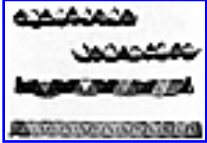


930.00 Tetrahelix: Unzipping Angle

930.10 Continuous Pattern Strip: "Come and Go"



[Fig. 930.11](#)

930.11 Exploring the multiramifications of spontaneously regenerative reangulations and triangulations, we introduce upon a continuous ribbon a 60-degree-patterned, progressively alternating, angular bounce-off inwards from first one side and then the other side of the ribbon, which produces a wave pattern whose length is the interval along any one side between successive bounce-offs which, being at 60 degrees in this case, produces a series of equiangular triangles along the strip. As seen from one side, the equiangular triangles are alternately oriented as *peak away*, then *base away*, then *peak away* again, etc. This is the patterning of the only equilibrious, never realized, angular field state, in contradistinction to its sine-curve wave, periodic realizations of progressively accumulative, disequilibrious aberrations, whose peaks and valleys may also be patterned between the same length wave intervals along the sides of the ribbon as that of the equilibrious periodicity. (See Illus. 930.11.)

930.20 **Pattern Strips Aggregate Wrapabilities:** The equilibrious state's 60-degree rise-and-fall lines may also become successive cross-ribbon fold-lines, which, when successively partially folded, will produce alternatively a tetrahedral- or an octahedral- or an icosahedral-shaped spool or reel upon which to roll-mount itself repeatedly: the tetrahedral spool having four successive equiangular triangular facets around its equatorial girth, with no additional triangles at its polar extremities; while in the case of the octahedral reel, it wraps closed only six of the eight triangular facets of the octahedron, which six lie around the octahedron's equatorial girth with two additional triangles left unwrapped, one each triangularly surrounding each of its poles; while in the case of the icosahedron, the equiangle-triangulated and folded ribbon wraps up only 10 of the icosahedron's 20 triangles, those 10 being the 10 that lie around the icosahedron's equatorial girth, leaving five triangles uncovered around each of its polar vertexes. (See Illus. 930.20.)

930.21 The two uncovered triangles of the octahedron may be covered by wrapping only one more triangularly folded ribbon whose axis of wraparound is one of the XYZ symmetrical axes of the octahedron.

