



# Total **THINKING**

Buckminster Fuller



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**R. Buckminster Fuller**

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# Total Thinking

As I prepared Ideas and Integrities for publication, I rediscovered Total Thinking, which I had written at Black Mountain College, North Carolina, in 1949, prior to the electronic computer's present massive development and the latter's swiftly ``fed-back" popularization of Professor Norbert Wiener's Cybernetics born language of 1948. I had not read Cybernetics when I wrote Ideas and Integrities, and I publish it now because its analytical epistemology unexpectedly provides a broad view of computer programming conceptions and experimental strategies which embrace potentially powerful forecasting capabilities.

Man, in degrees beyond all other creatures known to him, consciously participates—albeit meagerly—in the selective mutations and accelerations of his own evolution. This is accomplished as a subordinate modification and a component function of his sum total relative dynamic equilibrium as he speeds within the comprehensive and complex interactions of universe (which he alludes to locally as environment).

As no energy may be lost of universe, and as all parts of universe act, theoretically, upon all other parts, man may accomplish modification of his particular evolution only by relative modification of the aspects of universe. The picture is of universe as a kaleidoscope of sum-total symmetry only, the relative aspects of which may be dynamically and infinitely reordered without exemption of, or addition to, the component totality. Every shift (in the energy balance accomplished by man at earth's crust) affects all universe. Though fantastic, this is the scientific truth. If man seems frequently frustrated in his attempts at evolutionary modifications, all his failures and successes may be truly evaluated in the scientific frame of total dynamic reference. It is an astronomical kaleidoscope—the little fellow is shaking—and from within. Even thinking about truth alters truth.

Modification may only be accomplished forwardly in time. The system is inherently irreversible. Here magnitude vanishes; only principles endure. The fantastic, being purely of superficial magnitude, vanishes in the face of principle. Man accomplishes the progressive modification of his evolution through the coupling and articulation of his subjectively and objectively imagined synthesis of the factors of experience. This modification of his own evolutionary relationships by man involves a continuity of the thought processes. Superficially challenged by the seeming discontinuity of death, man has become successful in his distinguishable degrees as evolution modifier by virtue of his ability to further the refinement of thought toward the evolution of truth, by communication of the truth refinements to the new life—the new life being spontaneously persistent, overlapping and only modifyingly nurtured by the synchronous continuity of old life.

The scientist as specialist in isolation of phenomenon from phenomena has now come—by progressive reduction of the superficially remote behavior complexities of the organic and inorganic worlds—to discover simplified common component-behavior phases of each world respectively. Here the energetic interactions of the resultant structures are uniform. Here the man-controlled original inorganic growth is in all ways congruent with the animate, organic, “de-grown” by man, or separated-out, toward primary functions of the original totality: universe.

This event within the lower reaches of the microcosmos has been accomplished by man despite all other outward, or further inward atomic complexities. At the ‘tween stage of universe,—‘twixt micro- and macrocosmos—known as “everyday” and occurring in the narrow visible range of the total known spectrum, man has not been successful to date in constituting super-complexities-of-common-advantage from out of the host of potential components of the now-myriad of unique chemical (compounds) of relatively simplified order. Differentiation outdoes integration.

Man has been lacking in comprehensive disciplines and the developed ability to synthesize, essentially because of the bewildering arrays of complex behavior items of natural phenomena. Man shows synergetic re-genius inferior to Nature’s regeneration.

Only by recourse to fundamental principles of the first order and to the whole family of such fundamental principles may man possibly comprehend (aware of the significance of his own species in the world of species, and of the significance of all his experience to all universe) to realize comprehensive advantage for his species,

as a function of universe, by employment of the mathematical principles with which complex groups and supercomplex groups may be handled comprehensively by man, as a responsible anticipatory designer of his own evolutionary mutations. The mental process may run as follows:

Consciously or unconsciously, life is systematically pulsive. The heart pulses without conscious authority. It ceases without recourse to man's assumed objective authority. It propagates.

Continuity of conscious life becomes personality and is a product of complex periodic interactions known as cycles, or periodic recurrences of a higher frequency order.

