

The Marriage of Energy and Matter

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Over the years, frequently I have been asked: “*What do visionary drugs do?*” In service of perspicuity, I shall call them *psychoptic* drugs (those that propitiate “vision of the mind or soul”) [Anon. 1864–1928]. The great Usan (U.S.-an) entheobotanist, Richard Evans Schultes, ever had been wont to disparage any *spiritual* interpretations of his multifarious experiences with a broad diversity of (psychoptic) shamanic inebriants—or *entheogens* [Ott 1996; Ruck *et al.* 1979], and would *deadpan*, jocosely: “I merely see *little wavy lines*.” I, too, have perceived suchlike “wavy lines,” which I call *arabesque* (as opposed to *geometric*) *patterns*: as it were, *projected-onto* the field of one’s vision. In response to this same question, the late Usan drugs-chemist Alexander T. ‘Sasha’ Shulgin often would remark (I paraphrase rather than quote *literatim* these two important pioneers): “*Psychedelics* [the term he’d favored] don’t *do* anything! They enable **the user to do, or experience, something different.**” While I take not exception to either of their responses, the former is rather flippant; the latter, not overly illuminating to the naïve (those, not “experienced,” in the words of Jimi Hendrix). The best, clearest answer I can give to this common question, is as follows: visionary, or psychoptic drugs, enable the user to experience the World, more as **energy**, than as **matter**—as, in fact, *it really is!* This hardly is some flight of poetical fancy—indeed, it is a sober reflection upon the architecture of **matter**... of the Universe. I shall elucidate this, with a minimum of technical terminology: having recourse only to simple solid-geometry-mathematics.

Through the *Objective* Looking-Glass

Objectively, with our attentions focused-on the Exterior World (setting aside the *solipsism*, of David Hume [1739–1740]), psychoptic drugs enable the *Psychonaut* (that is: the explorer of the

Psychocosmos [Jünger 1949,1970]) to perceive the World, more as *energy*, than as *matter*—as it truly is! Forsooth, *the only thing that we can see*, is the *reflection*, of a beam of *Electromagnetic Energy* (‘light’: the *photon* [particle of light] is the *boson* or bearer of the *Electromagnetic Force*; one, among *four*, *Fundamental Forces* [or *five... six?*: if it be *real*, the force of the Higgs Boson (nothing less, than *mass* itself), and that of suppositious Dark Energy (*its boson*, be the *inflaton?*) would have to figure in the list]), which rebounds from *the surfaces* of objects, to enter our eyes, and there excite photosensitive cells upon the retina (*via mechanisms biochemically* analogous to the photovoltaic effect in a semiconductor-diode of *silicon* or *gallium*—the photon ‘liberates’ an *electron* [*Vide infra*]; or ‘excites’ it: promoting it from the ‘valence’-, to the ‘conduction-band’).¹ All that we see *literally is* Electromagnetic Energy (the inscrutable process which devolves in the *mental mirror* of visual *perception*, is called *psychoöptics* [a facet of *psychophysics*—in contrast, to the adjective *psychoptic*: pertaining to “vision of the mind or soul”]—that so stubborn process, through which, obstinately, we reify this energy, is called *materialism*). Plato (V–IV Centuries of the Archaic Æra), in *The Republic*, fortuitously and quite unintentionally approximated a modern physical description of visual perception, with his famous parable of persons chained perpetually within a cavern, ever facing-away from its luminous mouth (or, some fire)—that we are able to see merely “Imitations” (these, literally are *mirror-images*): just like moving *shadows*, projected-upon the wall, before those troglodytes; *never*, what Immanuel Kant [1788] called “the thing in itself” (that is: “*Ding an sich*”) and that which Plato had denominated “Ideas,” or “Archetypes” (the *type* of the *Arche*—which then was the postulated Fundamental Particle of the Universe).

