

2007-8

SCRAPS

2007

IN MEMORIAM

EDWARD R. HARRISON

January 8, 1919 January 29, 2007

HENRY GICLAS

December 9, 1910 April 2, 2007

CHARLES MALICH

February 4, 1919 April 28, 2007

DON LONGENECKER

May 17, 1929 June 27, 2007

JUBILEE

I am fed up with the party line,
I am fed up with the bottom line,
I am fed up with intelligent design,
I am fed up living in a branchless vine.

I am fed up with left vs. right,
I am fed up with gay vs. straight,
I am fed up with man vs. earth,
I am fed up living in an us/them state.

I am fed up with take, take, take,
I am fed up with me, me, me,
I am fed up with now, now, now,
I am fed up living in a consumers' bee.

I am fed up with rival nation states,
I am fed up with rival religious faiths,
I am fed up with rival apocalyptic dates,
I am fed up living in a polarized space.



It is time for funds to be reassigned,
It is time for success to be redefined,
It is time for economies to be redesigned,
Else there be planet wide extinction.

It is time for political upheaval,
It is time all empires be seen evil,
It is time for axiological retrieval,
Else there be planet wide extinction

It is time for cognitive regeneration,
It is time for a scientific reformation,
It is time for information emancipation,
Else there be planet wide extinction.

It is time to get out of line,
It is time to get out of step,
It is time to no longer be supine,
Else there be planet wide extinction.

Superseded

MAR 16, 2007
Sept 25, 2007
NEWG Oct 10, 2007

A NEW VALUE FOR Newton's Constant, G
All values are log₁₀(cgs)

The present accepted value for the mass of the proton is:

$$m_p = -23.776602$$

and for m₀, the planck mass, = (ħc/G)^{1/2}, the present accepted value is::

$$m_0 = -4.662199$$

giving:

$$m_p/m_0 = -19.114403$$

The ratio of the coulomb force to the gravitational force is:

$$1) \quad S = \hbar\alpha c/Gm_p m_e = \alpha\mu(m_0/m_p)^2 = 39.355880$$

where α = the fine structure constant, -2.136835

μ = proton/electron mass ratio = 3.263909

ħ is planck's constant = -26.976924 and

c is the velocity of light = 10.476821

While α, μ, ħ, c and m_p have been determined to six or more places, m₀, involving G is less accurate. (The present value of G is taken as -7.175705, certain only to 3 decimal places.)

We note that α¹²• μ² = -19.114202, which is closely equal to the above value of
m_p/m₀ = -19.114403

If we Assume the value for m_p/m₀ = α¹²• μ² = -19.114202,
replacing the current value of -19.114403
then

$$2) \quad m_0 = m_p \alpha^{-12} \cdot \mu^{-2} = (\hbar c/G)^{1/2} ,$$

Solving 2) for G:

$$3) \quad G = \hbar c \cdot \alpha^{24} \cdot \mu^4 / m_p^2 = -7.175303$$

versus the current value,

$$G = -7.175705,$$

With δ = 0.000402

This new value of G gives a new value of S = 39.355478 = α⁻²³• μ⁻³

In the following the value G = -7.175303 is adopted.

UNITG2.WPD

January 24, 2007
All values $\log_{10}(\text{cgs})$ *Superseded*

| | | |
|-------------------|------------------|-------------------|
| Newton's constant | $G = L^3/MT^2$ | -7.175303 |
| velocity of light | $c = L/T$ | 10.476821 |
| Planck's constant | $\hbar = ML^2/T$ | -26.976924 |

VALUES FOR PHYSICAL PARAMETERS INVOLVING THE NEW **G**

| | | | |
|---------------------|------------------------------------|-------------------|------------------------------------|
| planck mass | $m_o = (\hbar c/G)^{1/2}$ | -4.662400 | [M] |
| planck length | $l_o = (G\hbar/c^3)^{1/2}$ | -32.791345 | [L] |
| planck time | $t_o = (G\hbar/c^5)^{1/2}$ | -43.268166 | [T] |
| schwarzschild bound | $c^2/G = m_o/l_o$ | 28.128945 | [M/L] |
| planck mass/time | $c^3/G = m_o/t_o$ | 38.605766 | [M/T] |
| planck force | $c^4/G = m_o l_o/t_o^2$ | 49.082587 | [ML/T ²] |
| planck power | $c^5/G = \hbar/t_o^2$ | 59.559408 | [ML ² /T ³] |
| planck energy | $\epsilon_o = (\hbar c^5/G)^{1/2}$ | 16.291242 | [ML ² /T ²] |
| planck density | $\rho_o = m_o/l_o^3$ | 93.711635 | [M/L ³] |

| | | | |
|------------------|---------------------------|-------------------|------|
| heisenberg bound | $\hbar/c = m_o \cdot l_o$ | -37.453745 | [ML] |
| electron radius | r_e | -12.550068 | [L] |
| electron mass | m_e | -27.040511 | [M] |
| proton mass | m_p | -23.776602 | [M] |
| neutron mass | m_n | -23.776004 | [M] |

STANDARDIZATION OF UNITS

“Entitation is vastly more important than quantitation. Let us look at the universe in terms of some new kinds of entities, some new kinds of units; or, what really comes to the same thing, in some new way of combining units, because combining units gives a new unit at the superordinate level “–Ralph Gerard

While the scientific world has long since discovered the value of standardization of units, it is surprising that it still tolerates a bog of diverse units among and within its various disciplines. As much as the cgs and SI systems were improvements over rods and furlongs, grains and drams, matins and vespers, there still exist disparate units obtained with diverse apparati and various theoretical assumptions needing to be linked. While the history and evolution of measurements, including the methods and apparatus used in their determination, is important, we have reached a level when additional ^{standardization} convergence of units is possible. Now that the values of the fundamental constants are known with improved accuracy, it would seem feasible that a system of units based on the Planck mass, length, and time could be adopted by all the physical sciences and for parts of biology and possibly even some aspect³ of the social sciences.

An initial step in this direction was taken by particle physicists in their introduction of the electron-volt. The electron volt is basically a unit of energy, but can be used to measure mass, frequency, wavelength, and several other physical parameters. This is because energy can be used as a basic measure whenever another physical parameter can be dimensionally equated to energy using a function of the fundamental constants, c, G, ħ. That is,

$$E^n = \text{function}(c, G, \hbar ; M, \nu, \lambda, \dots)$$

where n is the power to which the energy, E, must be raised.

| | |
|--|---------------------|
| For example, a relation between energy and mass is | $M = E/c^2$ |
| between energy and frequency, | $\nu = E/\hbar$; |
| between energy and power, | $P = E^2/\hbar$ |
| between energy and force, | $F = E^2/\hbar c$. |
| etc. | |

In addition to energy, another useful parameter for relating physical parameters is frequency, ν

| | |
|---|----------------------|
| For example, a relation between frequency and mass is | $M = c^3/G \nu$ |
| between frequency and energy, | $E = \hbar \nu$ |
| between frequency and power, | $P = \hbar \nu^2$ |
| between frequency and force, | $F = \hbar \nu^2 /c$ |
| etc | |

REDIMENSIONING: MASS, LENGTH AND PURE NUMBER PART I

The 2002 values:¹

| | |
|----------------------------|--|
| Proton mass: | $m_p = 1.672\ 621\ 581 \times 10^{-24}$ g |
| Electron mass: | $m_e = 9.109\ 381\ 887 \times 10^{-28}$ g |
| Electron radius | $r_e = 2.817\ 940\ 285 \times 10^{-13}$ cm |
| Proton/Electron mass ratio | $\mu = 1836.152\ 667\ 5$ |
| Fine structure constant | $\alpha = 7.297\ 352\ 533 \times 10^{-3}$ |
| | $\alpha^{-1} = 137.035\ 999\ 96$ |

The corresponding $\log_{10}(\text{cgs})$ values:

| |
|-------------------------------|
| $m_p = -23.776\ 602\ 304$ g |
| $m_e = -27.040\ 511\ 091$ g |
| $r_e = -12.550\ 068\ 214$ cm |
| $\mu = 3.263\ 908\ 788$ |
| $\alpha = -2.136\ 834\ 673$ |
| $\alpha\mu = 1.127\ 074\ 115$ |

The following \log_{10} values are derived from the $\log_{10}(G)$ value = -7.175303

| | |
|---|--------------------|
| Planck mass = $(\hbar c/G)^{1/2}$ | $m_o = -4.662400$ |
| Planck length, = $(\hbar G/c^3)^{1/2}$ | $l_o = -32.791345$ |
| $m_p/m_o = -19.114202 = \alpha^{12} \mu^2$ | |
| $r_e/l_o = +20.241277 = \alpha^{-11} \mu^{-1}$ | |
| $m_p r_e / m_o l_o = 1.127074 = \alpha \mu$ | |
| $m_p l_o / m_o r_e = 39.355479 = \alpha^{-23} \mu^{-3} = S$ | |

where S is the ratio of coulomb force to gravity.²

Designating m_p/m_o as a mass scale unit = M,

| | M^{-1} | M^0 | M^1 | M^2 | M^3 |
|-----------|---------------------|------------------|-------------------------|-------------------------|-------------------------|
| | baryon | planck | dark | stellar | universe |
| | $\alpha^{12} \mu^2$ | $\alpha^0 \mu^0$ | $\alpha^{-12} \mu^{-2}$ | $\alpha^{-24} \mu^{-4}$ | $\alpha^{-36} \mu^{-6}$ |
| | -19.114202 | 1 | +19.114202 | +38.228404 | +57.342606 |
| In grams: | -23.776602 | -4.662400 | +14,451802 | +33.566004 | +52.680206 |

Designating r_e/l_o as a size scale unit = L,

| | L^{-1} | L^0 | L^1 | L^2 | L^3 |
|--------|---------------------|------------------|-------------------------|-------------------------|-------------------------|
| | dark | planck | baryon | stellar | universe |
| | $\alpha^{11} \mu^1$ | $\alpha^0 \mu^0$ | $\alpha^{-11} \mu^{-1}$ | $\alpha^{-22} \mu^{-2}$ | $\alpha^{-33} \mu^{-3}$ |
| | -20.241277 | 1 | +20.241277 | +40.482554 | +60.723831 |
| In cm: | -53.032622 | -32.791345 | -12.550068 | +7.691209 | +27.932486 |

¹Physics Today, August 2002

² S is defined as $\hbar \alpha c / G m_p m_e = \alpha \mu (m_o / m_p)^2$

0

REDIMEN1.WPD

February 4, 2007

THE $Z_{n+2} = 10 Z_{n+1} + B Z_n$ CONSPIRACY THEORY

$$Z_{n+2} = 10 Z_{n+1} + B Z_n \longrightarrow z^2 - 10z - B = 0$$

$$z = 5 \pm \sqrt{25 - B} \quad B \leq +25$$

The values of the fundamental physical constants, α the fine structure constant, μ the ratio of proton mass to electron mass, and S the ratio of coulomb force to gravity are $\log_{10}(\text{cgs})$ values. // [0]

B = 10

$$\begin{array}{llll} 5 - \sqrt{15} = 1.127017 & \alpha + \mu = 1.127074 & \delta = 0.000057 \\ 5 + \sqrt{15} = 8.872983 & 10/(\alpha + \mu) = 8.872532 & \delta = 0.000451 \end{array}$$

B = 22

$$\begin{array}{llll} 5 - \sqrt{3} = 3.267949 & \mu = 3.263909 & \delta = 0.004040 \\ 5 + \sqrt{3} = 6.732051 & 22/\mu = 6.740384 & \delta = 0.008333 \end{array}$$

from above

$$\begin{array}{llll} \sqrt{3} - \sqrt{15} = -2.140933 & \alpha = -2.136835 & \delta = 0.004098 \\ \sqrt{3} + \sqrt{15} = 5.605033 & -12/\alpha = 5.615782 & \delta = 0.010749 \\ (5 + \sqrt{15})^2/2 = 39.364917 & S = 39.355478 & \delta = 0.009439 \end{array}$$

Since the values of the δ 's differ, there is clearly no constant difference between the measured values and the solutions to the equation, $z^2 - 10z - B = 0$. Further, there is no constant factor relating the values of these roots to measured values, nor is there a constant exponential or power relation. The differences between the recursion equation roots and the measured values may be due to local conditions. That is, the "earth measured" values may differ from those that would be found when measured in low density space. Or perhaps the measured values have drifted over time in an irregular manner from some original template like a recursion equation such as $Z_{n+2} = 10 Z_{n+1} + B Z_n$. But most likely, the approximations are only one of those curious coincidences.

A Special Case

The measured value of μ is 3.263 908 788;

$$5 - \sqrt{3} = 3.267 949$$

but $5 - \sqrt{3} - 4/990 = 3.263 908 788$

is correct to nine decimal places.

JAMESTOWN 1607-2007

This coming May marks the 400th anniversary of the beginning of English settlement in North America. Queen Elizabeth II will come to Jamestown to celebrate the occasion. But I ask what is really being celebrated? Actually it is a celebration of the beginnings of the empire on which the sun never set. Although the English in America severed political ties with the mother country, they remained culturally and psychologically English. The mother country extended its control to Australia, New Zealand, India, to parts of Africa and over many islands throughout the world. While those who broke with the mother country extended their continental control from sea to sea, conquering and displacing those whose home it had been for millennia. If anything is being celebrated it is the Englishman's traditional obsession with hegemony, dominance, and control.

The native Americans were subdued partly by the superior weaponry of the invaders, but even more by their inability to comprehend the psychology of the white man. They could not understand the white man's notions of a pecking order, of what could be owned, and the relation between giving and receiving. Chief Powhatan said to John Smith, "Why is it you cannot receive what we freely give? Instead you reject our gift and seize by force what we offered." The Chief could not understand the importance of ego in the white man's psyche. Smith's unconscious could have replied, "If I receive a gift from you, it makes us equals, but if I take from you I preserve my superiority."

And this is a key to why four centuries later, the world is on the verge of nuclear extinction. Both the Englishman's language and psyche have infused the world. We cannot equally exchange, give and receive, we must seize e.g. oil.

In the Anglican Book of Common Prayer, it says, "It is more blessed to give than to receive." This is a pious nuance supporting John Smith's superiority. But there was a Frenchman, St. Vincent de Paul, who had a different approach:

"The greatest gift you can give is to receive".

Giving another the opportunity to give to you,
joins you both in a reciprocal bond.

It is more blessed to take than to receive
— J SMITH

PROJECTED TOPICS FOR 2007

I. BACON'S IDOLS UPDATED

II. AIR-LOCKS AND TWILIGHT ZONES

III. METAPHYSICAL CONSPIRACY THEORIES

IV. THALES vs. PROTAGORAS

The Search vs the Contest

1) The process replaces the mission

2) Politics replaces the process Protagoras wins

V. PARAMETERS

A parameter exists when two or more elements possess a common dimension
or, to exist a parameter must take on two or more values, eg color, temperature

A parameter is a linear set, eg a spectrum

VI. UNITS

VII. MUTUAL CONTAINMENT PART II $\supset\subset$

Equality, =, is a special case of mutual containment, $\supset\subset$

The species of mutual containment:

Holograms Each part contains the whole, the whole contains each part

Bi-parameter $\supset\subset$

Single parameter $\supset\subset$

VIII. IRRECONCILABLE SIMILARITIES

Stalin and Hitler had irreconcilable similarities, hence war

Britain and Germany had irreconcilable similarities, hence World War I

Bush and Saddam had irreconcilable similarities, hence the invasion of Iraq

Competition arises from similarities, not differences

IX. AWARENESS vs EXISTENCE

Awareness is a selection from existence. Or awareness $\supset\subset$ existence

Recognition is tapping into the collective unconscious

Uniform sameness \Rightarrow non-existence, or non-awareness of some parameter(s)

Nothingness is the area of non-awareness, not of non-existence.

Thus there are as many (or more) species of nothingness as of unawareness.

X. DIVERSITY, MULTIPLICITY, AND STANDARDIZATION

Standardization involves the destruction of one or more parameters

All linkages and connections require some degree of standardization, similarity.

Communication requires standardization, especially having the same code-book.

Ecologies are based on diversity:

“From each according to its abilities, to each according to its needs.”

Males fear difference, tend to multiplicity and similarity, (as in dress) and become competitive per similarity. Be # 1 in one thing. (usually control)

Females tend to diversity (as in dress), and become competitive in differences.

Be #1 in being many things.

XI. POWER

Power depends on homogenization, the destruction of diversity and negation of parameters

The U.S. Civil War was to homogenize the country abolish the differences between states and enable America to become a world power. (Contrary to the original vision)

[The issue of slavery has overshadowed and obscured this real issue of the civil war.]

XII. TURBULENCE

Apollo vs Dionysus

The order/disorder dialectic: fragmentation and re-association; the MENU creator

Second Law of Thermodynamics

Chaos theory,

Random juxtapositions adhere → new patterns

Selection follows, but by what criteria?

XIII. CONTENTS AND CONTEXTS

Elements, Subsets, Sets,

Diachronic \supset Synchronic

FUTURE THINK

Version 2

1. Four value and probabilistic logics
Plus logic as a function of time
2. Synthesis replacing Eristics
Contexts disabling Disputes, Search replacing Fight
3. The Middle Way: Convergence | Divergence balance, Diversity treasured not just tolerated
Plures ex uno | E pluribus unum, Ecology replacing Sovereignty
4. Alternative multi-parameter infrastructures and schemata
Both contiguous-continuous and discontiguous-discontinuous
5. Consistent and Coherent sub-domains and zones. "Everything is a special case"
Beyond monolatry, no one picture, no universals
6. Priority of the diachronic over the synchronic
Control of "width of now"
7. Availability of both isomorphic and auric semiotics
Need for both precise and vague representations, both equations and poetry
8. Connectivity by Abstraction rather than Generalization
Multi-level connectivity vs single level connectivity
9. Engage Two level problems on both levels: Prevention of disease and cure of disease.
Poverty and the poor, Terrorism and terrorists, Set and elements
10. The recognition of quasi-life and pseudo-life.
Institutions and Organizations as quasi-life forms, Storms as pseudo-life forms
11. The species of randomness and complexity; Gauss vs. Poisson.
12. A special matroshka: Eratosthenes, Aristarchus, Bruno, Digges, Wright, Kant, Borges
13. Metaphors: Cosmology and Architecture.
14. The ultimate dialectics: departure and return; syntheses and fragmentation;
15. The Divine Dialectic: the creation and recreation of man and God.

