

1932 R. Buckminster Fuller: Universal architecture

Richard Buckminster Fuller (b. 1895 in Milton, Massachusetts) developed in 1927 his 'Dymaxion House', a dwelling machine in which, as its name implies, dynamism was to be combined with maximum efficiency. This combination of technical and civilizing tendencies – in 1932–3 the 'Dymaxion Automobile' developed out of it – made the outsider well known in Europe as well. His theoretical writings of this period are pretty unintelligible. Together with the Structural Study Associates (SSA), whose members remained anonymous, Fuller developed the idea of a universal architecture. It is based on a highly individual interpretation of life: the ideal can be pictorially reproduced.

EXTRACTS FROM 'UNIVERSAL CONDITIONS' OF STRUCTURAL STUDY ASSOCIATES

ORGANIZATIONS PLUS AND MINUS. THE SSA. A PLUS UNION

Official, or semi-official, exploitation and protective associations in architecture, real estate, business, etc., whose professional opportunist management, effete counterpart of labour, boss, or vice racketeer, representative, not of the dominant ideals, or progressive standards of the group whom they have organized, but of the negative residuary quantum of fear, bad faith, jealousy, covetousness, non-self-confidence, and laziness, hold their prestige, and job, so long as they can, first – aggravate their membership's fear of the emergencies caused by progressive industry's threat to static exploitation, and secondly by sustaining an aesthetic or ethic leech-hold upon pioneering productivity. Such associations have constituted a dominant obstacle to universal architecture – and conversely the high potential of current economic stress.

It is worthy of note that the SSA represents a group mechanically cohesive through a positive creative and progressive urge, no personal names being identified with the work, members being designated only by numbers, as compared to designers' associations boastfully exploiting past records of members. Self-effacing, and service-minded, somewhat after the manner of the Ford planning department, they concern themselves not alone with the final structure, to be reproduced in quantity, but also with the complete ramifications of the industry, from elemental source to the site; and, thereafter, throughout service and replacement cycles, calling even for searching consideration of contiguous sociologic development and its potentials for further growth, through design.

The group, forming an abstract association, held together only through 'good faith' and a singleness of purpose, deals only in intercourse of ideas, but cannot buy or sell. (The writer has assigned all his sixty-two patent ideas to the trusteeship of the SSA.) All ideas developed by the group will be protected to prevent monopolies in industrial design, but never to paternalize selfish advancement – or to enjoin progress.

SSA DEFINITIONS – CONDITIONS AND INTEGRATION

I. SCIENCE

The word 'science' as defined by Eddington, and generally agreed to by Pasadena group scientists, is extraordinarily simple – to wit:

'Science is the attempt (continuity or time word) to set in order the facts of experience.' To which we add that: science is the resultant of intellectual activity which is essentially:

'Selection' an individual phenomena, time controlling, and the human phenomena's unique survival tool – intellect is sole guide to 'Universal Architecture', which is humanity's supreme survival gesture. Universal Architecture scientific antidote for war.

STRUCTURE=SCIENTIFIC ARTICULATION

Universal requirements of structure provide for scientific survival and development of human phenomena, in following sequence:

1. OPPOSITION TO EXTERNAL DESTRUCTIVE FORCES, via spatial control against:
 - earthquake
 - flood
 - gale
 - tornado
 - pestilence
 - marauders
 - fire
 - gases
 - selfishness (Politics, Business, Materialism)
2. OPPOSITION OF INTERNAL DESTRUCTIVE FORCES, via spatial control for:
 - a. nerve shock proofing
 1. visual
 2. oral
 3. textural
 4. olfactoral
 - b. fatigue proofing (human robotism, drudgery).
 - c. repression proofing (don't proofing, fear mechanical inadequacy developed by accidents, arbitrary cellular limits of activity), (negative partitioning).
3. PROVISION FOR UNSELFCONSCIOUS PERFORMANCE ON INEVITABLE MECHANICAL ROUTINE
 - a. fuelling (eating), (metabolism).
 - b. sleeping (muscular, nerve and cellular re-alignment).

- c. refusing (internal, i.e., intestinal, etc.; external, i.e., bathing or pore cleansing; mental, i.e., elimination by empirical dynamics; circulatory, i.e., atmospheric control).

4. DEVELOPMENT REQUIREMENTS OF GROWTH PHENOMENA, require mechanical provision for:

- a. selective awareness of universal progressions
1. History – News – Forecasts (Library-Radio-Television, etc.)
 2. Supply and Demand
 3. Dynamics
- b. adequate mechanics of articulation (prosaic or harmonic) conversation, i.e., communication, direct or indirect, oral, visual or textural, (this includes necessity of transportation) and bespeaks any and all means of crystallization of universal progress.