Moreover, *every* object, that reflects beams of Electromagnetic Energy, consists of **energy**, more than of **matter**! ‘Solid’ matter, made-up of *atoms*, is composed of two *quarks* (*viz.*: the *up*-quark, with +2/3 charge; and the *down*-quark, with –1/3 charge) and one *lepton* (the *electron*, of –1 charge)—three, among twelve, *fermions* (three [+ / –] pairs of quarks, plus three [charged / neutral] pairs of leptons: the pair of the electron, is the *electron-neutrino*; the *fourth*, and last, of those twelve, which corresponds to ‘ordinary’ matter—albeit *not*, precisely, as a component), or **Fundamental Particles**, that constitute and incarnate *the most diminutive matter* (fermions have diameters of ~**1.0 am** or 1×10^{-18} m; in contrast to ‘gigantic’ *atoms*, with an average diameter, of **100 pm** or 1×10^{-10} m). Even an atom, of the largest *element* (thus far), *oganesson* (Og, Atomic

Number 118), contains merely **1,000** (while the smallest atom, *hydrogen* [H, Atomic Number 1: to be precise, its *isotope, protium*] only **4!**) of these minuscule particles (**882** quarks [as 412 *up*-, 470 *down*-], plus **118** electrons), within an atom, roughly **100-million-times larger** than each! In other words—applying the solid geometry of Euclid—‘solid’ matter contains *a maximum* of **one** part in **1,000 million-million-millions** (*i.e.*: **1 x 10⁻¹⁵ ppm**, or **1 x 10⁻¹⁹%**), of solidity! In fact, it contains *still less*, insofar as every atom of ‘Period 7’ is larger, than the ‘average’ atom. *All* of the remainder is **Inner Space**: proportionately, every bit as vast, as is **Outer Space**! Were *Helios*, our Sun, the *nucleus* of an atom, the *Heliopause* (outer limits of our Solar System), which *Voyager 1* required 40 years to reach (traveling at 1.5 million kilometres/1.5 Gm *per* day—or, able to reach Gæan Moon in less than six hours), would have to be extended **three-fold farther** from the Sun, so as to model the radius, of an ‘average’ atom! *Voyager 1* would require 240 years, to traverse a complete diameter, of such a ‘Cosmic Atom’—even *light* would require 5.4 days!² Neils Bohr’s model of an atom, as a *nano-* (rather: a *pico-*) Solar System *fails*, because *our* Solar System... *is much too small!* It is the *momentum* of the electrons, their *charge* (and that of the quarks), which alienates one, from another—thus is *inflated*, and *bulked-up*, the volume of these *rarefied*; *aye!*, *vacuous*, atoms. To put this most perspicuously and brutally: could we supersede or eliminate the *momentum* and *charge*, of these fermions, *all* of the ‘solid’ matter, in our entire Planet, might be crammed-into a sphere of **less than two metres in diameter!** *All* that remains... is **Inner Space!** I might advert parenthetically, that it could be more facile to do this, than to wrap our heads ’round so *astonishing* a *datum!* Our Planet, *Gæa* (the densest Planet in our *Helian* Solar System), has a diameter of 12,756 km (or 12.756 Mm); and a mass, of *ca.* 6.0 x 10²⁷ grams (or 6,000 Yg—Y/y, *Yotta/yocto*, 10^{±24}, is the limit of the Metric System—I have proposed *O/o*, *Otta/octo*, for 10^{±27}).

Whensoever we visualize matter, the light in reality is reflected from *an electronic field* which occupies most of the vast space between these minuscule Fundamental Particles (*per se, invisible* pursuant to any perspective, that would permit an observation of an entire atom—not to mention, conglomerations of innumerable atoms), and these electrons and quarks are, in truth, the Platonic “Ideas” or “Archetypes” (so sorry: *Eidectrons* and *Quarketypes?*). That genial neologism, *quark*, derived from James Joyce’s *Finnegans Wake* [1939]; which, according to that tribunal consulted,

is *the most sublime production*, of universal Literature... or *the most infuriating atrocity*, of some erudite, literary manustrupation (I contrive to reconcile both of these judgements).

