515.00 Frequency

515.01 Definition

515.011   Because there are no experimentally known "continuums," we cannot concede validity to the concept of continuous "surfaces" or of continuous "solids." The dimensional characteristics we used to refer to as "areas" and "volumes," which are always the *second-* and *third*-power values of linear increments, we can now identify experimentally, arithmetically, and geometrically only as quantum units that aggregate as points, both in system-embracing areal aggregates and within systems as volume-occupant aggregates. The areal and volumetric quanta of separately islanded "points" are always accountable numerically as the second and third powers of the *frequency of modular subdivision of the system's radial or circumferential vectors.*

515.02   The frequency of any system is determined by the isotropic, omniintertriangulated, omnidirectionally considerate, vectorially moduled, subdivision enumeration of the system's radial and geodesically chorded circumferential closure's totally relevant involvement limits taken in respect to the system's independent, event- regenerating center. Because of the required omnitriangulation and isotropicity, systems are inherently moduled only by equiangular-equilateral triangles, and their generative center is that of the vector equilibrium wherefore the radial and circumferentially chorded time-size, i.e., frequency-wavelength modules subdivisions, by which alone system frequency may be determined, are always identical.

515.10 Angles

515.101   Because angles are parts of only one cycle, they are inherently subcyclic. Because size must be predicated Einsteinianly upon local-experience time cycles, relative size is measured in cyclic units. Therefore, angles, which are less than one cycle, are inherently less than one unit of size. Angles are inherently "subsize" consideration. Because angles are subcyclic, they are "subsize." Therefore, we are permitted to think independently of size in respect to triangles, which consist of three separate angles.

515.11   We may think independently of size in respect to tetrahedra, which consist of 12 separate angles. Triangles and tetrahedra and all varieties of polyhedra are thinkable independently of size. The cyclic-module measurement of the time of experiencing or generating the length of the edge of any triangulated special-case system can represent the basic "standard" of relative size-comparisoning to other object experiences. Each cyclic "sizing" increment is one unit of frequency and each cyclic increment inherently constitutes one unit of experienced physical energy.

515.12   When man employs nature's basic designing tools, he needs only generalized angles and special-case frequencies to describe any and all omnidirectional patterning experience subjectively conceived or objectively realized.

515.13   For how many cycles of relative-experience timing shall we go in each angular direction before we change the angle of direction of any unique system-describing operation?[2]

(Footnote 2: Now that we understand this much, we may understand how man, consisting of a vast yet always inherently orderly complex of wave angles and line frequencies, might be scanningly transmitted from any here to there by radio.)

515.14   Angular fractionation is absolute. Triangles can be equiangular—one-fourth of a cycle or one-fiftieth of one cycle of unity—but they cannot be equilateral. Angles are constant and independent of size. Size is always special-case experience. Angles are generalized. Only eternal constants can be generalized. We do not know the length of the edges. Edges can be any length permitted by time. The length of the edges is frequency, while the angle is subfrequency.

515.15   **Complementary Angles**

515.151   The initial angle and its cyclically complementary angle are defined by the relative proportions of one whole circle into which the whole circle is divided by any two different radii of the circle.

515.152   The greater the even number of equal intervals into which the circumference of the circle is divided, the more accurately may the proportioning of the circle's central- angle-divisioning be described. If the circle is divided into 360 degrees and if the initial angle considered is 60 degrees, then its complementary angle is 300 degrees. If the initial angle is 90 degrees, its complementary is 270 degrees. If the initial angle is 180 degrees, its complementary is also 180 degrees. This ambiguity, if not thoughtfully considered, can bring about fatal "wrong-way" errors of direction-taking in navigational calculations. What looks like a local fragment of a "straight" line constitutes a complementary pair of 180-degree angles generated around the center-point of the line.

515.153   An assumedly straight line both of whose ends are hypothetically considered to be leading in opposite directions to infinity also may have an arbitrarily selected dividing point located (locally conceptually) upon it from which the oppositely extending lines emanate-or upon which point the opposite lines converge to form a 180-degree angle. Both of the oppositely-and-outwardly-bound lines of extension from the 180-degree angular convergence point are inferentially interminable. Ergo, as hypothetically assumed to be "straight" lines, they are paradoxically half-finite and half-infinite. This is a paradox consequent to humanity's misassumption of the existence of the phenomenon of "straight" lines, an error that occurred in turn only as a consequence of the inadequate experience of people at the time they adopted the fallacious assumption. Such misconceptions are the logical consequence of humans having always been born naked, helpless, and ignorant, though superbly equipped cerebrally, utterly dependent upon only trial-and-error-based exploration and survival stratagems.