II. ART

ART=net resultant of momentarily (time fix) dominant articulability of ego's cosmic sense.

1. Time

Scientific concept indicates one dimension only, i.e. – TIME DIMENSION – indicating 'how far' from the centre out. This dimension geometrically articulatable by any one of infinity of coincident radii of a sphere. (Which accounts for coincidence of 'the infinity of unity' with 'the infinity of multiplicity'.)

'Raising' an abstract indicator, or number, to any 'power', or taking any 'root' of it, now graphable by spheroidal volume increase, or decrease, respectively, through proportionate radial increase, or decrease; – there being an infinity of potential perpendiculars to surface of sphere identical to radii, which fulfils Euclid's requirement for additional dimensional characteristics, non-graphable above 3 in Euclid's suppositional cubistic universe, but spheroidally graphable as indicated by simple mathematics, wherefor:

Essence of design=time control.

Essence of universal discourse should be time language or language of continuity (discarding such words as 'fundamental' or basic).

2. Space

Universal problem of architecture is to compass space (space being mathematically convertible to time via the abstraction of angularity).

Problem is, subsequently, to control the space compassed; and subsequently to develop selective control of compassed space, which control will allow of ever variable complementary harmonic awareness of any and all sense-organizations to be sheltered within the compassed space.

3. Harmony

We can only be aware of structure via its harmonic continuity reaction (minor or major mode, damn or please) upon one or more of our four senses – **visual, oral, textural, olfactoral**. So that each unit of structure should be checked as to its neutral aspect in relation to these four senses, and the ability, thereafter, should be mechanically provided, to impose an infinity of mutable, selective sense-limited, harmonic progressions thereon, consistent with de-selfing trend of harmony, from direct personality limit to abstract infinity.

III. INDUSTRY

By 'ideal' we mean the latest sensation of refinement towards perfection along any one time line, and by 'standard' the group ideal. The 'standard' being graphed by the most encompassing sphere of our awareness terminating the conscious exterior limits of all our radionic time lines of experience.

By 'industry' we mean the phenomena of scientific human-effort-coordination of three or more beings, which, through selected activity of the two-or-more beings, made possible by the third being, in whom the two-or-more divided-activity-performers have faith that: he truly has divided the effort; and will co-ordinate that effort, to the end that: mutually profitable resultant compositions are obtained, within a reasonable time limit, beyond the physical ability of any being, or group of beings, non-mentally co-ordinated, to obtain, within all time. **Industry can only concern itself with reproduction of those designs which adequately satisfy the 'standard', and are reproduceable in a quantity directly proportionable to their timeliness and adequacy;** in relation to which, industrial satisfaction, 'standards' improve (include and refine), and without which satisfaction standards cannot improve – such is the human progress responsibility of reproductive design, being based on our philosophic interpretation of LIFE, to wit, that that which is ideal enough becomes reproducible in its own image, be it a baby, rose, or bicycle.

Science + Art + Industry = Universal Architecture

ESSENTIAL PHILOSOPHY OF UNIVERSAL ARCHITECTURE

The ideal of modern architecture being an articulated mechanical adequacy that not only frees human phenomena from robotism of inevitable survival functions; but also, and moreover, tends towards progressive material unselfconsciousness of control, of such adequate mechanics of universal life intercourse, as to bring into high relief the residuary 'mental', or 'time', awareness of only the eternally ex-static: harmonic, phenomena – thus bespeaking, via the contemporarily, and embryonically, envisioned universal architecture (i.e., radionic-time-growth composition, progressively complementary to, and synchronizable with, a comprehensive life concept, scientifically arrived at, and harmonically sustained), an eventual elimination of the

'time' phenomena (a 'past' and 'future' based on auto-suggestive procrastinating fallacious concept of the 'would-be static entrenchment of the selfish ego') which 'time' phenomena blinds the ego to the infinity of delight of the eternal 'now', visible only through the universally concerned intellectual optics of integrity.

Verbal Graph of Philosophy of Cosmic Trinity of Stability (no pure condition) (speaking in terms of direction not statics).

1. **INDUSTRY** = eternal life force – dynamics – time relative mobility within conscious limits of cosmic sphere between relatively smallest and largest mental radial activity
2. **SCIENCE** = radial direction life-in – philosophy
= functionalism, essential extraction, refines toward selective simplicity of the infinity of unity.

Dissection

singularity – male – compression –
pressure – internal – intellect –
abstraction – eternity – subconscious.

3. **ART** = radial direction of life-out – knowledge
= harmony – time synchronization – refines towards selective multiplicity of infinity of completeness.

