1005.20 **Biospherical Patterns:** Here we see the interplay of all the biological systems wherein all the "life"-accommodating organisms of Earth's biosphere are exclusively regenerated by energy sent to Earth by radio from the energy-broadcasting stars, but most importantly from the star Sun, by which design-science system the terrestrial vegetation and algae are the only energy radio-receiving sets.

1005.21 You and I and all the other mammals cannot by sunbathing convert Sun's energy to direct life support. In the initial energy impoundment of the powerful Sun- energy radiation's exposure of its leaves and photosynthesis, the vegetation would be swiftly dehydrated were it not watercooled. This is accomplished by the vegetation putting its roots into the ground and drawing the water by osmosis from the ground and throughout its whole system, finally to atomize it and send it into the atmosphere again to rain down upon the land and become available once more at the roots.

1005.22 Because the rooted vegetation cannot get from one place to another to procreate, all the insects, birds, and other creatures are given drives to cross-circulate amongst the vegetation; for instance, as the bee goes after honey, it inadvertently cross- pollinates and interfertilizes the vegetation. And all the mammals take on all the gases given off by the vegetation and convert them back to the gases essential for the vegetation. All this complex recirculatory system combined with, and utterly dependent upon, all the waters, rocks, soils, air, winds, Sun's radiation, and Earth's gravitational pull are what we have come to call *ecology*.

1005.23 As specialists, we have thought of all these design programmings only separately as "species" and as independent linear drives, some pleasing and to be cultivated, and some displeasing and to be disposed of by humans. But the results are multiorbitally regenerative and embrace the whole planet, as the wind blows the seeds and insects completely around Earth.

1005.24 Seen in their sky-returning functioning as recirculators of water, the ecological patterning of the trees is very much like a slow-motion tornado: an evoluting- involuting pattern fountaining into the sky, while the roots reverse-fountain reaching outwardly, downwardly, and inwardly into the Earth again once more to recirculate and once more again—like the pattern of atomic bombs or electromagnetic lines of force. The magnetic fields relate to this polarization as visually witnessed in the Aurora Borealis. (Illus. 505.41)

1005.30 **Poisson Effect:** Pulling on a rope makes it precess by taut contracting at 90 degrees to the line of pulling, thus going into transverse compression. That's all the Poisson Effect is—a 90-degree resultant rather than a 180-degree resultant; and it's all precession, whether operative hydraulically, pneumatically, crystallographically, or electromagnetically.

1005.31 The intereffect of Sun and planets is precessional. The intereffect of the atom and the electrons is precessional. They can both be complex and elliptical because of the variability in the masses of the satellites or within the nuclear mass. Planar ellipses have two foci, but "to comprehend what goes on in general" we have to amplify the twofold planar elliptical restraints' behavior of precession into the more generalized four- dimensional functions of radiation and gravitation.

1005.32 All observability is inherently nuclear because the observer is a nucleus. From nucleus to circle to sphere, they all have radii and become omniintertriangulated polyhedrally arrayed, interprecessing event "stars."

1005.40 **Genetic Intercomplexity:** DNA-RNA genetics programming is precessionally helical with only a net axial linear resultant. The atoms and molecules are all always polarized, and their total interprecessional effects often produce overall linear resultants such as the stem of a plant. All the genetic drives of all the creatures on our Earth all interact through chemistry, which, as with DNA-RNA, is linearly programmable as a code, all of which is characterized by sequence and intervals that altogether are realized at various morphologically symmetrical and closely intercomplementary levels of close proximity intercomplexity. On the scale of complexity of ecology, for instance, we observe spherically orbiting relay systems of local discontinuities as one takes the pattern of regenerativity from the other to produce an omniembracing, symmetrically interfunctioning, synergetic order. The basic nuclear symmetries and intertransformabilities of synergetics omniaccommodates the omnidirectional, omnifrequencied, precessional integrity.