IN SEARCH OF IDENTITY

This is one of those days when I seem to have lost my identity, or rather, seem to have too many identities. Just who am I? I know I have a birth certificate that tells me I was born in Houston, Texas on the 28th of July 1918 and that my name is Albert George Wilson and that there are records out there concerning my education, jobs, marriages, children, and memberships in various organizations. But all of that seems to be but a trivial part of who or what I am.

I have found identity in what interests me: astronomy, mathematics, history, philosophy, religion. I have found identity in my work: in schools, the navy, observatories, laboratories, think tanks. I have found identity in my family, my ancestors, my descendants, my relatives and in-laws. I have found identity in the places where I have lived: Denver, Houston, Pasadena, Flagstaff, Topanga, Woodland Hills, Sebastopol. I have found identity with my times, the 20's, the 30's, the 40's, the 50's, But I must confess here, that beginning with the 60's I seem to have drifted out of current time, back not only into my past, but back over centuries. And my visions have drifted from a utopian future that evolves out of the world of NOW to a world having little connection to the world of NOW or to any possible future that could evolve from it. In short, I have become alienated.

But the mystery is that, while I contain the above interests, work history, family, places ,and times, I seem to be contained in much larger sets of interests, tasks, family, places and times. I am no longer seeking my identity, but a new identity seems to be finding or redefining me. This re-definition seems to have begun in the late 50's when I traveled extensively to many parts of the world. It was curious that in certain places I felt very much "at home". I seem to recognize things even though I had never been there before. This was true in places like Chichin Itza, and Uxmal, in Yucatan, like Durham and Whitby in Yorkshire, like Prague and St. Petersburg in eastern Europe, like Samarkand, Jaipur, and Nagoya in Asia. What did these places have in common that tied them to the 20th century me? Of course, Chichin Itza, Prague, Samarkand all had connections with astronomy, but the feelings in those places and the others were not attributable to just astronomy. There were other more embracing connections.

And the more I read history I encountered events that I seem to have participated in. I feel very strong feelings against the decisions at the Synod of Whitby in 664, strong feelings with the Peasant Revolt in England in 1381, with the Husites at Prague in 1386, for the defeat of the Tsarist fleet at Tsushima in 1904, and during my lifetime, though unknown to me until decades later, on the side of the Sailor's Mutiny against the communists at Kronstadt in 1921. All of this seems to hint some connection between my personal identity and and some sort of revolution archetype. So maybe I belong to a revolution-archetype and show up whenever revolution is needed. But I note that in almost every case I serve on the losing side. Yet I feel quite comfortable with this. [I should add that I voted in every presidential election since 1940, and never voted for the winner.]

NEWNUMB.WPD

March 26, 2007

Sydney

Values 2002 [American Scientist]

Log₁₀(cgs)

| | | | |
|----------------------------|----------|-----------------------------|------------------|
| Fine structure constant | α | 7.297 352 533 10^{-3} | -2.136 834 6726 |
| Proton-electron mass ratio | μ | 1836.152 667 5 | 3.263 908 7879 |
| Planck's constant | \hbar | 1.054 571 596 10^{-34} Js | -26.976 923 9302 |
| Velocity of light | c | 299 792 458 km/s | 10.476 820 7029 |
| Proton mass | m_p | 1.672 621 58 10^{-27} kg | -23.776 602 3043 |

A revised value for G:

The current value for the Planck mass is $m_o = -4.662 199$ Using the above value for m_p , $m_p/m_o = -19.114 403$ $\alpha^{12} \mu^2 = -19.114 198 4954$ and $m_p/(\alpha^{12} \mu^2) = -4.662 403 8089$ Assume this last value is the correct value of m_o , then since $m_o = \sqrt{(\hbar c/G)}$, $G = \hbar c/m_o^2 = -7.175 295 6095$ vs the current value $G = -7.175 705$ The revised value of $G = -7.175 296$ leads to the following values:

| | | | |
|----------------|------------------------------------|---|------------------|
| planck mass | $m_o = (\hbar c/G)^{1/2}$ | = | -4.662 403 8089 |
| planck length | $l_o = (G\hbar/c^3)^{1/2}$ | = | -32.791 340 8242 |
| planck time | $t_o = (G\hbar/c^5)^{1/2}$ | = | -43.268 161 5271 |
| planck force | $f_o = c^4/G$ | = | 49.082 578 4211 |
| planck power | $p_o = c^5/G = \hbar/t_o^2$ | = | 59.559 399 1240 |
| planck energy | $\epsilon_o = (\hbar c^5/G)^{1/2}$ | = | 16.291 237 5969 |
| planck density | $\rho_o = m_o/l_o^3$ | = | 93.711 618 6637 |
| | $\alpha\mu$ | = | 1.127 074 1153 |
| force ratio | $S = \alpha\mu(m_o/m_p)^2$ | = | 39.355 471 4061 |

SOME NUMERICAL CONSPIRACIES OF PROTO PLANETS

The earth's sidereal period $E^* = 365.2564$ days
 $E^* \times 8/13 = 224.7732$, while the sidereal period of Venus = 224.7007 days
 $E^* \times 8/5 = 584.4102$, while the synodic period of Venus = 583.9214 days
 The sidereal period of Venus $\times 5/8 = 140.4379$ days,
 and $140.4379 \times 5/8 = 87.7737$, while the sidereal period of Mercury = 87.9686 days

The Fibonacci sequence, $F_{n+2} = F_{n+1} + F_n$; 1,1,2,3,5,8,13,21.....diverges, but the ratios of successive terms, 1, 2, 3/2, 5/3, 8/5, 13/8,.... converge to $\Phi = (1+\sqrt{5})/2$ and their reciprocals, 1/2, 2/3, 3/5, 5/8, 8/13,.... converge to $\phi = (1-\sqrt{5})/2$.

The orbital period relations, though not accurate to the full precision of the observations, suggest that Fibonacci ratios, and ϕ or Φ , play a role in the period relationships of the inner planets. This is especially evident when a quasi or proto-planet, Proteus¹, is placed between Venus and Mercury, as shown in the following table:

TABLE I
 SIDEREAL PERIODS (In earth days)

| EARTH | VENUS | PROTEUS | MERCURY | VULCAN |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| $365.2564 \times \phi^0$ | $365.2564 \times \phi^1$ | $365.2564 \times \phi^2$ | $365.2564 \times \phi^3$ | $365.2564 \times \phi^4$ |
| 365.2564 | 225.7409 | 139.5155 | 86.2253 | 53.2902 |
| 365.2564 | 224.7007 | 139.5155 | 87.9686 | 53.2902 |

The shaded row in Table I gives the observed sidereal periods of Mercury, Venus, and Earth, and the Fibonacci values for Proteus and Vulcan. The third row of Table I gives the numerical values of the products of the second row.

The notion of a quasi-planet is not new. In the middle of the 19th century, the French astronomer Le Verrier, who had successfully predicted the existence and position of Neptune from perturbations in the orbit of Uranus, found some irregularities in the orbit of Mercury and predicted the existence of a planet "Vulcan" whose orbit lay between that of Mercury and the sun. Using several reported sightings of small black bodies passing across the disk of the sun, Le Verrier calculated that there existed a planet of small mass with an orbital period of 33 days. It was predicted that this planet would transit the sun on the 22 March 1877. The transit did not occur or was not observed, so Vulcan went into limbo. While, Le Verrier predicted Vulcan from perturbations, here we need Proteus and Vulcan to fill out the Fibonacci sequence in Table I.

¹ Proteus, named for the god who was adept at shape changing and predicting the future, seems an appropriate label for a planet that plays a predictive role but has somehow hidden itself from observation.

Allen p 15.

Sidereal Year $365.25636 =$

Tropical Year $365.2421897 = 365^d 5^h 48^m 45.19^s$
(eq to eq)

Gregorian 365.2425

SYNODIC PERIODS

The synodic period of a planet may be defined as the period of time between alignments of the sun, earth, and planet. If all were in the same plane, an alignment would be when a straight line could be passed through all three. If E^* and G^* are the sidereal periods of the earth and a planet G , then the synodic period of $G = G^\wedge$ is given by the equation,

$$\frac{E^* G^*}{E^* - G^*} = G^\wedge$$

TABLE II
SYNODIC PERIODS (in Earth days)

| $\phi = 0.618033989$ | VENUS | PROTEUS | MERCURY | VULCAN |
|----------------------|----------|----------|----------|----------|
| $\times \phi^{-1}$ | | 365.2564 | | |
| SYNODIC | 583.9214 | 225.7409 | 115.8775 | 62.39325 |
| $\times \phi$ | 360.8833 | 139.5155 | 71.6162 | 38.5611 |
| $\times \phi^2$ | 223.0381 | 86.2253 | 44.2613 | 23.8321 |
| $\times \phi^3$ | 137.8452 | 53.2902 | 27.3550 | |
| $\times \phi^4$ | 85.1930 | 33.9351 | | |
| $\times \phi^5$ | 52.6522 | | | |

In Table II the shaded row gives the synodic period for each planet in Earth days. The columns are synodic Fibonacci sequences based on each planet's synodic period.

Let us next imagine we can travel to the other planets, real, quasi, or proto, and determine what the synodic periods of other planets would be when observed from Venus, Proteus, Mercury, and Vulcan as we have already have done from Earth.. In Table III are listed the synodic periods as would be observed from the planet in the left column.

TABLE III (In Earth days)

| | EARTH | VENUS | PROTEUS | MERCURY | VULCAN |
|---------|----------|----------|----------|----------|----------|
| EARTH | - | 583.9206 | 225.7408 | 115.8763 | 62.3942 |
| VENUS | 583.9206 | - | 368.0126 | 144.5645 | 69.8589 |
| PROTEUS | 225.7408 | 368.0126 | - | 238.0935 | 86.2272 |
| MERCURY | 115.8763 | 144.5645 | 238.0935 | - | 135.1856 |
| VULCAN | 62.3942 | 69.8589 | 86.2272 | 135.1856 | - |

There are several symmetries in the sidereal and synodic periods of these five proto-planets:

| Sidereal Periods (*) | | | | | | | | |
|---|----------------------|----------------------|----------------------|--------------|----------------|----------------|----------------|----------------|
| EARTH | VENUS | PROTEUS | MERCURY | VULCAN | | | | |
| $E^* \phi^0$ | $E^* \phi^1$ | $E^* \phi^2$ | $E^* \phi^3$ | $E^* \phi^4$ | | | | |
| 365.2564 | 225.7409 | 139.5155 | 86.2253 | 53.2902 | | | | |
| E | A^2 | P | M | V | | | | |
| | E - P | A - M | P - V | | | | | |
| | $\sqrt{(E \cdot P)}$ | $\sqrt{(A \cdot M)}$ | $\sqrt{(P \cdot V)}$ | | | | | |
| | $\varphi^* + 1$ | $\sqrt{(E \cdot V)}$ | $\varphi^* - 1$ | | | | | |
| | | E - A | | | | | | |
| | | M + V | | | | | | |
| | | $(E + V)/3$ | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">$E/V = \Phi^4$</td> <td style="text-align: center;">$A/M = \Phi^2$</td> <td style="text-align: center;">$M/A = \phi^2$</td> <td style="text-align: center;">$V/E = \phi^4$</td> </tr> </table> | | | | | $E/V = \Phi^4$ | $A/M = \Phi^2$ | $M/A = \phi^2$ | $V/E = \phi^4$ |
| $E/V = \Phi^4$ | $A/M = \Phi^2$ | $M/A = \phi^2$ | $V/E = \phi^4$ | | | | | |

Synodic Periods (^)

$$E^* \cdot P^* = (E^* - P^*)^2, \quad P^\wedge = E^* \cdot P^* / (E^* - P^*) = (E^* - P^*) = A^*, \quad \therefore P^\wedge = A^*$$

$$P^* \cdot V^* = (P^* - V^*)^2, \quad V^\wedge = P^* \cdot V^* / (P^* - V^*) = (P^* - V^*) = M^*, \quad \therefore V^\wedge = M^*$$

where V^\wedge is the synodic period of Vulcan as observed from Proteus.

Since the synodic period of Proteus = the sidereal period of Venus, the Fibonacci sequence based on the Synodic period of Proteus is the same as the Fibonacci sequence of the sidereal periods of the five planets.

Approximately: $\varphi^\wedge = E^* \cdot \Phi, \quad \varphi^* = E^* \cdot \phi$

² To avoid V-confusion we restored Venus her proto-name, Aphrodite.

**THE CONSTITUTION
OF THE UNITED STATES
OF AMERICA**

SEPTEMBER 17, 1787

WE THE PEOPLE OF THE UNITED STATES,
IN ORDER TO FORM A MORE PERFECT UNION,
ESTABLISH JUSTICE,
INSURE DOMESTIC TRANQUILITY,
PROVIDE FOR THE COMMON DEFENSE,
PROMOTE THE GENERAL WELFARE,
AND SECURE THE BLESSINGS OF LIBERTY TO OURSELVES AND OUR POSTERITY,
DO ORDAIN AND ESTABLISH THIS CONSTITUTION FOR
THE UNITED STATES OF AMERICA.

- 1] UNION
- 2] JUSTICE
- 3] TRANQUILITY
- 4] DEFENSE
- 5] WELFARE
- 6] LIBERTY

**INTERPRETATIONS AND UPDATES
PRIORITY REVISION**

- 1] -1] Unity: for diversity, not uniformity
- 3] -2] Tranquility: non-violence, safe social order
- 2] -3] Justice: equal access for general upward movement
- 5] -4] Welfare: health, education, infrastructure, diachronic innovation
- 4] -5] Defense: by foresight, by respect and generosity, force only as reserve
- 6] -6] Liberty: to the point where it does not jeopardize the above five principles

FRANCIS BACON'S FOUR IDOLS
NOVUM ORGANUM
FIRST BOOK 1620

38. The idols and false notions which have already preoccupied the human understanding, and are deeply rooted in it, not only so beset men's minds that they become difficult of access, but even when access is obtained will again meet and trouble us in the instauration of the sciences, unless mankind when forewarned guard themselves with all possible care against them.

39. Four species of idols beset the human mind, to which (for distinction's sake) we have assigned names, calling the first idols of the tribe, the second idols of the den, the third idols of the market, the fourth idols of the theater.

40. The formation of notions and axioms on the foundation of true induction is the only fitting remedy by which we can ward off and expel these idols. It is, however, of great service to point them out; for the doctrine of idols bears the same relation to the interpretation of nature as that of the confutation of sophisms does to common logic.

41. The idols of the tribe are inherent in human nature and the very tribe or race of man; for man's sense is falsely asserted to be the standard of things; on the contrary, all the perceptions both of the senses and the mind bear reference to man and not to the universe, and the human mind resembles those uneven mirrors which impart their own properties to different objects, from which rays are emitted and distort and disfigure them.

42. The idols of the den are those of each individual; for everybody (in addition to the errors common to the race of man) has his own individual den or cavern, which intercepts and corrupts the light of nature, either from his own peculiar and singular disposition, or from his education and intercourse with others, or from his reading, and the authority acquired by those whom he reverences and admires, or from the different impressions produced on the mind, as it happens to be preoccupied and predisposed, or equable and tranquil, and the like; so that the spirit of man (according to its several dispositions), is variable, confused, and, as it were, actuated by chance; and Heraclitus said well that men search for knowledge in lesser worlds, and not in the greater or common world.

43. There are also idols formed by the reciprocal intercourse and society of man with man, which we call idols of the market, from the commerce and association of men with each other; for men converse by means of language, but words are formed at the will of generality, and there arises from a bad and unapt formation of words a wonderful obstruction to the mind. Nor can the definitions and explanations with which learned men are wont to guard and protect themselves in some instances afford a complete remedy; words still manifestly force the understanding, throw everything into confusion, and lead mankind into vain and innumerable controversies and fallacies.

44. Lastly, there are idols which have crept in to men's minds from the various dogmas of peculiar systems of philosophy, and also from the perverted rules of demonstration, and these we denominate idols of the theatre: for we regard all the systems of philosophy hitherto received or imagined, as so many plays brought out and performed, creating fictitious and theatrical worlds. Nor do we speak only of the present systems, or of the philosophy and sects of the ancients, since numerous other plays of a similar nature can be still composed and made to agree with each other, the causes of the most opposite errors being generally the same. Nor, again, do we allude merely to general systems, but also to many elements and axioms of sciences which have become inveterate by tradition, implicit credence, and neglect. We must, however, discuss each species of idols more fully and distinctly in order to guard the human understanding against them.

45. The human understanding, from its peculiar nature, easily supposes a greater degree of order and equality in things than it really finds; and although many things in nature be sui generis and most irregular, will yet invent parallels and conjugates and relatives, where no such thing is. Hence the fiction, that all celestial bodies move in perfect circles, thus rejecting entirely spiral and serpentine lines (except as explanatory terms). Hence also the element of fire is introduced with its peculiar orbit, to keep square with those other three which are objects of our senses. The relative rarity of the elements (as they are called) is arbitrarily made to vary in tenfold progression, with many other dreams of the like nature. Nor is this folly confined to theories, but it is to be met with even in simple notions.

“I have as vast contemplation ends as I have moderate civil ends,
for I have taken all knowledge for my province.”