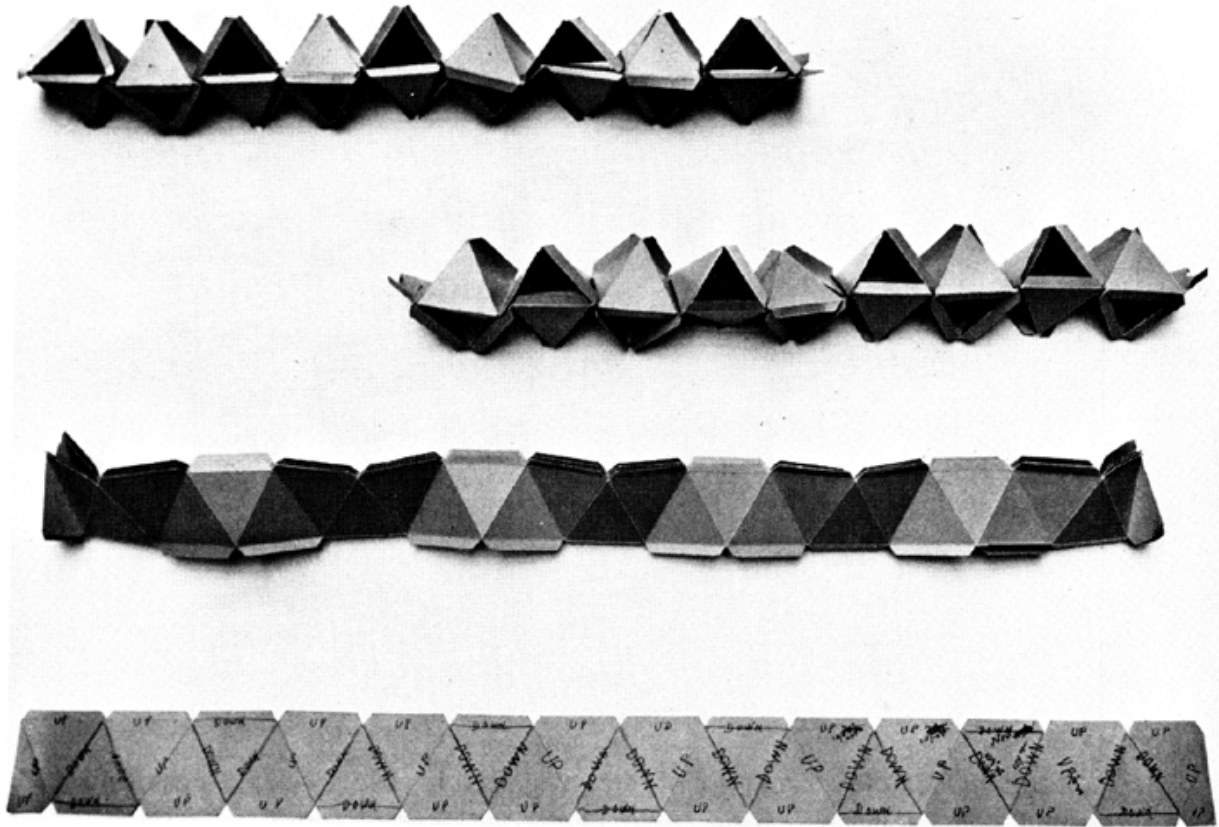


Fig. 930.11: This continuous triangulation pattern strip is a 60° angular, "come and go" alternation of very-high-frequency energy events of unit wavelength. This strip folded back on itself becomes a series of octahedra. The octahedra strips then combine to form a space-filling array of octahedra and tetrahedra, with all lines or vectors being of identical length and all the triangles equilateral and all the vertexes being omnidirectionally evenly spaced from one another. This is the pattern of "closest packing" of spheres.

