exclusion & affinity in Physics

contents

i. the atom's brisance is defensive, perhaps

> There was also concern at the way physicists learned about elementary matter—by colliding particles together in a particularly violent way. We are also communicating with nature, the Elders explained, and entering into alliance with her energies.[1]

at Cavendish Lab, Rutherford *attacks* the atom and the posited Unity breaks into confounding dualities: particle/ wave, local / spread, amenable to math / *itself* a Dirac number array.

[1] F. David Peat, **Infinite Potential: The Life and Times of David Bohm** [Helix Books, 1997] p 315

the atom's brisance in the 1920s was *defensive*, possibly: to confound our ballistic intrusions.

our Mutually Assured Destruction is the *atom's own* bombing of the ape who'd dissect it for weapons.

at Berkeley Radiation Lab, Bohm is kept busy probing plasmas "for Oppenheimer" that

> began to take on, for him, the qualities of living beings. When physicists studied a plasma by introducing an electrical probe, it would generate a charged sheath around the probe and neutralize its effects. It was as if the plasma were protecting itself and preserving its internal status.[2]

[2] Peat, p 66.

the 20th Century atom is **Solaris**, an impenetrable Intelligence:

> The first attempts at contact were by means of specially designed electronic apparatus. The ocean itself took an active part in these operations by remodelling the instruments . . . . It modified certain elements in the submerged instruments, as a result of which the normal discharge frequency was completely disrupted and the recording instruments registered a profusion of signals—fragmentary indications of some outlandish activity, which in fact defeated all attempts at analysis.[3]

[3] Stanislaw Lem, **Solaris**, 1961 [1987 Harvest edition] p 21

ii. particle & Physicist iterate the other

the Cold War imposed a Pauli Principle on global Physics. the Soviets kept to their own journals & symposia.

the Cold War made them obdurate fermions, exclusional.

yet knowledge is affinitive, light-like.

> When you put a photon into a certain quantum state, you make it more likely that another photon will find its way to the same state.[4]

[4] Lee Smolin, **The Trouble with Physics** [Houghton Mifflin, 2006] p 68

knowledge is affinitive, so Supersymmetry was posited twice, by

Likhtman & Golfand [1971] / Volkov & Aklov [1972]

who made it more likely that

Wess & Zumino [1973]

would posit it in the West.

particle & Physicist iterate the other. by Pauli's principle, at most two fermions can hold the same orbital. likewise the stats that describe any system bound by this principle were found independently by Fermi, Dirac, & Pascual Jordan, yet called the **Fermi-Dirac statistics**.

this principle implies those orbital-sharing fermions must have opposite spin, to truly be *two*. likewise:

> Although Dirac's paper was very **different in approach** to Fermi's, their predictions for energies of groups of electrons were **identical**.[5] [emphasis mine]

[5] Graham Farmelo, **The Strangest Man: The Hidden Life of Paul Dirac, Mystic of the Atom** [Basic Books, 2009] p 105

fermion, **Higgsino**, **boson**: the particle & person unite, in the naming. describing the quanta, we imply, a level up, their investigator.

> In the Christmas vacation of 1925, during an illicit weekend with a girlfriend in the Swiss mountains, Schrödinger discovered an equation that described the behaviour of quanta of matter in terms of their associated waves, and then applied the theory in a series of dazzling papers.[6]
>
> The great virtue of Schrödinger's theory was that it was easy to use . . . . Better still, in Schrödinger's theory, the atom could be, at least to some extent, visualized.[7]

Heisenberg to Pauli, June 1926: "The more I reflect on the physical portion of Schrödinger's theory, the more disgusting I find it."[8]

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[6] Farmelo, p 99-100
[7] Farmelo, p 100
[8] cited in Farmelo, p 100

preon: proposed component of all Standard Model particles. the proper atom.

a **pauli**, i propose, is smaller: the particle excluded, always peripheral. glimpsed in the math as we erase it.