—Francis Bacon 1561–1626

HIERARCHICAL NUMBERS

Non Associative

Exponents are second level numbers. e.g. b in a^b or c in e^c. [Written here as a^b or e^c].

Exponents effectively replace multiplication with addition. i.e. eⁿ · e^m = e^{n+m}

While the laws of exponents are unambiguous and well defined., when we get to three or higher level numbers such as a^{b^c} there is ambiguity. Is a^b to be computed first and the result then raised to the power c, or is b^c to be computed and the result us as an exponent of a? There is no law governing order of computation in numbers of three or more levels.

and they are non-associative

When there are three levels there are two paths or "modes" to reduce to two levels:

a^(b^c) and (a^b)^c where the operation enclosed in parenthesis is to be performed first.

In the case of four levels a^{b^{c^d}}, there are six modes: First, the four level number is reduced to three three level numbers:

$$a^{b^{(c^d)}} \quad a^{(b^c)^d} \quad (a^b)^{c^d}$$

Each of these three three level numbers has two modes for reducing to two levels. Hence there are a total of six modes for reducing the original four level number to six two level numbers.

$$[3 \cdot 2 = 6 = 3!]$$

Continuing, a five level number a^{b^{c^{d^e}}} can be reduced to four numbers of level four,

$$a^{b^{c^{(d^e)}}} \quad a^{b^{(c^d)^e}} \quad a^{(b^c)^{d^e}} \quad (a^b)^{c^{d^e}}$$

and these four four level numbers each will have six modes for reduction to 2 levels. Thus there will be [6 · 4 = 24 = 4!] modes resulting in 24 two level numbers.

In general, we will have (N - 1)! modes or paths to reduce an N level number to (N-1)! two level numbers.

In discussing modes we assumed that the order of the numbers is not changed, but if we are allowed to permute the orders, e.g. a b c d e → b a c d e → b a c e d → etc, etc.... there would be 5! arrangements, assuming all the numbers are distinct. So allowing permutations, a five level number having 4! modes and 5! permutations could result in 4! · 5! = 2880 numbers. And in general for an N level number consisting of N distinct numbers, the total number of resulting modes and permutations would give N! (N-1)! arrangements.
$$= \frac{(N!)^2}{N}$$

If M of the N numbers are the same, then the total number of arrangements will still contain (N-1)! modes but will have N!/(N-M)! permutations giving N! (N-1)!/(N-M)! arrangements.

THE BIRDS PART II

C. G. Jung notes that a flock of birds assembling in an unlikely place bears a traditional mantic symbolism of an impending death. He recounts a typical incident¹:

The wife of one of my patients, a man in his fifties, once told me in conversation that, at the deaths of her mother and her grandmother, a number of birds gathered outside the window of the death-chamber. I had heard similar stories from other people. When her husband's treatment was nearing its end, his neurosis having been removed, he developed some apparently quite innocuous symptoms which seemed to me, however, to be those of heart disease. I sent him along to a specialist, who after examining him told me in writing that he could find no cause for anxiety. On the way back from this consultation (with the medical report in his pocket) my patient collapsed on the street. As he was brought home dying, his wife was already in a great state of anxiety because, soon after her husband had gone to the doctor, a whole flock of birds alighted on their house. She naturally remembered the similar incidents that had happened at the deaths of her own relatives, and feared the worst.....

This same symbol of impending death was experienced by our family. My wife, Donna, had been driving when she had a stroke and was taken to the hospital with minor injuries. For several days she seemed to be in a stable condition. Returning from the hospital one afternoon, I saw on the roof of her book store, where she spent most of her time, a score of crows, sitting or flying back and forth to a near by tree. I remarked the event to others, but none of us at that time had heard of the prophetic symbolism associated with such a gathering of birds. Donna died a day later.

When placed in juxtaposition with other powers that flocks of birds seem to possess, the view becomes compelling that some basic aspects of nature escape the epistemology of science. Part of this may be that individual birds do not possess unusual powers; those powers emerge only in an aggregate. A reductionist oriented science, predicated on the view that explanations are to be found in the parts, will never explain such emergence. But more important is the inference that our particular sensory windows on the physical world are partial. And that no matter how we may extend them with telescopes, microscopes, or other devices, there are parameters that remain inaccessible and unknown to us. And this becomes even more disconcerting when it implies that our way of thinking and reasoning, the processing and assimilation of our experience, may itself be a box blocking us from access to the real nature of the world we live in.

It is here that we must express our respect to peoples such as native Americans, who recognize other creatures as brothers, not as inferiors. All creatures are specialists, some have developed faculties and skills exceeding ours, others have developed faculties and skills totally different from any that we possess. The special development in which Western man exceeds seems to be arrogance.

¹From "The Interpretation of Nature and the Psyche" by C.G. Jung and W. Pauli

GROVES AND CLEARINGS

There is a curious symmetry in nature between a grove and a clearing. Myths and the folklore of many peoples speak of sacred groves, sacred to various gods or goddesses. And there are legends of clearings in a forest where one meets a deity in some form or other. Both groves and clearings are associated with supernatural beings, groves with their abodes, clearings with their manifestations to mortals.

I have reported elsewhere my experience of encountering a *vajra* in a magical clearing that I could never find again. But on another occasion I had a different kind of experience with a manifestation in a clearing. This occurred at a Cirstacian Monastery near Whitethorn, California. This is a monastery founded by Belgian nuns who were refugees from the Nazis in world war II. They built their chapel with one end having a glass floor-to-ceiling window that opened onto a clearing which was surrounded by firs and redwoods. The nuns always meditated facing this clearing which had a grassy floor and a single deciduous tree in its center. From time to time there would be retreats at Whitethorn and we secular types could join the nuns in their meditations. On one occasion when I was there on retreat we were all gathered in the chapel doing the afternoon office. Suddenly in the middle of the clearing standing next to the central tree stood a huge stag, with shining antlers. The nuns gasped. We were all awed by the sudden presence of this beautiful animal. It felt as though he were some messenger who had appeared to bring us a special spiritual message. While we were all absorbed in this event and its symbolic significance, the stag disappeared as suddenly as it had come. All of us felt that there was some sort of a theophany in this event.

But the manifestation of a stag with a spiritual message has historic precedents. St. Eustace in Roman times, and St. Hubert in the eighth century both reported encounters with a stag that occurred at critical moments in their lives. Their legends both mention a glowing cross shaped form on the stag's head between his antlers. If the Whitethorn stag had a cross we missed seeing it, but we did feel a euphoric spiritual presence.

In thinking about a spiritual message in the manifestation of the stag, I recalled a passage in the children's book, "Bambi", by Felix Salten. There is the final scene where the old Stag is trying to get a message through to the younger deer, Bambi. They have come across a human who has been shot, probably a poacher. The old stag says:

"Do you see, Bambi, He is lying there dead, like one of us. He isn't all-powerful as they say. He isn't above us. He's just the same as we are. He has the same needs, the same fears, and suffers in the same way as we. He can be killed like us. Do you understand, Bambi?" "Then speak."

Bambi was inspired, and said trembling:

"There is Another who is over us all, over us and over him."

"Now I can go", said the old stag.

June 30, 2007

THE MANTIC MESSENGERS

On many occasions Cervidae have been mantic messengers alerting us to the arrival of an important message. The stories of the appearance of stags at critical times in the lives of both St Eustace and St Hubert are examples. But deer messengers do not themselves carry the message. They primarily serve to alert us to an important message that will soon arrive.

June 11, 2007

A MANTIC APPEARANCE PART I

Again: Yesterday at a precise synchronistic moment a deer appeared. This time not a stag but a large doe. But as in other appearances of mantic messengers, the timing was astounding. Sharon had received a phone call from a care center in Carmichael informing us of degeneration in Don's condition. She had come over and we had just thought of a possible way to be of help, when a deer suddenly appeared in the back yard. In the past 20 years we have seen deer in the yard on one or two occasions, and usually at a distance. But this doe came close to the house and halted just outside the porch, looked at us then took off into the orchard. Somewhat later there was another message from Carmichael informing us of a critical down turn.

I wondered about other stories of synchronistic appearances of stags and deer. And wondered, as did Jung, about the relation between the meaning and timing of such events. There are many reports of rare mantic appearances of, not just deer, but of other animals and birds at meaningful moments. Are we to assume that certain animals possess psychic powers that we humans lack? Usually all such stories are relegated to folklore and superstition. They are unscientific because science requires predictability and is limited to regularly repeating and intentionally reproducible phenomena. However, scientific or not, simultaneity and meaningfulness are deeply interwoven.

The world is far richer, more profound and more mysterious than our intuitive and rational sides have so far been able to grasp. We have become familiar with a portion of the world, and other creatures share that portion with us, but they may also be at home in portions to which we have not acquired access. Neither we nor they seem to have acquired access to the whole. So it would be wise to consider the birds and beasts as our colleagues in exploring the world, and both learn from them and share with them.

*c.f. Feynman
and the ants*

June 27, 2007

A MANTIC APPEARANCE PART II

Just before noon I went into the kitchen and as I came toward the window, looking out, I saw two deer close to the house, both staring at the kitchen window as though they had been waiting. They stood there for several seconds staring toward me, then turned and loped into the orchard. One was a doe, probably the same doe of PART I. The other was a fawn accompanying mom. A few minutes later Sharon called. "Could I come over?" "Of course, what's up?" She came over, made me sit down, and said "I have just received a call from Carmichael, Don passed away about an hour ago."

JULY 10, 8:30 P.M. 2007

DISCUSSION: ART, AL, SHARON ON EDUCATION
TITENON MESSENGERS - MESSAGES

~~WHEN~~ STAG OUTSIDE PORCH SUDDENLY APPEARS
LISTENS BRIEFLY THEN OFF TO ORCHARD

MARCH 15, 2008 C-2 PM

3 deer plus sun room

on turn and comes to stand at me for a full minute

Trips to Carmichael:

Saturday, June 2, 2007 to Mission Carmichael Health Center

Driver Art, Danielle, Sharon, Al

Wednesday, June 20 to Kaiser Hospital Carmichael (also to Mission Center)

Driver Danielle, Eleanor, Sharon, Al

Sunday, June 24 to Kaiser Hospital Carmichael

Driver Marti Kennedy, Eleanor, Danielle, Sharon, Al

Don died about noon Wednesday, June 27, 2007

Deer seen in Sebastopol:

Sunday, June 10, 2007 about 4 pm by AL and SHARON

Wednesday, June 27, 2007 about noon by AL

TUESDAY, JULY 10, ABOUT 8:30 P.M. by ART, AL, SHARON

2008

December 27, Laguna Wetlands The Birds A.M.

4:00 P.M. Deer

ALTERNATE REPRESENTATIONS FOR PHYSICAL DIMENSIONS

| DIMENSION | SYMBOL | PLANCK | log ₁₀ (cgs) | α ^u μ ^v | log ₁₀ (α ^u μ ^v) | n of α ⁿ |
|-----------------------|-------------------------------------|--------------------------------------|-------------------------|--------------------------------------|--|---------------------|
| LENGTH | L | √(G ħ/c ³) | -32.791345 | α ¹ | -2.136835 | 5 |
| TIME | T | √(G ħ/c ⁵) | -43.268166 | α ¹² μ ² | -19.114202 | -2 |
| MASS | M | √(c ħ/G) | -4.662400 | μ ¹ | 3.263909 | -5 |
| G | L ³ /MT ² | G | -7.175303 | α ⁻²¹ μ ⁻⁵ | 28.553990 | 24 |
| VELOCITY | L/T | c | 10.476821 | α ⁻¹¹ μ ⁻² | 16.977367 | 7 |
| FREQUENCY | 1/T | √(c ⁵ /G ħ) | 43.268166 | α ⁻¹² μ ⁻² | 19.114202 | 2 |
| ACCELERATION | L/T ² | √(c ⁷ /G ħ) | 53.745187 | α ⁻²³ μ ⁻⁴ | 36.091569 | 9 |
| MOMENTUM | ML/T | √(c ³ ħ/G) | 5.814620 | α ⁻¹¹ μ ⁻¹ | 20.241276 | 2 |
| AREA | L ² | G ħ/c ³ | -65.582690 | α ² | -4.273670 | 10 |
| VOLUME | L ³ | (G ħ/c ³) ^{3/2} | -98.374035 | α ³ | -6.410505 | 15 |
| DENSITY | M/L ³ | c ⁵ /G ² ħ | 93.711635 | α ⁻³ μ | 9.674414 | -20 |
| ACTION | ML ² /T | ħ | -26.976924 | α ⁻¹⁰ μ ⁻¹ | 18.104441 | 7 |
| FORCE | ML/T ² | c ⁴ /G | 49.082587 | α ⁻²³ μ ⁻³ | 39.355478 | 4 |
| ENERGY | ML ² /T ² | √(c ⁵ ħ/G) | 16.291242 | α ⁻²² μ ⁻³ | 37.218643 | 9 |
| POWER | ML ² /T ³ | c ⁵ /G | 59.559408 | α ⁻³⁴ μ ⁻⁵ | 56.332845 | 11 |
| PRESSURE | M/LT ² | c ⁷ /G ² ħ | 114.666081 | α ⁻²⁵ μ ⁻³ | 43.629148 | -6 |
| [CHARGE] ² | ML ³ /T ² | ħc | -16.500103 | α ⁻²¹ μ ⁻³ | 35.081808 | 14 |
| CHARGE | √(ML ³ /T ²) | √(ħc) | -8.250052 | α ^{-21/2} μ ^{-3/2} | 17.540904 | 7 |
| CURRENT | √(ML ³ /T ⁴) | c ³ /√G | 35.018315 | α ^{-45/2} μ ^{-7/2} | 36.655106 | 9 |
| VOLTAGE √F | √(ML/T ²) | c ² /√G | 24.541496 | α ^{-23/2} μ ^{-3/2} | 19.677739 | 2 |
| RESISTANCE | T ² /L | √(Għ/c ⁷) | -53.745187 | α ²³ μ ⁴ | -36.091569 | -9 |
| | | c ² /G | 28.128945 | | | |
| | | c ³ /G | 38.605766 | | | |

Condition $\frac{L}{T} = 7$ $\frac{L}{M} = 10$ $\frac{T}{M} = 3$

DIMFORM2.WPD

July 5, 2007

Numbers are assigned for L, T, M all different

EXPONENT DIMENSIONALITIES

| DIMENSION | SYMBOL | α^d n of α^n | α^d n of α^n | α^d n of α^n | α^d n of α^n | UNIQUE ^d n of α^n |
|-----------------------|---------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|--|
| LENGTH | L | 0 | 7 | 10 | 5 | -5 |
| TIME | T | -7 | 0 | 3 | -2 | -12 |
| MASS | M | -10 | -3 | 0 | -5 | -15 |
| G | L ³ /MT ² | 24 | 24 | 24 | 24 | 24 |
| VELOCITY | L/T | 7 | 7 | 7 | 7 | 7 |
| FREQUENCY | 1/T | 7 | 0 | -3 | 2 | 12 |
| ACCELERATION | L/T ² | 14 | 7 | 4 | 9 | 19 |
| MOMENTUM | ML/T | -3 | -21 | 7 | 2 | -27 |
| AREA | L ² | 0 | 14 | 20 | 10 | -10 |
| VOLUME | L ³ | 0 | 21 | 30 | 15 | -15 |
| DENSITY | M/L ³ | -10 | -24 | -30 | -20 | 0 |
| ACTION | ML ² /T | -3 | 11 | 17 | 7 | -13 |
| FORCE | ML/T ² | 4 | 4 | 4 | 4 | 4 |
| ENERGY | ML ² /T ² | 4 | 11 | 14 | 9 | -1 |
| POWER | ML ² /T ³ | 11 | 11 | 11 | 11 | 11 |
| PRESSURE | M/LT ² | 4 | -10 | -16 | -6 | 14 |
| [CHARGE] ² | ML ³ /T ² | 4 | 18 | 24 | 14 | -6 |
| CHARGE | $\sqrt{ML^3/T^2}$ | 2 | 9 | 12 | 7 | -3 |
| CURRENT | $\sqrt{ML^3/T^4}$ | 9 | 9 | 9 | 9 | 9 |
| VOLTAGE | $\sqrt{ML/T^2}$ | 2 | 2 | 2 | 2 | 2 |
| RESISTANCE | T ² /L | -14 | -7 | -4 | -9 | -19 |
| | | | | | | M = 101 |

INVARIANTS IN BOLD FONT.

~~UNIQUE~~

THE QUEST

What was sought was found,
but quickly morphed to empty ground.
The tortured climb had been for naught,
for what I thought to be the Grail,
was but a stone that closed the trail.