1005.50 **Truth and Love: Linear and Embracing:** Metaphysically speaking, systems are conceptually independent of size. Their special-case realizations are expressible mathematically in linear equations, although they are only realizable physically as functions of comprehensive-integrity, interprecessionally complex systems. And the tetrahedron remains as the minimum spheric-experience system.

1005.51 The very word *comprehending* is omni-interprecessionally synergetic.

1005.52 The eternal is omniembracing and permeative; and the temporal is linear. This opens up a very high order of generalizations of generalizations. The truth *could not be more omni-important,* although it is often manifestly operative only as a linear identification of a special-case experience on a specialized subject. Verities are semi- special-case. The metaphor is linear. (See Secs. 217.03 and 529.07.)

1005.53 And all the categories of creatures act individually as special-case and may be linearly analyzed; retrospectively, it is discoverable that inadvertently they are all interaffecting one another synergetically as a spherical, interprecessionally regenerative, tensegrity spherical integrity. Geodesic spheres demonstrate the compressionally discontinuous—tensionally continuous integrity. Ecology is tensegrity geodesic spherical programming.

1005.54 Truth is cosmically total: synergetic. Verities are generalized principles stated in semimetaphorical terms. Verities are differentiable. But love is omniembracing, omnicoherent, and omni-inclusive, *with no exceptions.* Love, like synergetics, is nondifferentiable, i.e., is integral. Differential means locally-discontinuously linear. Integration means omnispherical. And the intereffects are precessional.

1005.55 The dictionary-label, special cases seem to go racing by because we are now having in a brief lifetime experiences that took aeons to be differentially recognized in the past.

1005.56 The highest of generalizations is the synergetic integration of truth and love.

1005.60 **Generalization and Polarization:** In cosmic structuring, the general case is tensegrity: three-way great-circling of islands of compression. Polarized precession is special-case. Omnidirectional precession is generalized.

1005.61 It is notable that the hard sciences and mathematics have discovered ever- experimentally-reverifiable generalizations. But the social scientists and the behaviorists have not yet discovered any anywhere-and-everywhere, experimentally-reverifiable generalizations. Only economics can be regarded as other than special-case: that of the utterly uninhibited viewpoint of the individual. Nature's own simplest instructional trick in its economic programming is to give us something we call "hunger" so that we will eat, take in regenerative energy. Arbitrarily contrived "scarcity" is the only kind of behavioral valving that the economists understand. There is no other way the economists know how to cope. Selfishness is a drive so that we'll be sure to regenerate. It has nothing to do with morals. These are organic chemical compounds at work. Stones do not have hunger.

1005.611 **Metabolic Generalizations:** Within economics we may be able to demonstrate the existence of a metabolic process generalization which is akin to, if not indeed implicitly inherent in, a composite of Boltzman's, Einstein's, and others' concept of a cosmically regenerative omniintercomplementation of a diversity of energetic export- import centers whose local cosmic episodes nonsimultaneously ebb and flow to accommodate the entropically and syntropically, omnidiversally, omniregenerative intertransformings of the nonsimultaneous intercomplementations of nonunitarily conceptual but finite Scenario Universe. How can economics demonstrate a generalization from the utterly uninhibited viewpoint of the individual human? It is said that stones do not have hunger. But stones are hygroscopic and do successively import and export both water and energy as heat or radiation. New stones progressively aggregate and disintegrate. We may say stones have both syntropically importing "appetites" and self- scavenging or self-purging entropic export proclivities.

1005.612 When a person dies, all the chemistry remains, and we see that the human organism's same aggregate quantity of the same chemistries persists from the "live" to the "dead" state. This aggregate of chemistries has no metaphysical interpreter to communicate to self or to others the aggregate of chemical rates of interacting associative or disassociative proclivities, the integrated effects of which humans speak of as "hunger" or as the need to "go to the toilet." Though the associative intake "hunger" is unspoken metaphysically after death, the disassociative discard proclivities speak for themselves as these chemical-proclivity discard behaviors continue and reach self-balancing rates of progressive disassociation. What happens physically at death is that the importing ceases while exporting persists, which produces a locally unbalanced—thereafter exclusively exporting—system. (See Sec. 1052.59.)