Primarily, the trending of men's lives and their spontaneous actions, as well as their premeditated undertakings in establishment and conservation of technical advantage seem, retrospectively, only to have been subjectively motivated and steered by the ricocheting succession of randomly willed impulsions and unpredictable repulsions of maximum and minimum experience, by the push-pulling alternations of scarcity and plenty, heat and cold, wetness and dryness, joy and sorrow, loving and hating, longing and fear, sum totally operating on cyclic frequencies so transcendental to man's limited experience as almost to preclude attempts to analyze and predict the interprecessional recurrences.

Gradually apprehending the reciprocal and integrated nature of alternating experience, man has learned to measure and to plot relative degrees and magnitudes of Nature's behavior (including his own) and also, therefrom, to plot, not informative but provocative curves, so designated provocative because only possibly containing secondary keys which might unlock the doors to laws partially governing the non-self-requested experience of life.

The keys are only possible keys because the directional causes are not evidenced in the first order of plotted curves (only the latest maxima and minima of record are) without any indication whatsoever that the thus-far-experienced extremes constitute inherent limits of the variable. Limits would, if detected, constitute the possible turning points of trend.

Only after sufficient measurement gained by his intuitive probing in the direction of causes, with tools of assumption, may informed questions be asked by man, and calculated answers potentially be had. As with the waves of progressive advantage obtainable in the successive operations of the calculus, has man only now come in his

evolution, as by the second and subsequent derivatives of his historical experience-equating, to the ability to identify in principle the systematic chemistry of his personal process-continuity and his position on and the direction of the curves of his trending, and the rates of acceleration thereon.

Man first applied his newly won tools, of derived superior advantage of measurement-in-principle by realizing the predictable behavior of energy interactions, in shaping the designs of his accelerated velocity and magnitude extensions, his hurled, rolled, levered devices, his shots and ships. This priority of application was natural to man's having in boyhood thrown stones and sticks, hour after hour, into water, against rocks, through membranes and having later tried progressive acceleration in slingshots, archery and guns, and still later in propelled carriers in general.

The second derivative advantage accrued initially to the plotting of the data relative not only to the records of his running and jumping, but to his javelin-throwing sports, as well as accelerated mechanical novelties of impelled, flown, floated, wheeled, slid, levered and geared devices.

Turning to gain momentum, he could, unencumbered, jump over a six-foot bar; then, paradoxically, encumbering himself with a long pole, he could run with the same speed to vault over a twelve-foot bar. A regeneratively excited sense of perspective accrued to the relatively remote yet personally significant events of further extension—personal because the events were not only self-witnessed or experienced, but also were self-designed and selfexecuted—and proved on trial of the imagined conception to be accelerations to velocities and magnitudes greater than attainable by man's personal propulsion mechanics alone.

Thus, man accelerated extended communication to unexpected distances and with unexpected speed. Next he accelerated his personal conveyance, accelerating the evolution of his own extension from, for instance, the echoed voice of a poling raftsmen to the forwardly informative radar manipulations of the stratojet piloting airman.

In order to apply the same degrees of skillfully interpolated advantage of knowledge in principle: of position, direction and relative acceleration, to man's immediate, everyday, and far less "exciting" environment-shaping, he must be able to write the cogent formula of comprehensive functions of the coordinate system of his own physical complex—of his life (personal, family and species) as reciprocally embraced by the complex of dynamic universe. This requires in essence:

- a.) the comprehensive-intuitive, that is, total subjective-objective thinking,
- b.) the assumption of the systematic or comprehensive special idea in view of its reciprocal implications,
- c.) the rigorous test, of physical trial, by precision tools and under the family of possible-and-probable variable conditions accelerated and amplified beyond working requirements.

Not having as yet applied scientific advantage to anticipatory design of the immediate environment continuities, the environment runs the man. Men may take at first none, and secondarily but little credit for their personal survival. Even in their mature years, primarily pitting themselves each against other men, but few of the species may claim conscious participation in the survival of the species and none for conscious contribution to the continuity of universe.

Ignorant of his own coming “blessed event,” ignorant of the circumstances of his realization, ignorant of final causes and effects, ignorant of consequences and significance, and ignorant of absolute values, man is clearly *a-priori* ignorant.