THE SEARCH

But along the path new friends were found,
Both love and beauty were all around,
True treasure was bestowed along the way,
No need to climb again some future day.
I have eternal blessings to share and give away.

alternate

TWO PARAMETER REPRESENTATIONS FOR PHYSICAL DIMENSIONS ALITIES

| SYMBOL | $\alpha^u \mu^v$ | $\log_{10}(\alpha^u \mu^v)$ | $\alpha^u \mu^v$ | $\log_{10}(\alpha^u \mu^v)$ | $\alpha^u \mu^v$ | $\log_{10}(\alpha^u \mu^v)$ |
|---------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| L | α^1 | -2.136835 | $\alpha^{-1} \mu^{-1}$ | -1.127074 | $\alpha^3 \mu^3$ | 3.381222 |
| T | $\alpha^{12} \mu^2$ | -19.114202 | α^5 | -10.684175 | $\alpha^{12} \mu^2$ | -19.114202 |
| M | μ^1 | 3.263909 | $\alpha^{-12} \mu^{-2}$ | 19.114202 | $\alpha^{-2} \mu^{-2}$ | -2.254148 |
| L^3/MT^2 | $\alpha^{-21} \mu^{-5}$ | 28.553990 | $\alpha^{-1} \mu^{-1}$ | -1.127074 | $\alpha^{-13} \mu^7$ | 50.626218 |
| L/T | $\alpha^{-11} \mu^{-2}$ | 16.977367 | $\alpha^{-6} \mu^{-1}$ | 9.557101 | $\alpha^{-9} \mu^1$ | 22.495424 |
| 1/T | $\alpha^{-12} \mu^{-2}$ | 19.114202 | α^{-5} | 10.684175 | $\alpha^{-12} \mu^{-2}$ | 19.114202 |
| L/T^2 | $\alpha^{-23} \mu^{-4}$ | 36.091569 | $\alpha^{-11} \mu^{-1}$ | 20.241276 | $\alpha^{-21} \mu^{-1}$ | 41.609626 |
| ML/T | $\alpha^{-11} \mu^{-1}$ | 20.241276 | $\alpha^{-18} \mu^{-3}$ | 28.671303 | $\alpha^{-11} \mu^{-1}$ | 20.241276 |
| L^2 | α^2 | -4.273670 | $\alpha^{-2} \mu^{-2}$ | -2.254148 | $\alpha^6 \mu^6$ | 6.762444 |
| L^3 | α^3 | -6.410505 | $\alpha^{-3} \mu^{-3}$ | -3.381222 | $\alpha^9 \mu^9$ | 10.143666 |
| M/L^3 | $\alpha^{-3} \mu$ | 9.674414 | $\alpha^{-9} \mu^1$ | 22.495424 | $\alpha^{-11} \mu^{-11}$ | -12.397814 |
| ML^2/T | $\alpha^{-10} \mu^{-1}$ | 18.104441 | $\alpha^{-19} \mu^{-4}$ | 27.544229 | $\alpha^{-8} \mu^2$ | 23.622498 |
| ML/T^2 | $\alpha^{-23} \mu^{-3}$ | 39.355478 | $\alpha^{-23} \mu^{-3}$ | 39.355478 | $\alpha^{-23} \mu^{-3}$ | 39.355478 |
| ML^2/T^2 | $\alpha^{-22} \mu^{-3}$ | 37.218643 | $\alpha^{-24} \mu^{-4}$ | 38.228404 | α^{-20} | 42.736700 |
| ML^2/T^3 | $\alpha^{-34} \mu^{-5}$ | 56.332845 | $\alpha^{-29} \mu^{-4}$ | 48.912579 | $\alpha^{-32} \mu^{-2}$ | 61.850902 |
| M/LT^2 | $\alpha^{-25} \mu^{-3}$ | 43.629148 | $\alpha^{-21} \mu^{-1}$ | 41.609626 | $\alpha^{-29} \mu^{-9}$ | 32.593034 |
| ML^3/T^2 | $\alpha^{-21} \mu^{-3}$ | 35.081808 | $\alpha^{-25} \mu^{-5}$ | 37.101330 | $\alpha^{-17} \mu^3$ | 46.117922 |
| $\sqrt{(ML^3/T^2)}$ | $\alpha^{-21/2} \mu^{-3/2}$ | 17.540904 | $\alpha^{-25/2} \mu^{-5/2}$ | 18.550665 | $\alpha^{-17/2} \mu^{3/2}$ | 23.058961 |
| $\sqrt{(ML^3/T^4)}$ | $\alpha^{-45/2} \mu^{-7/2}$ | 36.655106 | $\alpha^{-35/2} \mu^{-5/2}$ | 29.234840 | $\alpha^{-41/2} \mu^{-1/2}$ | 42.173156 |
| $\sqrt{(ML/T^2)}$ | $\alpha^{-23/2} \mu^{-3/2}$ | 19.677739 | $\alpha^{-23/2} \mu^{-3/2}$ | 19.677739 | $\alpha^{-23/2} \mu^{-3/2}$ | 19.677739 |
| T^2/L | $\alpha^{23} \mu^4$ | -36.091569 | $\alpha^{11} \mu^1$ | -20.241276 | $\alpha^{21} \mu^1$ | -41.609626 |

THE WISDOM OF
THE REVEREND DONALD LONGENECKER

May 17, 1929

June 27, 2007

A United States Marine::An Anglican Priest::A Therapist::A Shaman::A Monk

Silence Is the Language with Which God Speaks

I. ABOUT FAITH:

Faith is not about a set of beliefs, faith is a pilgrimage; it is our spiritual journey toward and into that ever loving Mystery we call God. This Mystery is not a fearful unknown, but a patient and loving guide to our human potentiality.

But first, we need free ourselves from our hymn book theologies, e.g.,

“A Mighty Fortress is Our God”.

God is not a fortress, God is not an opiate, God is not even a refuge. God is humanity’s spiritual pilgrimage. A rabbi^x once said, “God is not a noun, God is a verb”, ever moving ahead as our understanding stumbles behind seeking to follow. Hence, God is not a goal, God is a path.

A quest is to reach a goal. A search is the path itself, but must be followed with detachment from what is found along the way, and ever open to what lies ahead.

II. ABOUT RITUALS:

Rituals are alive and living. A ritual is both a teacher and a healer. both giving and receiving. Some rituals, such as processions, involve physical movement, but all rituals involve spiritual movement

The power of a ritual does not derive from its repetition, but from the unique events that occur each time it is performed. While lock step rituals march into powerlessness, if a ritual is liberated from the ossification of words, God can speak in the Sacred Silence. .

The Eucharist, for example, is both messenger and message, in fact a messenger with many messages, but the messages can only be heard if there is Silence.

[With regard to the Eucharist, Jan Hus strove to preserve form, Don strove to preserve openness.]

III. ABOUT ROOTS:

A tree that bears good fruit must have many roots and many branches. Why do so many humans feel that there should be but one root and one branch? When asked what religion he felt to be the true religion, Gandhi replied: “I am a Hindu, I am a Buddhist, I am a Jain, I am a Taoist, I am a Jew, I am a Christian, I am a Muslim.” Does one listen to the music of only one composer?

Let us not confuse certainty with truth. Truth and certainty are irreconcilable. The one “true religion” may bring certainty, but it blocks the paths to truth. On the other hand, many roots and many branches do not lead to certainty, but they lead to the paradox of a benign reassuring uncertainty.

* DAVID COOPER

INTRODUCTION

When I became 60, my oldest son Arthur said that now that you have been around for six decades you must have learned something. How about putting together a little booklet summarizing for us what you have learned.. I thought the idea made sense, so I put together a booklet entitled "SIXTY" copies of which were distributed to family and friends. [A few copies may still be around.] Now that I am approaching 90, the same request has been made, and I am planning to put together another booklet, but this time not about what I have learned, but about what I have unlearned.

Indeed, the first five or six decades of life are about learning, mostly learning what is important and needed for getting along in the culture into which one is born. But later in life we begin to gain new perspectives and see that part of what we have learned is only a special case of more comprehensive insights, and another part of what we have learned is seen to have placed the current culture on a precarious path possibly leading to its self-destruction. Yes, the perspectives that come with age begin to separate us from the goals and even from the values of our culture.

However, this separation has two components: one, the change that has taken place in the culture itself, and the other, the change that has taken place in me personally. In my case, I have not followed the culture and its changes, but have moved in a different direction. And this on many levels: political, axiological, epistemological, and even ontological. Of course, the culture replies, "old guys become obsolete and make up excuses for not being able to keep up." I accept this rebuke in part, except I have not just been standing still and watching the culture move off without me. I myself have been moving, but in another direction. So inversely, I could say the culture has become obsolete and is not keeping up with the insights that many throughout the world are now grasping and formulating both with regard to the culture's cognitive limitations and its perilous path.

My task in this booklet is to specify and clarify the factors and details that underlie this two component separation: mine from the culture and the culture's from me. But at the outset, I want to reaffirm that vision of the future which decades ago I shared with so many of my neighbors, my countrymen and my fellow humans. (And I know many of my neighbors, my countrymen, and my fellow humans also still share that vision). But the culture itself now has a different vision and different direction which is increasingly separating us. And it must be emphasized, that like most separations, this one has been painful. It is difficult to rebuild identity and meaning when the foundations have crumbled. But a new foundation is being built and the despair over loss begins to evaporate as the new comes into being.

to born

IN MEMORIAM

EDWARD R. HARRISON

January 8, 1919 January 29, 2007

HENRY GICLAS

December 9, 1910 April 2, 2007

CHARLES MALICH

February 4, 1919 April 28, 2007

DON LONGENECKER

May 17, 1929 June 27, 2007

| | | | | | |
|---------------|----------------|----------------|--------------|-----------------|---------------|
| abstraction | continuous | frequency | lawyer think | organization | semantics |
| aggregation | control | future | level | origin | semiotics |
| air locks | crests | games | limits | orthogonal | set |
| analogy | culture | generalization | logic | parameter | shadow |
| anticipate | data base | glimpses | lose | part | society |
| apophasis | data | goal | LXM | particulate | source |
| argue | debate | granular | math think | party line | spaces |
| ark | destination | ground | meaning | past | spectrum |
| awareness | destiny | GST | means | penumbra | standardize |
| axial | diachronic | here | menu | perceivable | statics |
| belong | dialectics | heresy | message | permutations | subdue |
| bond | difference | hierarchy | messenger | power | synchronic |
| bound | differentiate | homogenize | metaphor | prediction | synthesis |
| card index | dimensionality | ideas | mission | present | synthesize |
| certainty | direction | identity | modulation | process | templates |
| change | diversity | imitate | module | product | termination |
| choice | dominate | impartiality | monad | quadric | theme |
| code book | dynamics | index | morality | quasi life | times |
| code | element | indifference | morphology | questions | transcendence |
| coherence | ends | individual | multiplexing | random | truncate |
| collective | energy | inference | multiplicity | recognition | umbra |
| combinations | eristics | information | mutuality | recursion | uniform |
| compete | ethics | infrastructure | mystery | referents | union |
| complexity | evolution | innovate | names | regression | units |
| compromise | existence | institution | nets | regulation | universals |
| concepts | extinction | intersect | neutrality | repetition | universe |
| confederation | facts | invariant | nothingness | representations | values |
| conflict | force | inversion | now | retrieve | virtues |
| consciousness | form | invisible | objectivity | revelation | visible |
| contain | four thought | iteration | opposites | rules | watershed |
| contest | fractals | juxtapose | options | same | whole |
| contiguous | freedom | labels | order | selection | win |

1° 26 letters

2° 192 WORDS

3° n₃ CONCEPTS

4° n₄ PRINCIPLES-RULES

5° 3.064 CULTURE

6° 1 REALITY PARTY-LINE

CREATION + SELECTION

$$\frac{192}{26} = 7.384615$$

Redo

THE UBIQUITOUS NUMBER 1.127 XXX

$\Phi = 1.6180339887498948482045868343656$

$\sqrt{\Phi} = 1.2720196495140689642524224617375$

$1 + \sqrt{\Phi}/10 = 1.12720196495140689642524224617375$
 $(1 + \sqrt{\Phi}/10)^2 = 1.2705841$

$(5 - \sqrt{15})^2$
 $\Phi = \frac{1 + \sqrt{5}}{2}$
 $\Phi^{1/4} = 1.1270385$

The volume common to a cube of edge = $2/\sqrt{3}$ plus six "cylinder caps" of radius = 1 $(\alpha\mu)^3 = 3,381,222,345$

$8(1 - 1/\sqrt{3}) = 3.3811978464829938839268097559843$ $(1.127)^2 = 1.270$

$8(1 - 1/\sqrt{3})/3 = 1.1270659488276646279756032519948$ $(1.270)^2 = (1.127)^4 = 1.613$

$[8(1 - 1/\sqrt{3})/3]^2 = 1.270277653006803941795809936563$

$1 + [8(1 - 1/\sqrt{3})/3]^2/10 = 1.1270277653006803941795809936563$

grain

$5 - \sqrt{15} = 1.1270166537925831148207346002176$

$(5 - \sqrt{15})^2 = 1.270166537925831148207346002176$

$1 + (5 - \sqrt{15})^2/10 = 1.1270166537925831148207346002176$

log₁₀(cgs) values:

fine structure constant

$\alpha = -2.136834673$

proton mass
 $m_p = -23.776602304$

electron mass
 $m_e = -27.040511092$

ratio
 $m_p/m_e = \mu = 3.263908788$

electron radius
 $r_e = -12.550068214$

planck length
 $l_0 = -32.791340829$

planck mass
 $m_0 = -4.662403804$

$M = m_0/m_p = 19.114198500; \quad L = r_e/l_0 = 20.241272615$

$L - M = 1.127074115 = A; \quad L + A = 21.368346730 = -10\alpha$

$A - \alpha = 3.263908788 = \mu; \quad L = -10\alpha - \alpha - \mu = -11\alpha - \mu$

$M = L - A = -12\alpha - 2\mu; \quad S = L + M = 39.355471115 = -23\alpha - 3\mu$

THE EPIPHANY OF OCTOBER 4TH

Shortly after joining the RAND Corporation in June of 1957, I attended a conference of top Pentagon figures and CEOs of major defense corporations. The conference was principally about "Where do we go from here?". Among the presentations was a forecast made by a staff member of RAND. He said, "From my studies of Soviet thinking and planning I would like to make a prediction. On next October 4th, the 100th anniversary of Tsiolkovski's birth, the Soviets plan to put an object into orbit about the earth."

The response to this prediction by the top generals and CEOs was ridicule and scoffing. "They couldn't do anything like that for decades." Nonetheless, the following autumn on October 4, 1957, Sputnik began to orbit the earth. The response is now history.

It is customary to think that the "Atomic Age" began on July 16, 1945 when the first nuclear bomb was exploded near Alamogordo, New Mexico. And to think that the "Space Age" began with the launching of Sputnik. But perhaps the Space Age really began on July 16, 1969 with the launch of Apollo 11 and the landing of humans on the moon . "A small step for one man, but a giant step for all mankind".

But with this first landing on the moon, more than the space age was launched. Something happened to mankind's world view. Not only were astronauts caught up in an expanded vision as they looked back on that "fragile blue globe" called Earth, but people in all lands felt the power of the vision. It was not just Armstrong and Aldrin, not just NASA, not just the USA that did this: WE, all of us, did it. We humans have walked on the moon! Human identity suddenly burst beyond the traditional borders of nations, races, religions, We people of the earth have done this! There was a realization not only of what we could do, but of who we really were. We found a planet wide identity!

cf. Mitchell's view Space to Earth, Humanity's view Earth to Space

Decades later, this vision has not completely died, but the business-as-usual types have diverted space from a domain containing the challenges of mystery, discovery, and emergence to a domain for new weapon systems. As with former epiphanies—those moments when we glimpse who we are and sense our connections with the beyond, with the larger, with the higher—many do not grasp the meaning but can only focus on what might be accrued for power and profit through exploitation of new capabilities.

TWO DOMAINS | TWO DEITIES

In the first chapter of the book of Genesis, the creator's name is ELOHIM. In the second chapter and subsequently God's name becomes Yaweh (or in translation, Jehovah). Questions arise as to why are there two names. Do two names infer two different Gods? Or does One God have many names? Further questions arise because ELOHIM is a Hebrew plural form. Is ELOHIM a committee of gods of which Jehovah is a member? Or does the majesty of God require representation in the plural? Theologians have given many answers to these questions and it still seems to be an open ended matter. So I propose this answer:

Greek theology evolved into Greek philosophy as anthropic projections of gods governing the world were replaced by principles ordering the world. Two conflicting views, which we might term the Heracleitian | Parmedean dichotomy, arose. Heracleites stressed the impermanence of everything, "You cannot step into the same river twice" While Parmededes was obsessed with the eternal. "As it was in the beginning, 'tis now, and ever shall be." The dispute was put on a back shelf as neither side could make a convincing case for its position.

In India, where conjunctive principles are more common than disjunctive ones, both eternal changeless BRAHMAN and the evolving world of nature and life are allowed to co-exist. BRAHMAN provides an infrastructure or stage on which the many diverse dramas of nature and life are allowed to play out. Paradoxically, diversity seems to be highly important to the monolithic BRAHMAN.

Back to ELOHIM and Yaweh. The scribes of the Torah had conjunctive wisdom. They recognized two domains: the eternal changeless and the evolving open ended.. A god was in charge of each domain. ELOHIM of the world of particles, atoms, molecules, stars and galaxies. [When Einstein said he wanted to know the thinking of the 'old one', he must have been referring to ELOHIM.] And Yaweh in charge of the open ended domain of choice and selection. Yaweh is the guide who points the direction toward which open-endedness best move. Yaweh is the record of the wisdom learned from right and wrong choices. Yaweh is the inspiration reminding us of the great potential that is available through right choice.

The Parmedean pair, BRAHMAN and ELOHIM, have issued limits that apply to the domain of choice. These limits to the direction of change, growth and evolution involve the protection of access to potential. Specifically, any development that threatens openness is to be terminated. And in the vocabulary of Yaweh, this becomes the definition of evil. It thus becomes the duty of Yaweh, to correct and redirect that which threatens the flourishing and growth of diversity. And if those who threaten openness are uncorrectable, then they must be terminated.

SCRAPS

2008

IN MEMORIAM

ROBERT JASTROW

SEPTEMBER 7, 1925

FEBRUARY 6, 2008

JOHN ARCHIBALD WHEELER

JULY 9, 1911

APRIL 13, 2008

AN ALTERNATIVE AXIOLOGY

Evil is that which obstructs, reduces, or terminates diversity

—Li Kiang

Is it possible to have both diversity and unity?

Is it possible to have unity without uniformity?

In the absence of limits where anything goes, diversity does not flourish, rather fear of openness enforces conformity which is self-organizing uniformity

cf de Toqueville

Conformity a form of uniformity is consequently also evil.

Americans have replaced the tyranny of an English King with the tyranny of home grown conformity. —1830

Slavery in all its forms obstructs and reduces diversity, and is therefore evil.