It is apparent that Plato had been an *epoptes*—‘one who had **seen**’ *ta hiera*, ‘the sacred’: an initiate, into the ‘Higher Mysteries’—that he had imbibed the entheogenic *kykeon* (‘the mixture’: a synonym of *chacruna*, leaves of *ayahuasca*) in the *Telesterion* (‘Goal’), at Eleusis [Wasson *et al.* 1978]. Thus we see that the *kykeon*, *ayahuasca*, or any number of other psychoptic drugs, in no sense could be ‘**hallucinogens**’—quite the contrary: they afford us *a more faithful vision of substance*... as **energy**, more than as **matter**. In a kindred fashion, our tactile sense deludes us: inasmuch as, in reality, no particle of matter can touch any other. Should a gourd of *ayahuasca* rest upon a table (the rustic ‘altar,’ shall we say, of a remote, Amazonian hut)... that would be analogous to some *maglev*-train (‘magnetic levitation’), stopped at its station. Those peripheral electrons, of the superficial atoms in the shell of the gourd, repel their homologues, in the wood of the table: these possessing the like, *negative*, polarity. This rather is like endeavoring to touch two identical poles (whether North or South) of a pair of strong magnets... save only, that *the intensity* of the force, and *the separation*, are vastly inferior. The same applies to *a plasma* (the *fourth* state of matter: free atomic *nuclei*, and free electrons; as within a *Tokamak*, or ‘doughnut’-magnetic vessel from a nuclear fusion-reactor); except, in that case, it also is the *positive* nuclei, which (mutually) repel one another. This accounts for the quandary, that nuclear fusion requires inconceivable energies, so as to approximate four nuclei of *hydrogen* sufficiently, that they may *fuse*, into *a single nucleus of helium* (He, Atomic Number 2: with 2 protons and 2 neutrons). The *hydrogen*-nuclei (that is: of the isotope, *protium*) consist of solitary *protons* only: two *protons* are transmogrified into *neutrons*—pursuant to the ‘oscillation,’ of one quark each [*Vide infra*].

To culminate my tutorial of nuclear ‘chemophysics’ (and also, fully to unveil *ta hiera*), quark-compounds are known as *hadrons*: either *mesons*, with two; or *baryons*, with three. These atomic nuclei, having 1/100,000th of the total atomic diameter (average: **1.0 fm**, or 1×10^{-15} m), may be fractionated, into two *baryons*—the *proton* (2 *up*-quarks + 1 *down*-quark: net charge = +1 [total number of protons, or *Atomic Number*, defines the element]); and the *neutron* (2 *down*-quarks + 1 *up*-quark: net charge = ± 0); with diameters of *ca.* **100 am**, or 1×10^{-16} m. The *Strong Nuclear Force* (*gluon*, its boson) binds *three* quarks, within these baryons (the *SNF* is *by far* the strongest

force: which must overcome the repulsion, between two *like*-charged quarks; both attracted, to the third quark, with *an inverse* polarity). Even these baryons, 100-fold larger than their (three) constitutive quarks—these hadrons, ***the most solid*** of all that that exists, which incarnate *almost all* of the mass of matter—can claim merely **3 ppm (0.0003%)** of ‘solidity’! The ‘oscillation,’ of one *up*-, to one *down*-quark (*per* the *Weak Nuclear Force*, with its three bosons: W^+ , W^- and Z), transmogrifies a proton, into a neutron (and, *vice versa*). The final one, of those four (‘classical’) Fundamental Forces, and—with *a titanic difference*—*the weakest and the most tenuous* (should you fall-down: take consolation in this!), is, of course, the immanent *Gravity*, with its (pretend-) boson, the *graviton* (which *has not* been discovered yet... nor, *ever is likely* to be).³