He is born helpless and nurtured by progenitors but meagerly understanding him, who in turn have experienced the identical involuntary helplessness and meager understanding. Ignorance is indeed *a priori*. (The most successful exploiters of the invention man, to date, are those who have bet on the supremacy of his ignorance and have, therefore, stressed the negative probabilities.)

In consequence of the above observations, it must be concluded that man’s participation in the moderate success of his complex relationship to universe has of necessity been accomplished by a variety of indirectly-arrived-at advantages, only ignorantly induced, and conversely reciprocal to the original acts of ignorance. He backs into his future.

Ignorance hither-and-yons impulsively until brought up short at unpredictable periods by unpredictable push-pull limits. It is slowly becoming evidenced that, though man had been ignorant of the factors governing his successful survival as a species, the reciprocal positive functions governing the periodic alternations which net a successfully steered course may be adduced, only, however, by proper documentation and realistic inversion of the negative evaluations and predilections of ignorance.

Vanity and superstition constitute the plus and minus springs of ignorance, the expansive and contractive *raison d'être* of boast and fear. The boasts and fears of ignorance may be maintained spontaneously only when there is no obviously periodic contradiction in physical experience.

Abandoning vain boast, the competent but fog-shrouded navigator learned by experience to blow his horn to generate echoes from unseen headlands and thus to position himself and dissipate fears of danger. Ignorance is the inherently diminishing negative residue, the obscuring mist of the receding mental wilderness progressively dissipated by intellect, the inherent positive of universe that may by inference of the record turn every adversity to ultimate advantage.

Residual ignorance has employed the as-yet-primitive tools of mathematics in linear diametrics—in the “either yes or no” of two-dimensional oversimplification. Ignorance thinking in blackboard and paper planes labors protestingly over the geometry of reality. A complete reorganization of mathematics will probably occur within the next quarter century (or generation) with all the now so-called elementary phases relegated to non-sense and the ever most advanced intuitions shifted to elementary priority in the effective informing of the new life by the old.

Ignorance may only be dissipated as intellect traits by physical initiative in design realizations of anticipated periodic functions, designed to disclose coincidence with the periodic contradictions, forcefully experienced, and thus potentially further revealing in principle. Thus, the designed experiment is resolvable, eventually, into general behavior laws of the energetic universe, whose interactions in turn become subject to increasingly reliable predictions by man.

Education, in the sense of man's being *educente* (led out from) the monological fixations of ignorance, involves also being led into, *intro-ducente*, (introduced to) the new awareness of - the dynamic fluidity of the infinite persistence of complex-yet-systematic interaction of universal principles.

Education has now led us out and into a degree of meager awareness of universe, somewhat as though we had been given spectators' seats commanding an improved view of the game-of-games called “universe.” It is, however, not as though we had been given better seats in the same old static stadium, within which the sports of extension of personal facility are tried, but more as though we have been given seats in a relay of refueled airplanes to command a view of a new kind of ocean race, a continuous around-and-around-the-world race of relay teams of deep sea craft. Both

the frame of reference and the observed are in obvious continual motion and persist as individually composite dynamic continuities, though the separate men (invisible but implicit) and planes and boats and their component parts and sub-parts progressively shuttle or drop out and are eventually substituted for by inconsequentially increasing or decreasing numbers.

The whole dynamic assemblage of race and observer relays are invisible even to an observer at a thirty-thousand-foot altitude, let alone to an observer on Mars or on another planet of another star who could only observe the motion of earth relative to sun or the sun relative to galaxy, etc.

This schematically kinetic tapestry is the advanced concept of relativity—now, at last, popularly significant, because pivotal to the everywhere severe worldwide re-orientation of all men's everyday affairs from a static to an *a priori* dynamic frame of reference. The reorientation is severe because it is more than an uprooting. Realization of relativity spontaneously evokes a springing, to dive from a then vanishing springboard into an infinite dynamic sea where man must learn to swim tirelessly, naturally, before he sinks, but only because what he used to think was that he ought to “sink” rather than be attracted by dominant neighbors.