515.20   **Energy**

515.21   The physical Universe is an aggregate of frequencies. Each chemical element is uniquely identifiable in the electromagnetic spectrum by its own unique set of separately unique frequencies. None of the chemical-element sets or individual frequencies is the same as those of any of the other chemical elements' frequencies. The different frequencies of one element's set produce unique cyclic-frequency interactions whose resonances are similar to musical chords. The electromagnetic spectrum of physical Universe embraces the full spectrum range of as yet discovered and identified radiation frequencies of all the first 92 self-regenerative, as well as the only split-second enduring elements beyond the 92 self-regeneratives thus far discovered by experimental physics. The macro/micro-cosmic electromagnetic spectrum chart discloses a cosmic orchestration that ranges from those of the microcosmic to the very complex macrocosmic-embracing whole celestial Universe nebulae. The human senses are able to tune in no more than one- millionth of the total known frequency range limits of the presently known electromagnetic spectrum. Whether expressed in foot-pounds per minute or kilowatt-hours, the total physical work done by all the muscles of all humans in all the two and one-half million years of known presence of humans aboard our planet Earth, amounts to less than the energy released in one second of time by one hurricane; one hurricane's released energy equals the total energy of the combined atomic bombs thus far produced and stockpiled by the Russians and the U.S.A. In contradistinction to this minuscule energy involvement of all history's human muscle, the invisible, weightless, but cosmically magnificent minds of humans have thus far discovered, quantized, and catalogued the relative abundance of each and all of the 92 regenerative chemical elements occurring on all the visible stars of known Universe. Thus emerges human awareness of the physical-energy-mastering potential of the metaphysical mind's extraordinary information-sorting and -analyzing capability.

515.30   Frequency is plural unity. Frequency is a multicyclic fractionation of unity. A minimum of two cycles is essential to frequency fractionation. Frequency means a discrete plurality of cycles within a given greater cyclic increment.

515.31   In closest packing of spheres, frequency is the number of spaces between the balls, not the number of balls. In closest packing, frequency is equal to radius.

515.32   Electromagnetic frequencies of systems are sometimes complex but always constitute the prime rational integer characteristic of physical systems. (See Secs. 223.41 and 400.50.)

515.33   Wave magnitude and frequency are experimentally interlocked as cofunctions, and both are experimentally gear-locked with energy quanta.

516.00   Frequency Modulation

516.01   There are only two possible covariables operative in all design in Universe: they are the modifications of angle and of frequency.

516.02   Frequency means a discrete plurality of cycles within a greater cyclic increment. An angle is an angle independent of the length of its sides. An angle is inherently a subdivision of a single cycle and is conceptually independent of linear, areal, and volumetric size considerations. A triangle *is* a triangle independent of size. A tetrahedron *is* a tetrahedron independent of size.
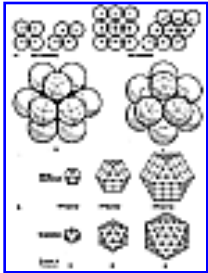
Fig. 516.03

516.03   By designedly synchronized frequency of reoccurrence of their constituent event patternings, a machine gun's bullets may be projected through a given point in the rotational patterning of an airplane's propeller blades. Such purposeful synchronization of a succession of alternate occupations at a point, first by a bullet and then by a discretely angled propeller blade, and repeat, is called angle and frequency modulation; together, they avoid interferences. All physical phenomena, from the largest to the smallest, are describable as frequencies of discrete angular reoccurrence of intimately contiguous but physically discontinuous events. All physical phenomena are subject to either use or nonuse of angular- and frequency-modulating interference capabilities.