1005.613 It follows that between conception and birth—physically speaking—"life" is a progression of predominantly importive energy-importing-and-exporting transactions, gradually switching to an exportive predominance—ergo, life is a synthesis of the absolutely exportive entropy of radiation and the absolutely importive syntropy of gravity.

1005.614 The political, religious, and judicial controversies prevailing in the late 1970s with regard to abortion and "the right to life" will all ultimately be resolved by the multiplying elucidation for popular comprehension of science's discovery at the virological level that the physical and chemical organism of humans consists entirely of inanimate atoms. From this virological discovery it follows that the *individual life* does not exist until the umbilical cord is cut and the child starts its own metabolic regeneration; prior to that the life in the womb is merely composed of the mother organism, as is the case with any one individual egg in her ovary. Life begins with individually self-startered and sustained energy importing and dies when that independent importing ceases.

1005.62 Because man is so tiny and Earth is so great, we only can see gravity operating in the perpendicular. We think of ourselves as individuals with gravity pulling us Earthward individually in perpendiculars parallel to one another. But we know that in actuality, radii converge. We do not realize that you and I are convergently interattracted because gravity is so big. The interattraction is there, but it seems so minor we dismiss it as something we call "aesthetics" or a "love affair." Gravity seems so vertical.

1005.63 Initial comprehension is holistic. The second stage is detailing differentiation. In the next stage the edges of the tetrahedron converge like petals through the vector- equilibrium stage. The transition stage of the icosahedron alone permits individuality in progression to the omni-intertriangulated spherical phase.

1006.10 **Omnitopology Defined**

1006.11 Omnitopology is accessory to the conceptual aspects of Euler's superficial topology in that it extends its concerns to the angular relationships as well as to the topological domains of nonnuclear, closest-packed spherical arrays and to the domains of the nonnuclear-containing polyhedra thus formed. Omnitopology is concerned, for instance, with the individually unself-identifying concave octahedra and concave vector- equilibria volumetric space domains betweeningly defined within the closest-packed sphere complexes, as well as with the individually self-identifying convex octahedra and convex vector equilibria, which latter are spontaneously singled out by the observer's optical comprehensibility as the finite integrities and entities of the locally and individual-spherically closed systems that divide all Universe into all the macrocosmic outsideness and all the microcosmic insideness of the observably closed, finite, local systems—in contradistinction to the indefinability of the omnidirectional space nothingness frequently confronting the observer.

1006.12 The closest-packed symmetry of uniradius spheres is the mathematical limit case that inadvertently "captures" all the previously unidentifiable otherness of Universe whose inscrutability we call "space." The closest-packed symmetry of uniradius spheres permits the symmetrically discrete differentiation into the individually isolated domains as sensorially comprehensible concave octahedra and concave vector equilibria, which exactly and complementingly intersperse eternally the convex "individualizable phase" of comprehensibility as closest-packed spheres and their exact, individually proportioned, *concave-in-betweenness* domains as both closest packed around a nuclear uniradius sphere or as closest packed around a nucleus-free prime volume domain. (See illustrations 1032.30 and 1032.31.)

1006.13 Systems are individually conceptual polyhedral integrities. Human awareness's concession of "space" acknowledges a nonconceptually defined experience. The omniorderly integrity of omnidirectionally and infinitely extensible, fundamentally coordinating, closest packing of uniradius spheres and their ever coordinately uniform radial expandibility accommodates seemingly remote spherical nucleations that expand radially into omniintertangency. Omni-intertangency evidences closest sphere packing and its inherent isotropic vector matrix, which clearly and finitely defines the omnirational volumetric ratios of the only concave octahedra and concave vector equilibria discretely domaining all the in-betweenness of closest-packed-sphere interspace. The closest-packed- sphere interspace had been inscrutable a priori to the limit phase of omni-intertangencies; this limit phase is, was, and always will be omnipotential of experimental verification of the orderly integrity of omni-intercomplementarity of the space-time, special-case, local conceptualizing and the momentarily unconsidered, seeming nothingness of all otherness.