As man learns to eliminate his preposterous one, or two, or three dimensional *a priori* references to a fixed level planar breadth and its inherent upwardness or downwardness of universe and substitutes therefore the now reliable sensation of an inwardness and outwardness relative to plural of centers, he will come naturally to his new sustaining awareness of the impossibility of his doing ought but sustain his equilibrious and navigable position. If there is no inherent “down” in universe, man cannot sink.

This is not a semantic abstraction. What did man mean when he said, “Up”? He meant two or more vertical and parallel lines perpendicular to the respective spots of a supposedly common plane whereon supposedly stood—fixedly in universe—both himself and his addressee, with whom he would, avowedly, communicate meaningfully.

But he is, in fact, employing non-sense. Unless one is standing on the other's shoulders, the direction of "up" for any two men on the curved face of earth is always geometrically different. They are respectively non-identical radii of their commonly predominant energetic center, the earth ball. It makes no difference what the local curvature of the earth may be; they each balance, "perpendicularly" independent, as radii of the "perfect" sphere.

By the time one man explains to the other by directional indication what he had meant by "up" of a moment ago, the direction "up" as registered in direction to the stars in universe—the other energy centers—has shifted angularly to absurd non-identity. In the clocktime course of a sentence, his succession of complex "ups" at earth's level has moved angularly thousands of miles; and the beam of his continuous, up-pointing in the heavens, relative to sun and galaxy, has swept billions of miles. As he soon rockets toward the moon he will find his feet pointing gradually and comfortably toward the moon which he had just previously pointed to as "up."

If he persists in the up-and-down language, man may never communicate accurately with other men for they do not employ the same meanings, either from moment to moment, or in respect to their individual "ups" and "downs."

As man now flies about the earth, the absurdity of his up-and-down reference becomes apparent. In which of his many stopovers is he upside-down? In Calcutta, Suez, Tokyo, Los Angeles or Rio? And in which is he downside-up? Englishmen used to be content to leave it to the Anzacs "down under" to work out for themselves their inherent handicap of having to negotiate all their lives upside-down in "space." And so also did the Americans to their Chinese "inferiors"—and vice versa.

Only when men learn to say in and out relative to designated common centers (for example, of earth) is the meaning constantly reliable. The sky is "outward" to all men, at all places, at all times, on any planet. While enjoying an infinity of individual "ins," we, anywhere in the universe, also enjoy one common nonsimultaneous, omni-directional aggregate called "out."

As the constantly reliable replaces the interrupted inaccuracy of the past moment, the yesterdays of inaccuracy dissolve in the presence of the finite dynamic constants of discovered energetic universe of now; the inherent continuity of understanding (of overlapping-periodic interruptions) becomes increasingly available.



Principles of physical universe may be treated of in words, which themselves were developed in principle out of dawning comprehension of implicit significance in the relative identities of complex bundles of principles. Relativity treats with concepts in principle; therefore, it can be treated in words as well as in mathematical phrasing. Relativity is inherently convergent, though convergent toward a plurality of centers of abstract truths. Degrees of accuracy are only degrees of refinement, and magnitude in no way affects the fundamental reliability, which refers, as directional or angular sense, toward centralized truths. Truth is a relationship. Articulated references of meaning are centrally embodied in commonly recognized, constantly reliable directions of inwardness and outwardness, in respect to the nominated centers of commonly experienced trend in principle.

The new reliable understanding of meaning, however, requires the revision not only of semantics but also of their complex aspect as thought habits employed to describe experience with accuracy, such as the substitution of the already-discussed in-and-out for up-and-down; or the substitution of “winds drafting to the southeast low pressure” instead of “blowing from the northwest (zephyrs)”; or the substitution of the word “realization” for the very inaccurate use of the verb “to create.” Man creates naught. If he comprehends in principle, he rearranges locally in universe by realization of the interactions of principles.

So long as mathematicians can impose up and down semantics upon students while trafficking personally in the non-up-and-down advantages of their concise statements, they can impose upon the ignorance of man a monopoly of access to accurate processing of information and can fool even themselves by thought habits governing the becoming behavior of professional specialists, by disclaiming the necessity of, or responsibility for, comprehensive adjustment of the *a priori* thought to total reality of universal principles.