Finally, to model an *atom*, at our human scale: let us suppose *fermions*, the size of **1.0 cm pearls**... the *baryons* of the nucleus then would be **1.0 m-diameter beach-balls** (each containing only **3 pearls**); the *nucleus* itself, a **10.0 m-diameter meteorological balloon** (containing from 1, up to 294, **beach-balls**)—whereas an entire *atom* then would be **1,000 km** in diameter (1.0 Mm: slightly larger, than the **planetoid Ceres**; and 12.8-fold smaller, than our Planet, *Gæa*)! O... that plastic, which conforms all of the **balloons**, even as the crust of the **planetoid**, in reality *does not exist!* **The energy**, surrounding the cohorts of **3 pearls**, occupies the volume, of each **beach-ball**; as **energy** of a cohort of these occupies that of the **meteorological balloon**. Dispersed throughout that vast volume, of **planetoid Ceres** (in its center: a diminutive **meteorological balloon**, of 10.0 m-diameter), are found **26** (in the case of *iron*, Fe: Atomic Number 26), unto a maximum of **118** (in the case of *oganesson*, Og: Atomic Number 118) minuscule **pearls: the energy-field** of which occupies, and delimits, the whole! To be able to contemplate an entire *atom*, the only ‘solid’ parts of this—its constituent *fermions* (*i.e.*: electrons and quarks)—*would be completely invisible!* We cannot, therefore, with precision, view this, our Universe, **as a material construct**—*Q.E.D.*⁴

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Our Lady Gæa: a tremulous, cærulean sphere, of congealed, all unfathomed, **Inner Space**... precipitating herself, quite quixotically, throughout that curvilinear fastness, of **Outer Space**...

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She orbits *Helios*, at ~**108,000** km/hour; with *Helios*, orbits the galactic core, at ~**754,000** km/hour; together with the *Milky Way Galaxy*, she travels at ~**22 Million** km/hour. Meanwhile, the radial velocity (of the axial rotation), upon her Equator... is **supersonic** (~**Mach 1.4**)!

Poëtic Counterpoint

The voice of the Devil

All Bibles or sacred codes, have been the causes of the following Errors.

1. That Man has two real existing principles Viz: a Body & a Soul.
2. That Energy, call'd Evil, is alone from the Body, & that Reason, call'd Good, is alone from the Soul.
3. That God will torment Man in Eternity for following his Energies.

But the following Contraries to these are True

1. Man has no Body distinct from his Soul for that call'd Body is a portion of Soul discern'd by the five Senses, the chief inlets of Soul in this age
2. Energy is the only life and is from the Body and Reason is the bound or outward circumference of Energy.
3. **Energy is Eternal Delight**

The Marriage of Heaven and Hell, William Blake [1793]

Through the *Subjective Looking-Glass*

Subjectively, the *ecstatic*⁵ state which (in optimal conditions) psychoptic drugs may evoke in us, places a mirror before *the soul* (or *centre*, or *inner self*: *the essence*, of a human being)... the