1006.14 Human awareness is conceptually initiated by special-case otherness observability. Humans conceptualize, i.e., image-ize or image-in, i.e., bring-in, i.e., capture conceptually, i.e., in-dividualize, i.e., systemize by differentiating local integrities from *out* of the total, nonunitarily conceptualizable integrity of generalized Universe.

1006.20 **Omnitopological Domains:** In omnitopology, spheres represent the omnidirectional domains of points, whereas Eulerian topology differentiates and is concerned exclusively with the numerical equatability of only optically apprehended inventories of superficial vertexes, faces, and lines of whole polyhedra or of their local superficial subfacetings: (V + F = L + 2) when comprehensive; (V + F = L + 1) when local.

1006.21 In omnitopology, the domains of volumes are the volumes topologically described. In omnitopology, the domain of an external face is the volume defined by that external face and the center of volume of the system.

1006.22 All surface areas may be subdivided into triangles. All domains of external facets of omnitopological systems may be reduced to tetrahedra. The respective domains of each of the external triangles of a system are those tetrahedra formed by the most economical lines interconnecting their external apexes with the center of volume of the system.

1006.23 In omnitopology, each of the lines and vertexes of polyhedrally defined conceptual systems have their respective unique areal domains and volumetric domains. (See Sec. 536.)

1006.24 The respective volumetric domains of a system's vertexes are embracingly defined by the facets of the unique polyhedra totally subdividing the system as formed by the set of planes interconnecting the center of volume of the system and each of the centers, respectively, of all those surface areas of the system immediately surrounding the vertex considered.

1006.25 The exclusively surface domains of a system's vertexes are uniquely defined by the closed perimeter of surface lines occurring as the intersection of the internal planes of the system which define the volumetric domains of the system's respective vertexes with the system's surface.

1006.26 The respective areal domains of external polyhedral lines are defined as all the area on either surface side of the lines lying within perimeters formed by most economically interconnecting the centers of area of the polyhedron's facets and the ends of all the lines dividing those facets from one another. Surface domains of external lines of polyhedra are inherently four-sided.

1006.27 The respective volumetric domains of all the lines—internal or external of all polyhedra are defined by the most economical interconnectings of all adjacent centers of volume and centers of area with both ends of all their respectively adjacent lines.

1006.30 **Vector Equilibrium Involvement Domain**

1006.31 The unfrequenced vector equilibrium has 12 external vertexes and one internal vertex of the nuclear sphere embraced by the 12 uniradius closest-packed spheres around it; the omniinterconnecting vectors between the 12-around-one spheric centers define the vector equilibrium *involvement domain.*

Fig. 1006.32

1006.32 We learn from the complex jitterbugging of the VE and octahedra that as each sphere of closest-packed spheres becomes a space and each space becomes a sphere, each intertransformative component requires a tetravolume-12 "cubical" space, while both require 24 tetravolumes. The total internal-external closest-packed-spheres-and-their- interstitial-spaces involvement domains of the unfrequenced 20-tetravolume VE is tetravolume-24. This equals either eight of the nuclear cube's (unstable) tetravolume-3 or two of the rhombic dodecahedron's (stable) tetravolume-6. The two tetravolume-12 cubes or four tetravolume-6 dodecahedra are intertransformable aspects of the nuclear VE's local-involvement domain. (See Fig. 1006.32.)