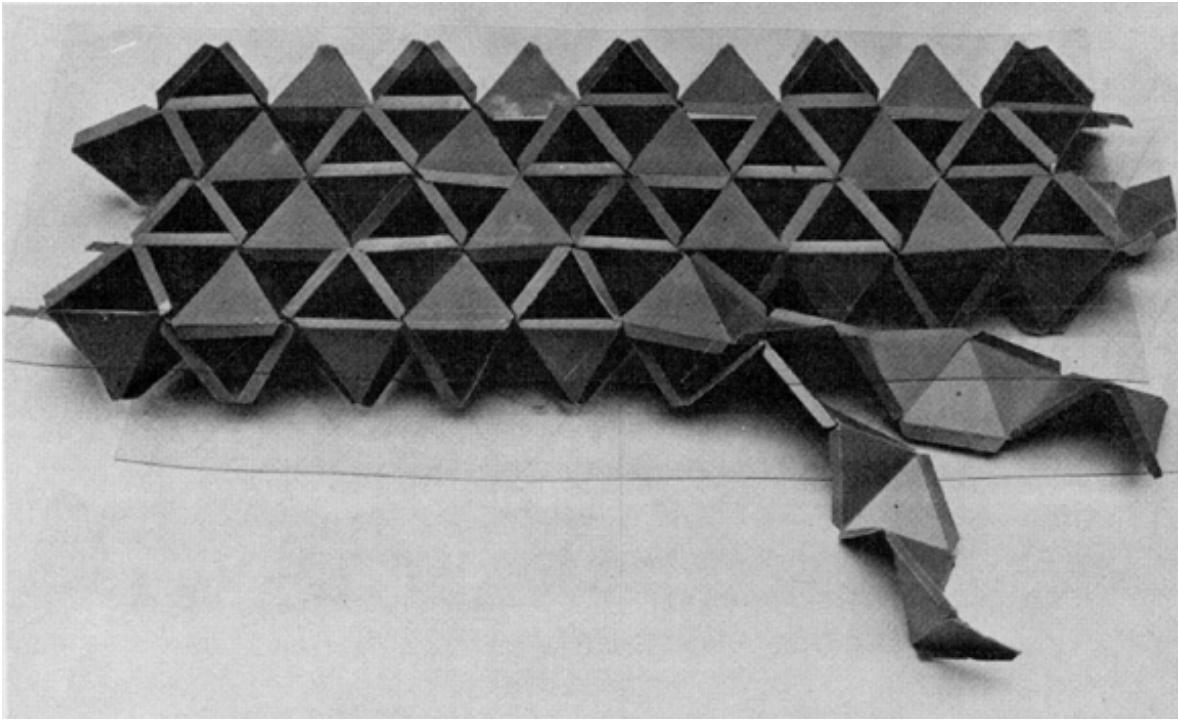


Fig. 930.11b

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930.22 Complete wrap-up of the two sets of five triangles occurring around each of the two polar zones of the icosahedron, after its equatorial zone triangles are completely enclosed by one ribbon-wrapping, can be accomplished by employing only two more such alternating, triangulated ribbon-wrappings .

930.23 The tetrahedron requires only *one* wrap-up ribbon; the octahedron *two*; and the icosahedron *three*, to cover all their respective numbers of triangular facets. Though all their faces are covered, there are, however, alternate and asymmetrically arrayed, open and closed edges of the tetra, octa, and ico, to close all of which in an even-number of layers of ribbon coverage per each facet and per each edge of the three-and-only prime structural systems of Universe, requires *three*, triangulated, ribbon-strip wrappings for the tetrahedron; six for the octahedron; and *nine* for the icosahedron.

930.24 If each of the ribbon-strips used to wrap-up, completely and symmetrically, the tetra, octa, and ico, consists of transparent tape; and those tapes have been divided by a set of equidistantly interspaced lines running parallel to the ribbon's edges; and three of these ribbons wrap the tetrahedron, six wrap the octahedron, and nine the icosahedron; then all the four equiangular triangular facets of the tetrahedron, eight of the octahedron, and 20 of the icosahedron, will be seen to be symmetrically subdivided into smaller equiangle triangles whose total number will be N^2 , the second power of the number of spaces between the ribbon's parallel lines.

930.25 All of the vertexes of the intercrossings of the three-, six-, nine-ribbons' internal parallel lines and edges identify the centers of spheres closest-packed into tetrahedra, octahedra, and icosahedra of a frequency corresponding to the number of parallel intervals of the ribbons. These numbers (as we know from Sec. [223.21](#)) are:

$2F^2 + 2$ for the tetrahedron;

$4F^2 + 2$ for the octahedron; and

$10F^2 + 2$ for the icosahedron (or vector equilibrium).

930.26 Thus we learn sum-totally how a ribbon (band) wave, a waveband, can self- interfere periodically to produce in-shuntingly all the three prime structures of Universe and a complex isotropic vector matrix of successively shuttle-woven tetrahedra and octahedra. It also illustrates how energy may be wave-shuntingly self-knotted or self- interfered with (see Sec. [506](#)), and their energies impounded in local, high-frequency systems which we misidentify as only-seemingly-static matter.

931.00 **Chemical Bonds**

931.10 **Omnicongruence:** When two or more systems are joined vertex to vertex, edge to edge, or in omnicongruence-in single, double, triple, or quadruple bonding, then the topological accounting must take cognizance of the congruent vectorial build in growth. (See Illus. [931.10](#).)

931.20 **Single Bond:** In a single-bonded or univalent aggregate, all the tetrahedra are joined to one another by only one vertex. The connection is like an electromagnetic universal joint or like a structural engineering pin joint; it can rotate in any direction around the joint. The mutability of behavior of single bonds elucidates the compressible and load-distributing behavior of gases.