Americans fought a civil war to end slavery, but a second result was the destruction of other diversities to the god of unity. America sacrificed diversity for unity

Most people want certainty. But certainty opposes alternatives and diversity

The Soviet system equated equality and uniformity.

74th ANNIVERSARY OF MAY 23, 1934

For several years I have written an essay on this date reflecting a spiritual experience I had on May 23, 1934. As I subsequently learned, it was an experience that changed the direction of my life. While genetic and memetic influences have played the largest role in my life, as they do for almost everyone, there was still this unvarying compass from May 23, 1934. In recent years guided by this compass I have been distanced from the culture in which I have been living for nigh ninety years. And the view of the culture from the distance is disturbing.

I do not have answers nor solutions to the problems engulfing human society, only the injunction: Look at everything in a different way, indeed, in as many different ways as possible. This injunction has been proposed and iterated by many in the 20th Century.

“We shall require an entirely new way of thinking if we are to survive” –Einstein

“To save the world might take greater freedom of thought than we are capable of.” –Zwicky

“Relations, not entities, are basic” –Levi-Straus, Michel Foucault, and other structuralists

“Imagination is more important than knowledge” –Einstein, again

In brief, eschew the party-line in your thinking, whether it is a religious, scientific, medical, political or other tradition.

The basis of this injunction is that what is culturally considered to be *reality* is but a narrow selection from the immensity of Ontic Possibility. This selection is an inheritance from pre-historic times based on what worked for early homo sapiens. But it is no longer working! Other life forms, birds, fish,..., have made different epistemic selections and have tuned in on and utilized energies and forces that have eluded our party-line sciences. Much more is out there than our reality box can grasp.

How can we follow the injunction? Some possibilities:

- ◆ Leave rare, improbable, unaccountable experiences on the table of possibility.
- ◆ Do not dismiss that which “doesn’t make sense”
- ◆ Reject certitude as a goal.
- ◆ Consider what is continuous and contiguous to be only special cases.
- ◆ Be open to the existence of broad interconnectedness.
- ◆ Absorb the euphoric embrace of the mutuality of compassion.
- ◆ Go into the Wilderness, Sit under the Bodhi Tree.

~~No Cl~~ ARCHIMEDES' TUB

It has recently been confirmed that Archimedes invented ^{the} integral calculus some eighteen centuries before Newton. He found volumes of various shapes by slicing them into thin slices and adding the slices as Newton did later. But Archimedes had another technique that has been largely ignored until recently which we might call "Archimedes' Tub": The volume of a solid of any shape can be found by immersing it in a tub of water and noting the change in the height of the surface. This operation reduces three dimensions to one, volume to a length, allowing myriad shapes to be compared by measuring the value of a single parameter—the height of the water in the tub. In recent decades physicists have adopted this approach by immersing various elemental particles in a tub in which the fluid is not water, but energy. The height of the "surface" is measured in units called electron-volts. This approach allows the various "shapes" or dimensions of particles such as mass, size, frequency, etc to be compared when reduced to electron-volts; which is like the volume of various shapes being compared using the water height in Archimedes' original tub.

Besides making volumes of various shapes comparable, Archimedes' Tub led to another important discovery: The interaction between the immersed body and the fluid in which it was immersed created a force called buoyancy. If the immersed body had a density greater than that of the water, it moved downwards until it hit the bottom of the tub. If the density of the body was less than that of water it moved upwards until it reached the surface of the water and resided there in a position partly submerged; the amount of submergence depending on the object/water density ratio. Archimedes formulated this discovery: A body displaces a volume of water whose weight equals its own weight.

In the classical Archimedes' Tub, objects with density $M/L^3 >$ than the density of water, ρ_w , sink to the bottom, and objects with density $M/L^3 < \rho_w$ rise to the surface. In the astronomical universe there is behavior very much like that in the classical Tub. Objects such as stars are immersed in a fluid we call space. Stars with a density of M/L less than the density of space, $\rho_s = c^2/G$, expand, while those whose M/L density is $> c^2/G$ contract, or collapse to a black hole. Classically we treat these expansions and contractions as the results of forces, but they can also be treated as interactions of matter with space. The analogy to surface being the Schwarzschild bound.

ALTERN3.WPD ✓

July 5, 2007

May 31, 2008

ALTERNATE REPRESENTATIONS FOR PHYSICAL DIMENSIONS

| DIMENSION | SYMBOL | PLANCK | $\log_{10}(\text{cgs})$ | $\alpha^u \mu^v$ | $\log_{10}(\alpha^u \mu^v)$ |
|-----------------------------|-------------------|-------------------------|-------------------------|-----------------------------|-----------------------------|
| LENGTH | L | $\sqrt{G \hbar / c^3}$ | -32.791341 | α^1 | -2.136835 |
| TIME | T | $\sqrt{G \hbar / c^5}$ | -43.268161 | $\alpha^{12} \mu^2$ | -19.114202 |
| MASS | M | $\sqrt{c \hbar / G}$ | -4.662404 | μ^1 | 3.263909 |
| G | L^3/MT^2 | G | -7.175296 | $\alpha^{-21} \mu^{-5}$ | 28.553990 |
| VELOCITY | L/T | c | 10.476821 | $\alpha^{-11} \mu^{-2}$ | 16.977367 |
| FREQUENCY | 1/T | $\sqrt{c^5 / G \hbar}$ | 43.268161 | $\alpha^{-12} \mu^{-2}$ | 19.114202 |
| ACCELERATION Ω^{-1} | L/T^2 | $\sqrt{c^7 / G \hbar}$ | 53.744983 | $\alpha^{-23} \mu^{-4}$ | 36.091569 |
| MOMENTUM | ML/T | $\sqrt{c^3 \hbar / G}$ | 5.814417 | $\alpha^{-11} \mu^{-1}$ | 20.241276 |
| AREA | L^2 | $G \hbar / c^3$ | -65.582382 | α^2 | -4.273670 |
| VOLUME | L^3 | $(G \hbar / c^3)^{3/2}$ | -98.373723 | α^3 | -6.410505 |
| DENSITY | M/L^3 | $c^5 / G^2 \hbar$ | 93.711319 | $\alpha^{-3} \mu$ | 9.674414 |
| ACTION | ML^2/T | \hbar | -26.976924 | $\alpha^{-10} \mu^{-1}$ | 18.104441 |
| FORCE ζ | ML/T^2 | c^4 / G | 49.082578 | $\alpha^{-23} \mu^{-3}$ | 39.355471 |
| ENERGY $I^2 \Omega$ | ML^2/T^2 | $\sqrt{c^5 \hbar / G}$ | 16.291238 | $\alpha^{-22} \mu^{-3}$ | 37.218643 |
| POWER $I \sqrt{F}$ | ML^2/T^3 | c^5 / G | 59.559399 | $\alpha^{-34} \mu^{-5}$ | 56.332845 |
| PRESSURE | M/LT^2 | $c^7 / G^2 \hbar$ | 114.664960 | $\alpha^{-25} \mu^{-3}$ | 43.629148 |
| [CHARGE] ² e^2 | ML^3/T^2 | $\hbar c$ | -16.500103 | $\alpha^{-21} \mu^{-3}$ | 35.081808 |
| CHARGE e | $\sqrt{ML^3/T^2}$ | $\sqrt{\hbar c}$ | -8.250052 | $\alpha^{-21/2} \mu^{-3/2}$ | 17.540904 |
| CURRENT I | $\sqrt{ML^3/T^4}$ | c^3 / \sqrt{G} | 35.018110 | $\alpha^{-45/2} \mu^{-7/2}$ | 36.655106 |
| VOLTAGE \sqrt{F} | $\sqrt{ML/T^2}$ | c^2 / \sqrt{G} | 24.541289 | $\alpha^{-23/2} \mu^{-3/2}$ | 19.677739 |
| RESISTANCE Ω | T^2/L | $\sqrt{G \hbar / c^7}$ | -53.744983 | $\alpha^{23} \mu^4$ | -36.091569 |
| e^2/c^2 | ML | \hbar/c | -37.453745 | $\alpha \mu$ | 1.127074 |
| $I \Omega = e/c$ | \sqrt{ML} | $\sqrt{\hbar/c}$ | -18.726873 | $\alpha^{1/2} \mu^{1/2}$ | 0.563527 |
| | M/L | c^2/G | 28.128937 | $\alpha^{-1} \mu$ | 5.400744 |
| | M/T | c^3/G | 38.605758 | $\alpha^{-12} \mu^{-1}$ | 22.378107 |

CURIOSITIES

What is here called a curiosity may be an improbable “black swan”, be an example of Jung’s synchronicity, or be just a coincidence. However, Aristotle–Newton Inc, demand all such be exiled from the domain of possibility and verboten in scientific discourse. They admonish that pursuit of curiosities leads nowhere and is an utter waste of time. But their position infers that curiosities and coincidences are seen as a threat to their party-line: a threat to certitude, a threat to universality, and a threat to any “Theory of Everything”. So the party-line’s hostility to “will-o-the wisps” [their label] is readily explicable.

CONSPIRACY THEORIES

A conspiracy theory is not a valid theory, it is a pre-theory. As such it ^{has} lacks sufficient evidence to be accepted as possibility. On the other hand, there is insufficient evidence for it to be falsified and declared an impossibility. Hence conspiracy theories live in a twilight zone between the possible and the impossible. Nonetheless, they remain *candidates* for the status of theory.

NUMBERS AND NUMEROLOGY

Most of the curiosities and conspiracies considered here are of a numerical nature. And by numerical is meant the purely *quantitative* aspects of number, not the qualitative or metaphysical aspects ascribed to numbers by numerology. [eg Seven is Sacred] In comparing numbers strict attention must be paid to units, dimensionality, accuracy, and precision, but not to “making sense”. For sometimes nonsense can be profound sense.

Mr. Berra, how would you like your pizza sliced,
into four slices or eight?

You had better make it four, I don’t think I can eat
eight.

But Yogi Berra is making good sense if the pizza is a symbol for a menu of four or eight options. [Most of us can’t handle four options much less eight. We like just two, such as DEMS or GOPs]

Numerical manipulations, such as adopting different and varying definitions of the cubit in interpreting the measurements of the Great Pyramid reduces the numerical to the numerological. Units and dimensions must be standardized in every comparison. and best, reduced to pure number.

MAY 26, 2008

THE TEMPLATE HUBBLE CONSTANTBASIC VALUES: [\log_{10} (cgs)]

| | | | |
|-----------------------------|---------------------------|-------------------|------------------------------------|
| NEWTON'S CONSTANT | $G =$ | -7.175 295 619 | [L ³ /MT ²] |
| PLANCK'S CONSTANT | $\hbar =$ | -26.976 923 930 | [ML ² /T] |
| VELOCITY OF LIGHT | $c =$ | 10.476 820 703 | [L/T] |
| PLANCK MASS | $m_o = \sqrt{c\hbar/G}$ | = -4.662 403 804 | [M] |
| PLANCK LENGTH | $l_o = \sqrt{G\hbar/c^3}$ | = -32.791 340 829 | [L] |
| PLANCK TIME | $t_o = \sqrt{G\hbar/c^5}$ | = -43.268 161 532 | [T] |
| PROTON MASS | $m_p =$ | -23.776 602 304 | [M] |
| ELECTRON RADIUS | $r_e =$ | -12.550 068 214 | [L] |
| ELECTRON FREQUENCY | $t_e =$ | +23.026 888 917 | [T] |
| PROTON MASS/ELECTRON MASS | $\mu =$ | 3.263 908 788 | [0] |
| FINE STRUCTURE CONSTANT | $\alpha =$ | -2.136 834 673 | [0] |
| COULOMB/GRAVITY FORCE RATIO | $S =$ | 39.355 471 115 | [0] |

The basic numerical template is based on iterating the **Planck level/baryon level** ratios:

| | LENGTH centimeters | TIME seconds | VOLUME cent ³ | MASS grams |
|----------------|---|---|--|--|
| RATIO = | 20.241 272 ($\alpha\mu S$) ^{1/2} | 20.241 272 ($\alpha\mu S$) ^{1/2} | 60.723818 ($\alpha\mu S$) ^{3/2} | 19.114199 ($S/\alpha\mu$) ^{1/2} |
| Dark M | -53.032612 | -63.509473 | -159.097836 | see below |
| Planck | -32.791 340 | -43.268 161 | -98.374020 | -4.662 403 |
| Baryon | -12.550 068 | -23.026889 | -37.650204 | -23.776602 |
| Dark M | see above | see above | see above | 14.451796 |
| Stellar | 7.691264 | -2.785617 | 23.073614 | 33.565995 * |
| Universe | 27.932536 | 17.455655 ** | 83.797432 | 52.680194 |

* The mass of the sun is approximately 33.299

** This value reduces to 9.0478 billion years, or a Hubble Age of 13.5717 billion years, which is equivalent to a Hubble Constant of $H_o = 72.0617$ km/sec/megaparsec.Observation of 800 cepheids in the Virgo Cluster give $H_o = 71 \pm 7$ km/sec/mpc. [1999]

| factor | M/L c^2/G | M·L \hbar/c | M/V $c^5/\hbar G^2$ | M·V $G\hbar^2/c^4$ |
|----------|---------------------------------------|--|---|--|
| Dark M | 67.484408 S c^2/G | -38.580816 $(\alpha\mu)^{-1} \hbar/c$ | 173.549632 $S^2 (\alpha\mu) c^5/\hbar G^2$ | -144.646040 $S^{-1}(\alpha\mu)^{-2} G\hbar^2/c^4$ |
| Planck | 28.128937 c^2/G | -37.453745 \hbar/c | 93.711617 $c^5/\hbar G^2$ | -103.036423 $G\hbar^2/c^4$ |
| Baryon | -11.226534 $S^{-1} c^2/G$ | -36.326670 $(\alpha\mu) \hbar/c$ | 13.873602 $S^{-2} (\alpha\mu)^{-1} c^5/\hbar G^2$ | -61.426806 $S (\alpha\mu)^2 G\hbar^2/c^4$ |
| Stellar | 25.874731 $(\alpha\mu)^{-2} c^2/G$ | 41.257259 $S^2 \hbar/c$ | 10.492381 $S^{-2} (\alpha\mu)^{-4} c^5/\hbar G^2$ | 56.639609 $S^4 (\alpha\mu)^2 G\hbar^2/c^4$ |
| Universe | 24.747658 $(\alpha\mu)^{-3} c^2/G$ | 80.612730 $S^3 \hbar/c$ | -31.117238 $S^{-3} (\alpha\mu)^{-6} c^5/\hbar G^2$ | 136.477626 $S^6 (\alpha\mu)^3 G\hbar^2/c^4$ |

| | | |
|----------------|---|------------------------------------|
| PLANCK FORCE | $c^4/G = 49.082\ 578\ 431$ | [ML/T ²] |
| PLANCK POWER | $c^5/G = 59.559\ 399\ 134$ | [ML ² /T ³] |
| PLANCK ENERGY | $\sqrt{\hbar c^5}/G = 16.291\ 237\ 602$ | [ML ² /T ²] |
| PLANCK DENSITY | $c^5/\hbar G^2 = 93.711\ 618\ 683$ | [M/L ³] |

| LEVEL | DENSITY g/cm ³ | FORCE dynes | ENERGY ergs | POWER watts |
|----------|---|-----------------------------|-------------------------------------|------------------------------|
| Planck | 93.711 618 | 49.082 578 | 16.291 237 | 59.559 399 |
| P/B | -79.838017 $(\alpha\mu)^{-1} S^{-2}$ | -39.355471 S^{-1} | -19.114199 $(\alpha\mu/S)^{1/2}$ | -39.355471 S^{-1} |
| Baryon | 13.873600 | 9.727108 | -2.822960 | 20.203929 |
| P/§ | 83.219237 $(\alpha\mu)^4 S^2$ | 2.254085 $(\alpha\mu)^2$ | -38.228520 $\alpha\mu/S$ | 23.126495 $(\alpha\mu)^2$ |
| Stellar | 10.492381 | 46.828493 | 54.519757 | 57.305374 |
| P/U | 124.828856 $(\alpha\mu)^6 S^3$ | 3.381158 $(\alpha\mu)^3$ | -57.342719 $(\alpha\mu/S)^{3/2}$ | 3.381095 $(\alpha\mu)^3$ |
| Universe | -31.117238 | 45.701420 | 73.633956 | 56.178301 |

TABLE Ia
 [Measures in $\log_{10}(\text{cgs})$ units]

| LEVEL | LENGTH | TIME | MASS | VOLUME | M/L | M · L |
|--------------|-------------------------|-------------------------|------------------------------|--------------------------|----------------|--------------|
| units | centimeters | seconds | grams | centimeters ³ | gr/cm | gr · cm |
| DARK MTR. | -53.032 612 | -63.509 434 | 14.451796 | -159.097 836 | 67.484 408 | -38.580 816 |
| Planck c G h | $(\text{Gh}/c^3)^{1/2}$ | $(\text{Gh}/c^5)^{1/2}$ | $(\text{ch}/\text{G})^{1/2}$ | $(\text{Gh}/c^3)^{3/2}$ | c^2/G | h/c |
| Planck numer | -32.791 340 | -43.268 161 | -4.662 403 | -98.374 020 | 28.128 937 | -37.453 745 |
| BARYON | -12.550 068 | -23.026 889 | -23.776 602 | -37.650 204 | -11.226 534 | -36.326 670 |
| STAR | 7.691 205 | -2.785 617 | 33.565 995 | 23.073 614 | 25.874 790 | 41.257 200 |
| UNIVERSE | 27.932 478 | 17.455 657 | 52.680 194 | 83.797 432 | 24.747 716 | 80.612 672 |

