the chemistry,
all the stars,
... are permitted transformations of all the eternal integrity.

All the constants,
gravitational constant,
radiational constant,
Planck's constant,
... above all, mathematics, geometry, physics, are only manifests of the eternal mysteries, love, harmonic integrity beyond further words.

The isotropic vector matrix yields to palm trees and jellyfish as a complex of mathematical integrities. As one will always be to one other. But no other: no one. Other is four. No four—but whereas one has no relations; two have only one interrelationship; three have three interrelationships; but four have a minimum of six relationships synergetics. No insideness without four. Without four, no womb: no birth: no life ... the dawning awareness of the integrity of Universe. For humanity the only permitted infallibly predictable is the eternal cosmic integrity.

1025.10 **Closest Packing of Bubbles**

1025.11 Isolated bubbles are systematic spheric enclosures. Bubbles are convex and spheric because spheres accommodate the most volume with the least surface, and the pressure differential between inside and outside atmosphere makes them belly out. The enclosing "surfaces" of bubbles are in fact critical-proximity events that produce so-called "surface tension," which is, more accurately, single-molecule-thickness, omnitriangular, mass-interattracted atoms surrounding a gas whose would-be kinetically escaping molecules are larger than the intervals between the spherical membrane's atomic event proximities.

1025.12 Bubbles aggregate in the manner of closest-packed uniradius spheres but behave differently as they aggregate. Only the outer surfaces of the outermost bubbles in the aggregate retain their convex surfaces. Within the aggregate, all the bubbles' pressures become approximately uniform; therefore, relieved of the pneumatic pressure differential between insideness and outsideness, they contract from convex to approximately planar membranes. Here, what would have been spaces between the spheres become planar- bound system enclosures (polyhedra), as do also the corresponding concave octahedra and vector equilibria of hard-shell uniradius spheres in closest packing.

1025.13 Because the bubbles are rarely of unit radius, the closest-packed bubble "polyhedra," corresponding to the closest-packed spheres, disclose only multifrequency- permitted varieties of tensional membrane interfaceting. Yet the fundamental interrelatedness of the seemingly disorderly subdividing of bubble aggregates is elegantly identified with the absolute order of the isotropic vector matrix, in that all the internal polyhedra manifest 14 facets each, though a variety of polygonal shapes and sizes. This ness is also manifest in the closest interpacking of biological cells.

1025.14 The 14 internal facets correspond exactly with the vector equilibrium's 14 faces—eight triangular and six square—which 14-ness, in turn, is directly identifiable with the tetrahedron's sum total of topological aspects: 4 vertexes + 4 faces + 6 edges = 14; as may be experimentally demonstrated with high-frequency tetrahedra, each of whose four vertexes may be truncated, providing four additional triangular facets; and each of whose six edges may be truncated (most crystals have truncated edges), providing six additional rectilinear facets whose terminal ends will now convert the four previous triangular truncated corners into four hexagons. With high-frequency tetrahedra, each of the truncations can be accommodated at different lengths. The truncated tetrahedron's total of facets consisting of eight hexagons and six rectangles may be of a great variety of edge lengths, which variety tends to mislead the observer into thinking of the aggregate

as being disorderly.

1030.00 **Omniequilibrium**

1030.10 **Omniequilibrium of Vector Equilibrium:** I seek a word to express most succinctly the complexedly pulsative, inside-outing, integrative-disintegrative, countervailing behaviors of the vector equilibrium. "Librium" represents the degrees of freedom. Universe is *omnilibrious* because it accommodates all the every-time-recurrent, alternatively-optional degrees of equieconomical freedoms. Omniequilibrious means all the foregoing.

1030.11 The sphere is a convex vector equilibrium, and the spaces between closest- packed uniradius spheres are the concave vector equilibria or, in their contractive form, the concave octahedra. In going contractively from vector equilibrium to equi-vector- edged tetrahedron (see Sec. 460), we go from a volumetric 20-ness to a volumetric oneness, a twentyfold contraction. In the vector-equilibrium jitterbug, the axis does not rotate, but the equator does. On the other hand, if you hold the equator and rotate the axis, the system contracts. Twisting one end of the axis to rotate it terminates the jitterbug's 20-volume to 4-volume octahedral state contraction, whereafter the contraction momentum throws a torque in the system with a leverage force of 20 to 1. It contracts until it becomes a volume of one as a quadrivalent tetrahedron, that is, with the four edges of the tetrahedron congruent. Precessionally aided by other galaxies' mass-attractive tensional forces acting upon them to accelerate their axial, twist-and-torque-imposed contractions, this torque momentum may account for the way stars contract into dwarfs and pulsars, or for the way that galaxies pulsate or contract into the incredibly vast and dense, paradoxically named "black holes."