Composition

plurality – female – tension –
vacuum – external – sense –
articulation – time – conscious

PHILOSOPHY OF 'GROWTH' (synchronizing design with scientific cosmology of relative radionic expanding spheres – entropy – cosmic radiation increase – life cell continuity)

The whole composition should never be dependent on the relative success of any one unit: and, or, positively stated, all units should be independently (flexibly, angularly) aligned to the whole composition of structure, and therefore progressively replaceable by ever more adequate unit solutions, thus making for an evolutionary growth to an intellectually (selectively) refining totality, within a time span, relatively exquisite, as compared to the gross tardiness of 'naturally' eliminating destructive staticism, which latter invokes revolutionary, and iconoclastic, replacements of 'whole old compositions', when the static ideology becomes dominantly incompetent, through a plurality of compromise paralysed cells.

We apparently may be directionary, that is radially, but not time specific, when in relatively radiant control of our being. Wherefor we should determine our 'ideal' and 'shoot' for it. Though our concept of an empirically derived material 'goal', by virtue of working of scientific postulate of positive growth, (Entropy, i.e., law of increase of the random element, cosmic radiation force increase, etc.) original 'goal', by time of accomplishment, so relatively 'small'

that highest urge of unselfish ambition, is niggardly in proportion to unforeseen, unexpected, unconscious attainments, en route our mirage-like, historically-articulated, ideal, when served with integrity.

TYPICAL LANGUAGE OF DESIGN OF ESSENTIAL PHILOSOPHY UNIVERSAL ARCHITECTURE

Angular modulus of unification.

Metrical measure for radial or time distances.

Flexible joints for force intercourse.

Unity of assembly contact = 'hook-up'.

Segregation of function with specific solution in terms of dynamics, with ultimate material choice on basis of specific economy, i.e., mean of longevity, transportability, availability, workability.

Centralization of mental activity – decentralization of physical activity (either personal or communal or industrial).

Maximum lightness – consistent economy.

Up and out (fountain like = deliquescence).

Use forces – do not fight them.

Material structure essentially functional – harmonies mobile and abstract from zero to selective sense limits.

Progress by creation – by increase in volume.

Complete independence of survival and sustenance bespeaking communities of choice not imposition.

No secrets.

High longevity through flexure and load flow in tension.

One for all and all for one.

Specific longevity consistent with economic adequacy and industrial continuity, citable each unit of composition.

Relatively immediate availability in time or space – mutability and mobility.

Whole composition or unit thereof.

General dynamic awareness that all elements go through solid, liquid and gaseous state, with automatic, spheroidal, volume increase, plus impact load flow distributability, indicating that we should SOLVE:

1. Structurally-balanced tension functions by elements in solid fibre-pack state; and
2. Structurally-balanced compression functions by elements in spheroidal liquid state; and
3. Eccentric loads, impact to structure, etc., by initial exposure of solid, load-flowing, tension member; compassing load-flowing, liquid, compression member; which, in turn, compasses ultimate shock-absorption member, which is element in its elastic, gaseous state, as – for example – life cell, or football containing 90% water, 10% air.

Universal Architecture's Town Plan – Cosmos = World, and particularly dry

land portion of World's surface, without national reference=54 acres per person in A.D.2000. (England and R.I. now average four persons per acre.) 26% Earth surface is dry land of which 50% 'Habitable' - whole human family two billion in A.D.2000 can stand on Island of Bermuda. Ample room. Town Plan based on primary World airways utilizing prevailing winds and great circle courses.

LIFE CONTINUITY VIA UNIVERSAL ARCHITECTURE

Consistent with foregoing concepts of universal architecture, and quite inconsistent traditional dogmatic orders, architecture - Stone Age to International - (inclusive), following clippings from newspapers - front-paged in Chicago and back-paged in N.Y.C. (industrial geography phenomenon) are of extraordinary importance, and pertinence, to this article. Supplementing them by review of fact that biology indicates that, with internal and external mechanical aids, life cell group of tree structure in its geometrical progression of volume increase, in its continuity of angular cell pack outgrowth, may attain infinity: and reviewing fact that life cell of human is identical to that of tree, and has, if scientifically understood, more able mechanical supporting structure for survival: and reviewing recent professionally accepted knowledge of glandular phenomena, which indicates life cell grouping may replenish to infinity human structure and mechanics, via colloidal chemistry, by catalytic prevention glandular cell paralysis through cloture; the concluding paragraphs may not seem specious.