The everywhere-relative velocities and momentums of interactions, of energetic phenomena of universe, are central to the preoccupations and realizations of the comprehensive designer. The concept of relativity involves high frequency of re-established awareness, and progressively integrating consideration of the respective, and also integrated dynamic complexities of the moving, and transforming frame of reference and of the integrated dynamic complexities of the observed, as well

as of the series of integrated sub-dynamic complexities, in respect to each of the major categories of the relatively moving frames of reference, of the observer and the observed. It also involves constant reference of all the reciprocating sub-sets to the comprehensive totality of nonsimultaneous universe, from which naught may be lost.

We have on the one hand the multiplicity-of-the-component- structures-and-moving-parts-of-the-airplane-carrying-the-observer, as an integrated whole, as he observes the set-of-all-the-boats called the race headed for the next marker—for instance, for Bermuda—maintaining their relative continuity with respect to each other externally, as the individual boats persist as a continuity of internal sets and sub-sets (to the power of any number) of synchronized interactions.

We have on the other hand the concepts of both the observer and the observed relative to their respective moving frames of environment reference and then both moving frames merging into one with the universe, but at two extremes of maxima and minima, that is, in the macrocosm and the microcosm. Both inwardly and outwardly and diametrically all eventuate in the same universe of fundamental principles governing energy as atom or galaxy aggregates of nonsimultaneous yet related events.

Returning to the concept of the moving observer in the airplane, we discover that, despite the numerically astronomical complexity of the total moving picture of his life at the moment, it is to be noted that he may gain immediate advantage over the total concept; because he can first resolve all phenomena into two prime subdivisions—he can treat each moving frame of reference, in the terms of the composite scene of their internal and external aspects respectively.

Internal to the observer's moving advantage, we have the concept of the supporting industry that produces the airplane and keeps it serviced for reflight and the sub-sets of atomic interactions and the sub-sub-sub-sets of all the atomic interactions comprising planet earth and the even greater population of subsets of atomic interaction of the solar system, and the greater still population of the galaxy accumulation, and, finally, all atoms of the universe.

But as we come to explore for the fundamental principles of interpotentials and interactions called atoms, we find that, despite the astronomical number of aspects and events, only a few principles of behavior pervade the whole of universe as, for instance, ninety-two tendencies to self-impoundment of energy; a fundamental inwardness and outwardness relative only to the “system” center of observation; the corollary

principles of inherent first tendencies to inward-outward pulsations and to precession, and the principles of inside-outing—convergence, divergence, spin and counterspin, torque and countertorque tension and pressure, the biological reciprocals of uni-verse (and diaphragming).

Relativity leads us toward fundamental classification, of our experience and observation, in the terms of a few hierarchies of dynamic interactions and principle transformations of an allenergy, continuous-discontinuous, synchronous-dissynchronous universe tensionally cohered, precessional of local compressive spherical energetic collections—as (suns) stars or planets or moons or asteroids or meteorites; and the progression of within-ward sub-sets of events of interactions at planet crust, etc., and inward to the ninety-two common principles of atomic convergence of energy in principle, and the pervasive sets of dynamic associations by contraction, expansion, spin, orbit, torque, push and pull and precession. This all brings us by progressive collections of thoughts into a fundamental twoness of dynamic reciprocities which, internally paired, ultimately become one with outwardly paired principles of reciprocity.

The becoming one of both the finity inward with the finity outward indicates a sensibility of experience preoccupying man as a superficial reality which only occurs at middling dimensions of universe and appears schematically as a magnetic field. Its flux patterns, like two tangent balls, include every size of particle, as their hour-glass-like tangentially linked inwardness, displays both inwardly and outwardly mingled sets of fountain and reverse fountain flows—concurrently at both ends—and through the middle. Periodically, the whole double-bulbed dynamic flux contracts axially, as the two bulbs of dynamic flow merge progressively, and then merge completely, and again separate axially. It is obvious that inasmuch as the whole system was always in flow that the new bulbs of flux are of necessity new and are therefore only identifiable in principle with the previous comprehensive duality of shapes. The system has inherent yet empty twoness.