iii. Bohm was like the wave function

As he spoke, he would spread out and "delocalize" over a vast range of subjects, yet at some point his mind would seize on a particular point and, like the wave function, collapse inward and bring great intensity and clarity to a specific issue.[9]

Later, when he met and talked with Einstein, he learned that he too experienced subtle, internal muscular sensations that appeared to lie much deeper than ordinary rational and discursive thought[10]

[9] paraphrase of Roger Penrose. in Peat, p 294
[10] Peat, p 36

Jung to Pauli: look into an atom and you'll see yourself:

> It was inevitable that the systematic investigation of the unknown center of the atom . . . would show that the essence of the observing process will be perceptible in the disturbance caused by the actual observation. To put it more simply, if you look long enough into a dark hole, then you perceive what is looking in.[11]

[11] **Atom and Archetype: The Pauli/Jung Letters, 1932-1958**. ed C.A. Meier [Princeton University Press, 2001]

instead of re-googling the **Tesseract gif**, i press into a point, into the heart of my heart; then spring into a line along my spine, which i *flatten*, which i spread my membrane wings from; then membrane into Man, curled into The Thinker on the can, where i am.

i'll try now expanding to a fuller four dimensions and i don't mean Time, i mean an outward exuberance proportional with the prior: a growth that shall surprise me though implied by its prior, as 2D is implied by Line, & Cube inferred from Square.

iv. the quest for Quantum Gravity, for Unity

in String Theory[12] :

- electromagnetism & the nuclear forces are the vibration of open strings
- gravity is the vibration of closed strings
- a field is its lines
- all forces & particles reduce to "the vibration of strings stretched in spacetime, following the simplest possible law: that the area is minimized."

[12] Smolin, p 112-113

a universe simpler than a Sphere: the latter being **that 3D shape that minimizes *surface* area**.

Science could reduce to a single **non-arbitrary** principle. the cosmogenic maxim to **Minimize area** is sensible, if not necessary: like an engineer's Efficiency dictum, a painter's judicious use of canvas.

the ideal Law would resemble us, be Mind-like - would otherwise be a brute Fact we'd *displaced* all mystery onto.

the ideal Law would be familiar.

would a final Law make surprising predictions? *could* it? wouldn't it unify [deeply explain] existent theories that themselves cover everything?

v. action is action at a distance

he calls it absurd, yet Newton *solves* action at a distance: "That gravity should be innate inherent & essential to matter"[13]

[13] Newton to Richard Bentley

action *is* **action at a distance**. the distance is 0, for adjacents.

with **distance per se**, Force inversely varies.

space *is* the diminishment of Unity, the dilution of force and effect.

a medium to "transmit", a continuum of adjacents, is gratuitous.

if monism is true, if things tend to Unity, then gravity *would* be inherent to matter. spatial extension tricks it apart.

by **distance per se**, matter's coherence [the "Force"] would weaken.

vi. think a simple Fractal

think a simple Fractal, whose branch repeats the tree with *one* difference: size.[14]

[14] Geoffrey West, **the Waking Up Podcast**. July 14 2017

size is a difference, a *big* one: yet one we assimilate *with* **similarity**: "the branch *repeats* the tree", we say.

allow, now, the branches' **internal proportions** to alter on in-zoom.

the branch, still, repeats the tree, but with *two* kinds of difference: size & proportion.

yet these two reduce to the same: a change in **proportion** *is* a complex **size** change.

by tricks we've missed, by jumps in the Math by a future savant, any two things may be proven continuous, any two forms **homeomorphic**.

vii. the world is flat

the world is flat: the Earth-Sun system forms a plane.

the world is flat, the shape of cosmic space.

the world is flat: a stage we're on, an interface screen, or book-page.

viii. Sun is at the center

light is at the center, after Einstein. worship of the Sun was a first approximation, a local obeisance to light itself, that all space-time is relative to.

C is at the center of our calculations, is that which *our measurements* bend around.