A back section Sunday *New York Times*, 24 January 1932. (Excerpt)
'Dr Robert A. Millikan revealed last night apparently decisive proof of his theory that cosmic rays signal the continuous rebirth instead of the destruction of the material universe. The consensus of opinion of one hundred scientists, including Dr Albert Einstein, who heard the talk at California Institute of Technology, was that Dr Millikan finally has refuted the theory of Sir James Jeans, who holds that the mysterious rays are "death wails" instead of "birth cries" of atoms.'

The front-page *Chicago Sunday Tribune*, 3 January 1932. (Excerpt)
'SCIENCE FINDS COSMIC CLEW TO HUMAN DESTINY. DR COMPTON EXPLAINS.'

'If we wish to retain any exact relation between cause and effect, we must postulate a world related to the physical world, but regarding which experiment gives us no information, in which the events may be determined.

'In such a non-physical world it is possible that motives and thoughts may play a determining part, while in the physical world in which such things remain unnoticed, events appear to follow the laws of chance.

'The new physics does not suggest a solution of the old question of how mind acts on matter. It does definitely, however, admit the possibility of such an action, and suggests where the action may take effect.'

A back-page *New York Times*, 2 February 1932.

'Dr Michael Pupin, who received a few days ago the John Fritz Gold Medal, the highest honor bestowed by the engineering profession in the United States, predicted yesterday that a complete transformation of civilization was coming as the result of our growing powers of electricity.' Dr Pupin said, 'Electricity is a celestial gift to man. It has the power to lift the life of man higher than any of us have yet dared to dream about. When man has achieved control of that power, the miracles of the present age will seem insignificant in comparison and man may at last achieve an existence akin to that of the Olympian Gods.' Dr Pupin asserted that while science is making rapid strides in conquering the material universe, man's spiritual progress has lagged. He spoke mournfully of the 'tragic lack of development of human love'. 'Hatreds, ignorance, petty jealousies, and prejudices are responsible for the wars, business depressions, and other sufferings of the world', adding that 'as long as man's spiritual being is retarded in its growth we will be unable to enjoy to the fullest the fruits of material progress.'

Architecture of past has not considered such 'news' as directly inclusive. Architecture of Universal now does consider such news as directly inclusive.

DREAM CASTLES

Galsworthy, in an essay entitled 'Castles in Spain', in the annual *Yale Review* for 1922, wrote that 'on 8 July 1401, the Dean and Chapter of Seville assembled in the Court of Elms and solemnly resolved "Let us build a church so great that those who come after us may think us mad to have attempted it", and it took five generations one hundred and fifty years to build it.' Galsworthy then went on to cite twentieth-century structures such as Woolworth building and Panama Canal, and to compare the fact that the Sevillians built entirely for their spiritual needs and thought naught of the practical needs of those who built; while the twentieth centurist apparently built entirely for his immediate needs without spiritual consideration, going on to suggest, however, that a middle course would develop - balancing life. The article, beautifully written, was an inspirational catalytic for the writer, to so extraordinary extent [*sic*], that he resolved that, no matter how mad it might seem, to set his ideal on a universal architecture so great that it might not only bring this result about, but also be the primary cause, and means of realization, of science's timidly voiced observation that continuity of life in its present structure, without the phenomena of total death and replacement, was theoretically discernible. It has always been the writer's notion that effective results may only be obtained through external articulation, for any brain-conceivable problem (that wishes are reasonable, as we can only wish within our thought limits, and all thoughts are in the terms of experience-compositions, in which dynamic principles are, often obscurely, embedded, but derivable through de-selfing thought). But as man first conceived of flying, he pictured himself sprouting, or grafting on wings, on personal equation basis.

He accomplished flying (overcoming gravity) by an external intellectual articulation, i.e. a machine, which need not physically encumber the human, when not flying – as would wings – so, while eternal life and ‘fountains of youth’ have been despaired of as personal adjustment developments, the new universal architecture of a physical – intellectual – scientific external machine holds promise of accomplishing the life balance.

Major attainment of this ecstatic life dream may take 150 light years, or 150 world years, we cannot be time specific, but these aware (as for instance, Mr Wells, in his current contributions) of the relative tempo-increase of physical articulation attainment, of the human phenomena (on a geometrical progression basis, in comparison to past rates of accomplishment, in proportion to world time cycles, as based on the rhythm of natural cycles of astronomical relationship), will have high faith of a reasonably immediate dawn of synchronization. Those who are scientifically minded know that the nature of a mathematical equation is such that a problem adequately stated is a problem solved. The writer can say no more in his personal equation language of ‘Humpty-Dumpty’, other than exhorting high countenance of the colloidal flux of science, industry, art, and life; to wit – have faith in the progressive intellectual revelations of the unity of truth, of the truth of unity, and of the unity and truth of the eternal now!