The “reality” is real—or realized—in principle only, by events of relative interaction transpiring only in principle. The whole of the above pulsive-waveful-dynamic-duality is schematic, and is in principle clarifying only, for, though it progressively groups allenergy universe into an oscillating binary system, it must be understood that the whole scheme cancels out by virtue of a super paradox which finds that the infinity inward and the infinity outward of an infinite plurality of centers must be identical,

and one with the infinity inward, of an infinite plurality of centers, and that: in comprehensive universe, dimension drops out and conceptual principle remains. Physical interferences of our sensibilities are alike true and real, or realizable, only in principle. Positive and negative cancel as the principle zero.

It is discovered in principle that probability probing of physical universe on a statistical basis is now becoming of necessity frustrated while, probing in empty conceptual principle could be instituted and accelerated for further advancement or fundamental information. Exploration in principle is re-rewarding.

It is necessary that the comprehensive designer explore in principle for verification of this significance of relativity, whereby it is discovered that in the consciously realizable comprehensive binary, truth may not be dealt with as isolated, but only as relative relationships of interaction governing in principle the interactions of specially nonsimultaneous sets of dynamic principles. The comprehensive realizer thus will come, with acceleration, to competence in rearranging forwardly anticipated events, measured in principle, and forwardly projected, in associated principles of reciprocal interaction and juxtaposition to the anticipated energetic magnitudes of variable stresses and flows. These interactions are known as structures and mechanics.

Thus it is discerned how the comprehensive realizer of relativity may become competent as an integrator of the until-then-threatening chaotic dissipation of common advantage of men in universe brought about by runaway, diametric preoccupations of specializations. The comprehensive realizer becomes a synergist.

These mathematical concepts of group phenomena may be acquired in principle by the willingness (subjectively initiated) of the individual to be governed by the integrity of “progressive conceptioning in principle” and to self disciplines of realization in principle—the objective synchronizations are implicit and unavoidable competence and comprehensive, realizable design will result. Let us pursue further the conceptioning in specifics of group principle.

It is not difficult to understand that the trends to synchronization by harmonic interval of one collection of events can seemingly and sum-totally create an aspect of such (superficial) incongruity in respect to the sum total collected harmonic events of other phases of functional disposition, of the differentiable universe, as to predispose us to assume that there might never be synchronization of one major collection with

another. We obviously incline to this predisposition by virtue of the persistence of the familiar in our own environmental close-up—thought, which causes the dynamic interpenetrations to appear as a static, rather than as a periodic-continuity environment reality.

This misapprehension of our own dynamic significance becomes in environmental close-ups a bundle of persistent periodicities developing into a spontaneous anticipation of repetition of harmonic intervals and their familiar synchronization. So marked is our proclivity for such anticipation that we set ourselves as though we were alarm clocks to waken at specific blocks of intervals of familiar periodicities of experience. We relate our own heartbeat to minutes of hours of days, and our meals—or chemical fueling—to the days of the postman’s coming and going, and even to periodicities such as invented Father’s Days and other soon-familiar invented conventions, of the persistent, complex periodic continuities of our days into years. The invented periodicities may become only monotonous.

Life in retrospect, however, may be informatively discovered to have been comprised of a progressive series of interruptions and penetrations of the successively latest *a priori* environment continuities—by unfamiliar frequencies or biodynamic groups of frequencies; always occurring as unfamiliar to the ignorantly accepted trend to monotony.

The new event always comes as an harmonic interruption of frequencies, or an interference with the increasing inventory of already assimilated synchronizations (up to the latest instant), which have only become obvious by virtue of the spontaneous synchronization of the sum total of acquired experiences and progressively integrated interruptions.

It is necessary that the comprehensive realizer ascertain in principle how the mathematical proportioning of experience is persuasive to the erroneous concept that the sum total bundle of already experienced frequencies constitutes so unified, or well synchronized an experience whole as to have seemingly always been “known.” The comprehensive realizer will discover that his adequacy as rearranger of local universe, in principle, will, if competently effected, be acquired by men as an obvious accretion, and that the more competent his realizing-rearrangements of design, the less grateful the beneficiaries, which will be precisely the objective of the comprehensive-realizer.