TABLE Ib
 [Measures in $\log_{10}(\text{cgs})$ units]

| LEVEL | ENERGY | POWER | FORCE | GRAVITY | M/V | M · V |
|--------------|--------------------------------|----------------|----------------|----------------|--------------------|--------------------------|
| units | ergs | watts | dynes | dynes | gr/cm ³ | gr · cm ³ |
| DARK MTR. | 35.405 440 | 98.914 874 | 88.438 046 | 127.793 520 | 173.549 632 | -144.646 040 |
| Planck c G h | $(\text{hc}^5/\text{G})^{1/2}$ | c^5/G | c^4/G | c^4/G | c^5/hG^2 | $\text{h}^2/c^4\text{G}$ |
| Planck numer | 16.291 237 | 59.559 399 | 49.082 578 | 49.082 578 | 93.711 617 | -103.036 423 |
| BARYON | -2.822 960 | 20.203 929 | 9.727 108 | 10.854 182 | 13.873 602 | -61.426 806 |
| STAR | 54.519 639 | 57.305 256 | 46.828 434 | 44.574 284 | 10.492 381 | 56.639 609 |
| UNIVERSE | 73.633 836 | 56.178 179 | 45.701 358 | 42.320 136 | -31.117 238 | 136.477 626 |

TABLE IIa

[Values in planck units, Table Ia values / corresponding planck values]

| LEVEL | LENGTH | TIME | MASS | VOLUME | M/L | M·L |
|-----------|-------------|-------------|-------------|-------------|-------------|-------------|
| DARK MTR. | -20.241 272 | -20.241 272 | 19.114 199 | -60.723 818 | 39.355 471 | -1.127 074 |
| PLANCK | 1 | 1 | 1 | 1 | 1 | 1 |
| BARYON | 20.241 272 | 20.241 272 | -19.114 199 | 60.723 818 | -39.355 471 | 1.127 074 |
| STAR | 40.482 544 | 40.482 544 | 38.228 398 | 121.447 636 | 2.254 148 | 78.710 942 |
| UNIVERSE | 60.723 816 | 60.723 816 | 57.342 597 | 182.171 454 | 3.381 222 | 118.066 413 |

TABLE IIb

[Values in planck units, Table Ib values / corresponding planck values]

| LEVEL | ENERGY | POWER | FORCE | GRAVITY | M/V | M·V |
|-----------|-------------|-------------|-------------|-------------|--------------|-------------|
| DARK MTR. | 19.114197 | 39.355 508 | 39.355468 | 78.710942 | 79.838 015 | -41.609 617 |
| PLANCK | 1 | 1 | 1 | 1 | 1 | 1 |
| BARYON | -19.114 199 | -39.355 471 | -39.355 471 | -38.228 396 | -79.838 015 | 41.609 617 |
| STAR | 38.228 520 | -2.254 025 | -2.254 085 | -4.508412 | -83.219 236 | 159.676 032 |
| UNIVERSE | 57.342 719 | -3.381 222 | -3.381 222 | -6.762538 | -124.828 855 | 239.514 049 |

TABLE IIIa

[Values in planck units, Table IIa values in terms of α , μ , and S with planck values = 1]

| LEVEL | LENGTH | TIME | MASS | VOLUME | M/L | M · L |
|-----------|------------------------|------------------------|------------------------|-----------------------|-----------------|--------------------|
| DARK MTR. | $(\alpha\mu S)^{-1/2}$ | $(\alpha\mu S)^{-1/2}$ | $(S/\alpha\mu)^{1/2}$ | $(S\alpha\mu)^{-3/2}$ | S | $(\alpha\mu)^{-1}$ |
| PLANCK | 1 | 1 | 1 | 1 | 1 | 1 |
| BARYON | $(\alpha\mu S)^{1/2}$ | $(\alpha\mu S)^{1/2}$ | $(S/\alpha\mu)^{-1/2}$ | $(S\alpha\mu)^{3/2}$ | S^{-1} | $(\alpha\mu)$ |
| STAR | $(\alpha\mu S)$ | $(\alpha\mu S)$ | $(S/\alpha\mu)$ | $(S\alpha\mu)^3$ | $(\alpha\mu)^2$ | S^2 |
| UNIVERSE | $(\alpha\mu S)^{3/2}$ | $(\alpha\mu S)^{3/2}$ | $(S/\alpha\mu)^{3/2}$ | $(S\alpha\mu)^{9/2}$ | $(\alpha\mu)^3$ | S^3 |

TABLE IIIb

[Values in planck units, Table IIb values in terms of α , μ , and S with planck values = 1]

| LEVEL | ENERGY | POWER | FORCE | GRAVITY | M/V | M · V |
|-----------|------------------------|--------------------|--------------------|----------------------|---------------------------|---------------------------|
| DARK MTR. | $(S/\alpha\mu)^{1/2}$ | S | S | S^2 | $(\alpha\mu) S^2$ | $(\alpha\mu)^{-2} S^{-1}$ |
| PLANCK | 1 | 1 | 1 | 1 | 1 | 1 |
| BARYON | $(S/\alpha\mu)^{-1/2}$ | S^{-1} | S^{-1} | $(S/\alpha\mu)^{-1}$ | $(\alpha\mu)^{-1} S^{-2}$ | $(\alpha\mu)^2 S$ |
| STAR | $(S/\alpha\mu)$ | $(\alpha\mu)^{-2}$ | $(\alpha\mu)^{-2}$ | $(\alpha\mu)^{-4}$ | $(\alpha\mu)^{-4} S^{-2}$ | $(\alpha\mu)^2 S^4$ |
| UNIVERSE | $(S/\alpha\mu)^{3/2}$ | $(\alpha\mu)^{-3}$ | $(\alpha\mu)^{-3}$ | $(\alpha\mu)^{-6}$ | $(\alpha\mu)^{-6} S^{-3}$ | $(\alpha\mu)^3 S^6$ |

METRIC
NUMERICAL VALUES

ALL VALUES ARE LOG₁₀(cgs)

FUNDAMENTAL CONSTANTS:

| | | | |
|-----------------------------|------|-----------------|------------------------------------|
| NEWTON'S CONSTANT | G = | -7.175 295 619 | [L ³ /MT ²] |
| PLANCK'S CONSTANT | ħ = | -26.976 923 930 | [ML ² /T] |
| VELOCITY OF LIGHT | c = | 10.476 820 703 | [L/T] |
| PROTON MASS/ELECTRON MASS | μ = | 3.263 908 788 | [0] |
| FINE STRUCTURE CONSTANT | α = | -2.136 834 673 | [0] |
| COULOMB/GRAVITY FORCE RATIO | S = | 39.355 471 115 | [0] |
| | αμ = | 1.127 074 115 | [0] |

PLANCK VALUES:

| | | | | |
|------------------------------|----------------------------|---|---|------------------------------------|
| PLANCK MASS | $m_o = \sqrt{\hbar c/G}$ | = | -4.662 403 804 | [M] |
| PLANCK LENGTH | $l_o = \sqrt{\hbar G/c^3}$ | = | -32.791 340 829 | [L] |
| PLANCK TIME | $t_o = \sqrt{\hbar G/c^5}$ | = | -43.268 161 532 | [T] |
| | c/G | = | 17.652 116 322 | [MT/L ²] |
| SCHWARTZSCHILD BOUND | c^2/G | = | 28.128 937 025 | [M/L] m_o/l_o |
| TIME FACTOR | c^3/G | = | 38.605 757 728 | [M/T] |
| PLANCK FORCE | c^4/G | = | 49.082 578 431 | [ML/T ²] |
| PLANCK POWER | c^5/G | = | 59.559 399 134 | [ML ² /T ³] |
| PLANCK ENERGY | $\sqrt{\hbar c^5/G}$ | = | 16.291 237 602 | [ML ² /T ²] |
| " | $\sqrt{\hbar c^5/G}$ | = | $m_o c^2 = G m_o^2 / l_o = \hbar / t_o$ | [ML ² /T ²] |
| PLANCK DENSITY | $c^5/\hbar G^2$ | = | 93.711 618 683 | [M/L ³] |
| [PLANCK CHARGE] ² | $\hbar c$ | = | -16.500 103 227 | [ML ³ /T ²] |
| $m_o \cdot l_o$ | \hbar/c | = | -37.453 744 633 | [ML] |
| $m_o \cdot t_o$ | \hbar/c^2 | = | -47.930 565 336 | [MT] |

BARYON VALUES:

| | | | | |
|--------------------------------|------------------|---|------------------|--|
| PROTON MASS | m_p | = | -23.776 602 304 | [M] |
| NEUTRON MASS | m_n | = | -23.776 004 075 | [M] |
| ELECTRON MASS | m_e | = | -27.040 511 092 | [M] |
| ELECTRON RADIUS | r_e | = | -12.550 068 214 | [L] |
| ELECTRON FREQUENCY | c/r_e | = | + 23.026 888 917 | [1/T] |
| [ELECTRON CHARGE] ² | $\hbar \alpha c$ | = | -18.636 937 900 | [ML ³ /T ²] e^2 |

POWERS AND ROOTS:

| | | | | | |
|----------|----------------|------------|-------------------|------------|------------------|
| c | 10.476 820 703 | l_o | -32.791 340 829 | r_e | -12.550 068 214 |
| c^2 | 20.953 641 406 | l_o^2 | -65.582 681 658 | r_e^2 | -25.100 136 428 |
| c^3 | 31.430 462 109 | l_o^3 | -98.374 022 487 | r_e^3 | -37.650 204 642 |
| c^4 | 41.907 282 812 | l_o^4 | -131.165 363 316. | r_e^4 | -50.200 272 856 |
| c^5 | 52.384 103 515 | l_o^5 | -163.956 704 145 | r_e^5 | -62.750 341 070 |
| c^6 | 62.860 924 218 | l_o^6 | -196.748 044 974 | r_e^6 | -75.300 409 284 |
| c^7 | 73.337 744 921 | l_o^7 | -229.539 385 803 | r_e^7 | -87.850 477 498 |
| c^8 | 83.814 565 624 | l_o^8 | -262.330 726 632 | r_e^8 | -100.400 545 712 |
| c^9 | 94.291 386 327 | l_o^9 | -295.122 067 461 | r_e^9 | -112.950 613 926 |
| c^{10} | 104.768 207 03 | l_o^{10} | -327.913 408 29 | r_e^{10} | -125.500 682 14 |

TEMPLATE VALUES

| | | | | | | |
|------------|---|-----------------|----------------------------|----------------------|---|---------------|
| $S^{1/2}$ | = | 19.677 735 557 | | $(\alpha\mu)^{1/2}$ | = | 0.563 537 057 |
| S | = | 39.355 471 115 | = $\alpha^{-23}\mu^{-3}$ | $(\alpha\mu)$ | = | 1.127 074 115 |
| $S^{3/2}$ | = | 59.033 206 671 | | $(\alpha\mu)^{3/2}$ | = | 1.690 611 171 |
| S^2 | = | 78.710 942 230 | = $\alpha^{-46}\mu^{-6}$ | $(\alpha\mu)^2$ | = | 2.254 148 230 |
| $S^{5/2}$ | = | 98.388 677 785 | | $(\alpha\mu)^{5/2}$ | = | 2.817 685 288 |
| S^3 | = | 118.066 413 342 | = $\alpha^{-69}\mu^{-9}$ | $(\alpha\mu)^3$ | = | 3.381 222 342 |
| $S^{7/2}$ | = | 137.744 148 899 | | $(\alpha\mu)^{7/2}$ | = | 3.944 759 403 |
| S^4 | = | 157.421 884 456 | = $\alpha^{-92}\mu^{-12}$ | $(\alpha\mu)^4$ | = | 4.508 296 460 |
| $S^{9/2}$ | = | 177.099 620 013 | | $(\alpha\mu)^{9/2}$ | = | 5.071 833 518 |
| S^5 | = | 196.777 355 570 | = $\alpha^{-115}\mu^{-15}$ | $(\alpha\mu)^5$ | = | 5.635 370 575 |
| $S^{11/2}$ | = | 216.455 091 127 | | $(\alpha\mu)^{11/2}$ | = | 6.198 907 633 |
| S^6 | = | 236.132 826 684 | = $\alpha^{-138}\mu^{-18}$ | $(\alpha\mu)^6$ | = | 6.762 444 690 |
| $S^{13/2}$ | = | 255.810 562 241 | | $(\alpha\mu)^{13/2}$ | = | 7.325 981 741 |
| S^7 | = | 275.488 297 798 | = $\alpha^{-161}\mu^{-21}$ | $(\alpha\mu)^7$ | = | 7.889 518 798 |
| $S^{15/2}$ | = | 295.166 033 355 | | $(\alpha\mu)^{15/2}$ | = | 8.453 055 855 |
| S^8 | = | 314.843 768 912 | = $\alpha^{-184}\mu^{-24}$ | $(\alpha\mu)^8$ | = | 9.016 592 912 |

| | |
|---|---|
| $(S/\alpha\mu)^{1/4} = 9.557\ 099\ 250 = \alpha^{-6}\mu^{-1}$ | $(\alpha\mu S)^{1/4} = 10.120\ 636\ 308 = \alpha^{-11/2}\mu^{-1/2}$ |
| $(S/\alpha\mu)^{1/2} = 19.114\ 198\ 500 = \alpha^{-12}\mu^{-2}$ | $(\alpha\mu S)^{1/2} = 20.241\ 272\ 615 = \alpha^{-11}\mu^{-1}$ |
| $(S/\alpha\mu) = 38.228\ 397\ 000 = \alpha^{-24}\mu^{-4}$ | $(\alpha\mu S) = 40.482\ 545\ 230 = \alpha^{-22}\mu^{-2}$ |
| $(S/\alpha\mu)^{3/2} = 57.342\ 595\ 500 = \alpha^{-36}\mu^{-6}$ | $(\alpha\mu S)^{3/2} = 60.723\ 817\ 845 = \alpha^{-33}\mu^{-3}$ |
| $(S/\alpha\mu)^2 = 76.456\ 794\ 000 = \alpha^{-48}\mu^{-8}$ | $(\alpha\mu S)^2 = 80.965\ 090\ 460 = \alpha^{-44}\mu^{-4}$ |
| $(S/\alpha\mu)^{5/2} = 95.570\ 992\ 500 = \alpha^{-60}\mu^{-10}$ | $(\alpha\mu S)^{5/2} = 101.206\ 363\ 075 = \alpha^{-55}\mu^{-5}$ |
| $(S/\alpha\mu)^3 = 114.685\ 191\ 000 = \alpha^{-72}\mu^{-12}$ | $(\alpha\mu S)^3 = 121.447\ 635\ 690 = \alpha^{-66}\mu^{-6}$ |
| $(S/\alpha\mu)^{7/2} = 133.799\ 389\ 500 = \alpha^{-84}\mu^{-14}$ | $(\alpha\mu S)^{7/2} = 141.688\ 908\ 305 = \alpha^{-77}\mu^{-7}$ |
| $(S/\alpha\mu)^4 = 152.913\ 588\ 000 = \alpha^{-96}\mu^{-16}$ | $(\alpha\mu S)^4 = 161.930\ 180\ 920 = \alpha^{-88}\mu^{-8}$ |
| $(S/\alpha\mu)^{9/2} = 172.027\ 786\ 500 = \alpha^{-108}\mu^{-18}$ | $(\alpha\mu S)^{9/2} = 182.171\ 453\ 535 = \alpha^{-99}\mu^{-9}$ |
| $(S/\alpha\mu)^5 = 191.141\ 985\ 000 = \alpha^{-120}\mu^{-20}$ | $(\alpha\mu S)^5 = 202.412\ 726\ 15 = \alpha^{-110}\mu^{-10}$ |
| $(S/\alpha\mu)^{11/2} = 210.256\ 183\ 500 = \alpha^{-132}\mu^{-22}$ | $(\alpha\mu S)^{11/2} = 222.653\ 998\ 765 = \alpha^{-121}\mu^{-11}$ |
| $(S/\alpha\mu)^6 = 229.370\ 382\ 000 = \alpha^{-144}\mu^{-24}$ | $(\alpha\mu S)^6 = 242.895\ 271\ 38 = \alpha^{-132}\mu^{-12}$ |

| | | |
|-------------------------------------|---------------------------------|---|
| $\alpha^{1/2} = -1.068\ 417\ 336$ | $\mu^{1/2} = 1.631\ 954\ 394$ | $(\alpha/\mu)^{1/2} = -2.700\ 371\ 731$ |
| $\alpha = -2.136\ 834\ 673$ | $\mu = 3.263\ 908\ 788$ | $(\alpha/\mu) = -5.400\ 743\ 462$ |
| $\alpha^{3/2} = -3.205\ 252\ 008$ | $\mu^{3/2} = 4.895\ 863\ 182$ | $(\alpha/\mu)^{3/2} = -8.101\ 115\ 193$ |
| $\alpha^2 = -4.273\ 669\ 346$ | $\mu^2 = 6.527\ 817\ 576$ | $(\alpha/\mu)^2 = -10.801\ 486\ 924$ |
| $\alpha^{5/2} = -5.342\ 086\ 680$ | $\mu^{5/2} = 8.159\ 771\ 970$ | $(\alpha/\mu)^{5/2} = -13.501\ 858655$ |
| $\alpha^3 = -6.410\ 504\ 016$ | $\mu^3 = 9.791\ 726\ 364$ | $(\alpha/\mu)^3 = -16.202\ 230\ 386$ |
| $\alpha^{7/2} = -7.478\ 921\ 352$ | $\mu^{7/2} = 11.423\ 680\ 758$ | $(\alpha/\mu)^{7/2} = -18.902\ 602\ 117$ |
| $\alpha^4 = -8.547\ 338\ 688$ | $\mu^4 = 13.055\ 635\ 152$ | $(\alpha/\mu)^4 = -21.602\ 973\ 848$ |
| $\alpha^{9/2} = -9.615\ 756\ 024$ | $\mu^{9/2} = 14.687\ 589\ 546$ | $(\alpha/\mu)^{9/2} = -24.303\ 345\ 579$ |
| $\alpha^5 = -10.684\ 173\ 36$ | $\mu^5 = 16.319\ 543\ 940$ | $(\alpha/\mu)^5 = -27.003\ 717\ 310$ |
| $\alpha^{11/2} = -11.752\ 590\ 696$ | $\mu^{11/2} = 17.951\ 498\ 334$ | $(\alpha/\mu)^{11/2} = -29.704\ 089\ 041$ |
| $\alpha^6 = -12.821\ 008\ 032$ | $\mu^6 = 19.583\ 452\ 728$ | $(\alpha/\mu)^6 = -32.404\ 460\ 772$ |
| $\alpha^{13/2} = -13.889\ 425\ 368$ | $\mu^{13/2} = 21.215\ 407\ 122$ | $(\alpha/\mu)^{13/2} = -35.104\ 832\ 503$ |
| $\alpha^7 = -14.957\ 842\ 704$ | $\mu^7 = 22.847\ 361\ 516$ | $(\alpha/\mu)^7 = -37.805\ 204\ 234$ |
| $\alpha^{15/2} = -16.026\ 260\ 004$ | $\mu^{15/2} = 24.479\ 315\ 910$ | $(\alpha/\mu)^{15/2} = -40.505\ 575\ 965$ |
| $\alpha^8 = -17.094\ 677\ 376$ | $\mu^8 = 26.111\ 270\ 304$ | $(\alpha/\mu)^8 = -43.205\ 947\ 696$ |

NOTES:

| | | | |
|---------------------|------------------------------------|-----------------------|-----|
| fermi | $r_e = -12.550\ 068\ 214$ | $\hbar\alpha/m_e c$ | [L] |
| compton wave length | $\lambda_c = -10.413\ 233\ 541$ | $\hbar/m_e c$ | [L] |
| bohr radius | $a_0 = -8.276\ 398\ 868$ | $\hbar/m_e c\alpha$ | [L] |
| rydberg * | $r_\infty^{-1} = -6.139\ 564\ 195$ | $\hbar/m_e c\alpha^2$ | [L] |

Each of the above lengths differ by α .