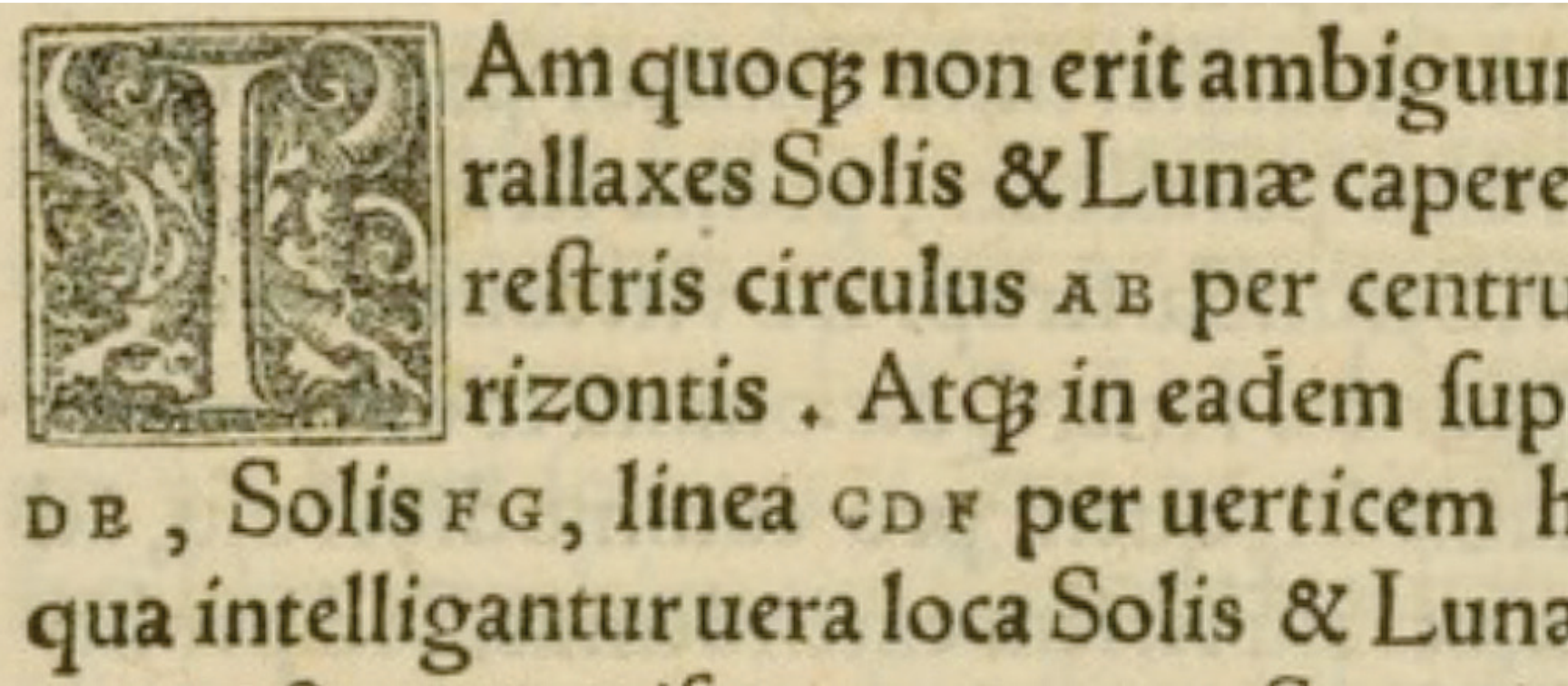
he should have called his Theory **Invariance**, he lamented.

he could have called it **Absolute Light**, his 1905 paper.

if C is invariant, why not say it's at rest?

Einstein amplifies common sense, justifies what we groundlings long have done, worship the Sun.

did sun retain a pagan aura for Copernicus? are **sun** and **moon** a wise translation of **Sol & Luna**, his capitalized Latin?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