A known personality, that is, a life—with which the comprehensive-realizer is concerned—is a unique bundle of accumulated experience to which the new experience must always be dissyn-chronous, but only at the moment of original interference, else the new interaction of the greater complex of truth would not have been recognizable and acquirable as new experience and tactical advantage.

The greatest over-all misapprehension regarding the complex-continuities is that which assigns a static or “at rest” analysis to the sum total sensation of individual experience and consequently to the sum total of all individuals’ experience. Against the inertia of a seemingly static whole, each new harmonic incorporation of life therefore seemingly impinges as a dynamic perversity. This is why we frequently remark, “Man tends to back up into his future.”

In addition to the simple arithmetical, algebraic and geometrical progressions of the first, second and third degrees of acceleration, mathematics discloses other series, and super series, of superficially unpredictable mathematical frequencies because they are composed of complementary and reciprocal numbers whose products alone, though never occurring simultaneously or in whole, are compositely congruent with complex progressions. But these complex components occur in discontinuous series, and are inherently self-inexplicable. The complementary functions must therefore impinge upon consciousness only as meaningless. As immediately contemplated upon first experience, they of necessity, alone, constitute seemingly absolute perversity of interference. Synergy—wholistic behavior unpredicted by parts.

It is, therefore, the unpredictable degree of the super and the super-super “n” degrees of complex associations of energy frequencies which seem most preposterous. We cannot view the great confluences of separately and remotely significant events forwardly resultant to now. Synergy is inherently surprising.

When, however, these complexities are viewed in reverse, from the advantage of even the most mathematically super-super interference, the whole regains the acceptable-sublimity-of-aspect, such as a fleet of little ocean racers one hundred miles off Bermuda struggling with the waves of interference of the Atlantic turning the perversely interfering winds to advantage by virtue of the relative inertia of the relative waves of water, eventually to pass Bermuda, as the whole picture is observed from the airplane and its infinitude of subcomplexities.

Though both are designed with the same family of principles called “factors of ships,” the comprehensive-realizer can see: that the superficial difference between the collections of frequencies which makes the Bermuda cruising boat seemingly different from the airplane—or indeed, man from elephant—may be in principle the same difference, as understandably exists between an early Wright airplane and the latest supersonic airplane, or, yet, between an early Chinese hot air balloon and a late helicopter.

The only difference between the Wright and the supersonic planes is the sum total of recurrent-synchronized cyclic events, known as the “succession of (design) models,”—evolved in complex out of the physical experience with each trial balance of the designed complex (effected by man) and as let loose, after static-load-tests-within-limited-controlled-conditions of variables, into the dynamic-load-tests within the unknown, uncontrolled, comprehensive (and *a priori*-design-complex) of the residual uncharted variables of universe. The uncharted residual (function of universe) balances the special-set function of derived functions—called from out the total principles of energetic universe by the designer as a newly realized mutation of species evolution accomplished by synergetic extension.

Though having no one common component part identification, the difference between the 1904 Wright brothers’ biplane and the 1963 superjet, supersonic, stratosphere monoplane is only a group difference of a minor complex of almost sixty packed years of experience with the same body of principles called airship; which, in turn, only specialized in a few of the greater body of principles called ship; which specialized in a few of the greater body of principles called “earth”; which specialized in a few of the greater body of principles called motion; which specialized in a few of the greater body of principles called energy, which specialized as an original function for the comprehensive universe. The first derived coordinates of universe would seem to be functions of energy variant in respect to intellect.

We can see that the concept of original separation of universe into two inherent functions—and the further subdivision and expansion of one function into a unique plurality of subsets of functions—and subsequent acceleration of specialized experience with new design events of any one unique subset’s evolution, as contrasted against another, can only accelerate superficial differences between any degrees of subsets.

