AN ANALYSIS of REALITY

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Time is a sequence of relevant events which forms the path from the past to the present an leads to the future. Retracing the documented data which formed the temporal path allows us to consider the validity of our present position relative to our future goals. Reality is enforced by the material substance we encounter and determines the events which form the path we have taken.

Science is based on the quantitation of the reality of substance which ranges from the infinitesimal to the infinite. Our scientific pathway has been built on local substance.   Substance is matter. Matter can be broken down into infinitesimal elements which exceed the capability of overtly discernible measurement.   The limits of direct measurement are surmounted by the application of logical induction. The mandatory requisite for induction is that every effect has a cause consistent with an overtly developed baseline of physical mechanics.

Reality is achieved through conceptual understanding of the mechanics that account for the behavior and distribution of discernible substance.   The Alchemists led the way with their breakdown of matter into earth, water, air and fire. Although they lacked the data and tools to refine their concept, it provided a fundamental basis for quantitating material substance.   It recognized the three phases of matter and energy. Earth, water, air were the effects and fire was the cause.   The subsequently developed and refined version of the Alchemist Concept is the Periodic Table of Elements.

The Periodic Table quantitates overtly immeasurable matter increments.   Avagadro's Number establishes that all matter has the same number of infinitesimal mass units at Standard Conditions. A specific contained volume of all gaseous masses exerts the same pressure at a given temperature. Temperature is the pressure of Heat. All matter expands when heat is applied. The behavior can only be explained by the extrapolation of compressible fluid pressure to a fluid made up of infinitesimal particles capable of permeating material objects and exerting internal pressure on their composite mass increments. Pressure exerted by the impulse of infinitesimal temperature particles is the source of energy.

Einstein's energy Equation defines the relation of temperature particle mass to atomic and molecular mass units. Energy is the rate of change of momentum. Since momentum is velocity times mass, Einstein's energy can only be transmitted by impulse which transfers momentum. The transfer is directional from a higher velocity projectile mass to a lower velocity target mass. Fluid particle interaction momentum transfer magnitude varies with the point of contact relative to the center of gravity of the colliding particles. Assuming a homogenous fluid of spherical particles, the average interaction transfers ½ of the energy (kinetic energy) to the target particle. The average velocity of particles within a fluid medium at equilibrium conditions is zero. In a average interaction, projectile and target particles diverge at an angle of 45 degrees to the direction of the projectile motion. In a wave the average interaction between diverging particles restores emission energy to one particle and leaves the other particle at rest.   Wave energy transmission direction and magnitude are conserved within a medium although total emission energy is diffused in accordance with square law. Average interaction particle vectors in a cross-section plane form a matrix which correlates with the behavior of a polarized wave.

The organization of atoms and molecules into objects requires the exertion of confinement pressure in excess of the pressure of the pressure exerted by internal heat.   The mechanics is

demonstrated on a molecular pressure level by the collection of objects whose adjacent interfaces are sealed off from atmospheric pressure. The objects cohere because molecular impulse is exerted on their exterior but not on their mating surfaces. This is the universal prerequisite for forming material structures. Material bonding does not require tensile strength of the substance forming the seal. All mass units mutually shield each other from the impulse of heat. Their bonding is proportional to the force exerted on internal surface area to externally exposed outside surface area times containment pressure which defines the tensile resistance of separation. No other logically discernible explanation can account for the mandatory equilibrium state to which we ascribe reality. Fantasy is defined as "The power or process of creating esp. unrealistic or improbable mental images in response to psychological need". Invisible attractive action at a distance forces with no other explanation are fantasy and provide no other excuse for reality.

Infinitesimal heat fluid particles must be smaller and have far less mass than the particles which form atomic structures, since these structures are permeated by heat. Since expansion of matter with temperature is universally present and uniform, nearly infinite numbers of heat particles must be present to maintain proportional uniformity. Momentum is conserved in particle impulse energy transfer interactions. Hence, impulse energy transfer is proportional to the ratio of projectile to target mass. Heat particles must therefore have very great velocities to transfer significant energy to more massive particles.

Heat is transmitted by electromagnetic radiation through non-inertial wave action. Sonic behavior provides a molecular model for wave action. All magnitudes of molecular energy are transmitted at the same velocity at a given temperature. Temperature is the reciprocal of the coefficient of volumetric molecular thermal expansion, Molecular energy magnitude is defined by frequency. Frequency is proportional to particle velocity which defines the number of of molecular impulses per unit time. The summation of impulse energy delivered per unit area is proportional to frequency squared. Boltzman's Equations show that, although collision frequency in a molecular medium varies in proportion to particle velocity, mean free path does not. This explains how different particle energy levels are transmitted at the same velocity. The resistance of media particles is relatively equal and opposite to the velocity of wave particles. We hear different molecular frequencies and view different visual frequencies simultaneously. There must. Therefore, be a light transmitting medium to explain the imagery transmitted by electromagnetic radiation. No other explanation can account for the simultaneous transmission of image component frequencies.

Planck's Law equates wave energy to frequency times h. hh has been assumed to be universally constant. Planck's Energy equals Einstein's Energy when h iterated as the kinetic energy of a heat particle. Frequency is the number of particle impulses per unit time which is equal to the number of particles which form Einstein's mass. Recognition of this equality reveals that h is the energy of a light transmitting particle at the local velocity of light.