517.00   Interference

517.01   Two different energy events articulated as invisibly modulated, spiraled, vectorial lines each represent their respective masses multiplied by their velocities, and each has a unique angular direction in respect to the observer's axis. They cannot pass through the same point at the same time. When one energy event is passing through a given point and another impinges upon it, there is an *interference.*
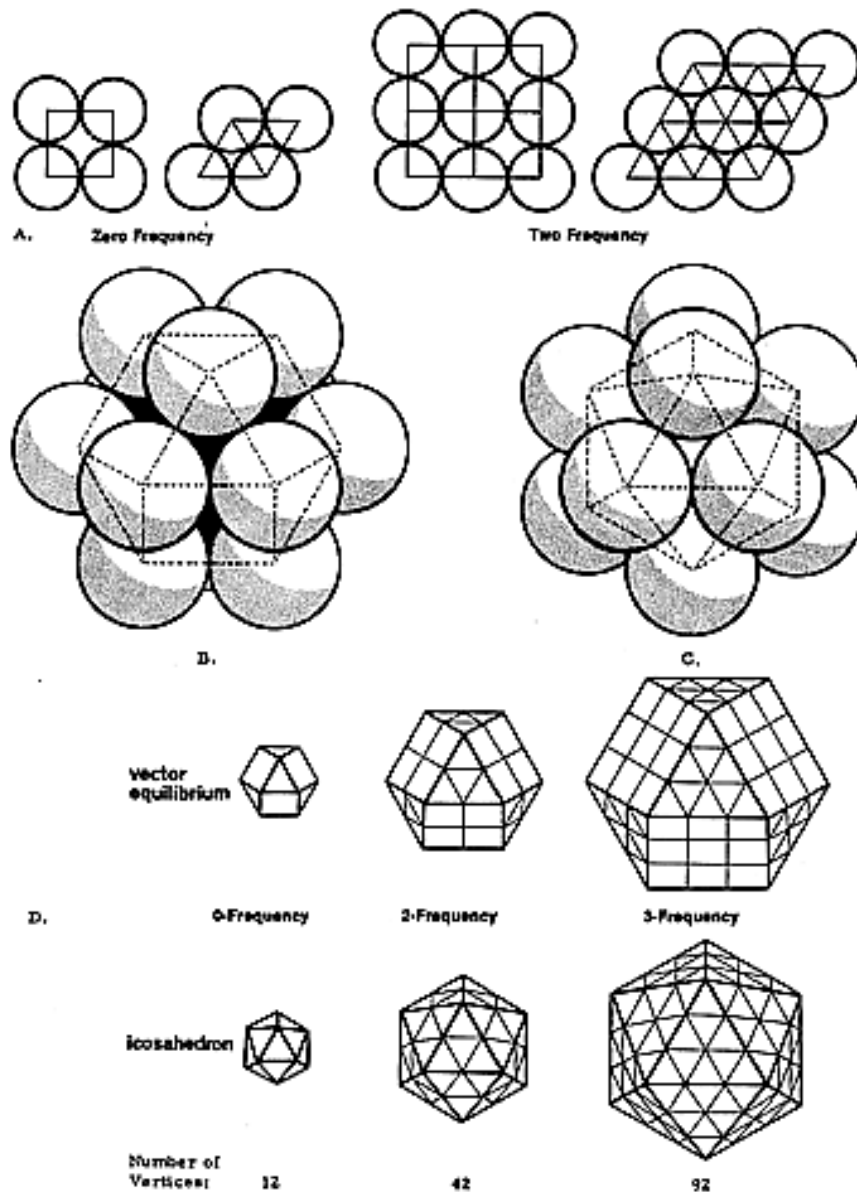
Fig. 516.03 Frequency: A square of any frequency is topologically equivalent to two adjacent triangles of corresponding frequency, i.e. a square has the same number of vertexes as two adjacent triangles (A). When the central sphere is removed from the vector equilibrium (B), it contracts symmetrically to a more compact arrangement (C), which is the icosahedron. The vector equilibrium has eight triangular faces and six square faces. The six square faces shift to become 12 triangular faces: 12+8=20 triangular faces of the icosahedron. Outer shells of the vector equilibrium and icosahedron of the same frequency will always have the same number of vertexes or spheres (D). Therefore the equation $10F^2 + 2$ applies to both figures.

517.02   Speaking operationally, lines are products of the energy interactions of two or more separate systems. The local environment is a system. A line is always formed by an alteration of the local environment by another system. "Lines" are the patterns of consequences of one system altering another system either by *adding to* it or *taking away* from it. The event leaves some kind of tracery—either additively, as with a vapor trail or a chalk mark, or reductively, as with a chiseled groove or a pin scratch, as a crack opened between two parts of a formerly unit body, or as a coring through an apple.