It is obvious that, if the frequency of cyclic events differs in one geographical environment from another, the life within one environment may be accelerated to increasing degrees of experience over the life within another and, therefore, to sets of superficial difference of existence and trend. It can then be seen that what we might designate as natural education—by induced self discipline advantage—represents an accelerated testing of objective-subjective experience, and that acceleration is natural and that natural education may potentially evaporate the inadequacy predilections of original vanity and superstitions and that the original springs of action may become obsolete as the realizations of intellect and the hitherto preoccupations with seeming frustration and self-destruction may be supplanted, through the selfdisciplining of the comprehensive designer to orderings of integrity of universe.

Where, geographically speaking, of *a priori* unique environment continuities, the inherent periodicity of the occurrence of interference is at a relatively low frequency, then the rate of dissipation of ignorance is proportionally low, and vice versa.

The relatively lowest inherent periodicity of interference of forceful variables—of experience in the dynamic environment (geography)—occurs on the dry land near sea level in the region of the equator. The periodic frequency of interference by physical variables increases outwardly from the earth's center into the colder climates of mountain and toward the earth poles. The periodicity and magnitude of forceful interferences increases even more upon the seas, and yet more as man penetrates outwardly from the unique energy fixations of earth into the cosmos of major categories—of general dynamic principles.

Sum totally on earth the residual vanities and superstitions of the ego bulk up most obviously in the warm and mild climates, originally most favorable to the naked, ignorant man, and are most rapidly dispersed and replaced with intellectual ordering in the environments of highest frequency of unprecedented intensities of interference, penetrated now by man at will by virtue of his contriving of realizations in complex principles.

Each of the sum total variety of biological forms represents in simple principle the complex bundling of unique internal experience continuities, and the latter's individual accumulations of external periodic experience, within the greater bundle of persistently unique environmental sequences—of variable geographic frequency bundle limitations. Humans have abstract “tree rings” of experience.



The circling bands of a cross-sectioned tree or the scalloped terraces of the shell fish are convergently secreted structures (interference of higher order) of cyclic bundling of experiences. Wave embodiments of cyclic experience appear everywhere in the accredited morphology of nature's omni-directional, convergent-divergent, synchronous-dissynchronous, infinite plurality of pulsating controls of interactive events in principle.

The cyclic wave accretions—unique to parent and parent's parent—make overlapping internal impressions of the periodic and cyclic interferences-structuring-by-accretion, prearranging thereby internal angles of the original turbinizing tendency of unfoldment, upon the gestating seed of periodic secretion of outside-in then inside-out pulsation-inversion, which we call regenerative birth. This is, of course, a union of the infinite inwardness-with the infinite outwardness to fulfill the comprehensive duality principle of uni-verse. Human egos are multi-concentric frequency “halo” systems.

As with the complex of synchronized convergent principles called airplane, compounded of the succession of flight experiences with a succession of “improved” designs incorporating all previous experience in action-reaction juxtapositions (called structure and mechanics), a trend to further inclusion and refinement of accelerating-acceleration of improvement is inherent, but always the improvement is relative to the whole of already secreted true experiences, whether as yet detected or not, by the redesign-cycle mutators.

A new design's “sport” or subspecies may long be latent, a helicopter development postponed by preoccupation with the initial concepts of “airship.” The relative, realized-complex trend accelerates itself in compounding degrees, whereby, eventually, the probability of numbers of immediately detected forward mutations to be refiningly anticipated exceeds in number the sum total of the previously secreted, or experienced, impressions, innately preoccupying the species division.

An historical shift is now occurring in the scientific viewpoint, induced by this shift in balance of preponderant numbers of effective impressions, pre-and-post-natal, upon behavior probabilities of the various species to be affected preponderantly by the relative number of post-natal, periodic and cyclic accelerations.

Hazy awareness of the significance of this historically pivotal event is at the core of hastily taken political positions seeking to establish monopolistic validity of comprehensive viewpoint (where mono-logical explanation of the biologically functioning derivatives of universe may never be tolerable). Both sides are right about their specially selected cases; neither may increase their understanding by arbitrary limitations of experience and conception, regarding the next appropriate trial balance of potentials of the apprehended, and therefore anticipated, periodic inclusions of the subjective-objective “beating to windward” of the periodically shifting advantages of universe. The comprehensive realizers of all time have always realized the implicit truths of these relationships of uni-verse. Bias precludes synergetic advantage.

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