1006.33 The vector equilibrium at initial frequency, which is frequency^2, manifests the fifth-powering of nature's energy behaviors. Frequency begins at two. The vector equilibrium of frequency^2 has a prefrequency inherent tetravolume of 160 ($5 \times 2^5 = 160$) and a quanta-module volume of $120 \times 24 = 1 \times 3 \times 5 \times 2^8$ nuclear-centered system as the integrated product of the first four prime numbers: 1, 2, 3, 5. Whereas a cube at the same frequency accommodates only eight cubes around a nonnucleated center. (Compare Sec. 1033.632)

1006.34 For the first moment in history synergetics is providing operational comprehensibility of the fourth-and-fifth-dimensional-coordinated, most economical behaviors of physical Universe as well as of their intellectual, metaphysical conceptuality. We have arrived at a new phase of comprehension in discovering that all of the physical cases experimentally demonstrable are only special cases of the generalized principles of the subfrequency, subtime, and subsize patterning integrity of the nucleus-containing, closest-packed isotropic vector matrix system.

1006.35 With reference to our operational definition of a sphere (Sec. 224.07), we find that in an aggregation of closest-packed uniradius spheres:

Tetravolume 1 = minimum F^0 F^0 tetrasphere

Tetravolume 5 = maximum F^h F^h sphere (h = high frequency geodesic icosasphere, Sec. 985.01)

Tetravolume 6 = maximum F^h F^h sphere (high-frequency icosa plus the intersphere volumetric involvement domain of each closest-packed uniradius sphere = rhombic dodecahedron)

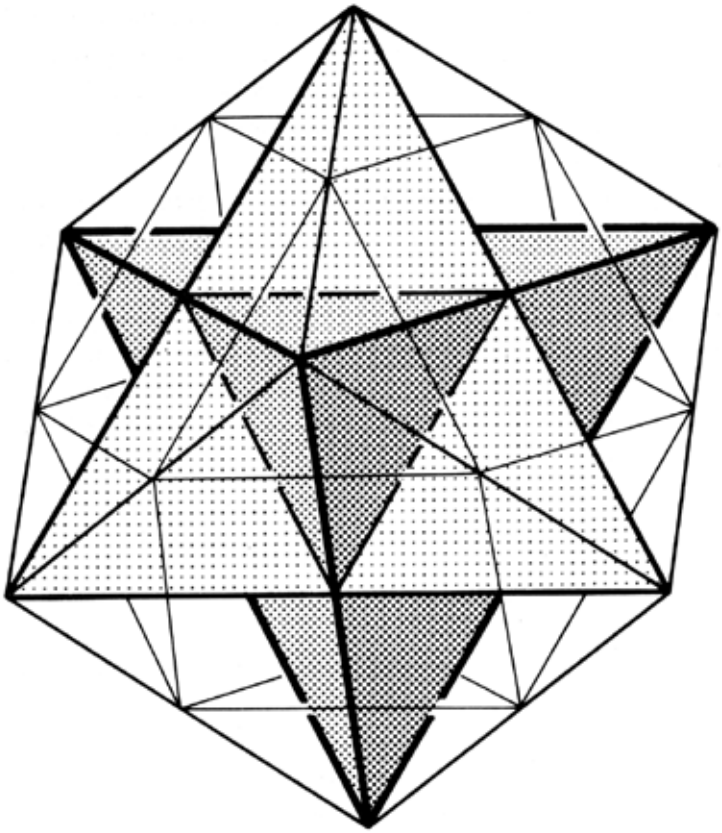

Fig. 1006.32 Duo-Tet Star Polyhedron Defines Vector Equilibrium Involvement Domain: The Duo-Tet star polyhedron that first appears in Fig. 987.242A is shown here within a vector equilibrium net. The complex also illustrates the eight Eighth-Octa that must be added to the eight triangular faces of the vector equilibrium to form the nucleated cube—the total complex of which functions as the vector equilibrium nuclear involvement domain. A closest-sphere-packing evolution of this same transformation (adding eight Eighth-Octa to the VE's six triangular faces) appears at Fig. 415.17.