931.30 **Double Bond:** If two vertexes of the tetrahedra touch one another, it is called double-bonding. The systems are joined like an engineering *hinge*; it can rotate only perpendicularly about an axis. Double-bonding characterizes the load-distributing but noncompressible behavior of liquids. This is edge-bonding.

931.40 **Triple Bond:** When three vertexes come together, it is called a *fixed* bond, a three-point landing. It is like an engineering fixed joint; it is *rigid*. Triple-bonding elucidates both the formational and continuing behaviors of crystalline substances. This also is face-bonding.

931.50 **Quadruple Bond:** When four vertexes are congruent, we have quadruple-bonded *densification*. The relationship is quadrivalent. Quadri-bond and mid-edge coordinate tetrahedron systems demonstrate the super-strengths of substances such as diamonds and metals. This is the way carbon suddenly becomes very dense, as in a diamond. This is multiple self-congruence.

931.51 The behavioral hierarchy of bondings is integrated four-dimensionally with the synergies of mass-interattractions and precession.

931.60 **Quadrivalence of Energy Structures Closer-Than-Sphere Packing:**

In 1885, van't Hoff showed that all organic chemical structuring is tetrahedrally configured and interaccounted in vertexial linkage. A constellation of tetrahedra linked together entirely by such single-bonded universal jointing uses lots of space, which is the openmost condition of flexibility and mutability characterizing the behavior of gases. The medium- packed condition of a double-bonded, hinged arrangement is still flexible, but sum-totally as an aggregate, allspace-filling complex is noncompressible—as are liquids. The closest- packing, triple-bonded, fixed-end arrangement corresponds with rigid-structure molecular compounds.

931.61 The closest-packing concept was developed in respect to spherical aggregates with the convex and concave octahedra and vector equilibria spaces between the spheres. Spherical closest packing overlooks a much closer packed condition of energy structures, which, however, had been comprehended by organic chemistry—that of quadrivalent and fourfold bonding, which corresponds to outright congruence of the octahedra or tetrahedra themselves. When carbon transforms from its soft, pressed-cake, carbon black powder (or charcoal) arrangement to its diamond arrangement, it converts from the so-called closest arrangement of triple bonding to quadrivalence. We call this self-congruence packing, as a single tetrahedron arrangement in contradistinction to closest packing as a neighboring-group arrangement of spheres.

931.62 Linus Pauling's X-ray diffraction analyses revealed that all metals are tetrahedrally organized in configurations interlinking the gravitational centers of the compounded atoms. It is characteristic of metals that an alloy is stronger when the different metals' unique, atomic, constellation symmetries have congruent centers of gravity, providing mid-edge, mid-face, and other coordinate, interspatial accommodation of the elements' various symmetric systems.

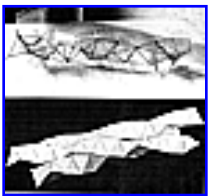
931.63 In omnitetrahedral structuring, a triple-bonded linear, tetrahedral array may coincide, probably significantly, with the DNA helix. The four unique quanta corners of the tetrahedron may explain DNA's unzipping dichotomy as well as—T-A; G- C—patterning control of all reproductions of all biological species.

932.00 **Viral Steerability**

932.01 The four chemical compounds guanine, cytosine, thymine, and adenine, whose first letters are GCTA, and of which DNA always consists in various paired code pattern sequences, such as GC, GC, CG, AT, TA, GC, in which A and T are always paired as are G and C. The pattern controls effected by DNA in all biological structures can be demonstrated by equivalent variations of the four individually unique spherical radii of two unique pairs of spheres which may be centered in any variation of series that will result in the viral steerability of the shaping of the DNA tetrahelix prototypes. (See Sec. [1050.00](#) et. seq.)