517.03   We find experimentally that two lines cannot go through the same point at the same time. One can cross over or be superimposed upon another. Both Euclidian and non-Euclidian geometries misassume that a plurality of lines can go through the same point at the same time. But we find experimentally that two or more lines cannot physically go through the same point at the same time.

517.04   When a physicist bombards a group of atoms in a cloud chamber with a neutron, he gets an interference. When the neutron runs into a nuclear component: (1) it separates the latter into smaller components; (2) they bounce acutely apart (reflection); (3) they bounce obliquely (refraction); (4) they combine, mass attractively. The unique angles in which they separate or bounce off identify both known or unknown atomic-nucleus components.

517.05   There is a unique and limited set of angle and magnitude consequences of interfering events. These resultants may always be depicted as vectors in the inward-and- outward, omnidirectional, multifrequency-ranging, circumferential-or-radial relativistic system patternings, which altogether constitute the comprehensively combined metaphysical and physical "reality" that is reported into and is processed by our brain and is reconsidered by our thoughts as referenced conceptually to various optimally selected observational axes and time-module durations.

517.06   When there is an interference of two energy events of similar magnitude, there is a coequal pattern of interference resultants, as when two knitting needles slide tangentially by one another. But when one converging body of an interfering pair is much larger than the other, the little one "seems" to do all the resultant moving as viewed by an observer small enough to see the small converger's motion—as, for instance, human beings see a tennis ball hit the big ball Earth and see only the tennis ball bounce away, the Earth ball being too big to be seen as a ball by the viewer and the relative bounce-off deflection of Earth's orbit from the tennis ball point of impact being too small for detection. As the magnitudes of energy vectors are products of the mass multiplied by the velocity, the velocity may be high and the mass small, or vice versa, and the vectors remain the same length or magnitude. A little body moving at sufficient velocity could have the same effect upon another body with which it interferes as could a big body moving at a slower rate. With these vectorial variables in mind, we see that there are three fundamental preconditions of the interference vectors: where one is larger than the other; one is the same; or one is smaller in energy magnitude than the other.

517.10   **Six Interference Resultants**
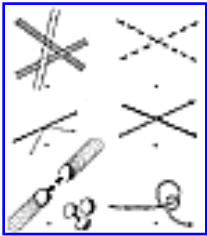
517.101   There are six fundamentally unique patterns of the resultants of interferences. The first is a tangential avoidance, like knitting needles slipping by one another. The second is modulated noninterference, as in frequency modulation. The third is reflection, which results from a relatively direct impact and a rebound at an acute angle. The fourth, which is refraction, results from a glancing impact and an obtuse angle of deflection. The fifth is a smash-up, which results in several parts of one or the other interfering bodies going away from one another in a plurality of angular directions (as in an explosion). The sixth is a going-the-same-way, "critical-proximity," attraction link-up such as that established between the coordinated orbiting of Earth and Moon around the Sun.