*The Rydberg constant $R_\infty = m_e c \alpha^2 / 4\pi\hbar = 5.040\ 354\ 331$ [L⁻¹].
The above quantity $r_\infty^{-1} = \hbar/m_e c\alpha^2$. (i.e.no 4π) [L]

A MORE ACCURATE VALUE FOR NEWTON'S CONSTANT: G

While several basic physical quantities have been measured to accuracies better than eight places, Newton's gravitational constant, G, has yet to be measured to better than five places. This in turn has limited the accuracy of all constants involving G, such as the Planck mass, $m_o = \sqrt{(\hbar c/G)}$ and the Planck length, $l_o = \sqrt{(G\hbar/c^3)}$.

The present values of relevant constants are taken from [Physics Today 2002 pp BG6 – BG13]
The $\log_{10}(\text{cgs})$ values of the constants are given in TABLE I

| TABLE I | |
|----------------------------|-----------------------------|
| fine structure constant | $\alpha = -2.136\ 834\ 673$ |
| proton mass | $m_p = -23.776\ 602\ 304$ |
| electron mass | $m_e = -27.040\ 511\ 092$ |
| proton/electron mass ratio | $\mu = 3.263\ 908\ 788$ |
| electron radius | $r_e = -12.550\ 068\ 214$ |
| velocity of light | $c = 10.476\ 820\ 703$ |
| Planck's constant | $\hbar = -26.976\ 923\ 930$ |
| and | |
| Newton's constant | $G = -7.175\ 7$ |
| Planck mass | $m_o = -4.662\ 2$ |
| Planck length | $l_o = -32.791\ 6$ |

Using the values from TABLE I,

$$\begin{aligned} r_e/l_o &= 20.2415 & m_p r_e/m_o l_o &= 1.127\ 1 \\ m_o/m_p &= 19.114\ 4 & \alpha\mu &= 1.127\ 074\ 115 \end{aligned}$$

The equality between the first five places of $m_p r_e/m_o l_o$ and $\alpha\mu$ suggests that the quantities are indeed equal, and that the other ratios may also be functions of α and μ .

Calculating powers of α and μ , we find that $\alpha^{-12} \mu^{-2} = 19.114\ 198\ 500$

Comparing and assuming $m_o/m_p = 19.114\ 198\ 500$ and using the value of m_p from TABLE I, m_o becomes $= -4.662\ 403\ 804$ But $m_o = \sqrt{(\hbar c/G)}$, or $G = \hbar c/m_o^2$

Using the values of \hbar and c from TABLE I,

$$G \text{ becomes } = -7.175\ 295\ 619$$

Calculating powers of α and μ , we find that $\alpha^{-11} \mu^{-1} = 20.241\ 272\ 615$

Similarly, assuming $r_e/l_o = 20.241\ 272\ 615$ and using the value of r_e from TABLE I, l_o becomes $= -32.791\ 340\ 829$, But $l_o = \sqrt{(G\hbar/c^3)}$, or $G = c^3 l_o^2/\hbar$,

Using the values of \hbar and c from TABLE I, again

$$G \text{ becomes } = -7.175\ 295\ 619$$

Summarizing, the $\log_{10}(\text{cgs})$ values become:

| | |
|-------------------|---------------------------|
| Newton's constant | $G = -7.175\ 295\ 619$ |
| Planck mass | $m_o = -4.662\ 403\ 804$ |
| Planck length | $l_o = -32.791\ 340\ 829$ |

and the coulomb/gravity force ratio at the nucleon level, $S = \hbar\alpha c/Gm_p m_e$ becomes,

$$S = +39.355\ 471\ 115 \quad (= \alpha^{-23} \mu^{-3})$$

CURRENT PROJECTS

COGITANS

ORGANON, NOVUM ORGANUM
MORPHOLOGY, ALTERNATIVE LOGICS, LXM
FUZZINESS, MYTH, POETRY
DISCRIMINATION-JUXTAPOSITION
FOUR THOUGHT, QUADRICS
SEMIOTICS, SYNTHESIS
LAWYER THINK, SPIN

MATHEMATICS

COUNTING, NUMBERS
MEASURING, DIMENSIONALITY, UNITS
GENERALIZATION w ABSTRACTION
ARCHIMEDES' TUB
SEQUENCES, ARRAYS
ELEMENTS | SETS

COSMOLOGY

SIZE↑ MULTIPLICITY⇒ DIVERSITY
ACCURACY-PRECISION: MAXIMUM AT MESO, MICRO ↓, MACRO↑
SYMMETRIES UNIVERSALS INVARIANTS CONSERVATION
PROTON-ELECTRON LEVEL: α , μ , S
PROTON/PLANCK ⇒ DARK MATTER, STELLAR, COSMOS
FORCES, FREQUENCIES

EPIONTOLOGY

ONTIC w EPISTEMIC
MATH : SCIENCE :: TOP DOWN : BOTTOM UP
CONSISTENCY w FALSIFIABLE
WIDTH OF VALIDITY, WIDTH OF CAUSALITY
PROJECTIONS, REALITIES
LEVELS and LIMITS
SPACES
ENERGY | INFORMATION
CONTIGUITY-CONTINUITY MUTUALITY
NECESSITY w CONTINGENCY, DETERMINISM w CHOICE
" MARS' QUESTIONS"

SOCIETAL-POLITICAL

IDENTITY, MEANING, VALUES
WIDTH OF NOW SYNCHRONIC | DIACHRONIC
PRESENT CULTURE, PARTY LINES
QUEST w SEARCH
PASSING THE TORCH, DIACHRONIC THINK TANK
UNITY | DIVERSITY CONFEDERATIONS
IDEOLOGIES

TYPOLOGIES

PSYCHOLOGICAL
SOCIETAL
EPISTEMIC
TECHNOLOGICAL

JOURNEY OF THE YEAR

CYCLES, WIDTHS OF NOW
CALENDARS
RITUALS
TRADITIONS

LAWS OF CHANGE

DIALECTICS
THE MIDDLE WAY
UNLEARNING
EXTINCTIONS-RADIANTS

MYSTERY

GLIMPSES
QUEST, SEARCH,
LURE AND LONGING
THE PARTLY HIDDEN CRESTS
THEOLOGY, AXIOLOGY
NOTHINGNESS

THE CURRENT CULTURE

—Cynics version

We are the ones, the Chosen few,
The rest of you are damned.
There's plenty of room in Hell for you
We don't want Heaven crammed.

—Religious version

We are the ones who have the wealth
The rest of you be damned
There's plenty of room in ghettos for you
We don't want country clubs crammed.

—Secular version

WE ARE THE ONES WHO HAVE THE NUKES
THE REST OF YOU BE DAMNED
WE HAVE NO FEAR OF ANY OF YOU
ALL OPTIONS ARE UNDER OUR COMMAND

—Pentagon version

WE ARE THE ONES WHO THROW THE BOMBS
THE REST OF YOU BE DAMNED
YOU WILL NEVER KNOW WHEN OF WHERE
OUR NEXT STRIKE IS GOING TO LAND

—Terrorist version

We are the ones who make the rules
The rest of you be damned
We judge what to obey, what to ignore

The loop holes have all been well planned

—Legal version

**WE ARE THE ONES WHO PUSH WHAT'S NEW
BE IT GIMMICKS, FADS, OR BANDS
WE MARKET AND AD ON TV AND ON WEB
SO OUR SUPPLY BECOMES YOUR DEMAND**

—Corporate version

Business

**We are the ones who create what's true
Based on experiments pre-planned
Our equations tell us what is and what works
And into your heads it is rammed**

—Science version

*We are the ones, the rest of us
Who always lend a hand
Who work, who save, who share, who pray
But what trickles down is only sand.*

—Losers version

(formerly —Peoples version)

THE CURRENT CULTURE

—Cynics version

We are the ones, the Chosen few,
The rest of you are damned.
There's plenty of room in Hell for you
We don't want Heaven crammed.

—Religious version

We are the ones who have the wealth
The rest of you be damned
There's plenty of room in ghettos for you
We don't want country clubs crammed.

—Secular version

WE ARE THE ONES WHO HAVE THE NUKES
THE REST OF YOU BE DAMNED
WE HAVE NO FEAR OF ANY OF YOU
ALL OPTIONS ARE UNDER OUR COMMAND

—Pentagon version

WE ARE THE ONES WHO THROW THE BOMBS
THE REST OF YOU BE DAMNED
YOU WILL NEVER KNOW WHEN OF WHERE
OUR NEXT STRIKE WILL LIKELY LAND

—Terrorist version

THE CURRENT CULTURE -CYNICS VERSION

We are the ones, the chosen few,
The rest of you are damned.
There's plenty of room in hell for you
We don't want heaven crammed.
-Religion version

We are the ones who have the wealth
The rest of you be damned
There's plenty of room in ghettos for you
We don't want country clubs crammed.
-Secular version

We are the ones who have the nukes
The rest of you be damned
We do not fear any of you
All options are under our command
-Pentagon version

We are the ones who make the rules
The rest of you be damned
We judge what to obey, what to ignore
The loop holes have all been well planned
-Legal version

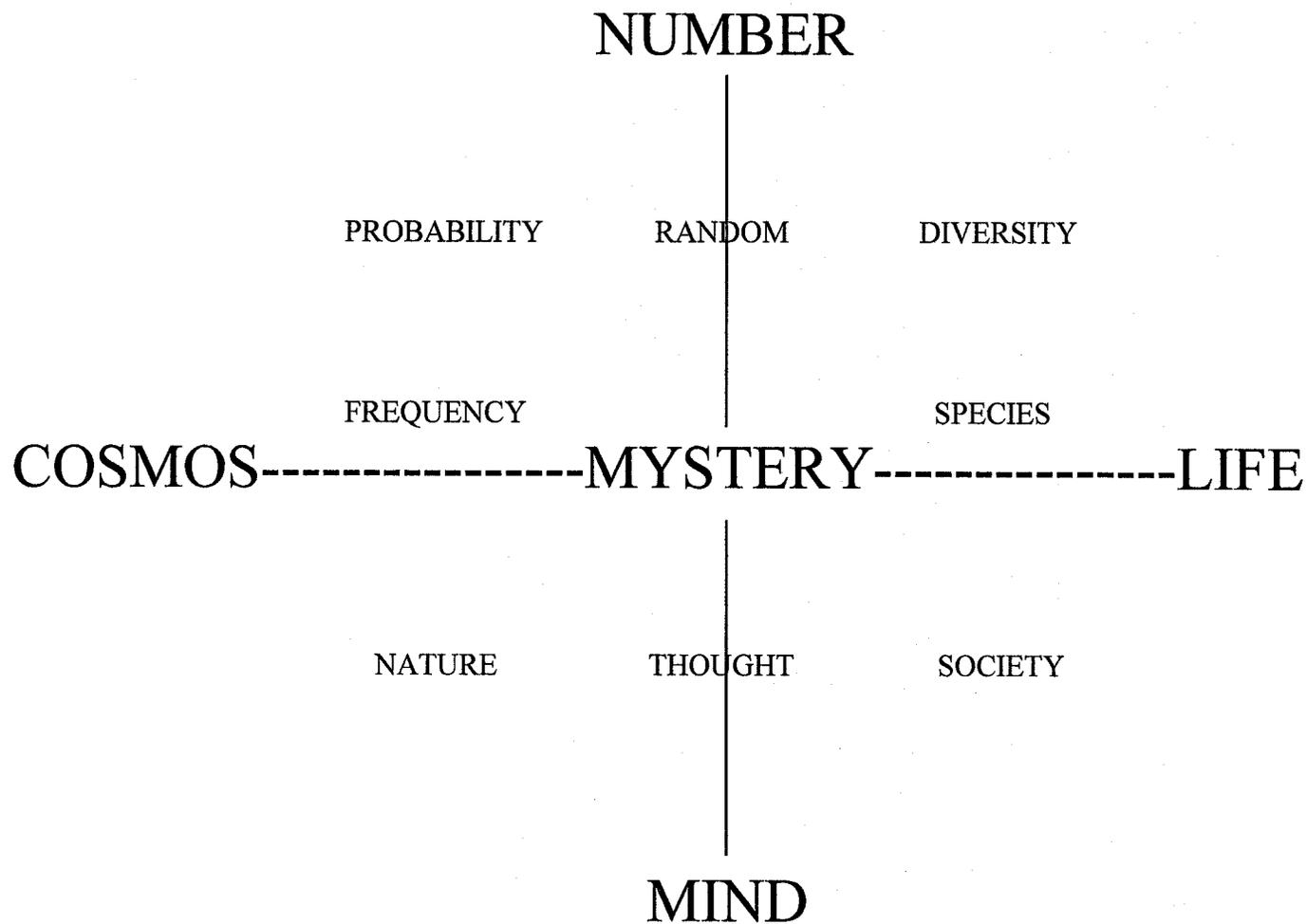
We are the ones who push what's new
Be it gimmicks, fads, or bands
We market and ad on TV and on Web
Till our supply becomes your demand
-Corporate version

We are the ones who select what's true
Based on costly experiments pre-planned
Our equations tell us what is and what works
Both we and the rest of you are spammed.
-Science version

We are the ones who teach what's hot
Into kid's heads it is crammed
We don't care whether they learn it or not
So long as they repeat it when examined
-Education version

We are the ones, the rest of us
Who always lend a hand
Who work, who save, who pray, who share
But what trickles down is only sand.
-once termed, Peoples' version
-now termed, Loser's version

We are the ones who throw the bombs
The rest of you will be damned
You will never know when of where
Our next strike will likely land.
-Terrorist version