Psychoptic Looking-Glass (in 1744, this was coined to name some ‘magic lantern’-projector) [Anon. 1864–1928]. As this might be: the pellucid *Mimir’s Well*, at the foot of the *Cosmic Tree*, *Yggdrasil*, overflowing with *Othrörir*—that visionary *Mead of Wisdom*, of Odin (or Wotan)... mayhap that crystalline spring, whereby Echo had espied Narcissus, contemplating himself. The martyred 16th President of the United States, Abraham Lincoln, remarked, with a rustic candor which is anathema to self-respecting, contemporary politicians: “You can fool *all* of the People, *some* of the time; and *some* of the People, *all* of the time... but you cannot fool *all* of the People, *all* of the time.” Nevertheless (at least in a quotidian fashion) we are—**all of us** human beings—*experts at fooling ourselves* (almost) *all of the time!* **We all** are ‘pre-programmed,’ with mental automatisms; as, for instance: *selective* memory; *false* and completely *fantastic* memory; almost infinite capacity for *rationalization, ex post facto*... As *automatic*, as they are *unconscious*, these and other mechanisms ever conspire, to ‘paint the color of roses,’ our own *acts* and *motivations*; to tergiversate events and personal interactions; so ever to place *us* in the best light or perspective possible; albeit were this, at a cost, of besmirching ‘the other’: even the most beloved person! So we elaborate an obdurate self-image—*all but impervious to any contrary testimony*: to obstinate and inveterate *facts* (as ‘though this were of *the hardest steel*, covered with *Teflon™*)—which, as an absolute rule, omits or quite overlooks one or another facet (perforce being nugatory and not, strictly speaking, laudatory); despite the fact that any friend or ‘other’ who knows us well, would place *that* in the first rank... all while this accentuates or highlights miscellaneous *noble, refined* or *attractive* qualities which, inexplicably and enigmatically, had escaped the notice of the entire world: not excepting that, of those most dear to us! Under the appropriate conditions (*viz.*: dearth of sensory stimulation; solitude; some serious and explicit intents; conscientious preparations), a psychoptic drug, of a sudden, might dissolve or compenetrates this labyrinthine miasma of *fiction, rationalization*; aye!, of the most intrepid and impudent *fantasy*: to **show** ourselves, **to** ourselves, as it might be, *in the eye of the beholder*, to “the disembodied eye”—at all events in a light more faithful to **Reality**, than to our most perfervid and hyperbolic *desires, wishes* and *prejudices*. As Henry David Thoreau [1854] speculated: “Could a greater miracle take place than for us to look through each other’s eyes for an instant?” This *pharmacotheon* (or *medicamentum divinum*) just might facilitate our passage, into a *trans-linguistic realm of direct experience*: of being unable to

name, characterize and/or analyze objects—enabling us, instead, to perceive their living, their *immediate essence*—to behold them, *of themselves*; not *as abstractions, or memorable images* (such being merely “Imitations,” according to Plato)—“Ah... *that is a table... there is a gourd of ayahuasca...*”—in open-mouthed-astonishment, bereft of words, it might unveil to us, denuded, ***our very souls***, reprimed: stripped of their dense accretions of layers, upon layers, of *fantasy* and *prevarication*... reveal to us, before this ***Psychoptic Looking-Glass***... our very own, living, aye!, ***our reprimed souls***... *sans* fripperies... without furbelows, nor any cosmetic patches.

Reprimed... a parlous potential skulls, latent... in this very brutal *efficiency*, and the exquisite *specificity*, of such wise *a psychological scalpel*—for *the dissection*, for *the unveiling of the soul*. There are, manifestly, persons so rigid and controlled (bulwarked in ‘character-armor’... in the words of Wilhelm Reich); whose personal biographies enshroud, mayhap occult, chapters all too dreadful or horrifying... they, who might lament with King Macbeth, “O, full of Scorpions is my Minde”—*attributed to Shakespeare* [1623 (1606)]—such that one or another decalitre, of rose-colored-paint just might be *medicinal*... frankly, *palliative* and *lenitive*... I say!, but a little short of *indispensable*, to facilitate a social adequacy, however truncated or meretricious—so that such persons might not find themselves, like Rodion Raskolnikov (of *Crime and Punishment*, Fyodor Dostoëvsky [1866]), complacently ensconced in some foetid and wretched attic, withdrawn from social contact; perchance emerging, only to murder and despoil an aged usurer. As Henry Jekyll learned, to his dismay (in: *Strange Case of Dr Jekyll and Mr Hyde*, by Robert Louis Stevenson [1886]), his “Transcendental Medicine,” far from *mollifying*, or *reconciling him*, with his ‘inner monster,’ ended as ‘the caged’: “came out roaring,” then gathered strength, and ultimately took full control; eventuating in a perpetual imprisonment of Jekyll! To be sure, that class of persons who harbor tenebrous monsters within them, should head the list, of those most necessitous of psychotherapy in general, and of the *Psychoptic Looking-Glass* in particular: with all due cares and precautions. As that usurper, King Macbeth, had asked rhetorically (concerning *the mental alienation* of his Queen, the dire Lady Macbeth: *play attributed to Shakespeare* [1623 (1606)]):

Can’st thou not Minister to a minde diseas’d, / Plucke from the Memory a rooted
Sorrow, / Raze out the written troubles of the Braine, /And with some sweet Oblivious

Antidote / Cleanse the stufft bosome, of that perilous stuffe / Which weighs vpon the heart?