1030.20 **Gravitational Zone System:** There is no pointal center of gravity. There is a gravitational-zone-system, a zone of concentration with minimum-maximum zone system limits. Vertex is in convergence, and face is in divergence. Synergetics geometry precession explains radial-circumferential accelerational transformations.

1031.10 **Dynamic Symmetry**

1031.11 When we make the geodesic subdivisions of symmetrically omnitriangulated systems, the three corner angles increase to add up to more than 180 degrees because they are on a sphere. If we deproject them back to the icosahedron, they become symmetrical again, adding to exactly 180 degrees. They are asymmetrical only because they are projected out onto the sphere. We know that each corner of a two-frequency spherical icosahedron has an isosceles triangle with an equilateral triangle in the center. In a four- frequency spherical icosahedron there are also six scalenes: three positive and three negative sets of scalenes, so they balance each other. That is, they are *dynamically symmetrical.* By themselves, the scalenes are asymmetrical. This is synergy. This is the very essence of our Universe. Everything that you and I can observe or sense is an asymmetrical aspect of only sum-totally and nonunitarily-conceptual, omnisymmetrical Universe.

1031.12 Geodesic sphere triangulation is the high-frequency subdivision of the surface of a sphere beyond the icosahedron. You cannot have omnisymmetrical, equiangle and equiedged, triangular, system subdivisioning in greater degree than that of the icosahedron's 20 similar triangles.

1031.13 As we have learned, there are only three prime structural systems of Universe: tetrahedron, octahedron, and icosahedron. When these are projected on to a sphere, they produce the spherical tetrahedron, the spherical octahedron, and the spherical icosahedron, all of whose corner angles are much larger than their chordal, flat-faceted, polyhedral counterpart corners. In all cases, the corners are isosceles triangles, and, in the even frequencies, the central triangles are equilateral, and are surrounded by further symmetrically balanced sets of positive and negative scalenes. The higher the frequency, the more the scalenes. But since the positive and negative scalenes always appear in equal abundance, they always cancel one another out as dynamically complementarily equilateral. This is all due to the fact that they are projections outwardly onto a sphere of the original tetrahedron, octahedron, or icosahedron, which as planar surfaces could be subdivided into high-frequency triangles without losing any of their fundamental similarity and symmetry.

1031.14 In other words, the planar symmetrical is projected outwardly on the sphere. The sphere is simply a palpitation of what was the symmetrical vector equilibrium, an oscillatory pulsation, inwardly and outwardly—an extension onto an asymmetrical surface of what is inherently symmetrical, with the symmetricals going into higher frequency. (See Illus. 1032.12, 1032.30, and 1032.31.)

1031.15 What we are talking about as apparent asymmetry is typical of all life. Nature refuses to stop at the vector-equilibrium phase and always is caught in one of its asymmetric aspects: the positive and negative, inward and outward, or circumferentially askew alterations.

1031.16 Asymmetry is a consequence of the phenomenon time and time a consequence of the phenomenon we call afterimage, or "double-take," or reconsideration, with inherent lags of recallability rates in respect to various types of special-case experiences. Infrequently used names take longer to recall than do familiar actions. So the very consequence of only "dawning" and evolving (never instantaneous) awareness is to impose the phenomenon time upon an otherwise timeless, ergo eternal Universe. Awareness itself is in all these asymmetries, and the pulsations are all the consequences of just thought itself: the ability of Universe to consider itself, and to reconsider itself. (See Sec. 529.09.)

1032.00 **Convex and Concave Sphere-Packing Intertransformings**

1032.10 **Convex and Concave Sphere-Packing Intertransformings as the Energy Patterning Between Spheres and Spaces of Omni-Closest-Packed Spheres and Their Isotropic-Vector-Matrix Field:** When closest-packed uniradius spheres are interspersed with spaces, there are only two kinds of spaces interspersing the closest-packed spheres: the concave octahedron and the concave vector equilibrium. The spheres themselves are convex vector equilibria complementing the concave octahedra and the concave vector equilibria. (See Secs. 970.10 and 970.20.)

