

THINKING LIKE A PARTICLE

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A compliment made by my superior in a performance review was “He thinks like a molecule of Mercury. I was designing and developing a closed Rankine Cycle power generation system for a satellite. The working fluid was Mercury and the environment was a zero gravity orbit. The power output was delivered by a turbine powered generator. The waste heat was rejected to space. Boiling, super-heating, condensing, collecting and pumping Mercury at zero G’s was a aero/thermodynamic challenge. Everything was hidden in completely sealed stainless steel components and plumbing. For example: boiling Mercury forms liquid droplets in vapor instead of vapor droplets in liquid. Wetting agents were added to enable the required heat transfer in the boiler. Magnetic detectable floats were used to define Mercury state and distribution. The objective was to convert heat from a reactor or isotope heat source into electrical power. Sodium, Potassium, Rubidium, Sulphur and NaK were all considered as working fluids for similar power generation systems. There was no choice but to think like a particle.

How do you think like a particle? You must first recognize that a particle is a coherent mass increment occupying a specific position and its action is exerted in the direction of where it was to where it is. All matter is made up of particles. The states of matter are the manifestations of particulate cohesion. Solids are formed from particles having sufficient contiguity to maintain their shape without material containment. What maintains this contiguity? Crystals and ceramics include the hardest solids. Their harness seems to be inconsistent with their brittleness. A crystal is formed by stacking molecules in their most contiguous arrangement. Its external shape is determined by the best fit of these particles and therefore determined by the shape of these particles. The formation of rock candy in a supersaturated sugar solution illustrates the evolutionary formation process. String inserted in the solution interferes with and focuses the chaotic action of the solution molecules. The larger molecules of sugar are concentrated around the string by the impulse of the faster moving water molecules. When the molecules join in their best fit position they are no longer penetrated by the water molecules and crystal formation begins. The process continues until the saturation level is restored. Crystals are brittle because the stacked molecules form internal parallel surfaces subject to cleavage. These parallel surfaces are the channels for light that produce clarity. The resonant frequency of the crystalline interstices determines the color of the crystal.

Crystal formation clarifies the mechanics of cohesion. The process occurs over a significant time interval. The particles are assembled by solvent impulse to a position where they are impervious to the impulse of dissociating solvent particles. They remain in position when removed from the solvent because they are also impervious to atmospheric molecules. The external impulse of these molecules exerts the confining force. Gluing together objects utilizes an impervious adhesive to preclude atmospheric molecule penetration. Gross masses are bonded by external

molecular impulse when impervious to molecular penetration. Crushing solids enables permeation which nullifies cohesion.

Liquid matter is a state where constituent particles are separated sufficiently to move relative to each other but not enough to be permeated by atmospheric molecules. Hence liquids conform to solid containment. Liquefaction of solids is a function of temperature at a given molecular pressure. Temperature particles must permeate atomic and molecular solids to produce the pressure which produces expansion. There is no other rational explanation consistent with macrocosmic physical mechanics. Temperature must be the pressure of an overtly undetectable fluid made up of infinitesimal mass particles. These particles must act on molecules in the same manner that atmospheric particles act on larger slower moving atoms and molecules.

The temperature particles must also act on electrons. Electrons have unique properties. They permeate atomic and molecular structures and adhere to their surfaces. The pressure they exert is inversely proportional to the surface area they occupy. Although electron confinement to surfaces has been attributed to attraction, this is not consistent with their behavior. If electrons repel each other, why are electrons discharged as a lightning bolt instead of a diffusing flash? Why does a lightning bolt displace light but travel slower than the local speed of light? The logical answer is that electrons have to great a mass to travel at light velocity and they are confined to surfaces by the impulse of temperature particles. Only temperature particles can be transmitted at the local speed of light. This is simply the extrapolation of molecular behavior to the electron. It is consistent with Maxwell's equations which treat electron pressure as being normal to magnetic flux. It raises the question of what is magnetic flux? Magnetic flux must be the flow of temperature particles. This is consistent with the heat generated by solar electromagnetic radiation. Electromagnetic radiant energy is delivered by the photon which must be the temperature particle. Electrical energy is exerted by electrons but is transmitted electron to electron by photons. The displacement of photons by electron pressure forms the magnetic field surrounding the conductor. The surface confinement of electrons produces the high spin energy component which accounts for magnetic field behavior. Particle energy transfer is inversely proportional to projectile to target mass ratio. This mass difference defines the relation of molecular particle to electron energy. The electron energy acting on atmospheric molecules produces the sonic boom of thunder.

How can temperature particles produce the irresistible forces of molecular thermal expansion and electron pressure? In our overt environment we tend to link force to physical size. This is because our environment essentially operates at relatively low velocities. Force at a given velocity is proportional to mass. However, force of a given mass is proportional to velocity squared. Sonic velocity in overt solid matter is proportional to hardness which is proportional to molecular expansion. The highest Sonic velocity is transmitted in crystals. The sonic velocity in glass is less than 20,000 ft./sec. This is about 13,000 mph. The increase in sonic velocity with hardness has been considered to preclude the presence of an aetherial medium. The increase in sonic velocity with hardness results from the reduction of molecular spacing with solidity. It is a molecular phenomenon. Electromagnetic energy is interfered with by molecules but its transmission velocity remains mainly unchanged at local isobaric conditions. Molecular energy is momentum times mass. Electromagnetic radiation produces

electron pressure. Electron pressure produces molecular pressure. Pressure is produced by particle impulse. Expansion results from contained fluid impulse. Energy is transferred by velocity transfer in proportion to impulse. The reaction of all accepted material particles and masses to temperature can only logically be explained as the impulse of infinitesimal mass high velocity fluid particles capable of permeating all masses larger than an electron. The electron must resist permeation which would account for its high reflectivity. How well does this logic correlate with the behavioral data?