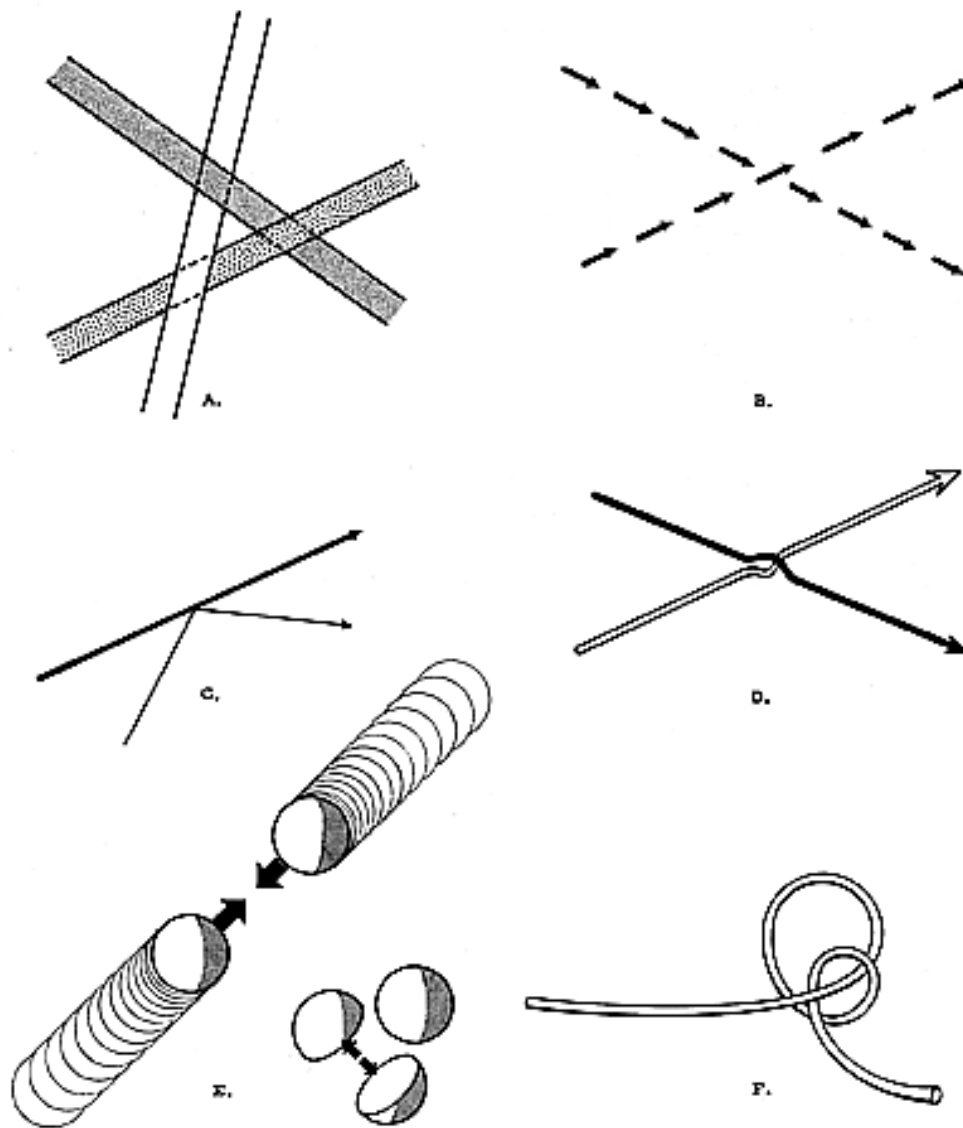517.11   **Summary of Interference Phenomena**

Fig. 517.10 Interference Phenomena: Lines Cannot Go Through the same Point at the Same Time: Interference phenomena: No two actions can go through the same point at the same time. The consequences of this can be pictured as follows:

    A. Tangential avoidance (like knitting needles).
    B. Modulated noninterference.
    C. Reflection.
    D. Refraction.
    E. Smash-up.
    F. The minimum knot or critical proximity.

517.12

    a. Tangential avoidance
    b. Modulated noninterference (Frequency Modulation)
    c. Reflection
    d. Refraction
    e. Smash-up (Explosion)
    f. Critical Proximity (The Minimum Knot)

517.13   All three of these vectorial conditions and all six of these resultants are manifest in cloud chambers, in which the physicist can view with his naked eye the photographed resultants of angular directions and energy-magnitude lengths of the interference patternings that occur when, for instance, they bombard a group of atoms with an accelerated neutron that moves at such velocity as probably to interfere with one or another of billions times billions of atoms present in the elemental "gas" aggregation. From these cloud-chamber interference patterns, physicists are able to calculate much information regarding the interfering components. The cloud chamber makes it obvious that two lines, which are always experimentally proven to be energy vectors, cannot pass through the same point at the same time.

517.20 Tetrahedron of Interferences

517.201   A machine gun is shooting through a swiftly revolving airplane propeller. It is automatedly timed to shoot between every blade, or every second blade, or every third blade—with a sonic "wow" every time it goes between the propeller blades. We are synchronizing purposefully. Unautomated by human mind and brain's anticipatory designing, bullets would produce a random sequence of patterns as they hit the propeller blades; some would at first bounce off precessionally, while others would knock off sections of the propeller blades.

517.21   Let us assume two machine guns firing from two different positions, one of them due north of a point in space and the other due west of the same point. One is aimed south and the other is aimed east, which means they are both firing through a common point in space. They are synchronized so that their bullets will not interfere with one another. The bullets all weigh the same. If they were nonsynchronized, they would frequently meet and be precessionally deflected.