1032.11 The spheres and spaces are rationally one-quantum-jump, volumetrically coordinate, as shown by the rhombic dodecahedron's sphere-and-space, and share *sixness* of volume in respect to the same nuclear sphere's own exact *fiveness* of volume (see Secs. 985.07 and 985.08), the morphological dissimilarity of which render them one-quantumly disequilibrious, i.e., asymmetrical phases of the vector equilibrium's complex of both alternate and coincident transformabilities. They are involutionally-evolutionally, inward-outward, twist-around, fold-up and unfold, multifrequencied pulsations of the vector equilibria. By virtue of these transformations and their accommodating volumetric involvement, the spheres and spaces are interchangeably intertransformative. For instance, each one can be either a convex or a concave asymmetry of the vector equilibrium, as the "jitterbug" has demonstrated (Sec. 460). The vector equilibrium contracts from its maximum isotropic-vector-matrix radius in order to become a sphere. That is how it can be accommodated within

the total isotropic-vector-matrix field of reference.

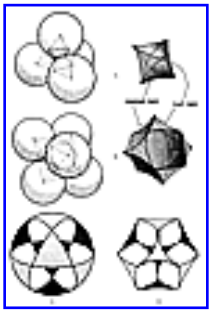

Fig. 1032.12

1032.12 As the vector equilibrium's radii contract linearly, in the exact manner of a coil spring contracting, the 24 edges of one-half of all the vector equilibria bend outwardly, becoming arcs of spheres. At the same time, the chords of the other half of all the vector equilibria curve inwardly to produce either concave-faced vector-equilibria spaces between the spheres or to form concave octahedra spaces between the spheres, as in the isotropic-vector-matrix field model (see Illus. 1032.12). Both the spheric aspect of the vector equilibrium and the "space" aspect are consequences of the coil-spring-like contraction and consequent chordal "outward" and "inward" arcing complementation of alternately, omnidirectionally adjacent vector equilibria of the isotropic-vector-matrix field.

1032.13 In a tetrahedron composed of four spheres, the central void is an octahedron with four concave spherical triangular faces and four planar triangular faces with concave edges. This can be described as a concave octahedron. In an octahedron composed of six closest-packed spheres, the central void is a vector equilibrium with six concave spherical square faces and eight triangular faces with concave edges: a concave vector equilibrium. The vector equilibrium, with edges arced to form a sphere, may be considered as a convex vector equilibrium. Illus. 1032.12D shows the vector equilibrium with arcs on the triangular faces defined by spheres tangent at vertexes: a concave vector equilibrium.

1032.20 **Energy Wave Propagation:** The shift between spheres and spaces is accomplished precessionally. You introduce just one energy action—push or pull—into the field, and its inertia provides the reaction to your push or pull; the resultant propagates the everywhere locally sphere-to-space, space-to-sphere omni-intertransformations whose comprehensive synergetic effect in turn propagates an omnidirectional wave. Dropping a stone in the water discloses a planar pattern of precessional wave regeneration. The local unit-energy force articulates an omnidirectional, spherically expanding, four-dimensional counterpart of the planar water waves' circular expansion. The successive waves' curves are seen generating and regenerating and are neither simultaneous nor instantaneous.