1006.36 In respect to each uniradius, omni-closest-packed spherical domain of 6:

Maximum icosa sphere F^h	=	5 plus tetra quanta inside 1 minus tetra quantum outside	integrating as +4
Tetra Sphere F^0	=	1 plus tetra quanta inside 5 minus tetra quantum outside	integrating as -4

1006.37 For other manifestations of the vector equilibrium involvement domain, review Sections 415.17 (Nucleated Cube) and 1033 (Intertransformability Models and Limits), *passim.*

1006.40 **Cosmic System Eight-dimensionality**

1006.41 We have a cosmically closed system of eight-dimensionality: four dimensions of convergent, syntropic conservation → + 4, and four dimensions of divergent, entropic radiation → - 4 intertransformabilities, with the non-inside-outable, symmetric octahedron of tetravolume 4 and the polarized semiasymmetric Coupler of tetravolume 4 always conserved between the interpulsative 1 and the rhombic dodecahedron's maximum- involvement 6, (i.e., 1 + 4 + 1); ergo, the always double-valued—2^2 —symmetrically perfect octahedron of tetravolume 4 and the polarized asymmetric Coupler of tetravolume 4 reside between the convergently and divergently pulsative extremes of both maximally aberrated and symmetrically perfect (equilibrious) phases of the generalized cosmic system's always partially-tuned-in-and-tuned-out eight-dimensionality.

1007.10 **Omnitopology Compared with Euler's Topology**

1007.11 While Euler discovered and developed topology and went on to develop the structural analysis now employed by engineers, he did not integrate in full potential his structural concepts with his topological concepts. This is not surprising as his contributions were as multitudinous as they were magnificent, and each human's work must terminate. As we find more of Euler's fields staked out but as yet unworked, we are ever increasingly inspired by his genius.

1007.12 In the topological past, we have been considering domains only as surface areas and not as uniquely contained volumes. Speaking in strict concern for always omnidirectionally conformed experience, however, we come upon the primacy of topological domains of systems. Apparently, this significance was not considered by Euler. Euler treated with the surface aspects of forms rather than with their structural integrities, which would have required his triangular subdividing of all polygonal facets other than triangles in order to qualify the polyhedra for generalized consideration as structurally eternal. Euler would have eventually discovered this had he brought to bear upon topology the same structural prescience with which he apprehended and isolated the generalized principles governing structural analysis of all symmetric and asymmetric structural components.

1007.13 Euler did not treat with the inherent and noninherent nuclear system concept, nor did he treat with total-system angle inventory equating, either on the surfaces or internally, which latter have provided powerful insights for further scientific exploration by synergetical analysis. These are some of the differences between synergetics and Euler's generalizations.

1007.14 Euler did formulate the precepts of structural analysis for engineering and the concept of neutral axes and their relation to axial rotation. He failed, however, to identify the structural axes of his engineering formulations with the "excess twoness" of his generalized identification of the inventory of visual aspects of all experience as the polyhedral vertex, face, and line equating: $V + F = L + 2$. Synergetics identifies the twoness of the poles of the axis of rotation of all systems and differentiates between polar and nonpolar vertexes. Euler's work, however, provided many of the clues to synergetics' exploration and discovery.

1007.15 In contradistinction to, and in complementation of, Eulerian topology, omnitopology deals with the generalized equatabilities of a priori generalized omnidirectional domains of vectorially articulated linear interrelationships, their vertexial interference loci, and consequent uniquely differentiated areal and volumetric domains, angles, frequencies, symmetries, asymmetries, polarizations, structural-pattern integrities, associative interbondabilities, intertransformabilities, and transformative-system limits, simplexes, complexes, nucleations, exportabilities, and omni-interaccommodations. (See Sec. 905.16.)

1007.16 While the counting logic of topology has provided mathematicians with great historical expansion, it has altogether failed to elucidate the findings of physics in a conceptual manner. Many mathematicians were content to let topology descend to the level of a fascinating game—dealing with such Moebius-strip nonsense as pretending that strips of paper have no edges. The constancy of topological interrelationships—the formula of relative interabundance of vertexes, edges, and faces—was reliable and had a great potential for a conceptual mathematical strategy, but it was not identified operationally with the intertransformabilities and gaseous, liquid, and solid interbondings of chemistry and physics as described in Gibbs' phase rule. Now, with the advent of vectorial geometry, the congruence of synergetic accounting and vectorial accounting may be brought into elegant agreement.