932.02 One of the main characteristics of DNA is that we have in its helix a structural patterning instruction, all four-dimensional patterning being controlled only by frequency and angle modulatability. The coding of the four principal chemical compounds, GCTA, contains all the instructions for the designing of all the patterns known to biological life. These four letters govern the coding of the life structures. With new life, there is a parent-child code controls unzipping. There is a dichotomy and the new life breaks off from the old with a perfect imprint and control, wherewith in turn to produce and design others.

933.00 **Tetrahelix**



[Fig. 933.01](#)

933.01 The tetrahelix is a helical array of triple-bonded tetrahedra. (See Illus. 933.01) We have a column of tetrahedra with straight edges, but when face-bonded to one another, and the tetrahedra's edges are interconnected, they altogether form a hyperbolic-parabolic, helical column. The column spirals around to make the helix, and it takes just ten tetrahedra to complete one cycle of the helix.

933.02 This tetrahelix column can be equiangle-triangular, triple-ribbon-wave produced as in the methodology of Secs. [930.10](#) and [930.20](#) by taking a ribbon three-panels wide instead of one-panel wide as in Sec. [930.10](#). With this triple panel folded along both of its interior lines running parallel to the three-band-wide ribbon's outer edges, and with each of the three bands interiorly scribed and folded on the lines of the equiangle-triangular wave pattern, it will be found that what might at first seem to promise to be a straight, prismatic, three-edged, triangular-based column—upon matching the next-nearest above, wave interval, outer edges of the three panels together (and taping them together)—will form the same tetrahelix column as that which is produced by taking separate equiedged tetrahedra and face-bonding them together. There is no distinguishable difference, as shown in the illustration.