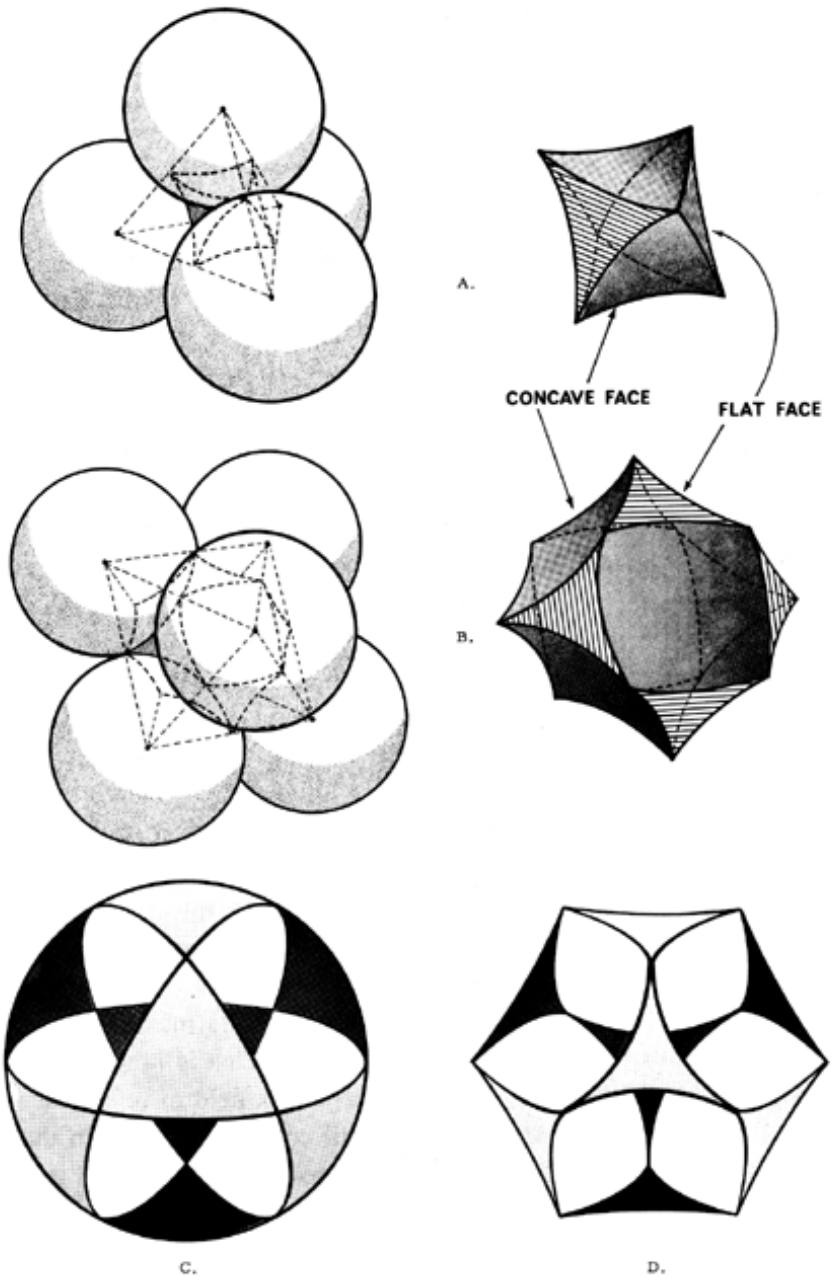

Fig. 1032.12 Convex and Concave Sphere Packing Voids:

A. In a tetrahedron composed of four spheres, the central void is an octahedron with four concave spherical triangular faces and four planar triangular faces with concave sides. This can be described as a "concave octahedron."
B. In an octahedron composed of six close-packed spheres, the central void is a vector equilibrium with six concave spherical square faces and eight triangular faces with concave sides: a "concave vector equilibrium."
C. The vector equilibrium with edges arced to form a sphere: a convex vector equilibrium.
D. The vector equilibrium with arcs on the triangular faces defined by spheres tangent at vertexes: a concave vector equilibrium.

1032.21 The only instantaneity is eternity. All temporal (temporary) equilibrium life- time-space phenomena are sequential, complementary, and orderly disequilibrious intertransformations of space-nothingness to time-somethingness, and vice versa. Both space realizations and time realizations are always of orderly asymmetric degrees of discrete magnitudes. The hexagon is an instantaneous, eternal, simultaneous, planar section of equilibrium, wherein all the chords are vectors exactly equal to all the vector radii: six explosively disintegrative, compressively coiled, wavilinear vectors exactly and finitely contained by six chordal, tensively-coil-extended, wavilinear vectors of equal magnitude.

1032.22 Physics thought it had found only two kinds of acceleration: linear and angular. Accelerations are all angular, however, as we have already discovered (Sec. 1009.50). But physics has not been able to coordinate its mathematical models with the omnidirectional complexity of the angular acceleration, so it has used only the linear, three-dimensional, XYZ, tic-tac-toe grid in measuring and analyzing its experiments. Trying to analyze the angular accelerations exclusively with straight lines, 90-degree central angles, and no chords involves pi (π) and other irrational constants to correct its computations, deprived as they are of conceptual models.

1032.23 Critical-proximity crimping-in of local wave coil-spring contractions of the Little System by the Big System reveals the local radius as always a wavilinear short section of a greater system arc in pure, eternal, generalized principle.

Next Section: 1032.30