Two “Memorable Fancies”

How do you know but ev’ry Bird that cuts the airy way,
Is an immense world of delight, clos’d by your senses five?

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The Prophets Isaiah and Ezekiel dined with me, and I asked them how they dared so roundly to asfert, that God spoke to them; and whether they did not think at the time, that they would be misunderstood, & so be the case of imposition.

Isaiah answer’d. I saw no God, nor heard any, in a finite organical perception: but my senses discover’d the infinite in every thing...

The Marriage of Heaven and Hell, William Blake [1793]

Through the Psychoptic Looking-Glass

Like the (perhaps not entirely) fictitious Alice (Liddell?), in Charles Lutwidge Dodgson’s (or Lewis Carroll’s) ‘visionary’ book and literary chess-game *par excellence*, *Through the Looking-Glass, and What Alice Found There* [1871(2)], this **Psychoptic Looking-Glass** might afford us a perspective beyond the *superficial*: transcending our visual ‘imagination’ based on *the reflections of energy*, from *the surfaces* only, of this lovely World. Mayhap this vouchsafes us a glimpse of:

The vndiscovered Countrey, from whose Borne / No Traueller returnes...(*play attributed to Shakespeare [1623 (1603–1604)]*).

This—to be sure—is from the climax, of Prince Hamlet’s ‘immortal’ soliloquy-lament. With dulciloquy, we might call this “Wonderland”... it simply is *the Real*, inherent in *the Apparent*. Examining the *minutiæ* of the most materialistic of the sciences—*chemistry* or ‘chemophysics’—we found scant-little support for a materialistic *Weltanschauung* (‘world-view’). We learned that there really *isn’t much matter, in matter*: that **energy** rules the *sub*-atomic roost (and for about a Century now, we have *known*, we have *proven*, that *matter* and *energy* are interchangeable; but two sides, of one coin—that *one single gram of matter* embodies **the energy, of 330,000 litres** [around 300 Mg] of petrol, of gasoline!). Einstein’s famous formula: $E = mc^2$ (Energy [in *ergs*] = mass [in *grams*] times *the square of c* [or the speed of light, in *cm/sec*]); or, for **1.0 g**: $E = 1.0 \times (3.0 \times 10^{10})^2$. So, there lurks an **Energy, of 9.0 x 10²⁰ ergs**... within **one single gram of matter!**

It seems manifest to me that in the *Psychoptic Looking-Glass* I perceive the World more as it really is—as *living, dancing energy*; rather than *dead, inert matter*. This is **not** an hallucination! By the same token, Schultes’ “little wavy lines” (or, for me: *arabesque*, or *geometric patterns* or *designs*) are a concomitant of this perception of the World, as *instinct with energy*—shimmering, fluctuant *waves* or *auras* of *energy* ubiquitous; like Baudelaire’s [1860] “magical varnish,” or an iridescent oil-slick riding rippling waters, and flowing-over the World. Moreover, this *Psychoptic Looking-Glass* is **bidirectional**: acting, not merely, on the Exterior World (as a *picoscopic* ‘peer-glass’ into the occulted life of matter); but turning its [psych]optics *within*; proffering us hints, to those ‘*bio*-algorithms’ operative—somewhere, betwixt our retinas-*cum*-optic nerves; and some inscrutable psychoöptic mental screen of visual perception. Our brains, principally, are **visually wired**; and our visual perception very much is attuned-towards *seeking patterns* in the World. It looks to me, as if our perceptual *ordering* of this chaotic *energy*, ecstatically perceived, accounts for its *organization*, into luminous **patterns**. That is to say: those **patterns**... are our *projections* onto the World: through this *Psychoptic Looking-Glass*, we become able, in a sense, *to perceive* this, our unconscious, automatic, **pattern-seeking-function**, ‘hard-wired,’ into our brains! By an

analogy to computer-graphics-projections... we perceive our brains, breaking *apparent surfaces*, into tessellated polygons... or—as it sometimes happens to be—Oriental carpet-designs!