Infinitesimal high energy particles would transfer very little energy to overtly sensible masses. Most of their energy would be reflected. Vision detects both emitted and reflected light. The illumination of reflection confirms the minute energy transfer of a single photon, while the magnitude of thermal expansion confirms the presence of an effectively infinite photon population. The penetration of electromagnetic radiation is proportional to frequency. Penetration is proportional to particle energy. The energy of particles in a homogenous fluid is proportional to velocity. What is the relation between frequency and particle velocity? Frequency is the number of events per unit time. In a fluid, frequency is the number of collisions per unit time. Frequency is inversely proportional to mean free path of the fluid particles. The mean free path is inversely proportional to particle velocity. Therefore, frequency is proportional to velocity. In a homogenous fluid of spherical particles frequency is also proportional to particulate to surface area times particulate density. How does all of this relate to light and vision?

Vision is enabled by the directional transmission of photon energy. Equilibrium is maintained in a fluid by the directional transmission of the energy of each particle. Directional impetus is attenuated but direction of emission is conserved. Elastic displacement and restoration of the transmitting medium reenacts the particle emission direction and velocity from the media collision products. Although there is no way to keep track of all of the variables involved, a conceptual picture is produced by the matrix of average particulate collisions. Consider the individual particle directional velocity as a vector in the propagation direction and the media target particle at rest. The average elastic collision transpires at the center of the target particle cross-sectional area. The elastic collision products diverge at an angle of 45 degrees relative to the emission direction. Each collision product has half the emitted particle energy. Simplifying the matrix to a plane and equally spacing like emitted particles along an ordinate generates a polarized matrix of events. The velocity of the collision products is emission velocity divided by the square root of 2. The mean free path is increased by the square root of 2. However, the number of particles moving in the direction of propagation is doubled within the wave which doubles collision frequency of the slower moving collision products. Therefore, the mean free path is reduced by the square root of 2. The average collision of the products of the initial collision in the plane of polarization restores emission velocity to one particle and leaves the other particle at rest. The propagation intensity is reduced in accordance with square law at the wave boundaries by the absence of emission restoring impulse. The number of cycles per unit distance in the polarization plane is proportional to emission velocity. The number of emitted particles per unit frontal area is intensity which is proportional to frequency squared. This tedious sequence of simple events only depicts the average product of an

infinite number of scenarios which preserve fluid equilibrium. The elastic medium resonates at the frequency established by emission velocity.

What are the consequences of accepting the particulate viewpoint? Is that viewpoint compatible with the accepted data? It provides a logical explanation for the geometry of the universe from the infinitesimal to the infinite. It accounts for the spherical confinement and cohesion of particulate masses by the impulse of the particulate fields that surround them. It explains the source and distribution of energy and the understanding of how energy can be utilized. The secret is velocity per unit mass coupled with the understanding that all mass is a particulate multiplicity. In a particulate (digital) universe which maintains mass concentrations in a state of equilibrium energy (action) must be transmitted from the fast to the slow particulate concentrations. Mass concentrations are therefore also concentrations of energy. The variables are simply mass and velocity. Work is the output of the equilibrium restoration process. Mass concentrations radiate the energy they receive to maintain stability. All work generating cycles act to restore equilibrium. The useful work they produce is proportional to the change in temperature minus the unutilized energy loss which defines cycle efficiency. The only consequence of thinking like a particle is the restoration of conceivable causality to science. This restoration provides the reality necessary to conceive how the components of the universe are formed and why they behave as they do.

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Enclosed are the 2 essays mentioned in my Email of December 4th. Although they both are the same old song, I've tried to emphasize the supporting empirical data as well as the requisite philosophical logic. I thought the "SEEING is BELIEVING" essay would elicit some response. I've received no comments. It is somewhat depressing to be a voice in the wilderness when you are trying to plant the seeds of enlightenment. I read the work of other contributors, but am turned off by the logical gaps in their reasoning where unsubstantiated authoritarian premises are cited. The trend of all massive entities to form radial components and spherical shapes is indisputable. For the structure of the universe to exist and persist, its components must be contained and confined by spatial fluid fields. The earth or any other orbiting entity is like a balloon following a course where a stable energy balance maintains its position. Electromagnetic solar pressure on the surface defines its orbital radius and the suns spatial field gradient coupled with its inertia maintains its orbital velocity. The impetus of a field is radially inward. The velocity of field forming particles must therefore increase in logarithmic proportion too altitude to maintain the confinement of the field. Conventional gravitation proportional to mass would form a field where pressure at a given altitude would increase when atmospheric temperature decreases. The isobaric distribution of pressure at altitude conflicts with the concept of gravitation as a function of mass. This is proven by the fact that gravitational pressure does not increase at night. Q.E.D. Assuming that electromagnetic radiation has a universally constant velocity is the fly ball that ends the game of science as accepted by the prevalent scientific community. RAK