517.22   Now place three machine guns at the three corners of an equilateral triangle. From the center of area (sometimes miscalled the center of gravity) of the equilateral triangle, one of the three corners lies in a bearing of 0° (i.e., 360°) in a northerly direction; the second bears at 120° ; the third at 240° from the triangle's center. We then aim all three machine guns toward the center of the triangle and elevate their aim to 35° 16'. We synchronize their firing periods to coincide. We thus introduce an interference at the center of gravity of a regular tetrahedron whose triangular base corners are occupied by the three guns. Precession will take place, with the result that all three bullets precess into a vertical trajectory as a triangular formation team through the apex of the regular tetrahedron whose base corners are identified by the three guns.

517.23   Every action has an equal and opposing reaction. So now let us assume that instead of machine guns firing in one direction only, we have three bazookas in which both action and reaction are employed in two directions. The double-ended openness of the bazooka sees the rocket missile projected in one direction while a blast of air is articulated in an opposing conical zone of directions. The cone's *inertia* provides the shove-off for the projectile by the explosion. Inertia is dynamic—as sensed in the orbital course integrity of the enormous mass of Earth going around the Sun at 60,000 m.p.h. so that the little man on board it, who is also going around the Sun at 60,000 m.p.h., and is also walking around Earth at four m.p.h. and as he steps around Earth's surface he pushes Earth in the opposite direction to his walking, but so negligibly that the little man does not conceive of his Earth as movable and so has invented the concept of completely inert, or "at rest." Our deceptive fixity of celestial position as a standing still in Universe is fortified by the absolute silence of travel in vacuo around the Sun.

517.24   Now we take two bazookas (not three!) firing in different parallel planes and not at the same level. One is aimed north-south in respect to the North Star and the Southern Cross. The other bazooka is in a parallel plane but remote; it is aiming east-west. They are fired, and at each of their two terminals, we get four precessional effects of the reactions and resultants occurring at 55 degrees in respect to their respective parallel planes. The result will be six vectors interacting to form the tetrahedron, a *tetrahedron of interferences.*

518.00   Critical Proximity

518.01   Though lines (subvisibly spiraling and quantitatively pulsative) cannot go through the same point at the same time, they can sometimes get nearer or farther from one another. They can get into what we call "critical proximity." Critical proximity is the distance between interattracted masses—when one body starts or stops "falling into" the other and instead goes into orbit around its greater neighbor, i.e., where it stops yielding at 180 degrees and starts yielding to the other at 90 degrees. (See Sec. 1009.)

518.02   Critical proximity would be, for instance, the relative interpositioning of the distances of the Moon-Earth team's Sun co-orbiting wherein there is a complex mass- attraction hookup. When at critical proximity the 180-degree mass attraction takes over and one starts falling into the other—with the attraction fourfolded every time the distance between them is halved—they establish a mass-attraction, relative-proximity "contact" bond and interoperate thereafter as a "universal joint"—or a locally autonomous motion freedoms' joint. Either body is free to carry on individual, local, angular-relationship- changing motions and transformations by itself, such as revolving and precessing. But without additional energy from elsewhere being applied to their interrelationship, they cannot escape their critical proximity to one another as they co-orbit together around the Sun—with which they are in common critical proximity.

518.03   Critical proximity occurs at the precessional moment at which there is a 90- degree angular transition of interrelationship of the two bodies from a 180-degree falling- back-in to a 90-degree orbiting direction, *or vice versa.* (See Sec. 1009.63.)

518.04   The transition of physical phenomena from being an apparent unit entity to being an apparent complex, or constellation of a plurality of entities, is that of the individual components reaching the critical proximity precessional condition and "peeling off " into individual orbits from their previous condition of falling back into one another under nonangularly differentiable entity conditions. This is the difference between an apparent "stone" and its crushed-apart "dust" parts.

518.05   Critical proximity explains mass-attraction coherence. It accounts for all the atoms either falling into one another or precessing into local orbits. This accounts for the whole Universe as we observe it, the collections of things and matter and noncontiguous space intervals. The coming-apart phase of critical proximity is radiation. The coming- together and holding-together phase is emphasized in our ken as gravity.

518.06   Critical proximity is a threshold, the absolute vector equilibrium threshold; if it persists, we call it "matter."