Withal, this multifaceted, *enhanced* perception—both, of the arcane and occult, *inner essence of matter, as energy*, ‘out there’ in the Exterior World; and of the inscrutable mechanisms, of my psychoöptic, mental screen, ‘in here,’ within my Interior World—has constituted, for me, nothing short-of *a Revelation*, anent one cold December-night, in Pittsburgh, at the end of 1968. Then... thenceforward—having ventured, *hundreds of times*, *Through the [Psychoptic] Looking-Glass*—I have inhabited a different World... this *ineffable* World, of intrinsic **Mystery** and **Wonder**... far more *intriguing and compelling*, than that *dead*, Materialistic World **I had been taught to see**...

End-Notes

1. To underscore the fact that all we *can* see is Electromagnetic Energy, let us examine human ‘color’-vision. What we call ‘light,’ or ‘the visual spectrum’ of Electromagnetic Energy, are those waves, having wavelengths, from *ca.* 380 to 780 nm (a span of **~400 nm**, or 0.4 μm : 4×10^{-7} m). Physiologists are in agreement, that we can discriminate, **at least one million** ‘colors’ over this spectrum (color does not exist *objectively*, but is *subjective*: this refers to subtle differences, in *the wavelengths* of that light—which correspond, in inverse proportion, to the *energies* of those light-waves: the *shorter* the wavelength, the *higher* is the *energy*... light-waves, perceived as the color *violet*, are more energetic, than those perceived, as *red*). Thus, in colors-perception, we can discriminate 4×10^{-7} m (or, the breadth of the visual spectrum) $\div 1 \times 10^6$ (*sub-divided*, into **one million** colors): or, with a *finesse*, of 4×10^{-13} m (**0.4 pm**, or **400 fm**)! This is equivalent, to our being able ‘to see’ something **250-times smaller** than an average atom (~ 100 pm-diameter) [*Vide infra*]! Insofar as the *geometric* limit to our visual discrimination is around **0.1 mm** (roughly, the diameter of a human hair: 1×10^{-4} m), our ability to discriminate minute wavelength-differences, as ‘colors’ (which is, in fact, **energetic discrimination**: or, our being able ‘to see’ differences *in energy!*), is equivalent to our possessing, effectively, a **~4-Giga-Powers** ‘micro’-lens, within our eyes [$4 \times 10^{-13} \div 1 \times 10^{-4} = 4 \times 10^{-9}$], or **4 billion-times** finer a discrimination, than the spatial!

2. In this ‘Cosmic Atom’-model, with *Helios* as an atomic *nucleus*, component *protons* and *neutrons* of that *nucleus* [*Vide infra*], would have the size of the Planet *Jupiter*; their constituent *quarks* (and their ‘orbiting’ *electrons*), roughly the size of our Planet, *Gæa*. Rather than situate, at some 23–23.7 Tm, or *ca.* **153–158 A.U.** from *Helios* (1.0 A.U. or ‘Astronomic Unit’ being the mean radius, of the Gæan orbit—149.6 Gm), the Heliopause (in this model: the exterior ‘orbit,’ of *electrons*) would be 70 Tm (**468 A.U.**) distant—instead of roughly **5-X; above 15-X** farther from *Helios*, than the orbit of Neptune (the most distant Planet from *Helios*—at 4.5 Tm, or 30.1 A.U.). For *oganesson*, our ‘Cosmic Atom’ would be *three-fold larger* than the Heliopause: all the vast space containing merely **1,000** Planets *Gæa*, as solid bodies—**882**, within the hollow sphere of *Helios* (which could hold up to 1,000,000); **118**, spaced in *seven* ‘planetary orbits,’ extending 15-times farther, than the orbit of Neptune (which, rather than being the *outermost* orbit, would instead be among the *innermost!*). I say! Here we have **an extremely vast Inner Space** indeed!