The fluid structure of the fields that confine matter and oppose its diffusion confirm that h is only locally constant. Wave transmission velocity varies with the particulate density of heat particles in a field. Fields are formed by the interference of immersed mass with the random motion of spatial fluid particles. The accumulation of random moving particles is regenerative producing a continuous local accumulation of available mass. The pressure of heat producing particles is temperature. Therefore, the heat particle is the photon. The mechanics of concentration of solar radiation are clearly demonstrated by the effect of optical devises on light. The concentration of solar radiation at the focal point of a magnifying glass or a parabolic solar furnace demonstrates the concentration of the radiant heat particles. An object or mass

concentration immersed in a fluid focuses the chaotic impulse of the surrounding fluid particles on the immersed mass. The summation of external heat impulse is equal to the summation of internal heat impulse. The internal temperature is much greater because of the limited amount of unshielded internal surface area. The equilibrium state is preserved by the fields that surround immersed mass. Steady state stability is maintained throughout the field and within the immersed mass.

The kinematics of fluid action have not been fully recognized and its effect has been attributed to invisible and unexplained action at a distance attractive forces proportional to mass. Cohesive force is proportional to surface area divided by displacement which is proportional to diameter of a spherical immersed mass. A sphere contains the greatest volume per unit surface area and is, therefore, the optimum product of external fluid impulse. The failure to recognize the kinematics results from the general proportionality of mass to displacement. Apparent attraction is induced by the mutual shielding between masses immersed in a gaseous fluid field.

The role of displacement was confirmed by the Apollo Program which confirmed that moon gravity and density were far greater then the value calculated based on estimated earth's mass and the lunar orbit. Recognition and understanding of the mechanics eliminates all reasons for prolonging the belief in attraction forces. Attraction forces are apparitions which result from imbalance in absolute external pressure that results from mutual shielding. The imbalance magnitude is limited to the difference in absolute pressure. This is demonstrated on a molecular scale by the vacuum cleaner and the limited suction capability of fuel pumps. The limit is simply the difference between gauge and absolute pressure. The dimensions of Newton's Gravitational Equation are the dimensions of radiation shielding. This explains why the equation only applies to non-radiating masses and confirms the presence of a spatial photon medium. It is astounding that the rejection of a spatial fluid concept has been accepted on the basis of an invalid equation for radiation velocity change with source velocity. The Michelson-Morely Experiment should have been seeking the Doppler Frequency shift since light velocity at local conditions is constant and only frequency changes with source velocity.

In order for mass to consistently exist as a compound entity, it must be in a state of equilibrium. Atomic and molecular mass preserves the equilibrium state by the emission of spectral radiation pulses. These high frequency pulses form the spectral lines. The frequency shift of the pulse signatures with distance, results from attenuation in the transmitting photon fluid medium. The criterion for mass equilibrium is confirmed cosmically by planetary behavior. Earth receives its energy from the sun and preserves its equilibrium by rejection of lower frequencies to space. Changes in solar radiation or atmospheric conditions alter the energy rejection required. The energy rejection is greatest to the poles and forms the Aurora. The changes result in global temperature variations and volcanism. The greatest radiating rejection areas are the oceans whose temperature is maintained by submarine magma extrusion. Satellite power systems require an energy balance where surface energy produced must be rejected by radiation. The displacement of the sun mandates the high frequencies and intensity of its radiation. All masses, structures and material entities require a state of equilibrium to persist.

The preceding explanation of spatial fluid kinematics is confirmed by electrical behavior. An electron has an established mass. Its high reflectivity indicates that it is less penetrated by photons. It is less porous than protons, atoms and molecules as confirmed by the absence of a spectral signature. The energy transferred to an electron by a spatial fluid particle impulse is 10 to the 8th times the energy transferred to an atmospheric molecule. Hence, electrons are confined

to larger particle surfaces and interstices. This explains static electricity and the transverse exertion of electron pressure which is voltage.

Although electron pressure is transmitted at the speed of light, the electron is too massive to travel at that speed. The transmission of electrical energy at the local speed of light indicates that the transmission from electron to electron is produced by the compression of photon fluid. Photon fluid particles with high spin energy form a magnetic field. The high spin energy is induced by electron rotation resulting from surface confinement. The photons spin velocity is greatly increased by the ratio of electron circumference to photon circumference. The reaction of the surrounding photon medium forms vortices which confine them locally forming magnetic fields. Electrical heating is the summation of displaced low energy photons. A rolling electron displaces photon fluid. The compression at any time is proportional to the distance traveled. The resistance of the photon medium reduces the compressive impetus. Rate of travel is first reduced the reversed and the impelling electron comes to rest. A sign wave correlates with the periodic sequence of electron compressions and motion. The progression of energy from compression to compression correlates with a cosine wave. This sequence of action explains why it makes no difference which direction electron pressure is applied and it can be applied in alternating directions. It also explains why the effective AC voltage is the peak voltage divided by the square rout of 2 instead of the average voltage level. 0.707 times peak energy is the kinetic energy transmitted by an electron compression.