1007.20 **Invalidity of Plane Geometry**

1007.21 We are dealing with the Universe and the difference between conceptual thought (see Sec. 501.101) and nonunitarily conceptual Universe (see *Scenario Universe,* Sec. 320). We cannot make a model of the latter, but we can show it as a scenario of meaningfully overlapping conceptual frames.

1007.22 About 150 years ago Leonhard Euler opened up the great new field of mathematics that is topology. He discovered that all visual experiences could be treated as conceptual. (But he did not explain it in these words.) In topology, Euler says in effect, all visual experiences can be resolved into three unique and irreducible aspects:

— vertexes, faces, and edges (Secs. 223.04 and 1006.20) or, as unique dimensional abundances:

— points, areas, and lines (Sec. 527.11) or, as structural identifications:

— joints, windows, and struts (Sec. 986.053) or, as we say in synergetics topology:

— crossings, openings, and trajectories (Sec. 524.30) or the more generalized: events, nonevents, and traceries or more refined as:

— fixes, discontinuities, and continuities or in most refined synergetics: events, novents, and even interrelatabilities (Sec. 269.05).

1007.23 In topology, then, we have a unique aspect that we call a line, not a straight line but an event tracery. When two traceries cross one another, we get a fix, which is not to be confused in any way with a noncrossing. Fixes give geographical locations in respect to the system upon which the topological aspects appear. When we have a tracery or a plurality of traceries crossing back upon one another to close a circuit, we surroundingly frame a limited view of the omnidirectional novents. Traceries coming back upon themselves produce windowed views or areas of novents. The areas, the traces, and the fixes of crossings are never to be confused with one another: all visual experiences are resolved into these three conceptual aspects.

1007.24 Look at any picture, point your finger at any part of the picture, and ask yourself: Which aspect is that, and that, and that? That's an area; or it's a line; or it's a crossing (a fix, a point). Crossings are loci. You may say, "That is too big to be a point"; if so, you make it into an area by truncating the corner that the point had represented. You will now have two more vertexes but one more area and three more lines than before. Euler's equation will remain unviolated.

1007.25 A circle is a loop in the same line with no crossing and no additional vertexes, areas, or lines.

1007.26 Operationally speaking, a plane exists only as a facet of a polyhedral system. Because I am experiential I must say that a line is a consequence of energy: an event, a tracery upon what system? A polyhedron is an event system separated out of Universe. Systems have an inside and an outside. A picture in a frame has also the sides and the back of the frame, which is in the form of an asymmetrical polyhedron.

1007.27 In polyhedra the number of V's (crossings) plus the number of F's, areas (novents-faces) is always equal to the number of L's lines (continuities) plus the number 2. If you put a hole through the system—as one cores an apple making a doughnut-shaped polyhedron—you find that V + F = L. Euler apparently did not realize that in putting the hole through it, he had removed the axis and its two poles. Having removed two axial terminal (or polar) points from the inventory of "fixes" (loci-vertexes) of the system, the V + F = L + 2 equation now reads V + F = L, because two V's have been deducted from the inventory on the left side of the equation.

1007.28 Another very powerful mathematician was Brouwer. His theorem demonstrates that if a number of points on a plane are stirred around, it will be found after all the stirring that one of the points did not move relative to all the others. One point is always the center of the total movement of all the points. But the mathematicians oversimplified the planar concept. In synergetics the plane has to be the surface of a system that not only has insideness and outsideness but also has an obverse and re- exterior. Therefore, in view of Brouwer, there must also always be another point on the opposite side of the system stirring that also does not move. Every fluidly bestirred system has two opposed polar points that do not move. These two polar points identify the system's neutral axis. (See Sec. 703.12.)