3. Sub-Atomic Dimensions

| <u>Entity</u> | <u>Diameter</u> | <u>Multiplier</u> |
|-----------------------------|--------------------------|----------------------------|
| Fermion [Quark/Electron] | 1 x 10 ⁻¹⁸ m | 1-X |
| Baryon [Proton/Neutron] | 1 x 10 ⁻¹⁶ m | 100-X |
| ‘Average’ Atomic Nucleus | 1 x 10 ⁻¹⁵ m | 1000-X |
| Some ‘Average’ Atom | 1 x 10 ⁻¹⁰ m | 100,000,000-X |
| ‘Visible Light’ Wavelengths | 4–8 x 10 ⁻⁷ m | 1,000,000,000,000-X |

4. At a true human scale, let us suppose an ‘average’ *atom* being **beach-ball-sized: 1.0 m** in diameter. Its component *quarks* and *electrons* (**100,000,000-times smaller**: and being scantily **4**, in the case of *hydrogen*; up to **1,000**, in the case of *oganesson*), then, merely would be **10 nm** in diameter: or **~60-times smaller** than *the wavelengths of visible light*—as such, being **completely invisible**: even under the most powerful, optical microscope (an object must be at least *~one-half the wavelength of the light* irradiating it, to be able to *reflect that light*—rendering it **visible**)! The *protons* and *neutrons*, having diameters of **1.0 µm**, merely would be visible, then, under such a

microscope; but the *nucleus*, with a diameter of **10 μm**, still would be approximately **10-times too small**, to be visible to the naked eye! We might hold such an ‘**atom**’ in our hands... but we would **see absolutely nothing**... just some empty, *Inner Space!*

5. *Ecstasy*, from *ek-stasis*, literally means “standing outside oneself,” which might be to say: ‘separating **the soul**, from **the body**.’ This could be construed as distinguishing **energy**, from **matter**—or the *subjacent Real*, from the *superficial Apparent*. As Blake [1793] also wrote:

But first the notion that man has a Body distinct from his Soul is to be expunged; this I shall do by... melting apparent surfaces away, and displaying the infinite which was hid. If the doors of perception were cleansed every thing would appear to man as it is, infinite. For man has closed himself up, till he sees all things thro’ narrow chinks of his cavern.

There is no evidence that William Blake ever ingested any psychoptic drug: visionary ecstasy apparently came naturally to him: as it has, throughout History, to vanishingly few individuals. Blake’s extraordinary poem of [1793] seems to anticipate XX-Century-physics; in my opinion, it is the greatest poem ever written, in *any* language! In his *Correspondence*, Blake also remarked:

A Spirit and a Vision are not, as the modern philosophy supposes, a cloudy vapour, or a nothing: they are organized and minutely articulated beyond all that the mortal and perishing nature can produce. He who does not imagine in stronger and better lineaments, and in stronger and better light than his perishing eye can see, does not imagine at all.

Blake’s life bore witness to the fact that—as Sasha Shulgin intimated—psychoptic drugs don’t “do” *anything*: they *catalyze the emergence, reawakening or manifestation* of what is *an innate capacity* of us human beings—which has been suppressed; burned at the stake; beaten to snuff; snuffed-out ...by Millennia, of cultural, social, political and linguistic **Evil Violence**. They are indeed ‘*de-hallucinogens*,’ that can afford us some few blessed and blissful hours of **grace**; they most decidedly are—as the Mesoamerican Chichimecas revered them: “**wondrous mushrooms**”

(*teonanácatl*); **wondrous** Agave-wine (*teoctli*); or **wondrous** cacao-potions (*teocacáhuatl*) [Ott 1985,1993,1994,1997,2001,2004,2026; Ott & Bigwood 1978]—which possess the potential, to restore us to a state of childlike **wonder**... marveling-at this mysterious, living World,... instinct as it is, with the **Eternal Delight** of what is (the Universe being our Creator) **Divine Energy**.

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