COSMOLOGICAL MASS AND SIZE LEVELS

| | |
|--|---|
| $m_o/m_p = 19.114\ 198\ 500 = (S/\alpha\mu)^{1/2}$ | $r_e/l_o = 20.241\ 272\ 615 = (\alpha\mu S)^{1/2}$ |
| $M = \sqrt{\quad} = 9.557\ 099\ 250 = (S/\alpha\mu)^{1/4}$ | $L = \sqrt{\quad} = 10.120\ 636\ 308 = (\alpha\mu S)^{1/4}$ |
| $\alpha\mu = 1.127\ 074\ 115$ | $S = 39.355\ 471\ 115$ |
| $\sqrt{\alpha\mu} = 0.563\ 537\ 057$ | $\sqrt{S} = 19.677\ 735\ 557$ |
| $\hbar/c = -37.453\ 744\ 633 \quad [ML]$ | $c^2/G = 28.128\ 937\ 025 \quad [M/L]$ |
| $t_o = -43.268\ 161\ 532$ is the planck time | $c^3/G = 38.605\ 757\ 728$ |
| $m_o = -4.662\ 403\ 804$ is the planck mass | $l_o = -32.791\ 340\ 829$ is the planck radius |
| $m_p = -23,776\ 602\ 304$ is the proton mass | $r_e = -12.550\ 068\ 214$ is the electron radius |

$$m_{-2} = -42.890\ 800\ 804 = m_p M^{-2} m_o (S/\alpha\mu)^{-1} \quad l_{-2} = -53.032\ 613\ 445 = l_o L^{-2} = l_o (\alpha\mu S)^{-1/2}$$

$$m_{-1} = -33.333\ 701\ 554 = m_p M^{-1} \quad l_{-1} = -42.911\ 977\ 137 = l_o L^{-1}$$

$$m_p = -23.776\ 602\ 304 = m_p M^0 = m_o (S/\alpha\mu)^{-1/2} \quad l_o = -32.791\ 340\ 829 = l_o L^0 = l_o (\alpha\mu S)^0$$

$$m_1 = -14.219\ 503\ 054 = m_p M^1 \quad l_1 = -22.6707045215 = l_o L^1$$

$$m_o = -4.662\ 403\ 804 = m_p M^2 m_o (S/\alpha\mu)^0 \quad r_e = -12.550\ 068\ 214 = l_o L^2 = l_o (\alpha\mu S)^{1/2}$$

$$m_3 = 4.894\ 695\ 446 = m_p M^3 \quad l_3 = -2.429\ 431\ 907 = l_o L^3$$

$$m_4 = 14.451\ 794\ 696 = m_p M^4 = m_o (S/\alpha\mu)^{1/2} \quad l_4 = 7.691\ 204\ 401 = l_o L^4 = l_o (\alpha\mu S)^1$$

$$m_5 = 24.008\ 893\ 946 = m_p M^5 \quad l_5 = 17.811\ 840\ 709 = l_o L^5$$

$$m_6 = 33.565\ 993\ 196 = m_p M^6 = m_o (S/\alpha\mu)^1 \quad l_6 = 27.932\ 477\ 016 = l_o L^6 = l_o (\alpha\mu S)^{3/2}$$

$$m_7 = 43.123\ 092\ 446 = m_p M^7 \quad l_7 = 38.053\ 113\ 324 = l_o L^7$$

$$m_8 = 52.680\ 191\ 696 = m_p M^8 = m_o (S/\alpha\mu)^{3/2} \quad l_8 = 48.173\ 749\ 631 = l_o L^8 = l_o (\alpha\mu S)^2$$

$$m_9 = 62.237\ 290\ 946 = m_p M^9 \quad l_9 = 58.294\ 385\ 939 = l_o L^9$$

$$m_{10} = 71.794\ 390\ 196 = m_p M^{10} = m_o (S/\alpha\mu)^2 \quad l_{10} = 68.415\ 022\ 247 = l_o L^{10} = l_o (\alpha\mu S)^{5/2}$$

$$\Delta = \sqrt{M} = 9.557\ 099\ 250$$

$$\Delta = \sqrt{L} = 10.120\ 636\ 308$$

$$m_o M^{n-2} = m_p M^n = m_o (S/\alpha\mu)^{(n-2)/4}$$

$$r_e L^{n-2} = l_o L^n = l_o (\alpha\mu S)^{n/4}$$

COSMOLOGICAL MASS AND SIZE LEVELS

| M·L | M/L |
|--|--|
| $P = (\alpha\mu)^{1/2}\hbar/c$ | $Q = c^2/G\sqrt{S}$ |
| $m_{-2}l_{-2} = -95.923\ 414\ 249 = P S^{-3/2}$ | $m_{-2}/l_{-2} = 10.141\ 812\ 641 = Q (\alpha\mu)^{3/2}$ |
| $m_{-1}l_{-1} = -76.245\ 678\ 691 = P S^{-1}$ | $m_{-1}/l_{-1} = 9.578\ 275\ 583 = Q (\alpha\mu)$ |
| $m_0l_0 = -37.453\ 744\ 633 = P(\alpha\mu)^{-1/2} = \hbar/c$ | $m_0/l_0 = 28.128\ 937\ 025 = Q\sqrt{S} = c^2/G$ |
| $m_1l_1 = -36.890\ 207\ 576 = P$ | $m_1/l_1 = 8.451\ 201\ 468 = Q$ |
| $m_p r_e = -36.326\ 670\ 518 = P (\alpha\mu)^{1/2}$ | $m_p/r_e = -11.226\ 534\ 090 = Q/\sqrt{S}$ |
| $m_3l_3 = 2.465\ 263\ 539 = P S$ | $m_3/l_3 = 7.324\ 127\ 353 = Q (\alpha\mu)$ |
| $m_4l_4 = 22.142\ 999\ 097 = P S^{3/2}$ | $m_4/l_4 = 6.760\ 590\ 295 = Q (\alpha\mu)^{3/2}$ |
| $m_5l_5 = 41.820\ 734\ 655 = P S^2$ | $m_5/l_5 = 6.197\ 053\ 237 = Q (\alpha\mu)^2$ |
| $m_6l_6 = 61.498\ 470\ 212 = P S^{5/2}$ | $m_6/l_6 = 5.633\ 516\ 180 = Q (\alpha\mu)^{5/2}$ |
| $m_7l_7 = 81.176\ 205\ 770 = P S^3$ | $m_7/l_7 = 5.069\ 979\ 122 = Q (\alpha\mu)^3$ |
| $m_8l_8 = 100.853\ 941\ 327 = P S^{7/2}$ | $m_8/l_8 = 4.506\ 442\ 065 = Q (\alpha\mu)^{7/2}$ |
| $m_9l_9 = 120.531\ 676\ 885 = P S^4$ | $m_9/l_9 = 3.942\ 905\ 007 = Q (\alpha\mu)^4$ |
| $m_{10}l_{10} = 140.209\ 412\ 443 = P S^{9/2}$ | $m_{10}/l_{10} = 3.379\ 367\ 949 = Q (\alpha\mu)^{9/2}$ |

$$\Delta = S^{1/2}$$

$$\Delta = (\alpha\mu)^{1/2}$$

COSMOLOGICAL TIME LEVELS

$$\begin{aligned}
m_0/m_p &= 19.114\,198\,500 = (S/\alpha\mu)^{1/2} \\
M = \sqrt{} &= 9.557\,099\,250 = (S/\alpha\mu)^{1/4} \\
\alpha\mu &= 1.127\,074\,115 \\
\sqrt{\alpha\mu} &= 0.563\,537\,057 \\
\hbar/c &= -37.453\,744\,633 \quad [\text{ML}] \\
t_0 &= -43.268\,161\,532 \text{ is the planck time} \\
m_0 &= -4.662\,403\,804 \text{ is the planck mass} \\
m_p &= -23,776\,602\,304 \text{ is the proton mass}
\end{aligned}$$

$$\begin{aligned}
r_e/l_0 &= 20.241\,272\,615 = (\alpha\mu S)^{1/2} \\
L = \sqrt{} &= 10.120\,636\,308 = (\alpha\mu S)^{1/4} \\
S &= 39.355\,471\,115 \\
\sqrt{S} &= 19.677\,735\,557 \\
c^2/G &= 28.128\,937\,025 \quad [\text{M/L}] \\
c^3/G &= 38.605\,757\,728 \\
l_0 &= -32.791\,340\,829 \text{ is the planck radius} \\
r_e &= -12.550\,068\,214 \text{ is the electron radius}
\end{aligned}$$

$$\begin{aligned}
&t = L/c \\
\Delta &= 10.120\,636\,308
\end{aligned}$$

$$\begin{aligned}
&T = GM/c^3 \\
\Delta &= 9.557\,099\,250
\end{aligned}$$

$$t_{-2} = -63.509\,434\,148$$

$$T_{-2} = -81.496\,558\,532$$

$$t_{-1} = -53.388\,797\,840$$

$$T_{-1} = -71.939\,459\,282$$

$$t_0 = -43.268\,161\,532 \quad P_L$$

$$T_0 = -43.268\,161\,532 \quad P_L$$

$$t_1 = -33.147\,525\,224$$

$$T_1 = -52.825\,360\,782$$

$$t_2 = -23.026\,888\,916 \quad B$$

$$T_2 = -62.382\,360\,032$$

$$t_3 = -12.906\,252\,608$$

$$T_3 = -33.711\,062\,282$$

$$t_4 = -2.785\,616\,300$$

$$T_4 = -24.153\,963\,032$$

$$t_5 = 7.335\,020\,008$$

$$T_5 = -14.596\,863\,782$$

$$t_6 = 17.455\,656\,316 \quad U \Rightarrow H_0 = 72\text{km/s/mpc}$$

$$T_6 = -5.039\,764\,532$$

$$t_7 = 27.576\,292\,624$$

$$T_7 = 4.517\,334\,718$$

$$t_1 - T_3 = (\alpha\mu)^{1/2}$$

$$T_8 = 14.074\,433\,968$$

$$t_2 - T_4 = (\alpha\mu)$$

$$t_3 - T_5 = (\alpha\mu)^{3/2}$$

$$T_9 = 23.631\,533\,218$$

$$t_4 - T_6 = (\alpha\mu)^2$$

September 27, 2008

Dear Betty,

I was distressed to learn of Shelley's death. I send you my condolences and heartfelt sympathy. It is shocking when one of our children dies before we do. That is not the proper order for events. And especially when on relatively short notice—three weeks of illness. But this reversed order of death has become much too common with so many sons and daughters being sacrificed on the altar of Ares. I can empathize not only with you, but with Shelley. I too have been diagnosed with cancer and have been decaying for several months. It is difficult to lose capacities and be in pain. Certainly "old age ain't for sissies", nonetheless there are many compensations that do come with age.

Old age emancipates us. We are no longer prisoners of a transitory culture. As we age, the culture with all its appendages is like a boat disappearing into the distance. As it becomes smaller we begin to see the contexts that surround it, which are invisible to us while on the boat. We might say, we recapture that sense of childhood wonder with which we were born but lose after a few years as we are inculcated with the culture's "party line". This separation from culture and tradition is not alienation, it the perception of things with their rightful aspects and relationships.

T.S. Eliot said we old ones should explore. In our liberation from the culture, we can explore to find what exists that the culture overlooked or ignored.. And as we explore, we again perceive the beauty and diversity that abounds in the world and which extends far beyond the domains that are accessible to our sciences and religions. And when we possess semiotic vehicles (such as mythology or mathematics) we travel more easily to our encounter with the Great Mystery of which we are a part.

I know that you have many helpful companions who accompany you as you explore. (The gods, heros, and archetypes of Greek Myth). I also have some companions (The ultimate structures residing in Numbers) ["God created the integers" —Leopold Kronecker] Both myth and math provide us with powerful metaphors.

I do wish our dwellings were in closer proximity so we could frequently meet and share our findings and insights. But our exchange of notes assures us that we each have another companion in our exploration: Each Other.

Blessings and fond regards,

POIESIS
BETTY M. SMITH
3270 SUMAC RIDGE DRIVE
MALIBU, CA 90265

October 6, 2008

Dear Al,

Your letter of September 27th was welcome indeed, an extraordinary letter that I have treasured with each re-reading. Especially your statements on old age bring a needed perspective and are wise. Here are your words describing a certain change that age brings, words I find so valuable:

"This separation from culture and tradition is not alienation. It is the perception of things with their rightful aspects and relationships."
I wonder if this perception involves a seeking once again of the natural order of things, suggesting the Greek sense of the right measure. And, when you speak of mathematics and myth as great inner companions, here arises one of those illuminating glimpses of yours that over the years Myron and I have been enriched by. Now in the absence of Myron and Donna we are left to guard some of these insights, it seems, in a culture that grows more frivolously eclectic, seems to me. Or worse, there is everywhere the confident attempt to package and commodify truths much too profound and elusive for such handling. The question remains, how to relate to such truths then? The ancients appear to have bowed to them, poured out libations of their best wine, as they searched for ever new modalities for their expression – art, poetry, ritual, song.....

Such a long friendship as ours gladdens my heart, to be sure. Yes, there is much to speak of and share in the broad pasture of our musings, I believe.

Although I speak of it last, your health concerns me very much, Al. I am so sorry to learn that you are struggling with cancer. Please let me know how you are doing. At the same time I realize that writing takes effort and I should not want you to over- spend your energies. If there is something I can do, pass the word along, though.

I am enclosing some thoughts of mine on hope versus optimism.

*With fond regards,
Betty*

Within the human condition there are two modalities that have played significant roles. These are optimism and hope. A much larger difference lies between the two than often supposed. Persistent and energetic as it regards the reality situation, optimism perceives the favorable outcome, the most useful results, irrespective of the nature of the difficulties to be met. In submitting all manner of territory to its bright outlook, it proves confident and well supplied with ambition, for it does not hesitate to whittle and re-shape the facts in producing the bright outlook. As a modality of thought and attitude, optimism is undeniably temperamental, freely rejecting what does not fit harmoniously with its outlook. At all cost it would preserve the feeling of being on top of things. Viewed at close range the optimist proves to be a sturdy, energetic fellow. He may be jolly as well. On the whole, one cannot dislike the company of the optimist. He brings us a sense of relief and some comfort, surely.

Hope, on the other hand, appears to arise from a deeper level in the human psyche than optimism does. It is not involved with the sizing up, organizing, and re-packaging of data in the way that optimism is. While optimism wears the smiling mask of enthusiastic confidence, hope seems to be more thoughtful of countenance. It is also more fragile, for it waits on the spirit of the individual for its embodiment. Hope arises out of the dark context, often one of desperation, yet it distinguishes itself by bearing a torch. One must bear in mind that a torch is a slender light, revealing an immediate narrow trail and stands in contrast to declarations that can flood the streets with dazzling light. One who bears hope is keenly aware of the dark aspect of reality and has the face of a realist, for it is the realist who acknowledges the dual nature of human life. Hope has no complicated plan or strategy, I think. It is simple. It has in it the pulsing animal sense that affirms life. And, always it exists in present time, never being merely an asset on hold. In the presence of hope, time expands as it takes on the vital text. Without hope surely one is not fully human.

Although hope is fragile, it actually possesses a solid floor of support. Is there evidence of such a floor? In the *Odyssey* of Homer it is his wife Penelope who awaits over the years the return home of Odysseus from the Trojan War. There is possibly no more convincing portrayal of hope than the action of Penelope weaving at her loom. To suggest that she is an optimist, that she believes Odysseus to be alive and will surely come safely home, is far from the case. Nevertheless, she has hope. In what she does the reader witnesses the mystifying narrative of hope. Seated at the loom and addressing it, there is very little *presentation* either of the weaver or of her work. In our era presentation to the world and others would seem to be the primary proof of what one is and does. As for hope itself, it is at best a hidden tapestry, surely. As the familiar and unbroken thread passes through Penelope's fingers to take shape on the loom, the crucial form is in the making – a funeral robe in the epic tale. Yet, it never reaches conclusion. Continuity appears to be its intrinsic, undying nature. Such is the nature of hope itself. It would seem that hope never reaches finality. Instead, its luminous image haunts and summons us to its enduring engagement, suggesting that hope is the unending song of life. And yet it is more. Hope is the unending life briefly illuminated by what sings in us!



ONE DAY IN THE NEWS: December 22, 2008

HARARE, ZIMBABWE-

President Robert G. Mugabe said Friday that "Zimbabwe is mine". And vowed never to surrender, saying no African nation is brave enough to topple him. "I will never, never, sell my country. I will never, never, never surrender" Mugabe told members of his ZANU-PF party at its annual convention. "Zimbabwe is mine, I am Zimbabwean. Zimbabwe for Zimbabweans." Mugabe questioned, "Which African country would have the courage to order a military intervention?"

Opposition leader Morgan Tsvangirai beat Mugabe in March presidential elections at which his party also ended the 28 year domination of Parliament by Mugabe's party. But "official results" said that Tsvangirai did not win outright, and he withdrew from a runoff in the face of state sponsored violence.

CHICAGO-

An unwavering Governor Rod Blagojevich served notice Friday that he has no intention of quitting over his corruption arrest, declaring with an almost Churchillian flourish: "I will fight. I will fight, . I will fight until I take my last breath. I have done nothing wrong." I am not going to quit a job the people hired me to do because of false accusation and a political lynch mob. The wiretaps leading to my arrest were illegal.

WASHINGTON-

Vice President Dick Cheney vigorously defended the White House's use of broad executive powers during the last eight years. Cheney said the Commander in Chief was justified in expanding executive authority across a broad range of policy, including the war in Iraq, treatment of suspected terrorists, and domestic wiretapping "The president doesn't have to check with anybody-not Congress, not the courts-before launching a nuclear attack to defend the nation because of the nature of the world we live in." since the terrorist strike of Sept 11, 2001.

Lord Acton was right, but power not only corrupts, it leads to insanity. In the mind of the holder of power facts are replaced with a view of reality designed by what ego wants to believe. Few who seek power are immune to power's power over them. Whatever the form of government, the ancient wisdom of Confucius, "Those who desire political power should automatically be disqualified from holding it." has yet to soak into human consciousness.

But even more might be involved: Power is a **quasi-life form**, having a will of its own. Thus will to power is not the will of the "holder" of power, but is the will of power itself for its augmentation, whatever the costs.

Final Copy to Discover

It is correct to label Fritz Zwicky "THE FATHER OF DARK MATTER", as Richard Panek has done, but 'Father Zwicky' had many other important progeny, and several he felt to be far more significant than dark matter. Zwicky's contributions, as listed, included identification and discovery of supernovae, new types of propulsion and jet engines, a catalogue of galaxy clusters, etc. etc; but he felt his primary contribution to science and the future was a new way of thinking which he called morphological analysis. Zwicky said that in the past we have always sought one solution for each problem. He felt this was not open ended. Instead we must look for, not one, but for all possible solutions to each problem. Not for a theory of everything, but for every theory of anything. And morphological analysis is a tool for finding alternative solutions, answers, and even questions.

Zwicky held that the time for another cognitive revolution, such as the replacement of Aristotle's Organon, with Bacon's Novum Organum, was overdue. He felt his morphological approach was a first step in the next cognitive revolution. Panek equates morphology to Goethe's ideas for scientific enquiry. While Goethe and Zwicky shared a strong distaste for scientific and academic group-think, their approaches were entirely different. Goethe's pre-darwin ideas were not the ancestor of Zwicky's morphological analysis as implied.

I worked with Zwicky for many years in the 40's and 50's assisting in several of his projects: the search for supernovae; the first attempt to put an object into orbit. December 1946, ten years before Sputnik; collecting and shipping books to universities in countries whose libraries had been destroyed in the war; organizing an international symposium on "New Methods of Thought and Procedure"; and more. In all this time I never saw Zwicky as abrasive or strident, but rather as colorful and dramatic. For example, the hyperbole, "Spherical bastard", was not directed toward individuals per se, but collectively toward the members of a closed group-think society.

But it is always easier for us to describe the messenger than to decode the message, and only after several decades are we beginning to decode Zwicky's message. Some are calling it "Thinking out of the box"

~~FZ~~WICKY4.WAD 08-12-15

TO DISCOVER

2008