1007.29 Every system has a neutral axis with two polar points (vertexes-fixes). In synergetics topology these two polar points of every system become constants of topological inventorying. Every system has two polar vertexes that function as the spin axis of the system. In synergetics the two polar vertexes terminating the axis identify conceptually the abstract—supposedly nonconceptual—function of nuclear physics' "spin" in quantum theory. The neutral axis of the equatorially rotating jitterbug VE proves Brouwer's theorem polyhedrally.

Fig. 1007.30

1007.30 When you look at a tetrahedron from above, one of its vertexes looks like this: (See Fig. 1007.30)

You see only three triangles, but there is a fourth underneath that is implicit as the base of the tetrahedron, with the Central vertex D being the apex of the tetrahedron. The crossing point (vertex-fix) in the middle only superficially appears to be in the same plane as ABC. The outer edges of the three triangles you see, ACD, CDB, ADB, are congruent with the hidden base triangle, ABC. Euler assumed the three triangles ACD, CDB, ADB to be absolutely congruent with triangle ABC. Looking at it from the bird's-eye view, unoperationally, Euler misassumed that there could be a nonexperienceable, no-thickness plane, though no such phenomenon can be experientially demonstrated. Putting three points on a piece of paper, interconnecting them, and saying that this "proves" that a no-thickness, nonexperiential planar triangle exists is operationally false. The paper has thickness; the points have thickness; the lines are atoms of lead strewn in linear piles upon the paper.

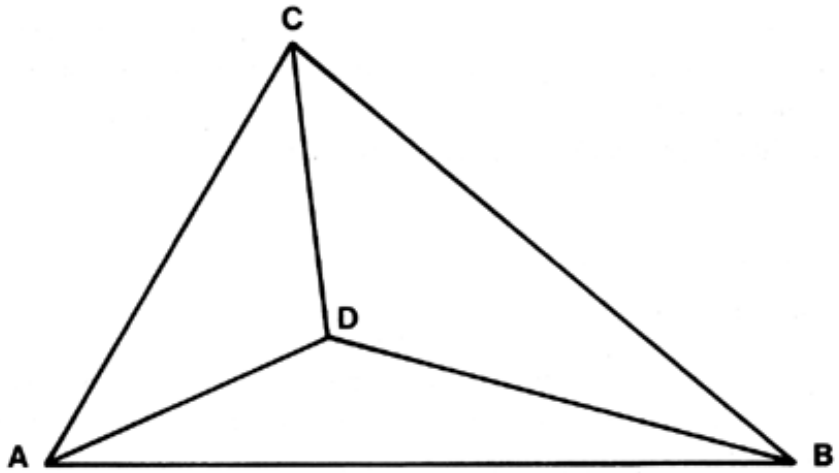

Fig. 1007.30 View of Tetrahedron from Above: There are four triangles: three surround the top vertex; the fourth is implicit in the base.

1007.31 You cannot have a something-nothingness, or a plane with no thickness. Any experimental event must have an insideness and an outsideness. Euler did not count on the fourth triangle: he thought he was dealing with a plane, and this is why he said that on a plane we have V + F = L + 1 . When Euler deals with polyhedra, he says "plus 2." In dealing with the false plane he says "plus 1." He left out "1" from the right-hand side of the polyhedral equation because he could only see three faces. Three points define a minimum polyhedral facet. The point where the triangles meet in the center is a polyhedral vertex; no matter how minimal the altitude of its apex may be, it can never be in the base plane. Planes as nondemonstrably defined by academic mathematicians have no insideness in which to get: ABCD is inherently a tetrahedron. Operationally the fourth point, D, is identified or fixed subsequent to the fixing of A, B, and C. The "laterness" of D involves a time lag within which the constant motion of all Universe will have so disturbed the atoms of paper on which A, B, and C had been fixed that no exquisite degree of measuring technique could demonstrate that A, B, C, and D are all in an exact, so-called flat-plane alignment demonstrating ABCD to be a zero-altitude, no-thickness-edged tetrahedron.

Next Section: 1008.10