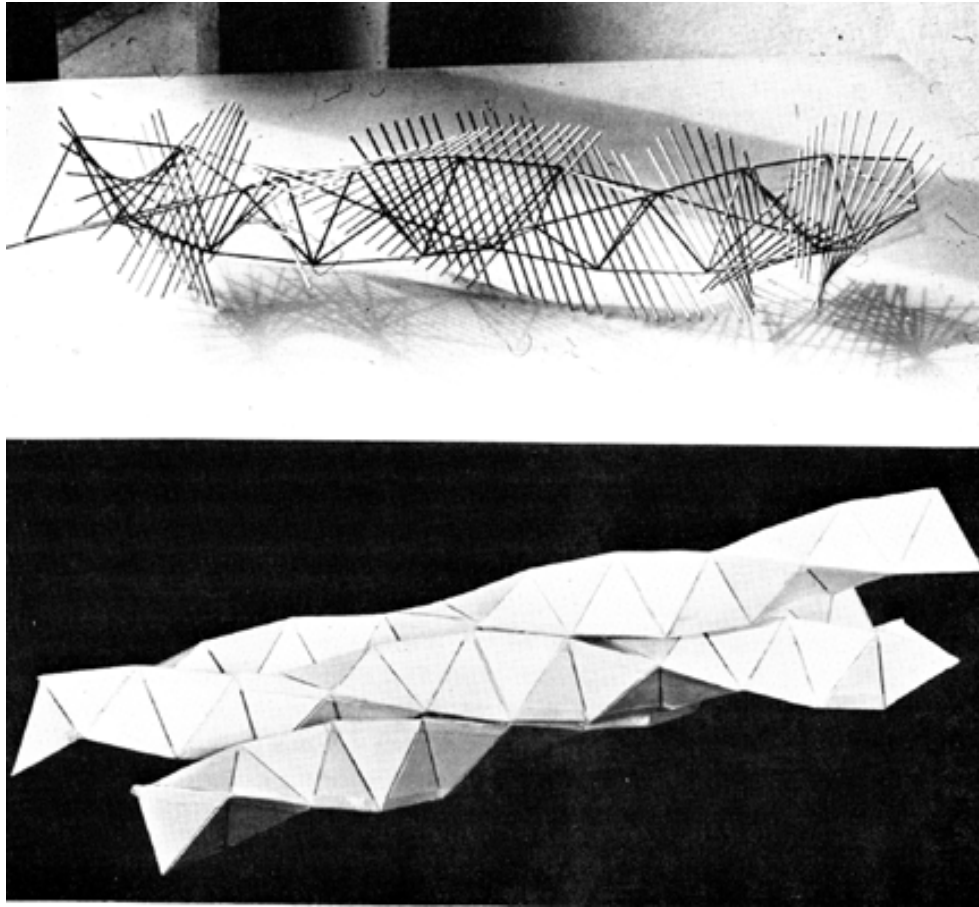


Fig. 933.01: These helical columns of tetrahedra, which we call the tetrahelix, explain the structuring of DNA models of the control of the fundamental patterning of nature's biological structuring as contained within the virus nucleus. It takes just 10 triple-bonded tetrahedra to make a helix cycle, which is a molecular compounding characteristic also of the Watson-Crick model of the DNA. When we address two or more positive (or two or more negative) tetrahelices together, they nestle their angling forms into one another. When so nestled the tetrahedra are grouped in local clusters of five tetrahedra around a transverse axis in the tetrahelix nestling columns. Because the dihedral angles of five tetrahedra are $7^{\circ} 20'$ short of 360° , this $7^{\circ} 20'$ is sprung-closed by the helix structure's spring contraction. This backed-up spring tries constantly to unzip one nestling tetrahedron from the other, or others, of which it is a true replica. These are direct (theoretical) explanations of otherwise as yet unexplained behavior of the DNA.

933.03 The tetrahelix column may be made positive (like the right-hand-threaded screw) or negative (like the left-hand-threaded screw) by matching the next-nearest-below wave interval of the triple-band, triangular wave's outer edges together, or by starting the triple-bonding of separate tetrahedra by bonding in the only alternate manner provided by the two possible triangular faces of the first tetrahedron furthest away from the starting edge; for such columns always start and end with a tetrahedron's edge and not with its face.

933.04 Such tetrahelical columns may be made with regular or irregular tetrahedral components because the sum of the angles of a tetrahedron's face will always be 720 degrees, whether regular or asymmetric. If we employed asymmetric tetrahedra they would have six different edge lengths, as would be the case if we had four different diametric balls—G, C, T, A—and we paired them tangentially, G with C, and T with A, and we then nested them together (as in [Sec. 623.12](#)), and by continuing the columns in any different combinations of these pairs we would be able to modulate the rate of angular changes to design approximately any form.

933.05 This synergetics' tetrahelix is capable of demonstrating the molecular-compounding characteristic of the Watson-Crick model of the DNA, that of the deoxyribonucleic acid. When Drs. Watson, Wilkins, and Crick made their famous model of the DNA, they made a chemist's reconstruct from the information they were receiving, but not as a microscopic photograph taken through a camera. It was simply a schematic reconstruction of the data they were receiving regarding the relevant chemical associating and the disassociating. They found that a helix was developing.

933.06 They found there were 36 rotational degrees of arc accomplished by each increment of the helix and the 36 degrees aggregated as 10 arc increments in every complete helical cycle of 360 degrees. Although there has been no identification of the tetrahelix column of synergetics with the Watson-Crick model, the numbers of the increments are the same. Other molecular biologists also have found a correspondence of the tetrahelix with the structure used by some of the humans' muscle fibers.

933.07 When we address two or more positive or two or more negative tetrahelices together, the positives nestle their angling forms into one another, as the negatives nestle likewise into one another's forms.

933.08 **Closest Packing of Different-sized Balls:** It could be that the CCTA tetrahelix derives from the closest packing of different-sized balls. The Mites and Sytes (see Sec. [953](#)) could be the tetrahedra of the GCTA because they are both positive- negative and allspace filling.

[Next Section: 934.00](#)

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